

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VMWARE, INC.,
Petitioner,

v.

CLOUDING CORP.,
Patent Owner.

Case IPR2014-01292
Patent 7,032,089 B1

Before JAMESON LEE, JONI Y. CHANG, and DAVID C. McKONE,
Administrative Patent Judges.

McKONE, *Administrative Patent Judge.*

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

I. INTRODUCTION

A. Background

VMware Inc. (“Petitioner”) filed a Corrected Petition (Paper 4, “Pet.”) to institute *inter partes* review of claims 1–24 of U.S. Patent No. 7,032,089 B1 (Ex. 1001, “the ’089 patent”). Clouding Corp.¹ (“Patent Owner”) filed a Preliminary Response (Paper 10, “Prelim. Resp.”). Pursuant to 35 U.S.C. § 314, in our Decision to Institute (Paper 17, “Dec.”), we instituted this proceeding as to all of the challenged claims of the ’089 patent.

During this trial, Patent Owner filed a Patent Owner Response (Paper 24, “PO Resp.”) and Petitioner filed a Reply to the Patent Owner Response (Paper 26, “Reply”). Patent Owner also filed a Contingent Motion to Amend (Paper 25, “Mot. to Amend”), Petitioner filed an Opposition to the Motion to Amend (Paper 27, “Opp. to Mot. to Amend”), and Patent Owner filed a Reply to Petitioner’s Opposition (Paper 30, “Mot. to Amend Reply”). An oral hearing was held on September 24, 2015 (Paper 37, “Tr.”).

We have jurisdiction under 35 U.S.C. § 6(c). This decision is a final written decision under 35 U.S.C. § 318(a) as to the patentability of the challenged claims. Based on the record before us, Petitioner has demonstrated by a preponderance of the evidence that claims 1–24 are unpatentable.

¹ The Petition named Clouding IP, LLC, as the patent owner. Clouding Corp., however, represents that it obtained the ’089 patent from Clouding IP, LLC. Paper 8, 2.

B. Related Matters

Patent Owner has asserted the '089 patent against various companies in several lawsuits filed in the United States District Court for the District of Delaware. Pet. 3; Paper 8, 2.

We previously instituted an *inter partes* review of the '089 patent, *Rackspace Hosting, Inc. v. Clouding Corp.*, Case IPR2013-00519 (“Rackspace IPR”) and determined, in a Final Written Decision, that claims 1–24 are unpatentable, *Rackspace Hosting, Inc. v. Clouding Corp.*, Case IPR2013-00519 (PTAB Jan. 29, 2015) (Paper 22, “Rackspace Final Dec.”). Patent Owner appealed the Rackspace Final Decision. Rackspace IPR, Paper 24.

C. References Relied Upon

Our Decision to Institute relied upon the following prior art references:

Gold (Ex. 1002)	WO 99/12098	Mar. 11, 1999
Chefalas (Ex. 1004)	US 6,976,039 B2	Dec. 13, 2005

Petitioner relies upon the following additional prior art references in opposing Patent Owner’s Motion to Amend:

Steve Kelley, *Copykill, Save time by purging yourself of redundant activities*, 80 MICROCOMPUTING, ISS. 18, 224–31 (June 1981) (Ex. 1013, “Kelley”)

Pruett (Ex. 2003)	US 5,778,389	July 7, 1998
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Petitioner further supports its contentions with the testimony of Dr. Paul Reynolds (Ex. 1005, “Reynolds Decl.”; Ex. 1019, “Reynolds Mot. to Amend Decl.”; Ex. 1020, “Reynolds Reply Decl.”).

D. The Asserted Grounds

We instituted this proceeding on the ground that the challenged claims are unpatentable as obvious over Gold and Chefalas. Dec. 22.

In opposing Patent Owner’s Motion to Amend, Petitioner challenges proposed substitute claim 25 on the following grounds (Opp. to Mot. to Amend, 4):

Reference(s)	Basis
Gold and Chefalas	35 U.S.C. § 103(a)
Pruett	35 U.S.C. § 103(a)
Kelley	35 U.S.C. § 103(a)

II. ANALYSIS

A. The ’089 Patent

The ’089 patent generally relates to synchronizing computer data replicated in different storage areas for backup and disaster recovery purposes. Ex. 1001, 1:15–18. For example, the ’089 patent describes a system with a primary node (e.g., a computer) coupled by a network to a secondary, or backup, node. *Id.* at Figs. 1, 3. One feature of this system is that the secondary node includes the same data as the primary node, such that, if the primary node fails, the secondary node, using the replicated data, can take over. *Id.* at 5:36–41, 6:56–62.

The ’089 patent describes a “copy on read” replication technique that copies data from the primary node to the secondary node after the data is

read from the primary node's storage area. *Id.* at 8:62–65. Figure 3, reproduced below, illustrates an example:

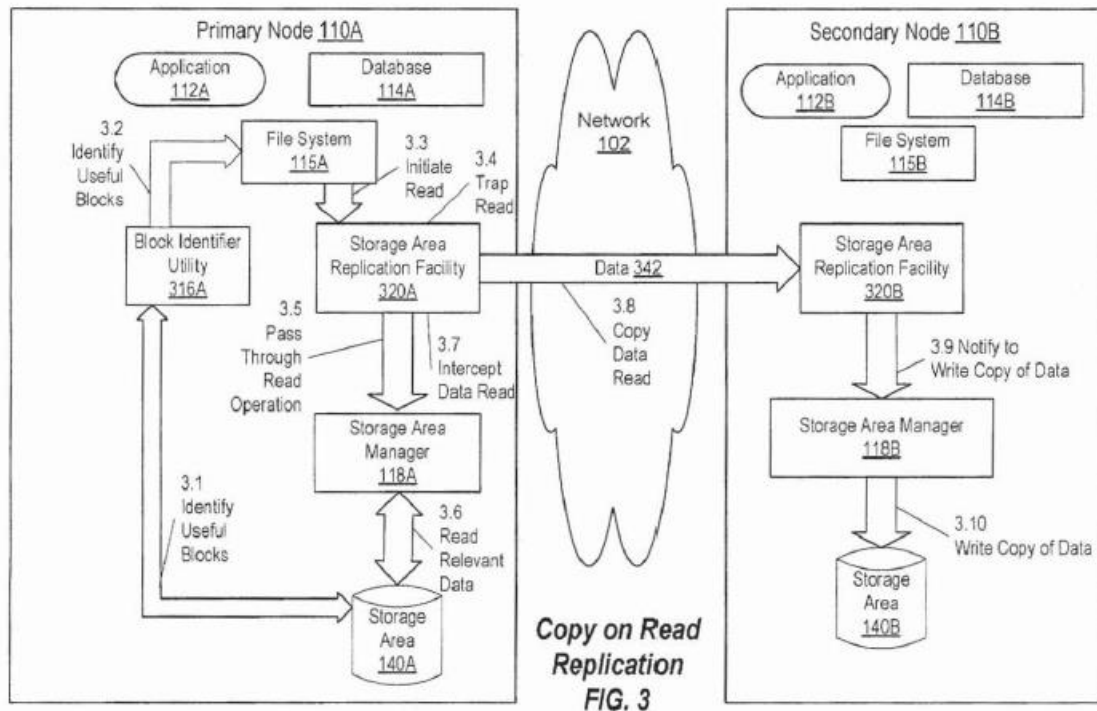


Figure 3 is a flow diagram of a copy-on-read operation used for replication. *Id.* at 4:17–19.

According to the '089 patent, not all data in the storage area of the primary node are “relevant” to an application managing the data on the secondary node. *Id.* at 8:13–15. To avoid replicating irrelevant data, the primary node of Figure 3 includes block identifier 316A at primary node 110A that identifies “useful” blocks of data (“storage objects”) for copying to the secondary node. *Id.* at 8:18–27.

Block identifier 316A identifies relevant blocks to read and sends a message to storage area manager 118A, which reads the relevant data from storage area 140A. *Id.* at 9:24–47. Storage area replication facility 320A intercepts this message and allows the message to pass through to storage

area manager 118A, which retrieves the data from the primary node's storage area 140A. *Id.* at 9:48–55. After storage area manager 118A retrieves the relevant data, the data are intercepted by storage area replication facility 320A and sent to storage area replication facility 320B at secondary node 110B. *Id.* at 9:56–59.

According to the '089 patent, the block to be copied to the secondary node can be compared to a corresponding block already stored on the secondary node's storage area, for example, by comparing their checksums. *Id.* at 10:46–56. If the checksums match, there is no need to copy the data—they already are replicated. *Id.* at 10:59–62.

Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method comprising:
 - selecting a first storage object of a first storage area;
 - determining whether the first storage object contains relevant data;
 - if the first storage object contains relevant data, performing the following:
 - reading the first storage object; and
 - when the reading is completed, copying contents of the first storage object to a second storage object of a second storage area; and
 - if the first storage object does not contain relevant data,
 - selecting a second storage object of the first storage area without reading the first storage object and without copying the contents of the first storage object to the second storage object.

B. Estoppel

In the Reply, Petitioner contends that we should apply “*res judicata*, collateral estoppel, *stare decisis*, and/or judicial deference” and preclude Patent Owner from taking positions inconsistent with the Rackspace Final Decision. Reply 1–2. Petitioner points with particularity to our constructions at pages 6–21 of the Rackspace Final Decision. *Id.* at 2. As explained below, in our Decision to Institute, we preliminarily construed claim terms consistently with those construed in the Rackspace Final Decision, at 6–21. Patent Owner does not challenge those constructions. Thus, Patent Owner is not taking positions inconsistent with that portion of the Rackspace Final Decision.

Petitioner further argues that, in the Rackspace Final Decision, we made findings as to what Gold discloses and, “given those conclusions, there is no reason for this Board to reconsider any issues related to claim scope or what Gold discloses, even though the issue here is obviousness as opposed to anticipation.” Reply 4. Although Petitioner makes allegations similar to those made in the Rackspace IPR, Petitioner’s contentions and evidence are different as to the applicability of Gold and Chefalas (not raised in the Rackspace IPR) to the claims of the ’089 patent. The Reply is not clear as to which findings should be accorded preclusive effect. Nevertheless, as explained below, our findings in this Decision are consistent with those in the Rackspace Final Decision.

Petitioner further argues that Patent Owner’s Motion to Amend is barred by 37 C.F.R. § 42.73(a), which provides “[a] judgment, except in the case of a termination, disposes of all issues that were, or by motion reasonably could have been, raised and decided,” and 37 C.F.R.

§ 42.73(d)(3), which states that “[a] patent applicant or owner is precluded from taking action inconsistent with the adverse judgment.” Opp. to Mot. to Amend 1–2. Rule 42.73(a) discusses the effect of a judgment on a proceeding, but does not address future proceedings beyond that expressly set forth in Rule 42.73(d). Thus, we look to Rule 42.73(d) to determine whether estoppel applies. To that end, the Patent Office has explained in its discussion accompanying the Final Rule, that Rule 42.73(d)(3) applies estoppel against a party whose claim has been cancelled and not merely held unpatentable:

Section 42.73(d)(3) *applies estoppel against a party whose claim was cancelled* The rule is consistent with 35 U.S.C. 316(a)(4), as amended, and 326(a)(4), which require that the Office prescribe regulations establishing and governing the reviews and the relationship of such reviews to other proceedings under title 35.

Rules of Practice for Trials Before the Patent Trial and Appeal Board and Judicial Review of Patent Trial and Appeal Board Decisions, Discussion of Specific Rules, 77 Fed. Reg. 48,612, 48,625 (Aug. 14, 2012) (emphasis added); *see also* 77 Fed. Reg. at 48,614 (Differences Between the Final Rule and the Proposed Rule) (emphasis added):

Further, the final rule tailors the provisions to provide that *a patent applicant or patent owner whose claim is canceled is precluded from taking action inconsistent with the adverse judgment*, including obtaining in any patent: (1) A claim that is not patentably distinct from the finally refused or cancelled claim[.]

Under 35 U.S.C. § 318(b), a claim is not cancelled until all appeal rights have terminated. Accordingly, even assuming that Patent Owner’s Motion to Amend is inconsistent with our ruling in the Rackspace IPR, Rule 42.73 is

inapplicable in this proceeding. Nevertheless, as explained below, our ruling in this proceeding is consistent with that in the Rackspace IPR.

C. Claim Construction

We interpret claims of an unexpired patent using the broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b); *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1278 (Fed. Cir. 2015). Claim terms generally are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

1. Constructions from the Decision to Institute

In the Decision to Institute, we preliminarily addressed the constructions of the following terms. We also construed several of these terms in the Rackspace Final Decision:

Claim Phrase	Construction in Decision to Institute
“relevant data” (claims 1, 7, 9, 13, 17, 21)	“data relevant to the purpose for which storage objects are being copied.” Dec. 6. <i>See also</i> Rackspace Final Decision 10.
“copy-on-read mode” (claims 10, 14, 18, 22)	“a mode where data are read from one storage area and subsequently copied to another storage area.” Dec. 6–7. <i>See also</i> Rackspace Final Decision 11.

Claim Phrase	Construction in Decision to Institute
First instance of “selecting means” (claim 9)	Function: “selecting a first storage object of a first storage area.” Corresponding Structure: computer software executing on a general purpose computer implementing a block identifier utility and equivalents thereof. Dec. 7. <i>See also</i> Rackspace Final Decision 13–14.
Second instance of “selecting means” (claim 9)	Function: “selecting a second storage object of the first storage area without reading the first storage object and without copying the contents of the first storage object to the second storage object if the first storage object does not contain relevant data.” Corresponding Structure: computer software executing on a general purpose computer implementing a block identifier utility and equivalents thereof. Dec. 7. <i>See also</i> Rackspace Final Decision 14.
“determining means” (claim 9)	Function: “determining whether the first storage object contains relevant data.” Corresponding Structure: computer software executing on a general purpose computer implementing a block identifier utility and equivalents thereof. Dec. 8. <i>See also</i> Rackspace Final Decision 15–17.

Claim Phrase	Construction in Decision to Institute
“reading means” (claim 9)	Function: “reading the first storage object if the first storage object contains relevant data.” Corresponding Structure: computer software executing on a general purpose computer implementing an application, database, file system, and/or storage area manager, and equivalents thereof. Dec. 8. <i>See also</i> Rackspace Final Decision 17–18.
“copying means” (claim 9)	Function: “copying contents of the first storage object to a second storage object of a second storage area if the first storage object contains relevant data.” Corresponding Structure: computer software executing on a general purpose computer implementing a storage area replication facility and equivalents thereof. Dec. 8. <i>See also</i> Rackspace Final Decision 18–19.
“sending means” (claim 11)	Function: “sending the contents over a network connection from the first storage area to the second storage area.” Corresponding Structure: computer software executing on a general purpose computer implementing a storage area replication facility and equivalents thereof. Dec. 9. <i>See also</i> Rackspace Final Decision 19–20.

Claim Phrase	Construction in Decision to Institute
“second copying means” (claim 12)	Function: “copying second contents of the first storage object to the second storage object if the second contents are relevant data.” Corresponding Structure: computer software executing on a general purpose computer implementing a storage area replication facility and equivalents thereof. Dec. 9. <i>See also</i> Rackspace Final Decision 20–21.
“storage object” (claims 1, 7, 9, 17, 21)	We declined to construe this term expressly. Dec. 9.
“program managing the data” (claims 3, 5)	We declined to exclude from “program managing the data” programs that use the data for backup purposes. Dec. 10.

The parties do not dispute these constructions in the PO Response or Reply. On the complete record, we maintain these constructions.

2. “*determining whether the first storage object contains relevant data*”

Independent claims 1, 7, 9, 13, 17, and 21 each recite, *inter alia*, “determin[e/ing] whether the first storage object contains relevant data” and “select[ing] a second storage object of the first storage area without reading the first storage object.” Although Patent Owner does not propose an explicit construction for “determin[e/ing] whether the first storage object contains relevant data,” Patent Owner nevertheless argues that Gold and Chefalas fail to teach the challenged claims because the combination would read the first storage object before determining its relevance. PO Resp. 4

(“It is apparent that *Gold* fails to teach a system or method in which ***before a storage object is read***, a determination is first made as to whether that storage object contains relevant data, as recited in claim 1.”), 7 (“Inasmuch as this operation requires the file be read ***before*** its relevance is determined, the combination of *Gold* and *Chefalas* still would not result in the subject matter of claim 1.”). Presumably, Patent Owner is arguing that the “select[ing] a second storage object of the first storage area without reading the first storage object” recitation limits the “determin[e/ing]” recitation.

In the Rackspace Final Decision, we addressed whether the claim language precluded reading a storage object before or during a relevancy determination, and concluded that it does not:

“[T]he word ‘comprising’ in the transitional phrase of a patent claim creates a presumption that the body of the claim is open.” *Crystal Semiconductor Corp. v. TriTech Microelectronics Int’l, Inc.*, 246 F.3d 1336, 1350 (Fed. Cir. 2001). The Federal Circuit has cautioned, however, that “[c]omprising’ is not a weasel word with which to abrogate claim limitations.” *Spectrum Int’l, Inc. v. Sterilite Corp.*, 164 F.3d 1372, 1380 (Fed. Cir. 1998). In this case, the claim language “if the first storage object does not contain relevant data, selecting a second storage object of the first storage area without reading the first storage object” pertains to the behavior of the claimed method after a relevancy determination has been made. Patent Owner does not explain persuasively how this language addresses the behavior of the method prior to a relevancy determination. We conclude that nothing in claim 1 precludes reading before or during a relevancy determination.

Rackspace Final Dec. 27. We preliminarily construed this term in the same manner in the Decision to Institute. Dec. 16–17.

In its Response, Patent Owner presents no persuasive argument or evidence showing that our conclusion in the Rackspace Final Decision was

incorrect. Patent Owner does not cite to the Specification in support of its construction. Nor does Patent Owner cite to extrinsic evidence. Patent Owner appears to rest on the plain language of the claims (PO Resp. 5 (“According to claim 1, ‘determining whether the first storage object contains relevant data’ occurs before the first storage object is read.”)), evidence we fully considered in the Rackspace IPR.

For the reasons stated in the Rackspace Final Decision, reproduced above, we conclude that “determin[e/ing] whether the first storage object contains relevant data” does not exclude reading the first storage object before or during a relevancy determination, notwithstanding the claims’ additional recitation of “select[ing] a second storage object of the first storage area without reading the first storage object.”

Patent Owner’s argument also is inconsistent with the language of claims 7 and 8. Claim 7 recites “comparing the contents of the first storage object to the contents of the second storage object; and when the contents of the first storage object and the contents of the second storage object do not match, copying the contents of the first storage object to the second storage object.” Claim 8 depends from claim 7 and recites that the comparing comprises “comparing a first checksum computed from the contents of the first storage object with a second checksum computed from the contents of the second.” In both instances, an additional comparison is performed prior to copying. Patent Owner contends that similar disclosure in Gold, of using checksums to determine if a file to be copied already resides on the backup memory, evidences a read as part of a relevancy determination prior to copying. PO Resp. 4–5 (“Inasmuch as the determination as to whether or not to copy the file (i.e., the determination as to whether or not the file is

‘relevant’) depends on the outcome of the comparison between the signature and the CRC value, it necessarily follows that the relevancy determination occurs **after** the file has been read and the signature computed.”). Thus, Patent Owner would construe claim 7 to allow a read as part of a relevancy determination prior to copying while construing claims 1, 13, 17, and 21 to preclude it.

When questioned at the hearing, Patent Owner conceded that it is reading “determin[e/ing] whether the first storage object contains relevant data” to mean something different in claims 7 and 8 than it means in the remaining claims:

[MR. FAHMI:] The Gold system obtains signatures of files that are already existing at the remote storage location, and then computes signatures of files at the local storage site to see whether or not they need to be backed up.

JUDGE McKONE: Doesn’t the ’089 patent also have this similar feature where you can read the file to identify redundant files?

MR. FAHMI: Yes, it does, Your Honor. And that is the province of claim 7. Claim 7 is different than claim 1 in that regard.

Dr. Reynolds explained during his deposition testimony that computing the signature involves reading the file. This is in Dr. Reynolds’ deposition transcript, Exhibit 2001, beginning at page 18, line 8.

JUDGE McKONE: Are you conceding that claim 7 is obvious? This argument then wouldn’t apply to claim 7, so claim 7 would be obvious, is that your position?

MR. FAHMI: Claim 7 is not one that would be saved by this argument, Your Honor, you are right.

Dr. Reynolds indicated that computing the signature requires reading the file. And it is only after the signatures are computed and compared, in other words, only after files are read, that their relevance is determined and the copying takes place.

Tr. 48:3–49:2. Patent Owner then argued that “determin[e/ing] whether the first storage object contains relevant data,” when used in the claims other than claims 7 and 8, is directed to a different embodiment that precludes a read prior to or during a relevancy determination:

JUDGE McKONE: Now, claim 7 has the same language, determining whether the first storage object contains relevant data. We know that in that claim it has to be broad enough to encompass this secondary redundancy check.

Why isn’t that same language in claim 1 also broad enough to accommodate the redundancy check?

MR. FAHMI: Your Honor, the patent describes the two embodiments separately. And so the embodiments have to be read separately. And it is known that claims need not be construed to encompass all of the disclosed embodiments.

Tr. 49:3–12.

We are not persuaded. “Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (en banc). Patent Owner does not cite to persuasive evidence that the ’089 patent specifically claims two separate embodiments. Rather, the Specification describes the checksum comparison as a feature that can be used together with the described “copy-on-read” embodiment. Ex. 1001, 10:31–35 (“FIG. 5 is a flowchart of an extended copy-on-read operation in accordance with one embodiment of the

invention. The ‘copy on read’ mode solution can be combined with the smart synchronization method described above to further conserve network bandwidth.”), 3:36–44 (describing the “smart synchronization” process using checksums). The claim language “determin[e/ing] whether the first storage object contains relevant data,” in light of the examples in the Specification, is broad enough to encompass both examples and, thus, may encompass a read prior to or as part of a relevancy determination.

3. *“prior to reading the first storage object, determining whether the first storage object contains relevant data”*
(substitute claim 25)

Proposed substitute claim 25 amends claim 1 to recite “prior to reading the first storage object, determining whether the first storage object contains relevant data.” Mot. to Amend, A-1 (Appendix - Listing of the Claims; underlining indicates addition to claim 1). Patent Owner proposes construing this language as “requiring that a determination of whether or not a storage object contains relevant data take place before the storage object is read.” *Id.* at 7.

According to Patent Owner, this understanding is consistent with the plain meaning of the phrase as well as the Specification. *Id.* In particular, Patent Owner argues that the Specification describes “that relevant storage objects are first identified, then read, then copied (in this order) so that non-useful data was not read, the synchronization process was made more efficient and bandwidth was conserved.” *Id.* (citing Ex. 1001, 4:64–67 (“Storage objects containing data and information relevant to managing the

data by a particular application are identified, read, and copied to a secondary storage area.”)).

We are not persuaded by Patent Owner. The plain language of claim 25 does not preclude reading prior to or during a relevancy determination. Rather, it recites that a determination of relevancy be made prior to reading. In other words, a system that reads a file to determine relevancy and subsequently reads that file to copy it would meet the literal language of claim 25. The claim does not require that there be no reading of the file prior to determining its relevance, a limitation easily specifiable by Patent Owner, if desired, but not included in the proposed amendment.

At the hearing, Patent Owner clarified that it is arguing that the claim language means “without reading the first storage object, determining whether the first storage object contains relevant data,” Tr. 53:3–7, or “prior to any reading of the first storage object,” *id.* at 55:1–4. Patent Owner bases this reading on the description in the Specification:

JUDGE LEE: How about my hypothetical, you read and then you determine relevance and you read again, so when you look at the three in that order it meets the language, prior to reading, which is prior to the second read you determine the relevance?

MR. FAHMI: With respect, Your Honor, I don’t think that that scenario would be consistent with the specification because during that first reading you would have copied the storage object. That’s how copy on read works. And so by doing that you just defeat the entire purpose of the scheme.

Id. at 55:5–15. We are not persuaded by Patent Owner’s argument. For the reasons given in Section II.C.2 above, the Specification does not preclude reading prior to or during a relevancy determination. Thus, construing “prior to reading the first storage object, determining whether the first

storage object contains relevant data,” in accordance with its plain meaning, to allow for a read prior to or during a relevancy determination (as long as the relevant file also is read subsequently) is not inconsistent with the Specification.

D. Obviousness over Gold and Chefalas

Petitioner contends that claims 1–24 would have been obvious over Gold and Chefalas. For the reasons given below, we agree.

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.” We resolve the question of obviousness 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) objective evidence of nonobviousness, i.e., secondary considerations.² *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

In an obviousness analysis, some reason must be shown as to why a person of ordinary skill would have combined or modified the prior art to achieve the patented invention. *See Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363, 1374 (Fed. Cir. 2008). A reason to combine or modify the prior art may be found explicitly or implicitly in market forces; design incentives; the “interrelated teachings of multiple patents”; “any need or problem

² The record does not contain any evidence of secondary considerations.

known in the field of endeavor at the time of invention and addressed by the patent””; and the background knowledge, creativity, and common sense of the person of ordinary skill. *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1328–29 (Fed. Cir. 2009) (quoting *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418–21 (2007)).

1. Level of Skill in the Art

In determining the level of ordinary skill in the art at the time of the invention, various factors may be considered, including “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) (citing *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986)). The level of ordinary skill in the art also is reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

Petitioner contends that a person of ordinary skill in the art would have had a Bachelor’s Degree in Computer Engineering, Computer Science, or comparable degree and two years of experience in file system management. Pet. 8 (citing Ex. 1005 ¶ 28). Patent Owner does not dispute Petitioner’s statement or propose an alternative. We find that Petitioner’s statement of the level of ordinary skill is consistent with Dr. Reynold’s testimony and the technology described in the ’089 patent and the cited prior art. Accordingly, we adopt Petitioner’s statement of the level of ordinary skill.

2. Scope and Content of the Prior Art

a. Overview of Gold

Gold describes a technique for backing up computer files stored on a client computer to tape media connected to the client by a network.

Ex. 1002, Abstract. Figure 3, reproduced below, illustrates an example:

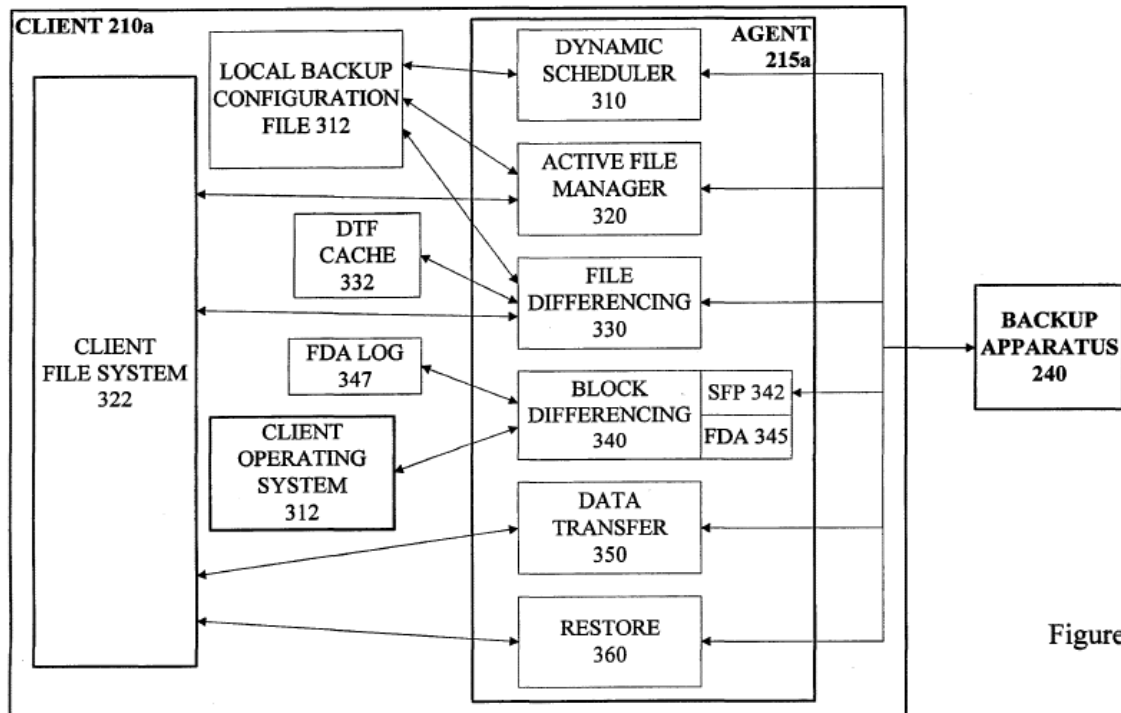


Figure 3

Figure 3 is a block diagram of a client. *Id.* at 3:15–16.³

As shown in Figure 3, client 210a includes dynamic scheduler module 310 that assesses the client's resources at a scheduled target time to determine if a client backup can run without seriously impacting the system performance. *Id.* at 5:24–31. If a backup can be performed, file differencing module ("FDM") 330 selects the files on the client that will be backed up by

³ Exhibit 1002, in its original form, included page numbers at the tops of the pages. Petitioner added different page numbering at the bottoms of the pages. We cite to the original page numbering at the tops of the pages.

determining which files have changed or have been added since a previous backup. *Id.* at 7:9–10. FDM 330 identifies files by reading a current directory tree of local client file system 332, which includes entries identifying each file’s time and date of modification. *Id.* at 7:11–13. Those times and dates are compared to cached times and dates stored in a directory tree file. *Id.* FDM 330 also can filter out files, such as temporary files, Internet cache files, and swap files, that do not need to be backed up. *Id.* at 7:16–19.

FDM 330 also can communicate with tape backup apparatus 240 to determine whether a file already is backed up on the tape media (and, thus, backup would be redundant). *Id.* at 7:20–23. FDM 330 sends tape backup apparatus 240 a list of files to be backed up, along with calculated cyclic redundancy check (“CRC”) codes (corresponding to file name, date and time stamp, and file size information). *Id.* at 7:23–25. The tape backup apparatus returns a list of the files it contains that match those on FDM 330’s list, along with CRC checksums, or “signature[s]” (corresponding to the actual data in the files). *Id.* at 7:25–28. For each file on tape backup apparatus 240’s list that might be redundant, FDM 330 calculates a CRC checksum signature. *Id.* at 7:28–30. If the checksums match, the same version of the same file is already backed up on the tape media, and backing it up again would be unnecessary. *Id.*

b. Overview of Chefalas

Chefalas describes a technique for backing up computer data in a data processing system. Ex. 1004, Abstract. Figure 4, reproduced below, illustrates an example:

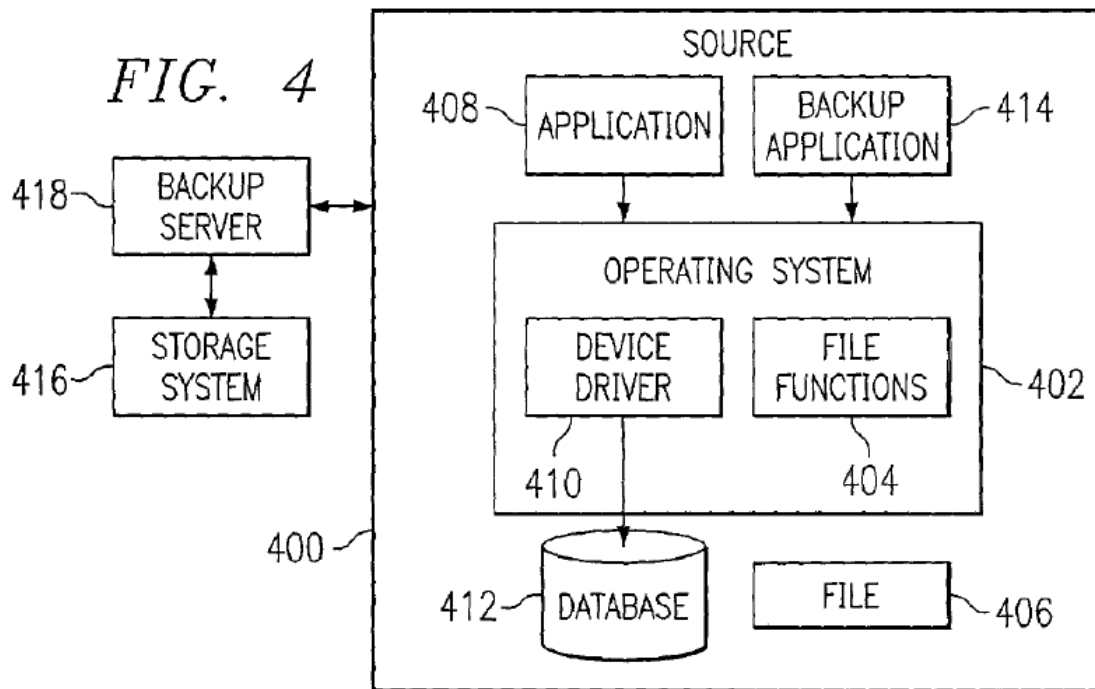


Figure 4 is a block diagram of components involved in backing up applications and associated data. *Id.* at 3:27–29. As shown in Figure 4, source computer system 400 is connected to backup server 418, which is connected to storage system 416. Source 400 executes application 408, which requires a data file (e.g., file 406) to operate upon. *Id.* at 6:20–27. For example, application 408 could be the Microsoft Word® word processing software or Lotus Notes® email software. *Id.* at 6:27–30; 8:17–18. File 406 (e.g., a Word file with a “.doc” file extension) is stored in database 412, along with relational meta data representing the association of file 406 to application 408. *Id.* at 6:61–7:2. A user can query database 412, for example to locate all files associated with application 408. *Id.* at 8:4–18.

Source 400 also includes backup application 414, which can be any commercially available backup application, such as Tivoli Storage Manager

or Veritas Backup Exec. *Id.* at 7:58–63. When a user (or process) wishes to backup data for application 408, he or she selects backup application 414, which reads the relational meta data and presents a menu of files to back up. *Id.* at 8:31–39; 11:18–20. Alternatively, the backup process can be implemented by backup server 418. *Id.* at 11:15–17. After backup application 414 presents a menu of files, the user can accept, reject, or alter the list. *Id.* at 8:39–41. Backup application 414 queries the relational meta data in database 412 and builds a list of files to transfer from source 400 to storage system 416. *Id.* at 8:45–47; 11:23–29. The identified files then are transferred to storage system 416. *Id.* at 11:29–30.

c. Findings from the Rackspace Final Decision

For the reasons stated in the Rackspace Final Decision, we make the following findings. Except as explained in Section II.D.3 below, Patent Owner does not contest that Gold and Chefalas teach these limitations:

Gold’s hard disk drive, on which local file system (client file system 322) resides, is a “first storage area” and Gold’s description of FDM 330 selecting files to be backed up by determining which files have changed or have been added, constitutes a teaching of “selecting a first storage object of a first storage area,” as recited in claims 1 and 7; a “selecting means for selecting a first storage object of a first storage area,” recited in claim 9; a “selecting module configured to select a first storage object of a first storage area,” recited in claim 13; and “selecting instructions configured to select a first storage object of a first storage area,” recited in claims 17 and 21. Rackspace Final Dec. 24 (citing Ex. 1002, 5:9–10, 7:9–11).

Gold's description of filtering a list of files for excluded files (e.g., temporary files and Internet cache files) teaches "determining whether the first storage object contains relevant data," of claims 1 and 7; the "determining means" of claim 9; the "determining module" of claim 13; and the "determining instructions" of claims 17 and 21. *Id.* at 24–25.

Gold teaches, after this determination, "if the first storage object contains relevant data . . . reading the first storage object," as recited in claim 1; the "reading means" of claim 9; the "reading module" of claim 13; and the "reading instructions" of claims 17 and 21. *Id.* at 27–28 (citing Ex. 1002, 9:13–14, 18:23–26).

Gold's description of sending files to be backed up to a data transfer module to be compressed and sent to the tape backup apparatus (Ex. 1002, 9:5–14) teaches "copying contents of the first storage object to a second storage object of a second storage area," as recited in claim 1; the "copying means" of claim 9; the "copying module" of claim 13; and the "copying instructions" of claims 17 and 21. *Id.* at 28.

Because the files excluded by Gold's FDM, which do not contain relevant data, are filtered rather than read and copied (Ex. 1002, 7:16–19), Gold also teaches "if the first storage object does not contain relevant data, selecting a second storage object of the first storage area without reading the first storage object and without copying the contents of the first storage object to the second storage object," as recited in claims 1 and 7; the second "selecting means" of claim 9; the second "selecting module" of claim 13; and the second "selecting instructions" of claims 17 and 21. *Id.*

Gold's description of FDM 330 consulting with the tape backup apparatus to determine whether a file to be backed up is already on the tape (Ex. 1002, 7:23–30, 8:30–37, 9:5–23, 10:52–59) teaches the following limitations of claim 7:

“identifying a second storage object of a second storage area corresponding to the first storage object of the first storage area”;

“wherein contents of the second storage object were previously copied from contents of the first storage object”;

“comparing the contents of the first storage object to the contents of the second storage object”; and

“when the contents of the first storage object and the contents of the second storage object do not match, copying the contents of the first storage object to the second storage object.”

Id. at 28–29.

Gold teaches each limitation of dependent claims 2–6, 8, 10–12, 14–16, 18–20, and 22–24. *Id.* at 29–30.

3. Differences Between the Claimed Subject Matter and the Prior Art; Reason to Combine

The parties dispute whether Gold and Chefalas teach “determining whether the first storage object contains relevant data,” as recited in claim 1, and the similar limitations of claims 7, 9, 13, 17, and 21. Petitioner argues that Chefalas’s disclosure of querying database 412 to identify files associated with application 408 constitutes a teaching of determining that a file contains relevant data without reading that file. Pet. 28.

Petitioner contends that the references themselves evidence a reason to combine. Pet. 20–21. Specifically, Chefalas states that it supplies a list of files determined to need backup “to a standard backup program using programmatic functions supplied by the present invention.” Ex. 1004, 1:24–29; *see also id.* at 3:6–7 (“The files are backed up to a storage system using a

standard backup program.”), 7:58–61 (“In this example, backup application 414 may be any custom-written backup application or any commercially available backup applications such as Tivoli Storage Manager, or Veritas Backup Exec.”). Gold, Petitioner argues, exemplifies one such backup program. Pet. 21. Additionally, Dr. Reynolds provides testimony that a skilled artisan would have substituted Chefalas’s means of identifying files for backup for Gold’s because Chefalas’s is more efficient and flexible. *Id.* at 22 (citing Ex. 1005 ¶ 66–68).

Patent Owner does not dispute that a skilled artisan would have had reason to combine Chefalas’s technique for identifying files for backup with Gold’s backup system. Nevertheless, Patent Owner contends that a combination of Gold and Chefalas would not have taught “determin[e/ing] whether the first storage object contains relevant data.” PO Resp. 7–8.

As explained above, Gold describes calculating a checksum signature for a file and comparing it against a checksum for the same file on the backup drive before copying the file to the backup drive in order to avoid redundant copying. Ex. 1002, 7:20–30. Patent Owner argues that this constitutes a read of the file as part of a relevancy determination. PO Resp. 2–3. According to Patent Owner, because of this, “*Gold* fails to teach a system or method in which ***before a storage object is read***, a determination is made as to whether that storage object contains relevant data, as recited in claim 1.” *Id.* at 4. Moreover, Patent Owner argues, even if a skilled artisan were to modify Gold with Chefalas’s teaching, the resulting system still would read a file to calculate a checksum to test for redundancy as part of a relevancy determination:

that person of ordinary skill would not abandon *Gold*'s further teachings concerning refinement of the candidate list by eliminat[ing] excluded files and redundant files. Thus, the combination would still include[] *Gold*'s process of generating a **signature** of a candidate file and comparing that signature with a CRC value returned by the tape backup apparatus. *Ex. 1002* at 7:28-30. Inasmuch as this operation requires the file be read **before** its relevance is determined, the combination of *Gold* and *Chefalas* still would not result in the subject matter of claim 1.

Id. at 6–7.

In Reply, Petitioner argues that the claims do not preclude a read as part of a relevancy determination. Reply 5–8. As explained in Section II.C.2 above, we agree with Petitioner. Thus, under our construction, even if the combined teachings of *Gold* and *Chefalas* necessarily include *Gold*'s redundancy check, *Gold* and *Chefalas* teach “determining whether the first storage object contains relevant data.”

Petitioner also argues that a skilled artisan would have known to combine *Gold* and *Chefalas* without including *Gold*'s redundancy check. Petitioner relies on testimony from Dr. Reynolds that a skilled artisan would have determined whether to include or exclude a redundancy check based on time, bandwidth, and space tradeoffs. Reply 12–13 (citing *Ex. 1020* ¶¶ 65–73, 77). Dr. Reynolds offers examples to show that such tradeoffs and optimizations were commonplace in the art. *Ex. 1020* ¶ 69 (citing *Exs. 1014–16.*). We credit Dr. Reynolds' testimony. Patent Owner does not introduce persuasive evidence to support its argument that a skilled artisan would have kept *Gold*'s redundancy check in a combination with *Chefalas*. We find that a skilled artisan would have combined *Gold* and *Chefalas* and, in appropriate circumstances, would have omitted *Gold*'s redundancy check.

Cf. In re Mouttet, 686 F.3d 1322, 1332–33 (Fed. Cir. 2012) (“It is well-established that a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements. . . . Rather, the test for obviousness is what the combined teachings of the references would have suggested to those having ordinary skill in the art.”). Thus, even under Patent Owner’s construction, we find that Gold and Chefalas teach “determining whether the first storage object contains relevant data.”

4. Conclusion of Obviousness

As explained above, we have considered the evidence and argument presented by Petitioner and Patent Owner and find that Gold and Chefalas teach every limitation of claims 1–24. Petitioner has shown that a skilled artisan would have combined Gold and Chefalas. On the complete record, Petitioner has shown, by a preponderance of the evidence, that claims 1–24 would have been obvious over Gold and Chefalas.

III. PATENT OWNER’S CONTINGENT MOTION TO AMEND

Patent Owner has filed a contingent motion to amend, proposing to substitute claim 25 for claim 1 should we determine that claim 1 is unpatentable. Mot. to Amend 1. For the reasons given above, claim 1 is unpatentable. Thus, we consider Patent Owner’s Motion to Amend.

As the moving party, Patent Owner bears the burden of proof to establish that it is entitled to the relief requested. *See* 37 C.F.R. § 42.20(c). The proposed amendment is not entered automatically, but only upon Patent

Owner's having demonstrated the patentability of the substitute claim. As we have stated, "[f]or a patent owner's motion to amend, 37 C.F.R. § 42.20(c) places the burden on the patent owner to show a patentable distinction of each proposed substitute claim over the prior art." *Idle Free Sys., Inc. v. Bergstrom, Inc.*, Case IPR2012-00027, slip op. at 7 (PTAB June 11, 2013) (Paper 26). Such prior art includes:

- a. any material art in the prosecution history of the patent;
- b. any material art of record in the current proceeding, including art asserted in grounds on which the Board did not institute review; and
- c. any material art of record in any other proceeding before the Office involving the patent.

Masterimage 3D, Inc. v. Reald Inc., Case IPR2015-00040, slip op. at 2 (PTAB July 15, 2015) (Paper 42). For the reasons given below, Patent Owner has not shown that claim 25 is patentably distinct over the prior art of record.

Substitute claim 25 is reproduced below, with underlining indicating Patent Owner's addition to original claim 1:

25. (Proposed Substitute for Claim 1) A method comprising:
- selecting a first storage object of a first storage area;
 - prior to reading the first storage object, determining whether the first storage object contains relevant data;
 - if the first storage object contains relevant data, performing the following:
 - reading the first storage object; and
 - when the reading is completed, copying contents of the first storage object to a second storage object of a second storage area; and

if the first storage object does not contain relevant data, selecting a second storage object of the first storage area without reading the first storage object and without copying the contents of the first storage object to the second storage object.

In its Motion, Patent Owner argues the patentability of claim 25 over Gold and Chefalas, as well as Pruett (the Rackspace Final Decision found that Pruett anticipates claim 1) and Merriman (Patent Owner uncovered through a commissioned search). Mot. to Amend 9–10. In response, Petitioner argues that claim 25 is unpatentable over Gold and Chefalas, over Pruett, and over an additional reference, Kelley. Opp. to Mot. to Amend 5–25. Because Patent Owner has not shown that claim 25 is patentable over Gold and Chefalas (explained below), we do not address the remaining references.

Patent Owner contends that claim 25 is patentable over Gold and Chefalas for reasons that mirror its contention that claim 1 is patentable. Specifically, Patent Owner argues that Gold teaches reading a file to generate a signature as part of its determination of relevancy. Mot. to Amend 15–16. Thus, Patent Owner argues, Gold does not teach “**prior to reading the first storage object**, determining whether the first storage object contains relevant data,” as recited in claim 25. *Id.* at 16. As to Chefalas, in language that tracks its argument as to claim 1, Patent Owner argues that

a combination of *Gold* and *Chefalas* may lead a person of ordinary skill in the art to modify the development of a candidate list of files for back up by adopting the techniques of *Chefalas* in a system such as *Gold*’s, but that person of ordinary skill would not abandon *Gold*’s further teachings concerning refinement of the candidate list by eliminat[ing] excluded files and redundant files. Thus, the combination would still

include[] *Gold*'s process of generating a **signature** of a candidate file and comparing that signature with a CRC value returned by the tape backup apparatus. Ex. 1002 at 7:28–30. Inasmuch as this operation requires the file be read **before** its relevance is determined, the combination of *Gold* and *Chefalas* still would not result in the subject matter of claim 25.

Id. at 19.

We are not persuaded by Patent Owner's arguments. As explained in Section II.C.3 above, the claim language "prior to reading the first storage object, determining whether the first storage object contains relevant data" does not preclude a read as part of a relevancy determination. Thus, under our construction, *Gold* and *Chefalas* teach this limitation for the reasons given for claim 1, detailed above.

Moreover, even assuming that Patent Owner's construction is correct, *Gold* and *Chefalas* teach "prior to reading the first storage object, determining whether the first storage object contains relevant data." As explained above, for claim 1, a skilled artisan would have known to combine *Gold* and *Chefalas* and, in appropriate circumstances, would have omitted *Gold*'s signature calculation and redundancy check.

Gold and *Chefalas* teach the remaining limitations of claim 25 for the same reasons as given above for original claim 1. A skilled artisan would have had reason to combine *Gold* and *Chefalas*, as also explained above for claim 1. Thus, Patent Owner has not shown that proposed substitute claim 25 is patentable over *Gold* and *Chefalas*."

On the complete record, Patent Owner has not met its burden to show that substitute claim 25 is patentable over *Gold* and *Chefalas*. Accordingly,

Patent Owner has not met its burden to show that it is entitled to an amendment.

IV. CONCLUSION

Petitioner has demonstrated by a preponderance of the evidence that claims 1–24 would have been obvious over Gold and Chefalas. Patent Owner has not shown that it is entitled to substitute claim 25 for original claim 1.

V. ORDER

For the reasons given, it is

ORDERED, based on a preponderance of the evidence, that claims 1–24 of U.S. Patent No. 7,032,089 B1 are held unpatentable;

FURTHER ORDERED that Patent Owner's Contingent Motion to Amend U.S. Patent No. 7,032,089 is *denied*; and

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

IPR2014-01292
Patent 7,032,089 B1

PETITIONER:

Donald Daybell
Mark Shean
Bas de Blank
Monte M.F. Cooper
Jason Yu
ORRICK, HERRINGTON & SUTCLIFFE LLP
ddaybell@orrick.com
d2dptabdocket@orrick.com
m2sptabdocket@orrick.com
basdeblank@orrick.com
mcooper@orrick.com
jasonyu@orrick.com

PATENT OWNER:

Tarek N. Fahmi
ASCENDA LAW GROUP, PC
tarekfahmi@ascendalaw.com