UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DAVID L. KAMINSKY and DAVID M. OGLE

Appeal 2008-1247
Application 10/246,902
Technology Center 2100

Decided: December 23, 2008

Before LEE E. BARRETT, JEAN R. HOMERE, and JAMES R. HUGHES, *Administrative Patent Judges*.

HUGHES, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1, 2, 5-11, 13, 14, and 17-22. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

We AFFIRM.

Appellants' Invention

Appellants invented a self-healing server farm, and a method of server failure diagnosis and self-healing in a server farm. (Spec. 5, ¶¶ [0007] and [0008]). The method of server failure diagnosis and self-healing includes steps for receiving a client retry request, determining a server failure from the retry request, and performing operations to the server to remediate the failure. (*Id.*)

Claims

Claim 1 is illustrative of the invention:

> 1. A method of server failure diagnosis and self-healing in a server farm, comprising the steps of:
>
> receiving a retry request from client attempting to engage in a communicative request/response session with an assigned server in the server farm;
>
> determining from said retry request, an occurrence of a failure in said assigned server; and,
>
> performing operations to said assigned server for remediating said failure in said assigned server.

References

The Examiner relies on the following references as evidence of unpatentability:

Shirriff	US 6,145,094	Nov. 7, 2000
Thomson	US 6,640,312 B1	Oct. 28, 2003 (filed Aug. 1, 2000)
Gebhardt	US 6,769,027 B1	Jul. 27, 2004 (filed Jan. 31, 2000)

Rejections

The Examiner rejected claims 1, 2, 5-7, 11, 13, 14, and 17-19 under 35 U.S.C. § 103(a) as being unpatentable over Shirriff and Thomson.

The Examiner rejected claims 8-10 and 20-22 under 35 U.S.C. § 103(a) as being unpatentable over Shirriff, Thomson, and Gebhardt.

Appellants' Contentions

Appellants contend that the claimed subject matter would not have been obvious. More specifically, Appellants contend that: (1) Shirriff teaches two different servers, and neither of Shirriff's servers meets Appellants' method steps individually (App. Br. 4-5); (2) Thomson is non-analogous art (App. Br. 5); and (3) the Examiner has failed to establish an adequate reason to combine the Shirriff and Thomson references (App. Br. 6).

Examiner's Findings and Conclusions

The Examiner found that Shirriff teaches a "highly available server." (Ans. 4-5). The Examiner also found that Shirriff teaches receiving a client retry request and performing operations to the server to remediate the failure. (*Id*.) The Examiner concluded that it would have been obvious to incorporate Shirriff's highly available server with determining a failure from a retry request as taught by Thomson. (Ans. 5.) The Examiner concluded that the combination teaches receiving a client retry request, determining a server failure from the retry request, and performing operations to the server to remediate the failure, based on the combined disclosures of Shirriff and Thomson (Ans. 4-5).

ISSUES

1. Did Appellants establish the Examiner erred in concluding that Applicants' "assigned server" reads on Shirriff's "highly available server"?

2. Did Appellants show the Examiner erred in concluding that one skilled in the art would have incorporated the determination of a failure from a retry request as taught by Thomson with Shirriff's highly available server.

FINDINGS OF FACT (FF)

The following findings of fact relevant to the rejections under review are made based on a preponderance of evidence on the record:

Appellants' Invention

1. Appellants invented a method of server failure diagnosis and self-healing in a server farm that includes an assigned server. (Spec. 9, ¶¶ [0016] and [0017]; and Spec. 11, ¶ [0021]).

2. Appellants claim "only a single 'assigned server.'" Appellants disclaim "different assigned servers." (App. Br. 4; Reply 2).

3. Appellants' "assigned server" is a server (150) selected from one of the servers in the server farm by a network dispatcher. (Spec. 9, ¶¶ [0016] and [0017]; and Spec. 11, ¶ [0021]).

4. Appellants describe implementing their invention using "a combination of hardware and software." (Spec. 13, ¶ [0026]). Appellants also describe implementing their invention "in a distributed fashion where different elements are spread across several interconnected computer systems." (Spec. 13, ¶ [0026]). Appellants state that "[a]ny kind of

computer system, or other apparatus adapted for carrying out the methods described herein, is suited to perform the functions described herein." (*Id.*)

5. Appellants do not limit their method invention to any particular physical implementation. (Spec. 13, ¶¶ [0026] and [0027].) Appellants' assigned server is not limited to any particular physical implementation.

6. Appellants' method of server failure diagnosis and self-healing requires "receiving a retry request from client attempting to engage in a communicative request/response session with an assigned server in the server farm." (App. Br. 9 (Claim 1).)

7. Appellants' retry request is a communication request - sent by the client and received by the server farm - in an attempt to engage in a communicative session with a selected (assigned) server in the server farm. (Spec. 10, ¶¶ [0018] and [0019].)

8. Appellants' method of server failure diagnosis and self-healing also requires "determining from said retry request, an occurrence of a failure in said assigned server." (App. Br. 9 (Claim 1).) The failure in the assigned server is determined, for example, by the network dispatcher when it detects a retry request. (Spec. 10, ¶ [0019]; and Spec. 12, ¶¶ [0023] and [0024].)

9. Appellants do not require that the failure is determined by a particular element within the server farm.

10. Appellants require that the failure is determined using a retry request, but do not otherwise require that the failure is determine by any particular methodology.

11. Appellants' method of server failure diagnosis and self-healing additionally requires "performing operations to said assigned server for remediating said failure in said assigned server." (App. Br. 9 (Claim 1).) The operations performed may include recycling the server or restarting an application on the server. (Spec. 10, ¶ [0019]; and Spec. 12, ¶¶ [0024] and [0025].)

12. Appellants do not require that the operations to remediate the failure are performed by a specific element within the server farm. Appellants only require that some operation is performed to the server; Appellants do not otherwise require that any particular operations are performed to (or on) the assigned server in order to remediate the failure. Spec. 10, ¶ [0019]; and Spec. 12, ¶¶ [0024] and [0025].)

Shirriff Reference

13. The Examiner found that "Shirriff teaches a highly available server 211, 'assigned server', that is comprised of a primary server 212 and a secondary server 213 (See Fig. 2b)." (Ans. 4.)

14. The Examiner also found that Shirriff discloses a client sending a retry request to the "highly available server," which the Examiner "interpreted as receiving a retry request from client attempting to engage in a communicative request/response session with an assigned server in the server farm." (Ans. 4.)

15. The Examiner found that Shirriff does not teach determining a failure from the retry request. (Ans. 5.)

16. Shirriff describes a "highly available server" comprising a primary server and a secondary server. (Col. 5, l. 65 through col. 6, l. 9; Fig. 2B, element 211.)

17. Shirriff also describes a client communicating with the "highly available server." (Col. 6, ll. 10-18; illustrated in Fig. 2B.)

18. Shirriff further describes a "retry request." Shirriff explains that the client sends the retry request to the highly available server in response to a failed communication with the highly available server. (Col. 6, ll. 19-30; Fig. 2B, element 218.)

19. Shirriff also describes performing operations to the highly available server to remediate a failure in the highly available server. (Col. 6, ll. 19-30; illustrated in Fig. 2B.) When the primary server (of the highly available server) fails, the replica manager causes the client to send a retry request to the secondary server (of the highly available server). (Col. 6, ll. 19-25.)

20. Shirriff's client performs an operation to (on) the highly available server. Shirriff's client sends the retry request to the secondary server within the highly available server. In response to the retry request, the secondary server (of the highly available server) completes the function call and provides a response to the client, remediating the failure within the highly available server. (Col. 6, ll. 26-30.)

Thomson Reference

21. Thomson describes a networked computer system implementing the IEEE 1394 interface standard, originally developed as a desktop LAN. (Col. 1, ll. 18-30.)

22. Thomson further describes a networked computer system including a host computer and a number of networked data acquisition devices (instruments attached to sensors). (Col. 6, ll. 26-52; illustrated in Fig. 3B.) The instruments include processors and memory. (Col. 6, ll. 32-34; col. 6, ll. 40-43; Fig. 3B, elements 324A and 324B.)

23. Thomson describes a networked client-server computer system or a Local Area Network (LAN) including a client communicating with data servers.

24. Thomson describes the client as a host computer that requests data across a network. Thomson also describes servers – data acquisition devices (DAQs) – that supply data to a client in response to a request. The host (client) communicates with the DAQs (servers) in order to control the DAQs or request data from them. (Col. 5, ll. 33-40.)

25. Thomson describes sending a request across a network. (Col. 9, l. 14 – col. 10, l. 25.) The request may include status information for identifying the request as a retry request. (*Id*.)

26. Thomson also teaches signaling failure of a request. (Col. 10, ll. 1-4.)

27. The Examiner found that Thomson teaches "retrying a request then signaling a failure if the retry request does not work." (Ans. 5.)

Field of Endeavor

28. The Examiner found that both Shirriff and Thomson were in the field of server failure diagnosis. "Shirriff teaches servers, or hosts, connected to clients and dealing with failures in communication resulting in retries . . . . Thomson a hosting environment and teaches retrying a request then signaling a failure if the retry request does not work." (Ans. 14.)

29. Shirriff describes error detection and server failure diagnosis. (Col. 6, ll. 10-18; Fig. 2B, element 210.)

30. Thomson also describes error detection and server failure diagnosis. (Col. 9, l. 40 – col. 10, l. 4.)

31. Shirriff and Thomson are analogous art because they both describe methods of failure and/or error detection and diagnosis for client-server systems, and are therefore "reasonably pertinent" to the method of error detection and failure diagnosis for the client-server system described in Appellants' claim.

PRINCIPLES OF LAW

Burden on Appeal

Appellants have the burden on appeal to the Board to demonstrate error in the Examiner's position. *See In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006) ("On appeal to the Board, an applicant can overcome a rejection by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of

nonobviousness.") (quoting *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998)).

Claim Construction

"Our analysis begins with construing the claim limitations at issue." *Ex Parte Filatov*, No. 2006-1160, 2007 WL 1317144, at *2 (BPAI 2007). "The Patent and Trademark Office (PTO) must consider all claim limitations when determining patentability of an invention over the prior art." *In re Lowry*, 32 F.3d 1579, 1582 (Fed. Cir. 1994) (citing *In re Gulack*, 703 F.2d 1381, 1385 (Fed. Cir. 1983)). "Claims must be read in view of the specification, of which they are a part." *Markman v. Westview Instruments, Inc.,* 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc). "[T]he PTO gives claims their 'broadest reasonable interpretation.'" *In re Bigio*, 381 F.3d 1320, 1324 (Fed. Cir. 2004) (quoting *In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000)). "Moreover, limitations are not to be read into the claims from the specification." *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) (citing *In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989)).

Obviousness

> Section 103 forbids issuance of a patent when "the differences between the subject matter sought to be patented 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., 127 S. Ct. 1727, 1734 (2007).

The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 127 S. Ct. at 1734 ("While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.")

In *KSR*, the Supreme Court emphasized "the need for caution in granting a patent based on the combination of elements found in the prior art," *id.* at 1739, and discussed circumstances in which a patent might be determined to be obvious without an explicit application of the teaching, suggestion, motivation test.

In particular, the Supreme Court emphasized that "the principles laid down in *Graham* reaffirmed the 'functional approach' of *Hotchkiss*, 11 How. 248." *KSR* at 11 (citing *Graham v. John Deere Co.*, 383 U.S. 1, 12 (1966) (emphasis added)), and reaffirmed principles based on its precedent that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Id.* The Court explained:

> When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, §103 likely bars

> its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

Id. at 1740. The operative question in this "functional approach" is thus "whether the improvement is more than the predictable use of prior art elements according to their established functions." *Id.*

Under this framework, once an Examiner demonstrates that the elements are known in the prior art and that one of ordinary skill could combine the elements as claimed by known methods and would recognize that the capabilities or functions of the combination are predictable, then the Examiner has made a *prima facie* case that the claimed subject matter is likely to be obvious. The burden then shifts to the Appellant to show that the Examiner erred in these findings or to provide other evidence to show that the claimed subject matter would have been nonobvious.

The Examiner's articulated reasoning in the rejection must possess a rational underpinning to support the legal conclusion of obviousness. *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). The Supreme Court, citing *In re Kahn*, 441 F.3d at 988, stated that "[r]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. at 1741. However, "the analysis need not seek out precise teachings directed

to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.*

"The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference …. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

ANALYSIS

Appellants argue the patentability of independent claim 1, and expressly state that the remaining (grouped) claims stand or fall with claim 1. (App. Br. 3, 7.) Accordingly, Applicants waive separate argument of the patentability of the grouped claims. This opinion considers only those arguments that Appellants presented in their briefs. Arguments that Appellants could have made but chose not to make in the Briefs are waived. See 37 C.F.R. § 41.37(c)(1)(vii).

Assigned Server

Appellants contend that the Examiner improperly construed the "assigned server" term of their claim to include different (i.e., more than one), servers. (App. Br. 4-5.) Appellants repeatedly argue that they claim "only a single 'assigned server,' and not different assigned servers." (App. Br. 4; Reply 2.) The Appellants further contend that "the Examiner's analysis is predicated on twisting the claim language based upon a factually-

unsupported interpretation of certain claimed terms that ignores basic principles of claim construction." (Reply 2). Appellants, however, provide no persuasive evidence supporting their arguments of the Examiner's purported improper claim construction. Appellants fail to point out a single instance where the Examiner expressly construes the "assigned server" term to include multiple different servers.

The Examiner must construe the claims to have their "broadest reasonable interpretation." *In re Bigio*, 381 F.3d at 1324. Appellants' own Specification emphasizes a broad interpretation of the claims. Even so, the Examiner does not construe Appellants' "assigned server" to include multiple different servers. Rather, the Examiner interprets Shirriff's "highly available server" to include sub components – a primary server and a secondary server. The Examiner then concludes that the highly available server reads on the Appellants' "assigned server." (Ans. 4).

Appellants challenge this second related point. Appellants maintain that Shirriff describes two separate servers are necessary for failure diagnosis and self-healing. Appellants contend one of ordinary skill in the art would not recognize that Shirriff's highly available server "could be considered an assigned server," because Shirriff's highly available server includes a primary server and a secondary server. (Reply 3-4). Appellants further argue that "the limitation of 'occurrence of a failure' and the limitation of 'performing operations to' are associated with the same assigned server." (App. Br. 4, emphasis in original). In summary,

Appellants contend that neither of Shirriff's "different" servers meets their claim limitations individually. (App. Br. 4-5).

Shirriff teaches a single highly available server, including primary and secondary server sub-elements. (FF 16). Notwithstanding Appellants' arguments to the contrary, nothing in Appellants' claim precludes multiple elements, such as multiple servers, from collectively comprising the claimed assigned server. *Elkay Mfg. Co. v. Ebco Mfg. Co.*, 192 F.3d 973, 977 (Fed. Cir. 1999) ("'a' or 'an' can mean 'one' or 'more than one,' depending on the context in which the article is used"). Appellants provide no persuasive evidence to support their contention that a skilled artisan would not recognize a highly available server comprising primary and secondary sub-servers as equivalent to their claimed assigned server. The Examiner correctly concluded that Shirriff teaches a "highly available server" comprising sub-elements including a primary server and a secondary server. Thus, the Examiner properly determined that Shirriff teaches Appellants' "assigned server."

Lack of Method Limitations

Appellants assert that Shirriff and Thomson fail to teach Appellants' method limitations. Specifically, Appellants contend Shirriff does not teach that two limitations – (i) determining a server failure from the retry request, and (ii) performing operations to a server to remediate a failure of the server – are associated with the same assigned server. (App. Br. 4-5). Appellants, however, provide no persuasive evidence to support their assertions that the Shirriff-Thomson combination does not teach Appellants' method

limitations. The Examiner correctly shows where all the claimed elements of Appellants' method limitations appear in the Shirriff and Thomson. (Ans 4-5).

Appellants correctly assert that "the limitation of 'occurrence of a failure' and the limitation of 'performing operations to' are associated with the same assigned server." (App. Br. 4, emphasis in original). Appellants' method requires receiving a retry request from a client attempting to engage in a communicative session with a selected (assigned) server in the server farm. Appellants' method also requires that "an occurrence of a failure" in the selected (assigned) server is determined from the retry request. Appellants' method further requires "performing operations to" a selected (assigned) server to remediate a failure in the server.

Shirriff teaches that a client sends a retry request to a selected highly available server in response to a failed communication with the highly available server. (FF 18). Shirriff also teaches "performing operations to" the highly available server to remediate a failure in the highly available server. (FF 19). When a sub-system of Shirriff's highly available server – the primary server – fails, Shirriff's replica manager causes the client to send a retry request to a sub-system of Shirriff's highly available server – the secondary server. (FF19). Thus, Shirriff's client performs an operation to (on) the highly available server. Accordingly, Shirriff teaches that both limitations are associated with the same selected server – the highly available server.

The Examiner found that Shirriff did not teach determining a failure from the retry request. The Examiner found Thomson taught this operation. Thomson describes a client (host) computer and servers (data acquisition devices (DAQs)). (FF 24.) The DAQs supply data to the client in response to a request. (FF 24.) The request includes status information for identifying the request as a retry request. (FF 25.) Thomson also describes signaling failure of a request. (FF 26.) Thus, the Shirriff-Thomson combination describes Appellants' limitation of determining a failure from the retry request.

Non-Analogous Art

Appellants assert that Thomson is non-analogous prior art that a skilled artisan would not combine with Shirriff. (App. Br. 5). The test for analogous art "requires the PTO to determine the appropriate field of endeavor by reference to explanations of the invention's subject matter in the patent application, including the embodiments, function, and structure of the claimed invention." *In re Bigio*, 381 F.3d at 1325. Applicants' claim preamble describes the invention as: "A method of server failure diagnosis …." Appellants agree that "server failure diagnosis" is the field of endeavor. (App. Br. 5). The Examiner found that both Shirriff and Thomson were in the field of server failure diagnosis. (FF 28.) Therefore, Applicants' claim and Thomson (and Shirriff) are in the same field of endeavor.

Assuming, *arguendo*, that Thomson is not in the same field of endeavor, it is "analogous art." Thomson describes a networked client-server computer system with a client that sends a retry request across the network and signals a failure of the retry request. (FF 25, FF 26). Thus, Thomson is "reasonably pertinent" to the method of error detection and failure diagnosis for the client-server system described in Appellants' claim. (FF 28-31). A reference is analogous art if "even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992); *see also KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1742 (2007) ("[F]amiliar items may have obvious uses beyond their primary purposes.").

Lack of Motivation to Combine

Appellants assert that the Examiner failed to establish an adequate reason to combine the Shirriff and Thomson references. Appellants contend that "Shirriff already teaches that the failure in the server will be detected (column 6, lines 19-22). Thus, the Examiner's proposed modification to Shirriff merely provides an unnecessarily redundant feature, and hence, fails to provide an additional benefit that would motivate one having ordinary skill in the art to make the modification." (App. Br. 6). The reasoning given as support for the conclusion of obviousness can be based on "interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge

possessed by a person having ordinary skill in the art." *KSR*, 127 S. Ct. at 1740-41.

We note our reviewing court has recently reaffirmed that:

> [A]n implicit motivation to combine exists not only when a suggestion may be gleaned from the prior art as a whole, but when the "improvement" is technology-independent and the combination of references results in a product or process that is more desirable, for example because it is stronger, cheaper, cleaner, faster, lighter, smaller, more durable, or more efficient. Because the desire to enhance commercial opportunities by improving a product or process is universal-and even common-sensical-we have held that there exists in these situations a motivation to combine prior art references even absent any hint of suggestion in the references themselves. In such situations, the proper question is whether the ordinary artisan possesses knowledge and skills rendering him *capable* of combining the prior art references.

Dystar Textilfarben GmbH v. C.H. Patrick Co., 464 F.3d 1356, 1368 (Fed. Cir. 2006). *See also Leapfrog Enters., Inc. v. Fisher-Price Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007) (holding it "obvious to combine the Bevan device with the SSR to update it using modern electronic components in order to gain the commonly understood benefits of such adaptation, such as decreased size, increased reliability, simplified operation, and reduced cost.")

Here, the Examiner found that: "[a]lthough Shirriff does say the [sic] that the failure will eventually be detected, Shirriff does not teach how the failure will be detected, thus the inclusion of the Thomson reference." (Ans. 14). Shirriff does not teach how a failure is detected. Thomson, on the other

hand, does teach how a failure is detected in a client-server system. Thus, the Examiner properly articulates a rational reason for modifying Shirriff as taught by Thomson. Accordingly, the Examiner provides sufficient motivation to combine the Shirriff and Thomson references.

CONCLUSIONS OF LAW

1. Appellants did not establish the Examiner erred in concluding that Applicants' "assigned server" reads on Shirriff's "highly available server."

2. Appellants did not show the Examiner erred in concluding that one skilled in the art would have incorporated the determination of a failure from a retry request as taught by Thomson with Shirriff's highly available server.

DECISION

We affirm the Examiner's rejection of claims 1, 2, 5-11, 13, 14, and 17-22.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

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