

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DROPBOX, INC.,
Petitioner,

v.

ENTANGLED MEDIA, LLC,
Patent Owner.

IPR2024-00284
Patent 8,296,338 B2

Before MICHELLE N. WORMMEESTER, JOHN A. HUDALLA, and
DONALD E. DAYBELL, *Administrative Patent Judges*.

HUDALLA, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

Dropbox, Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting an *inter partes* review of claims 1–14 of U.S. Patent No. 8,296,338 B2 (Ex. 1001, “the ’338 patent”). Petitioner filed a Declaration of Patrick D. McDaniel, Ph.D. (Ex. 1003) with its Petition. Entangled Media, LLC (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”).

We have authority to determine whether to institute an *inter partes* review. *See* 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2023). Under 35 U.S.C. § 314(a), we may not authorize an *inter partes* review unless the information in the petition and the preliminary response “shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” For the reasons that follow, we do not institute an *inter partes* review.

I. BACKGROUND

A. *Real Parties-in-Interest*

Petitioner identifies Dropbox, Inc. as the real party-in-interest. Pet. 1. Patent Owner identifies Entangled Media Corporation and Entangled Media, LLC as the real parties-in-interest. Paper 5, 1.

B. *Related Matters*

The parties identify the following proceedings related to the ’338 patent (Pet. 1; Paper 3, 2):

Entangled Media, LLC v. Dropbox, Inc., No. 5-23-cv-03264-PCP (N.D. Cal. filed Dec. 16, 2022) (“the underlying litigation”); and

IPR2024-00285.

Pet. 1; Paper 5, 1.

C. The '338 Patent

The '338 patent is directed to “using data virtualization coupled with a cloud-based file system that is shared among devices and integrated into the device operating system so as to unify the representation of files across devices for availability of and access to data across multiple devices a user might own.” Ex. 1001, 1:19–24. The '338 patent notes that with prior art solutions,

the data on separate devices is kept separated when synchronized-local data is stored in a set of locations within the operating system’s native file system (e.g. “My Documents”, “My Pictures”, etc.), while remote data on other devices or other online services is kept in a new location such as a new directory/folder or secondary location (e.g., removable hard drive) mounted on the device.

Id. at 1:58–65. The '338 patent further notes that prior art solutions “generally require a high-degree of user involvement for their operation—users must designate certain files and/or directories for synchronization or backup, and must consciously store content to be synced or backed-up in those locations.” *Id.* at 1:65–2:2.

As such, the '338 patent discloses a system that “creates a unified representation of all data on all registered devices” and “ensures that all a user’s devices appear to share one single native file system containing all the user’s files across all devices.” *Id.* at 2:12–18. “Critical to the unique nature of this system is that it is totally transparent, not requiring the user to interact

with software, nor distinguish files in local vs. remote locations.” *Id.* at 5:24–26.

Figure 2 of the ’338 Patent is reproduced below.

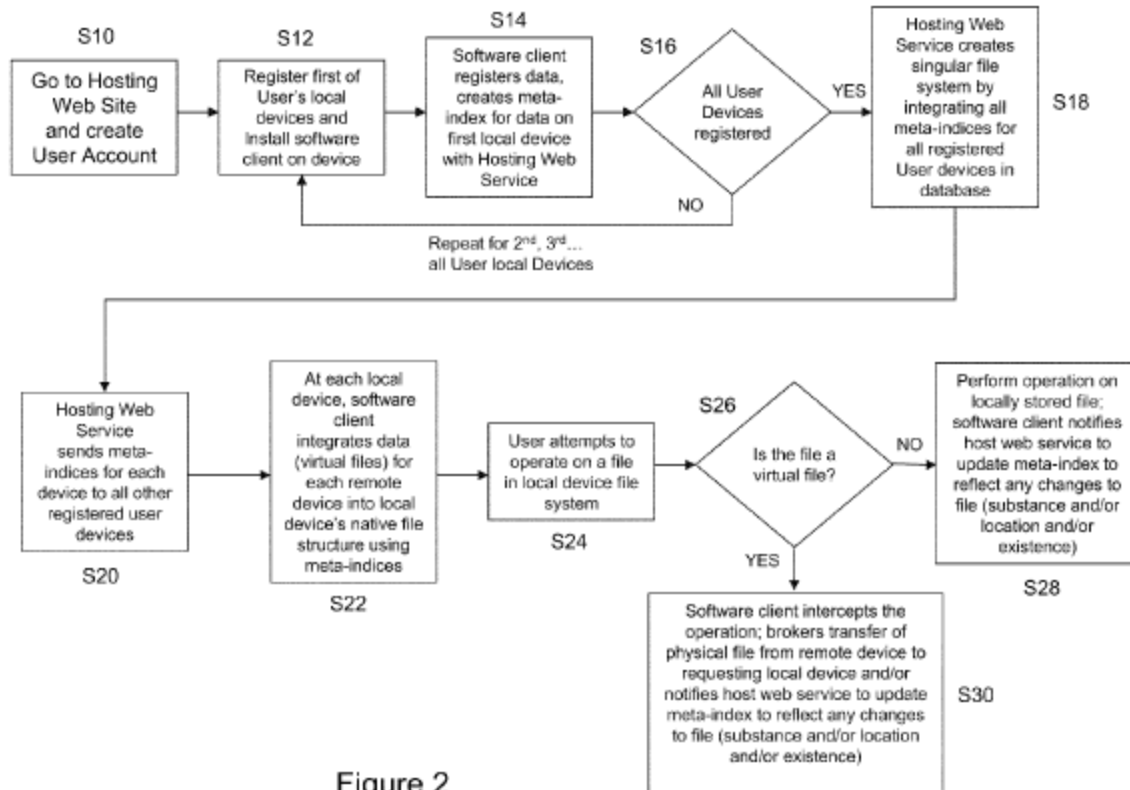


Figure 2

Figure 2 depicts a device registration and data virtualization process flow from user sign-up to virtual file access across devices. Ex. 1001, 3:60–62, 5:36–38. At step S10, a user account is created with the provider of the web service, which allows access to the system. *Id.* at 5:38–40. Once an account has been created, a user installs a software client on each of the user’s individual devices and initiates the registration process for each device with the service provider at step S12. *Id.* at 5:43–46. At step S14, the installed software client scans and inventories device data into a meta-index of the file system and reports back to the web service. *Id.* at 5:59–63. The meta-index includes metadata such as file name, file type, file size, local path the

file is stored in, date created, and date modified. *Id.* at 6:4–7. The registration process repeats until all of the user’s devices are registered and meta-indexed, as shown at step S16. *Id.* at 6:7–13.

At step S18, the web service integrates all of the individual meta-indices for all of the user’s registered devices into a database. Ex. 1001, 6:13–15. This master index of metadata becomes the singular file system that all devices use, and it is sent to each user device at step S20 to be integrated locally into each device’s operating system via the software client. *Id.* at 6:15–20. At step S22, the software client at each user device integrates metadata from the remote device indices into the local device’s file system. The ’338 patent additionally states the following about step S22:

The metadata instructs the software client where to store the data files, ensuring that a common view and storage location is maintained across all devices. At this point, the local operating system’s file system has been modified to include remote files in the same locations of the local device (such as the “My Documents” folder) as opposed to a separate and segregated location for such remote data (such as a synchronization folder or an additional hard drive “mounted” on the device.) Further, the software client facilitates the creation of a visual representation of the remote or virtual files on the local device, as if the files were indeed local, allowing the user to operate on them as if they were local to the device. The virtual files appear in essentially all ways the same as a local file, making them indistinguishable unless such a distinction is enabled as a separate option.

Id. at 6:22–36.

At step S24, the user attempts to operate on a file using the user’s local device. Ex. 1001, 6:42–43. At step S26, a determination is made whether the requested file is a local file or a virtual file. *See id.* at 6:43–54. If the requested file is a local file, the operation is performed on the local file

and the software client notifies the web service to update the meta-index to reflect any changes to the attributes of the file (step S28). *Id.* at 6:43–47. If the requested file is a virtual file that is physically stored on a remote device, the software client intercepts the operation request and may broker a connection between the remote device containing the physical file and the local device requesting the file to allow the transfer of the file (step S30). *Id.* at 6:47–55. Any changes to the attributes of the file are provided to the web service by the local software client to allow all other devices to remain unified. *Id.* at 6:55–59.

Figure 6 of the '338 Patent is reproduced below.

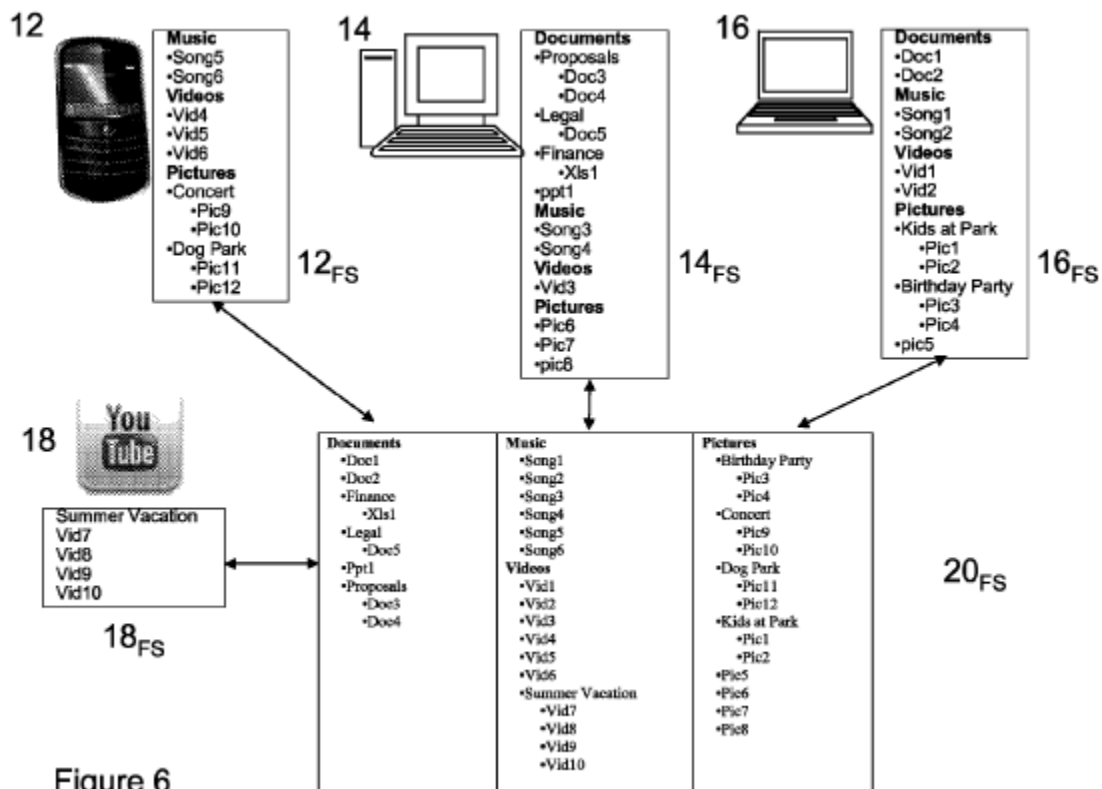


Figure 6

Figure 6 depicts exemplary unified file structure 20_{UFS}.¹ Ex. 1001, 4:3–4, 9:12–13. Unified file structure 20_{UFS} incorporates data from user devices including PDA 12, laptop computer 14, and desktop computer 16, and from online service 18. *Id.* at 4:54–5:5, 9:12–19. In particular, unified file structure 20_{UFS} is created from individual device file structures 12_{UFS}, 14_{UFS}, and 16_{UFS}, and online service file structure 18_{UFS}. *Id.* at 9:12–16. Unified file structure 20_{UFS} then replaces device file structures 12_{UFS}, 14_{UFS}, and 16_{UFS} in devices 12, 14, and 16. *Id.* at 9:16–18. In contrast, the file structure of online service 18 is not unified. *Id.* at 9:18–19.

D. Illustrative Claim

Of the challenged claims, claims 1, 7, and 10 are independent. Claims 2–6 depend directly or indirectly from claim 1; claims 8 and 9 depend directly or indirectly from claim 7; and claims 11–14 depend directly or indirectly from claim 10. Claim 1 is illustrative of the challenged claims and recites:

1. A process for establishing a singular file system across multiple devices comprising:
 - receiving user information to open an account for establishing a singular file system across multiple devices via a web-based system that includes at least one server;
 - installing an individual software client on each of the multiple devices via the web-based system;
 - accepting registration of multiple devices via the web-based system;

¹ The reference numerals in Figure 6 use the subscript “FS” while the reference numerals in the written description use the subscript “UFS.”

scanning each of the multiple devices by each of the individual software clients to inventory data on each of the multiple devices and create a meta-index of the files for the inventoried data;

providing by the individual software clients via the multiple devices individual meta-indices of the inventoried data for each of the multiple devices to the at least one server;

integrating by the at least one server the individual meta-indices to create a single master meta-index;

providing by the at least one server the single master meta-index and meta-indices for each of the other multiple devices to each of the multiple devices via the individual software clients;

integrating metadata from the meta-indices of each of the other multiple devices into a local file system of each of the multiple devices to generate virtual files stored in the same locations as local files of the local file system, the virtual files indistinguishable from the local files by the local file system at each of the multiple devices; and

continually updating the single master meta-index on the at least one server and each of the multiple devices in response to changes to the data indexed thereon,

wherein the individual software clients facilitate storage of the data within each of the multiple devices in accordance with the single meta-data index by modifying file systems of each of the multiple devices to include virtual files for data from the single meta-data index that is not local to a multiple device.

Ex. 1001, 11:22–59.

E. Prior Art

Petitioner relies on the following prior art:

U.S. Patent No. 6,938,042 B2, filed Oct. 8, 2002, issued Aug. 30, 2005 (Ex. 1005, “Aboulhosn”);

U.S. Patent No. 7,058,696 B1, filed Nov. 1, 2000, issued June 6, 2006 (Ex. 1006, “Phillips”);

U.S. Patent Application Publication No. 2005/0091595 A1, filed Oct. 24, 2003, published Apr. 28, 2005 (Ex. 1007, “Shappell”); and

U.S. Patent No. 7,930,270 B2, filed Feb. 26, 2007, issued Apr. 19, 2011 (Ex. 1008, “Tsang”).

F. The Asserted Grounds

Petitioner challenges claims 1–14 of the ’338 patent based on the following grounds (Pet. 7):

Claims Challenged	35 U.S.C. §	References
1, 2, 5–14	103(a) ²	Aboulhosn, Phillips
3, 4	103(a)	Aboulhosn, Phillips, Tsang
1, 2, 5–14	103(a)	Aboulhosn, Phillips, Shappell
3, 4	103(a)	Aboulhosn, Phillips, Tsang, Shappell

II. ANALYSIS

We now consider Petitioner’s asserted grounds and Patent Owner’s arguments to determine whether Petitioner has met the “reasonable likelihood of prevailing” standard for institution under 35 U.S.C. § 314(a).

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102 and 103. Because the ’338 patent was filed before March 16, 2013 (the effective date of the relevant amendments), the pre-AIA versions of §§ 102 and 103 apply.

A. Legal Standards

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007).

The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, so-called secondary considerations.³ *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We also recognize that prior art references must be “considered together with the knowledge of one of ordinary skill in the pertinent art.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (citing *In re Samour*, 571 F.2d 559, 562 (CCPA 1978)).

B. Level of Ordinary Skill in the Art

Citing testimony from Dr. McDaniel, Petitioner contends that a person of ordinary skill in the art would have had “at least a master’s degree in computer science or electrical engineering or a related degree” and “at least two years [of] training or experience with networking and file systems.” Pet. 9–10 (citing Ex. 1003 ¶¶ 19–21). Patent Owner disputes that a master’s

³ The present record does not include any evidence of secondary considerations of nonobviousness.

degree is required. Prelim. Resp. 4 (citing Ex. 2001, 14–15⁴). In support of this argument, Patent Owner cites Dr. McDaniel’s declaration from the underlying litigation, where he testified that a person of ordinary skill in the art “would have had at least *a Bachelor’s* or Master’s degree in computer science or electrical engineering or a related degree and with at least two years training or experience with networking and file systems.” *Id.* (emphasis by Patent Owner) (quoting Ex. 2001, 14–15).

At this juncture, the parties only appear to dispute the educational background in the definition of the level of ordinary skill in the art. The only evidence in the present record regarding the educational background consists of Dr. McDaniel’s declarations in this case and in the underlying litigation. *See* Ex. 1003 ¶ 21; Ex. 2001, 14–15. Patent Owner is correct (*see* Prelim. Resp. 4) that Dr. McDaniel’s declaration from the underlying litigation differs from his testimony in this case insofar as his district court declaration supports that a person of ordinary skill in the art need only have had a bachelor’s degree in computer science or electrical engineering or a related degree. *See* Ex. 2001, 14–15. Moreover, Petitioner does not explain why a master’s degree is necessary. Accordingly, we revise Petitioner’s proposed definition to conform it to Dr. McDaniel’s declaration from the underlying litigation. We additionally remove the two instances of the qualifier “at least” from Petitioner’s proposed definition because these qualifiers introduce ambiguity.

Thus, for purposes of this Decision, a person of ordinary skill in the art would have had a bachelor’s degree or a master’s degree in computer

⁴ We follow Patent Owner’s convention and cite to the internal page numbers of Exhibit 2001 rather than the page numbers added in the footer.

science or electrical engineering or a related degree, and two years of training or experience with networking and file systems. On the present record, we are satisfied that this definition of the level of ordinary skill is consistent with the teachings of the '338 patent and the asserted prior art.

C. Claim Interpretation

In an *inter partes* review, we construe each claim using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.

37 C.F.R. § 42.100(b). Accordingly, our claim construction standard is the same as that of a district court. *See id.* Under the standard applied by district courts, claim terms are generally given their plain and ordinary meaning, as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). “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.” *Thorner v. Sony Comput. Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012).

Petitioner proposes a construction of the term “web-based system,” but states that “all remaining claims should be given their plain and ordinary meanings, and no express constructions are required.” Pet. 10–11. Patent Owner does not address claim construction in the Preliminary Response.

For purposes of this Decision, we need not construe “web-based system.” *See, e.g., Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

Notwithstanding, the parties’ arguments place at issue the proper interpretation of the following limitation in independent claim 1: “virtual files stored in the same locations as local files of the local file system, the virtual files indistinguishable from the local files by the local file system at each of the multiple devices.” Ex. 1001, 11:47–50. Independent claims 7 and 10 recite similar limitations. *Id.* at 12:38–42, 13:11–15.

Patent Owner argues that the ’338 patent specifically considered and distinguished the idea of a “remote network device as a separate virtual drive.” Prelim. Resp. 19–20 (citing Ex. 1001, 1:58–2:2, 4:27–35, 6:23–28, 6:37–41, 9:20–27). We agree. Specifically, the patentees acknowledged such prior art systems in the Specification:

It is also important to note that with other [prior art] solutions the data on separate devices is kept separated when synchronized-local data is stored in a set of locations within the operating system’s native file system (e.g. “My Documents”, “My Pictures”, etc.), while remote data on other devices or other online services is kept in a new location such as a new directory/folder or secondary location (e.g., removable hard drive) mounted on the device. Finally, present solutions generally require a high-degree of user involvement for their operation—users must designate certain files and/or directories for synchronization or backup, and must consciously store content to be synced or backed-up in those locations.

Ex. 1001, 1:58–2:2.

The patentees then contrasted the disclosed invention as follows:
“Critical to the unique nature of this system is that it is totally transparent, not requiring the user to interact with software, nor distinguish files in local vs. remote locations.” Ex. 1001, 5:24–26. Regarding the specific language of the claims directed to virtual files being “stored in the same locations as local files” and virtual files being “indistinguishable from the local files,” the Specification states the following:

At each registered local device, the software client integrates metadata from the remote device indices into the local device’s file system S22. The metadata instructs the software client where to store the data files, ensuring that a common view and storage location is maintained across all devices. At this point, the local operating system’s file system has been modified to *include remote files in the same locations of the local device* (such as the “My Documents” folder) as opposed to a separate and segregated location for such remote data (such as a synchronization folder or an additional hard drive “mounted” on the device.) Further, the software client facilitates the creation of a visual representation of the remote or virtual files on the local device, as if the files were indeed local, allowing the user to operate on them as if they were local to the device. The virtual files appear in essentially all ways the same as a local file, making them *indistinguishable* unless such a distinction is enabled as a separate option.

Ex. 1001, 6:20–36 (emphasis added).

Our reviewing court has found limitations on claim scope where a patent specification disparages prior art embodiments. In such cases, “the claims should not be read so broadly as to encompass the distinguished prior art structure.” *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1343 (Fed. Cir. 2001); *see also Indivior Inc. v. Dr. Reddy’s Lab ’ys, S.A.*, 930 F.3d 1325, 1337 (Fed. Cir. 2019) (“A specification may disclaim an embodiment by repeatedly disparaging it.”). Similarly,

“labeling an embodiment or an element as ‘essential’ may rise to the level of disavowal.” *X2Y Attenuators, LLC v. Int’l Trade Comm’n*, 757 F.3d 1352, 1362 (Fed. Cir. 2014). Moreover, “[w]here the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question.” *SciMed*, 242 F.3d at 1341.

The ’338 patent Specification both disparages certain prior art file systems and indicates the criticality of certain transparency features. Specifically, the ’338 patent acknowledges prior art systems where “the data on separate devices is kept separated when synchronized-local data is stored in a set of locations within the operating system’s native file system” and where “remote data on other devices or other online services is kept in a new location such as a new directory/folder or secondary location (e.g., removable hard drive) mounted on the device.” Ex. 1001, 1:58–65. In contrast to this prior art, the ’338 patent states that it is “[c]ritical to the unique nature of this system” that its shared file system is “totally transparent, not requiring the user to interact with software, nor distinguish files in local vs. remote locations.” *Id.* at 5:24–26. Indeed, the ’338 patent describes the invention in direct contrast to the prior art insofar as “the local operating system’s file system [is] modified to include remote files in the same locations of the local device (such as the ‘My Documents’ folder) *as opposed to a separate and segregated location for such remote data* (such as a synchronization folder or an additional hard drive ‘mounted’ on the device).” *Id.* at 6:25–30 (emphasis added). Furthermore, remote or virtual

files in the disclosed system are visually represented “as if the files were indeed local, allowing the user to operate on them as if they were local to the device,” thus making their appearance “indistinguishable” from that of local files. *Id.* at 6:30–36.

We find that these disclosures, taken together, indicate a disavowal of claim scope as to file systems where remote or virtual files are kept in a separate location, such as in a separate folder, device, or drive. *See SciMed*, 242 F.3d at 1341–43. For similar reasons, we find that remote or virtual files that are kept in a separate folder, device, or drive are not “indistinguishable” from local files as that term is used in the claims of the ’338 patent.

For purposes of this Decision, we determine that no other aspects of the challenged claims require explicit construction. *See Realtime Data*, 912 F.3d at 1375.

D. Obviousness Ground Based on Aboulhosn and Phillips

Petitioner contends the subject matter of claims 1, 2, and 5–14 would have been obvious over Aboulhosn and Phillips. Pet. 11–72. Patent Owner disputes Petitioner’s contentions. Prelim. Resp. 9–20.

1. Aboulhosn

Aboulhosn is a U.S. patent directed to peer-to-peer file sharing between computers. Ex. 1005, 1:12–14. In an embodiment of Aboulhosn, one computer system among a group of computers may be designated the “group owner,” which has the sole authority to invite other computer systems to join the group. *Id.* at 1:62–65. Files shared by a group are

associated with a group folder that is created by the file system of each member to contain all files shared by the group. *Id.* at 1:67–2:5. The files in the folder of a member may be actual files stored at that member, which contains the content of the shared file, or virtual files identifying the actual file that is stored at another member. *Id.* at 2:5–8. A shared file is identified by metadata stored in association with the virtual file (e.g., as properties of the virtual file). *Id.* at 2:8–10. Moreover, a file name extension such as “vf” identifies a shared file as a virtual file. *Id.* at 4:31–32.

When a file is shared, the folder of the file owner contains the actual file and the folders of the other members of the group contain a virtual file corresponding to the shared file. Ex. 1005, 2:12–15. When a member accesses a virtual file, the file sharing system detects the access and requests that the file owner provide a copy of the file to the accessing member on a peer-to-peer basis. *Id.* at 2:15–18. Whenever a shared file is modified, the file owner sends updated metadata for that file to the other members of the group. *Id.* at 2:18–20.

2. *Phillips*

Phillips is a U.S. patent directed to “a multi-user shared file access service provided over a wide area network, such as the Internet.” Ex. 1006, 1:40–42. Each user within a user group operates a client node to communicate with a remote file server node via a wide area network. *Id.* at 6:1–4. Phillips also discloses an interface for adapting file access at the client node that designates each accessible file of a file group stored on a virtual storage device. *Id.* at 6:22–26.

Figure 4 of Phillips is reproduced below.

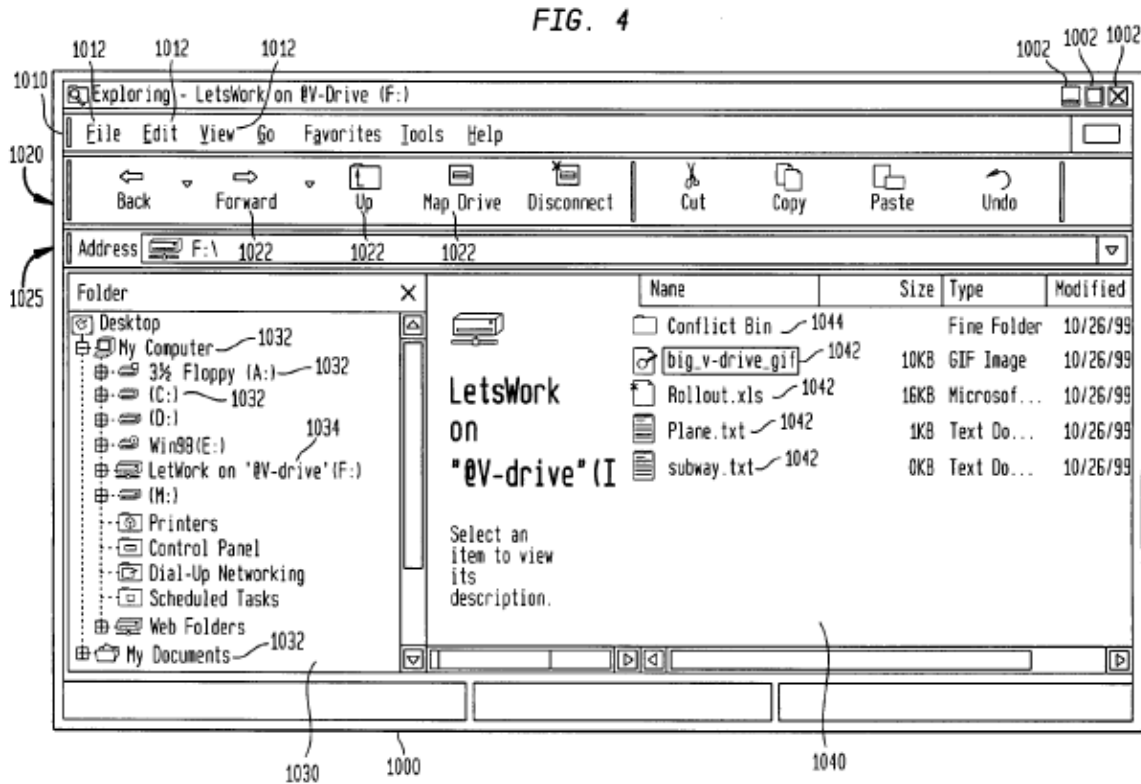


Figure 4 depicts window 1000 displayed on a client node using the Microsoft Windows NT operating system. Ex. 1006, 7:25–26, 13:31–39. Folders sub-window 1030 displays a hierarchical list of identifiers 1032, 1034 for storage devices and folders thereof. For example, identifier 1034 relates to network connected storage device F: and identifies this device as “Lets Work on ‘@v-drive,’” which is a virtual storage device.⁵ *Id.* at 13:42–44, 13:64–66. Sub-window 1040 displays another hierarchical list of graphical icons representing files 1042 and folders 1044 contained on this virtual storage device. *Id.* at 13:47–50.

The storage devices shown graphically in window 1000 can include locally present physical storage devices, storage devices that are connected

⁵ Some of the identifiers of the virtual drive depicted in Figure 4 are slightly different than those named in the text of Phillips. The differences are immaterial to our analysis.

remotely, and virtual storage devices. *Id.* at 13:54–60. The Windows NT operating system does not distinguish between such storage devices from the perspective of the graphical display to the user. *Id.* at 13:60–63. Client software provides the appropriate information according to the operating system API for providing the appearance of an actual physical storage device. *Id.* at 13:66–14:2. Moreover, the operating system enables the user to access the virtual storage device in the same fashion (e.g., “click,” “double click,” “drag,” and “drop”) as for any other storage device. *Id.* at 14:7–11.

When an application running on the client node requests access to a file on the virtual storage device, client node software intervenes and assists the operating system in identifying the appropriate file and in providing the data of the file to the operating system to complete the access. Ex. 1006, 14:38–58. “The client node software does this transparently and automatically without requiring intervention by the user.” *Id.* at 14:58–60. “[T]he virtual storage device, and its contents (i.e., all of the files, directories/folders, etc. stored in the virtual storage device), appears, to the client node user and the application executing at the client node, to be locally present.” *Id.* at 14:62–66.

3. *Claim 1*

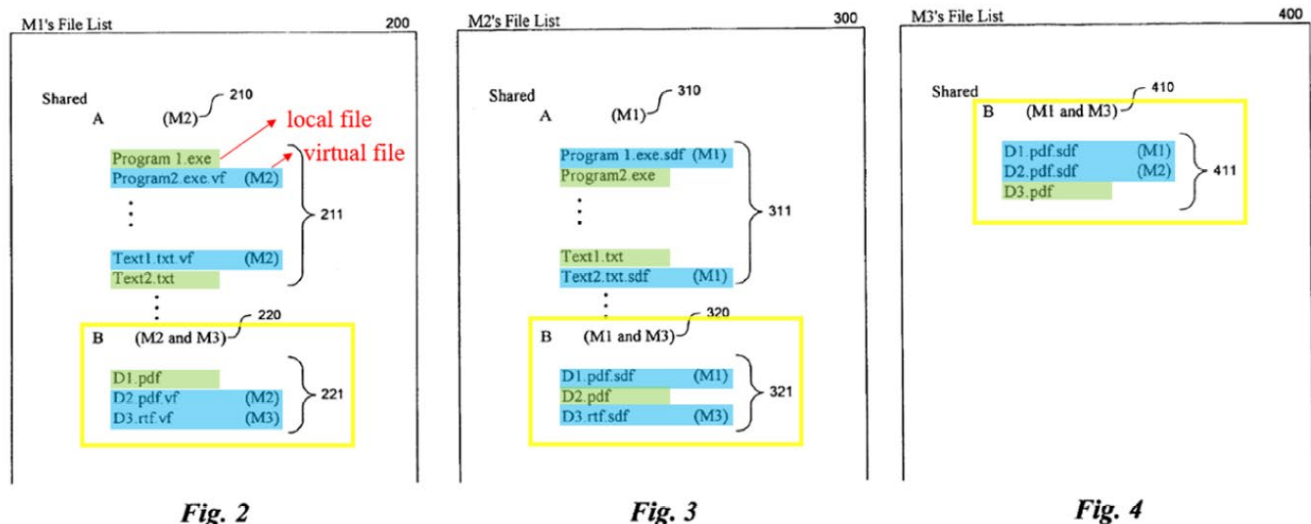
a. Petitioner’s Contentions

Our disposition of this ground turns on Petitioner’s analysis for the following limitation of claim 1, which recites:

integrating metadata from the meta-indices of each of the other multiple devices into a local file system of each of the multiple devices to generate virtual files stored in the same locations as

local files of the local file system, the virtual files indistinguishable from the local files by the local file system at each of the multiple devices.

Ex. 1001, 11:45–50. For “generat[ing] virtual files,” Petitioner cites Aboulhosn’s teaching of “virtual files identifying [an] actual file that is stored at another member.” Pet. 40 (quoting Ex. 1005, 2:5–8) (citing Ex. 1005, 2:12–15). Petitioner contends that Aboulhosn’s virtual files are “stored in the same locations as local files of the local file system” based on an analysis of Figures 2–4 from Aboulhosn. *Id.* at 43–44. To explain its analysis, Petitioner provides annotated versions of Aboulhosn’s Figures 2–4, which are reproduced below.



Pet. 44. Figures 2–4 of Aboulhosn depict display pages illustrating the file system folder structure for members of various groups. Ex. 1005, 1:36–37, 4:13–14. As illustrated, three computer systems are identified as M1, M2, and M3, with M1 and M2 being members of group A, and M1, M2, and M3 being members of group B. *Id.* at 4:14–17. Petitioner has added blue highlighting to indicate virtual files and green highlighting to indicate local files. Pet. 44. Petitioner also has added yellow boxes around shared

folder B for group B in each computer system. *Id.*; *see also* Ex. 1005, 4:25–27, 4:50–52, 4:60–61 (describing shared folder B in each computer system M1, M2, and M3, respectively).

Petitioner notes that these drawing figures illustrate file lists for member computer systems M1, M2, and M3 in which shared folder B has a single local file and two virtual files. Pet. 44 (citing Ex. 1005, 4:25–49, Figs. 2–4). Based on this, Petitioner contends that an ordinarily skilled artisan “would have understood that each member device may have any number of local files and any number of virtual files, and these local and virtual files are stored in the same folder, *i.e.*, the same location.” *Id.* (citing, *inter alia*, Ex. 1003 ¶¶ 146–147).

Regarding “the virtual files [being] indistinguishable from the local files by the local file system at each of the multiple devices,” Petitioner concedes that Aboulhosen’s virtual files have a file extension (“vf”) that indicates their virtual status. Pet. 43–45 & n.9 (citing Ex. 1005, 4:54–55, Figs. 2–4). This file extension makes Aboulhosen’s local and virtual files distinguishable from each other by the users and applications accessing Aboulhosen’s files, which is contrary to the claim language.

As such, Petitioner turns to Phillips for teaching a system that “access[es] . . . the designated files in a fashion which is **indistinguishable, by users of, and applications executing at**, the first client node, with access to one or more **files stored on a physical storage device that is locally present** at the first client node.” *Id.* at 45 (emphasis and alteration by Petitioner) (quoting Ex. 1006, claim 16). Petitioner then proceeds to analyze Phillips’s alleged teachings of “visual indistinguishability” and “indistinguishable access,” as we will now discuss. *Id.* at 44–47.

For visual indistinguishability, Petitioner cites Phillips’s teaching that “the virtual storage device, and **its contents (i.e., all of the files, directories/folders, etc.** stored in the virtual storage device), **appears, to the client node user . . . to be locally present.**” *Id.* at 45 (emphasis and alteration by Petitioner) (quoting Ex. 1006, 14:62–66). Petitioner also cites Phillips’s teaching that “files ‘**appear,**’ **i.e., entirely behave . . . as if locally present on the client nodes.**” *Id.* (emphasis and alteration by Petitioner) (quoting Ex. 1006, 9:36–39). Petitioner additionally cites Phillips’s observation that “[t]he Windows NT™ **operating system does not distinguish** between such storage devices from the perspective of **the graphical display to the user.**” *Id.* at 45–46 (emphasis and alteration by Petitioner) (quoting Ex. 1006, 13:60–63). Based on these teachings, Petitioner contends that an ordinarily skilled artisan “would have understood Phillips to teach that its virtual files appear indistinguishable from local files, including file extensions.” *Id.* at 46 (citing Ex. 1003 ¶ 151).

Regarding indistinguishable access, Petitioner cites Phillips’s teaching that “client node software **intervenes and assists the operating system** in identifying the appropriate file and in **providing the data of the file to the operating system** to complete the access” to virtual files. Pet. 46 (emphasis by Petitioner) (quoting Ex. 1006, 14:48–60). Petitioner notes that Phillips’s client node software performs this function “**transparently and automatically without requiring intervention by the user.**” *Id.* (quoting Ex. 1006, 14:48–60); *see also id.* (citing Ex. 1006, 9:39–42, claim 16). Based on these teachings, Petitioner contends that an ordinarily skilled artisan “would have understood that Phillips’s virtual file access is

transparent to the user, the application, and the operating system.” *Id.* at 46–47 (citing Ex. 1003 ¶ 153).

Petitioner contends that an ordinarily skilled artisan “looking to provide a smoother and more seamless user experience with Aboulhosn’s system would have been motivated to incorporate Phillips’s **visual indistinguishability feature** (*i.e.*, displaying virtual files to the user in the same way as local files) to Aboulhosn’s system.” Pet. 54–55 (citing Ex. 1006, 14:58–60, 15:4–7). According to Petitioner, the combination would “provide[] the perception that all the shared files are synced/stored locally while the local disk drive need only provide minimal space for the remote/virtual files,” including the removal of Aboulhosn’s special virtual file extension to avoid confusion. *Id.* at 55 (citing Ex. 1003 ¶¶ 168–169).

Petitioner also notes that Aboulhosn does not provide details on how to implement virtual file retrieval, so Petitioner contends an ordinarily skilled artisan “implementing Aboulhosn’s system would have been motivated to look to other references, like Phillips, for details of how to access remote files.” Pet. 55. Thus, Petitioner contends that an ordinarily skilled artisan “would also have been motivated to incorporate Phillips’s **transparent access feature** for the virtual files, *i.e.*, accessing files transparently to the user, application, and operating system.” *Id.* Petitioner notes a number of teachings from Phillips regarding a client node assisting the operating system to provide an appropriate file transparently and without intervention by a user, which Petitioner calls “a better, smoother, more efficient, and more seamless user experience.” *Id.* at 55–56 (Ex. 1003 ¶ 170; Ex. 1006, 14:52–60, 15:4–7).

Petitioner contends that modifying Aboulhosn's system based on Phillips merely would have required removing the file extension indicating the virtual nature of a file and instead relying on, for example, metadata already present in Aboulhosn's system. Pet. 57 (citing Ex. 1003 ¶ 171; Ex. 1005, 2:28–30; Ex. 1006, Fig. 6).

b. Patent Owner's Arguments

Patent Owner criticizes Petitioner's analysis of the "indistinguishable" limitation of claim 1 because "Phillips specifically identifies that shared files are stored in a network-connected storage device, which is not the same location used by local files." Prelim. Resp. 16. According to Patent Owner, Phillips's "shared files in the network-connected storage device are immediately distinguishable from local files by virtue of their presence in the separately-identified 'virtual drive' used to identify and present the network-connected storage device." *Id.* As evidence of this, Patent Owner cites the depiction in and description of Phillips's Figure 4 of the virtual storage device known as "F" and "Lets Work on '@v-drive.'" *Id.* at 16–18 (citing Ex. 1006, 13:64–14:6, Fig. 4). Patent Owner argues that this virtual drive "is segregated from the drives and locations containing local files, such as the C: and D: drives and the My Documents folder." *Id.* at 17. Patent Owner also argues that the virtual drive "includes a representation showing it to be a networked device and not a local device." *Id.* Thus, Patent Owner contends that "the files on the remote network device (virtual F: drive) are clearly not 'stored in the same locations as local files of the local file system' and the virtual files are not 'indistinguishable from the local files' by virtue of their segregation in the virtual F: drive." *Id.* at 18.

c. Analysis

We agree with Patent Owner’s arguments. Petitioner acknowledges that Aboulhosn does not teach “the virtual files [being] indistinguishable from the local files by the local file system.” Pet. 44–45. To fill this gap, Petitioner relies on, *inter alia*, Phillips’s teachings of virtual files appearing to be the same as local files and appearing to be locally present. *Id.* at 45 (quoting Ex. 1006, 6:34–36, 14:62–66). Yet Phillips’s virtual storage device and its contents are segregated from local files in Phillips’s display window 1000. *See* Ex. 1006, 13:44–50, Fig. 4 (discussing and depicting “entry 1034 for the network connected storage device ‘F’” known as “Lets Work on ‘@v-drive’” and its corresponding files 1042 and folders 1044 displayed in sub-window 1040). Thus, virtual files in Phillips’s system are not stored in the same location as local files.⁶

Because Phillips’s virtual files are stored in a virtual storage device that is separated from Phillips’s local files, those virtual files are not “indistinguishable from the local files by the local file system,” as is recited in claim 1. Petitioner cites Phillips for teaching that “the virtual storage device and its contents . . . appear[], to the client node user . . . to be locally present” and “behave . . . as if locally present on the client nodes.” Pet. 45–46 (quoting Ex. 1006, 9:36–39, 14:62–66). Based on this, Petitioner contends that an ordinarily skilled artisan “would have understood Phillips

⁶ We acknowledge that Petitioner relies on Aboulhosn, not Phillips, for teaching “virtual files stored in the same locations as local files of the local file system.” *See* Pet. 43–44. However, as we discuss below, the fact that Phillips’s system stores virtual and local files in different locations means that Phillips’s virtual files are not “indistinguishable” from the local files by the local file system.

to teach that its virtual files appear indistinguishable from local files, including file extensions.” *Id.* at 46 (citing Ex. 1003 ¶ 151). Yet the patentees of the ’338 patent disavowed coverage for the term “indistinguishable” as applied to virtual files stored in a separate location, such as a separate folder, device, or drive. *See supra* § II.C. And that is exactly what Phillips teaches. *See, e.g.,* Ex. 1006, 13:64–15:7, Fig. 4. We agree with Patent Owner (Prelim. Resp. 16–18) that Phillips’s virtual files are distinguishable from local files by the local file system because they are stored separately in the virtual F: drive/storage device. *See* Ex. 1006, 13:64–15:7, Fig. 4. Further, we do not credit Dr. McDaniel’s testimony as establishing that virtual files in Phillips are “indistinguishable” (as that term is understood in the ’338 patent (*see supra* § II.C)) because he includes no reasoning showing why an ordinarily skilled artisan would have interpreted Phillips’s teachings as extending beyond files in a segregated virtual drive appearing to be locally present. *See* Ex. 1003 ¶¶ 149–151.

We acknowledge that Petitioner and Dr. McDaniel put forth evidence that Phillips teaches client node software that “transparently and automatically” assists in accessing virtual files (i.e., “indistinguishable access”). *See* Pet. 46–47 (citing Ex. 1006, 9:39–42, 14:48–60, claim 16); Ex. 1003 ¶¶ 152–153. But this does not change the fact that Phillips’s virtual files are distinguishable from local files because virtual files are segregated in a separate, virtual drive.

For these reasons, Petitioner has not shown that the combination of Aboulhosn and Phillips teaches “the virtual files [being] indistinguishable from the local files by the local file system,” as recited in claim 1.

We additionally note that the same deficiencies discussed directly above infect Petitioner's rationale for combining Phillips with Aboulhosn. Specifically, Petitioner contends that an ordinarily skilled artisan seeking "a smoother and more seamless user experience with Aboulhosn's system" would have been motivated to incorporate "Phillips's **visual indistinguishability feature** (*i.e.*, displaying virtual files to the user in the same way as local files)." Pet. 54–55. Petitioner characterizes this alleged feature as "provid[ing] the perception that all the shared files are synced/stored locally." *Id.* at 55. Yet Phillips's virtual files are stored in a virtual drive that is segregated from local files. *See* Ex. 1006, 13:64–15:7, Fig. 4. As such, Phillips's virtual files are visually distinguishable because they are located in that separate virtual drive, *i.e.*, "the network connected storage device 'F'" known as "Lets Work on '@v-drive.'" *See id.* Thus, we do not agree that Phillips's presentation of virtual files in a separate virtual drive would have motivated an ordinarily skilled artisan to combine Phillips with Aboulhosn in the manner suggested by Petitioner.

For these reasons, Petitioner has not established a reasonable likelihood that it would prevail in showing that the subject matter of claim 1 would have been obvious over the combination of Aboulhosn and Phillips.

4. Claim 2

Claim 2 depends from claim 1, and Petitioner's analysis for claim 2 relies on the same deficient analysis that is discussed above with respect to claim 1. *See* Pet. 61. Further, Petitioner's analysis for this claim does not cure the deficiencies discussed above with respect to claim 1. Thus, we determine that Petitioner has not established a reasonable likelihood that it

would prevail in showing that the subject matter of claim 2 would have been obvious over the combination of Aboulhosn and Phillips.

5. *Claim 7*

Claim 7 is an independent system claim that shares some similarities with claim 1. In particular, claim 7 recites a “web-accessible server” that

integrates at each of the multiple devices metadata from the meta-indices of each of the other multiple devices into a local file system of each of the multiple devices to generate virtual files stored in the same locations as local files of the local file system, *the virtual files indistinguishable from the local files by the local file system at each of the multiple devices.*

Ex. 1001, 12:11–30 (emphasis added). Petitioner relies on the same deficient analysis for this limitation that is discussed above with respect to claim 1. *See* Pet. 67. Petitioner also relies on the same flawed rationale for combining Aboulhosn and Phillips. *See id.* at 53–61. Thus, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing that the subject matter of claim 7 would have been obvious over the combination of Aboulhosn and Phillips.

6. *Claims 8 and 9*

Claims 8 and 9 both ultimately depend from claim 7, and Petitioner’s analysis for these claims relies on the same deficient analysis that is discussed above with respect to claim 7. *See* Pet. 68. Further, Petitioner’s analysis for these claims does not cure the deficiencies discussed above with respect to claim 7. Thus, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing that the subject matter

of claims 8 and 9 would have been obvious over the combination of Aboulhosn and Phillips.

7. *Claim 10*

Claim 10 is an independent claim reciting “[a] non-transitory computer-readable storage medium storing a set of instructions that, when executed by a processor, cause the processor to perform operations” similar to the steps recited in claim 1. Ex. 1001, 12:63–13:20. In particular, claim 10 recites

providing the single master meta-index and meta-indices for each of the other multiple devices to each of the multiple devices, metadata from the meta-indices of each of the other multiple devices to be integrated into a local file system of each of the multiple devices to generate virtual files stored in the same locations as local files of the local file system, *the virtual files indistinguishable from the local files by the local file system at each of the multiple devices.*

Id. (emphasis added). Petitioner relies on the same deficient analysis for this limitation that is discussed above with respect to claim 1. *See* Pet. 69. Petitioner also relies on the same flawed rationale for combining Aboulhosn and Phillips. *See id.* at 53–61. Thus, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing that the subject matter of claim 10 would have been obvious over the combination of Aboulhosn and Phillips.

8. *Claims 11–14*

Claims 11–14 all ultimately depend from claim 10, and Petitioner’s analysis for these claims relies on the same deficient analysis that is discussed above with respect to claim 10. *See* Pet. 70–72. Further,

Petitioner's analysis for these claims does not cure the deficiencies discussed above with respect to claim 10. Thus, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing that the subject matter of claims 11–14 would have been obvious over the combination of Aboulhosn and Phillips.

E. Obviousness Ground Based on Aboulhosn, Phillips, and Tsang

Petitioner contends the subject matter of claims 3 and 4 would have been obvious over the combination of Aboulhosn, Phillips, and Tsang. Pet. 72–80. Patent Owner disputes Petitioner's contentions. Prelim. Resp. 9–20.

1. Tsang

Tsang is a U.S. patent directed to “technologies and techniques for managing files on multiple computing devices.” Ex. 1008, 1:42–44.

2. Claims 3 and 4

Claims 3 and 4 both ultimately depend from claim 1, and Petitioner's analysis for these claims incorporates the same deficient analysis that is discussed above with respect to claim 1 of the Aboulhosn–Phillips ground. See Pet. 72, 76. Petitioner's further analysis for claims 3 and 4 based on Tsang does not cure the deficiencies discussed above. Thus, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing that the subject matter of claims 3 and 4 would have been obvious over the combination of Aboulhosn, Phillips, and Tsang.

F. Obviousness Ground Based on Aboulhosn, Phillips, and Shappell

Petitioner contends the subject matter of claims 1, 2, and 5–14 would have been obvious over Aboulhosn, Phillips, and Shappell. Pet. 80–84. Patent Owner disputes Petitioner’s contentions. Prelim. Resp. 21–22.

1. Shappell

Shappell is a U.S. patent application publication directed to “defining a server-less shared memory space to facilitate interactions and data availability among defined groups of two or more communicating entities.” Ex. 1007 ¶ 1.

2. Claims 1, 2, and 5–14

Petitioner relies on Shappell for teaching limitations that are not related to virtual files being “indistinguishable” from local files. *See* Pet. 80–81. Petitioner’s analysis for this ground incorporates the same deficient analysis that is discussed above with respect to claim 1 of the Aboulhosn–Phillips ground. *See id.; supra* §§ II.D.3–8. As such, Petitioner’s further analysis for this ground based on Shappell does not cure the deficiencies discussed above. Thus, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing that the subject matter of claims 1, 2, and 5–14 would have been obvious over the combination of Aboulhosn, Phillips, and Shappell.

G. Obviousness Ground Based on Aboulhosn, Phillips, Tsang, and Shappell

Petitioner contends the subject matter of claims 3 and 4 would have been obvious over the combination of Aboulhosn, Phillips, Tsang, and

Shappell. Pet. 84. Patent Owner disputes Petitioner's contentions. Prelim. Resp. 21–22.

Petitioner's analysis for this ground incorporates the same deficient analysis that is discussed above with respect to claim 1 of the Aboulhosn–Phillips ground. *See* Pet. 84; *supra* § II.E.2. Petitioner's further analysis for this ground based on Shappell does not cure the deficiencies discussed above. Thus, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing that the subject matter of claims 3 and 4 would have been obvious over the combination of Aboulhosn, Phillips, Tsang, and Shappell.

III. CONCLUSION

After considering the evidence and arguments presented in the current record, we determine that Petitioner has not demonstrated a reasonable likelihood that it would prevail with respect to at least one of the claims challenged in the Petition. Therefore, we do not institute an *inter partes* review on the asserted grounds as to any of the challenged claims.

IV. ORDER

Accordingly, it is

ORDERED that the Petition is denied as to all challenged claims, and no *inter partes* review is instituted.

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