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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

_____

GOOGLE LLC,
Petitioner,

v.

SECURITY FIRST INNOVATIONS, LLC
Patent Owner.

_____

Case No. IPR2024-00213
Patent No. 9,338,140

_____

PETITIONER'S REQUEST FOR REHEARING OF DECISION DENYING INSTITUTION

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Petitioner requests rehearing of the Board's decision denying institution (Paper No. 8 ("DI")) pursuant to 37 C.F.R. § 42.71(c)-(d). This motion specifically identifies all matters Petitioner believes "the Board misapprehended or overlooked" and "the place where each matter was previously addressed." *Id*.

Petitioner requests rehearing of the Board's decision addressing Grounds 1-3 and/or of the Board's decision addressing Ground 4. As detailed below, the Board misapprehended or overlooked that Grounds 1-3 and Ground 4 each separately show that there is a reasonable likelihood that Petitioner will prevail with respect to at least one claim challenged in the Petition. 35 U.S.C. § 314.

I. REHEARING REQUEST ON GROUNDS 1-3

The Board found that claim 1 requires storing shares "among at least two physical storage devices," that the Petition "never addresses this requirement," and that this was "a fatal flaw" of Grounds 1-3. DI, 14. Rehearing is requested for two independent reasons. First, the Board misapprehended the proper scope of claim 1 which has no such "requirement." Second, even if the Board's construction of claim 1 were correct, the Board misapprehended and/or overlooked the Petition's showing that the Ophir-Takeda Combination meets the construction by storing shares among at least two of Ophir's RAID physical storage devices.

A. The Board Misapprehended Claim 1's Scope

The Board misapprehended the scope of claim 1 in finding that Limitations

[1A] and [1B-2] "require storing two shares among at least two physical storage devices." DI, 14. The Board noted that "a plurality of" means at least two, and that two physical storage devices must be "physically separable." DI, 9-10. Petitioner does not challenge those two findings. But the Board misapprehended or overlooked that those findings are insufficient to support the Board's narrow construction of claim 1.

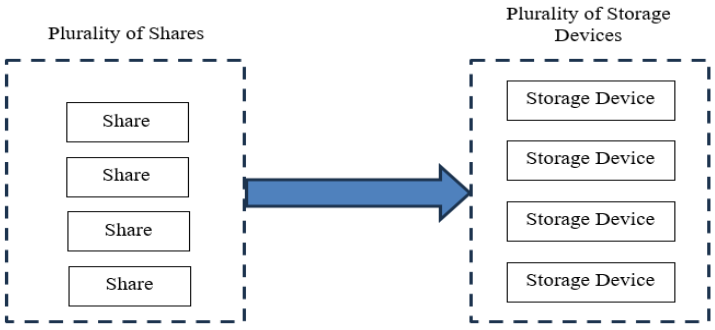
The Board seemingly credited assertions by Patent Owner and its expert that the purported "require[ment]" of storing shares among at least two storage devices was "'a central feature' of the invention" and "the inventors' insight." DI, 9 and 15. The Board misapprehended or overlooked that this purported requirement is not supported by the plain language of claim 1, the specification, or anything else.

Limitation [1A] requires "a plurality of physical storage devices storing thereon a plurality of shares," and [1B-2] recites "the plurality of shares for storage on the plurality of physical storage devices." The Board's construction requiring "storing the shares ***among at least two***[1] physical storage devices" (DI, 10) finds no support in the plain language of the claim. Limitation [1A] does ***not*** require "a plurality of physical storage devices [***each***] storing thereon" at least one share.

Patent Owner had full control over its claims and ***could*** have expressly required that the plurality of shares be stored "among" multiple storage devices.

[1] Emphasis is added throughout unless otherwise indicated.

Indeed, in the parent of the '140 patent (Patent No. 8,266,438), claim 18 recites "storing the at least two portions of data on ***at least two data depositories***, wherein the at least two data depositories are physically separate from each other." But Patent Owner chose to write claim 1 of the '140 patent more broadly. Its plain language does not support the "***among*** at least two physical storage devices" requirement the Board read into the claim. DI, 10. Instead, as illustrated below, the claim language simply requires that the plurality of shares be stored ***somewhere*** on the plurality of storage devices, without limitation as to whether or how the shares are distributed, ***or not***, "among" the plurality of storage devices.



The Board's construction also is not supported by the '140 patent's specification. The specification repeatedly notes that in "the present invention" the data can be stored either on only "***one***" storage device or on multiple storage devices. EX1001, 66:13-33 ("The secure data parser of the present invention … may be used for parsing and splitting data ***among <u>one</u> or more storage devices*** 2604 ***in accordance with the present invention***"); *id.*, 67:1-13 ("The secure data parser of the present invention may be integrated into a database … [in which] data

associated with particular cells of a database table … may be parsed and separated according to the present invention (e.g., where the ***different portions are stored on <u>one</u> or more storage devices*** at one or more locations ***or on a <u>single</u> storage device***)"; *id.,* 71:42-51 (storing data to "***<u>one</u>*** or more storage devices").

Patent Owner's assertion, which the Board seemingly credited, that storing shares among at least two storage devices was "'a central feature' of the invention" (DI, 9) is refuted by the plain language of the claims and the specification.

Finally, the Board found that "the Petition itself seems to interpret the claims as requiring storage on at least two physical storage devices." DI, 9. The basis for this finding was the Petition noting that "Dickinson-Takeda … stores encryption results … on **at least two** of storage devices D1-D4." *Id*. (Board's emphasis). The Board misapprehended the Petition's statement. The Petition's explanation of how the Dickinson-Takeda Combination operates is not a statement that the claims are properly construed as requiring storage among at least two storage devices.

Respectfully, the Board misapprehended or overlooked that the narrow construction it adopted that requires storing shares "***among at least two*** physical storage devices" (DI, 10) is unsupported. If the Board agrees, rehearing should be granted because the only basis for the Board's finding that Grounds 1-3 failed was the Board's overly narrow construction of Limitations [1A] and [1B-2]. DI, 14-16.

B. Grounds 1-3 Meet the Board's Claim Construction

Even if the Board maintains its claim construction, the Board's finding that "Grounds 1-3 do not address the limitation of storing on multiple storage devices" (DI, 15) overlooked or misapprehended the Petition's showing that the Ophir-Takeda Combination in Grounds 1-3 meets the Board's construction.

1. The Board Misapprehended or Overlooked That the Petition Did Not Rely on Takeda to Meet Limitations [1A] and [1B-2]

The Board found that "[a]ccording to Petitioner, ***Takeda*** teaches limitations [1A] and [1B-2]." DI, 14-15. The Board then concluded that Petitioner failed to show "that Takeda discloses or suggests storing data on physically separable storage devices." *Id*. The Board misapprehended the Petition's showing. The Petition never alleges that "***Takeda*** teaches limitations [1A] and [1B-2]." DI, 14.

The Ophir-Takeda Combination used in Grounds 1-3 is explained in the Petition at 17-25. ***Ophir*** is the primary reference. *Id*. Ophir discloses data clients, a mediator and data storage devices. Petition, 6. The mediator and storage devices are distinct, as shown, for example, in Ophir's FIGs. 4 and 7. Petition, 7. The Ophir-Takeda Combination only modifies Ophir's mediator. *Id*., 17 ("A POSA would have modified Ophir to implement Takeda's ciphering/de-ciphering method ***in Ophir's mediator***."). "Besides modifying Ophir's encryption/decryption techniques to use those of Takeda, Ophir-Takeda need not change Ophir's other

aspects." *Id*., 25. "In operation, a data block input to Ophir's block services 623, or a file input as plaintext to Ophir's file services 625, is divided … into blocks to be ciphered using Takeda's ciphering method … and output as ciphered blocks ***for storage on any of <u>Ophir's</u> storage devices*** (*see* Ophir, FIGs. 4, 6-7)." Petition, 25. The "Ophir-Takeda [Combination] ***includes Ophir's*** data clients, mediator, and ***storage devices***, which together represent a secure storage network." *Id*.

The Petition's showing for Limitation [1A] spans pages 27-31 and begins with ***Ophir's*** disclosure of "a plurality of physical storage devices" including RAID and JBOD. Petition, 27. The Petition explains that "[a]s discussed *supra* §VII.C.3 [explaining the 'Resulting Combination'], in Ophir-Takeda, Takeda's ciphering is performed in Ophir's 'Encryption/Decryption Unit' 517 … and the encrypted shares are stored on ***the above-discussed [Ophir] plurality of storage devices such as Simple RAID and/or JBOD storage devices***. ***<u>Ophir,</u>*** FIGs. 4, 6-7, [0030], [0032], [0034]; Bhattacharjee, ¶111." Petition, 31.

Petitioner's showing for Limitation [1B-2] says the "shares are generated for storage on the plurality of physical storage devices in Ophir-Takeda, ***as discussed §VII.C.3 supra***." *Id*., 40. Section VII.C.3 is the above-discussed section explaining that the "Resulting Combination" uses "***<u>Ophir's</u> storage devices***." *Id*., 25.

Misled by the Patent Owner, the Board misapprehended and/or overlooked that Grounds 1-3 do not allege that "***Takeda*** teaches limitations [1A] and [1B-2]."

DI, 14. The Board's finding that Petitioner did not show that "Takeda discloses or suggests storing data on physically separable storage devices" (*id*., 15) provides no basis to reject Grounds 1-3 because those grounds rely on Ophir (not Takeda) to teach storing data on physical storage devices. Petition, 27-31; *id*., 31 ("in Ophir-Takeda … the encrypted shares are stored on the above-discussed plurality of storage devices [in Ophir] such as Simple RAID and/or JBOD storage devices.").

2. The Board Misapprehended or Overlooked the Petition's Reliance on Ophir's Storage Devices

After focusing primarily on Patent Owner's red-herring arguments about Takeda, the Board devoted only two sentences to Ophir. DI, 15. The Board stated that "[t]he Petition does not suggest that Ophir teaches storing shares among different physical storage devices," and noted the Petition's explanation that Ophir uses "a ***single 'mediator*** [to] provide[] secure virtual storage to data clients.'" *Id.* (citing "Pet. 9" which is in the Petition's section providing an overview of Ophir). Respectfully, the Board conflated Ophir's "mediator" with Ophir's storage devices.

The Board misapprehended or overlooked that the Petition quoted directly from Ophir in explaining that Ophir's mediator that provides "virtual storage" is distinct from Ophir's plurality of physical storage devices. *See, e.g.*, Petition, 6 ("The ***mediator connects*** over the network to one or more data clients and ***to one or more data storage devices***, and provides secure storage of data for the data clients ***on the data storage devices***") and 8-9 (reproducing Ophir FIG. 6 which

shows mediator 601 as distinct from storage devices 617 and 621).

The Board also misapprehended or overlooked that the portion of the Petition the Board cited is ***not*** where the Petition demonstrated how Ophir meets Limitations [1A] and [1B-2]. DI, 15 (citing "Pet. 9"). That showing was made in the Petition at pages 27-31 (for [1A]) and 39-40 (for [1B-2]).

As explained *supra* § I.B.1, the Petition's showing for Limitations [1A] and [1B-2] explains that "in Ophir-Takeda … the encrypted shares are stored on the above-discussed plurality of storage devices such as [Ophir's] Simple ***RAID*** and/or ***JBOD storage devices***." Petition, 31; *see also id*., 40 ("[t]he shares are generated for ***storage on the plurality of physical storage devices*** in Ophir-Takeda") and *id*., 43 ("In Ophir-Takeda, Encryption/Decryption Unit 517 … reconstitute[s] the original dataset (plaintext M) from the plurality of shares ***stored on the physical storage devices***.").

As to **JBOD,** the Petition quotes Ophir's explanation that it means "Just a Bunch Of ***Disks"*** (plural) and thus "include[s] a plurality of devices." *Id*., 27.

As to **RAID,** the Petition explains that "POSAs understood" that it "include[s] a plurality of devices." *Id*., 27 (citing, *inter alia*, EX1003, ¶101 where Dr. Bhatacharjee explains that "'RAID' is a known term in the field which is written out as 'redundant array of independent ***disks***' or sometimes as 'redundant array of inexpensive ***disks***'"). The '140 patent itself acknowledges that RAID

means "redundant array of inexpensive ***disks***" (plural). EX1001, 61:23-26. The Petition also cites documentary evidence supporting its explanation that a "POSA understood" that RAID "include[s] a plurality of devices." Petition, 27 (citing EX1012, 1:4-6 (RAID is a "redundant array of independent ***disks***") and EX1013, 1:57-63 (RAID is "Redundant Arrays of Inexpensive ***Disks***")). The Petition also ***quotes*** from corroborating documentary evidence in explaining how a POSA would have understood Ophir's disclosure of providing "virtual data storage" and "block services," explaining that this discloses a "virtual disk" that "provides a storage abstraction of ***multiple RAID devices***," and that "[i]n the RAID architecture, ***multiple [physical] disks*** a[re] typically mapped to a single 'virtual disk.'" Petition, 35 (quoting EX1015, 7:32-40 and EX1017, [0020]).

In finding that "Grounds 1-3 do not address the limitation of storing on multiple storage devices" (DI, 15), the Board misapprehended or overlooked the Petition's above-discussed showing—supported by the above-discussed extensive evidence—that "in Ophir-Takeda … the encrypted shares are stored on [***Ophir's***] above-discussed ***plurality of storage devices such as Simple RAID and/or JBOD storage devices***." Petition, 31.

3. The Board Misapprehended or Overlooked That Ophir's RAID Meets the Board's Construction

The Board found that "[t]he Petition does not suggest that Ophir teaches storing shares among ***different*** physical storage devices," and quoted testimony

from Patent Owner's expert that "[w]hat is missing [in the Petition] is any indication or argument that … a POSITA would be motivated to divide Takeda's blocks from a given dataset across two or more of Ophir's physical storage devices." DI, 15. The Board misapprehended or overlooked that Petitioner did not need to establish a motivation "to divide Takeda's blocks from a given dataset across two or more of Ophir's physical storage devices" (DI, 15) because POSAs understood that Ophir's "RAID … storage devices" (Petition, 31) already operate by storing each dataset across multiple physical storage devices.

Again, the Petition was explicit that in the Ophir-Takeda Combination, "the encrypted ***shares are stored on the*** above-discussed ***plurality of storage devices*** such as Simple ***RAID … storage devices***" (Petition, 31), and that in response to a client device requesting stored data, the Ophir-Takeda Combination "reconstitute[s] the original dataset … from the plurality of shares stored on the physical storage ***devices***" (plural) (Petition, 43). The Board misapprehended or overlooked this explanation which, as discussed below, demonstrates that the Ophir-Takeda Combination that stores "encrypted shares" on Ophir's "***RAID … storage devices***" (Petition, 31) meets the Board's construction that requires storing shares among at least two physical storage devices.

The evidence the Petition cites supports the Petition's explanation that the Ophir-Takeda Combination stores a dataset on a ***plurality*** of Ophir's RAID storage

devices. *Id*. The Petition cites evidence establishing that POSAs understood that Ophir's "RAID" refers to a redundant array of disks, and that when a dataset is stored on Ophir's RAID storage devices the dataset is stored on multiple disks. Petition, 27. The Petition's evidence shows that POSAs understood that RAID "mirrors" the dataset by storing it on multiple disks, or "stripes" the dataset across multiple disks including a parity disk, so that (either way) the data set can be recovered even if one disk fails. *Id*., 27 (citing EX1003, ¶101 ("POSAs understand that RAID … operates by having multiple disks with data stored on the multiple disks, as indicated by the reference to 'redundant' and 'disks' in the name."); EX1012, 1:13-17 ("A common RAID configuration is several hard disk drives, where data is written in a 'stripe' across the drives, consisting of corresponding data sectors on each drive, in which one of the data sectors stores parity data for the other data sectors in the stripe."); EX1014, 1:25-27 ("a simple RAID 1 configuration calls for exact mirroring of the contents of a first disk drive on a parallel or mirrored second drive.")).

Patent Owner obfuscated by arguing that Petitioner needed to show separate motivation to divide Takeda's blocks. DI, 15. Patent Owner never alleged that Ophir's RAID did not already do this. Indeed, the '140 patent itself admits that RAID spreads data over multiple disks, and states that the '140 patent's alleged invention can use RAID to store data across multiple disks. EX1001, 61:23-26

("Hardware options such as RAID (redundant array of inexpensive disks, used to spread information over several disks) … can assist as well in the data recovery planning"), 66:63-67 ("In one suitable approach, the secure data parser of the present invention may be integrated into a RAID controller (as either hardware or software). This allows for the secure storage of data to multiple drives while maintaining fault tolerance in case of drive failure."). The Board misapprehended or overlooked that the Ophir-Takeda Combination spreads each dataset across multiple RAID disk drives in the same way the '140 patent does and achieves what Patent Owner characterized as "'a central feature' of the invention" and the "inventors' insight." DI, 9 (citing POPR, 5); DI, 15 (citing EX2003, ¶ 61).

C. Conclusion on Grounds 1-3

The Board denied Grounds 1-3 based on an overly narrow claim construction. *Supra* § I.A. Even if the Board maintains its construction, the Board overlooked and/or misapprehended the Petition's showing that the Ophir-Takeda Combination meets the Board's construction. *Supra* § I.B. For either or both of these reasons, rehearing should be granted and a trial instituted on Grounds 1-3.

II. REHEARING REQUEST ON GROUND 4

The Board found Ground 4 deficient because the Petition allegedly fails to establish that the Dickinson-Takeda Combination meets Limitation [1B-1]'s language reciting "such that physical locations of the shares are hidden from the

client device." DI, 16-20. The Board misapprehended or overlooked the Petition's showing that ***Dickinson's logical memory*** meets this clause. Petition, 71-72.

The Petition explains that Dickinson's "***logical memory*** structure is a virtual disk … because it is a virtual ('logical') representation of storage that appears to the user to be a physical disk but where the actual physical data storage facilities (e.g., D1-D4) on which the data is stored are hidden from the user." *Id*., 71-72. In support, Petitioner cited Dickinson's disclosure of the logical memory (EX1005, 16:28-31, 29:12-30:2), expert testimony establishing that a POSA understood that logical memory hides the physical storage locations from the user (EX1003, ¶229), and the prosecution history showing that the Examiner cited this very same Dickinson logical memory as meeting Limitation [1B-1] and the applicant never refuted this (EX1002, 1237-39 and 1245-46). Petition, 71-72.

The Board reviewed the cited portions of Dickinson, noted that they do not expressly refer to hiding the physical shares, and wrongly found that Petitioner and Dr. Bhattacharjee failed to "explain the relevance" of Dickinson's disclosure. DI, 17-20. That the words "hidden from the user" do not appear verbatim in Dickinson is not determinative. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009) ("While those elements must be 'arranged or combined in the same way as in the claim,' the reference need not satisfy an *ipsissimis verbis* test") (citations omitted). The critical question is how a POSA would have understood Dickinson's disclosure.

Sundance, Inc. v. DeMonte Fabricating Ltd., 550 F.3d 1356, 1361 n.3 (Fed. Cir. 2008) ("What a prior art reference discloses or teaches is determined from the perspective of one of ordinary skill in the art."). Dr. Bhattacharjee (EX1003, ¶229) was unequivocal that POSAs knew Dickinson's logical memory hides the physical location of the shares from the user. Patent Owner's expert never refuted this. He noted the lack of ***verbatim*** support but never opined on the critical question of whether POSAs understood that Dickinson's "logical" memory does not present its underlying physical storage locations to the user. EX2003, ¶¶ 136-140.

In finding that Petitioner and Dr. Bhattacharjee failed to "explain the relevance" of Dickinson's disclosure (DI, 17-20), the Board overlooked the explanation that Dickinson's memory is "logical" and only "***appears*** to the user to be a physical disk" because it simulates or emulates a physical storage device. Petition, 71-72; EX1003, ¶229. What Dickinson presents to the user is the "logical memory"—not underlying physical storage locations. A POSA understood this "hides" the physical storage locations the same way that Patent Owner's expert admitted the '140 patent does—by providing "an interface that allows users to access [data] without knowledge of the [physical] location of shares." EX2003, ¶139 (quoting EX1001, 87:35-39). The Board misapprehended or overlooked that Dickinson would have needed to present ***additional*** information to the user—beyond presenting Dickinson's "logical memory"—for the underlying physical

storage locations to become unhidden from the user. Patent Owner identified no disclosure in Dickinson of presenting to the user the underlying physical storage locations in addition to the logical memory. Dickinson has no such disclosure.

The Board also overlooked or misapprehended the Petition's explanation that the Examiner found that Dickinson's exact same logical memory meets Limitation [1B-1] because the physical locations of the shares on Dickinson's storage devices are hidden (EX1002, 1237-39) and the Applicant never rebutted this (EX1002, 1245-46). Petition, 72. This is intrinsic evidence supporting that the claim language referring to "hidden" physical storage locations—which appears in a "such that" clause characterizing the result of presenting the user with a virtual disk—is met by presenting the user with a logical storage device (like Dickinson does) rather than presenting the user with a physical device.

III. CONCLUSION

For the foregoing reasons, Petitioner requests that the Board grant rehearing on Grounds 1-3 and/or on Ground 4 and institute a trial. Grounds 1-3 and Ground 4 each demonstrate that Petitioner is reasonably likely to prove at least one challenged claim unpatentable at trial for separate independent reasons.

Respectfully submitted,
Google LLC

Date: July 8, 2024

/ Richard Giunta/

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CERTIFICATE OF SERVICE UNDER 37 C.F.R. § 42.6 (e)(4)

I certify that on July 8, 2024, I will cause a copy of the foregoing document, including any exhibits filed therewith, to be served via electronic mail, as previously consented to by Patent Owner, upon the following:

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