

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL A. ROTHMAN and VINCENT J. ZIMMER

Appeal 2008-4782
Application 10/314,619¹
Technology Center 2600

Decided: December 31, 2008

Before KENNETH W. HAIRSTON, ROBERT E. NAPPI, and
SCOTT R. BOALICK, *Administrative Patent Judges*.

HAIRSTON, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ Application filed December 8, 2002. The real party in interest is Intel Corporation.

STATEMENT OF THE CASE

Appellants seek our review under 35 U.S.C. § 134 of the Examiner's final rejection of claims 1 to 8, 10 to 18, and 20 to 30.² We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

The Invention

Appellants' invention is directed to a method of enabling communications between a plurality of servers 24 over a first path (external network connections 14) and over a second path 16 called an "out-of-band channel" (Figs. 1 and 2); where a first server (*e.g.*, a proxy server) communicates with a boot server 24b to boot a second server (*e.g.*, a failed server). (*See* claim 1; Figs. 1 and 2; Spec. 2-6; *see also* App. Br. 7).

Claim 1, reproduced below, is representative of the subject matter on appeal:

1. A method comprising:

enabling communications over a first path by each of a plurality of servers in a cluster of servers including a first and a second server;

enabling communications between the servers over an out-of-band channel; and

enabling the first server to communicate with a boot server to facilitate booting of said second server.

The Rejections

The Examiner relies upon the following as evidence of unpatentability:

Hemphill

US 5,696,895

Dec. 9, 1997

² Claims 9 and 19 have been canceled.

Appeal 2008-4782
Application 10/314,619

Shrivastava	US 6,449,734 B1	Sep. 10, 2002
Maity	US 6,973,587 B1	Dec. 6, 2005 (filed May 3, 2002)
Sanders	US 7,138,733 B2	Nov. 21, 2006 (filed Dec. 13, 2001)

The following rejections are before us for review:

The Examiner rejected claims 1 to 5, 7, 8, 10 to 15, 17, 18, 20, 21, 23 to 25, 27, 29, and 30 under 35 U.S.C. § 103(a) as being unpatentable over Hemphill and Maity.

The Examiner rejected claims 6, 16, and 26 under 35 U.S.C. § 103(a) as being unpatentable over Hemphill and Maity, and further in view of Shrivastava.

The Examiner rejected claims 22 and 28 under 35 U.S.C. § 103(a) as being unpatentable over Hemphill and Maity, and further in view of Sanders.

Appellants have not separately argued the merits of claims 2 to 8, 10 to 18, and 20 to 30, and instead rely on the arguments presented with respect to independent claim 1 (*see* App. Br. 13).

Rather than repeat the arguments of Appellants or the Examiner, we refer to the Briefs³ and the Answer⁴ for their respective details. In this decision, we have considered only those arguments actually made by Appellants. Arguments which Appellants could have made but did not make in the Briefs have not been

³ We refer to the Appeal Brief filed August 10, 2007, and the Reply Brief filed January 8, 2008, throughout this opinion.

⁴ We refer to the Examiner's Answer mailed November 15, 2007, throughout this opinion.

considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

FINDINGS OF FACT

Findings of fact throughout this decision are supported by a preponderance of the evidence of record. The relevant facts include the following:

Appellants' Disclosure

1. As indicated *supra*, Appellants describe and claim a method of enabling communications between a plurality of servers in a cluster of servers including a first and second server, where communication between the servers is over a first path (*e.g.*, an external network connection) or a second path called an “out-of-band channel” (*See* claim 1; Figs. 1 and 2; Abstract; Spec. 2-6). The method enables the first server (*i.e.*, the proxy server) to communicate with a boot server to boot the second server (*i.e.*, the failed server) (Spec. 5:5-16).
2. Appellants recognize that a server is “usually for a single, dedicated application,” (Spec. 1:11) and “[c]ommonly, groups of servers are provided to execute complex tasks” (Spec. 1:5-6). The Specification does not define or otherwise explain the phrase *server*. Appellants’ disclose that their “invention is *not limited to any particular type of server*” (Spec. 2:23-24) (emphasis added).
3. Appellants recognize the “need for better ways to enable clusters of servers to handle defects that occur in one or more of the servers in the cluster.” (Spec. 2:8-10).

Hemphill

4. Hemphill teaches a multiple back up server system including a first server 100 and a second server 200 which constitute a plurality of servers (100 and 200) in a cluster of servers (100 and 200) (Fig. 1). Hemphill discloses that “[a] first server **100** and a second server **200** are each connected to a network N as active network servers” (col. 3, ll. 14-16), and “are active in the sense that they both provide users on the network N with independent server functionality” (col. 3, ll. 17-19).
5. Hemphill teaches a serial interconnect 150 which is an out-of-band channel for communicating maintenance information relating to the servers (col. 4, ll. 30-40).
6. Hemphill also teaches an alternative embodiment having multiple servers connected with out-of-band interconnects 506, 508, and 510 which can be serial links (Fig. 4; col. 4, ll. 40-62), and where the serial links “could be *replaced with a variety of other type of links*” (Fig. 4; col. 11, ll. 26-27) (emphasis added). Hemphill states that “[t]he point of all of this is that multiple servers can be connected in a variety of ways to where they provide backup to the other servers’ functionality” (col. 11, ll. 48-50).

Maity

7. Maity teaches a method of out-of-band booting where a remote boot device 300 (*i.e.*, first server), including system processor 350, communicates with a boot management system 320 (*i.e.*, boot server) over an out-of-band communication interface 340 (*i.e.*, out-of-band channel) to boot another server computer 310 (*i.e.*, second server) (Fig. 3).
8. Maity shows and describes device 300 (*i.e.*, the first server) as being separate from or external to both server computer 310 (*i.e.*, the second server) and boot management system 320 (*i.e.*, the boot server) (Fig. 3; col. 5, ll. 32-46). Maity teaches that the “device **300** may be a stand-alone device external to the server [310]” (col. 5, ll. 47-48), that “[t]he device [300] further includes a system processor **350** for executing the actions required to perform a remote boot procedure” (col. 5, ll. 41-43), and that the system “processor **350** may be a special purpose processor” (col. 6, ll. 27-28).
9. Maity discloses that when the server (*i.e.*, second server or failed server) experiences any difficulty, it is booted via a remote boot device through an “out-of-band” channel (col. 5, ll. 13-17), and that “the method by which a server continues to boot even when the usual boot mechanism is not available is referred [to] as ‘out-of-band boot’” (col. 5, ll. 28-31).

ISSUE

The Examiner contends that Hemphill teaches two servers 100 and 200 that communicate over an out-of-band channel 150 (*see* Fig. 1), and admits that

Appeal 2008-4782
Application 10/314,619

Hemphill “does not teach enabling a first server to communicate with a boot server to facilitate booting of a second server” (*i.e.*, out-of-band booting) (Ans. 4). The Examiner contends that Maity teaches the missing out-of-band booting method, where a first server 300 communicates with a boot server 320 to boot the second server 310 (*see* Fig. 3).

Appellants contend that Maity fails to disclose first and second servers where the first server communicates with a boot server to boot the second server, as recited in representative claim 1 (App. Br. 12). More specifically, Appellants contend that “item 300” in Maity’s Figure 3 “cannot possibly be a server” because “device 300 is described as being ‘external to the server’” (Reply Br. 1; *see also* App. Br. 12).

In keeping with Appellants’ disclosure, the ordinarily skilled artisan would understand that a server can comprise a processor that runs specific applications, or can be a computer or computer program that provides services to other computers or computer programs (*see* Finding of Fact 2). In other words, any device which performs the functions of a server would be considered a server by one of ordinary skill in the art.

Thus, the sole issue before us is: Did the Examiner err in determining that Maity teaches or suggests a first server which functions to communicate with a boot server to boot a second server, as claimed in representative claim 1?

PRINCIPLES OF LAW

The Examiner bears the initial burden of presenting a *prima facie* case of obviousness, and Appellants have the burden of presenting a rebuttal to the *prima*

Appeal 2008-4782
Application 10/314,619

facie case. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

“During examination, ‘claims ... are to be given their broadest reasonable interpretation consistent with the specification, and ... claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art.’” *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004); *see also In re Morris*, 127 F.3d 1048, 1053-54 (Fed. Cir. 1997).

ANALYSIS

We agree with the Examiner’s findings of fact and conclusions of obviousness with respect to claim 1 (Ans. 4 and 9-10), and adopt them as our own, along with some amplification of the Examiner’s explanation of the teachings of Hemphill (*see* Findings of Fact 4-6) and Maity (*see* Findings of Fact 7-9). In addition to the motivation to combine Hemphill and Maity provided by the Examiner (Ans. 4), we add that Appellants’ recognition that there was a need for better ways to enable clusters of servers to handle failures occurring in one of the servers (Finding of Fact 3), taken with Maity’s method of remotely booting a failed server by using an out-of-band channel (Finding of Fact 9), and Hemphill’s suggestion to replace interconnects *with a variety of other type of links* (Finding of Fact 6), provide strong motivation for one of ordinary skill in the art at the time of Appellants’ invention to combine Maity’s remote out-of-band boot method with Hemphill’s fault tolerant server system.

Representative claim 1 recites in pertinent part, “enabling the *first server* to communicate with a boot server to facilitate booting of said second server” (claim 1) (emphasis added).

Appeal 2008-4782
Application 10/314,619

Because “claims ... are to be given their broadest reasonable interpretation consistent with the specification, and ... claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art” *Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d at 1364, one of ordinary skill in the art would interpret the phrases first *server*, boot *server*, and second *server* of representative claim 1 in light of the Specification. However, as noted *supra*, Appellants do not provide an explicit definition for *server* in the Specification (Finding of Fact 2). Nonetheless, Appellants’ Specification uses the phrase *server* in a manner that indicates the term is broad enough to be reasonably interpreted as *a processor that runs specific applications, or a computer or computer program that provides services to other computers or computer programs*.

Appellants contend that “there is no first and second server in Maity” and “[i]nstead, there is only one server [310] and a boot server [320]” (App. Br. 12). Thus, Appellants recognize that Maity discloses the second server and the boot server. Appellants notably do not argue that Maity’s device 300 does not perform the *function* recited in claim 1 of communicating with a boot server to boot the second server (App. Br. 12-13; Reply Br. 1-2). The issue is simply whether or not Maity discloses the first *server* as recited in claim 1.

Appellants’ Specification recognizes that a server’s function is to perform a specific application (Finding of Fact 2). Maity’s processor 350 and device 300 perform a specific application, one of performing an out-of-band boot by communicating with boot server 320 (Findings of Fact 7 and 8). Appellants specifically disclose that their “invention is *not limited to any particular type of server*” (Spec. 2:23-24) (emphasis added). Because the phrase *server* can

Appeal 2008-4782
Application 10/314,619

reasonably be interpreted as meaning *a processor that runs specific applications, or a computer or computer program that provides services to other computers or computer programs*, the phrase *first server* as claimed and as broadly disclosed in the Specification includes the processor 350 and/or computer 300 which provides a reboot service to second server 310. Thus, one of ordinary skill in the art would understand Maity to teach or suggest a first server.

Appellants also contend that device 300 is not a server since it is described in Maity as being “a stand alone device external ‘to the server,’” or “internal to the server computer 310” (App. Br. 12) (citing Maity at col. 5, ll. 47-48 and 57-58). If the device 300 is *internal* to the server computer 310 (*i.e.*, the second server), Appellants would be correct that no first server is disclosed by Maity. However, a close review of Maity reveals that columns 5 and 6 discuss *alternative* embodiments of Figure 3 and explain that the device 300 *may* be arranged as alleged by Appellants. This includes being arranged as a stand-alone device *external* to the server (*i.e.*, the second server) (col. 5, ll. 47-56). If device 300 is a stand-alone device which is external to a second server 310, it meets the claimed limitation of a first server.

Device 300 includes system processor 350 (*see* Fig. 3). Maity describes the remote boot device 300 as using “a system processor 350 for executing the actions required to perform a remote boot procedure” (col. 5, ll. 41-43) (Finding of Fact 8). Thus, system processor 350 and device 300 perform the function of a server and meet the broadly recited *first server* limitation of claim 1.

The Examiner is correct that Maity discloses a first server 300, boot server 320, and second server 310 (Finding of Fact 7; *see* Ans. 4). The Examiner is also

Appeal 2008-4782
Application 10/314,619

correct that Hemphill discloses two servers (100 and 200) (*see* Ans. 4), which constitute first and second servers (Finding of Fact 4).

Appellants' arguments that Maity fails to disclose the first server as set forth in representative claim 1 is unpersuasive (*see* App. Br. 12-13; Reply Br. 1-2).

Appellants' argument that the combination of Hemphill and Maity fails to disclose these claim elements is likewise unpersuasive, since both Hemphill and Maity teach first and second servers (*see* Findings of Fact 4 and 7).

Inasmuch as Appellants have failed to define *server* in the Specification, including the original claims, and inasmuch as “‘claims ... are to be given their broadest reasonable interpretation consistent with the specification’” *Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d at 1364, we conclude that Maity teaches or suggests a first *server*.

In view of the foregoing, Appellants have not shown that the Examiner erred in interpreting the term “server” in claim 1 as broadly encompassing the device 300 (which includes processor 350, *see* Fig. 3) disclosed by Maity (or the server 100 or 200 disclosed by Hemphill, *see* Fig. 1).

Summary

For all of the above reasons, Appellants' arguments have not persuaded us of error in the Examiner's rejections of claim 1 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Hemphill and Maity. One of ordinary skill in the art would have found Appellants' claimed subject matter in representative claim 1 obvious in light of the combination of Hemphill and Maity. Appellants' arguments throughout the briefs do not convince us of any error in the Examiner's positions in the rejections. *Oetiker*, 977 F.2d at 1445. Accordingly, we sustain the

Appeal 2008-4782
Application 10/314,619

rejection of representative claim 1. Claims 2 to 5, 7, 8, 10 to 15, 17, 18, 20, 21, 23 to 25, 27, 29, and 30 were not argued separately, and fall together with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(vii). As previously discussed, Appellants have not presented any separate arguments for the rejection of claims 6, 16, and 26 over Hemphill, Maity, and Shrivastava or for the rejection of claims 22 and 28 over Hemphill, Maity, and Sanders. Therefore, we sustain the rejection of these claims for the same reasons discussed with respect to claim 1.

CONCLUSION OF LAW

Appellants have not shown that the Examiner erred in determining that Maity teaches or suggests a first server which functions to communicate with a boot server to boot a second server, as claimed in claim 1.

ORDER

The decision of the Examiner to reject claims 1 to 8, 10 to 18, and 20 to 30 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

Appeal 2008-4782
Application 10/314,619

AFFIRMED

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