

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AMAZON.COM, INC., and
BLIZZARD ENTERTAINMENT, INC.,
Petitioner,

v.

AC TECHNOLOGIES S.A.,
Patent Owner.

Case IPR2015-01801
Patent RE40,521 E

Before MATTHEW R. CLEMENTS, PETER P. CHEN, and
JEFFREY W. ABRAHAM, *Administrative Patent Judges*.

CHEN, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a)

I. INTRODUCTION

Amazon.com, Inc. and Blizzard Entertainment, Inc. (collectively, “Petitioner”) filed a Petition requesting *inter partes* review of claims 1, 4, 11–18, 20–22, 30, 31, 33, and 40–46 (“the challenged claims”) of U.S. Patent No. RE40,521 E (Ex. 1001, “the ’521 patent”). Paper 1 (“Pet.”). AC Technologies, S.A. (“Patent Owner”) filed a Preliminary Response. Paper 8 (“Prelim. Resp.”). On March 8, 2016, we instituted an *inter partes* review of claims 30, 31, 33, and 40–46. Paper 10 (“Dec. on Inst.”).

After institution, Patent Owner filed a Patent Owner Response (Paper 17, “PO Resp.”), and Petitioner filed a Reply (Paper 21, “Reply”). A consolidated oral hearing for this case and related Cases IPR2015-01802, IPR2015-01803, IPR2015-01804, and IPR2015-01805 was held on December 5, 2016, and a transcript of the hearing has been entered into the record of the proceeding as Paper 33 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine that Petitioner has failed to show by a preponderance of the evidence that claims 30, 31, 33, and 40–46 are unpatentable.

A. Related Proceedings

The ’521 patent is involved in several cases pending in the Western District of Texas, and in one case pending in the Northern District of California. Pet. 2; Paper 7, 2–3. Petitioner also has filed other petitions seeking *inter partes* review of this and related patents. Pet. 2; Paper 7, 3.

B. The '521 patent

The '521 patent is titled, “Data Access and Management System as well as a Method for Data Access and Data Management for a Computer System,” and relates generally to a data access and management system as well as to a method for data access and data management for a computer system. Ex. 1001, [54], 1:24–26. In particular, it relates to a system and a method for optimizing the access to data and the processing of that data in distributed and networked computer structures. *Id.* at 1:26–29. According to the '521 patent, conventional distributed systems built on the client/server model were vulnerable to failure of the server, failure of network areas connecting the server to the clients, and different “lags” between the server and various clients. *Id.* at 1:32–67.

To address these and other problems, the '521 patent describes a distributed system in which data is stored in a redundant manner depending on parameters of data transmission between computer units and data storage means, and the computer units access one of the data storage means as a function of the data transmission parameters. *Id.* at 2:23–30.

Figure 2 is reproduced below.

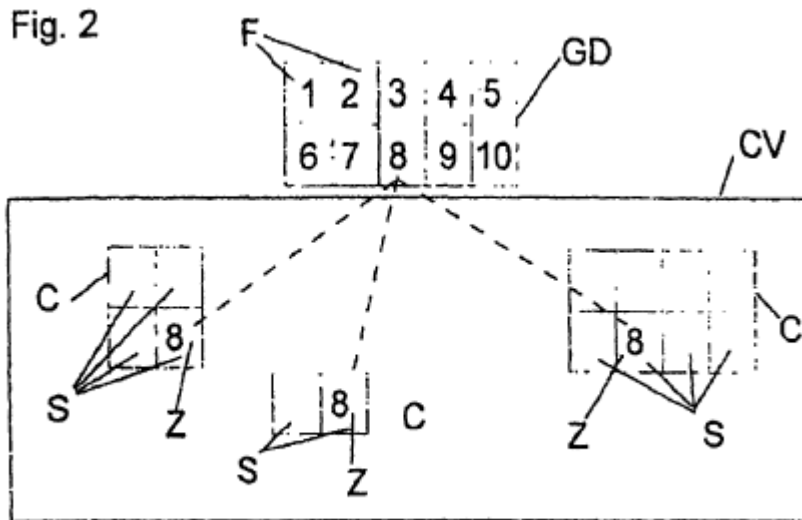


Figure 2 shows a schematic representation of a data structure and its division and assignment to cells. *Id.* at 7:1–3. Data quantity GD is divided into individual data subsets referred to as fields F. *Id.* at 7:16–18. A single field F is stored in several cells Z in a redundant manner. *Id.* at 8:21–22. A cluster C comprises one or more cells Z. *Id.* at 7:29–30. Each memory location of a cluster is referred to as a slot S. *Id.* at 7:65–66. All clusters C are combined for the representation of GD to form a cluster compound CV. *Id.* at 7:35–37.

Figure 1 is reproduced below.

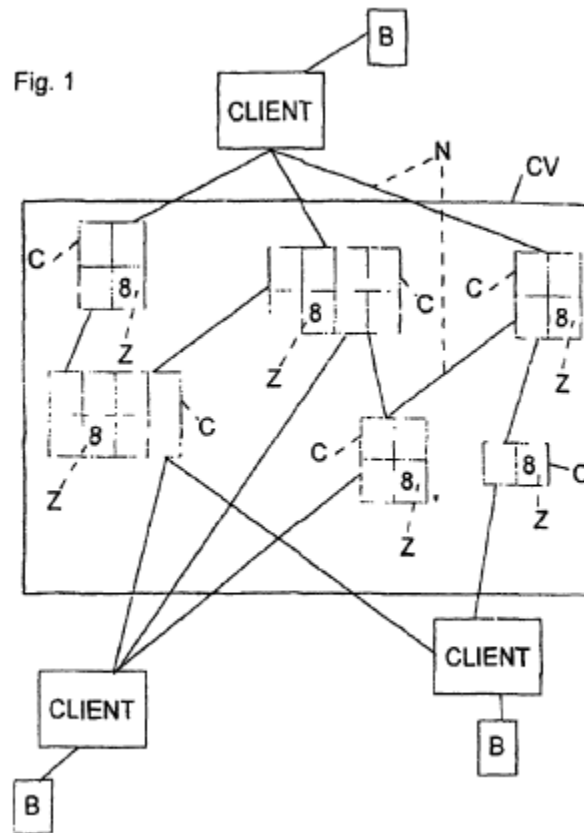


Figure 1 shows a schematic representation of a preferred embodiment. *Id.* at 6:65–67. Figure 1 depicts clients CL connected to clusters C via network N. *Id.* at 7:37–38, 8:5–8. User B connects to a client CL generally through only one connection, which, according to the '521 patent, is usually a telephone line. *Id.* at 10:10–15. The system can be used to provide computer games over the Internet. *Id.* at 3:63–4:7, 10:4–8.

C. Illustrative Claim

Of the instituted claims, claim 30 is independent and illustrative, and is reproduced below:

30. A method for data access and data management for a computer system, comprising:
storing data in at least two data storage means;

accessing the stored data by at least one computer unit via data transmission means, with prespecified parameters of the data transmission between the data storage means and the computer unit being determined, the data being stored in a redundant manner in at least two of the at least two data storage means as a function of the determined prespecified parameters of the data transmission, the access to the data being effected as a function of the determined prespecified parameters of the data transmission;

detecting prespecified parameters for data transmissions between the data storage means; and

shifting redundantly stored data independent of an access of the computer unit to the data as a function of the determined prespecified parameters of data transmissions between the data storage means.

Ex. 1001, 29:29–41.

D. Instituted Grounds of Unpatentability

References	Statutory Basis	Claims Challenged
Rabinovich ¹	§ 102	30, 31, 33, and 40–44
Rabinovich	§ 103	45 and 46
Rabinovich and Carter ²	§ 103	30, 31, 33, and 40–46

¹ Rabinovich, M., et al., “Dynamic Replication on the Internet,” Work Project No. 3116-17-7006, AT&T Labs Research Technical Memorandum HA6177000-980305-01TM (March 5, 1998) (“Rabinovich,” Ex. 1006.)

² Carter, R.L. and Crovella, M.E., *Server Selection Using Dynamic Path Characterization in Wide-Area Networks*,” Proceedings of IEEE INFOCOM ’97, Vol. 1, 1014–1021 (1997) (“Carter,” Ex. 1007).

Petitioner also relies upon the Declaration of Dr. David H. Ratner (“Ratner Decl.”) (Ex. 1005). Patent Owner relies upon the Declaration of Dr. Paul S. Jacobs (“Jacobs Decl.”) (Ex. 2006).

II. ANALYSIS

A. *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*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard). In applying a broadest reasonable construction, 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, 5217 (Fed. Cir. 2007).

Petitioner proposes constructions under a broadest reasonable interpretation for seven terms: “data storage means,” “computer unit,” “data transmission means for a data transmission between the data storage means and the computer unit,” “prespecified parameters of the data transmission,” “means for detecting prespecified parameters of the data transmission,” “second means for detecting prespecified parameters for data transmission between said data storage means,” and “shifting.” Pet. 15–22.

For the proposed constructions for terms that are present in the instituted claims, in the Decision to Institute, we determined that: (i) “computer unit” is not limited to a client computer and, instead, encompasses any computing device; (ii) the structure disclosed as corresponding to the function of the recited “data storage means,” is cell Z;

and (iii) the structure disclosed as corresponding to the function of the recited “data transmission means” is a network between the data storage means and the computer unit. Dec. on Inst. 7–10.

Neither party contested or addressed our construction of these terms. Nor did either party address our decision that no other terms in the instituted claims required construction. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”). We see no reason to modify our prior determination in light of the record developed at trial.

B. Principles of Law

To prevail in this *inter partes* review of the challenged claims, Petitioner must prove unpatentability by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

To establish anticipation, a party must show by a preponderance of the evidence that a prior art reference expressly or inherently describes each claim limitation arranged as in the claim said to be anticipated. *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1334–35 (Fed. Cir. 2008), as further amplified by *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008).

A claim is unpatentable as obvious 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. *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) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

We analyze the instituted grounds of unpatentability in accordance with the above-stated principles.

C. Level of Ordinary Skill in the Art

Petitioner’s declarant, Dr. Ratner, testifies that a person of ordinary skill in the art at the time of the alleged invention “would have had an undergraduate degree in Computer Science or a related field, such as Electrical Engineering, and two to three years of experience working in the field, or an equivalent level of experience.” Ex. 1005 ¶ 17; Pet. 14. Patent Owner does not challenge this definition or present its own.

Accordingly, we credit the testimony of Dr. Ratner regarding the level of ordinary skill in the art, and find that a person of ordinary skill in the art would have had an undergraduate degree in Computer Science or a related field, such as Electrical Engineering, and two to three years of experience working in the field, or an equivalent level of experience. This level of ordinary skill is reflected not only by the information presented by the parties, but also by the prior art of record. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art itself can reflect the appropriate level of ordinary skill in the art).

D. Whether Rabinovich is a Printed Publication

In the Decision to Institute, we determined that for the preliminary stage of this proceeding, Petitioner had shown Rabinovich to be a printed publication. Dec. on Inst. 15–20. We noted:

Here, Petitioner presents testimony from Dr. Rabinovich that indicates Rabinovich was posted to a specific URL no later than December 1998, which is more than one year before the earliest priority date (January 11, 2000) of the '521 patent. Ex. 1004 ¶¶ 2, 4, 6, and 8. Dr. Rabinovich testifies that he authored an article that was published in the December 1998 IEEE Bulletin, cited Rabinovich in footnote 16 of that article, and included the URL on his webpage from which the general public could download Rabinovich. *Id.* Petitioner provides a copy of Dr. Rabinovich's article published in the December 1998 IEEE Bulletin as Exhibit 1011, which includes a citation to Rabinovich in footnote 16, and states that the article is available at a specific URL. Ex. 1011, 13 n.16. Dr. Rabinovich further testifies that his practice was, "for each cited article identified as being available on my website at a specific URL, [to] confirm the cited article's actual availability at that URL." Ex. 1004 ¶ 6.

Our review of the evidence on the present record, including the footnote in the December 1998 IEEE Bulletin article and Dr. Rabinovich's testimony, indicates that, at this stage, Petitioner has shown sufficiently that Rabinovich was publicly accessible to one of ordinary skill in the art as of December 1998. In particular, the fact that the 1998 IEEE Bulletin article expressly cites Rabinovich in footnote 16, which indicates that Rabinovich is a technical report from AT&T labs and is available at a specific URL, suggests that a person of ordinary skill in the art interested in the subject matter at issue, exercising reasonable diligence, could have located Rabinovich. *See Blue Calypso, LLC. v. Groupon, Inc.*, No. 2015-1391, -1393, -1394, slip op. at 32 (Fed. Cir. March 1, 2016).

Dec. on Inst. 18–19. In the Patent Owner Response, Patent Owner discusses *Cornell Univ. v. Hewlett-Packard Co.*, No. 01-cv-1974, 2008 U.S. Dist. LEXIS 39343 (N.D.N.Y. May 14, 2008). PO Resp. 29–31. According to Patent Owner,

[i]n [*Cornell*], the case cited by the Federal Circuit to suggest an article is prior art because another article cited to it, the Court

found a published article's in-context citation to a master's thesis supported a finding that the master's thesis was prior art – and the context was critical. In particular, there was no dispute in *Cornell* that the master's thesis, while unpublished, could be found in the university's collections.

Id. at 29. Patent Owner argues that, unlike in *Cornell*, there is no evidence in the present record demonstrating that Rabinovich was ever available on Dr. Rabinovich's personal website. *Id.* at 29–30. Patent Owner further argues that in *Cornell*, the disputed prior art reference “set forth the common subject matter between” the patent at issue and the disputed reference, whereas “the IEEE publication at issue here provides no such context” for common subject matter of the challenged patent and the alleged publication. *Id.* at 30. Patent Owner asserts, “because the IEEE article cites Rabinovich in the context of algorithms unrelated to the patented subject matter, it would cause a [person of ordinary skill in the art] to ignore Rabinovich – not to seek it out. . . . The IEEE article is not a research aid that would guide someone to Rabinovich.” *Id.* at 30–31.

In its Reply, Petitioner contends:

Dr. Rabinovich's testimony establishes that Rabinovich was publicly available at least by December 1998. Dr. Rabinovich's consistent, professional practice while at AT&T was to personally re-publish his AT&T technical memoranda on the webpage that he managed on AT&T's publicly accessible website whenever he cited to those memoranda in later publications. (Ex. 1004 at ¶¶ 2, 6, 8; Ex. 2004 at 5:5-9:25.).

...

Patent Owner argues a [person having ordinary skill in the art] would not have located Rabinovich because Rabinovich and the December 1998 Article relate to data replication instead of segmented file transfer. This argument is based upon a mischaracterization of the invention and additionally fails because the scope of relevant prior art is defined by the problem

facing the inventor, not the solution reached.

Reply 19–20.

Petitioner also argues that in *Cornell* the unpublished Master’s thesis was ruled prior art because it was cited in an IEEE article circulated to many researchers in the relevant field and the IEEE article acted as a “road map” in setting forth the common subject matter between the patent at issue and the Master’s thesis in a way that would “guide a person of ordinary skill interested in the subject matter” to the thesis. *Id.* at 21–22. Petitioner contends the December 1998 IEEE article serves as such a roadmap to Rabinovich:

The 1998 Article was published in a “Special Issue on Data Replication” of the IEEE Bulletin focusing on “technique[s] for ensuring high availability ... and performance of distributed database systems,” “fault tolerance,” and “synchronization mechanisms.” (Ex. 1011 at cover, 1-2.) The December 1998 Article itself “examines issues that arise in Web content replication, paying special attention to challenges in dynamic replication.” (*Id.* at 21.) Most importantly, the passage in the December 1998 Article that cites to Rabinovich identifies an algorithm in Rabinovich (“[fn16]”) for optimizing access to data using the rank of replicated data combined with the proximity of the replicated data in order to increase performance. (*Id.* at 26.) Footnote 16 contains the URL to Rabinovich. Thus, the December 1998 Article would have been a roadmap directing persons of interest and ordinary skill in the art, such as the IEEE members to whom the Bulletin was distributed, to Rabinovich.

Reply 21–22.

We agree with and adopt Petitioner’s reasoning and determine Rabinovich to be a printed publication. We credit the unrebutted testimony of Dr. Rabinovich regarding the consistency of his professional practice in 1998 for republication of his AT&T technical

memoranda on a webpage that he managed on AT&T's publicly accessible website. Furthermore, we find the December 1998 IEEE article corroborates the public availability of Rabinovich on that website, and would have been a roadmap, for one of ordinary skill in the art of data management and optimized access to data, to be guided to Rabinovich. *See* Reply 21–22. As Petitioner points out, Patent Owner's own declarant states that Rabinovich and the December 1988 IEEE article "are 'similar[]' in that they both address 'problems in network connectivity caused by multiple clients accessing servers.' (Ex. 2006 at 12)." *Id.* at 20. Additionally, the passage in the December 1998 IEEE article that cites to Rabinovich refers to an algorithm in Rabinovich for optimizing access to data in order to increase performance. *Id.* at 21. Accordingly, we find that footnote 16 of the IEEE article, which contains the URL to Rabinovich, would have guided one of ordinary skill directly to Rabinovich.

We are, therefore, persuaded, that Rabinovich is a printed publication under 35 U.S.C. § 102.

*E. Claims 30, 31, 33, and 40–44
Anticipation by Rabinovich (Ground 1)*

Petitioner contends claims 30, 31, 33, and 40–44 are unpatentable under 35 U.S.C. § 102 as anticipated by Rabinovich. Pet. 38–44.

1. Rabinovich (Ex. 1006)

Rabinovich describes

a protocol suite for dynamic replication and migration of Internet objects. It consists of an algorithm for deciding on the number and location of object replicas and an algorithm for distributing requests among currently available object replicas. Our

approach attempts to place replicas in the vicinity of a majority of requests while ensuring at the same time that no servers be overloaded. The request distribution algorithm uses the same simple mechanism to take into account both server proximity and load, without actually knowing the latter. The replica placement algorithm executes autonomously on each node, without the knowledge of other object replicas in the system.

Ex. 1006, 1.

2. The Parties' Positions

Patent Owner argues, *inter alia*, that Petitioner has not shown that Rabinovich teaches transfer and storage of pieces of data between data storage units “*independent of an access of the computer unit*,” as required by independent claim 30. PO Resp. 16–23.

Independent claim 30 recites:

shifting redundantly stored data independent of an access of the computer unit to the data as a function of the determined prespecified parameters of data transmissions between the data storage means.

Ex. 1001, 29:44–47.

Petitioner contends that Rabinovich “discloses that identifying a recipient server for a migration of data uses the same algorithm and factors as used in determining where to replicate data. . . . Therefore, Rabinovich discloses shifting redundantly stored data based upon data transmission parameters between the servers independent of an access of the client.” Pet. 41.

As to the meaning of “independent of an access,” Petitioner argues the ’521 patent describes two ways in which the copying/shifting is done “independent” of an access by the computer unit. First, the “computer unit does not participate in copying pieces of data from one storage device to

another.” Reply 5. Second, according to Petitioner, “[c]opying is not initiated as a result of specific access requests from the computer unit.” *Id.* at 5; Tr. 13:18–20.

In view of this, Petitioner argues that a storage device can copy/shift “independent of an access” even if its decision to copy or its decision where to copy is based, in part, on data transmission performance measurements made during, or based on, prior access by the computer unit. Tr. 9:19–23, 11:6–12 (“[R]elying upon past communications with the client is not making it dependent upon an access of the computer unit, because . . . the data storage units . . . check their parameters periodically. And they decide whether to move the data . . . independent of any involvement of the computer unit.”). Petitioner asserts that any other outcome would conflict with the teachings in the ’521 patent because the purpose of the ’521 patent is for data storage devices to quickly and reliably service client data requests, and that the system of the ’521 patent does this by “tak[ing] into account transmission parameters from prior accesses in order to determine when and where to shift data.” Reply 8.

Petitioner further argues that “[i]f copying decisions based on measured transmission data do not qualify as being made ‘independent of an access’ by the computer unit, then there is no disclosure in the patent of independent copying.” *Id.* at 6. According to Petitioner, “there is no disclosure in the ’521 Patent of any technique for shifting data from one storage device to another based on ‘data transmission parameters’ other than those collected during prior requests for the data from a computer unit.” *Id.* at 10; see Tr. 12:19–24 (arguing that “independent of an access” does not

exclude reviewing parameters related to past communications with clients because that would be contrary to the purpose of the patent).

Petitioner also argues that Rabinovich replicates data “independent of an access of a computer unit” in the same manner as the ’521 patent. Reply 8–10. Petitioner contends that replication is performed “periodically” by a storage host and is not initiated in response to any specific access request for data by a computer unit. *Id.* Petitioner acknowledges that Rabinovich uses a count of prior accesses from the client, but notes that “it doesn’t take a count to trigger this.” Tr. 14:22–23. Rather, “it’s possible that the count might not have changed at all since . . . you’ve run this algorithm. The count hasn’t changed. There’s been no new accesses.” *Id.* at 14:16–19. Petitioner also contends that Rabinovich uses data parameters that are similar or identical to those used by the ’521 patent when determining whether and where to replicate data, and that Rabinovich, like the ’521 patent, updates the data transmission parameters for each storage device as the requests are received. *Id.* at 9–10.

Patent Owner argues that “independent of an access” means that “the data storage units cannot consider any access from the computer unit.” Tr. 33:14–16. Patent Owner contends that the host in Rabinovich “explicitly takes into account access by the clients” in its replication step. PO Resp. 18 (emphasis omitted). According to Patent Owner, Rabinovich discloses that a host will replicate an object only when the number of accesses of that object by the client exceeds a certain threshold. *Id.* at 19. Specifically, Patent Owner contends that hosts record accesses by the client as $cnt(s, x_s)$, and that Rabinovich’s replication step proceeds only if the ratio of $cnt(s, x_s)$ to $aff(x_s)$

is greater than a threshold value m . *Id.* At the oral hearing, counsel for Patent Owner stated:

[T]he Rabinovich algorithm only performs the replication and copying step if the access count here is non zero. This is pointed out directly in Rabinovich's algorithm. Even though the algorithm itself is run periodically, the first step of the algorithm checks to see if the access count is divided by the affinity is less than the threshold. If the access count is zero, that's certainly less. . . . So the replication is . . . not performed.

Tr. 34:17–35:5; *see also id.* at 38:8–12 (arguing that “if the only way this [copy operation] is going to be triggered is a situation where a computer unit conducts an access, then there is a dependency on the access for the copy operation”), 41:8–13 (arguing that copying in Rabinovich occurs only “when a computer unit conducts an access and turns the count to a non zero number”).

Patent Owner argues that Petitioner's contention that Rabinovich's hosts copy “independent of an access” because a replica is made “independent of an access by a client *at that time and without contacting the clients*” attempts to read additional limitations into the claim language. PO Resp. at 20. According to Patent Owner, even though Rabinovich's replication occurs *after* the client accesses the object, the decision to replicate still “depends” on the client access. *Id.* at 21 (“Essentially, Rabinovich teaches the hosts record the accesses made by the clients and use the recorded number of accesses to control replication, which is dependent of access.”).

3. Analysis

There is no dispute that Rabinovich's algorithm for replication/migration considers the parameter $cnt(s, x_s)$ in determining

whether to replicate data object x_s . Rabinovich defines $cnt(s, x_s)$ as the “total access count for x_s ,” which is equal to $cnt(x_s)$. Ex. 1006, 11. According to Dr. Ratner, “[t]he metric $cnt(s, x_s)$ measures the total number of times in that window that replica x_s has been served to a client computer.” Ex. 1005 ¶ 253. As Patent Owner points out, Rabinovich teaches replicating/migrating object x_s only if the ratio of $cnt(s, x_s)$ over $aff(x_s)$ is greater than m , and the ratio can be greater than m only if $cnt(s, x_s)$ is greater than zero. PO Resp. 19; Ex. 1006, 12, Fig. 4.

In view of this, we agree with Patent Owner that if $cnt(s, x_s)$ has a value of zero, meaning that object x has not been served to any client computer, then the ratio of $cnt(s, x_s)$ to $aff(x_s)$ will be zero, i.e., less than m , and Rabinovich will not carry out its replication or migration step. This means that Rabinovich will not replicate or migrate object x_s until x_s has been accessed by a client computer at least once, such that the access count for x_s is greater than zero. In this regard, we agree with Patent Owner that object x_s is not “sen[t], from the at least one data storage device to the another data storage device . . . independent of an access of the at least one client computer” because Rabinovich teaches explicitly that object x_s is not sent unless there has been at least one access from the client computer.

We are not persuaded by Petitioner’s argument that Rabinovich replicates data “independent of an access of a computer unit” in the same manner as the ’521 patent. Reply 8–10. The ’521 patent does not expressly define the phrase “independent of an access of a computer unit.” The ’521 patent does, however, explain that the data storage means processes stored data independent from the computer unit. See, e.g., Ex. 1001, 2:54–56 (“[I]t is to be preferred that the data storage means process the stored data

independent from the computer unit.”). The ’521 patent also teaches that interactions between the computer unit and data storage units are considered in determining replication of data between data storage devices. For example the ’521 patent states:

All cells Z and/or clusters C and/or clients CL periodically check their applicable parameters for data transmissions. In periodic intervals or subsequently to specified actions, all cells Z and/or clusters C and/or clients CL check the parameters for data transmissions, which are applicable to the used cells Z. If the checked parameters do not meet specified limits, or if other cells Z and/or clusters C comprise better data transmission parameters, the checking cells Z will try to shift its data to these other cells Z and/or clusters C in order to improve the data transmission parameters applicable for this data. In this manner, the inventive cluster compound CV optimises itself automatically during operation with respect to data transmissions.

Id. at 9:16–28. The ’521 patent further explains that

[i]n order to carry out the data access and the data management in a more efficient manner each cell may comprise additional data which relates to parameters of data transmissions between the individual data storage means and the computer unit, and/ or neighbouring cells, and/or cells which comprise data which is stored in the system in a redundant manner.

Id. at 3:8–14, 5:1–6. Thus, the ’521 patent does disclose considering parameters of data transmission between the computer unit and data storage device as part of data replication (shifting) between data storage units.

We, therefore, agree with Petitioner that “independent of an access” can encompass replication that is performed periodically and with no active role for the client computer in deciding whether to copy or migrate data or in copying or migrating the data itself. We also agree that a storage device can act “independent of an access” even if it considers data transmission performance measurements made during, or based on, prior access by the

computer unit. In those respects, Rabinovich's teachings are similar to the teachings of the '521 patent.

Unlike Rabinovich, however, the '521 patent does not require that a parameter of data transmission between a client computer and data storage device, such as an access count, be above a certain threshold before replication or migration can occur. Rather, as noted above, the '521 patent explains that as an alternative to instances where "checked parameters do not meet specified limits," data may be replicated to other data storage units "if other cells Z and/or clusters C comprise better data transmission parameters" Ex. 1001, 9:31–35. Therefore, although Rabinovich's hosts can decide autonomously, i.e., at any time and without contacting a client, when to initiate its replication or migration algorithm, that algorithm will not "shift redundantly stored data," as required by the claims, unless at least one access by a client (i.e., computer unit) has taken place.

As a result, despite the similarities between Rabinovich and the '521 patent, Rabinovich's requirement that object x_s have an access count greater than zero before it will replicate object x_s leads us to conclude that Rabinovich fails to teach a method for sending data between data storage devices "independent of an access" of the computer unit. We find that this outcome is consistent with the teachings of the '521 patent, despite Petitioner's arguments to the contrary, in view of the disclosure in the '521 patent regarding replicating data based on whether checked parameters do not meet specified limits, or if other cells Z and/or clusters C "comprise better data transmission parameters."

For all of the foregoing reasons, we are not persuaded that Rabinovich discloses a method for shifting data from one storage device to another

“independent of an access” of the “computer unit”—i.e., Rabinovich’s client—as required in claim 30. .

Therefore, Petitioner has failed to establish that Rabinovich discloses all of the limitations of independent claim 30. Because claims 31, 33, and 40–44 depend from claim 30, we find that Petitioner has failed to demonstrate that Rabinovich discloses all of the limitations in these claims as well.

In summary, based on the arguments and evidence of record, Petitioner has not shown by a preponderance of the evidence that claims 30, 31, 33, and 40–44 are unpatentable as anticipated by Rabinovich.

F. Claims 45–46: Obviousness Over Rabinovich

Dependent claims 45 and 46 recite the method of independent claim 30, for use with a computer game (claim 45) and with an interactive computer game accessed by at least two users (claim 46). Ex. 1001, 30:47–54. In connection with its obviousness contentions, Petitioner makes no separate arguments why Rabinovich teaches or suggests shifting redundantly stored data based upon data transmission parameters between the servers independent of an access of the client. Pet. 45–47; Reply 17–18. Because claims 45 and 46 depend from claim 30, we find that Petitioner has failed to demonstrate by a preponderance of the evidence that Rabinovich teaches or suggests the limitations in these two dependent claims for the same reasons discussed above with respect to claim 30.

*G. Claims 30, 31, 33, and 40–46:
Obviousness over Rabinovich and Carter*

Petitioner contends that claims 30, 31, 33, and 40–46 are unpatentable under 35 U.S.C. § 103 as obvious over Rabinovich and Carter. Pet. 47–60.

1. Carter (Ex. 1007)

Carter is titled “Server Selection Using Dynamic Path Characterization in Wide-Area Networks” and describes dynamic selection of servers to service client requests based on transmission parameters between client and server. Ex. 1007, Abstract, 1015. For example, Carter describes selection of a server to service a data transfer request by measuring the average response time from servers in response to pings or a series of pings. *Id.* at 1017. Carter further discloses measuring the available bandwidth as another factor in selecting a server to service a request. *Id.* at 1018–19.

2. Analysis

Petitioner contends Rabinovich discloses all of the elements of independent claim 30, but states that to the extent Rabinovich does not disclose measuring prespecified parameters of the data transmission, claim 30 would have been obvious to one of ordinary skill in the art “in view of a combination of the teachings of Rabinovich and Carter.” Pet. 56. In particular, Petitioner cites to Carter and to the Ratner declaration and asserts it would have been obvious to use Carter’s measurement of latency and bandwidth to determine prespecified parameters and to select one of a plurality of Rabinovich’s replicated servers to access stored data, as recited in claim 30. Pet. 56–57 (citing Ex. 1007, 1017–1019; Ex. 1005 ¶¶ 216–219).

Petitioner further argues that it would have been obvious to combine Rabinovich and Carter because both references “address the issue of dynamically selecting a server, from amongst a plurality of replicated servers, in order to best or most quickly service a request from a client.” Pet. 48 (citing Ex. 1005 ¶¶ 198–199). Petitioner, however, does not contend that Carter teaches or suggests shifting redundantly stored data based upon data transmission parameters between the servers independent of an access of the client (computer unit), as recited in independent claim 30. Pet. 56–57. Petitioner relies instead upon the same anticipation arguments and evidence that we analyze above. Pet. 50 (“Rabinovich discloses the remaining claim limitations, as set forth in Section VI(A)(1).”). Thus, for the same reasons discussed above, we find that Petitioner has failed to demonstrate by a preponderance of the evidence that the combination of Rabinovich and Carter teaches or suggests the “independent of an access” limitation of claim 30, or claims 31, 33, and 40–46 depending therefrom.

III. CONCLUSION

Upon consideration of the evidence and arguments presented during trial, we conclude that Petitioner has failed to demonstrate by a preponderance of the evidence that claims 30, 31, 33, and 40–44 of the ’521 patent are unpatentable as anticipated by Rabinovich, that claims 45 and 46 would have been obvious over Rabinovich, and that claims 30, 31, 33, and 40–46 would have been obvious over Rabinovich and Carter.

IV. ORDER

Accordingly, it is

ORDERED that Petitioner has not shown by a preponderance of the evidence that claims 30, 31, 33, and 40–46 are unpatentable; and

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

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