UNITED STATES DISTRICT COURT

DISTRICT OF NEW HAMPSHIRE

Mangosoft, Inc. and
Mangosoft Corporation,
Plaintiffs

v.

Civil No. 02-545-SM
Opinion No. 2004 DNH 141

Oracle Corporation,
Defendant

O R D E R

This is a suit for patent infringement. Plaintiffs, Mangosoft, Inc. and Mangosoft Corporation (collectively, "Mangosoft"), say defendant, Oracle Corporation, is making, selling, and/or offering for sale computer software that infringes two of Mangosoft's patents: United States Patent No. 6,148,377 ("the '377 patent") and United States Patent No. 5,918,229 ("the '229 patent"). The court held a Markman hearing, at which the parties presented evidence and argument in support of their respective constructions of various terms used in the patents' claims. See generally Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996). Subsequently, the parties filed post-hearing memoranda.

Legal Standard Governing Claim Construction

Patent infringement analysis involves two steps: first, properly construing the asserted claim; and second, determining whether the accused method or device infringes the asserted claim as properly construed. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1581-82 (Fed. Cir. 1996) (citing Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995), aff'd, 517 U.S. 370 (1996)). Step one of that process - claim construction - presents a question of law to be resolved by the court. See Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1304 (Fed. Cir. 1999). The second step - determining whether the accused process or device infringes the patent - presents a question of fact. Id. At this stage of the litigation, the court is focused exclusively on the first step: properly construing the meaning and scope of various claim terms used in the '377 and '229 patents.

Construing patent claim terms generally means ascertaining the meaning of those terms in light of the intrinsic evidence of record, which includes: the claims, the specification, and the prosecution history. See Vitronics, 90 F.3d at 1582. But, the

court may consider extrinsic evidence as well. See Apex Inc. v. Raritan Computer, Inc., 325 F.3d 1364, 1371 (Fed. Cir. 2003) ("Courts may also review extrinsic evidence to assist them in comprehending the technology in accordance with the understanding of skilled artisans and as necessary for actual claim construction."). Extrinsic evidence is external to the patent, "such as expert testimony, inventor testimony, dictionaries, and technical treatises and articles." Pitney-Bowes, 182 F.3d at 1308 (citing Vitronics, 90 F.3d at 1584). See generally Ferguson Beauregard/Logic Controls v. Mega Systems LLC, 350 F.3d 1327, 1338 (Fed. Cir. 2003) ("The ordinary and customary meaning of a claim term may be determined by reviewing a variety of sources. Some of these sources include the claims themselves, dictionaries and treatises, and the written description, the drawings, and the prosecution history.") (citations omitted).

The court observed in Vitronics that, "In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence." Id., at 1583.

Nevertheless, even when patent language is unambiguous, a court may still consider extrinsic evidence for limited purposes.

> Vitronics does not prohibit courts from examining extrinsic evidence, even when the patent document is itself clear. Moreover, Vitronics does not set forth any rules regarding the admissibility of expert testimony into evidence. Certainly, there are no prohibitions in Vitronics on courts hearing evidence from experts. Rather, Vitronics merely warned courts not to rely on extrinsic evidence in claim construction to contradict the meaning of claims discernible from thoughtful examination of the claims, the written description, and the prosecution history - the intrinsic evidence.

Pitney Bowes, 182 F.3d at 1308 (citations omitted) (emphasis supplied). Consequently, the court concluded:

> Thus, under Vitronics, it is entirely appropriate, perhaps even preferable, for a court to consult trustworthy extrinsic evidence to ensure that the claim construction it is tending to from the patent file is not inconsistent with clearly expressed, plainly apposite, and widely held understandings in the pertinent technical field. This is especially the case with respect to technical terms, ... Indeed, a patent is both a technical and a legal document. While a judge is well-equipped to interpret the legal aspects of the document, he or she must also interpret the technical aspects of the document, and indeed its overall meaning, from the vantage point of one skilled in the art. Although the patent file may often be sufficient to permit the judge to interpret the technical aspects of the patent properly, consultation of extrinsic evidence is particularly appropriate to ensure that his or her understanding of the technical

> aspects of the patent is not entirely at variance with the understanding of one skilled in the art.

Id. at 1309 (citation omitted) (emphasis supplied). See also Key Pharms. v. Hercon Lab. Corp., 161 F.3d 709, 716 (Fed. Cir. 1998).

Giving proper effect to disputed technical terms in a patent requires a court to construe them as they would be construed by those skilled in the relevant art. See Hoechst Celanese Corp. v. BP Chems. Ltd., 78 F.3d 1575, 1578 (Fed. Cir. 1996) ("A technical term used in a patent document is interpreted as having the meaning that it would be given by persons experienced in the field of the invention, unless it is apparent from the patent and the prosecution history that the inventor used the term with a different meaning."). See also Ferguson, 350 F.3d at 1338 ("In the absence of an express intent to impart a novel meaning to the claim terms, the words take on the full breadth of the ordinary and customary meanings attributed to them by those of ordinary skill in the art."). Here, nothing suggests that the terms in dispute are used in the patents in any way other than as they would be commonly understood by those skilled in the relevant art. With respect to the patents at issue here, a person skilled

in the relevant art would hold a bachelor's degree in computer science or electrical engineering and have two to three years experience in the field of distributed computing.

In this case, the court has, with appreciation, relied upon the capable expert testimony presented by the parties to obtain a general understanding of the computer system described in the '377 patent, as well as the method for providing "distributed control over a structured store of data" described in the '229 patent.

Discussion

I. The Patents at Issue.

Generally speaking, the patents, taken together, teach a "distributed shared memory system." They describe computer systems consisting of groups of computers linked by a network connection, also known as a "cluster" or "computer cluster." Each computer, or "node," in the cluster manages its own memory (both volatile and non-volatile) and, employing the inventions, makes that memory available to other nodes in the cluster. And, says Mangosoft, unlike earlier systems, which only provided a

means for sharing data stored in non-volatile memory (e.g., hard disks), these inventions allow nodes to also share volatile memory (e.g., random access memory or "RAM") with other nodes in the cluster. Thus, the inventions teach a means by which nodes may share both non-volatile and volatile memory space, by creating a "pool" of shared memory space which is accessible by all nodes participating in the system.

The '377 patent teaches a computer system that allows multiple computers to share volatile and non-volatile memory resources. Claim 1, the sole independent claim of the patent, teaches:

> A computer system having a shared addressable memory space, comprising
>
> > a data network for carrying signals representative of computer readable information, and
> >
> > a plurality of computers, each of said plurality of computers sharing the shared addressable memory space and including
> >
> > > an interface, coupled to said data network, for accessing said data network to exchange data signals therewith,
> > >
> > > a local volatile memory device coupled to said computer and having volatile storage for data signals,

> a local persistent memory device coupled to said computer and having persistent storage for data signals, and
>
> a shared memory subsystem for mapping a portion of said shared addressable memory space to a portion or the whole of said persistent storage and said volatile storage to provide thereby addressable persistent and volatile storage for data signals accessible by each of the plural computers, said shared memory subsystem including
>
> > a distributor for mapping portions of said addressable memory space across said plurality of local persistent memory devices, to distribute said addressable memory space across said plurality of local persistent memory devices, and
> >
> > a disk directory manager for tracking said mapped portions of said addressable memory space to provide information representative of which of said local persistent memory devices has which of said portions of said addressable memory space mapped thereon.

The '377 patent, 15:56-67 - 16:1-23 (emphasis supplied).

The '229 patent is a continuation-in-part of the application that issued as the '377 patent, and it incorporates the '377 patent by reference. See '229 patent at 1:4-10, 14:58-65. Drawing on the '377 patent's shared memory system for providing

an addressable shared memory space across the physical memory devices of multiple computers on a network, the '229 patent teaches methods for providing distributed control and persistent storage for a "structured store of data," including database records and web pages.

The '229 patent contains 5 independent claims (claims 1, 30, 31, 34, and 35) and 32 dependent claims. All terms disputed by the parties are included in independent claim 1, which teaches:

> A method for providing distributed control over a structured store of data, comprising:
>
> > providing a plurality of nodes inter-connected by a network, each of the plurality of nodes sharing a shared addressable memory space of a shared memory system and including (i) an interface for accessing the network, (ii) a local volatile memory device coupled to the node and providing volatile storage, (iii) a local persistent memory device coupled to the node and providing persistent storage, and (iv) a shared memory subsystem for mapping a portion of the shared addressable memory space to at least a portion of the persistent and volatile storage to provide thereby addressable persistent and volatile storage accessible by each of the plurality of nodes, the shared memory subsystem including (a) a distributor for mapping portions of the addressable memory space across the plurality of local persistent and volatile memory devices to distribute the addressable memory space across the plurality of local persistent and volatile memory

> devices, and (b) a disk directory manager for tracking the mapped portions of the addressable memory space to provide information representative of which of the local persistent and volatile memory devices has which of the portions of the addressable memory space mapped thereon;
>
> storing on each node an instance of a data control program for manipulating the structured store of data to provide multiple, distributed instances of the data control program;
>
> interfacing each instance of the data control program to the shared memory subsystem; and
>
> operating each instance of the data control program to employ the shared memory system as a memory device having the structured store of data contained therein, whereby the shared memory system coordinates access to the structured store of data to provide distributed control over the structured store of data.

'229 patent, 28:21-59 (emphasis supplied).

The parties disagree as to the meaning of the following phrases, as used in the '377 and '229 patents: (1) "shared addressable memory space"; (2) "local memory device"; (3) "shared memory subsystem"; (4) "structured store of data"; and (5) "each of said plurality of computers."

II. Claim Construction.

A. "Each of Said Plurality of Computers"

The parties agree that the word "plural" means two or more. They disagree, however, as to what is meant by the word "each," when used to modify the phrase "of said plurality of computers." As noted above, the '377 patent describes a "computer system having a shared addressable memory space, comprising . . . a plurality of computers, each of said plurality of computers sharing the shared addressable memory space." '377 patent, 15:58-63 (emphasis supplied).

Oracle asserts that the quoted language requires all of the computers participating in the shared memory system to share the shared addressable memory space. Oracle's position rests upon its interpretation of the words which describe a "plurality of computers" participating in a shared memory system, and require that "each of said plurality" share the shared addressable memory space. In other words, according to Oracle, if the "plurality" of computers participating in the system is five, then all five of those computers (i.e., each computer making up said plurality) must share the shared addressable memory space.

Mangosoft, on the other hand, says the phrase "each of said plurality" requires only that two or more of the computers in the overall system actually share the shared addressable space. That is, Mangosoft asserts that the phrase "each of said plurality" does not modify the "plurality of computers" that form the system, but instead refers to a smaller subset of computers (i.e., a new plurality). So, according to Mangosoft, if the plurality of computers participating in the shared memory system is five, only two of those computers need actually share the shared addressable memory space. The court disagrees.

Mangosoft's interpretation of the disputed claim language is not supported by the precedent upon which it relies, nor is it consistent with customary uses of the words "each" and "said." Had Mangosoft intended the interpretation it advances here, it likely would have used language such as "comprising . . . a plurality of computers, some of which share the shared addressable memory space." Alternatively, it might have said "a plurality of which" or "two or more of which" or "a subset of which" share the memory space. It did not. Instead, the '377 patent uses very specific language, which must be given meaning.

Mangosoft's interpretation of the disputed language does not give meaning to the words "said" or "each" and, instead, "render[s] the contested terms surplusage." Wright Med. Tech., Inc. v. Osteonics Corp., 122 F.3d 1440, 1444 (Fed. Cir. 1997). See also Lantech, Inc. v. Keip Mach. Co., 32 F.3d 542, 546 (Fed. Cir. 1994) ("All limitations in a claim must be considered meaningful.").

As used in the '377 patent, the phrase "said plurality" refers to the plurality of computers that form the system. And, the word "each" refers to that same plurality of computers; it does not refer to a new, smaller subset of the original plurality of computers. Accordingly, the court construes the disputed language - "A computer system having a shared addressable memory space, comprising . . . a plurality of computers, each of said plurality of computers sharing the shared addressable memory space" - to mean: a computer system having a shared addressable memory space, comprising two or more computers, every one of which of those two or more computers participating in the system has access to, and may contribute to, the shared addressable memory space.

The court, however, agrees with Mangosoft to the extent it says that not all computers on a particular network must necessarily participate in the system described in the '377 patent. In other words, the '377 patent teaches a system in which fewer than all computers on a network may participate in the described shared addressable memory system. See, e.g., "Summary of the Invention," '377 patent at 2:22-29 ("The invention provides systems that can create and manage a virtual memory space that can be shared by each computer on a network and can span the storage space of each memory device connected to the network.") (emphasis supplied). See also "Abstract," '377 patent at page 1 ("Distributed shared memory systems and processes . . . that optionally spans across each memory device connected to the computer network. Accordingly, each node on the network having the distributed shared memory system of the invention can access the shared memory.") (emphasis supplied).

B. "Shared Addressable Memory Space"

Here, the parties' dispute appears to focus on whether the "shared addressable memory space" must be addressed by a common

addressing scheme. Oracle asserts that it must, while Mangosoft disagrees. Specifically, Mangosoft says:

> [T]he shared addressable memory space is shared by the plural computers. That method of sharing and addressing, however, need not be through the use of common addresses. Indeed, it is the shared memory subsystem, . . . that allows the different computers to address the shared addressable memory space without the requirement of common addresses. As [Mangosoft's expert] explained, the shared memory subsystem provides the necessary translation to allow the various nodes to address the shared addressable memory space, even if they don't utilize common addresses, or by the analogy, a common language (e.g., some speak English, some French, some Norwegian). While Oracle argued that the nodes all must speak English (or use common addresses), that argument ignores entirely the role of the shared memory subsystem in providing the necessary translation. Moreover, it ignores the claim language that does not contain the "common addresses" limitation, the Federal Circuit law that prohibits reading into the claim limitations from the preferred embodiment, and the doctrine of claim differentiation.

Mangosoft's Supplemental Brief (document no. 46) at 11.

Claim 1 of the '377 patent does not specifically require that the nodes participating in the shared memory system utilize a "common" addressing scheme. Instead, claim 1 simply provides that the memory subsystem component of each participating node tracks the data and available memory space in the system. See,

e.g., '377 patent 7:27-37 ("The memory subsystems further track the data stored in the local memory of each node and further operate network connections with network 38 for transferring data between the nodes 12a-12c. In this way, the memory subsystems 32a-32c access and control each memory element on the network 38 to perform memory access operations that are transparent to the operating system 16. Accordingly, the operating system 16 interfaces with the memory subsystem 32 as an interface to a global memory space that spans each node 12a-12c on the network 38."). It would, then, appear that the "memory subsystem" functions in a manner similar to a traditional network server, translating the various addressing schemes utilized by each node on the system.

In other words, the memory subsystem is capable of translating the various "languages" spoken by each participating node; they need not all speak a common language. And, contrary to Oracle's suggestion, claim 1 of the '377 patent does not require the use of either "common memory addresses" or "global memory addresses;" those requirements appear only in particular embodiments of the patented system. The court will not read

those embodiments into the patent as limitations. See, e.g., Electro Med. Sys., S.A. v. Cooper Life Sciences, Inc., 34 F.3d 1048, 1054 (Fed. Cir. 1994) ("[A]lthough the specifications may well indicate that certain embodiments are preferred, particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments.").

Accordingly, the court construes the phrase "shared addressable memory space" to mean memory space distributed across the volatile and non-volatile memory of all nodes participating in the patents' shared memory system (though not necessarily all nodes on the network), which shared memory space can be accessed by the various participating nodes using one or more addresses. The participating nodes need not, however, utilize a common or global addressing scheme. As described in the embodiment depicted in Figure 3 of the '377 patent, the use of a "global address generator" is optional. '377 patent at 8:41-47.

C. "Local Memory Device"

The parties disagree as to whether a local memory device must be "attached" to only a single computer (Oracle's view), or whether it need only be "accessible" by a computer without having to go through another node or computer controlling access to that device (Mangosoft's view). Neither party has, however, explained precisely how this dispute is, for purposes of Mangosoft's infringement claims, a meaningful one. Nevertheless, because the parties seek an interpretation of that term, the court will provide one.

The court concludes that, at the time the '377 patent issued, one of ordinary skill in the relevant art would understand that the word "local" is used to describe computer devices that are directly attached to a single computer's processor (by, for example, the computer's bus), without the need for an intervening communication channel. Thus, "local" devices are distinct from "shared" or "networked" or "remote" devices which, by virtue of some intervening communication channel, might be accessed by more than one computer (though a "local" device

might also be "shared" with other nodes, through such an intervening communication channel).

Nevertheless, Mangosoft asserts that the use of the word "coupled" in the claim language (i.e., "local . . . memory device coupled to said computer") suggests that the device need not be "directly attached" to the computer but may, instead, communicate with the computer's processor in a more "indirect" manner. See '377 patent at 16:1-4. See also '229 patent at 28:29-32. The court is not persuaded. The use of the word "coupled" simply makes clear that the local memory device in question must be "local" to the particular computer being described. It does not serve to modify or redefine the commonly understood meaning of the word "local," as used at the time the patents issued.

Were the court to construe the disputed claim language as Mangosoft suggests, that construction would ignore the word "local." In other words, by simply requiring a computer memory device that is somehow "linked" to a computer (whether directly or indirectly), Mangosoft's construction would recast the claim so that it merely requires "a memory device coupled to a

computer." Importantly, however, the claim language requires a local memory device that is coupled to a computer. To avoid rendering the word "local" entirely superfluous (or, at best, redundant), it must be given a meaning other than "coupled."

Accordingly, as used in the '377 patent (as well as the '229 patent), the word "local" when used to modify a computer device means a computer device (e.g., a hard drive) that is directly attached to a single computer's processor by, for example, the computer's bus (though it may, of course, be accessed by other computers through any number of the interconnection technologies discussed in the exhibits to the declaration of David Klausner (submitted with Mangosoft's Opposition Brief (document no. 43)). That is to say, a computer memory device that is "local" to one computer may also be shared with, or accessed by, other computers on the network (or, of course, other computers participating in the shared memory system).

D. "Shared Memory Subsystem"

Both the '377 and '229 patents describe the use of a "shared memory subsystem for mapping a portion of said shared addressable

memory space to a portion or the whole of said persistent storage and said volatile storage . . ..” ‘377 patent at 16:6-9. See also ‘229 patent at 28:31-34 (“a shared memory subsystem for mapping a portion of the shared addressable memory space to at least a portion of the persistent and volatile storage . . ..”). Oracle asserts that the “shared memory subsystem” described in the patents is a means-plus-function claim. The court disagrees.

First, the absence of the word “means” undermines Oracle’s claim. See, e.g., Al-Site Corp. v. VSI Int’l, Inc., 174 F.3d 1308, 1318 (Fed. Cir. 1999) (“[W]hen an element of a claim does not use the term ‘means,’ treatment as a means-plus-function claim element is generally not appropriate.”). Second, the claim element “shared memory subsystem” recites sufficiently definite structure to dispel the argument that it is a means-plus-function claim. Third, the phrase “shared memory subsystem” appeared in both patents and technical literature at the time the ‘377 patent issued. See, e.g., Exhibit J to Mangosoft’s Opposition Brief, United States Patent no. 5,341,475 (describing a communication system for exchanging data, which employs a shared memory subsystem). See also Mangosoft’s Opposition Brief at 15-16

(representing that the phrase "shared memory subsystem" appeared in at least nine U.S. Patents filed before the '377 patent, as well as in academic literature).

With regard to the word "mapping" - a function performed by the shared memory subsystem - Oracle asserts that it means "assigning a correspondence between the addresses of portions of virtual memory to the addresses of portions of physical memory." Oracle's Claim Construction Brief (document no. 36) at 23. Mangosoft, on the other hand, says that Oracle's construction of the word is too narrow in two respects. First, it says the word "mapping" means simply "defining or establishing a relationship," rather than assigning a direct correspondence. Mangosoft's Claim Construction Brief at 16. Next, it says that the plain language of the claim provides only that a portion of the shared addressable memory space must be mapped to a portion or the whole of the system's persistent and/or volatile storage. It does not, says Mangosoft, require the mapping of portions of the system's virtual memory to portions of the system's physical memory.

The word "mapping," as used in the patents at issue, would be understood by one of ordinary skill in the art to mean "creating an association between." See, e.g., Oracle's Claim Construction Brief at 23 (citing IEEE Standard Dict. of Elec. and Electronics Terms (6th ed. 1996) at 627 for the proposition that to "map a range of addresses" means "to create an association between a range of a process's address space and a range of physical memory or some memory object, such that a reference to an address in that range of the address space results in a reference to the associated physical memory or memory object."). Accordingly, the memory subsystem described in the '377 patent and the '229 patent creates an association or relationship between the shared addressable memory space and some or all of the local persistent and local volatile memory space of the participating nodes.

E. "Structured Store of Data"

Finally, the parties disagree as to the meaning of the phrase "structured store of data," as used in the '229 patent. See, e.g., '229 patent at 28:24. Specifically, they disagree as to whether the referenced data must reside exclusively in

persistent storage. Oracle asserts that it must, while Mangosoft says storage of the structured data need not be limited to persistent (i.e., non-volatile) devices.

The claims of the '229 patent do not make clear whether the referenced structured store of data may be (or must be) located in any particular form of memory. In support of its view that such data must reside exclusively in non-volatile storage, Oracle points out that the specification repeatedly describes the structured store of data as being "persistent data." See, e.g., '229 patent at 3:19-22 ("The invention can be understood as structured storage systems, and related methods, that employ a globally addressable unstructured memory system to maintain a structured store of persistent data within a shared memory space."). Consequently, says Oracle, if the data themselves are "persistent," they must necessarily reside on a persistent (non-volatile) storage medium. And, according to Oracle, by repeatedly stating throughout the specification that the data are "persistent," the patentees have (albeit implicitly) defined the phrase "structured store of data" to mean data which are stored on a persistent memory device. See, e.g., Bell Atl. Network

Servs., Inc. v. Covad Communs. Group, Inc., 262 F.3d 1258, 1277 (Fed. Cir. 2001) ("[T]he written description provides guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format. Because the patentees used the [disputed] term throughout the entire patent specification, consistent with a single meaning, they defined that term by implication.") (citations and internal punctuation omitted). See also SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1344 (Fed. Cir. 2001) ("While it is true, of course, that the claims define the scope of the right to exclude and that the claim construction inquiry, therefore, begins and ends in all cases with the actual words of the claim, the written description can provide guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format.") (citations and internal punctuation omitted).

The court is not persuaded that the "structured store of data" as referenced in the '229 patent's claims must, as a matter

of construction or of necessity, reside in persistent storage. Claim 1 of the '229 patent teaches a "method for providing distributed control over a structured store of data" among all nodes of a cluster participating in the addressable shared memory space system. That system, as described above, includes the use of (and storage of data on) both persistent and volatile memory devices, which are shared and accessible by all participating nodes. See '229 patent at 28:32-37. Nothing in the claim language suggests that, unlike other forms of data (which may be stored in persistent memory, volatile memory, or both), the "structured store of data" is somehow unique and must, instead, reside exclusively in persistent storage. In fact, the entire purpose of the '229 patent would be defeated if such data were restricted exclusively to persistent storage.

The references in the specification to "persistent data" (rather than "persistent storage" or "persistent memory") simply suggest that the system is designed, and the data organized, in such a way that should one or even all of the participating nodes lose data stored in volatile memory, the "structured store of data" is still "persistent" and can be recovered (by, presumably,

collecting and compiling the various redundant portions of it that were distributed to the non-volatile memory of the participating nodes). In other words, the "persistent data" are stored in the various volatile and non-volatile memory devices attached to participating nodes in such a way that even if all data are lost from volatile memory, they can be reconstructed from the various portions that were stored on non-volatile memory devices (there is, of course, no requirement that the data not be duplicated - in fact, it is possible that a particular piece of datum could be stored in multiple locations: in the RAM of one node, on the hard drive of another node, and again in the RAM of a third node). In short, the court is not persuaded by Oracle's assertion that by referencing the structured store of data as "persistent data," the patentees have limited the scope of the patent's claims to require that such data reside exclusively on non-volatile forms of storage media.

Accordingly, the court construes the phrase "structured store of data" to mean data that are organized in some recognized fashion (e.g., database files, word processing document files, or

Web pages) and stored in the volatile and/or non-volatile memory of the various nodes participating in the shared memory system.

F. Summary

Having carefully reviewed both the '377 and '229 patents, as well as the expert opinion and argument presented by the parties, the court construes the disputed terms and phrases in the patents as follows:

1. "A computer system having a shared addressable memory space, comprising . . . a plurality of computers, each of said plurality of computers sharing the shared addressable memory space" means a computer system having a shared addressable memory space, comprising two or more computers, every one of which of those two or more computers participating in the system (though not necessarily every node on the network) has access to, and may contribute to, the shared addressable memory space.

2. "Shared addressable memory space" means a memory space distributed across the volatile and non-volatile memory of all nodes participating in the patents' shared memory system (though not necessarily all nodes on the network), which shared memory space can be accessed by the various participating nodes using one or more addresses. The participating nodes need not, however, utilize a common or global addressing scheme.

3. "Local," when used to modify a computer device, means a computer device (e.g., a hard drive) that is directly attached to a single computer's processor by, for example, the computer's bus. Such a "local" device may, however, be shared with and accessible by other nodes on the network (and, of course, other nodes participating in the shared memory system).

4. "Mapping" means creating an association or relationship between the shared addressable memory space and some or all of the local persistent and local volatile memory space of the participating nodes.

5. "Structured store of data" means data that are organized in some recognized fashion (e.g., database files, word processing document files, or Web pages) and stored in the volatile and/or non-volatile memory of the various nodes participating in the shared memory system.

Conclusion

For the purposes of this litigation, the disputed terms contained in the '377 patent and the '229 patent shall have the meanings ascribed to them in this order.

SO ORDERED.

_____
Steven J. McAuliffe
United States District Judge

September 21, 2004

cc: Dorian Daley, Esq.
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