

United States District Court,
N.D. California.

CABLE & WIRELESS INTERNET SERVICES, INC,
Plaintiff.

v.

AKAMAI TECHNOLOGIES, INC,
Defendant.

No. C 02-03708 CRB

July 10, 2003.

Owner of patent for method of determining optimal path for routing messages over computer network sued competitor for infringement. Construing claims, the District Court, Breyer, J., held that: (1) "measuring cost" meant determining value of network communication performance metrics, in accordance with practitioner's priorities and needs, associated with transmitting message from source to destination; (2) "existing routing mechanisms" were routing mechanisms used by underlying network; and (3) "intermediate nodes" were network connection points that had additional functionality for exploiting overlay routing, and that cooperated to provide forwarding to paths overlaid over underlying network.

Claims construed.

6,275,470. Construed.

William L. Anthony, I. Neel Chatterjee, Cynthia A. Wickstrom, Orrick Herrington & Sutcliffe LLP, Seattle, WA, Carolyn Chang, James B. Lewis, Bingham McCutchen LLP, East Palo Alto, CA, for Akamai Technologies, Inc., dft.

Michael J. Bettinger, Elaine YU. Chow, Timothy P. Walker, Preston Gates & Ellis LLP, San Francisco, CA, for Cable & Wireless Internet Services, Inc., pla.

Mark E. Miller, George A. Riley, Luann Simmons, O'Melveny & Myers, San Francisco, CA, for Sockeye Networks, Inc., dft.

MEMORANDUM AND ORDER

BREYER, District Judge.

This suit involves the alleged infringement of United States Patent Number 6,275,470 ("the '470 patent"), a patent relating to methods for determining an optimal path to route messages over a computer network. The '470 patent describes methods to improve the transmission of messages by, first, identifying paths that a

message can take from its source to its destination that are different from the "default path" that the message would otherwise take. The patented technology then compares these alternative paths to the default path and sends the message along whichever path is optimal from the perspective of the user.

More technically, the patent describes an "underlying network," such as the Internet, whose "existing routing mechanisms" select a "default path" through the network to send a message from a source to a destination. Since the default path may not be the quickest (cheapest, most reliable, etc.), the '470 patent describes an "overlay network" of "intermediate nodes" that create alternative paths that may be quicker (cheaper, more reliable, etc.). Thus, in one preferred embodiment, "[a]n overlay network of alternative routing mechanisms is constructed on top of the existing Internet routing mechanisms to find and exploit available resources." Col. 3:34-36.

To determine whether the alternative path is preferable to the default path, the patent describes "steps and means" for comparing the "cost" of transmitting the message along the default path to the "cost" of transmitting it along the alternative paths. The lower-cost path is the "optimal" path, that is, the path "deemed preferable with respect to selected cost/performance criteria and with respect to a set of identified alternative paths." Col. 2:55-57.

Now before the Court is the task of claim construction. The parties' principal disputes concern seven claim terms or phrases in Claim 1 of the patent. With the disputed terms in bold, Claim 1 describes:

A method for determining an optimized path for transmitting a message from a source to a destination within a packet-switched computer-based communications network, the method comprising the following steps:

- (a) in response to a request to transmit the message, measuring a cost from the source to the destination along a default path, the default path being derived by means or one or more existing routing mechanisms of the communications network;
- (b) **measuring an alternative cost** of transmitting the message from the source to the destination along at least one alternative path, the alternative path passing through one or more intermediate nodes not on the default path, wherein the intermediate nodes define a virtual topology on top of a computer-based communications network; and
- (c) determining the optimized path by **comparing** the default cost and the alternative cost.

DISCUSSION

I. Legal Standards for Claim Construction

[1] Patent infringement analysis involves two steps. The first step is to construe the asserted claims and the second step is to determine whether the accused method or product infringes any of the claims as properly construed. *See* Markman v. Westview Instruments, Inc., 52 F.3d 967, 976 (Fed.Cir.1995) (en banc), *aff'd*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). The first step, construction of the patent claims, is a matter of law and thus the responsibility of the court. *See id.* at 979.

[2] "In interpreting an asserted claim, the court should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history." Vitronics

Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996). In examining the intrinsic evidence, the court should first look to the words of the claims themselves to define the scope of the patented invention. *See id.* Words in a claim "are generally given their ordinary and customary meaning." *Id.*

Second, the court should review the patent specification "to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning." *Id.* "The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication." *Id.* The Federal Circuit teaches that "the specification is always highly relevant to the claim construction analysis. Usually it is dispositive; it is the single best guide to the meaning of a disputed term." *Id.* Drawings included in the patent application have the same effect on claim language as other portions of the specifications. *See Autogiro Co. of America v. United States*, 181 Ct.Cl. 55, 384 F.2d 391, 398 (1967).

The third type of intrinsic evidence that the Court may consider is the prosecution history of the patent, if it is in evidence. *See Vitronics*, 90 F.3d at 1582. The prosecution history contains the entire record of the prosecution of the patent claim before the patent office, including any representations about the scope of the claim or the meaning of certain terms made by the applicant.

[3] Ordinarily, the intrinsic evidence alone will resolve any ambiguity in a disputed term. By relying first on the claim language, the specification, and the prosecution history, a court can protect a patentee's rights while at the same time enabling the public to rely on the public record of the patentee's claim. "In other words, competitors are entitled to review the public record, apply the established rules of claim construction, ascertain the scope of the patentee's claimed invention and, thus, design around the claimed invention." *Vitronics*, 90 F.3d at 1583 (citing *Markman*, 52 F.3d at 978-79). For these reasons, "[o]nly if there [is] still some genuine ambiguity in the claims, after consideration of all available intrinsic evidence, should the trial court[] resort[] to extrinsic evidence." *Id.* at 1584; *see Key Pharmaceuticals v. Hercon Labs. Corp.*, 161 F.3d 709, 716 (Fed.Cir.1998) (noting that extrinsic evidence is appropriate if the intrinsic evidence "does not answer the question").

II. "Message"

[4] Plaintiff submits that the term *message* should be given its ordinary and accustomed meaning, viz., "an intended communication." Defendant argues that the term, understood in context, means "one or more packets of data for transmission from a source to a destination."

The problem with defendant's construction is that it blurs the distinction between "message" and "packet." Properly understood, packets are the mechanism by which messages are sent; as the patent specification explains, "message packets ... generally include 'source' and 'destination' fields" that assist in routing messages to their intended destinations. Col. 7:52-58. Defining a message *as* a packet ignores the fact that a packet includes not only message data but also information about where the data originates and where it is supposed to go.

Defendant's proposed construction flows from the fact that the patent is directed to a packet-switched network. Since a packet-switched network transmits packets of data, reasons defendant, the term "message" in the phrase "transmitting a message ... within a packet-switched network" must refer to a packet. In essence, therefore, defendant asks the Court to find that "message" and "packet" are interchangeable. They are not. Accordingly, the Court will adopt plaintiff's proposed construction of this phrase.

III. "Measuring a Cost" and "Measuring an Alternative Cost"

[5] The first step of the patented method involves, "in response to a request to transmit the message, *measuring a cost* from the source to the destination along a default path." The second step involves "*measuring an alternative cost* of transmitting the message from the source to the destination along at least one alternative path." By comparing these costs, the patented technology selects a particular path.

Plaintiff proposes that "measuring a cost" means "determining the value of network communication performance metrics, in accordance with a practitioner's priorities and needs, associated with transmitting a message from a source to a destination." This proposed construction reflects the fact that the "cost" of transmitting a message is measured in terms of what is important to the user-money, time, reliability, etc. In the language of the patent, the "cost function" "is preferably drawn from a set of network communication performance metrics such as delay, throughput, jitter or loss, in accordance with the practitioner's priorities and needs." Col. 5:35-38.

Defendant objects to plaintiff's proposed construction because "determining the value" is too vague and because, in defendant's view, the plain meaning of "measuring" requires "examination or experimentation." Defendant thus proposes that "measuring a cost" means "ascertaining *by empirical observation* the value of one or more resources required to transmit the message from the source to the destination."

Defendant's insertion of the requirement that measurement be made empirically is notably lacking in support. Defendant argues that the dictionary defines "measure" to mean "ascertain," and "ascertain" to mean "to discover with certainty, as through examination or experimentation." By the transitive property, defendant submits, "measure" means to ascertain by empirical observation. There is nothing in the patent language or the file wrapper, however, that supports a requirement that "cost" be measured in some empirical fashion.

Defendant is also concerned that defining "cost" in terms of a particular user's preferences impermissibly broadens the patent's scope to cover "whatever an accused infringer may choose to use." Def.'s Br. at 11. Limiting "cost" to a particular metric, however, would run counter to the very purpose of the technology, which is to allow the user to define the criteria (i.e., cost, speed, reliability) that determine the path that the technology selects. In any event, defendant's proposed construction-which interprets "cost" to refer to "the value of one or more resources required to transmit the message"-is no less open-ended than the construction proposed by plaintiff.

For these reasons, the Court will adopt plaintiff's proposed construction of these terms.

IV. "Existing Routing Mechanisms"

[6] Claim 1 describes the default path as the path that is "derived by means of one or more existing routing mechanisms of the communications network." Plaintiff argues that the *existing routing mechanisms* are "the routing mechanisms used by the underlying network." As such, the default path is the one that the message would travel along if there were no overlay network.

Defendant proposes that "existing routing mechanisms" refers to "a prior art system or process employed to select a path to transmit the message from the source to the destination." Defendant thus seeks to limit "existing routing mechanisms" to "a prior art system or process," such that the only routing mechanisms that qualify as "existing routing mechanisms" are those that were in existence on the day the patent issued.

Defendant points to nothing in the patent or prosecution history, however, that supports this construction of the claim.

Accordingly, the Court will adopt plaintiff's proposed construction of this phrase.

V. "Intermediate Nodes"

[7] This term appears in the phrase "measuring an alternative cost of transmitting the message from the source to the destination along at least one alternative path, the alternative path passing through one or more *intermediate nodes* not on the default path." Plaintiff proposes that "intermediate nodes" refers to "network connection points that have additional functionality for exploiting overlay routing, and that cooperate to provide forwarding to paths overlaid over the underlying network." Defendant proposes "intermediate devices such as switchers and routers that include additional processing capabilities for measuring and recording information about the alternative paths."

As these competing constructions indicate, the parties agree that "intermediate nodes" are nodes that have special processing capabilities that facilitate identification and utilization of alternative paths. Plaintiff objects to defendant's proposed construction because nodes, in plaintiff's view, are not limited to switches and routers, and because the claim language does not support a limitation whereby the nodes must be capable of "measuring and recording information." These objections are well-taken. Defendant concedes that switches and routers are merely examples of nodes, and there is no basis for limiting the definition of "intermediate nodes" to include only those nodes that can record information. The prosecution history indicates only that the intermediate nodes must have processing capabilities " *such as* ... custom software for measuring and recording information," not that a node cannot be an "intermediate node" unless it can measure and record information.

Defendant objects to plaintiff's proposed construction because it defines intermediate nodes in terms of an overlay network. In defendant's view, this construction impermissibly reads in a limitation from a preferred embodiment. While the patent does state that "in a preferred embodiment, ... intermediate nodes are referred to as an 'overlay network,' " Col. 2:37-39, plaintiff's proposed construction of "intermediate nodes" refers only to "overlay routing" and "paths overlaid over the underlying network." Defendant does not dispute that the alternative paths described by the patent are "overlaid" atop the underlying network; indeed, the patent is titled "On-Demand *Overlay* Routing for Computer-Based Communication Networks." Accordingly, plaintiff's proposal does not import any unacceptable limitation into the construction of "intermediate nodes."

The Court will adopt plaintiff's proposed construction of this term.

VI. "Virtual Topology"

[8] According to Claim 1, the intermediate nodes "define a *virtual topology* on top of a computer-based communications network." In plaintiff's view, a virtual topology is "a topological representation of overlay network connectivity." This definition is lifted from the patent's description of a preferred embodiment. *See* Col. 6:11-12. In defendant's view, a virtual topology is "a set of connections between nodes of an underlying network that are not part of the physical configuration of the network."

As their competing constructions indicate, the parties agree that the virtual topology is a map of connections among intermediate nodes, and neither party disputes that the nodes themselves are part of the physical

network. They disagree, however, as to whether the inter-node connections that make up the virtual topology may themselves exist in physical space. While defendant argues that the virtual topology includes only connections between intermediate nodes that are not connected physically, plaintiff contends that the virtual topology includes *all* connections between intermediate nodes, whether or not the nodes are physically linked.

Once again, defendant points to nothing in the specification or prosecution history suggesting that the virtual topology consists only of the subset of inter-node connections that are not part of the network's physical configuration. Although in practice it may be true that most or even all of the intermediate nodes on a particular network are not physically connected, the claim language does not exclude the possibility that two intermediate nodes may have a physical connection between them. The intrinsic evidence supports a construction of "virtual topology" that includes *all* connections between intermediate nodes, whether or not those connections are physical.

Plaintiff's proposed construction, however, uses the word "topological" to define "topology." Such a construction will be of limited utility to the trier of fact. Accordingly, the Court will construe "virtual topology" to mean "a map of the connections between intermediate nodes."

VII. "Comparing"

[9] The last clause of Claim 1 indicates that the patented technology "determin[es] the optimized path by *comparing* the default cost and the alternative cost." The parties are divided over whether this comparison is limited to the sort of quantitative, technical comparison that a computer would do, or whether "comparing" should be given its more ordinary meaning. Defendant claims that since the comparison is being made in the context of "a packet-switched computer-based communications network," the term "comparing" should be construed as "a computer operation examining whether one term is greater than, equal to, or less than another." Plaintiff argues that the term should be construed more generally as "to examine for likenesses or differences."

Defendant's effort to give this term a narrow technical definition cannot be squared with the construction of "cost" that the Court has adopted. As indicated above, the term "cost" refers to "the value of network communication performance metrics, in accordance with a practitioner's priorities and needs." Thus the "costs" that are being "compared" may not lend themselves to unidimensional greater-or-less-than determinations; rather, "comparing" may involve a more holistic assessment of the alternative paths in relation to the default path. As such, even though the comparison may at times involve an assessment of which of two values is greater, there is no reason to *limit* the definition of "comparing" to that sort of quantitative assessment.

The Court will therefore adopt plaintiff's proposed construction of this term.

CONCLUSION

In addition to the construction of disputed terms and phrases supplied above, the Court adopts the agreed constructions of the parties as set forth in the Joint Claim Construction Statement filed March 31, 2003.

IT IS SO ORDERED.

N.D.Cal., 2003.

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