

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VEEAM SOFTWARE CORP.,
Petitioner,

v.

HYBIR INC.,
Patent Owner.

IPR2020-01037
Patent 8,051,043 B2

Before BART A. GERSTENBLITH, GARTH D. BAER, and
JOHN R. KENNY, *Administrative Patent Judges*.

KENNY, *Administrative Patent Judge*.

DECISION
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Veeam Software Corporation (“Petitioner”) filed a Petition to institute an *inter partes* review of claims 1–29 and 34 (the “challenged claims”) of U.S. Patent No. 8,051,043 B2¹ (Ex. 1001, the “’043 patent,” “challenged patent”) pursuant to 35 U.S.C. § 311 *et seq.* Paper 2 (“Pet.”). Hybir, Inc. (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). With our authorization, Petitioner filed a Reply to the Preliminary Response (Paper 9, “Prelim. Reply”), and Patent Owner filed a Sur-reply (Paper 11, “Prelim. Sur-reply”).

On December 4, 2020, we instituted *inter partes* review of all challenged claims. Paper 14 (“Institution Decision,” “Inst. Dec.”). Patent Owner filed a Patent Owner’s Response (Paper 21,² “PO Resp.”). Petitioner filed a Reply to Patent Owner’s Response (Paper 24, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 33,³ “Sur-reply”).

Pursuant to our request (Paper 29), the parties also filed papers regarding the ordinary and customary meaning of the term “inventory” as the term is used in the challenged claims. Petitioner filed its Initial Paper Regarding Ordinary and Customary Meaning of Inventory (Paper 35, “Pet.

¹ The application that issued as the ’043 patent was filed on May 4, 2007, and claims the benefit of a provisional application filed on May 5, 2006. Ex. 1001, codes (22) and (60).

² On the same day, Patent Owner filed two copies of its Patent Owner Response. Papers 19 and 21. Paper 21 appears to correct certain exhibit cites in Paper 19. Paper 19, iv; Paper 21; iv. To avoid any confusion, in this Decision, we refer to Paper 21 as the Patent Owner Response.

³ Patent Owner initially filed Paper 28 as its Sur-reply. Patent Owner subsequently sought and was given permission to file Paper 33 as its corrected Sur-reply. Paper 32.

Initial Paper”) and its Responsive Paper Regarding the Ordinary and Customary Meaning of Inventory (Paper 36, “Pet. Resp. Paper”). Patent Owner filed its Initial Paper Regarding Ordinary and Customary Meaning of Inventory (Paper 34, “PO Initial Paper”) and its Reply to Petitioner’s Initial Paper (Paper 37, “PO Resp. Paper”).⁴

At the parties’ request (Papers 26, 27), an oral hearing was held on September 23, 2021, a transcript of which is included in the record. Paper 38 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. For the reasons discussed below, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 1, 2, 5, 6, 8–15, 18, 19, 21–29, and 34 are unpatentable. Petitioner has not shown, by a preponderance of the evidence, that claims 3, 4, 7, 16, 17, and 20 are unpatentable.

A. Related Matters

The parties identify the following related, district court litigation: *Hybir, Inc. v. Veeam Software Corp.*, No. 1-20-cv-10329 (D. Mass.). Pet. 3; Paper 5, 2.

Regarding PTAB proceedings, in IPR2020-01038, Petitioner filed a petition challenging claims 30–40 of the ’043 patent. In IPR2020-01039 and IPR2020-01040, Petitioner filed petitions challenging related patents.

B. Challenged Patent

The ’043 patent “relates generally to computer data rights and data identity.” Ex. 1001, 1:6–11. The ’043 patent indicates that a common

⁴ The oral hearings for this proceeding and three related proceedings (IPR2020-01038, IPR2020-01039, and IPR2020-01040) were held together because many of the issues presented by the parties overlap. Paper 29 (Order Granting the Parties’ Requests for Oral Hearing), 1.

inefficiency of most prior art backup techniques is that they rely on taking an initial image or full backup of the entire contents of a computer system. *Id.* at 1:39–42. Another purported inefficiency is that many systems will maintain multiple copies of the same files. *Id.* at 2:1–3. An object of the '043 patent is “to provide a more efficient method and system for managing files, file rights, and file identity.” *Id.* at 2:12–14. Figure 1 of '043 patent is reproduced below:

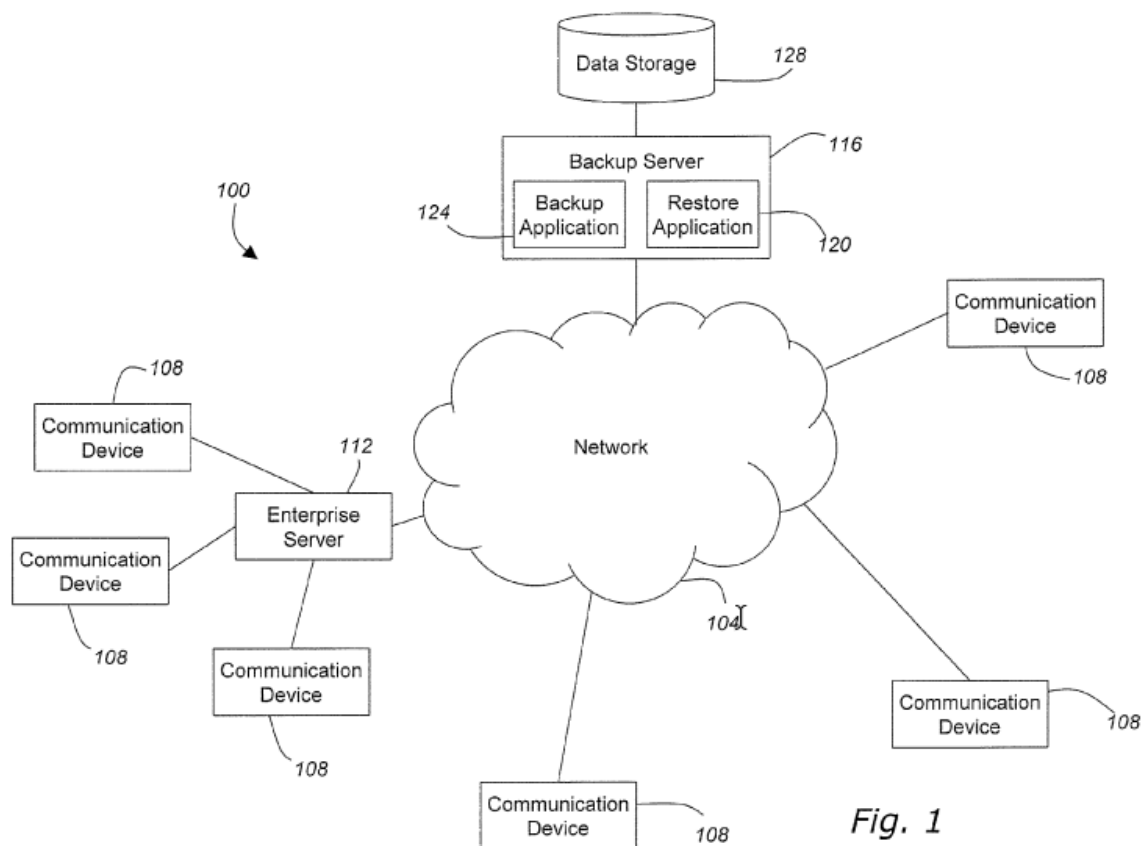


Figure 1 above is a block diagram depicting communication system 100, which includes network 104, one or more communication devices 108, enterprise server 112, backup server 116, and data storage 128. Ex. 1001, 3:48–50, 4:44–50. “[B]ackup server 116 is characterized by the ability to manage a file backup system for a group of users, each of which may be

associated with one or more communication devices 108.” *Id.* at 5:23–27. Further, in certain embodiments, “backup server 116 is provided with a backup application 124 to enable users to backup files from their respective communication devices 108 to either the backup server 116 or to the data storage 128.” *Id.* at 5:27–31.

Figure 2 of the ’043 patent is reproduced below:

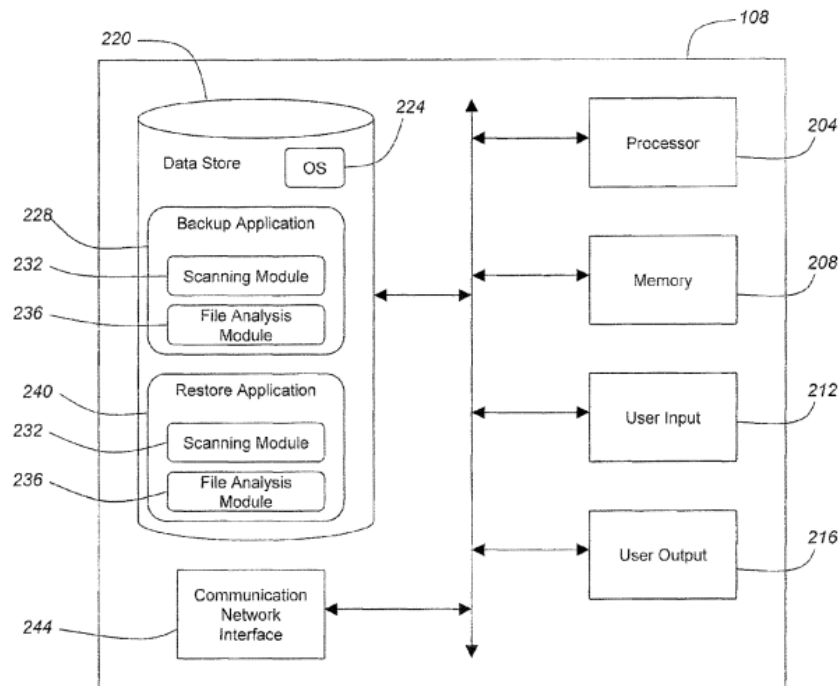


Fig. 2

Figure 2 above is a block diagram of communication device 108. Ex. 1001, 3:51–53. Communication device 108 includes data storage 220, which includes backup application 228 and restore application 240 “that provides functionality similar to the backup server 116 described in relation to FIG. 1.” *Id.* at 7:61–64. Backup application 228 can backup files from communication device 108 to a remote storage location, such as data storage 128. *Id.* at 7:64–8:1. “To facilitate coordination of a group based backup system,” backup application 228 includes scanning module 232 and file

analysis module 236. *Id.* at 8:1–3. Scanning module 232 “perform[s] an initial scan of local files to make a quick determination as to whether file data has been changed, updated, added, etc.” *Id.* at 8:4–9. File analysis module 236 “perform[s] a more in-depth analysis of files that the scanning module 232 has identified as possibly changed, updated, added, and so on.” *Id.* at 8:18–21.

Figure 3 of the '043 patent is reproduced below:

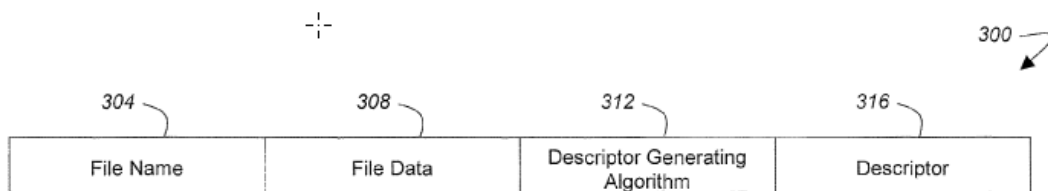


Fig. 3

Figure 3 above is a logical representation of data structure 300, which is used to manage files and data structures in a backup/restore operation. Ex. 1001, 3:54–56; 9:32–35. The data structure includes descriptor generating algorithm field 312 and descriptor field 316. *Id.* at 9:35–38. Each stored electronic file or portion of a file may have a descriptor associated with it. *Id.* at 10:23–24. Communication device 108 and backup server 116 can reference a common file by independently generating a descriptor for the file using an agreed upon descriptor generating algorithm. *Id.* at 10:28–30. The “descriptor may be a combination of file metadata (e.g., file storage location and other bibliographic information pertaining to the file) and cryptographic signature or signatures.” *Id.* at 2:37–39.

Figure 5 of the '043 patent is shown below:

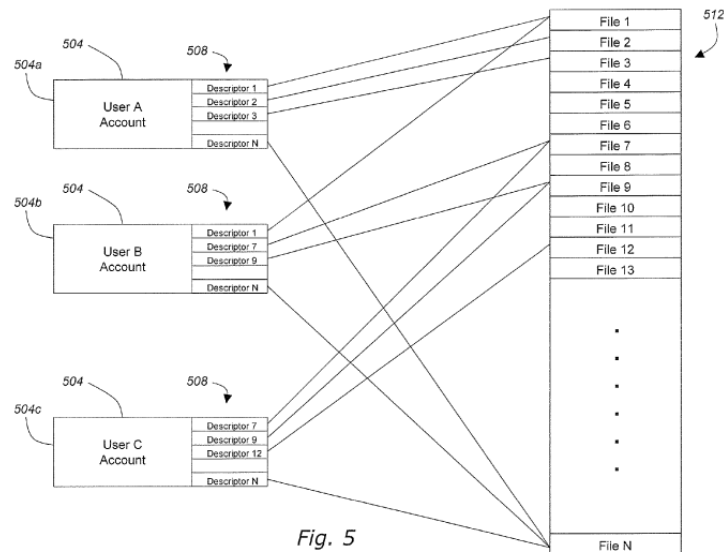


Figure 5 above shows a group-based backup data structure, which is typically maintained on backup server 116. Ex. 1001, 10:61–65. Backup server 116 may maintain inventories 504 for each user account. *Id.* at 10:66–11:1. Backup server 116 may maintain a list of backed up files 512 currently stored in the common data storage 128 and may reference the list of backed up files 512 through a descriptor mapping. *Id.* at 11:16–19. “In other words, the file data itself may be maintained on the data storage 128 and the backup server 116 may maintain its list of backed up files 512 as a list of descriptors.” *Id.* at 11:19–21.

Figure 6 of the '043 patent is reproduced below:

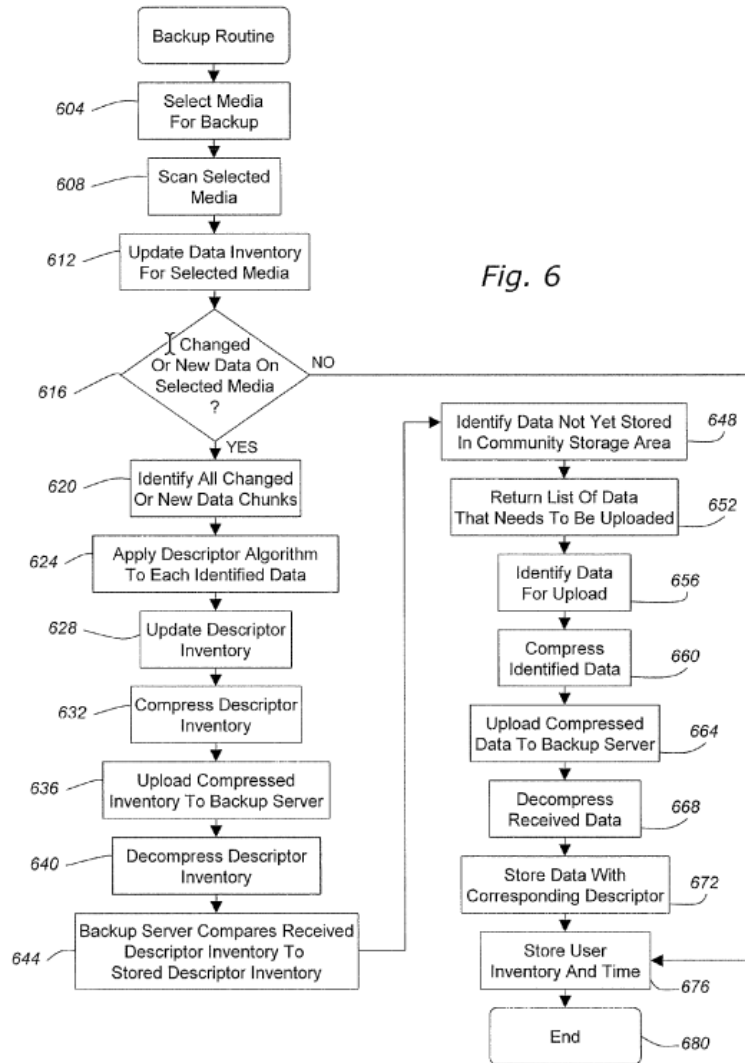


Figure 6 above depicts a backup routine. Ex. 1001, 3:62–64. In step 604, media is selected for backup at communication device 108 or at enterprise server 112. *Id.* at 12:12–15. In step 608, scanning module 232 scans the selected media, may create a snapshot identifying the electronic data (e.g., files) on the selected media and the time at which those files resided there, and may scan the metadata of the various files in the selected media to determine if any files have a changed timestamp that is more recent than the last backup. *Id.* at 12:23–35.

In step 612, scanning module 232 may update the file inventory for the selected media. Ex. 1001, 12:36–37. In step 616, scanning module 232 determines if there is any data on the selected media that have been changed or added and, in step 620, identifies the changed or new electronic data, and updates the inventory of files. *Id.* at 12:44–54. In step 624, “the backup application 228 employs the file analysis module 236 to apply the predetermined descriptor generating algorithm to each identified piece of data”—the algorithm is applied to “any file, portion of file, chunk of data, or data structure that has been identified as changed or new to create a new descriptor corresponding to that piece of data.” *Id.* at 12:55–63.

In step 628, file analysis module 236 updates the descriptor inventory locally and, following compression in step 632, the compressed inventory is transmitted across communication network 104 to backup server 116, in step 636. Ex. 1001, 12:64–67, 13:7–16. Backup server 116 decompresses the descriptor inventory and stores the inventory as part of the user’s inventory 504 in list of descriptors 508. *Id.* at 13:16–19. In step 644, backup server 116 uses backup application 124 to compare the received descriptor inventory to descriptors in the list of backed up files 512, “determin[ing] for each descriptor in the received descriptor inventory, whether the corresponding file, file portion, chunk of data, or data structure is already stored in the data storage 128.” *Id.* at 13:25–32. Backup application 124 generates a list of data portions (e.g., a list of files) that need to be uploaded because they are not currently on data storage 128 and that list, “usually in the form of descriptors,” is sent to communication device 108 in step 652. *Id.* at 13:32–37.

Communication device 108 receives the list of descriptors, identifies the corresponding data or files, and then compresses the identified data using backup application 228 in step 660. Ex. 1001, 13:38–44. The compressed data and corresponding descriptors are uploaded to backup server 116 in step 664. *Id.* at 13:49–51. The '043 patent explains that although additional processing is required to compare descriptors, “by performing this preliminary check . . . the amount of data transmitted may be greatly reduced if the backup server 116 has copies of most of the files,” thus reducing the amount of data required for transmission and thereby increasing the speed of a backup operation. *Id.* at 13:54–60.

Figure 7 of the '043 patent is reproduced below:

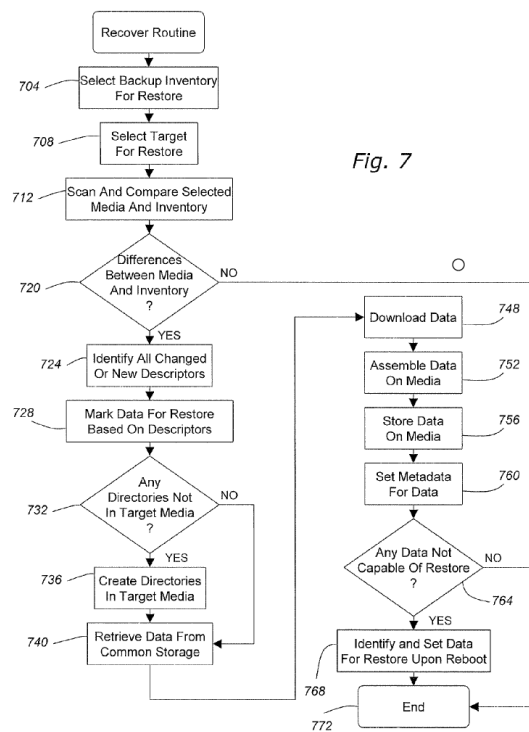


Figure 7 is a flow chart depicting aspects of a restore/recover routine. Ex. 1001, 3:65–67, 14:13–15. As the '043 patent explains, “[t]he recover routine begins with the selection of a backup inventory for the restore” in

step 704, where “a user essentially selects the point-in-time that they would like to have their communication device 108 restored back to” or is “automatically selected if there is only one backup for a particular communication device 108.” *Id.* at 14:20–26. In step 708, a user selects the target media (e.g., “a C: drive of a communication device 108 or a particular network drive associated with the enterprise server 112”) for the restore. *Id.* at 14:31–34.

In step 712, restore application 240 of communication device 108 scans the selected target media and compares the selected media with the inventory. Ex. 1001, 14:35–38. “[R]estore application 240 determines if there are any differences between the media and the inventory” in step 720. *Id.* at 14:51–53. The ’043 patent explains:

If any differences are detected, the method continues by identifying the changed electronic data and its corresponding descriptor from the inventory (step 724). More specifically, after the scanning and comparison step, electronic data that is identified as potentially different due to timestamp differences are analyzed to generate the descriptors. If the descriptor is different from the previous descriptor, then the former descriptor is added to the list of files to restore. This can eliminate the need to restore large amounts of data in certain scenarios. For instance, during a restore of a particular backup of a communication device 108 over another communication device 108 such a feature may be useful. However, most electronic data does not usually change since its previous backup and such data would be identified as unchanged if not by the scanning step, then by the comparison of the descriptors. The descriptors from the inventory represent the electronic data at the time the last backup occurred. Those files or electronic data that have changed since the identified point-in-time are then marked for restoration (step 728). More specifically, in accordance with certain embodiments of the present invention,

the descriptors corresponding to the electronic data are marked for restoration.

Id. at 14:57–15:11.

In step 732, restore application 240 determines if any directories in the inventory are not present in the target media and, if not present, restore application 240 creates those directories in the target media in step 736.

Ex. 1001, 15:12–17. In step 740, restore application 240 then requests that the backup server retrieve the electronic data, which may be performed by first checking locally to see if the most recent backup is on communication device 108 or some other local media, but, if it is not, restore application 240 provides the list of descriptors marked for restore to backup server 116. *Id.* at 15:22–28, 15:37–40. “[B]ackup server 116 utilizes the descriptor to file mapping to retrieve the requested electronic data from the data storage 128.”

Id. at 15:40–42. Backup server 116 is able to allow communication device 108 to access only the files and other data listed in the inventory associated with the device, thus securely maintaining files that the device never had. *Id.* at 15:42–48. “Accordingly, the descriptor in this step acts as a credential to the files or electronic data that were previously backed up from the communication device 108.” *Id.* at 15:48–51.

In step 748, backup server 116 downloads the electronic data to requesting communication device 108, and restore application 240 stores all of the electronic data on the target media in step 756. Ex. 1001, 15:52–59. In step 764, “[f]ollowing the reassembly and restoration of the target media[,] the restore application 240 determines if there are any files or other

electronic data not currently capable of a restore” and identifies and sets such files for a restore upon reboot. *Id.* at 16:5–14.

C. Challenged Claims

Petitioner challenges claims 1–29 and 34. Pet. 1. Claims 1, 15, and 25 are independent. Ex. 1001, 18:33–21:56. Claim 1 is reproduced below, with Petitioner’s bracketing added for reference:

1. A method for managing an electronic data backup system, comprising:

[1A.1] receiving, at a backup server, a first inventory of electronic data stored on a first remote storage medium, wherein the electronic data comprises actual file data to be backed-up from the first remote storage medium, [1A.2] wherein the first inventory comprises at least one descriptor and wherein the at least one descriptor comprises a cryptographic signature computed based on the actual file data, the cryptographic signature uniquely identifying the electronic data to be backed-up;

[1B.1] comparing, at the backup server, the at least one descriptor of the first inventory to a list of descriptors associated with a second inventory of electronic data stored on a backup data storage medium, [1B.2] wherein the second inventory of electronic data comprises shared electronic data from among a plurality of storage mediums including storage mediums different from the first remote storage medium and wherein the at least one descriptor of the first inventory is compared with descriptors in the second inventory that correspond, at least partially, to data stored on the backup data storage medium by storage mediums different from the first remote storage medium;

[1C] determining that a first descriptor from the at least one descriptor of the first inventory substantially matches a second descriptor from the list of descriptors associated with the second inventory; and

[1D] reporting, from the backup server, to the first remote storage medium that electronic data associated with the first descriptor is already stored in the backup data storage medium.

Id. at 18:33–64; Pet. 78–79.

D. Asserted Challenge to Patentability and Prior Art

Petitioner challenges claims 1–29 and 34 based on the ground in the table below.

Claims Challenged	35 U.S.C. § ⁵	References
1–29, 34	103(a)	Field, ⁶ Anderson ⁷

Pet. 12.

Petitioner relies on the Declaration of Dr. Prashant Shenoy, Ph.D. (Ex. 1002) and the Declaration of Dr. Prashant Shenoy, Ph.D in Support of Petitioner’s Reply to Patent Owner’s Response (Ex. 1024). Patent Owner relies on the Declaration of Dr. Jon Weissman, Ph.D. in Support of Patent Owner’s Response (Ex. 2008).

E. Level of Skill in the Art

To determine the level of an ordinarily skilled artisan, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (quotation omitted).

⁵ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. Because the ’043 patent has an effective filing date before March 16, 2013, we apply the pre-AIA versions of the statutory bases for unpatentability.

⁶ US 2006/0212439 A1, published Sep. 21, 2006 (Ex. 1004).

⁷ US 2005/0114614 A1, published May 26, 2005 (Ex. 1005).

Petitioner, citing Dr. Shenoy’s testimony, proposes that an ordinarily skilled artisan at the time of the invention would have had “a B.S. degree in Computer Science, Computer Engineering, Electrical Engineering, or an equivalent field, as well as at least 3–5 years of academic or industry experience in the fields of data backup, data restore, data replication, and/or data synchronization.” Pet. 9 (citing Ex. 1002 ¶¶ 20–21).

As we noted in the Institution Decision, Patent Owner’s Preliminary Response proposed a level of ordinary skill in the art that was very similar to Petitioner’s proposal. Inst. Dec. 18 (citing Prelim. Resp. 20–21). On the preliminary record at that time, we found both parties’ proposals consistent with the level of ordinary skill in the art reflected by the prior art of record. *Id.* (citing *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978)). And, on that record, we found that one of ordinary skill in the art at the time of the invention would have a Bachelor of Science degree in Computer Science, Computer Engineering, Electrical Engineering, Software Engineering, or an equivalent field, as well as at least three to five years of academic or industry experience in the fields of data storage, data backup, data restoration, data replication and deduplication, and/or data synchronization. *Id.* at 18–19.

In its Patent Owner Response, Patent Owner, relying on Dr. Weissman’s testimony, appears to adopt the same level of ordinary skill in the art set forth in the Institution Decision, without explicitly stating so. PO Resp. 21 (citing Ex. 2008 ¶ 18). In particular, Patent Owner proposes that a person of ordinary skill in the art at the time of the invention would have:

at least have a Bachelor of Science degree in Computer Science, Computer Engineering, Electrical Engineering, Software Engineering, or an equivalent field, as well as at least 3–5 years of academic or industry experience in the fields of data storage, data backup, data restoration, data replication and deduplication, and/or data synchronization.

Id. (citing Ex. 2008 ¶ 18).

As reflected above, Patent Owner agrees with our preliminary finding regarding the level of ordinary skill in the art, and Petitioner does not address our preliminary finding in its Reply. Accordingly, we see no reason to disturb that finding, and, therefore, we maintain and reaffirm that one of ordinary skill in the art at the time of the invention would have had a Bachelor of Science degree in Computer Science, Computer Engineering, Electrical Engineering, Software Engineering, or an equivalent field, as well as at least three to five years of academic or industry experience in the fields of data storage, data backup, data restoration, data replication and deduplication, and/or data synchronization.

II. CLAIM CONSTRUCTION

In this *inter partes* review, claims are construed using the same claim construction standard that would be used to construe the claims in a civil action under 35 U.S.C. § 282(b). *See* 37 C.F.R. § 42.100(b) (2019). The claim construction standard includes construing claims in accordance with the ordinary and customary meaning of such claims as understood by one of ordinary skill in the art at the time of the invention. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc). In construing claims in accordance with their ordinary and customary meaning, we take into account the specification and prosecution history. *Phillips*, 415 F.3d at 1315–17.

If the specification “reveal[s] a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess[,] . . . the inventor’s lexicography governs.” *Phillips*, 415 F.3d at 1316 (citing *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)). Another exception to the general rule that claims are given their ordinary and customary meaning is “when the patentee disavows the full scope of a claim term either in the specification or during prosecution.” *Uship Intellectual Props., LLC v. United States*, 714 F.3d 1311, 1313 (Fed. Cir. 2013) (quoting *Thorner v. Sony Computer Entm’t Am., LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)).

Additionally, only terms that are in controversy need to be construed, and these need be construed 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) (holding that “only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy”); *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs.* in the context of an *inter partes* review).

In the Petition, Petitioner proposes construing a number of means limitations recited in claims 25 and 27. Pet. 9–12. In the Preliminary Response, Patent Owner did not request the construction of any term. In the Institution Decision, we determine that no claim term required construction for purposes of institution. Inst. Dec. 19. In the briefing following institution, Patent Owner proposed a construction for the term “inventory,” *see, e.g.*, PO Resp. 21–28, and it became clear that the parties dispute the meaning of the term. Further, Patent Owner proposed a construction for one

of the means limitations recited in claim 25. *Id.* at 28–31. Accordingly, we address the parties’ arguments and proposed constructions for “inventory” and the disputed means limitation of claim 25.

A. “inventory”

1. The Parties’ Proposed Constructions

Patent Owner contends that “inventory” should be construed as “electronic data that reflects the current state of a storage medium and includes a list of files on the storage medium[,] at least one descriptor identifying the file(s)[,] and the directory structure of the file(s).”⁸ PO Resp. 21 (citing Ex. 1001, 8:11–41, 15:12–24; Ex. 2008 ¶ 68) (emphasis omitted); PO Initial Paper 1) (emphasis omitted).

Petitioner contends that “inventory” should be construed as “an itemized list of electronic data.” Pet. Reply 1–2; Pet. Initial Paper 1. In particular, Petitioner contends that “inventory” should be “afforded its ordinary and customary meaning,” (Pet. Reply 1–2 (citing Pet. 11)), which, as recited in the challenged claims, is “an itemized list of electronic data.” Pet. Initial Paper 1).

2. The Parties’ Arguments

a. Patent Owner’s Response⁹

As set forth above, Patent Owner contends that “inventory” should be construed as “electronic data that reflects the current state of a storage

⁸ Patent Owner’s Initial Paper added two commas to the proposed construction, which help identify the specific aspects of Patent Owner’s proposal. PO Initial Paper 1. Whether or not the commas are included, the analysis below is effectively the same.

⁹ As noted above, Patent Owner’s Response was the first instance either party proposed an express construction of “inventory.”

medium and includes a list of files on the storage medium[,] at least one descriptor identifying the file(s)[,] and the directory structure of the file(s).” PO Resp. 21 (citing Ex. 1001, 8:11–41, 15:12–24; Ex. 2008 ¶ 68) (emphasis omitted). Patent Owner asserts that the Specification explains that “the file inventory reflects the current state of the drive and may include a description of the hierarchical structure of the drive as well as markers identifying sizes of chunks of files.” *Id.* (citing Ex. 1001, 8:11–13, 13:3–15, 15:10–24; Ex. 2008 ¶ 69). Patent Owner contends that “[t]he electronic data that is part of the inventory includes raw data and metadata” (*id.* (citing Ex. 1001, 8:27–29; Ex. 2008 ¶ 69)), and “[t]he unique descriptor stored in an inventory is generated from raw data and metadata of a file or portion of a file and the directory structure of the same file / portion of the same file” (*id.* (citing Ex. 1001, 8:29–31, 15:10–24; Ex. 2008 ¶ 69)).

Patent Owner relies on Figure 7 of the ’043 patent, which “is a flow chart depicting aspects of a restore routine.” Ex. 1001, 3:65–67; *see* PO Resp. 22 (citing Ex. 1001, Fig. 7; Ex. 2008 ¶ 69). Patent Owner contends that Figure 7 and the description thereof in the Specification support its construction of inventory. PO Resp. 22–24. In particular, Patent Owner asserts that “a backup inventory stores descriptors, which correspond to the electronic data marked for restoration, as well as directory structures for the restored data.” *Id.* at 23 (citing Ex. 1001, 15:10–11). Patent Owner notes that the Specification states that after the descriptors are marked for restoration, the ““restore application continues by determining if any directories in the inventory are not present in the target media.”” *Id.* (quoting Ex. 1001, 15:12–15). Patent Owner states that “[i]f there are directories stored in the backup inventory and not in the target media, then

those directories are created for the target media.” *Id.* (citing Ex. 1001, 15:15–17). Patent Owner refers to the remainder of the restore process, contending that “the backup inventory provides enough data to allow for a complete restore of a client device.” *Id.* at 24 (citing Ex. 2008 ¶ 70).

Additionally, Patent Owner contends that its proposed construction “is consistent with [inventory’s] ordinary meaning.” PO Resp. 24 (citing Ex. 2008 ¶ 71). In particular, Patent Owner points to two extrinsic dictionary definitions of “inventory,” which define “inventory” as “a complete list of items such as property, goods in stock, or the contents of a building” and “a detailed list of all the things in a place,” and an extrinsic definition of “data backup inventory” as a “detailed and often descriptive catalog, aggregate view or list of relevant Data Backup Items that is often somewhat important, sanctioned or approved in its nature.” *Id.* (citing Ex. 2012 (Google webpage showing definition of “inventory” from “Oxford Languages”), 1; Ex. 2013 (webpage showing definition of “inventory” from the Cambridge English Dictionary), 1; Ex. 2014 (webpage showing definition of “data backup inventory” from The International Foundation for Information Technology), 1; Ex. 2008 ¶¶ 71–72)).

Patent Owner contends that Petitioner and Dr. Shenoy assert that “inventory” can consist of “a list of ‘signatures corresponding to the one or more selected files for backup.’” PO Resp. 24 (citing Pet. 31); *id.* at 25–26 (quoting Ex. 2015 (Deposition Transcript of Dr. Shenoy), 97:18–98:13, 98:24–100:2). Patent Owner asserts that Petitioner’s construction “is contradicted by the intrinsic evidence including the claim language itself” because the claims “clearly and repeatedly use the terms inventory and list in different ways.” *Id.* at 26 (citing Ex. 2008 ¶ 75). Although neither Patent

Owner nor Dr. Weissman explains the different use of “inventory” and “list,” Patent Owner points to claim 1 of the ’043 patent, noting that the following language makes clear that “a list of descriptors” is part of, but not identical to the inventory”: “comparing . . . the at least one descriptor of the first inventory to a list of descriptors associated with a second inventory of electronic data.” *Id.* (citing Ex. 2008 ¶ 76; Ex. 1001, 18:44–48) (alterations in original). Additionally, Patent Owner asserts that Dr. Shenoy agreed that additional data about the current state of the drive would be needed to be provided from the client device to the backup server at some point. *Id.* at 26–27 (quoting Ex. 2015, 45:3–15, 46:11–23).

Further, Patent Owner contends that the use of the language “associated with” indicates that there are more than just a list of descriptors for an inventory of electronic data, *e.g.*, directory structure of the electronic data.” PO Resp. 27 (citing Ex. 2008 ¶ 77). And, Patent Owner contends, because the ordinary meaning of “inventory” includes the terms “detailed” and “complete,” the extrinsic evidence “does not support Dr. Shenoy’s construction of inventory as merely an ‘itemized list.’” *Id.* (citing Ex. 2008 ¶ 77). Patent Owner further asserts that its construction “is consistent with the embodiments described and claimed in the ’043 Patent, in which inventories are transmitted through encrypted communications between the communication device and backup server to determine which files to backup or restore in view of the current state of the drive on the communication device.” *Id.* (citing Ex. 1001, claims 1, 2, 4, 11, 12, 15, 17, 22, 23, 25; Ex. 2008 ¶ 78).

b. Petitioner's Reply

In its Reply, Petitioner contends that “inventory” should be “afforded its ordinary and customary meaning” and that Patent Owner propounds “an improperly narrow construction of the term ‘inventory,’ purporting to import *four* separate requirements into this single term.” Pet. Reply 1–2. In particular, Petitioner asserts that Patent Owner’s construction seeks to require that an inventory: (1) reflect the current state of a storage medium, (2) include a list of files on the storage medium, (3) include at least one descriptor identifying the file(s), and (4) include the directory structure of the file(s). *See id.* at 2 (citing Ex. 1025 (Deposition Transcript of Dr. Weissman), 39:13–40:13; PO Resp. 21).

First, Petitioner contends that “[i]mportation of these four limitations is improper [] because the claims themselves define the ‘inventory.’” Pet. Reply 2 (citations omitted).

Second, Petitioner argues that Patent Owner’s construction “is also inconsistent with the ’043 patent Specification, which provides no definition for the term ‘inventory’ nor any specific requirements, much less the four propounded by” Patent Owner. Pet. Reply 2–3 (citing Ex. 1024 ¶ 9). Petitioner contends that “the specification uses the term as an open-ended construct, merely providing examples of what data *may* be included in an inventory—not what *must* be.” *Id.* at 3 (citing Ex. 1001, 8:11–13, 11:11–15; Ex. 1024 ¶¶ 9, 12–13). Petitioner provides additional discussion of each clause in Patent Owner’s proposed construction, arguing that each is improper in light of the Specification. *See id.* at 4–16.

Third, Petitioner asserts that Patent Owner “cannot manufacture a construction based on nothing more than cherry-picked extrinsic evidence

and unsupported expert testimony.” Pet. Reply 3. Petitioner contends that even Patent Owner’s “carefully-selected dictionary definitions do not support [Patent Owner’s] proposed construction” because “[n]one of the four proposed requirements are expressed or implied by the words ‘detailed’ or ‘complete.’” *Id.* (citing Ex. 1024 ¶¶ 10–11). Petitioner further argues that Patent Owner “expressly ignores that [Dr. Shenoy’s interpretation of inventory as an itemized list] is derived from the Merriam-Webster dictionary, which defines ‘inventory’ as ‘an itemized list of current goods or asserts.’” *Id.* at 3–4 (emphasis omitted) (citing Ex. 1002 ¶ 117, 180; Ex. 1019 (The Merriam-Webster Dictionary), 384; Ex. 1024 ¶ 11).

Further, Petitioner asserts that Patent Owner’s “proposed construction fails at almost every canon of claim construction: it is confusing, makes optional information a requirement, duplicates and renders superfluous claim language, and conflicts with the doctrine of claim differentiation.” Pet. Reply 4. Instead, Petitioner contends that “inventory” should be construed in accordance with its ordinary meaning. *Id.*

c. Patent Owner’s Sur-reply

In its Sur-reply, Patent Owner contends that “Petitioner incorrectly focuses the weight of its argument on the linguistic aspects of Patent Owner’s claim construction of the term ‘inventory’ rather than the fundamental principles of how one of ordinary skill in the art would have understood the term based on the specification and claims.” Sur-reply 1. Patent Owner asserts that it “never characterized its construction as having [] four requirements nor argued they were entirely independent of one another.” *Id.* Patent Owner contends that “[e]ach aspect of its construction

adds meaning while at the same time possibly overlapping to some extent with other aspects.” *Id.* at 2.

In particular, Patent Owner contends that “nothing precludes some potential overlap between portions of a construction. Here, for example, the list of file(s) and the directory structure of the file(s) may be useful, but not necessarily sufficient, in determining the current state of the storage medium.” Sur-reply 3. Patent Owner asserts that its construction “captures the data needed in the inventory according to the specification to achieve” the requirements of the claimed deduplication and restoration processes. *Id.* at 3–4. Patent Owner contends that its construction is “based on the fundamental principle of giving claims their ordinary and customary meaning that would have been accorded by a person of ordinary skill in the art.” *Id.* Additionally, Patent Owner contends that “patent specifications often use the word ‘may’ even in reference to requirements.” Sur-reply 4. Patent Owner walks through each of the four aspects of its construction in response to Petitioner’s arguments. *Id.* at 5–10.

d. Initial and Responsive Papers

In addition to the information provided by the parties in the papers discussed above, each party filed an Initial Paper and Responsive Paper in response to our request for each party to set forth “its contentions regarding the ordinary and customary meaning of the term ‘inventory’ as that term is used in the challenged claims.” Paper 31, 1. In its Initial Paper, Petitioner contends that “the ordinary and customary meaning of the term ‘inventory,’ as recited in the challenged claims, is ‘an itemized list of electronic data.’” Pet. Initial Paper 1. Petitioner contends that the use of “inventory” in the Specification is consistent with the dictionary definition of “inventory” as

“an itemized list of current goods or assets.” *Id.* (quoting Ex. 1019, 384) (citing Ex. 1024 ¶ 8). Petitioner also asserts that Patent Owner’s cited dictionary definitions “further confirm this understanding.” *Id.* at 1–2 (citing Exs. 2012–2014).

Additionally, Petitioner reiterates that “[t]he term ‘inventory’ does not define, describe, or limit the contents of the inventory itself; rather, those limitations are provided by each challenged claim, which describe[s] what information the ‘inventory’ must contain.” Pet. Initial Paper 2 (footnote omitted). Petitioner contends that “[n]othing, in either the extrinsic or intrinsic evidence, demands that the term ‘inventory’ must reflect a certain amount or type of data, or take on any particular form,” although the claims “do provide additional details.” *Id.* (citing Pet. Reply 3–4; Ex. 1024 ¶¶ 8–13).

In its Initial Paper, Patent Owner contends that its proposed construction “is consistent with the ordinary and customary meaning of the term ‘inventory.’” PO Initial Paper 1. Patent Owner offers six exemplary dictionary definitions of “inventory” that it contends reflect that “inventory” is “more than just a list.” *Id.* at 1–2. In particular, each of Patent Owner’s dictionary definitions includes a version of the phrase “a detailed [or complete] list.” *Id.* at 1 (emphasis omitted); *see id.* at 2 (noting that “inventory” would have been understood as “a ‘complete,’ ‘detailed,’ and ‘often descriptive’ list which includes other data about the items and/or information identified in the inventory”). Patent Owner asserts that “[t]he exact nature of the other data kept in a particular inventory would depend on the nature of the items contained in the inventory, as these definitions reflect.” *Id.* at 2.

Additionally, Patent Owner explains that the “elements of the inventories in the claims are recited to explain which data or storage medium is being described by the inventory and not to add limitations to what is in the inventory, as Petitioner suggests.” PO Initial Paper 3. For example, Patent Owner points to an element of claim 10 of the ’545 patent,¹⁰ which recites “generating a first inventory for the first set of files, wherein the first inventory reflects a current state of the first remote storage medium, and wherein the first inventory includes the cryptographic signature values generated for each file in the first set of files.” See PO Initial Paper 2–4. Patent Owner contends that the first wherein clause “informs the reader that the current state in the first inventory is for the first remote storage medium and not a different storage medium” and that the second wherein clause “establishes [that the cryptographic signature values] are generated for the first set of files as opposed to a different set of files.” *Id.* at 4.

In its Responsive Paper, Petitioner contends that Patent Owner “never actually explains what the ordinary and customary meaning of ‘inventory’ is” and instead relies on “‘exemplary’ dictionary definitions for the vague proposition that ‘the ordinary and customary meaning of “inventory” is more than just a list.’” Pet. Resp. Paper 1. Petitioner asserts, however, that none of the definitions support Patent Owner’s argument because none define how much “more” is needed for a list to be considered an “inventory” nor do any set forth the numerous requirements included in Patent Owner’s proposed construction. *Id.* Petitioner explains that “[c]onsistent with these definitions, an ‘inventory’ is a specific type of *list* that accounts for *all items*

¹⁰ U.S. 9,037,545 B2, which is a continuation of the ’043 patent and is challenged in, and is Exhibit 1001 in, IPR2020-01039.

being inventoried, whether that be files selected for backup, files present on a backup server, or—in a different context—items in a grocery store.” *Id.* Petitioner asserts that “[t]he very purpose of an inventory is to account for each subject item, which is why Patent Owner’s cited dictionaries define ‘inventory’ as an ‘itemized,’ ‘detailed,’ or ‘complete’ list of items.” *Id.* Petitioner contends, however, that “those dictionaries contemplate what [P]atent Owner ignores: the form in which those items are represented may vary, and so the ordinary and customary meaning of the term ‘inventory’ in no way requires use of any particular attributes to represent the subject items.” *Id.* at 1–2 (citing Pet. Initial Paper 2–3).

Additionally, Petitioner contends that Patent Owner’s citations to the Specification “do not suggest a different meaning.” Pet. Resp. Paper 2. “Rather, consistent with the ordinary and customary meaning provided by Petitioner, the ’043 patent allows for various different types of information to be present within an inventory.” *Id.* Particularly, Petitioner contends that the Specification explains “that an inventory *may* include certain information associated with the inventoried items,” but that does not mandate that such information is “inherent within the meaning of ‘inventory.’” *Id.*

In its Responsive Paper, Patent Owner contends that Petitioner’s construction of inventory “reads all meaning out of th[e] word.” PO Resp. Paper 1. Patent Owner asserts that the claims and Specification contradict any argument that an “inventory” is the same as a list. *Id.* Additionally, Patent Owner asserts that “Petitioner’s argument is blatantly inconsistent with the ordinary and customary meaning of the term ‘inventory’ as set forth in [the] various dictionaries as including a ‘detailed,’ ‘complete,’ and ‘often descriptive’ set of data.” *Id.* at 2 (citing Exs. 2012–2014). And, Patent

Owner contends that its construction is “supported by both the extrinsic evidence and the patent[itself] as including specific types of additional and detailed information about the items.” *Id.*

3. Discussion

Above, we set forth the standard that applies in this proceeding, and we reiterate that “[t]he words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art when read in the context of the specification and prosecution history.”

Thorner, 669 F.3d at 1365 (citing *Phillips*, 415 F.3d at 1313). “There are only two exceptions to this general rule: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution.” *Id.* (citing *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1580 (Fed. Cir. 1996)). In this case, neither party contends that either exception to the general rule of construing claim terms in accordance with their ordinary and customary meaning applies. We agree with the parties that the term “inventory” should be given its plain and ordinary meaning because the patentee did not act as his own lexicographer by defining the term “inventory” and did not disavow the full scope of the term “inventory.” The parties disagree, however, as to the ordinary and customary meaning of “inventory.” Before turning to the parties’ particular disagreements, we recognize where the parties’ proposed constructions agree. In particular, the parties agree, as do we, that the ordinary and customary meaning of “inventory” includes the terms “electronic data” and “list.” Below, we address the disputed portions of the parties’ proposed constructions, starting with Patent Owner’s.

a. Patent Owner's Proposed Construction

As described above, Patent Owner's proposed construction has four aspects. Specifically, with that proposed construction, inventory is electronic data that (i) reflects the current state of a storage medium and (ii) includes a list of files on the storage medium (iii) includes at least one descriptor identifying the file(s) and (iv) includes the directory structure of the file(s). PO Resp. 22 (citing Ex. 1001, 8:11–41, 15:12–24; Ex. 2008 ¶ 68); PO Initial Paper 1. We examine each aspect of Patent Owner's proposed construction.

i. Reflects the Current State of a Storage Medium

The first aspect of Patent Owner's proposed construction is that an “inventory” “reflects the current state of a storage medium.” PO Resp. 22; PO Initial Paper 1. To support this argument, Patent Owner relies on the Specification of the '043 patent and, particularly, the descriptions of an inventory in column 8. PO Resp. 22; Sur-reply 6. This portion of the Specification describes a file inventory that scanning module 232 creates when it scans a particular drive or storage medium. Ex. 1001, 8:9–34. In particular, in describing Figure 2, the Specification in column 8 states, “[b]y scanning a particular drive or similar storage medium, the scanning module 232 is capable of creating a *file inventory* for the selected drive. The file inventory reflects the current state of the drive and may include a description of the hierarchical structure of the drive.” *Id.* at 8:9–13; *see also id.* at 8:31–34.

This disclosure describes a particular trait of the file inventory produced by scanning module 232. This disclosure does not indicate that the term “inventory” should be limited to the file inventory created by scanning

module 232, and it would be inappropriate to read a limitation regarding the inventory produced by scanning module 232 from the Specification into the claim term “inventory.” *See Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 904 (Fed. Cir. 2004) (“improper to read a limitation from the specification into the claims.”).

Additionally, neither the claim language nor the dictionary definitions cited by Patent Owner further support construing “inventory” itself as reflecting the current state of a storage medium.

Independent claims 1 and 15 recite “inventory.” Independent claim 25 does not. With respect to the recitation of the term “inventory,” the language of independent claims 1 and 15 is similar with regard to the recited inventory. Claim 1 recites:

receiving, at a backup server, a first inventory of electronic data stored on a first remote storage medium, wherein the electronic data comprises actual file data to be backed-up from the first remote storage medium, wherein the first inventory comprises at least one descriptor and wherein the at least one descriptor comprises a cryptographic signature computed based on the actual file data.

Ex. 1001, 18:35–42. Claim 15 recites:

a backup application adapted to receive a first inventory of electronic data stored on a first remote storage medium, wherein the first inventory comprises at least one descriptor generated based on computing a cryptographic signature using actual file data of the electronic data as an input to a cryptographic signature function.

Id. at 20:15–21.

The claim language for both claims reflects that the first “inventory” is “of electronic data stored on a first remote storage medium.” The claim language for both claims further describes that the first inventory comprises

at least one descriptor. Further, claim 1 describes that the descriptor comprises a cryptographic signature computed based on the actual file data. Claim 15 further describes that the descriptor is generated based on computing a cryptographic signature using actual file data of the electronic data as an input to a cryptographic signature function. Neither claim defines an inventory as reflecting the current state of a storage medium.

Considering extrinsic evidence,¹¹ both parties rely on dictionary definitions.¹² A common feature of the definitions proffered by Patent Owner is the use of the adjective “detailed” and the word “list.” See PO Initial Paper 1 (“a complete list,” “a detailed list,” “detailed . . . list,” “detailed . . . list,” “detailed . . . list,” “detailed list”) (citing *inter alia* Exs. 2012–2014). Patent Owner states that these dictionary definitions show that “the ordinary and customary meaning of ‘inventory’ is more than just a list.” *Id.* at 2. Petitioner does not disagree. In fact, Petitioner notes the same commonality across the dictionary definitions the parties rely on—the definitions each include a “list” and a modifier describing the list as “itemized,” “detailed,” or “complete.” Pet. Resp. Paper 1. Petitioner, however, also asserts that none of the dictionary definitions support Patent Owner’s attempt to require that the term “inventory” *must* include all of the

¹¹ Neither party argues that the prosecution history of the ’043 patent informs as to the meaning of the “inventory.”

¹² The parties also rely on competing expert testimony, which testimony is very similar to the parties’ arguments. See, e.g., Ex. 2008 ¶¶ 68–77 (Dr. Weissman’s declaration testimony); Ex. 1024 ¶¶ 6–33 (Dr. Shenoy’s reply declaration testimony).

information that the Specification indicates *may* be included in an inventory.
Id. at 2.

The dictionary definitions shed light on the plain and ordinary meaning of “inventory,” but, in particular, none of the definitions proffered by Patent Owner¹³ support Patent Owner’s proposed construction that an inventory reflect the current state of a storage medium or that the term inventory should be construed to include any of the other requirements in Patent Owner’s proposed construction. Despite including adjectives such as “detailed,” and “complete,” none of those modifiers suggests, supports, or is consistent with Patent Owner’s proposed construction of “inventory” as “electronic data that reflects the current state of a storage medium.”¹⁴

Accordingly, we find that the record does not support construing “inventory” to “reflect the current state of a storage medium.”

ii. Includes a List of Files on the Storage Medium

As mentioned, both parties propose construing “inventory” to include or constitute a list. PO Resp. 22; Pet. Reply 1–2, Pet. Initial Paper 1. The parties dispute, however, what the list should constitute. Patent Owner argues that “inventory” requires a list of files on the storage medium, PO

¹³ Neither party argues that the dictionary definition proffered by Petitioner (Ex. 1019) supports construing the term “inventory” as reflecting the current state of the storage medium. The definition in Exhibit 1019 uses the term “current.”

¹⁴ Nor do any of the definitions reflect that the ordinary and customary meaning of “inventory” includes the other three aspects of Patent Owner’s proposed construction of “inventory”—electronic data that (2) “includes a list of files on the storage medium,” (3) includes “at least one descriptor identifying the file(s),” and (4) includes “the directory structure of the file(s).”

Resp. 22, whereas Petitioner argues “inventory” does not require the inclusion of a list of files on the storage medium. Pet. Initial Paper 1.

Patent Owner’s Response does not specifically identify its support for construing inventory to require a list of files on the storage medium. PO Resp. 21–27. The Response, however, cites to the disclosure in the ’043 patent that scanning module 232 is capable of producing a file inventory. *Id.* at 21–22 (citing Ex. 1001, 8:11–13). The term being construed, however, is “inventory,” not “file inventory,” and the Specification of the ’043 patent teaches that the contents of its inventories are not limited to files, but can also include other electronic data. Ex. 1001, 15:42–45 (“those files and *other electronic data* listed in the inventory”); *see also* 15:5–6 (“The descriptors from the inventory represent the electronic data at the time the last backup occurred.”). So the Specification does not support requiring that an inventory be just a list of files on the storage medium: an inventory can list other electronic data. *Id.*

Patent Owner’s Sur-reply points to the ’043 patent’s description of a restore process. Sur-reply 7–8 (citing Ex. 1001, 14:57–66, 15:1–11, 16:18–20). Nothing in that discussion in the Specification, however, requires “inventory” to include a list of files on the storage medium, and Patent Owner’s discussion does not identify any such requirement. Rather, we find that this portion of the Specification supports Petitioner’s argument that inclusion of a list of files is permissible, but not required. First, the cited descriptions are from the Specification’s discussion of the restore/recover routine of Figure 7. Ex. 1001, 14:14–16:20. The Specification explicitly states that “[w]ith reference now to FIG. 7, a restore/recover routine will be described *in accordance with at least some embodiments of the present*

invention.” Id. at 14:14–16 (emphasis added). Thus, on its face, the Specification describes the restore/recover routine of Figure 7 as applicable to *some* embodiments, meaning *not every* embodiment. Second, in the portion Patent Owner relied on, the Specification further describes as “an additional embodiment of the present invention” the ability to generate an inventory of protected media. *See id.* at 16:18–19. And expressly states that “[t]his inventory is a list of all files with corresponding descriptors.” *Id.* at 16:19–20. This description reflects that when the patentee intended to refer to a list of files as part of an inventory, the patentee knew how to do so. And, that the patentee did not do so for all embodiments or specifically direct the discussion to the term “inventory” generally, supports Petitioner’s position that an “inventory” *may* include a list of files on the storage medium, but is not required to do so.¹⁵

Further, in the description of the embodiment of Figure 5, the ’043 patent teaches that “included in a user’s inventory may be list of descriptors 508. The list of descriptors 508 for each user are a short-hand representation of the actual files, or portions of files, that have been recently backed up for the user’s communication device 108.” Ex. 1001, 11:12–15.

¹⁵ We also find that the Specification suggests that a list of files is not a required aspect of “inventory.” In particular, in describing the embodiment of Figure 5, the ’043 patent teaches that “included in a user’s inventory may be list of descriptors 508. The list of descriptors 508 for each user are a short-hand representation of the actual files, or portions of files, that have been recently backed up for the user’s communication device 108.” Ex. 1001, 11:11–15. This disclosure suggests that an “inventory” need not require a list of the files themselves, but rather that a list of descriptors could suffice.

This indicates that the list need not be of the files themselves, but a list of their descriptors can also be an inventory.

Further, the dictionary definitions provided by the parties do not support limiting “inventory” to be a list of files. Exs. 1019, 2012–2014. None of those dictionary definitions set forth such a requirement. *Id.* In addition, the language of claims 1 and 15 do not support construing inventory to be a list of files. Claim 1 recites that the “electronic data comprises actual file data to be backed-up.” If the term “inventory” required a list of files, claim 1 would not need to recite that the electronic data comprise actual file data. *Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1257 (Fed. Cir. 2010); *Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1381 (Fed. Cir. 2006). Thus, we do not construe “inventory” to require a “list of files on the storage medium.”

iii. Includes at Least One Descriptor Identifying the File(s)

The third aspect of Patent Owner’s proposed construction of “inventory” is the inclusion of at least one descriptor identifying the file(s). Patent Owner’s Response does not specifically identify why “inventory” should be construed to require this language. Petitioner’s Reply correctly identifies that claims 1 and 15 expressly recite that “wherein the first inventory comprises at least one descriptor” and independent claims 30 and 35 recite “wherein the backup inventory for the remote storage medium comprises a list of descriptors.” Pet. Reply 13. In its Sur-reply, responding to Petitioner’s argument that the claims expressly recite this aspect of Patent Owner’s proposed construction of “inventory,” Patent Owner states “Petitioner does not dispute that an inventory includes at least one descriptor, and thus whether it is explicitly in the construction or not, the

Board must consider it as a limitation.” Sur-reply 8. Patent Owner further states, that claims 1, 15, 30, and 35 “need to refer to the at least one descriptor in each inventory as an antecedent basis to refer to it again later in the claims.” *Id.* at 8–9.

Patent Owner does not provide any support for why the term “inventory” itself requires “at least one descriptor identifying the file(s).” And, we do not discern any support in the claims, Specification, or dictionary definitions of “inventory” that the term “inventory” must require at least one descriptor identifying the file(s) as proposed by Patent Owner. As discussed above, both claims 1 and 15 describe that the recited first inventory includes at least one descriptor. Patent Owner’s proposed construction renders this recitation superfluous because the term “inventory,” as construed by Patent Owner, already requires a descriptors, and constructions that render claim language superfluous are disfavored. *Becton, Dickinson & Co.*, 616 F.3d at 1257; *Curtiss-Wright*, 438 F.3d at 1381.

Thus, on the complete record before us, the evidence (claims, Specification, and extrinsic) does not support Patent Owner’s attempt to require “inventory” to mean that it “includes at least one descriptor identifying the file(s).” Accordingly, we do not construe “inventory” to require such.

iv. Includes the Directory Structure of the Files

The fourth aspect of Patent Owner’s proposed construction of “inventory” is that an “inventory” must include the directory structure of the file(s). PO Resp. 21. Patent Owner points to the language of the challenged

claims and identifies two portions of the Specification as allegedly supporting its proposed construction. We address each.

Patent Owner argues that the use of the language “associated with” in the challenged claims indicates that there that “there is more than just a list of descriptors for an inventory of electronic data, e.g., directory structure of the electronic data.” PO Resp. 27 (citing Ex. 2008 ¶ 77). The cited testimony makes clear that Patent Owner is referring to the use of the phrase “associated with” in the following recitations of claims 1 and 30:

(i) comparing . . . the at least one descriptor of the first inventory to a list of descriptors *associated with* a second inventory of electronic data (claim 1) and

(ii) referencing a backup inventory for the remote storage medium, wherein the backup inventory . . . comprises a list of descriptors *associated with* electronic data that was resident on the remote storage medium . . . wherein the electronic data comprises actual file data, and wherein a descriptor in the list of descriptors comprises a cryptographic signature computed with the actual file data (claim 30).

Ex. 2008 ¶¶ 76–77.

Neither Patent Owner nor Dr. Weissman, however, explains why the recitation “associated with” means that the term “inventory” should be construed to require a directory structure of the electronic data. PO Resp. 27; Ex. 2008 ¶ 77. And we see no reason why the recitation of “associated with” should lead to such a construction. The phrase “associated with” in these recitations specifies that the recited descriptors are associated with the recited electronic data. It does not define the term “inventory” to include a directory structure.

Patent Owner relies on the disclosure regarding scanning module 232 discussed above: “[b]y scanning a particular drive or similar storage

medium, the scanning module 232 is capable of creating *a file inventory* for the selected drive. *The file inventory* reflects the current state of the drive and *may include a description of the hierarchical structure of the drive.*”

Ex. 1001, 8:16–20 (emphasis added); *see* PO Resp. 21 (citing Ex. 1001, 8:11–41, 15:12–24; Ex. 2008 ¶ 68). This disclosure expressly teaches that an inventory *may* include a description of the hierarchical structure of a drive, not that it must.

Patent Owner suggests that the term “may” as used in the Specification of the ’043 patent is not permissive. Sur-reply 4. Patent Owner contends that “patent specifications often use the word ‘may’ even in reference to requirements.” *Id.* Patent Owner, however, cites no support for this contention. Patent Owner argues, however, that “[e]verything is described in this patent that’s may this, may that. It’s all permissive language.” Tr. 76:18–20. Patent Owner asserts that if we construe “may” as optional (permissive) as opposed to required, then nothing is left of the patent. *See id.* at 76:20–77:2 (“Unfortunately, you can’t take these sentences in isolation and say, well, these are saying permissive, because then nothing is happening in this patent. Practically everything is described in terms of it may be this or it may be that. So there’s nothing definitive about anything here.”). We disagree.

We see nothing in this record that would cause us to interpret the term “may” as mandatory.¹⁶ Thus, we interpret the term “may” in accordance

¹⁶ The Specification’s use of “may” in several other instances also indicates the permissive (optional) inclusion of items in an inventory. *See* Ex. 1001, 8:27–36 (describing the use of a descriptor algorithm to “create the descriptor that uniquely . . . identifies the file or a portion of the file” and

with its ordinary, permissive meaning. *See Netword LLC v. Centraal Corp.*, 242 F.3d 1347, 1358 (Fed. Cir. 2001) (“The specification makes quite clear that those added limitations are merely *permissive*, that is to say, they *may or may not* be associated with the client computer that is clearly defined in the specification.”) (emphasis added)); *In re Johnston*, 435 F.3d 1381, 1384 (Fed. Cir. 2006) (“these limitations are stated in *the permissive form ‘may.’*” As a matter of linguistic precision, *optional elements* do not narrow the claim because they can always be omitted.”) (emphasis added). And, we do not agree that interpreting “may” in accordance with its ordinary and customary meaning deprives the ’043 patent of meaning. That an “inventory” may include the directory structure of the file(s) means exactly that, it may. Nothing in our construction *precludes* an “inventory” from including the directory structure of the file(s). In other words, there may be claims that recite the broader term “inventory” and there may be claims that recite a narrower “inventory” if other language in the claim expressly limits the “inventory” to include one or more of the aspects described in the Specification as optional.

Patent Owner also points to the Specification’s discussion of Figure 7 and the restore/recover routine described to support its proposed requirement

stating that “[t]he results of the application of the descriptor algorithm (e.g., the generated hash corresponding to each file or portion of a file) *may also be added to the inventory to help describe the current state of the drive*” (emphasis added), 10:66–11:15 (noting, in the context of Figure 5, that “backup server 116 may be designed to maintain inventories 504 for each user account” and that “[i]ncluded in a user’s inventory may be a list of descriptors 508” (emphasis added))).

that an inventory must include at least one descriptor identifying the file(s) and the directory structure of the file(s). In particular, Patent Owner points to the statement that:

[o]nce the descriptors have been marked for restoration, the restore application 240 continues by determining if any directories in the inventory are not present in the target media (step 732). If there are any directories in the inventory and not in the media, the restore application 240 creates those directories in the target media (step 736).

See PO Resp. 22–24 (citing *inter alia* Ex. 1001, 15:12–17) (asserting that Figure 7 and this description from the Specification supports Patent Owner’s construction); Tr. 79:1–12. We disagree that this statement in the Specification supports Patent Owner’s argument that (a) directories are required to be in the specific inventory referenced and (b) the term “inventory” should be *construed* as requiring “the directory structure of the file(s).” This specific statement says *if* there are any directories in the inventory and not in the media, then directories are created. Nothing in that statement requires the presence of directories in the inventory. The statement is satisfied whether or not directories are included. If there are no directories in the inventory, then there are no directories in the inventory that are not in the target media. Thus, this statement fails to support Patent Owner’s argument that “inventory” should be construed as *requiring* the directory structure of the file(s).

Additionally, the Specification’s description of Figure 7 explicitly states that the restore/recover routine is described “in accordance with *at least some embodiments* of the present invention.” Ex. 1001, 14:14–16 (emphasis added). Thus, even if we were to read the above-description of Figure 7 as requiring directories in this specific inventory (which we do not),

this description expressly applies to “at least some embodiments,” meaning not necessarily *all* embodiments.

The dictionary definitions cited by the parties also do not support Patent Owner’s proposed requirement that an inventory include the directory structure of the file(s). None of those definitions so limit the term “inventory.” Exs. 1019, 2012–2014.

Therefore, we do not construe the term “inventory” to require that an inventory include at least one descriptor identifying the file(s) and the directory structure of the file(s),

b. Petitioner’s Proposed Construction

As mentioned above, Petitioner proposes construing “inventory” as “an itemized list of electronic data.” Pet. Reply 1–2; Pet. Initial Paper 1. This proposed construction is consistent with the Specification of the ’043 patent. The inventories described in the ’043 patent are itemized lists of electronic data. *See, e.g.*, Ex. 1001, 8:9–11; 11:1–15; 14:2–7. Further, Petitioner’s proposed construction is consistent with the language of claims 1 and 15, both of which recite “inventory” and “electronic data.” In addition, Petitioner’s proposed construction is supported by the dictionary definition of inventory as “an itemized list of current goods or assets.” Ex. 1019.

Patent Owner objects to Petitioner’s proposed construction on the grounds that the Specification of the ’043 patent teaches that the term “inventory” should have all of the requirements set forth in Patent Owner’s proposed construction. As set forth above, we disagree with that argument by Patent Owner.

Patent Owner also relies on dictionary definitions to oppose Petitioner’s proposed construction. *See* PO Initial Paper 1. As discussed above, a common feature of the definitions proffered by Patent Owner is the use of the adjective “detailed” and the word “list.” *See id.* (“a complete list,” “a detailed list,” “detailed . . . list,” “detailed . . . list,” “detailed . . . list,” “detailed list”) (citing *inter alia* Exs. 2012–2014). Patent Owner states that these dictionary definitions show that “the ordinary and customary meaning of ‘inventory’ is more than just a list.” *Id.* at 2. Petitioner does not disagree. In fact, Petitioner notes the same commonality across the dictionary definitions—they each include a “list” and a modifier describing the list as “itemized,” “detailed,” or “complete.” Pet. Resp. Paper 1 (also referring to Merriam-Webster’s (Ex. 1019) definition of “inventory” as “an itemized list of current goods or assets”). And Petitioner’s proposed construction requires an inventory to be more than a list—it must be an itemized list. Patent Owner has not argued that there is any difference of significance for this case between construing an inventory as an itemized list versus a detailed list (aside from using the term “detailed” as a vehicle to argue all four aspects of its proposed construction). And we see none.¹⁷

¹⁷ As noted previously, important to our understanding of “inventory” is Patent Owner’s agreement that “the claimed inventory may not account for every file on the system. Instead, the claimed inventory accounts for the data, which may only be a chunk of data, selected by a user to be backed up or restored.” PO Sur-reply 12 (agreeing with Petitioner). In other words, even though the extrinsic definitions modify the term “list” by requiring the list to be “itemized,” “detailed,” and/or “complete,” it is undisputed that the inventory can account for *less than all* files on a remote storage medium or drive.

c. Construction

Considering the intrinsic and extrinsic evidence of record, we determine that “inventory” would have been understood by one of ordinary skill in the art in accordance with its plain and ordinary meaning, which, in this context, is an “itemized list of electronic data.”¹⁸

B. Means Recitations in Claims 25 and 27

Petitioner proposes construing six means limitations in claim 25 and one means limitation in claim 27 to identify the recitations’ corresponding structures. Pet. 10–12. Patent Owner argues that the only means limitation that requires construction is the means recited in claim 25 for:

determining that at least a first electronic file having actual file data is in the first set of electronic data and the second set of electronic data by comparing descriptors of the at least a first electronic file in both the first set of electronic data and all descriptors in the second set of electronic data.”

PO Resp. 30. The Petition designates this limitation as 25C.1. Pet. 10–11. We agree with Patent Owner that no other means limitation requires construction. Petitioner asserts that the function of limitation 25C.1 is:

determining that at least a first electronic file having actual file data is in the first set of electronic data and the second set of electronic data by comparing descriptors of the at least a first electronic file in both the first set of electronic data and all descriptors in the second set of electronic data.

¹⁸ Construing “inventory” as a “detailed list of electronic data” or a “complete list of electronic data” would not change the analysis that follows. Under each of these plain and ordinary meanings, the result is the same—none requires (a) a list of files on the storage medium, (b) at least one descriptor identifying the file(s), or (c) the directory structure of the file(s), as Patent Owner proposes.

Pet. 10. Patent Owner does not dispute Petitioner’s recitation of the function of limitation 25C.1. PO Resp. 28–31. We agree with Petitioner’s recitation of the function of limitation 25C.1. Ex. 1002 ¶¶ 57–58.

Petitioner argues that the structure corresponding to the function of limitation 25C.1 is “a computing device executing software configured [to] perform a comparison.” *Id.* (citing Ex. 1002 ¶¶ 57–58; 1001, 2:44–46, 5:23–31, 13:23–32, 18:14–31). Patent Owner argues that the structure corresponding to the function for limitation 25C.1 “includes the use of inventories of electronic data that contain descriptors being transmitted from the remote storage medium and then compared to other descriptors for the second set of electronic data to identify the electronic data already based on descriptors being the same.” PO Resp. 30 (Ex. 1001, 8:9–34, 10:66–11:48). Patent Owner further argues that “the claimed inventories contain additional data that reflects the current state of the drive.” *Id.* at 30–31.

We agree with Petitioner that the corresponding structure for limitation 25C.1 is “a computing device executing software configured to perform a comparison.” The ’043 patent describes that a database or other software is used to manage descriptors: “[a] database and/or other software application can manage the descriptors in a system that provides higher level functionality.” Ex. 1001, 2:44–46. The ’043 patent further describes that backup server 116 uses backup application 124 to allow users to backup files:

the backup server 116 is adapted to provide file backup facilities. The backup server 116 is characterized by the ability to manage a file backup system for a group of users, each of which may be associated with one or more communication devices 108. In accordance with certain embodiments of the present invention, the backup server 116 is provided with a backup application 124

to enable users to backup files from their respective communication devices 108 to either the backup server 116 or to the data storage 128.

Id. at 5:23–31. The '043 patent further discloses that backup server 116 can use backup application 124 to compare the received descriptor inventory to descriptors in the list of backed up files:

The backup server 116 may then utilize its backup application 124 to compare the received descriptor inventory to descriptors in the list of backed up files 512 (step 644). In this comparison step, the backup application 124 then determines for each descriptor in the received descriptor inventory, whether the corresponding file, file portion, chunk of data, or data structure is already stored in the data storage 128. Based on the comparison step, the backup application 124 identifies electronic data portions that are not yet stored in the data storage 128 (step 648).

Ex. 1001, 13:23–32. Further, the '043 patent discloses that its methods may be readily implemented in software that can be used on computers. *Id.* at 18:14–18. These disclosures teach that the corresponding structure for limitation 25C.1 is a computing device (e.g., backup server 116) executing software configured to perform a comparison (e.g., backup application 124). Ex. 1002 ¶¶ 57–58.

As indicated, Patent Owner cites two disclosures from the '043 patent to support its proposed corresponding structure for limitation 25C.1. The first cited disclosure (at Ex. 1001, 8:9–34) describes how scanning module 232 “is capable of creating a file inventory for [a] selected drive.” *Id.* at 8:9–11. That disclosure describes how scanning module 232 can identify a file that has been altered and generate a descriptor for that file. *Id.* at 8:21–24. Creating a file inventory or generating a descriptor for a file, however, is not the recited function of limitation 25C.1, which instead recites using

descriptors to make comparisons. Thus, the structure for creating a file inventory or generating a descriptor in this cited disclosure of the '043 patent is not the corresponding structure for limitation 25C.1.

The second disclosure cited by Patent Owner (Ex. 1001, 10:66–11:48) describes how “backup server 116 may be designed to maintain inventories 504 for each user account.” *Id.* at 10:66 – 11:1. The disclosure further describes that “backup server 116 may additionally maintain [a] list of backed up files currently stored in the common data storage 128.” *Id.* at 11:16–18. This section of the '043 patent also discloses that:

the backup server 116 may maintain its list of backed up files 512 as a list of descriptors. Accordingly, the backup server 116 can quickly compare the descriptors associated with each user to the descriptors outlined in the list of backed up files 512 to determine[] which files each user has access to.

Id. at 11:21–26. This disclosure describes the use of descriptors to make a particular comparison, but the use of descriptors to make a comparison is already recited in the function of limitation 25C.1. Thus, it would be redundant to incorporate such a requirement into the corresponding structure of that limitation. Nothing from any of the cited disclosures discussed above support Patent Owner’s proposed construction for limitation 25C.1’s corresponding structure.

Patent Owner argues that Petitioner’s proposed construction does not set forth an algorithm or special programming for the corresponding structure for limitation 25C. PO Resp. 29. Patent Owner argues that such an algorithm or special programming is required for claims of a computer implemented invention in means-plus-function form. *Id.* Petitioner argues that the function recited in limitation 25C.1 does not require any algorithm

or special programming because it recites a basic computing operation. Pet. Reply 20. We agree with Petitioner. *See In re Katz Interactive Call Processing Pat. Litig.*, 639 F.3d 1303, 1316 (Fed. Cir. 2011).

We construe the corresponding structure for limitation 25C.1 to be “a computing device executing software configured to perform a comparison.” Ex. 1002 ¶¶ 57–58.

III. ASSERTED GROUND

A. Objective Indicia of Nonobviousness

Neither party has argued objective indicia of nonobviousness. Thus, we do not address objective indicia of nonobviousness in the analysis below.

B. Asserted Obviousness over Field and Anderson

Petitioner asserts that claims 1–29 and 34 would have been obvious over Field and Anderson. Pet. 52.

1. Field

Field is directed to a system, methods, and a computer-readable medium for efficiently performing a backup of data in a networking environment. Ex. 1004 ¶ 7. Figure 1 of Field is reproduced below:

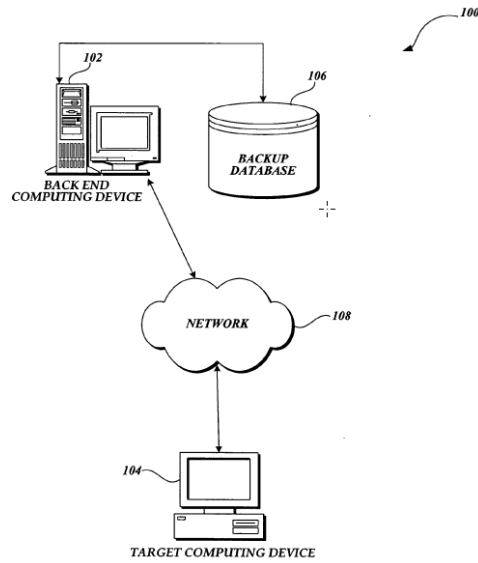


Fig. 1.

Figure 1 above shows networking environment 100 that includes a back end computing device 102 and target computing device 104. *Id.* ¶¶ 13, 20. Back end computing device 102 aggregates data received from multiple sources (e.g., client computing devices) at a single location (e.g., backup database 106), to prevent the unnecessary transmission of data. *Id.* ¶ 22.

Figure 2 of Field is reproduced below:

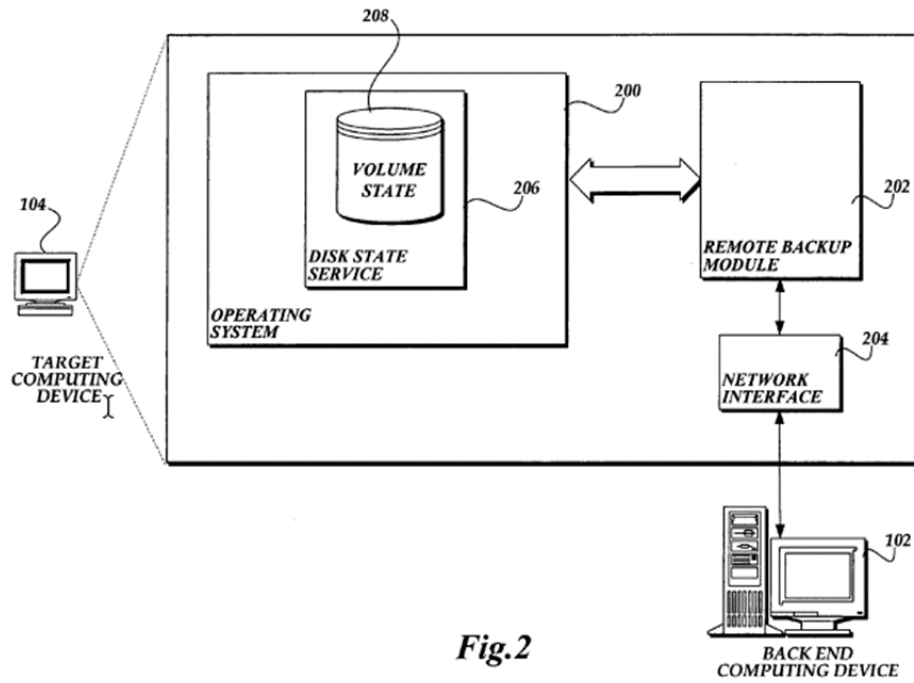


Fig.2

Figure 2 above is a block diagram illustrating components of target computing device 104, including remote backup module 202. Ex. 1004 ¶¶ 14, 25.

Figure 3 of Field is reproduced below:

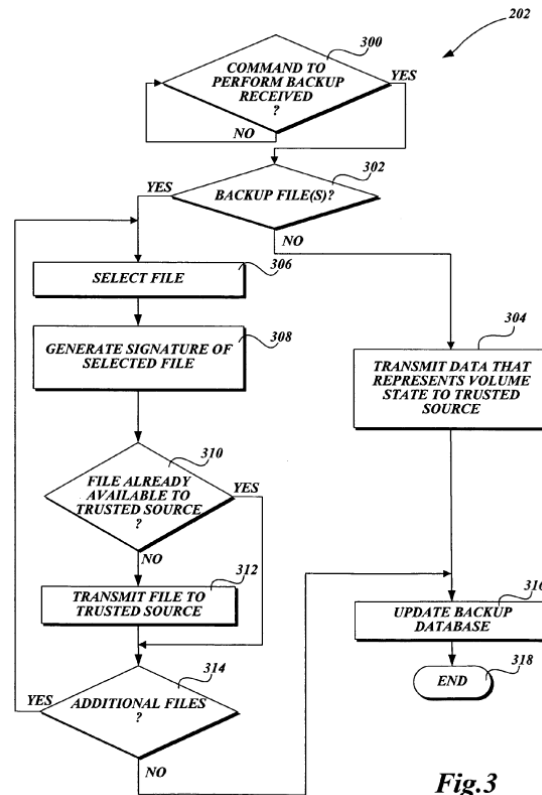


Fig.3

Figure 3 above shows a flow diagram for remote backup module 202 that contains blocks 300–318. Ex. 1004 ¶ 15, 31. In block 300, remote backup module 202 waits to receive a command to perform a backup. *Id.* ¶ 32. In block 302, remote backup module 202 determines whether the command received requires a backup of one or more files. *Id.* ¶ 33. If backup is required, then the module proceeds to block 306, where it selects a file to be backed up. *Id.* ¶¶ 33, 35.

In block 308, remote backup module 202 generates a signature of the selected file. Ex. 1004 ¶ 36. Hashing algorithm “SHA-1” can be used to generate this signature. *Id.* Alternatively, “other type[s] of algorithms or functions that are capable of generating a signature from file data may be used to generate the signature.” *Id.* In block 310, remote backup module

202 determines if the file is already available to a trusted source by causing “the signature of the selected file to be transmitted to the trusted source and compared to signatures of files previously submitted to the trusted source.”

Id. ¶ 37. If a matching signature for the selected file is identified, remote backup module 202 proceeds to block 314. *Id.* If a matching signature for the selected file is not identified, remote backup module 202 proceeds to block 312. *Id.*

At block 312, remote backup module 202 transmits the selected file to a remote computing device associated with the trusted source (e.g., back end computing device 102). Ex. 1004 ¶ 38. Field explains:

If block 312 is reached, the selected file was not previously transmitted to the trusted source and, therefore, is not available to the trusted source. Stated differently, a signature of the selected file could not be identified in the backup database 206 at block 310. Thus, to satisfy the backup command received at block 300, the selected file is transmitted to the remote computing device associated with the trusted source, at block 312. . . . Significantly, a file that was previously made available to the trusted source is not transmitted by the remote backup module 202. Instead, only a signature of the file, which is a fraction of the size of a complete file, is transmitted to the trusted source. As a result, the remote backup module 202 is able to backup data using less network bandwidth and other resources than is found in the prior art.

Id. At block 314, remote backup module 202 determines if any files that were the object of the backup command received at block 300 have not previously been selected and, if so, remote backup module 202 returns back to block 306 and blocks 306 through 314 repeat until all of the files that were the object of the backup command have been selected. *Id.* ¶ 39.

At block 316, “remote backup module 202 performs an update to the database associated with the trusted source.” Ex. 1004 ¶ 40. Field explains

that “more than one user of the backup service may need the file restored back onto a computing device. Thus, the backup database 104 maintains an entry for each user of the backup service.” *Id.* An “entry in the backup database 104 associated with a specific user contains ‘pointers’ to operating system, application program files, and/or user level data that is shared with other users of the backup service.” *Id.* Additionally, an entry will store file metadata “identify[ing] the location (e.g., a file path), name, and permissions of files that may be restored by the backup service.” *Id.* At block 316, the database is updated with this data required to restore files and/or a volume state, after which remote backup module 202 proceeds to block 318 and terminates. *Id.*

2. Anderson

Anderson is directed to “a method and apparatus for differential bandwidth-efficient and storage-efficient backup and restoration.” Ex. 1005 ¶ 12. Anderson describes backing up “articles,” such as “user data, (e.g., text, photos, music, movies, etc.), applications . . . command scripts, byte codes, [and] configuration data.” *Id.* ¶ 15.

Figure 9 of Anderson is reproduced below:

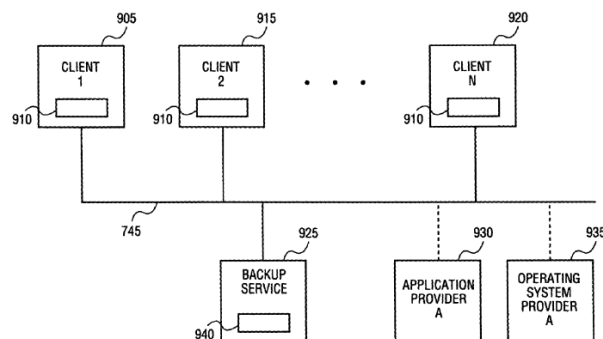


FIG. 9

Figure 9 illustrates an embodiment where multiple clients (1–N) can connect with backup service system 925. Ex. 1005 ¶¶ 11, 128.

When backing up data, the client generates a content identifier (CI) for each article that is stored on the client system. Ex. 1005 ¶ 63. A content identifier includes a signature of the article's contents. *Id.* ¶ 42. A signature value characterizing the specific article's content is generated using a well-known cryptographic hash algorithm, e.g., a "secure hash algorithm" such as "SHA-1." *Id.* "By using one or more content-signaturing mechanisms to generate CI values, the CI uniquely identifies, for all practical purposes, the contents of a particular article, not just on the user's system, but across the sample space of all computer systems." *Id.* ¶ 43.

Anderson explains that after a client generates a CI for each article stored on the client system,

[t]he client's system transmits the CIs to the backup service. Since these CIs identify articles uniquely, the backup service can determine whether a [Client-Invariant Content Descriptor (CICD)¹⁹] corresponding to the CI exists on the backup service's designated storage device. If the backup service determines that it already has a CICD for an article's CI, there is no need for the client system to upload the article contents for backup on the server. If the CICD is not present on the backup service's designated storage device, the client transfers the article's contents and possibly additional data, to the backup service.

Ex. 1005 ¶ 63.

¹⁹ A Client-Invariant Content Descriptor "includes a CI, article contents and can also include commonly shared metadata (e.g., article location (e.g., path name), access permissions, article size, etc.). In one embodiment, a content signaturing mechanism identifier is included in [a] CICD . . . to reflect the algorithm used to generate the CI." Ex. 1005 ¶ 57.

3. *Claim 1*

a. *Preamble*

The preamble of claim 1 recites: “[a] method for managing an electronic data backup system.” Ex. 1001, 18:33–34. Petitioner contends: “[t]o the extent that the preamble language is deemed limiting, Field teaches [it.]” Pet. 23.

Petitioner asserts that Field is directed to “efficiently performing a backup of data in a networking environment.” Pet. 23 (quoting Ex. 1004, code (57), ¶ 7). Further, Petitioner asserts that Figure 1 of Field illustrates a networking environment 100 that includes at least one target computing device 104 and a back end computing device 102 connected via a communication network. *Id.* (citing Ex. 1004 ¶¶ 21–22). Petitioner further argues that Field discloses that “[w]hen software formed in accordance with the present invention is implemented in one or more computers, such as target computing device 104 and back end computing device 102, illustrated in Figure 1, the software provides a way to efficiently backup data,” and “[a]ny computer communicatively connected to the network 108 may participate in a backup service.” *Id.* at 24 (quoting Ex. 1004 ¶ 22) (alterations in original).

Petitioner quotes Field’s disclosure that “[i]n this regard, the back end computing device 102 aggregates data received from multiple sources at a single location (e.g., the backup database 106), to prevent the unnecessary transmission of data.” Pet. 24–25 (quoting Ex. 1004 ¶ 22) (alteration in original). According to Petitioner, because Field discloses target computing device 104 is configured to communicate with the back end computing device 102 via the network 108, such as the Internet, an ordinarily skilled

artisan would have understood that Field’s process backs up electronic data. *Id.* at 25 (citing Ex. 1002 ¶ 111).

Petitioner further argues that Field discloses that its software system for backing up files is configured to track files stored by a trusted source on behalf of a user of the backup service. Pet. 25 (citing Ex. 1004 ¶ 10). According to Petitioner, an ordinarily skilled artisan would have recognized that the files stored and tracked by Field’s processes also represent “electronic data.” *Id.* (citing Ex. 1002 ¶ 112). Petitioner argues that, therefore, Field teaches processes that manage an electronic data backup system. *Id.*

Patent Owner does not present any counterarguments regarding the preamble. PO Resp. 40–55. After reviewing the record, we determine that Petitioner has proven that Field teaches the preamble of claim 1.²⁰

b. [1A.1] receiving, at a backup server, a first inventory of electronic data stored on a first remote storage medium, wherein the electronic data comprises actual file data to be backed-up from the first remote storage medium

Petitioner argues that Field and Anderson teach limitation 1A.1. Pet. 25–31. Below we address the parties’ arguments for this limitation and provide our analysis. The discussion of the parties’ arguments for this limitation is extensive because this is the first limitation of claim 1 that recites an inventory and this is the first limitation of claim 1 for which Petitioner relies on the combination of Field and Anderson. The main disputes between the parties regarding claim 1 are whether Field and

²⁰ For this reason, we do not need to determine whether the preamble is limiting.

Anderson teach the recited inventory and whether an ordinarily skilled artisan would combine the teachings of those references. PO Resp. 40–54; Pet. Reply 1–20.

i. Parties' Arguments

a. Petition

i. Field's and Anderson's Teachings

In the Petition, Petitioner asserts that Field discloses that each of its client computers includes a remote backup module 202 that contains the logic for backup and data recovery implemented by the present invention, as illustrated in Figure 2 of Field. Pet. 25 (citing Ex. 1004 ¶¶ 28–29).

Petitioner further asserts that Field explains that the remote backup module 202 performs a backup of one or more files, and in an embodiment, the remote backup module 202 utilizes the network interface 204 to cause data to be transmitted and stored on the back end computing device 102. *Id.* at 26 (citing Ex. 1004 ¶ 29). Petitioner contends that an ordinarily skilled artisan would have understood that the storage on the target computing device, storing files to be backed up, is the recited first remote storage medium because the target computing device is remote from the back end computing device. *Id.* (citing Ex. 1002 ¶ 114); *see also* Ex. 1004, Fig. 2. Petitioner argues that referring to the target computing device as a remote storage medium is consistent with the disclosure of the '043 patent, which uses the term “remote” to indicate that the client device is remote from the backup storage location. Pet. 26 (citing Ex. 1001, 5:27–37, 6:55–59, 7:63–8:1).

Petitioner further argues that Field discloses, in reference to its Figure 3, a flow diagram that illustrates one exemplary embodiment of remote backup module 202 formed in accordance with Field's purported

invention. Pet. 27 (citing Ex. 1004 ¶ 31). Further, Petitioner asserts that, in block 302 of that flow diagram, if a backup of at least one file will be performed, module 202 proceeds to block 306. *Id.* (citing Ex. 1004 ¶ 33). Petitioner argues that, in that case, Field discloses that remote backup module 202 performs a backup of one or more files, which Petitioner contends are the recited electronic data on a first remote storage medium. *Id.* at 27–28 (citing Ex. 1004 ¶¶ 29, 33). Petitioner provides as an example of such files, the files stored on target computing device 104. *Id.*

Petitioner quotes Field’s disclosure that:

For each file selected, at block 306, the module 202 will generate a signature for the file that is compared to signatures of files that are already available to the trusted source. If the selected file is not already available to the trusted source, then the file is transmitted from the local computing device to a computing device associated with the trusted source.

Pet. 28 (quoting Ex. 1004 ¶ 35). Petitioner argues that an ordinarily skilled artisan would have understood that the selected files stored on the target computing device are electronic data comprising actual file data to be backed up from the first remote storage medium because they are computer-resident files selected to be backed up. *Id.* (citing Ex. 1002 ¶ 116).

Petitioner further argues that, at block 306, Field’s process selects a file that was designated for backup, and at block 308, the remote backup module 202 generates a signature of the selected file. Pet. 28 (citing Ex. 1004 ¶¶ 34–35). Further, Petitioner asserts that, at block 310, remote backup module 202 causes the signature of the selected file to be transmitted to the trusted source and compared to signatures of files previously submitted to the trusted source. *Id.* (citing Ex. 1004 ¶ 37). Petitioner contends that an ordinarily skilled artisan would have understood that the

“collection of signatures for each file to be backed up thus provides “a first inventory of electronic data stored on a first remote storage medium,” i.e., an inventory of the files stored on the target computing device.” *Id.* (citing Ex. 1002 ¶ 117).

Petitioner further argues that Field teaches receiving this “first inventory” all at once. Pet. 29. Petitioner asserts that “‘Field discloses that the remote backup module 202 performs a backup of one or more files,’ e.g., files stored on target computing device 104.” *Id.* (citing Ex. 1004 ¶¶ 29, 33). Petitioner further argues that “[i]n the case where a single file is selected to be backed up, Field explicitly discloses sending the inventory all at once by disclosing that “the remote backup module 202 *causes the signature of the selected file to be transmitted to the trusted source.*” *Id.* (quoting Ex. 1004 ¶ 37, citing Ex. 1002 ¶ 118) (emphasis by Petitioner). Petitioner argues that treating the receipt of a single file when there is only one file to backup as receiving an inventory is consistent with the ’043 patent specification and claim language, which recites, “receiving . . . an inventory of electronic data” but does not require that the “electronic data” consist of more than one file. *Id.* (citing Ex. 1002 ¶ 118) (emphasis omitted, alteration in original). Petitioner further argues that the ’043 patent discloses that electronic data may correspond to electronic files, portions of electronic files, chunks of data, data structures, metadata, or any other piece of electronic data. *Id.* (citing Ex. 1001, 2:34–46).

Petitioner asserts that in the case of multiple files, Field does not explicitly state whether signatures are sent to the back end computing device at the same time or successively. Pet. 29. Petitioner argues, however, that Field provides that its purported invention performs optimizations designed

to reduce the amount of time and network bandwidth required to backup a computing device. *Id.* (citing Ex. 1004 ¶¶ 22, 23). Petitioner argues that based on this express motivation of Field, as part of transmitting signatures for the selected files to be backed up, an ordinarily skilled artisan would have found it obvious to transmit the generated signatures for the selected files (which Petitioner equates to “a first inventory of electronic data stored on a first storage medium”) to the back end computing device at the same time to reduce network bandwidth (e.g., overhead). *Id.* at 30 (citing Ex. 1002 ¶¶ 119–20).

Petitioner argues that, in the same field of endeavor, Anderson teaches concurrently transmitting multiple content identifiers at the same time for files (i.e., “articles”) selected to be backed up. Pet. 30 (citing Ex. 1002 ¶ 121). Petitioner asserts that Anderson discloses that a “client generates a CI [(content identifier)] for each article that is stored on the client system,” and then “[t]he client’s system transmits the CIs to the backup service.” *Id.* (quoting Ex. 1005 ¶ 63, citing *id.* ¶ 97, Fig. 7, block 730) (alteration in original).

ii. Combination of Field and Anderson

In the Petition, Petitioner argues that, consistent with Field’s goal of reducing network bandwidth, an ordinarily skilled artisan would have been motivated to concurrently transmit Field’s generated signatures as in Anderson because it would further reduce the amount of network overhead in Field’s backup process. *Id.* (citing Ex. 1002 ¶ 121). Petitioner further argues that an ordinarily skilled artisan would have had a reasonable expectation of success in doing so because this operation of transmitting signatures at the same time would require nothing more than executing

block 308 of Field’s process depicted in Figure 3 (i.e., generating a signature of a selected file) for each file to be backed up prior to transmitting the signatures to the back end computing device (trusted source) in block 310. *Id.* at 30–31 (citing Ex. 1002 ¶ 121). Petitioner argues that thus Field and Anderson teach limitation 1A.1. *Id.* at 31.

b. Patent Owner Response

i. Field

Patent Owner argues that Field does not teach an “inventory” as recited in claims 1, 2, 4, 11, 12, 15, 17, 22, 23, 25, and 27.²¹ PO Resp. 40. Patent Owner asserts that “Petitioner has failed to show that Ground 1 teaches the use of inventories during a backup or restore process as claimed in each of these claims.” *Id.* (citing Ex. 2008 ¶ 94). Patent Owner asserts that “[m]ore specifically, Petitioner has not shown that Field or Anderson teaches a backup or restore process that uses an inventory of electronic data to determine whether to restore or backup the electronic data that is part of said inventory.” *Id.* (citing Ex. 2008 ¶ 94). Patent Owner argues that independent claims 1, 15, and 25 require an inventory that is sent from the communication device to the backup server. *Id.* at 40–41 (citing Ex. 2008 ¶ 95). Patent Owner asserts that Field’s only discussion of how to backup individual files is with regards to the process of its Figure 3. *Id.* at 41 (citing Ex. 1001, Fig. 3; Ex. 2008 ¶ 98). Patent Owner argues that with respect to that process there is no disclosure or suggestion of an inventory of electronic data that is transmitted from the client device to the backup server. *Id.* (citing Ex. 1001, Fig. 3; Ex. 2008 ¶ 98).

²¹ Patent Owner argues claims 1, 2, 4, 11, 12, 15, 17, 22, 23, 25, and 27 as a group. *See* PO Resp. 40–45.

Patent Owner asserts that in Field “[f]or each file selected, at block 306, the module 202 will generate a signature for the file that is compared to signatures of files that are already available to the trusted source.” PO Resp. 42 (quoting Ex. 1004 ¶ 35) (alteration in original). Patent Owner argues that the signature generated from the selected file does not constitute the recited first inventory of electronic data stored on a first remote medium. *Id.* Patent Owner argues that an inventory is not just a list of descriptors or a single descriptor. *Id.* (citing Ex. 2008 ¶ 100).

Patent Owner argues that Field only transmits a single file signature to the backup server at a time. PO Resp. 42 (citing Ex. 2008 ¶ 101). Patent Owner argues that Field concerns only file signatures of one selected file and teaches only restoring just individual files in its file-by-file method. *Id.* (citing Ex. 1004 ¶ 35, Fig. 3; Ex. 2008 ¶ 101). Patent Owner quotes Field’s disclosure that:

As illustrated in FIG. 3, at block 306, the remote backup module 202 selects a file that was designated for backup For each file selected, at block 306, the module 202 will generate a signature for the file that is compared to signatures of files that are already available to the trusted source. If the selected file is not already available to the trusted source, then the file is transmitted from the local computing device to a computing device associated with the trusted source.

Id. at 42–43 (quoting Ex. 1004 ¶ 35) (emphasis omitted, alteration in original).

Patent Owner argues that the Field’s Figure 3 and the description thereof confirm that Field’s backup process does not need to send any other data of the type included in the ’043 patent’s claimed inventories since, for individual file backups, there is no need to send the current state of the drive

or even the filename or directory. PO Resp. 43 (citing Ex. 2008 ¶ 102). Patent Owner asserts that because Field’s backup process only deals with backing up one file at a time, the client device and the backup server know which file the system is processing at any given time. *Id.* (citing Ex. 2008 ¶ 102). Patent Owner argues that, thus, the file name, directory, or other volume state data is irrelevant in Field’s file-based backup. *Id.* (citing Ex. 2008 ¶ 102). Patent Owner continues that “[a]s such, in Field, a user would not have the information needed in the backup server, e.g., file name and information on the directory structure, to restore an entire storage medium of a client device.” *Id.* (citing Ex. 2008 ¶ 103).

Patent Owner argues that the additional information contained in the inventories as claimed in the ’043 patent is needed because, in the ’043 patent, the inventories are used to restore entire storage mediums, not just individual files as in Field, onto the same storage medium or another one. PO Resp. 43 (citing Ex. 1001, 14:31–34; Ex. 2008 ¶ 104). Patent Owner asserts that if a storage medium fails, then the process explained in Field would not be able to restore it using just a signature of selected files. *Id.* at 43–44 (citing Ex. 2008 ¶ 104). Patent Owner contends that, as such, Field could only restore a failed drive using the entire volume-based backup. *Id.* at 44 (citing Ex. 2008 ¶ 104). Patent Owner argues that Dr. Shenoy agreed during cross examination that a restoration could not be performed based on a list of signatures. *Id.* (citing Ex. 2015, 105:13–19). Patent Owner also argues that Dr. Shenoy’s cross-examination testimony contradicts Petitioner’s argument that the inventory of signatures in Field is the same inventory described in the ’043 patent. *Id.* (citing Ex. 2015, 115:7–116:6).

Patent Owner also argues that Field fails to disclose how a restore process would work for individual files with signatures. PO Resp. 45 (citing Ex. 2008 ¶ 106). Patent Owner contends that Field merely states “the computer user may choose to perform a backup in which one or more files will be restored.” *Id.* (quoting Ex. 1004 ¶ 32). According to Patent Owner, however, there is no disclosure on how Field teaches a restore process with the use of signatures. *Id.* (quoting Ex. 2008 ¶ 106). Patent Owner asserts that, on the other hand, Field discusses an embodiment where a volume state(s) of the remote storage medium may be restored, but does not involve the use of signatures to restore data. *Id.* (citing Ex. 1004 ¶ 27; Ex. 2008 ¶ 106). Patent Owner asserts that, thus, Field teaches away from the inventory of electronic data that is part of the backup and restore process of the '043 patent. *Id.* (citing Ex. 2008 ¶ 107).

ii. Combination of Field and Anderson

Patent Owner argues that Field and Anderson provide entirely different types of backups, which each warranting its own processes and would not be combined, and thus an ordinarily skilled artisan would not have been motivated to combine Field’s file-by-file-backup process with Anderson to achieve the claimed invention. PO Resp. 46 (citing Ex. 2008 ¶ 109). Patent Owner further argues that just because Field and Anderson are in the same general field does not mean it would have been obvious to combine them. *Id.* at 47 (citing Ex. 2008 ¶ 111). Patent Owner asserts that Field and Anderson discuss different backup processes, which undermines Dr. Shenoy’s arguments for the motivation to combine them. *Id.* at 47–48 (citing Ex. 2008 ¶ 112). Patent Owner argues that Anderson is designed to perform a full backup system using content identifiers that identify multiple

articles. *Id.* at 48 (citing Ex. 2008 ¶ 112). According to Patent Owner, on the other hand, Field teaches two distinct and separate ways of backing up a storage device as shown in its Figure 3, neither of which is a full and complete backup of a storage medium using signatures. *Id.* (citing Ex. 2008 ¶ 112).

Patent Owner argues that Dr. Shenoy confirmed that at box 302 of Figure 3 of Field, a user decides whether to perform a backup that is capable of restoring volume or one or more files. PO Resp. 48 (citing Ex. 2015, 42:9–13). Patent Owner refers to the first process as a full-volume backup. *Id.* Patent Owner refers to the second process as a backup of individual files. *Id.* at 49.

Patent Owner argues that Field teaches away from using a signature-file method for full backups of a system. PO Resp. 49 (citing Ex. 2008 ¶ 117). Patent Owner further argues that Field does not use file signatures to check for duplicates in its first process (the full volume backup). *Id.* (citing Ex. 2008 ¶ 117; Ex. 2015, 40:18–25). Patent Owner argues that instead Field relies solely on using point-in-time copies of the volume data to determine what has changed since the last backup. *Id.* (citing Ex. 2008 ¶ 117; Ex. 2008, 40:18–25).

Patent Owner argues that Field's second backup process relates to a backup of individual files where only one signature for one file is transmitted to the trusted source at a time. PO Resp. 49–50 (citing Ex. 1004 ¶ 27, Fig. 3; Ex. 2008 ¶ 118; Ex. 3008, 79:8–12). Patent Owner argues that, in Field, it is sufficient to send only the signature, and not include metadata, i.e., filename or directory, since the operating system knows which signature from which file is sent each time. *Id.* at 50 (citing Ex. 2008 ¶ 119).

According to Patent Owner, in Field, regardless of whether the response is to backup or not backup a file based on the signature, the system knows which file that response is directed to. *Id.* (citing Ex. 2008 ¶ 119).

Patent Owner argues that, during cross examination, Dr. Shenoy confirmed that, in Field, only one file's signature can be transmitted to the trusted source at a time. PO Resp. 51 (citing Ex. 2015, 79:8–12; Ex. 2008 ¶ 120). Patent Owner asserts that Petitioner's arguments are thus premised on an incorrect assumption that Field could be modified to transmit multiple signatures at the same time to compare said multiple signatures at the same time to determine which of the multiple files should be transmitted to the trusted source. *Id.* (citing Ex. 2008 ¶ 121). Patent Owner argues that, in Field, if more than one signature is transmitted from the trusted source to a client device during a backup or restore operation, then the operating system is unable to identify which files to backup and restore or where such files should be stored, since metadata, e.g., file name or directory, is not transmitted with the file signature. *Id.* (citing Ex. 2008 ¶ 121). Patent Owner contends that Field teaches a file-by-file backup and restore process for individual files and there is no evidence that Field can successfully transmit multiple signatures and then backup and restore multiple files at the same time. *Id.* (citing Ex. 2008 ¶ 122). Patent Owner argues that thus there would have been no motivation to combine the multiple signatures from Anderson into Field. *Id.* (citing Ex. 2008 ¶ 122).

c. Reply

i. Field's and Anderson's Teachings

Petitioner argues that Field's client device generates a signature of a file at a particular point in time and thus represents the current state of the

file because it is based on the content of that file. Pet. Reply 7. Petitioner argues that thus Field’s collection of signatures reflects the current state of the files stored on the first remote storage medium. *Id.* (citing Ex. 1024 ¶ 32). Petitioner further argues that Field discloses all of the information needed to perform a restore of backed up files. *Id.* at 8. As an example, Petitioner argues that Field discloses storing “types of information [that] are needed by the backup service to restore the data back onto a computing device associated with a user,” including file metadata such as “the location (e.g., a file path), name, and permissions of files that may be restored by the backup service.” *Id.* (quoting Ex. 1004 ¶ 40) (alteration in original). Further, Petitioner argues that claim 3 of Field teaches that Field’s processes reference such information as part of its restore process, quoting claim 3’s recitation of “wherein the file is restored on the first computing device with the same path, name, and permission.” *Id.* (quoting Ex. 1004, claim 3; citing Ex. 1024 ¶ 33). Further, Petitioner argues that Dr. Weissman conceded that Field can use this information to restore files. *Id.* (citing Ex. 1025, 120:10–18).

Petitioner also argues that Dr. Weissman testified that an inventory does not need to account for every file on a storage device. Pet. Reply 9 (citing Ex. 1025, 41:9–12). Petitioner argues that this understanding is consistent with embodiments disclosed in the ’043 patent, which allow for exclusion of particular files, and confirm that the claimed inventories need not reflect an entire storage medium. *Id.* (citing Ex. 1001, 12:15–21, 17:8–18).

Petitioner argues that the ’043 patent claims recite different inventories (e.g., “a first inventory” and “a backup inventory”), and there is

no requirement that these inventories include the same data. Pet. Reply 9 (citing Ex. 1024 ¶ 35). Petitioner argues, however, that even if the information required to perform a restore operation were required to be included in the inventory transmitted from client to backup system, it would have been obvious to do so based on the teachings of Field. *Id.* (citing Ex. 1024 ¶ 35). Petitioner asserts that Field discloses storing such information in its backup database, and an ordinarily skilled artisan would have understood this information would need to be received by Field's backup system to provide such storage. *Id.* at 10 (citing Ex. 1004 ¶ 40; Ex. 1024 ¶ 36). Petitioner asserts that an example is that Field discloses backing up and sharing "user level data," such as files created by users. *Id.* (citing Ex. 1004 ¶ 40; Ex. 1024 ¶ 36). According to Petitioner, the most logical technique for making associated metadata (e.g., file name and file path) available to the backup system is to transmit this information from the client. *Id.* (citing Ex. 1024 ¶ 36; Ex. 1025, 130:19–131:10). Petitioner argues that packaging this metadata with file signatures would reduce network overhead, which would be consistent with Field's goals, and would ensure the backup system has appropriate metadata for all files, even if a file was previously backed up by another user or device. *Id.* (citing Ex. 1024 ¶ 37).

Petitioner also argues that it would have been obvious to include a list of files on a storage medium in Field's file-based backup process. Pet. Reply 12. Petitioner asserts that Dr. Weissman confirmed "a list of files on the storage medium" need only account for the files being backed up. *Id.* (citing Ex. 1025, 66:6–67:6, 68:18–69:2). Further, Petitioner asserts that Dr. Weissman conceded that Field's backup database stores metadata

needed to perform a restore operation, including file names of backed up files. *Id.* (citing Ex. 1025, 120:10–18; Ex. 1004 ¶ 40). Petitioner also asserts that Dr. Weissman agreed that “a list of file names” would satisfy a requirement for a list of files. *Id.* (citing Ex. 1025, 61:11–20). Thus, Petitioner contends that there is no dispute that Field discloses “a list of files on the storage medium” as Patent Owner proposes in its construction. *Id.* (citing Ex. 1024 ¶ 39). Petitioner further contends that an ordinarily skilled artisan would have been motivated to transmit the file names of files being backed up along with file signatures to reduce network overhead and ensure the backup system has appropriate metadata for all files. *Id.* (citing Ex. 1024 ¶ 40; Ex. 1004 ¶ 23).

Petitioner argues that Patent Owner does not dispute that what Petitioner argues is an inventory in Field and Anderson has at least one descriptor. Pet. Reply 13–14.

Further, Petitioner argues that Field discloses storing the directory structure of the files backed up in its process. Pet. Reply 16 (citing Ex. 1024 ¶ 43). Petitioner argues that Dr. Weissman confirmed that an inventory does not need to account for every file on the storage device. *Id.* (citing Ex. 1025, 41:9–12). Petitioner further argues that Dr. Weissman confirmed that Field’s backup database stores metadata needed to perform a restore operation, including file paths of backed up files. *Id.* (citing Ex. 1025, 120:10–18; Ex. 1004 ¶ 40). Petitioner further argues that Dr. Weissman agreed that a file path provides the directory structure required to restore a file. *Id.* (citing Ex. 1025, 74:3–75:2). Petitioner further contends that an ordinarily skilled artisan would have been motivated to transmit file paths of

files being backed up along with file signatures. *Id.* (citing Ex. 1024 ¶ 43; Ex. 1004 ¶ 23).

ii. Combination of Field and Anderson

Petitioner argues that Patent Owner’s arguments against combining Field and Anderson are premised on the incorrect assumption that the ’043 patent claims require performing a full and complete backup of a storage medium using signatures. Pet. Reply 16–17. Petitioner asserts that the ’043 patent expressly discusses backups of fewer than all files on a storage medium. *Id.* at 17 (citing Ex. 1001, 12:15–21, 17:8–18; Ex. 1024 ¶ 45). Petitioner argues that Dr. Weissman agreed the claims encompass such backups, for example, backing up a folder and all the files in a folder. *Id.* (citing Ex. 1025, 40:22–41:12, 66:12–67:6, 68:12–69:2). Petitioner also argues that Anderson’s backup process is not limited to full system backups. *Id.* Petitioner asserts that Anderson discloses backing up a contour, which can comprise every article on the client device or a proper subset of articles on the client device. *Id.* (citing Ex. 1005 ¶ 19; Ex. 1024 ¶ 46). According to Petitioner, in any event, Field does not teach away from performing file-based backups of all or substantially all files on a client device. *Id.* (citing Ex. 1024 ¶ 47). Petitioner argues that Field’s process is not limited to a single file; rather, Field’s file-based backup process is designed to backup “one or more” files—without limit—including all files on a storage medium. *Id.* (citing Ex. 1004 ¶¶ 32–33; Ex. 1024 ¶ 47). Petitioner asserts that, even if Field’s file-based backup process was intended for a small number of files, a reference may be read for all that it teaches, including uses beyond its primary purpose. *Id.*

Petitioner also argues an ordinarily skilled artisan also would not have distinguished Field's two backup processes on the basis of full versus partial backups, contending that, rather, the relevant distinction is between file-based and image-based backups, which serve different purposes. Pet. Reply 18 (citing Ex. 1024 ¶¶ 48–49). Petitioner asserts that, in particular, Field's volume state backup process captures an image of the entire volume but does not prevent duplication of data across different users or devices. *Id.* (citing Ex. 1024 ¶¶ 49–51; Ex. 1025, 87:19–88:15). According to Petitioner, in contrast, Field's file-based backup process is specifically designed to prevent data duplication across different users and devices through the use of file signatures. *Id.* (citing Ex. 1024 ¶ 51; Ex. 1004 ¶ 29). Petitioner asserts that nothing in Field would discourage an ordinarily skilled artisan from using Field's file-based backup process to backup all files on a device, especially in large environments having multiple users sharing files. *Id.* (citing Ex. 1024 ¶ 52; Ex. 1004 ¶ 43). Further, Petitioner asserts that the mere presentation of alternative techniques does not constitute a teaching away. *Id.*

Petitioner also argues that it would have been obvious to transmit all the files signatures of Field at once. Pet. Reply 18–19. Petitioner argues that Dr. Weissman acknowledged that modifying Field to transmit all of the Field's signatures at once could be accomplished. *Id.* at 19 (citing Ex. 1025, 112:11–22, 113:5–114:9; Ex. 1024 ¶¶ 54–56).

d. Sur-Reply

i. Field's and Anderson's Teachings

In the Sur-reply, Patent Owner argues neither Field's file-based backup nor image-based backup have a need for the claimed inventory to

meet its efficiency goals. Sur-reply 10. Patent Owner further asserts Field has two very different backup methods and does not disclose a hybrid backup process that requires use of an inventory to allow for an efficient and complete backup or restore of a system without duplications of data either on the client device or the backup server. *Id.*

Patent Owner asserts that Field discusses two distinct and separate ways of backing up a storage device—a full volume backup and a backup of individual files, both of which do not disclose an inventory. Sur-reply 10. Patent Owner also argues Field generates a signature for one file at a time and that the collection of signatures that Field generates may represent the current state of the files being backed up, they do not reflect the current state of the drive, the remote storage medium. *Id.* at 10–11. Patent Owner asserts that additional data about the current state of the drive would need to be provided from the client device to the backup server at some point, but this is not disclosed in Field. *Id.* at 11. Patent Owner asserts that such additional data may include, but is not limited to metadata, e.g., filename or directory. *Id.* (citing Ex. 2008 ¶ 119). Further, Patent Owner asserts Field does not disclose storing this data with the signature of a file that would reflect the current state of the storage medium at the time a backup or restore is activated. *Id.*

Patent Owner also argues that Field does not disclose how a restore is performed for individual files. Sur-reply 11. According to Patent Owner, Field fails to explain where the extra information needed to perform a restore comes from, and even allows that it can be provided by the OS (operating system) vendor itself for OS and application program or from a volume backup. *Id.* Patent Owner argues that, on the other hand, the

inventory discussed in the '043 patent provides the information needed to restore a storage medium including restoring individual files, chunks of files, etc. in their proper location and at in their proper state on the storage medium. *Id.*

Patent Owner does not disagree that the claimed inventory may not account for every file on the system. Sur-reply 12. Patent Owner argues that, instead, the claimed inventory accounts for the data, which may only be a chunk of data, selected by a user to be backed up or restored. *Id.* (citing Ex. 2008 ¶ 11). Patent Owner asserts that the inventory will then include enough information to backup the data to be able to restore that data completely on a client device. *Id.* (citing Ex. 2008 ¶ 11). Further, Patent Owner argues that Field may be able to restore individual files, but Field does not teach a system, which the '043 patent does, that allows for a complete restore or even a restore of more than just individual files. *Id.* (citing Ex. 2008 ¶ 11).

Patent Owner argues that Field and Anderson do not disclose an inventory that includes at least one descriptor. Sur-reply 12. Patent Owner reasserts that Field's file-based backup performs a backup of one file at a time using one and only one descriptor of said file. *Id.* Patent Owner argues that, in Field, if a file is to be backed up, then the one descriptor is provided to the backup server. *Id.* Further, Patent Owner asserts that having an inventory in Field consisting of just one descriptor and no other data would lead to inefficient backup since additional and unnecessary steps are taken with the use of an inventory. *Id.* Patent Owner further asserts that Field's full volume backup of a computing device does not include the use of

signatures and thus, has no use for the claimed inventory. *Id.* (citing Ex. 1004, Fig. 3).

Patent Owner also argues that Field does not disclose storing the directory structure of files. Sur-reply 13. Patent Owner asserts that Field fails to explain how the system would obtain the location of a file, which is needed to perform a restore operation of each individual file. *Id.* According to Patent Owner, Field only discloses that the file metadata including the location, name, and permissions of files are stored in the backup database. Patent Owner argues that Field alone or in combination with Anderson does not disclose the claimed inventory. *Id.* at 13–14.

ii. Combination of Field and Anderson

In the Sur-reply, Patent Owner argues that Petitioner fails to provide credible evidence for a motivation to combine Field and Anderson. Sur-reply 14. Patent Owner argues that Petitioner continues to ignore that Field and Anderson disclose different backup processes. *Id.* at 15. Patent Owner contends that Anderson does not teach a file-based backup where one file at a time is backed up, but rather a full backup system using content identifiers that identify various data. *Id.* Patent Owner asserts that Field teaches away from using a signature file method for full volume backups of a system. *Id.* Further, Patent Owner argues that Field's volume-based backup does not use signatures of files to protect against duplicated data from being stored and restored. *Id.* Patent Owner also argues that Field's file-based backup fails to disclose the transmittance of multiple signatures and the ability to backup multiple files at the same time unlike in Anderson. *Id.*

ii. Discussion

a. Field

We find Petitioner’s arguments and evidence persuasive to show that the combination of Field and Anderson teaches or suggests limitation 1A.1. Field’s client computers include remote back module 202. Ex. 1004 ¶¶ 28–29. Remote backup module 202 causes data to be transmitted and stored on back end computing device 102. Ex. 1004 ¶ 29. The storage on the client device (target computing device) is a first remote storage medium because target computing device 104 is remote from Field’s backend computing device 102. Ex. 1002 ¶¶ 113–114; Ex. 1004, Fig. 2. In Field, backend computing devices 102, 410, and 412 are backup servers. Ex. 1002 ¶¶ 76–77; Ex. 1004 ¶¶ 16, 22, 42–43, Figs. 1, 2, 4.

Field discloses having remote backup module 202 use the process of Figure 3 to perform a backup. Block 306 of that process “selects a file that was designated for backup.” Ex. 1004 ¶¶ 34–35. Block 308 generates a signature for that selected file. *Id.* Then, “at block 310, the remote backup module 202 causes the signature of the selected file to be transmitted to the trusted source and compared to signatures of files previously submitted to the trusted source.” *Id.* ¶¶ 7, 37. If the file is not already available to the trusted source, then, at block 312, remote backup module 202 transmits the selected file to the trusted source. *Id.* ¶ 37. If the file is already available to the trusted source, then remote backup module 202 skips block 312 and does not transmit the selected file to the trusted source. *Id.* At block 314, remote backup module 202 checks to see if additional files are to be backed up. *Id.* ¶ 39. If there are, module 202 repeats blocks 306, 308, 310, 312, and 314 for each selected file. *Id.*

As a result of this process, a signature for each file that is selected to be backed up is transmitted to the trusted source (backup computing device 102—the backend server). Ex. 1002 ¶ 117. The trusted source receives that collection of signatures and compares them to the signatures that it previously received from target computing device 104. *Id.* Thus, with the process of Figure 3, the trusted source receives the collection of signatures for the files to be backed up. *Id.* As mentioned, the trusted source is backend computing device 102, a backup server. The files to be backed up are electronic data on a first remote storage medium (the storage of target computing device 104). *Id.* ¶ 116. Thus, in this process, the backup server (backend computing devices) receives a collection of signatures for electronic data stored on a first storage medium, i.e., the storage of target computing device 104. *Id.* ¶¶ 116–121.

These signatures collectively are an inventory. Ex. 1002 ¶¶ 117–121. In particular, they are an itemized list of electronic data. The signatures are collectively an itemized list because there is one signature of every item in that electronic data. The items in the electronic data are files, and there is one signature per file. As set forth above, Patent Owner relies heavily on its proposed construction for “inventory” to argue that that a collection of signatures is not an inventory. As set forth above, however, we do not accept that proposed construction.

Thus, Field discloses receiving, at a backup server (backup computing device 102), a first inventory of electronic data stored on a remote storage medium (the collection of signatures for the files to be backed up on the storage of target computing device 104). Ex. 1002 ¶¶ 113–121. This electronic data “comprises actual file data to be backed-up from the first

remote storage medium.” *Id.* Further, this electronic data is files to be backed up from target computing device 104 (the first remote storage medium). *Id.* Thus, we find Field teaches or suggests limitation 1A.1. *Id.*

b. Combination of Field and Anderson

We further find that Petitioner has proven that an ordinarily skilled artisan would have been motivated to modify Field’s teachings based on Anderson to transmit the collection of signatures generated by the process of Field’s Figure 3 to backup computing device 102 at one time.

Both Field and Anderson are directed to efficient data backup across multiple client devices. Ex. 1004, code (57) (“The present invention is directed to a system, methods, and a computer-readable medium for efficiently performing a backup of data in a networking environment.”); Ex. 1005 ¶ 12 (“The Embodiments discussed herein generally relate to a method and apparatus for differential bandwidth efficient and Storage-efficient backup and restoration.”). In fact, Anderson was cited during prosecution of Field’s original application. Ex. 1015, 7, 18.

Field and Anderson disclose similar processes for backing up files. Ex. 1002 ¶¶ 83, 92. These processes both include selecting files to be backed up on a client device. Ex. 1004 ¶ 35 (“remote backup module 202 selects a file that was designated for backup”); Ex. 1005 ¶ 95 (“block 717 where files that are to be included in the contour are determined”); Ex. 1002 ¶ 92. These processes both generate identifiers for files or collections of files to be backed up. Ex. 1004 ¶ 35 (“generate a signature for the file”); Ex. 1005 ¶¶ 42 (“CI includes a signature”), 57 (CI stored as a part of a CCID), 97 (“CCID(s) are generated for the [] contour(s).”); Ex. 1002 ¶¶ 86, 92. Further, these processes both determine whether files to be backed up

are already stored at a backup device. Ex. 1004 ¶ 37 (“determines whether the selected file is already available to the trusted source”); Ex. 1005 ¶ 98 (“block 745 determines that files do not need to be transmitted”); Ex. 1002 ¶¶ 90, 92.

Anderson teaches concurrently transmitting multiple content identifiers for files (i.e., “articles”) selected to be backed up. Ex. 1002 ¶ 121; Ex. 1005 ¶¶ 63, 97, Fig. 7 (block 730). Anderson discloses that a “client generates a CI [(content identifier)] for each article that is stored on the client system,” and then “[t]he client’s system transmits the CIs to the backup service.” Ex. 1005 ¶ 63; *see also id.* ¶ 97, Fig. 7, block 730; Ex. 1002 ¶ 121.

We are persuaded that an ordinarily skilled artisan would have been motivated to concurrently transmit Field’s generated signatures as in Anderson because it would further reduce the amount of network overhead in Field’s backup process. Ex. 1002 ¶ 121. In other words, one transmission would replace multiple transmissions, which would lower network overhead. *Id.* This would further Field’s goal of promoting network transmission efficiency. Ex. 1004 ¶ 23. We credit Dr. Shenoy’s testimony that modifying Field’s backup process to transmit signatures at the same time would require nothing more than executing block 308 of Field’s process depicted in Figure 3 (i.e., generating a signature of a selected file) for each file to be backed up prior to transmitting the signatures to the back end computing device (trusted source) in block 310. Ex. 1002 ¶ 121. Thus, an ordinarily skilled artisan would have a reasonable expectation of success in making this modification. *Id.*

As discussed above, the collection of signatures constitutes an inventory. Thus, Field and Anderson combined teach or suggest receiving, at a backup server (backup computing device 102), a first inventory of electronic data stored on a remote storage medium (the collection of signatures for the files to be backed up on the storage of target computing device 104), where the inventory is sent at one time. As discussed above, this electronic data “comprises actual file data to be backed-up from the first remote storage medium.”

We do not agree with Patent Owner’s arguments that an ordinarily artisan would not have been motivated to combine Field and Anderson as proposed by Petitioner. Patent Owner addresses the issue of motivation to combine in several different places in its Patent Owner Response. Many of Patent Owner’s arguments on this issue, however, are based on its position that Field teaches away from Petitioner’s proposed combination. Therefore, we first address the alleged teaching away and then turn to Patent Owner’s additional arguments as to why an ordinarily skilled artisan would not have made the combination or why Petitioner has not proven that an ordinarily skilled artisan would have done so.

We begin with Patent Owner’s explanation and discussion of Field. *See* PO Resp. 32–38. Patent Owner explains that Field discloses two ways of backing up a storage device—a full-volume backup and a backup of individual files.²² *Id.* at 33 (citing Ex. 2008 ¶ 80). Patent Owner states that

²² Petitioner describes this distinction in Field as between a file-based backup and an image-based backup, noting that Field’s volume-state backup “captures an image of the entire volume but does not prevent duplication of data across different users or devices,” whereas Field’s file-based backup is

when Field performs a full-volume backup, that process does not involve generating signatures, as shown on the right-hand side of the flowchart of Figure 3. *Id.* at 34. We agree. Patent Owner, however, asserts further that because Field does not teach using signatures for a full-volume backup, that means “Field teaches away from generating signatures for a full-volume backup, which creates a copy of the entire target computing device system and is not concerned with backing up individual files for which signatures might be generated in Field.” *Id.* (citing Ex. 2008 ¶ 82); *see* Sur-reply 15 (asserting Field teaches away). On these points, we disagree.²³

“A reference may be said to teach away when a person of ordinary skill, upon reading the reference . . . would be led in a direction divergent

designed to prevent data duplication through the use of file signatures. *See* Pet. Reply 18 (citing Ex. 1024 ¶¶ 51–55; Ex. 1025, 87:19–88:15; Ex. 1004 ¶ 29). Our consideration and determination on the issues presented does not hinge on which characterization is applied.

²³ Many of Patent Owner’s arguments stem from the position that the “inventory” must have enough electronic data to perform a complete restore. *See, e.g.*, PO Resp. 46 (“the ’043 Patent identifies the need for a solution that provides a complete back and restore of an entire storage medium”), 46 (“contrary to Field, the ’043 Patent teaches a full backup and restore of a file system using descriptors transmitted as part of an inventory having sufficient data to reflect the current state of the drive.”). But, Patent Owner’s acknowledgement that “inventory” need not account for every file on a remote storage medium demonstrates the fallacy of that position. In particular, even assuming that a restore is required by the Challenged Claims, an “inventory” of less than all files on a remote storage medium (which includes an inventory representing one file) would not perform a complete restore of that remote medium. Ex. 1024 ¶ 45 (Dr. Shenoy noting that the ’043 patent explicitly discusses backups of fewer than all files on a storage medium); Ex. 1025, 40:14–21 (Dr. Weissman confirming that “inventory” is not required to reflect every file residing on the storage medium).

from the path that was taken by the applicant.” *In re Haruna*, 249 F.3d 1327, 1335 (Fed. Cir. 2001) (quoting *Tec Air, Inc. v. Denso Mfg. Mich. Inc.*, 192 F.3d 1353, 1360 (Fed. Cir. 1999)); see *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004) (holding that, to teach away, the prior art must “criticize, discredit, or otherwise discourage the solution claimed”).

Patent Owner fails to identify, and we do not discern, any indication in Field that criticizes, discredits, or otherwise discourages one of ordinary skill in the art from using signatures with a full-volume backup. That one backup (file-by-file) involves generating signatures where the other backup (volume state) does not, does not mean that Field teaches away from using signatures in a volume-state backup simply because it is not disclosed. Patent Owner’s argument would effectively mean that any lack of disclosure is a teaching away, which it is not.

Additionally, Patent Owner asserts that because Field only sends one file signature at a time, and is concerned with optimizing bandwidth usage, “it teaches away from creating and sending an inventory which would include multiple file signatures much less any other data such as data representing the current state of the drive, filenames, or directories.” PO Resp. 37 (citing Ex. 2008 ¶ 88); see Sur-reply 15 (“Field teaches away from using a signature file method for full volume backups of a system”). Further, in its discussion of Anderson (see PO Resp. 38–40), Patent Owner argues that one of ordinary skill in the art would not have been motivated to modify Field in light of Anderson (an issue we discuss further below), and contends that “Field teaches away from backing up multiple files at the same time.” *Id.* at 40 (citing Ex. 2008 ¶ 125). Thus, Patent Owner contends that one of ordinary skill in the art “would learn from Field *not* to create an

inventory of electronic data consisting of cryptographic signatures that reflects the current state of the first remote storage medium as it would lead to inefficiencies that counteract the ultimate goal of an efficient backup process.” *Id.* at 37–38 (citing Ex. 2008 ¶ 88).

Patent Owner’s argument raises two issues—(1) whether Field teaches away and (2) whether one of ordinary skill in the art would have been motivated to not transmit an inventory with multiple signatures due to a concern with backup efficiency. With respect to whether Field teaches away, Patent Owner’s argument is premised, in part, on a requirement derived from its proposed construction of “inventory”—that the claimed “inventory” must include additional data, such as filenames and directories. As discussed above, we do not agree with Patent Owner’s construction. Similar to Patent Owner’s earlier argument of a teaching away, Patent Owner fails to identify anything in Field that criticizes, discredits, or otherwise discourages one of ordinary skill in the art from creating an inventory, as properly construed. Accordingly, we do not find that Field teaches away from using or creating an inventory.

With regard to the motivation, as discussed above, the mere fact that Field discloses an embodiment in which signatures are sent one at a time to a backend server would not discourage an ordinarily skilled artisan from modifying Field to collect and send the signatures as whole. As discussed above, Petitioner provides a motivation for making this modification. Regarding the purported inefficiencies that would result from sending multiple signatures at one time in Field, Patent Owner does not identify any specifically identified inefficiencies or why they would occur. PO Resp. 37–38. The testimony of Dr. Weissman upon which Patent Owner relies for this

assertion of inefficiencies also does not specifically identify the purported inefficiencies nor explain why they would occur. Ex. 2008 ¶ 88. Instead, that testimony merely indicates sending all the signatures at one time in Field would result in inefficiencies. *Id.* We give this unsupported testimony little weight. Instead, we credit Dr. Shenoy’s testimony that, at least for certain networks, modifying Field to transmit one inventory with all of the signatures, rather than separately transmitting each signature, would be expected to promote backup efficiency and network utilization, not undermine it. Ex. 1002 ¶ 121.

Patent Owner asserts that “[w]hen considering the problems that Field and Anderson attempt to solve, there is no justifiable reason for [an ordinarily skilled artisan] at the time of the ’043 patent to combine these references.” PO Resp. 47 (citing Ex. 2008 ¶ 110). We disagree. As set forth above, Petitioner has provided justifiable reasons for combining Field and Anderson. Pet. 12–23, 25–31 (and the exhibits cited therein).

Patent Owner asserts that “just because Field and Anderson are in the same general field does not mean it would have been obvious to combine them.” PO Resp. 47 (citing Ex. 2008 ¶ 111). We agree with this statement. But, as described above, Petitioner has shown that Field and Anderson are not just in the same general field, but have many similarities and, further, Petitioner provides an express motivation for combining their teachings. Pet. 12–23, 25–31 (and the exhibits cited therein).

Third, Patent Owner again asserts that Field teaches away from using a signature file method for full backups of a system simply because Field’s full-volume-state backup does not use signatures. PO Resp. 47–48 (citing Ex. 2008 ¶¶ 110–12). We have already addressed this argument and found it

lacking because Patent Owner fails to identify where Field criticizes, discredits, or otherwise discourages one of ordinary skill in the art from using signatures with a full-volume backup.²⁴

Considering the complete record before us, for the reasons explained above we find that Petitioner has established that the combination of Field and Anderson teaches limitation 1A.1 and that one of ordinary skill in the art would have had a reason with rational underpinning to modify Field with the teachings of Anderson as proposed by Petitioner with a reasonable expectation of success. Ex. 1002 ¶¶ 113–121.

c. [1A.2] wherein the first inventory comprises at least one descriptor and wherein the at least one descriptor comprises a cryptographic signature computed based on the actual file data, the cryptographic signature uniquely identifying the electronic data to be backed-up;

Petitioner argues that Field and Anderson teach limitation 1A.2. Pet. 31. Petitioner argues that the signatures that Field generates are cryptographic signatures in the form of a hash that uniquely identifies the electronic data to be backed up. *Id.* (citing Ex. 1004 ¶ 36). Petitioner notes that Field discloses using the SHA-1 hashing algorithm. *Id.* Petitioner argues that an ordinarily skilled artisan would have understood that SHA-1 is a cryptographic algorithm that uniquely identifies files. *Id.* at 32 (citing Ex. 1002 ¶ 123). Petitioner further argues that Field’s generated signature is based on actual file data, asserting that Field discloses using algorithms that

²⁴ Patent Owner raises an additional argument as to whether one of ordinary skill in the art would have been motivated to modify Field, but that argument is directed to limitation 1B.5 and, thus, we discuss it there. *See* PO Resp. 48–50 (addressing whether Field “could be modified to transmit multiple signatures at the same time”).

are capable of generating a signature from file data. *Id.* (citing Ex. 1002 ¶ 123). Further, Petitioner argues that Anderson discloses that SHA provides a signature value characterizing a specific article's content. *Id.* (citing Ex. 1002 ¶ 123; Ex. 1005 ¶ 42).

Patent Owner does not specifically address limitation 1A.2. PO Resp. 40–54. The limitation, however, recites “inventory,” which Patent Owner argues that Field and Anderson do not teach or suggest. *Id.* at 40–45. We addressed the parties' arguments and evidence regarding Field's teachings of an inventory in our discussion of limitation 1A.1 above. As set forth in Section III.B.3.b above, we find that Field teaches the recited inventory. We have reviewed Petitioner's showing for all other recitations in limitation 1A.2 and find that Petitioner has shown that Field teaches limitation 1A.2. *See* Pet. 31–32 (and the exhibits cited therein).

d. [1B.1] comparing, at the backup server, the at least one descriptor of the first inventory to a list of descriptors associated with a second inventory of electronic data stored on a backup data storage medium,

Petitioner argues that Field teaches limitation 1B.1. Pet. 32. Petitioner asserts that, in Field, the signatures transmitted to the back end computing device are compared to signatures of files already available to the back end computing device. *Id.* (citing Ex. 1004 ¶¶ 8, 37). Petitioner asserts that the signatures already available to the back end computing device are a list of descriptors associated with a second inventory of electronic data stored on a backup storage medium. *Id.* at 33 (citing Ex. 1002 ¶¶ 124, 125; Ex. 1004, Fig. 3).

Patent Owner does not specifically address limitation 1B.1. PO Resp. 40–54. The limitation, however, recites “inventory,” which Patent

Owner argues that Field and Anderson do not teach or suggest. *Id.* at 40–45. We addressed the parties’ arguments and evidence regarding Field and Anderson’s teachings of an inventory in our discussion of limitation 1A.1 above. As set forth in Section III.B.3.b above, we find that Field teaches the recited inventory. We have reviewed Petitioner’s showing for all other recitations in limitation 1B.1 and find that Petitioner has shown that Field teaches limitation 1B.1. *See* Pet. 32–35 (and the exhibits cited therein).

e. [1B.2] wherein the second inventory of electronic data comprises shared electronic data from among a plurality of storage mediums including storage mediums different from the first remote storage medium and wherein the at least one descriptor of the first inventory is compared with descriptors in the second inventory that correspond, at least partially, to data stored on the backup data storage medium by storage mediums different from the first remote storage medium

Petitioner argues that Field and Anderson teach limitation 1B.2. Pet. 35. Petitioner asserts that the signatures available to the back end computing devices in Field come from multiple client computing devices as shown in Figure 4 of Field. *Id.* at 33–35 (citing Ex. 1002 ¶¶ 125–128; Ex. 1004 ¶¶ 16, 23–24, 40, 43). Further, Petitioner asserts the signatures previously submitted to the back end computing device could and would often come from client devices participating in the backup process that are different from the client device currently attempting to backup files. *Id.* at 35 (citing Ex. 1002 ¶ 129). Petitioner argues that thus these signatures of files previously submitted are “shared electronic data from among a plurality of storage mediums including storage mediums different from the first remote storage medium.” *Id.* (citing Ex. 1002 ¶ 129).

Petitioner further argues that Field explicitly discloses that its “backup database 106 store[d] files and/or data that represents a volume state on behalf of users who participate in the backup service provided by the present invention.” Pet. 36 (citing Ex. 1004 ¶ 40) (alteration in original). Further, Petitioner asserts that Field discloses that files can be shared across users (multiple client devices), and Field advantageously needs to store only one copy of each shared file. *Id.* (citing Ex. 1004 ¶ 40).

Petitioner asserts that an ordinarily skilled artisan would have understood that Field discloses comparing the signature of the selected file not only to signatures of files previously submitted by the same client device, but also to signatures of files previously submitted by other client devices, in the event that files may be shared across multiple clients. Pet. 36 (citing Ex. 1002 ¶ 131),

Patent Owner does not specifically address limitation 1B.2. PO Resp. 40–54. The limitation, however, recites “inventory,” which Patent Owner argues Field and Anderson do not teach or suggest. *Id.* at 40–45. We addressed the parties’ arguments and evidence regarding Field and Anderson’s teachings of an inventory in our discussion of limitation 1A.1 above. As set forth in Section III.B.3.b above, we find that Field teaches the recited inventory. We have reviewed Petitioner’s showing for all other recitations in limitation 1B.2 and find that Petitioner has shown that Field teaches limitation 1B.2. *See* Pet. 35–37 (and the exhibits cited therein).

f. [1C] determining that a first descriptor from the at least one descriptor of the first inventory substantially matches a second descriptor from the list of descriptors associated with the second inventory; and

Petitioner argues that Field teaches limitation 1C. Petitioner quotes Field's disclosure that

at block 310, the remote backup module 202 causes the signature of the selected file to be transmitted to the trusted source and compared to signatures of files previously submitted to the trusted source. In instances when a matching signature for the selected file is identified the remote backup module 202 proceeds to block 314 described below.

Pet. 37 (quoting Ex. 1004 ¶ 37) (emphasis and annotations omitted).

Petitioner further argues: “[i]n other words, Field compares the signatures of the files selected to be backed up to signatures of files already stored (i.e., previously transmitted) to the back end computing device to determine whether the signatures match.” *Id.* at 38 (citing Ex. 1002 ¶ 133).

Patent Owner does not specifically address limitation 1C. PO Resp. 40–54. The limitation, however, recites “inventory,” which Patent Owner argues that Field and Anderson do not teach or suggest. *Id.* at 40–45. We addressed the parties' arguments and evidence regarding Field and Anderson's teachings of an inventory in our discussion of limitation 1A.1 above. As set forth in Section III.B.3.b above, we find that Field teaches the recited inventory. We have reviewed Petitioner's showing for all other recitations in limitation 1C and find that Petitioner has shown that Field teaches limitation 1C. *See* Pet. 37–38 (and the exhibits cited therein).

g. [1D] reporting, from the backup server, to the first remote storage medium that electronic data associated with the first descriptor is already stored in the backup data storage medium.

Petitioner argues that Field and Anderson teach limitation 1D.

Pet. 39.

i. Parties' Arguments

In the Petition, Petitioner asserts that Field, in describing its Figure 3, discloses that “[i]n instances when a matching signature for the selected file is identified, the remote backup module 202 proceeds to block 314 described below,’ bypassing block 312.” Pet. 39 (citing Ex. 1004 ¶ 37) (alteration in original). Further, Petitioner argues that Field discloses “[s]ignificantly, a file that was previously made available to the trusted source is not transmitted by the remote backup module 202 [of the target computing device]. Instead only a signature of the file, which is a fraction of the size of a complete file, is transmitted to the trusted source.” *Id.* at. 39–40 (quoting Ex. 1004 ¶ 38) (alteration in original). Petitioner acknowledges that Field does not explicitly discuss whether its process reports to the target computing device that the selected file has already been stored. *Id.* at 40. Petitioner argues that Anderson addresses such reporting. *Id.* (citing Ex. 1002 ¶ 135). Petitioner asserts that “if Anderson’s backup process ‘determines that files do not need to be transmitted,’ the process ‘completes and a message is sent to the client [(i.e., “reporting, from the backup server, to the first remote storage medium”)] informing the client that there is no need to transmit article contents to the server.’” Pet. 40 (quoting Ex. 1005 ¶ 98) (emphasis omitted, bracketed annotations by Petitioner).

In addition to the arguments presented for combining Field and Anderson that we addressed for limitation 1A.1 in Section III.B.3.b above, Petitioner argues that an ordinarily skilled artisan would have been motivated to incorporate this reporting operation with a reasonable expectation of success into the process of Field when a file “was previously made available to the trusted source” to inform the client device that no further action is necessary. Pet. 40 (citing Ex. 1002 ¶ 136). Petitioner further asserts that “[t]his allows the backup process on the client device to complete (or proceed further as necessary), freeing up computing resources. *Id.* (citing Ex. 1002 ¶ 136). According to Petitioner, incorporating this operation into Field’s disclosed process would be a simple addition, merely adding a well-known transmission of an informative message to the client device. *Id.* (citing Ex. 1002 ¶ 136). Petitioner further argues that an ordinarily skilled artisan would have further been motivated to report to the client device in Field’s backup process to inform not only the client device itself, but also the user of the client device, when a file was previously made available to the trusted source and does not need to be retransmitted. *Id.* at 40–41 (citing Ex. 1002 ¶ 137).

As discussed in Section III.B.3.b above, Patent Owner disputes that an ordinarily skilled artisan would combine Field’s and Anderson’s teachings. In addition to the arguments by Patent Owner that we addressed in Section III.B.3.b above, Patent Owner presents arguments specifically directed to the motivation to combine Field and Anderson to reach limitation 1D, which we address here.

In the Patent Owner Response, Patent Owner argues that there is no motivation to combine Field and Anderson to reach limitation 1D. PO

Resp. 52 (citing Ex. 2008 ¶ 126). According to Patent Owner, an ordinarily skilled artisan would have not been motivated to so combine Field and Anderson because reporting a message that the selected file is already stored on a backup storage medium would create an unnecessary extra step and a more inefficient process in Field. *Id.* (citing Ex. 2008 ¶ 127). Patent Owner asserts that Field uses signatures in a file-by-file-based backup system only and teaches away from using signatures in a full backup of a system. *Id.* (citing Ex. 2008 ¶ 127). According to Patent Owner, rather, Field teaches a file-based backup system that performs a backup of one selected file at a time where one signature of one file is sent at a time, and not of a group of selected files. *Id.* (citing Ex. 2008 ¶ 127). Patent Owner asserts that, thus, in Field, if a selected file is already stored on the server, then the system immediately moves to see if additional files are to be backed up as shown in Figure 3 of Field. *Id.* at 52–53 (citing Ex. 2008 ¶ 127).

Patent Owner argues that Petitioner’s motivation to combine statements are conclusory as it would be inefficient and unnecessary for Field to first report to the client device that the individual file was already stored on the system. PO Resp. 53 (citing Ex. 2008 ¶ 128). Patent Owner asserts that Field’s stated solution is to perform optimizations designed to reduce the amount of time and network bandwidth required to backup a computing device. *Id.* Patent Owner contends that reporting a message or transmitting a second inventory to the client device to inform the client device that a file is already stored is unnecessary and there is no motivation to add this step in view of Field’s technological solution. *Id.* (citing Ex. 2008 ¶ 128). According to Patent Owner, instead, as only one selected file at a time undergoes the Field backup process, the client device knows

whether the next step is to transmit the file (if a message is received) or to check if additional files were selected for backup (no message received). *Id.* (citing Ex. 2008 ¶ 128). Patent Owner contends, that, as such, an ordinarily skilled artisan would not have been motivated to combine Field and Anderson to teach a more inefficient system. *Id.* (citing Ex. 2008 ¶ 128).

In Petitioner’s Reply, Petitioner argues that Patent Owner’s argument that adding the reporting taught by Anderson to Field would render Field “inefficient” is not supported by any evidence. Pet. Reply 19. Petitioner asserts that if no message were sent in Field’s backup process to inform the client that a file exists on the server, Field’s process would not have known to move to the next file. *Id.* (citing Ex. 1024 ¶¶ 57–58). Petitioner further argues that such a message would require negligible network bandwidth and reduce the time required to backup files, consistent with Field’s goals. *Id.* (citing Ex. 1024 ¶ 58; Ex. 1004 ¶¶ 6, 23, 38).

In the Patent Owner Sur-reply, Patent Owner does not specifically address limitation 1D. The Sur-reply, however, does present arguments that Field and Anderson do not teach an inventory and that an ordinarily skilled artisan would not combine Field and Anderson, but none of those arguments are specific to limitation 1D. Sur-reply 10–15. Therefore, we addressed those arguments in our discussion of limitation 1A.1 in Section III.B.3.b above.

ii. Discussion

We find that Field and Anderson teach limitation 1D.

When describing block 310 of the process of its Figure 3, Field discloses that “[i]n instances when a matching signature for the selected file is identified, the remote backup module 202 proceeds to block 314.”

Ex. 1004 ¶ 37). This means that when there is a matching signature, Field skips block 312, which is the transmission of the file to the trusted source. *Id.* at Fig. 3, Ex. 1002 ¶ 134. Further, Field discloses that “[s]ignificantly, a file that was previously made available to the trusted source is not transmitted by the remote backup module 202 [of the target computing device]. Instead only a signature of the file, which is a fraction of the size of a complete file, is transmitted to the trusted source.” Ex. 1004 ¶ 38.

When Anderson’s backup process “determines that files do not need to be transmitted,” “a message is sent to the client informing the client that there is no need to transmit article contents to the server.” Ex. 1005 ¶ 98. An ordinarily skilled artisan would have been motivated to incorporate this reporting operation from Anderson into the process of Field when a file “was previously made available to the trusted source” to inform the client device that no further action is necessary. Ex. 1002 ¶ 136. Doing so allows the backup process on the client device to complete (or proceed further as necessary), freeing up computing resources. *Id.* We credit Dr. Shenoy’s testimony that incorporating this operation into Field’s disclosed process would be a simple addition, merely adding a well-known transmission of an informative message to the client device and, thus, an ordinarily skilled artisan would have had a reasonable expectation of success in making this modification. *Id.* We also credit Dr. Shenoy’s testimony that an ordinarily skilled artisan would have been further motivated to report to the client device in Field’s backup process to inform not only the client device itself, but also the user of the client device, when a file was previously made available to the trusted source and does not need to be retransmitted. *Id.* ¶ 137.

We do not credit Dr. Weissman's testimony that it would be inefficient and unnecessary for Field to first report to the client device that the individual file was already stored on the system. Ex. 2008 ¶ 128. Dr. Weissman does not explain why it would be inefficient and unnecessary for Field to report to the client device that an individual file was already stored in the system. *Id.* Reviewing the process of Figure 3, we credit Dr. Shenoy's testimony that if no message were sent in Field's backup process to inform the client that a file exists on the server, Field's process would not know to move to the next file, which would create unnecessary delays. Ex. 1024 ¶¶ 57–58. We further credit Dr. Shenoy's testimony that such a message would require negligible network bandwidth and reduce the time required to backup files, consistent with Field's goals. *Id.* ¶ 58; *see also* Ex. 1004 ¶¶ 6, 23, 38.

Thus, we find that Field and Anderson teach limitation 1D and that an ordinarily skilled artisan would have been motivated to combine Field and Anderson and would have had a reasonable expectation of success in so doing. Ex. 1002 ¶¶ 134–137.

h. Summary

We find that Petitioner has proven that Field and Anderson teach or suggest every limitation of claim 1 and that an ordinarily skilled artisan would have been motivated to combine Field's and Anderson's teachings and would have had a reasonable expectation of success in so doing. Ex. 1002 ¶¶ 91–137. Thus, we determine that Petitioner has proven that claim 1 would have been obvious over Field and Anderson. *Id.*

4. Claims 2, 4, 6, 9, 10, 13–15, 17, 19, 20, 22, 24, 26, 28, and 34

Patent Owner presents the same arguments for claims 2, 4, 6, 9, 10, 13–15, 17, 19, 20, 22, 24, 26, 28, and 34 as for claim 1. PO Resp. 12–77. Thus, the disputed issues for claims 2, 4, 6, 9, 10, 13–15, 17, 19, 20, 22, 24, 26, 28, and 34 are the same as for claim 1. *Id.* For the reasons expressed in Section III.B.3 above, we resolve those disputed issues in favor of Petitioner and find that Petitioner has proven that Field and Anderson teach or suggest every limitation of claim 1. Regarding the limitations that claims 2, 4, 6, 9, 10, 13–15, 17, 19, 20, 22, 24, 26, 28, and 34 recite that claim 1 does not, we have reviewed the record and determine that Petitioner has proven that Field and Anderson teach or suggest each of those limitations for the reasons explained by Petitioner. *See* Pet. 12–23, 41–76 (and the exhibits cited therein). Thus, we determine that Petitioner has proven that claims 2, 4, 6, 9, 10, 13–15, 17, 19, 20, 22, 24, 26, 28, and 34 would have been obvious over Field and Anderson.

5. Claims 3 and 16

Claim 3 depends on claim 1 and further recites “removing the electronic data associated with the first descriptor from a list of electronic data that is to be transmitted to the backup data storage medium” (“limitation 3A”). Ex. 1001, 19:5–8. Claim 16 depends from claim 15 and further recites “wherein the backup application is further adapted to remove the electronic data associated with the first descriptor from a list of electronic data that is to be transmitted to the backup data storage medium” (“limitation 16A”). *Id.* at 20:35–38.

In the Petition, Petitioner argues that Field teaches limitations 3A and 16A by disclosing that remote backup module 202 of Field’s client devices

performs a backup of one or more files using the process depicted in Figure 3 of Field. Pet. 54 (citing Ex. 1004 ¶ 29). Petitioner asserts that, in that process, Field determines, for each file, whether the file has previously been stored (i.e., already available to the trusted source). *Id.* (citing Ex. 1004 ¶ 37). Further, Petitioner argues that, in Field, if the selected file was not previously transmitted to the trusted source and, therefore, is not available to the trusted source, the file is transmitted to Field's back end computing device. *Id.* (citing Ex. 1004 ¶ 38). Petitioner asserts, however, that a file that was previously made available to the trusted source is not transmitted by the remote backup module 202. *Id.* (citing Ex. 1004 ¶ 38). According to Petitioner, "[i]n this manner, Field's process removes files selected for backup that have already been stored by the trusted source from the list of files to be transmitted to the trusted source, i.e., the files selected for backup." *Id.* at 55–56 (citing Ex. 1002 ¶ 45). Petitioner asserts that "[a]ccordingly, Field teaches the elements of claims 3 and 16." *Id.* at 56.

In the Patent Owner Response, Patent Owner argues that Field does not teach transmitting a list of files or removing electronic data of a descriptor from an inventory already stored on the backup server. PO Resp. 54–55 (citing Ex. 2008 ¶ 130). Patent Owner further argues that such a step is not feasible in Field. *Id.* at 55 (citing Ex. 2008 ¶ 130). Patent Owner asserts that Field teaches a method of backing up individual files one at a time and does not transmit an inventory of electronic data that consists of more than just a single file signature to the trusted source. *Id.* (citing Ex. 2008 ¶ 130). Patent Owner contends that, thus, in Field, if a file signature is transmitted to a trusted source and the file is already available on the trusted source, then the system moves to the next step of whether

additional files are selected for backup. *Id.* (citing Ex. 2008 ¶ 130).

According to Patent Owner, there is no removal of any electronic data and instead the backup method described in Field restarts. *Id.* (citing Ex. 2008 ¶ 130).

In Petitioner's Reply, Petitioner argues that Patent Owner ignores that Field's file-based backup process operates upon a list of one or more files, which is a list of electronic data that is to be transmitted to the backup data storage medium. Pet. Reply 21 (citing Ex. 1004 ¶ 32; Ex. 1024 ¶¶ 59–60). Petitioner asserts that Field's process then removes files that were previously made available to Field's trusted source by determining that such files do not need to be transmitted. *Id.* (citing Ex. 1004 ¶ 38, Fig. 3 (block 310)). Petitioner argues that this is consistent with the '043 patent Specification, which describes removing electronic data by identifying electronic data portions that are not yet stored in data storage. *Id.* (citing Ex. 1001, 13:23–25; Ex. 1024 ¶ 61). Petitioner also argues that it is irrelevant whether Field processes one or more files at a time because Field's backup process removes duplicate data from the data to be transmitted to the trusted source. *Id.* (citing Ex. 1024 ¶ 62). Petitioner asserts that claims 3 and 16 require removing only one file, not multiple files. *Id.* (citing Ex. 1024 ¶ 62).

In Patent Owner's Sur-reply, Patent Owner argues that Field backs up one file at a time so it does not generate a list of one or more files and there would be no need for such list in Field. Sur-reply 15.

We find that Petitioner has not proven that Field teaches, suggests, or otherwise renders obvious limitations 3A and 16A. In particular, we are not persuaded by Petitioner that Field teaches, suggests, or renders obvious

removing the electronic data associated with the first descriptor from *a list of electronic data that is to be transmitted* to the backup data storage medium.

Petitioner maps the recited “list of electronic data that is to be transmitted to the backup data storage medium” to the “one or more files” described in paragraph 32 of Field. Pet. Reply 21 (citing Ex. 1024 ¶¶ 59–60). The “one or more files” described in that paragraph are the “one or more files” that are identified for backup by a user. Ex. 1004 ¶ 32. In particular, describing block 300 of its Figure 3, Field teaches that “remote backup module 202 remains idle, at block 300, until a command to backup data onto a remote computing device is received.” *Id.* Field describes that: “[a]lternatively, the computer user may choose to perform a backup in which *one or more files* will be restored. In this instance, the user may interact with the user interface and *identify the files* that will be capable of being restored.” *Id.* This is the only use of the phrase “one or more files” in paragraph 32.²⁵

Petitioner’s mapping of the recited list to the one or more files described in paragraph 32 does not appear to be correct. The recited list is a list, and Petitioner has not argued that the one or more files are a list. Instead, the files appear to be the recited electronic data. For claim 1, Petitioner mapped the recited electronic data to Field’s files. Pet. 25 (“[An ordinarily skilled artisan would have recognized that these files stored and tracked by Field’s processes also represent ‘electronic data.’”); Ex. 1002 ¶ 112. Nevertheless, for purposes of this analysis, we will assume that Field

²⁵ In the same paragraph, Field describes that a volume backup can be performed, but in describing that volume backup, Field does not refer to “one or more files.” Ex. 1004 ¶ 32.

creates a list of the one or more files described in paragraph 32 (or that the one or more files are a list) and that list of files identified for backup by a user is the list recited by limitations 3A and 16A.

Petitioner argues Field's process removes the files that were previously made available to Field's trusted source from the recited list by determining that such files do not need to be transmitted. Pet. Reply 21 (citing Ex. 1004 ¶ 38, Fig. 3, block 310). Limitations 3A and 16A, however, do not recite determining that a file or files do not need to be transmitted. These limitations recite removing the electronic data associated with the first descriptor from the recited list. Petitioner's only explanation in its briefing of how merely deciding not to transmit a file or files constitutes the recited removal is that the '043 patent purportedly describes removing electronic data as identifying electronic data portions that are not yet stored in the data storage. Pet. Reply 21 (citing Ex. 1001, 13:23–35; Ex. 1024 ¶ 61).

Petitioner cites to the following passage in the '043 patent:

The backup server 116 may then utilize its backup application 124 to compare the received descriptor inventory to descriptors in the list of backed up files 512 (step 644). In this comparison step, the backup application 124 then determines for each descriptor in the received descriptor inventory, whether the corresponding file, file portion, chunk of data, or data structure is already stored in the data storage 128. Based on the comparison step, the backup application 124 identifies electronic data portions that are not yet stored in the data storage 128 (step 648). The backup application 124 then generates a list of data portions (e.g., a list of files) that need to be uploaded because they are not currently on the data storage 128. The list of data portions, usually in the form of descriptors, is then sent back to the communication device 108 (step 652).

Ex. 1001, 13:23–37, cited by Pet. 54.

This passage describes how backup server 116 takes a list of files (the received descriptor inventory) and then generates a new list with just the files from the first list that need to be uploaded. We will assume, for purposes of this analysis, that, as Petitioner argues, creating a second list that omits an entry from the first list constitutes removing that entry from the first list. Even with this assumption, however, Petitioner has not shown that Field creates a second list that omits the recited first descriptor from the first list. Petitioner merely argues that Field decides not to transmit a certain file or files, not that it creates another list in which the descriptor for that file or files is omitted. Pet. 54–56; Pet. Reply 20–21. Petitioner has not identified any second list that omits the recited first descriptor from the first list in Field. Pet. 54–56; Pet. Reply 20–21. Further, Petitioner has not persuasively explained why Field would inherently need a second list that omits the recited first descriptor from the first list or why an ordinarily skilled artisan would have been motivated to modify Field to create such a list. Pet. 54–56; Pet. Reply 20–21.

Further, there is no apparent reason why the process of Figure 3 would inherently need to create a second list that omits the recited first descriptor from the first list or why an ordinarily skilled artisan would want to create such a second list. The process of Figure 3 checks individual files one at a time to see if they have already been submitted to the trusted source and transmits each file that needs to be transmitted before checking the next file. Ex. 1004, Fig. 3 (blocks 306, 310, 312, 314); Ex. 2008 ¶ 130. In particular, remote backup module 202 selects an individual file (step 306) and then generates a signature of the selected file (step 308). Ex. 1004 ¶ 37. At step 310, remote backup module 202 “causes the signature of the selected

file to be transmitted to the trusted source and compared to signatures of files previously submitted to the trusted source.” *Id.* If a matching signature is identified, “the remote backup module 202 proceeds to block [step] 314.” *Id.* “Conversely, if a matching signature for the selected file is not identified and the file is not available to the trusted source, the module 202 proceeds to block 312.” *Id.* “The remote backup module 302, at block 312, transmits the selected file to a remote computing device associated with the trusted source (e.g., back end computing device 102).” *Id.* ¶ 38. “A file that was previously made available to the trusted source is not transmitted by the remote backup module 202.” *Id.* Thus, the process of Figure 3 checks individual files one at a time to see if they have already been submitted to the trusted source and transmits each file that needs to be transmitted before checking the next file. Ex. 2008 ¶ 130. Because the process transmits a file that needs to be transmitted before checking the next file, there is no apparent reason why Field would need to create a second list that omits the recited first descriptor from the first list. *Id.*

Thus, we find that Petitioner has not proven that Field teaches, suggests, or otherwise renders obvious limitations 3A and 16A. Ex. 2008 ¶¶ 129–130. In its briefing for limitations 3A and 16A, Petitioner does not rely on combining Field with Anderson.^{26, 27} Pet. 54–56; Ex. 1002 ¶¶ 142–

²⁶ Petitioner argues that claims 3 and 16 would have been obvious over Field and Anderson, but regarding limitations 3A and 6A, in its briefing, Petitioner only argues that Field teaches, suggests, or otherwise renders obvious those limitations.

²⁷ At oral argument, Petitioner provided arguments regarding how Anderson could be combined with Field to teach or suggest limitations 3A and 16A, or could be used as background knowledge to reach these limitations. *See, e.g.,*

144, 202; Pet. Reply 20–21; Ex. 1024 ¶¶ 59–62. Accordingly, we determine that Petitioner has not proven that claims 3 and 16 would have been obvious over Field and Anderson. Ex. 2008 ¶¶ 129–130.

6. Claims 4 and 17

Claim 4 depends from claim 3. Ex. 1001, 19:5–9. Claim 17 depends from claim 16. *Id.* at 20:39–44. Petitioner’s showing for claims 4 and 17 does not remedy any of the deficiencies for its showing for limitations 3A and 16A. Pet. 56. Thus, we determine that Petitioner has not proven that claims 4 and 17 would have been obvious over Field and Anderson.

7. Claims 5, 18, and 26

Claim 5 depends from claim 1 and recites: “wherein electronic data stored on the backup data storage medium and associated with the second descriptor comprises data originally stored on the backup data storage medium during a backup operation of a second remote storage medium that differs from the first remote storage medium” (“limitation 5A”). Ex. 1001, 19:15–20. Claim 18 depends from claim 15 and also recites limitation 5A. *Id.* at 20:45–50.

Claim 26 depends from claim 25 and recites “wherein the at least a first electronic file was transferred to the means for storing the first set of

Tr. 44–50, 122–27. Those arguments, however, are not reflected in Petitioner’s briefing or cited expert testimony. Pet. 54–56; Ex. 1002 ¶¶ 142–144, 202; Pet. Reply 20–21; Ex. 1024 ¶¶ 59–62. We limit our consideration of the arguments at the oral hearing to those that are reflected in the briefing and cited expert testimony, which we have addressed here. *See* Consolidated Office Trial Practice Guide (Nov. 2019), <https://www.uspto.gov/about-us/news-updates/consolidated-trial-practice-guide-november-2019>, 85–86; Paper 27, 3.

electronic data by a second remote storage medium that is different than the first remote storage medium” (“limitation 26A”). Ex. 1001, 21:57–60.

In the Petition, Petitioner argues that Field teaches both limitations 5A and 26A. Pet. 56–57, 74. Petitioner asserts that Figure 4 of Field shows that files previously transmitted to the trusted source come from multiple client devices. *Id.* at 56–57 (citing Ex. 1004, Fig. 4; Ex. 1002 ¶ 149). Petitioner further asserts that an ordinarily skilled artisan “would have understood that the data already stored in Field’s backup database would have often come from another user’s client device backing up the same data as part of its backup operation. *Id.* (citing Ex. 1002 ¶ 150).

In the Patent Owner Response,²⁸ Patent Owner argues that Field does not explicitly disclose a comparison of electronic data being backed up with electronic data stored from multiple client devices, e.g., different users of the backup system or different devices used by the same user. PO Resp. 56 (citing Ex. 2008 ¶ 132). Further, Patent Owner argues that Field does not

²⁸ In the Patent Owner Response, Patent Owner expressly argues claims 5, 18, and 27 together when responding to Petitioner’s arguments that claims 5, 18, and 26 would have been obvious. PO Resp. 55. The reference to claim 27 appears to be a typographical error. There is no apparent reason why Patent Owner would want to exclude claim 26 from its arguments that respond to Petitioner’s arguments for claims 5, 18, and 26. Further, Patent Owner’s reference to claim 27 does not make sense. First, Patent Owner refers to claim 27 as depending from claim 27, which it does not do. *Id.* at 55. Second, Patent Owner also indicates that claim 27 recites: “electronic data stored on the backup data storage medium and associated with the second descriptor comprises data originally stored on the backup data storage medium during a backup operation of a second remote storage medium that differs from the first storage medium.” Claim 27 does not have such a recitation. Thus, we understand Patent Owner’s arguments to refer to claims 5, 18, and 26.

explicitly disclose the comparison of a file signature selected for storage with a second remote storage medium that differs from the first remote storage medium. *Id.* (citing Ex. 2008 ¶ 132).

In its Reply, Petitioner responds, arguing that Field does not need to expressly disclose that a comparison of electronic data is being backed up with electronic data from multiple client devices. Pet. Reply 22. Petitioner argues that because data is stored from multiple users, and Field desires to store only one copy of the same data, an ordinarily skilled artisan would have understood that Field teaches this comparison. *Id.* Petitioner also argues that Patent Owner’s expert recanted his testimony that Field does not teach limitation 5A. *Id.* at 22–23 (citing Ex. 1025, 20:3–13, 21:22–22:4, 160:11–14).

In its Sur-Reply, Patent Owner does not address claims 5, 18, or 26. *See generally* Sur-reply.

We find that Field teaches, and also suggests, limitations 5A and 26A. Field discloses that data on multiple client computing devices (e.g., client computing devices 402, 404, and 404) can be stored on a back end computing device (e.g., back end computing device 410). Ex. 1004 ¶ 43; *see also id.* at Fig. 4; Ex. 1002 ¶ 149. For example, Field discloses that “the backup database 106 stored files and/or data that represents a volume state on behalf of users who participate in the backup service provided by the present invention.” Ex. 1004 ¶ 40; *see also* Ex. 1002 ¶ 150. This is consistent with the goals of Field to reduce the amount of data that needs to be transmitted to and stored by the backup database. Ex. 1002 ¶ 150; Ex. 1004 ¶ 24. Field discloses:

[A] high percentage of files on the target computing device 104 may already be stored in the backup database 106. Thus, the optimization performed by the present invention determines whether a file that was submitted for backup by the target computing device 104 is already stored in the backup database 106.

Ex. 1004 ¶ 24. Thus, an ordinarily skilled artisan would have understood that the data already stored in Field’s backup database would have often come from another user’s client device backing up the same data as part of its backup operation, allowing Field’s goals of reducing network bandwidth to be achieved by only storing a single copy of the same data. Ex. 1002 ¶ 150; Ex. 1004 ¶ 40.

Further, Patent Owner does not dispute that, during cross-examination, Dr. Weissman withdrew his opinion that Field does not teach limitations 5A and 26A. *See generally* Sur-reply; Ex. 1025, 20:3–13, 21:22–22:4, 160:11–14. We credit the contrary opinion of Dr. Shenoy that Field teaches limitations 5A and 26A. Ex. 1002 ¶¶ 149–150, 230.

Thus, we find that Petitioner has proven that Field teaches and suggests limitations 5A and 26A. Ex. 1002 ¶¶ 149–150, 230. Accordingly, we determine that Petitioner has proven that claims 5, 18, and 26 would have been obvious over Field and Anderson. Ex. 1002 ¶¶ 149–150, 204, 230.

8. Claims 7 and 20

Claim 7 depends from claim 1 and recites: “wherein a single copy of electronic data associated with the second descriptor is maintained on the backup data storage medium for use by a plurality of different data storage mediums [‘limitation 7A’] and wherein access to the electronic data associated with the second descriptor is restricted to [] data storage mediums that provide the first descriptor to the backup data storage medium

[‘limitation 7B’].” Ex. 1001, 19:25–32. Claim 20 depends from claim 15 and also recites limitations 7A and 7B.²⁹ *Id.* at 20:55–61. Petitioner argues that Field teaches limitations 7A and 7B. Pet. 61. We focus our analysis on limitation 7B, which is disputed by the parties.

In the Petition, for limitation 7B, Petitioner argues that Field discloses that, as part of its backup process, a signature of each file selected for backup “is transmitted to the back end computing device where it is compared to signatures of files already available to the trusted source.” Pet. 60 (citing Ex. 1004 ¶ 8). Petitioner continues that an ordinarily skilled artisan “would have understood that when a file is backed up, the database entry for the user is updated, whether or not the user was required to transmit the actual file (i.e., whether or not the signature matched a signature already stored in the backup database).” *Id.* (citing Ex. 1002 ¶ 158). Petitioner argues that “[i]n this manner, Field teaches that a user can only restore (i.e., access) a file that was previously backed up by the user, which first required the user to provide a signature of the file.” *Id.* at 60–61 (citing Ex. 1002 ¶ 159). Petitioner argues that this restriction of access is consistent with the disclosure of the ’043 patent. *Id.* at 61 (citing Ex. 1001, 6:9–12).

In the Patent Owner Response, Patent Owner argues that Field does not disclose that a user must have previously had shared files such as an operating system and applications as evidenced by the descriptor to gain access to them by restoring them. PO Resp. 56–57 (citing Ex. 2008 ¶ 134). Patent Owner argues that, in Field, users that are part of the backup service

²⁹ In claim 7, limitation 7B has what appears to be a typographical error in that it refers to “*a* data storage mediums.” Claim 20 does not repeat that typographical error. Claim 20 merely recites “data storage mediums.”

have eligibility to access the shared data without restrictions. *Id.* at 57 (citing Ex. 2008 ¶ 134). Patent Owner also argues that in Field, when some files or data are backed up, e.g., operating system or application, some metadata may be included indicating that it is to be shared across users. *Id.* (citing Ex. 2008 ¶ 135). According to Patent Owner, thus, Field discusses a restore process where a client device may be able to restore something that it never had. *Id.* (citing Ex. 2008 ¶ 135).

In Petitioner's Reply, Petitioner argues that Patent Owner provides no cites to Field to support its arguments. Pet. Reply 23. Petitioner also argues that nothing in claims 7 and 20 requires restricting file access to users that previously had the file. *Id.* Petitioner also argues that Field never discloses restoring a file that was not an object of a previous backup command. *Id.*

In Patent Owner's Sur-reply, Patent Owner argues that claims 7 and 20 discuss restricting access to users of electronic data associated with a second descriptor without providing a first descriptor. Sur-reply 16. Patent Owner also argues that Field backs up one file at a time and does not teach a process that allows a user to access multiple files at a time. *Id.*

We find that Petitioner has not proven that Field teaches, suggests, or otherwise renders obvious limitation 7B. Petitioner has shown that Field teaches that a user *can* retrieve a file using the recited first descriptor. Ex. 1004 ¶¶ 24, 40. Limitation 7B requires, however, that access to a file be *restricted* to data storage mediums that provide the recited first descriptor, and Petitioner has not shown that Field teaches or suggests such a restriction. Petitioner cites nothing from Field that states access to the files on its backup server is restricted to data storage mediums that provide a first descriptor. Pet. 59–61; Pet. Reply 23–24. And Petitioner has not provided sufficient

reasoning for us to find that an ordinarily skilled artisan would have modified Field to add such a restriction. Pet. 59–61; Pet. Reply 23–24. In fact, Petitioner does not explain why an ordinarily skilled artisan would have been motivated to so modify Field. Pet. 59–61; Pet. Reply 23–24.

Petitioner argues that Field never discloses restoring a file that was not the object of a previous backup command. Pet. Reply 23–24. Even if we accept that as true, Petitioner has not shown that Field restricts access to files on its system to only the access that is provided by its restore operation. Field discloses storing, for example, operating system files that data storage mediums may want to access via mechanisms, other than restore operations, and Field does not disclose restricting such access to restore operations. Ex. 1004 ¶ 24; Ex. 2008 ¶¶ 134–135.

Petitioner argues that Field’s disclosure concerning access to files is consistent with the ’043 patent’s disclosure that “the restore operation *restricts access to files by requiring the restorer . . .*” Pet. 61 (quoting Ex. 1001, 6:19–22) (emphasis by Petitioner). This disclosure in the ’043 patent differs significantly, however, from the disclosure in Field that Petitioner relies upon. The disclosure in the ’043 patent expressly teaches *restricting* access to the files. Ex. 1001, 6:19–22. The cited disclosure in Field does not teach such a restriction. Ex. 1004 ¶¶ 8, 10, 24, 40; Ex. 2008 ¶¶ 134–135.

Thus, we find that Petitioner has not proven that Field teaches, suggests, or otherwise renders obvious limitation 7B. Ex. 2008 ¶¶ 133–135. Petitioner does not rely on Anderson for limitation 7B. Pet. 59–61; Pet. Reply 23–24. Accordingly, we determine that Petitioner has not proven that

claims 7 and 20 would have been obvious over Field and Anderson.
Ex. 2008 ¶¶ 133–135.

9. Claims 8, 21, and 29

Claim 8 depends from claim 1 and recites: “wherein the first descriptor and the second descriptor were generated using a common descriptor generating algorithm and common inputs to the common descriptor generating algorithm, and wherein the common inputs comprise both the actual file data and metadata” (“limitation 8A”). Ex. 1001, 19:33–38.

Claim 21 depends from claim 15 and recites a limitation similar to limitation 8A: “wherein the first descriptor and the second descriptor were generated using a common descriptor generating algorithm and common inputs to the common descriptor generating algorithm, and wherein the common inputs comprise the actual file data of the electronic data associated with the first descriptor” (“limitation 21A”). Ex. 1001, 20:62–67.

Claim 29 depends from claim 27 and recites: “wherein the descriptors comprise an alphanumeric string of data generated using a predetermined descriptor generating algorithm that utilizes, as inputs, the data as well as the metadata from the electronic files” (“limitation 29A”). Ex. 1001, 22:4–8.

Petitioner argues that Field and Anderson teach limitations 8A, 21A, and 29A. Pet. 61–64, 75.

In the Petition, Petitioner argues that Field discloses generating a first and a second descriptor, respectively. Pet. 61–62. Petitioner further argues that these two descriptors are generated using a common descriptor algorithm and common inputs to the common descriptor generating algorithm. *Id.* at 62 (citing Ex. 1004 ¶ 37). Further, Petitioner argues that

Field and Anderson teach that the common inputs comprise both actual file data and metadata. *Id.* Petitioner further argues that Anderson discloses incorporation of metadata into its signature generating algorithm to create a more robust signature. Pet. 63 (citing Ex. 1005 ¶ 46). Petitioner asserts that an ordinarily skilled artisan would have been motivated to use such an augmented signature-generating algorithm in relatively large environments in which many different clients and files were subject to the backup process, such as in a large enterprise environment as discussed by Field. *Id.* (citing Ex. 1002 ¶¶ 164–166; Ex. 1004 ¶ 40). Petitioner argues that an ordinarily skilled artisan would have had a reasonable expectation of success in implementing such an algorithm. *Id.* (citing Ex. 1002 ¶ 166).

In the Patent Owner Response, Patent Owner argues that Field and Anderson do not teach or suggest generating descriptors using a common descriptor generating algorithm and common inputs, which comprise actual file data and metadata. PO Resp. 57–58. Patent Owner argues that Field discusses that its signature generating algorithm is capable of generating a signature from file data. *Id.* at 57. Patent Owner further argues that “[w]hile Anderson does disclose incorporating metadata to create a more robust signature, there is no suggestion in Field of any concern for the robustness of the signature to include metadata.” *Id.* at 58 (citing Ex. 2008 ¶ 137). Patent Owner argues that “[i]ndeed, in Field, the backup process where signatures are generated is exclusively for the backup of individual files.” *Id.* (citing Ex. 2008 ¶ 137). Patent Owner further argues that “[s]ince individual files are backed up one at a time, Field only need generate the signature from file data and [an ordinarily skilled artisan] would have found it unnecessary and inefficient to include metadata.” *Id.* (citing Ex. 2008 ¶ 137).

In Petitioner’s Reply, Petitioner argues that Field itself need not disclose the same motivation as Anderson to produce a more robust CI. Pet. Reply 24. Petitioner also argues it is irrelevant whether Field backs up one file at a time—Field’s backup process still applies to large environments with many different clients and files. *Id.* (citing Ex. 1024 ¶¶ 70–71). Petitioner asserts that in such environments, augmenting Field’s signature-generating algorithm with content related metadata, as disclosed in Anderson improves collision resistance while still preventing duplicate data from being stored. *Id.* (citing Ex. 1005 ¶ 46; Ex. 1024 ¶¶ 70–72).

Patent Owner does not address claims 8, 21, and 29 in its Sur-reply. *See generally* Sur-reply.

We find that Petitioner has proven that Field and Anderson teach or suggest limitations 8A, 21A, and 29A. Field discloses generating a signature of a file selected for backup:

In an exemplary embodiment of the present invention, a hashing algorithm is used, at block 308, to process the selected file and generate the signature. For example, the existing hashing algorithm commonly known ‘SHA-1’ may be used to generate the signature. However, other type[s] of algorithms or functions that are capable of generating a signature from file data may be used to generate the signature used by the module 202 without departing from the scope of the present invention.

Ex. 1004 ¶ 36; *see also* Ex. 1002 ¶ 161. The signature generated for backup is the recited first descriptor. Ex. 1002 ¶ 161. Field further discloses that “[t]he signatures of files in the backup database 104 are generated with the same hashing algorithm that was used to generate the signature of the selected file.” Ex. 1004 ¶ 37. Field determines if a signature (descriptors) from the signatures of files in the backup database matches a first descriptor.

Ex. 1004 ¶ 37; Ex. 1002 ¶ 133. The matched signature from the signature of files in the backup database is the recited second descriptor. Ex. 1002 ¶¶ 133, 162. Field discloses that algorithms such as “SHA-1” and “other type[s] of algorithms or functions that are capable of generating a signature from file data may be used to generate the signature used by the module 202 without departing from the scope of the present invention.” Ex. 1004 ¶ 36. Further, an ordinarily skilled artisan would have understood that file data can include both content and file metadata. Ex. 1002 ¶ 163.

Anderson discloses the use of algorithms that account for both file data and metadata. Ex. 1002 ¶ 164. Further, Anderson discloses incorporation of metadata into its signature generating algorithm to create a more robust signature. Ex. 1005 ¶ 46; Ex. 1002 ¶ 164. An ordinarily skilled artisan would have been motivated to use such an augmented signature-generating algorithm in relatively large environments in which many different clients and files were subject to the backup process, such as in a large enterprise environment as discussed by Field. Ex. 1002 ¶¶ 164–166; Ex. 1004 ¶ 40. An ordinarily skilled artisan would have had a reasonable expectation of success in implementing such an algorithm. *Id.* (citing Ex. 1002 ¶ 166).

The fact that Field itself may not teach augmenting its signature generating algorithm is of no significance in light of Anderson’s teaching to do so. Ex. 1005 ¶ 46. Further, the fact that Field by itself might backup files one at a time would not undermine the desirability of augmenting its signature generating algorithm given the large environments with many different clients and files subject to a backup process in the system disclosed by Field. Ex. 1002 ¶¶ 164–166; Ex. 1004 ¶ 40.

Thus, we find that Petitioner has proven that Field and Anderson teach limitations 8A, 21A, and 29A. Ex. 1002 ¶¶ 160–166, 207, 234.

Accordingly, we determine that Petitioner has proven that claims 8, 21, and 29 would have been obvious over Field and Anderson. Ex. 1002 ¶¶ 160–166, 207, 234.

10. Claim 11

Claim 11 depends from claim 1 and recites:

receiving a request from a third remote storage medium to perform a restore operation [“limitation 11A”];

referencing a backup inventory for the third remote storage medium, wherein the backup inventory for the third remote storage medium comprises a list of descriptors associated with electronic data that was resident on the third remote storage medium at a point in time prior to receiving the request to perform a restore operation [“limitation 11B”];

retrieving selected electronic data from the backup data storage medium having a descriptor that matches descriptors in the list of descriptors associated with the third remote storage medium [“limitation 11C”]; and

providing the selected electronic data to the third remote storage medium [“limitation 11D”].

Ex. 1001, 19:47–61.

In the Petition, Petitioner sets forth how it contends that Field teaches each of these limitations.³⁰ Pet. 65–71.

³⁰ In the Petition, Petitioner argues claims 11 and 22 together. Pet. 65–71. In the Patent Owner Response, however, Patent Owner separately argues claim 11 and claim 1, from which claim 11 depends. PO Resp. 58–59. Patent Owner, however, does not separately argue claim 22 from claim 15, from which claim 22 depends. Thus, in this section, we address only claim 11. But to the extent that Patent Owner inadvertently failed to

In the Patent Owner Response, Patent Owner argues that Field does not disclose the use of signatures/descriptors transmitted from the backup server to the remote storage medium as part of the restore process. PO Resp. 59 (citing Ex. 2008 ¶ 139). Patent Owner further argues that Field’s restore process only teaches transmitting “files” individually to the client device rather than transmitting signatures to restore not only files and portions of files, but directory structures as well. *Id.* (citing Ex. 2008 ¶ 139). Further, Patent Owner asserts that “[t]he use of signatures during a restore was uncommon at the time of the ’043 Patent and would not have been inherent or obvious.” *Id.* (citing Ex. 2008 ¶ 139).

Petitioner replies that claim 11 does not require that signatures or descriptors be transmitted from the backup server to the remote storage medium as part of the restore process. Pet. Reply 25. Petitioner further argues that Field discloses providing files to the client device, which is what claim 11 recites. *Id.*

In its Sur-reply, Patent Owner argues that the use and transmission of signatures/descriptors is required in claim 11. Sur-reply 16. Patent Owner asserts that claim 11 teaches a backup inventory for a remote storage medium that comprises a list of descriptors that is used to identify the electronic data sought to be restored on a client device. *Id.*

We find that Petitioner has proven that Field teaches limitations 11A–11D. First, we start with the disputed issues. Patent Owner does not identify the language of claim 11 that it contends requires that signatures or

separately argue claim 22, we would provide the same analysis for the limitations that claim 22 adds to claim 15 as for the limitations that claim 11 adds to claim 1

descriptors be transmitted from the backup server to the remote storage medium as part of the restore process. PO Resp. 59–60. Limitations 11A and 11B recite a restore process, but do not recite the transmission of signatures or descriptors from the backup server to the remote storage medium as part of that restore process. Ex. 1001, 19:47–61. Thus, we see nothing in claim 11 that sets forth the limitation that Patent Owner contends Field does not teach. PO Resp. 59–60. Second, regarding limitations 11A–11D in their entireties, after reviewing Petitioner’s showing and Patent Owner’s arguments and evidence, we find that Petitioner has proven that Field teaches limitations 11A–11D. *See* Pet. 65–71 (and the exhibits cited therein). Thus, we determine that Petitioner has proven that claim 11 would have been obvious over Field and Anderson. Ex. 1002 ¶¶ 173–185.

11. Claims 12 and 23

Claim 12 depends on claim 11 and recites two additional limitations: (i) “receiving a second inventory from the third remote storage medium, wherein the second inventory for the third remote storage medium comprises a list of descriptors associated with electronic data currently resident on the third remote storage medium” (“limitation 12A”); and (ii) “removing the electronic data currently on the third remote storage medium from the selected electronic data prior to providing the selected electronic data to the third remote storage medium” (“limitation 12B”). Ex. 1001, 19:62–20:4.

Claim 23 depends from claim 22 and further recites: “wherein the restore application is further adapted to receive a second inventory from the third remote storage medium, wherein the second inventory for the third remote storage medium comprises a list of descriptors associated with electronic data currently resident on the third remote storage medium”

(“limitation 23A”), and “remove the electronic data currently on the third remote storage medium from the selected electronic data prior to providing the selected electronic data to the third remote storage medium” (“limitation 23B”). Ex. 1001, 21:15–23.

Petitioner argues that Field teaches limitations 12A, 12B, 23A, and 23B. Pet. 71–72. In the Petition, Petitioner asserts that Field teaches limitations 12A and 23A by disclosing that “[a] computer user may choose to perform a backup in which one or more files . . . will be restored.” *Id.* at 71 (quoting Ex. 1004 ¶ 32) (alteration in original). According to Petitioner, for each file selected for backup, Field’s process “generates a signature of the file using a hash function” and “[t]he signature is transmitted to the back end computing device where it is compared to signatures of files already available to the trusted source.” *Id.* (quoting Ex. 1004 ¶ 8) (alteration in original). Petitioner further argues that this process occurs with respect to the current data (i.e., data currently resident) on the user’s computer. *Id.* Petitioner asserts that, thus, the collection of signatures for files selected for backup, received by the back end computing device, provides a second inventory for the third remote storage medium comprising a list of descriptors associated with electronic data currently resident on the third remote storage medium. *Id.* at 71–72 (citing Ex. 1002 ¶ 187).

Petitioner argues that Field discloses limitations 12B and 23B by disclosing that a “user may interact with [a] user interface and identify the files that will be capable of being restored,” and “a user may restore the volume state or file to any one of a number of available versions.” Pet. 72 (citing Ex. 1004 ¶ 32) (alteration in original). Petitioner argues that, based on this disclosure, an ordinarily skilled artisan would have understood that

the user could select to restore only files that are not currently resident on the client device. *Id.* (citing Ex. 1002 ¶ 188). According to Petitioner, this aligns with the purpose of file restoration, which is generally not needed for files currently resident on a user's computer. *Id.* (citing Ex. 1002 ¶ 188). Petitioner asserts that, thus, the files selected to be restored could exclude "the electronic data currently on the third remote storage medium." *Id.*

Additionally, Petitioner argues that an ordinarily skilled artisan would have understood that, using the process of Field, a user could choose to restore files from a particular backup (e.g., "any one of a number of available versions"), which would exclude files on the client device that were not backed up at that time. Pet. 72 (citing Ex. 1002 ¶ 189). Petitioner asserts that, thus, as part of the selection of files to be restored, Field's process removes the electronic data currently on the third remote storage medium from the selected electronic data, which occurs prior to providing the selected electronic data to the third remote storage medium. *Id.*

In the Patent Owner Response, Patent Owner argues that claims 12 and 23 recite the limitation of comparing descriptors and removing data already stored on a remote storage medium during a restore process. PO Resp. 59. Patent Owner argues that Field does not disclose the use of signatures/descriptors in its restore process or any other technique to identify files already stored on the device that requested a restore operation. *Id.* at 59–60 (citing Ex. 2008 ¶ 141). Patent Owner asserts that, as such, Field fails to teach or suggest a process of identifying where a file already on the client device is not restored, which may create duplicate files on the client device from a restore operation. *Id.*

In its Reply, Petitioner argues that claims 12 and 23 do not require comparing descriptors during a restore process. Pet. Reply 25. Petitioner argues that instead claims 12 and 23 allow for “removing the electronic data” without performing a comparison of descriptors and Field and Anderson teach such a removal. *Id.*

In its Sur-reply, Patent Owner does not address claims 12 and 23. *See generally* Sur-reply.

We find that Petitioner has proven that Field teaches limitations 12A, 12B, 23A, and 23B. Regarding the disputed issues, Patent Owner does not identify any language in limitations 12A, 12B, 23A, or 23B that requires comparing descriptors during a restore process, and we see none. Limitations 12A and 23A recite a list of descriptors associated with electronic data currently resident on the third remote storage medium. Limitation 12B and 23B recite removing electronic data currently on the third remote storage medium. None of these limitations recites comparing any of the descriptors associated with electronic data currently resident on the third remote storage medium to any other descriptors during a restore process. Thus, Field’s alleged failure to compare descriptors during a restore process is of no consequence since limitations 12A, 12B, 23A, and 23B have no such recitation.

As mentioned, Patent Owner argues that Field does not disclose the use of signatures/descriptors in its restore process or any other technique to identify files already stored on the device that requested a restore operation. PO Resp. 59–60. Patent Owner also argues Field fails to teach or suggest a process of identifying where a file already on the client device is not restored, which may create duplicate files on the client device from a restore

operation. *Id.* at 60. Patent Owner does not identify any recitation in limitations 12A, 12B, 23A, and 23B to which these arguments relate, and we see none. *Id.* at 59–60.

Patent Owner has not identified any other alleged errors in Petitioner’s showing for limitations 12A, 12B, 23A and 23B, and we do not see any. PO Resp. 59–60. Thus, we find that Petitioner has shown that Field teaches limitations 12A, 12B, 23A, and 23B. Ex. 1002 ¶¶ 186–189, 209.

Accordingly, we determine that Petitioner has proven that claims 12 and 23 would have been obvious over Field and Anderson. Ex. 1002 ¶¶ 186–189, 209.

12. Claim 25

Patent Owner presents the same substantive arguments for claim 25 as for claim 1 (i.e., Patent Owner argues that Field and Anderson do not teach or suggest the recited inventory and that an ordinarily skilled artisan would not combine Field and Anderson). PO Resp. 12–77. As indicated, we resolved those issues in favor of Petitioner. Further, claim 25 does not recite an “inventory” (Ex. 1001, 21:28–56), and, as set forth in Section II.B., we did not accept Patent Owner’s proposed construction for limitation 25C.1 that required an “inventory.”

Patent Owner raises an additional argument for claim 25, which it also makes for claim 27: that Petitioner failed to expressly identify the corresponding structures or equivalents in Field and Anderson such as algorithms or special programming that would allow an ordinarily skilled artisan to know how to program the computer to achieve the claimed functions for the means limitations of claims 25 and 27. PO Resp. 31. Neither party, however, has proposed any construction for the means

limitations of claims 25 or 27 that identifies any specific algorithm or special programming. Pet. 9–12; PO Resp. 28–31. And we have not independently construed the corresponding structure for any means limitation to include any specific algorithm or special programming. Thus, we do not find that this argument by Patent Owner undermines Petitioner’s showing for claim 25 or claim 27. Further, Petitioner identified how Field and Anderson teach or suggest the means limitations recited in claim 25 and claim 27. Pet. 42–52, 74–75. And, other than disputing that the combination of Field and Anderson teaches an inventory or that an ordinarily skilled artisan would combine Field and Anderson (disputes that we resolved in Petitioner’s favor), Patent Owner does not dispute that the cited disclosures in Field and Anderson teach or suggest every limitation of claims 25 and 27. PO Resp. 40–54.

Upon reviewing the record, we find that Petitioner has proven that Field and Anderson teach or suggest every limitation of claim 25. *See* Pet. 42–52, 74–75 (and the exhibits cited therein). (We address claim 27 further in the next section.) Further, as set forth in Section III.B.3 above, we determine Petitioner has proven that an ordinarily skilled artisan would have combined Field and Anderson and had a reasonable expectation of success in so doing. Thus, we determine that Petitioner has proven that claim 25 would have been obvious over Field and Anderson. Ex. 1002 ¶¶ 211–229.

13. Claim 27

Claim 27 depends from 25 and further recites:

a means for allowing a subset of the plurality of remote storage mediums to access electronic files associated with the second set of electronic data, wherein the subset of the plurality of remote storage mediums provide descriptors for the electronic files

associated with the second set of electronic data prior to gaining access [“limitation 27A”].

Ex. 1001, 21:61–67.

Petitioner argues that Field teaches limitation 27A. Pet. 74. Patent Owner does not address whether Field teaches or suggests limitation 27A. *See generally* PO Resp. As with claim 25, however, Patent Owner argues that, for the means limitation in claim 27, Petitioner fails to expressly identify the corresponding structures or equivalents in Field and Anderson such as algorithms or special programming that would allow an ordinarily skilled artisan to know how to program the computer to achieve the claimed functions for the means limitations of the claim. PO Resp. 31. For the reasons expressed in Section III.B.12, this argument does not undermine Petitioner’s showing for limitation 27A.

In what appears to be a typographical error, Patent Owner argues claim 27 together with claims 5 and 18. PO Resp. 55–56. Presumably, Patent Owner meant to argue claim 26 with claims 5 and 18, which has a similar recitation to those claims. *See* Section II.B.7 above. In arguing claims 5, 18, and 27 together, Patent Owner represents that claim 27 recites: “electronic data stored on the backup data storage medium and associated with the second descriptor comprises data originally stored on the backup data storage medium during a backup operation of a second remote storage medium that differs from the first storage medium.” PO Resp. 55.

Claim 27, however, has no such a recitation.

If Patent Owner intended to argue claim 27 with claims 5 and 18, nevertheless, the arguments Patent Owner makes for claims 5, 18, and 27 are

not relevant for claim 27 because claim 27 does not have the recitation to which those arguments are directed. PO Resp. 55–56; Ex. 1001, 21:61–67.

We have reviewed Petitioner’s arguments and evidence for limitation 27A and are persuaded that Field teaches that limitation. *See* Pet. 74–75 (and the exhibits cited therein). Thus, we determine that Petitioner has proven that claim 27 would have been obvious over Field and Anderson. *Id.*

IV. CONCLUSION

As set forth in the following table, Petitioner has proven that claims 1, 2, 5, 6, 8–15, 18, 19, 21–29, and 34 are unpatentable, but has not proven that claims 3, 4, 7, 16, 17, 20 are unpatentable:

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–29, 34	103	Field, Anderson	1, 2, 5, 6, 8– 15, 18, 19, 21–29, 34	3, 4, 7, 16, 17, 20

V. ORDER

It is:

ORDERED that claims 1, 2, 5, 6, 8–15, 18, 19, 21–29, and 34 of the ’043 patent have been shown, by a preponderance of the evidence, to be unpatentable;³¹

³¹ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial*

FURTHER ORDERED that claims 3, 4, 7, 16, 17, and 20 of the '043 patent have not been shown, by a preponderance of the evidence, to be unpatentable; and

FURTHER ORDERED that because this is a Final Written Decision, the 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.

Proceeding. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

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