

United States District Court,  
D. Delaware.

**LUCENT TECHNOLOGIES, INC,**  
Plaintiff.

v.  
**EXTREME NETWORKS, INC. and Foundry Networks, Inc,**  
Defendants.

No. CIV.A.03-508 JJF

**April 14, 2005.**

**Background:** Owner of patents related to telecommunications data networking sued competitors for infringement.

**Holdings:** Construing claims, the District Court, Farnan, J., held that:

- (1) patents were not limited to networks comprised of virtual circuits;
- (2) claims addressing monitoring and marking of data packets at nodes were not limited to packets received by access nodes;
- (3) "receive terminal" was input port of packet switch;
- (4) "preparing to transmit" data packet meant accessing header of packet to make decision on where to send packet and to obtain marking field;
- (5) patent directed to protocol for data network was not limited to protocols used in metropolitan area networks (MANs); and
- (6) node "neighbor" limitation meant that nodes had to have link between them.

Claims construed.

4,769,810, 4,769,811, 4,914,650, 4,922,486, 5,245,607. Construed.

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## **MEMORANDUM OPINION**

**FARNAN, District Judge.**

This action was brought by Lucent Technologies, Inc. ("Lucent") against Extreme Networks, Inc. ("Extreme") and Foundry Networks, Inc. ("Foundry") for patent infringement. Lucent alleges that products manufactured and sold by Extreme infringe U.S. Patent Nos. 4,769,810 ("the '810 patent"); 4,769,811 ("the '811 patent"); 4,914,650 ("the '650 patent"); 4,922,486 ("the '486 patent"); and 5,245,607 ("the '607 patent"). Lucent further alleges that products manufactured and sold by Foundry infringe the '810 patent, the '486 patent, and the '607 patent. Presently before the Court is the claim construction dispute of the parties. The parties briefed their respective positions, and the Court held a Markman hearing on January 14, 2005. This Memorandum Opinion provides the Court's interpretation of the claim terms disputed by the parties.

### **BACKGROUND**

The patents at issue in this lawsuit relate generally to data networking. The '810 patent addresses the problem of congestion in a packet-switching network by monitoring packets received from a customer and marking packets transmitted at an excessive rate. The '811 patent addresses the problem of congestion in a packet-switching network by preferentially dropping marked packets in the presence of congestion. The '486 patent enhances security in a data network by checking that transmissions between communicating parties are authorized. The '650 patent addresses the problem of bandwidth management in a packet-switching network that handles different types of traffic, such as voice and data. The '607 patent addresses the problem of routing a broadcast message in a network.

### **DISCUSSION**

#### **I. Legal Standard**

[1] [2] Claim construction is a question of law. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 977-78 (Fed.Cir.1995), *aff'd*, 517 U.S. 370, 388-90, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). A claim term should be construed to mean "what one of ordinary skill in the art at the time of the invention would have understood the term to mean." *Markman*, 52 F.3d at 986.

[3] The starting point for a claim construction analysis is the claims themselves. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed.Cir.1996); *see also* *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed.Cir.1999) (stating that "[t]he starting point for any claim construction must be the claims themselves."). Generally, there is a strong presumption in favor of the ordinary meaning of claim language as understood by those of ordinary skill in the art. *Bell Atl. Network Servs., Inc. v. Covad Communications Group, Inc.*, 262 F.3d 1258, 1268 (Fed.Cir.2001). However, "[t]he intrinsic record, comprising the claims, the written description, and the prosecution history if in evidence 'must be examined in every case to determine whether the presumption of ordinary and customary meaning is rebutted.'" *Arlington Indus., Inc. v. Bridgeport Fittings, Inc.*, 345 F.3d 1318, 1325-26 (Fed.Cir.2003) (quoting *Tex. Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1204 (Fed.Cir.2002)).

[4] If the meaning of a claim term is clear from the totality of the intrinsic evidence, then the claim may be construed. If, however, the meaning of a claim term is "genuinely ambiguous" after examining the intrinsic evidence, then a court may consult extrinsic evidence. *Bell & Howell Document Mgmt. Prods. Co. v. Altek Sys.*, 132 F.3d 701, 706 (Fed.Cir.1997).

## **II. Construction of Disputed Terms**

Before addressing the disputed claim terms, the Court will address two threshold questions: (1) whether the claims of the '810 and '811 patents are limited to packet-switching networks comprised of virtual circuits, and (2) whether the asserted claims in the '810 patent require the monitoring and marking of packets at an "access node."

### **A. Whether The Claims of the '810 and '811 Patents Are Limited to Virtual Circuits**

[5] The first issue before the Court is whether the claims of the '810 and '811 patents are limited to packet-switching networks comprised of virtual circuits. In connection with litigation between Lucent and another party in this Court, the Court construed disputed terms of the '810 and '811 patents, the specifications of which are virtually identical. *Lucent Technologies, Inc. v. Newbridge Networks Corp.*, 168 F.Supp.2d 181 (D.Del.2001). However, the parties in the prior litigation did not raise the issue now before the Court. For the reasons discussed, the Court will construe the claims and disputed terms of the '810 and '811 patents not to require virtual circuits.

Lucent contends that the claims of the '810 and '811 patents should not be limited to packet switching networks comprised of virtual circuits. In support of its contention, Lucent cites *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898 (Fed.Cir.2004). In that case, all of the disclosed embodiments of a powered fluid injector use pressure jackets. However, the Federal Circuit refused to limit the claims to require pressure jackets because "the written description does not contain a clear disavowal of embodiments lacking a pressure jacket." *Id.* at 908.

Extreme and Foundry contend that the claims at issue should be limited to packet-switching networks comprised of virtual circuits because every embodiment in the patents utilizes virtual circuits. (D.I. 395 at 5; D.I. 385 at 5.) In support of their contention, Defendants cite the Federal Circuit's decisions in *Microsoft Corp. v. Multi-Tech Systems, Inc.*, 357 F.3d 1340 (Fed.Cir.2004), and *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858 (Fed.Cir.2004).

In *C.R. Bard*, the Federal Circuit held that language appearing in the Summary of the Invention and Abstract sections of the patent specification narrowed the meaning of the term "plug" to mean a plug with a pleated surface. *C.R. Bard*, 388 F.3d at 866. The Federal Circuit concluded that the "pleat" language narrowed the meaning of "plug" based in part on the fact that the language appeared in sections of the specification that describe the invention as a whole, rather than merely preferred embodiments. Further, the Federal Circuit found that the language expressly defined the plug as having or including a pleated surface. *Id.* at 865. The court went on to hold that the prosecution history of the patent provided an independent ground for the same conclusion because, in the course of prosecution, the plaintiff "made a clear statement to the examiner that the surface of the inventive plug is pleated in order to distinguish the invention from prior art." *Id.* at 869.

In *Microsoft*, the Federal Circuit held, *inter alia*, that the claims of several patents were limited to the use of a direct point-by-point telephone line connection because the specification "repeatedly and consistently

describes" the claimed inventions as communicating over a telephone line. Microsoft, 357 F.3d at 1348 ("When the specification 'makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question.' ") (quoting SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1341 (Fed.Cir.2001)). The Federal Circuit found that this is particularly true where the patentee makes the broad, unequivocal statement in the Summary of the Invention section of the specification. Microsoft, 357 F.3d at 1348 ("Those statements, some of which are found in the 'Summary of the Invention' portion of the specification, are not limited to describing a preferred embodiment, but more broadly describe the overall invention of the [patent].")

In this case, the Court finds that the language of the claims of the '810 and '811 patents do not explicitly limit the invention to use in the context of virtual circuits. Thus, the Court has also reviewed the patent specifications and prosecution history. The Court agrees with Extreme and Foundry that every embodiment of the invention disclosed in the specifications of these patents utilizes virtual circuits. However, the Court finds that Lucent has not made a clear disavowal of packet-switching networks other than virtual circuits in the specification or in the prosecution history. Unlike the specifications in Microsoft and C.R. Bard, the specifications of the '810 and '811 patents contain no disclaimer of contexts other than virtual circuits in sections of the specifications that describe the overall invention of the patent. Rather, all that Defendants can point to in the specifications is the absence of any embodiment that lacks a virtual circuit. Similarly, the Court finds no disclaimer of contexts other than virtual circuits in the prosecution history.

Thus, the Court concludes that Lucent has not made a clear disavowal of embodiments lacking virtual circuits. Accordingly, the Court will not limit the claims and disputed terms of the '810 and '811 patents to packet-switching networks comprising virtual circuits.

## **B. Whether The Claims of the '810 Patent Are Limited to Access Nodes**

[6] The second threshold issue before the Court is whether the asserted claims in the '810 patent require the monitoring and marking of packets at an "access node." This issue was not before the Court in the prior Newbridge litigation. For the reasons discussed, the Court will construe the claims and disputed terms of the '810 patent not to limit the monitoring and marking to packets received by access nodes.

Defendants contend that the '810 patent specification limits the monitoring and marking of packets to only access nodes. (D.I. 395 at 11; D.I. 385 at 17.) In support of this contention, Defendants point to the Abstract section of the patent, which states that "monitoring and marking algorithms are used for determining which data packets, received from a customer by an access node, are being transmitted at an excessive transmission rate and accordingly are marked ...." ('810 patent). Defendants also point to the Summary of the Invention section of the specification, which states that the "network utilizes packet monitoring and marking algorithms to determine which data packets received by an access node are being transmitted at an excessive rate and accordingly are marked." ('810 patent, 3 :57-60.) Defendants further argue that all of the preferred embodiments of the invention disclose monitoring and marking packets only at access nodes.

In response, Lucent contends that the asserted claims, 12 and 21, were introduced specifically to remove the access-node limitation from claims 1 and 10. In support of this contention, Lucent points to the February 5, 1988, Amendment, wherein Lucent notified the PTO Examiner that it was omitting the word "access" in claims 12 and 21. (D.I. 397 at LFE065342-43.)

The Court finds that during the prosecution of the '810 patent, the applicant learned that "[t]he prior art fails to show or suggest just marking the packet when a user exceeds a certain bandwidth," and, in response, added claims 11 through 21. (D.I. 397 at LFE065343.) Lucent's intentions with respect to the meaning of the asserted claims are clear from the prosecution history-the claims were amended to include monitoring and marking packets at nodes other than access nodes. The only remaining question is whether the applicants failed in their effort and the access node limitation remains a part of claims 12 and 21.

[7] It is not improper for a patent applicant to broaden his claims during prosecution based on information that the applicant's attorney has learned about during the prosecution of a patent application, as long as the disclosure supports the broadened claims. *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 909 n. 2 (Fed.Cir.2004); *Kingsdown Medical Consultants, Ltd. v. Hollister Inc.*, 863 F.2d 867, 874 (Fed.Cir.1988). With regard to the disclosure, the Federal Circuit has acknowledged that "certain sections of the specification are more likely to contain statements that support a limiting definition of a claim term than other sections, although what import to give language from the specification must ... be determined on a case-by-case basis." *C.R. Bard*, 388 F.3d at 864.

In this case, Defendants rely on two places in the specification where the patent describes the invention in general terms. First, Defendants rely on the Abstract, which states that "monitoring and marking algorithms are used for determining which data packets, received from a customer by an access node, are being transmitted at an excessive transmission rate and accordingly are marked ...." ('810 patent.) Next, Defendants rely on the Summary of the Invention section of the specification, which states that the "network utilizes packet monitoring and marking algorithms to determine which data packets received by an access node are being transmitted at an excessive rate and accordingly are marked." Although that language can reasonably be understood as constituting a general description of the invention, the Court finds that it does not clearly define the term "node" as meaning "access node."

Accordingly, the Court concludes that the specification has not made a clear disavowal of embodiments wherein the monitoring and marking of packets occurs at nodes in the network other than access nodes.

In sum, the claims do not expressly require that the monitoring and marking of packets occur at access nodes, and Defendants point to no clear disavowal of claim scope in either the written description or prosecution history. In fact, the prosecution history indicates that the asserted claims were added to cover nodes other than access nodes. For these reasons, the Court concludes that the asserted claims of the '810 patent do not require monitoring and marketing of packets at "access nodes."

### C. The '810 Patent

In view of the conclusions reached above, the Court will construe the claims of the '810 patent.

#### 1. *Claim 12* of the '810 Patent

Claim 12 of the '810 patent is directed to a method for monitoring the transmission rate of a user's packets into the network and marking those packets that are transmitted at an excessive rate. In full, with the disputed terms emphasized, Claim 12 provides:

A method for *marking an excessive bandwidth packet* in a packet switching network, the method comprising the steps of:

- a. *accumulating a count of bytes of data* arriving at a *node* per *interval*;
- b. *receiving a packet* with a number of *bytes* of data;
- c. comparing the accumulated count of *bytes* of data arriving at the *node* per interval with a *predetermined threshold*;
- d. if the accumulated count is less than the threshold, incrementing the count in the accumulator by a constant plus the number of *bytes* of data in the received packet;
- e. if the accumulated count is greater than the threshold, *marking* the received packet; and
- f. subsequent to step d or e passing the unmarked or marked packet along in the *node*.

('810 Patent, col. 12, 11. 1-17). For the reasons that follow, the Court construes the disputed terms as follows:

- "**marking**" is construed to mean "marking." The Court declines to further construe this term.

Lucent contends that this term should be given its ordinary meaning. (D.I. 396 at 5.) Extreme contends that the term "marking" means "setting a bit in the packet header that indicates that a packet is being transmitted at an excessive transmission rate along/in the virtual circuit to which the packet belongs." (D.I. 395 at 18.) Foundry contends that the preamble of claim 12 limits claim 12 and that "marking" means marking of excessive bandwidth packets in prior art virtual circuits employed in a packet switching network. (D.I. 385 at 9.)

In view of the Court's conclusion that the claims of the '810 and '811 patents are not limited to packet-switching network comprised of virtual circuits, the Court rejects those parts of Defendants' proposed constructions that rely on the presence of a virtual circuit. With regard Extreme's contention that marking means "setting a bit in the packet header," the Court concludes that Extreme impermissibly tries to restrict the claim to the particular type of marking used in the preferred embodiment. Accordingly, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

[8] - "**excessive bandwidth packet**" is construed to mean "a packet transmitted at a rate greater than the subscribed rate."

Lucent contends that this term should be construed in accordance with its ordinary meaning as "a packet transmitted at a rate greater than the subscribed rate." (D.I. 396 at 6.) Extreme contends that this phrase should be construed to mean "a packet from a customer transmitted at a rate greater than the subscribed rate for the virtual circuit connection to which the packet belongs." (D.I. 395 at 18.) Foundry contends that the phrase means "a packet from a customer transmitted at a rate greater than the subscribed rate where the subscribed rate is a rate described in terms of an average rate and burstiness factor over a virtual circuit to which the packet belongs." (D.I. 385 at 10.)

In view of the Court's conclusion that the claims of the '810 and '811 patents are not limited to packet-switching network comprised of virtual circuits, the Court rejects Extreme's proposed construction and that

part of Foundry's construction that relies on the presence of a virtual circuit.

With regard to the part of Foundry's proposed construction where the rate is described in terms of an average rate and burstiness factor, the Court finds that the subscribed bandwidth is described in these terms in a preferred embodiment of the invention. ('810 patent at 5:60-64.) Thus, the Court concludes that Foundry impermissibly tries to restrict the claim to the particular subscribed rate used in the preferred embodiment. Accordingly, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

- "**bytes**" is construed to mean "bytes" in accordance with the plain meaning of the term. The Court declines to further construe this term.

Lucent contends that this term should be given its ordinary meaning. (D.I. 396 at 6.) Defendants contend that the term "bytes" means "the number of bytes in a packet being received from a customer's terminal, by an access node." (D.I. 395 at 13; D.I. 385 at 13.) In support of this construction, Defendants cite a description of the variable named BYTES used in an algorithm of the preferred embodiment. ('810 patent at 7:35-36.)

The Court finds that Lucent has not clearly defined the term "bytes" by way of describing this parameter. Thus, the Court concludes that the ordinary meaning of the term has not been rebutted. In the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

[9] - "**accumulating a count of bytes of data**" is construed to mean "maintaining a count of bytes of data." Lucent contends that this term, coupled with the phrase "arriving at a node per interval" means "maintaining a count of bytes that have arrived at a node over a period of time." (D.I. 396 at 6.) Defendants contend that this term should be construed to mean "maintaining an increasing count of bytes." (D.I. 395 at 15; D.I. 385 at 12.) In support of their contention, Defendants point to places in the specification where the COUNT parameter is first set to zero ('810 patent at 6:49-51) and then incremented ( *Id.* at 7:12-15).

The Court finds that both of these references are found in a preferred embodiment of the invention and ignore the fact that the value of COUNT is also decremented. *See id.* at 7:22-29. After reviewing the claim language and the specification, the Court concludes that there is nothing in the claim language or specification suggesting that an increasing count must be maintained. Accordingly, in the Court's view, the Court's construction is consistent with the plain language of the claim and the patent's specification.

- "**node**" is construed to mean "node" in accordance with its plain meaning. The Court declines to further construe this term.

Lucent contends that this term should be given its ordinary meaning. (D.I. 396 at 3.) Defendants contend that the term "node" means "access node." For the reasons discussed in Section II.B of this Memorandum Opinion, the Court concludes that the Court's construction is consistent with the plain language of the claim and the patent's specification and prosecution history.

[10] - "**interval**" is construed to mean "a period of time." Lucent contends that this term, in the phrase "accumulating a count of bytes of data arriving at a node per interval," means "a period of time." (D.I. 396 at 6.) Extreme contends that this term means "a fixed period of time between successive decrements to the value of count in the accumulator for each virtual circuit being monitored." (D.I. 399 at 8.) Foundry

contends that this term means "the period between successive decrements to the value of COUNT in the accumulator; this is a fixed interval for each virtual circuit being monitored and may differ among the virtual circuits." (D.I. 385 at 13.) In support of their contentions, Defendants point to the description of parameter "I" in the specification. ('810 patent at 7:7-10.) The Court finds that Lucent has not clearly defined the term "interval" by way of describing this parameter. Thus, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

- "**receiving a packet**" is construed to mean "receiving a packet" in accordance with the plain meaning of the term. The Court declines to further construe this term.

Lucent contends that this term should be given its ordinary meaning. (D.I. 396 at 8.) Defendants contend that this phrase means "acquiring a packet at the receive side (i.e., input port) of an access node." (D.I. 395 at 13; D.I. 385 at 14.) For the reasons discussed in Section II.B of this Opinion, the Court will not limit the claims of the '810 patent to access nodes. This, in the Court's view, the Court's construction is consistent with the plain language of the claim and the patent's specification and prosecution history.

- "**predetermined threshold**" is construed to mean "predetermined threshold" in accordance with its plain meaning. The Court declines to further construe this term.

Lucent contends that this term should be given its ordinary meaning. (D.I. 396 at 8.) Extreme contends that the term is a variable (as opposed to fixed) threshold for a particular virtual circuit, designed to dynamically adjust for burstiness. (D.I. 395 at 16.) Foundry contends that the term "threshold" means "dynamic threshold that includes a burstiness component and is negotiated with a customer for a particular virtual circuit." (D.I. 385 at 12.)

In view of the Court's conclusion that the claims of the '810 and '811 patents are not limited to packet-switching networks comprised of virtual circuits, the Court rejects those parts of Defendants' proposed constructions that rely on the presence of a virtual circuit. With regard to Defendants' contention that the threshold includes a burstiness component, the Court finds that the threshold is described in these terms in a preferred embodiment of the invention. ('810 patent at 7:38; 4:16-20; 6:49-51.) Thus, the Court concludes that Defendants impermissibly try to restrict the claim to the particular type of threshold used in the preferred embodiment. Accordingly, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

## **2. Claim 21 of '810 Patent**

Claim 21 of the '810 Patent is directed to a packet-switching node that includes an apparatus to monitor the transmission rate of the received packets and to mark those packets being transmitted at an excessive rate. In full, with the disputed terms highlighted, Claim 21 reads:

A packet-switching *node* with a *receive terminal*;

a *channel* interconnected with the *receive terminal* for transmitting packets of data at a selectable one of a plurality of transmission rates;

*means for determining the rate at which a packet of data is being transmitted through the channel and generating a mark whenever the determined rate is an excessive rate; and means for storing the mark with*



*the packet of data.*

('810 Packet, col. 16, 11. 20-28). For the reasons that follow, the Court construes the disputed terms as follows:

- "**node**" is construed to mean "node" in accordance with the plain meaning of the term. The Court declines to further construe this claim.

For the reasons discussed in Section II.B of this Opinion, the Court concludes that its construction is consistent with the plain language of the claim and the patent's specification and prosecution history.

[11] - "**receive terminal**" is construed to mean "an input port of a packet switch."

Lucent contends that this term means "an input port of a packet switch." (D.I. 396 at 10.) Defendants contend that this term means "an input port of an access node." (D.I. 395 at 14; D.I. 385 at 14.)

For the reasons discussed in Section II.B of this Opinion, the Court will not limit the claims of the '810 patent to access nodes. Further, the Court's construction is supported by the meaning ascribed to the word "terminal" by those of ordinary skill in the art. Specifically, the work "terminal" is defined as "[a] point in a system of communication network at which data can either enter or leave." *New IEEE Standard Dictionary of Electrical and Electronics Terms* 1351 (5th ed.1993). In the Court's view, the Court's construction is consistent with the plain language of the claim and the patent's specification and prosecution history.

[12] - "**channel**" is construed to mean "a path for transmitting electrical signals."

Lucent contends that this term means "a path for transmitting electrical signals." (D.I. 396 at 10.) Defendants contend that this term means "a virtual circuit connection established in the network between end user terminals." (D.I. 395 at 9; D.I. 385 at 16.)

In view of the Court's conclusion that the claims of the '810 and '811 patents are not limited to packet-switching network comprised of virtual circuits, the Court rejects Defendants' proposed construction. Accordingly, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

[13] - "**excessive rate**" is construed to mean "rate greater than the subscribed rate."

Lucent contends that this term should be given its ordinary meaning, "a rate greater than the subscribed rate." (D.I. 396 at 12.) Extreme contends that this term means a "rate greater than the subscribed rate for the virtual circuit connection to which the packet belongs." (D.I. 395 at 11.) Foundry contends that this term means a "rate greater than the subscribed rate where the subscribed rate is a rate described in terms of an average rate and burstiness factor over a virtual circuit to which the packet belongs." (D.I. 385 at 10.)

In view of the Court's conclusion that the claims of the '810 and '811 patents are not limited to packet-switching networks comprised of virtual circuits, the Court rejects Extreme's proposed construction and that part of Foundry's construction that relies on the presence of a virtual circuit.

With regard to the part of Foundry's proposed construction in which the rate is described in terms of an

average rate and burstiness factor, the Court finds that the subscribed bandwidth is described in these terms in a preferred embodiment of the invention. ('810 patent at 5:60-64.) Thus, the Court concludes that Foundry impermissibly tries to restrict the claim to the particular subscribed rate used in the preferred embodiment. Accordingly, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification. ( See '810 patent at 6:31-33.)

[14] - "**means for determining the rate at which a packet of data is being transmitted through the channel and generating a mark whenever the determined rate is an excessive rate**" is construed as a means-plus-function limitation subject to interpretation pursuant to 35 U.S.C s. 112, para. 6. The function of this limitation is determining the rate at which a packet of data is being transmitted and generating a mark when that rate is an excessive rate. The structure associated with this limitation is a logic circuit, as depicted in Figure 2, which executes the algorithms of Figures 3 and 8 along with the update algorithm of Figure 4.

The parties apparently agree on the function of this limitation and the corresponding structure for this limitation as stated by the Court ( see D.I. 396 at 12; D.I. 399 at 15; D.I. 385 at 14-15.). However, the parties disagree as to the limitations that apply to that structure. Both Extreme and Foundry contend that the structure is limited to the context of a virtual circuit. Further, Foundry contends that the term "excessive rate" within the means-plus-function clause is defined in terms of an average rate and a burstiness factor. (D.I. 385 at 15.) Extreme asks the Court to limit the structure according to the definitions of "Mark," "Bytes," "Node," and "Threshold" that Extreme asserts. (D.I. 399 at 15.) The Court has already addressed the issues presented by Defendants' proposed constructions. Thus, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

[15] - "**means for storing the mark with the packet of data**" is construed as a means-plus-function limitation subject to interpretation pursuant to 35 U.S.C s. 112, para. 6. The function of this limitation is storing the mark with the packet of data. The structure corresponding to this limitation is a marking field in the header of a packet. ('810 patent at 6:60-68, 8:47-49.) Extreme does not dispute this term. Lucent and Foundry agree that this is a means-plus-function limitation, and that the function of this limitation is "storing the mark with the packet of data." (D.I. 385 at 15.) Lucent and Foundry dispute the meaning of the term "with" and the corresponding structure.

Lucent contends that "with" means "combination, accompaniment, presence, or addition." (D.I. 396 at 12-13.) Foundry argues that "with" means "next to or along side of." (D.I. 385 at 15.) Lucent contends that the corresponding structure is a marking field in the header of a packet. (D.I. 396 at 13.) Foundry contends that the specification does not disclose a structure for storing the mark with the packet of data. Thus, Foundry contends that the claim fails for indefiniteness. (D.I. 385 at 16.)

The Court does not agree with Foundry that the claim fails for indefiniteness. In the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

## D. The '811 Patent

### 1. *Claim 10* of the '811 Patent

Claim 10 of the '811 patent is directed to a method for dropping a data packet in a node of a packet-switching network. In full, with the disputed terms highlighted, Claim 10 of the '811 patent reads:

A method for dropping a data packet to be transmitted from a switch node in a packet switching network,

the method comprising the steps of:

a. *preparing to transmit the data packet*;

b. *determining whether or not the data packet is marked as being transmitted at an excessive rate*;

c. evaluating *congestion* at the switch node;

d. determining whether or not the *congestion* is at or above a predetermined value; and

e. if the data packet is *marked* as being transmitted at an *excessive rate* and the

*congestion* is at or above the predetermined value, dropping the data packet before it is transmitted from the switch node.

('811 Patent at 14:1-13). This claim is being asserted only against Extreme, not Foundry. For the reasons that follow, the Court construes the disputed terms as follows:

[16] - "**preparing to transmit the data packet**" is construed to mean "accessing the header of a packet to make a decision on where to send the packet and to obtain the marking field."

Lucent contends that this phrase means "accessing the header of a packet to make a decision on where to send the packet and to obtain the marking field." (D.I. 396 at 14.) Extreme contends that this phrase means "accessing the header of the packet, including an identification of the virtual circuit connection to which the packet belongs, to make a decision where to send the packet next along the virtual circuit and to obtain the marking field." (D.I. 395 at 17.)

In view of the Court's conclusion that the claims of the '810 and '811 patents are not limited to packet-switching network comprised of virtual circuits, the Court rejects Extreme's proposed construction. The Court's construction of this phrase is supported by the specification, which explains:

"[T]he packet proceeds through the access node 20 of FIG. 1 to an output controller before being put into an output buffer associated with the output link, through which the packet is to be transmitted. At that time, the information in the packet header field, reserved for the marking signal, is forwarded to a packet dropping logic circuit 53 ...."

('811 Patent, 8:40-49.)

[17] - "**marked**" is construed to mean "identified by a marking signal as being transmitted at an excessive transmission rate." Lucent contends that this term should be given its ordinary meaning. (D.I. 396 at 14.) Extreme contends that this term means "setting a bit in the packet header that indicates that a packet is being transmitted at an excessive transmission rate along/in the virtual circuit to which the packet belongs." (D.I. 395 at 18.)

In view of the Court's conclusion that the claims of the '810 and '811 patents are not limited to packet-switching networks comprised of virtual circuits, the Court rejects those parts of Extreme's proposed construction that rely on the presence of a virtual circuit. With regard Extreme's contention that marking

means setting a bit in the packet header, the Court concludes that Extreme impermissibly tries to restrict the claim to the particular type of marking used in the preferred embodiment. Accordingly, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

- "**excessive rate**" is construed to mean a "rate greater than the subscribed rate." The Court's rationale is the same as that set forth in the context of claim 21 of the '810 patent.

[18] - "**congestion**" is construed to mean "the occurrence of more work than can be handled in a specific period of time."

Lucent contends that this term means "the occurrence of more work than can be handled by the facility in a specific period of time." (D.I. 396 at 15.) Extreme contends that this term means "the occurrence of more work than can be handled in a specific period of time due to the formation of many paths or circuits for routing the packets at the switch node." In support of its contention, Extreme points to Lucent's discussion of congestion in the background of the patent. ('811 patent at 2:5-11.)

The Court finds that the description of the causes and results of congestion do not serve to limit the claim term. Rather, the Court adopts Lucent's proposed construction and modifies it to eliminate the reference to the term "facility," which does not appear in the claim. The Court's construction is supported by Lucent's definition of "congestion of a facility" in the specification. ( *Id.* at 2:10-11.)

## **2. Claim 12 of the '811 Patent**

Like Claim 10, Claim 12 of the '811 Patent is directed to a method for dropping a data packet in a node of a packet-switching network; however, Claim 12 also includes steps directed to the marking of the packets. In full, with the disputed terms highlighted, Claim 12 of the '811 Patents provides:

A method for dropping a data packet to be transmitted from a switch node in a packet switching network, the method comprising the steps of:

- a. segregating data packets transmitted by one customer into the network;
- b. *marking* that one customer's data packets as being transmitted into the network at an *excessive rate*;
- c. *preparing to transmit* one of that customer's data packets;
- d. determining whether or not the one data packet is *marked*;
- e. evaluating *congestion* at an output of the switch node;
- f. determining whether or not *congestion* at the switch node is at or above a predetermined value; and
- g. if the one data packet is *marked* as being transmitted at an *excessive rate* and the *congestion* at the switch node is at or above the predetermined value, dropping the data packet.

('811 Patent, col. 14, 11. 24-43). This claim is being asserted only against Extreme. For the reasons that

follow, the Court construes the disputed terms as follows:

- "**marking**" is construed to mean marking. The Court declines to further construe this term. The Court's rationale for the construction of this term is the same as that set forth in the discussion of the term "marking" in claim 12 of the '810 patent.
- "**preparing to transmit one of that customer's data packets**" is construed to mean "accessing the header of a packet to make a decision on where to send the packet and to obtain the marking field." The Court's rationale for the construction of this phrase is the same as that set forth in the context of the phrase "preparing to transmit the data packet" in Claim 10 of the '811 Patent.
- "**marked**" is construed to mean "identified by a marking signal as being transmitted at an excessive transmission rate." The Court's ration for the construction of this term is the same as that set forth in the context of claim 10 of the '811 patent.
- "**excessive rate**" is construed to mean a "rate greater than the subscribed rate." The Court's rationale for the construction of this term is the same as that set forth in the context of the '810 patent and claim 10 of the '811 patent.
- "**congestion**" is construed to mean "the occurrence of more work than can be handled in a specific period of time." The Court's rationale for the construction of this term is the same as that set forth in the context of claim 10 of the '811 patent.

## E. The '650 Patent

### 1. *Claim 11 of* the '650 Patent

Claim 11 of the '650 patent is directed to a method for operating an integrated multiplexer used in a packet switch capable of transmitting voice and data traffic over a shared link. In full, with the disputed terms highlighted, Claim 11 of the '650 patent provides:

A method for operating an *integrated voice and data multiplexer*, the method comprising the steps of:

- a. *guaranteeing predetermined individual minimum bandwidths* for transmitting *aggregate voice traffic* and for transmitting *aggregate data traffic*; and
- b. concurrently using spare bandwidth of *aggregate data traffic* for transmitting the *voice traffic*.

('650 patent at 14:26-32.) This claim is being asserted only against Extreme. For the reasons that follow, the Court construes the disputed terms as follows:

[19] - "**integrated voice and data multiplexer**" is construed to mean "a device that combines voice and data on a single path."

Lucent contends that this phrase means "a device that combines voice and data traffic on a single path." (D.I. 396 at 27.) Extreme contends that this phrase means "a device arranged with a voice queue for storing received voice packets, a data queue for storing received data packets, and a block dropping congestion controller for dropping low order voice blocks when congestion occurs at the multiplexer." (D.I. 395 at 21.)

In support of its contention, Extreme cites statements in the Summary of the Invention section of the specification ('650 patent at 2:68-3:2, 3:34-36.)

Although that language can reasonably be understood as constituting a general description of the invention, the Court finds that it does not clearly define the term "integrated voice and data multiplexer," representing a clear disavowal of claim scope. Thus, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

[20] - "**guaranteeing predetermined individual minimum bandwidths**" is construed to mean "guaranteeing individual minimum amounts of data that can be sent per unit of time, determined beforehand."

Lucent contends that this phrase should be given its ordinary meaning. (D.I. 396 at 27-29.) Extreme contends that this phrase means "reserving predetermined, separate portions of the overall transmission capacity of the link at the output of the multiplexer to each of voice packet traffic and data packet traffic." (D.I. 395 at 23.) In support of its contention, Extreme cites statements in the Summary of the Invention section of the specification ('650 patent at 3:25-31, 3:2-6, 3:35-28.)

Although that language can reasonably be understood as constituting a general description of the invention, the Court finds that it does not clearly define the term "guaranteeing predetermined individual bandwidths," representing a clear disavowal of claim scope. Thus, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

[21] - "**aggregate**" is construed to mean "gathered in to a mass or sum so as to constitute a whole."

Lucent contends that this term means "a collection of." (D.I. 379 at 29.) In support of its contention, Lucent cites a dictionary published in 2003.(Id.) Extreme contends that this term means "gathered into a mass or sum so as to constitute a whole." (D.I. 399 at 21.) In support of its contention, Extreme cites a dictionary published in 1981. (D.I.384, Ex. 16.)

The filing date of the '650 patent application is December 6, 1988. ('650 patent.) Thus, the Court will choose the ordinary meaning of the term as advanced by Extreme. In the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

[22] - "**voice traffic**" is construed to mean "transmitted voice packets."

Lucent contends that this term should be construed to mean "packets of voice traffic." (D.I. 396 at 24.) Extreme contends that this term means "voice packets organized into blocks of bits, each block containing bits of a different order of significance, where the bits of lesser significance can be dropped when congestion occurs in the network." In support of its contention, Extreme points to Lucent's statement in the Summary of the Invention section of the specification that "[b]its in voice packets are organized into blocks according to the order of significance of the bits." ('650 patent at 3:33-34.)

The Court agrees with Extreme that Lucent describes the organization of voice packets this way. However, the Court does not find that Lucent's description of the way the voice packets are organized amounts to a definition of the term "voice traffic," representing a clear disavowal of claim scope. Further, the Court finds that the parties agree that the ordinary meaning of the term "traffic" is "the information or signals

transmitted over a communications system: MESSAGES." (D.I. 379 at 29; D.I. 399 at 21.) The Court finds that the parties also agree that voice traffic is generally comprised of "packets of voice" or "voice packets." (D.I. at 19; D.I. 399 at 18.) Further, the Court finds that the specification references the transmission of voice packets several times in the Summary of the Invention ('650 patent at 3:2-16.) Thus, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

[23] - "**data traffic**" is construed to mean "transmitted data packets."

Lucent contends that this term should be construed to mean "packets of data traffic." (D.I. 396 at 26.) Extreme contends that this term means "packets of data whose content is not necessarily organized into blocks of droppable bits." In support of its contention, Extreme cites various points in the written description and drawings. (D.I. 395 at 21, citing the '650 patent at 2:66-3:2, 4:30-32, 5:8-11, Fig. 1.)

The Court finds that Lucent has not redefined the term "data traffic" in any of the places Extreme cites. Thus, the Court concludes that Lucent has not made a clear disavowal of claim scope. Further, the Court finds that the parties agree that the ordinary meaning of the term "traffic" is "the information or signals transmitted over a communications system: MESSAGES." (D.I. 379 at 29; D.I. 399 at 21.) The Court finds that the parties also agree that data traffic is generally comprised of "packets of data" or "data packets." (D.I. at 379 at 29; D.I. 399 at 20.) Further, the Court finds that the specification references the transmission of data packets several times in the Summary of the Invention ('650 patent at 3:4-16.) Thus, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

## 2. *Claim 13 of the '650 Patent*

Claim 13 of the '650 patent is directed to a method for operating an integrated multiplexer used in a packet switch capable of transmitting at least two types of traffic. In full, with the disputed terms highlighted, Claim 13 of the '650 patent provides:

A method for operating an *integrated first and second type of traffic multiplexer*, the method comprising the steps of:

*guaranteeing predetermined individual minimum bandwidths for transmitting an aggregate of the first type of traffic and for transmitting an [sic] an aggregate of the second type of traffic; and*

*concurrently using spare minimum bandwidth of the first type of traffic for transmitting the second type of traffic and using spare minimum bandwidth of the second type of traffic for transmitting the first type of traffic.*

('650 patent at 14:50-61.) This claim is being asserted only against Extreme. For the reasons that follow, the Court construes the disputed terms as follows:

[24] - "**integrated first and second type of traffic multiplexer**" is construed to mean "a device that combines a first type of transmitted packets and a second type of transmitted packets on a single path."

Lucent contends that this phrase means "a device that combines a first type of traffic and a second type of traffic on a single path." (D.I. 396 at 27.) Extreme contends that this phrase means "a device arranged with a voice queue for storing received voice packets, a data queue for storing received data packets, and a block

dropping congestion controller for dropping low order voice blocks when congestion occurs at the multiplexer." (D.I. 395 at 21.) In support of its contention, Extreme cites statements in the Summary of the Invention section of the specification ('650 patent at 2:68-3:2, 3:34-36.)

Although that language can reasonably be understood as constituting a general description of the invention, the Court finds that it does not clearly define the term "integrated voice and data multiplexer," representing a clear disavowal of claim scope. Thus, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

- "**guaranteeing predetermined individual minimum bandwidths**" is construed to mean "guaranteeing individual minimum amounts of data that can be sent per unit of time, determined beforehand" for the reasons given in the discussion of claim 11 of the '650 patent.

- "**aggregate**" is construed to mean "gathered in to a mass or sum so as to constitute a whole" for the reasons given in the discussion of claim 11 of the '650 patent.

[25] - "**first type of traffic**" is construed to mean "first type of transmitted packets."

Lucent contends that the term "type of traffic" should be accorded its plain meaning. (D.I. 379 at 32.) Extreme contends that this phrase means "voice packets organized into blocks of bits, each block containing bits of a different order of significance, where the bits of lesser significance can be dropped when congestion occurs in the network." (D.I. 399 at 18.)

The Court finds that the parties agree that the ordinary meaning of the term "traffic" is "the information or signals transmitted over a communications system: MESSAGES." (D.I. 379 at 29; D.I. 399 at 21.) The Court finds that the parties also agree that traffic is generally comprised of "packets." (D.I. at 379 at 29; D.I. 399 at 20.) Further, the Court finds that the specification references the transmission of packets several times in the Summary of the Invention ('650 patent at 3:4-16.) Thus, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

- "**second type of traffic**" is construed to mean "second type of transmitted packets."

Lucent contends that the term "type of traffic" should be accorded its plain meaning. (D.I. 379 at 32.) Extreme contends that this phrase means "data packets not necessarily organized into blocks of droppable bits." (D.I. 399 at 20.) For the reasons given for the phrase "first type of traffic" in claim 13 of the '650 patent, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

## F. The '486 Patent

### 1. *Claim 1* of the '486 Patent

Claim 1 of the '486 patent is directed to a protocol for a data network. In full, with the disputed terms highlighted, Claim 1 of the '486 patent provides:

*A protocol for a data network, comprising:*

*a data packet header comprising an identification of a source and a destination;*



wherein said data network comprises *means for checking for each data entity that transmission from said source to said destination is authorized prior to transmitting said each data entity to said destination if network transmission capacity is available.*

(486 patent at 71:35-43.) For the reasons that follow, the Court construes the disputed terms as follows:

[26] - "**protocol for a data network**" is construed consistently with its plain meaning as a "protocol for a data network."

Lucent contends that this phrase should be construed according to the ordinary meaning of the individual terms. (D.I. 396 at 15.) Lucent does not promote a specific construction, but rather offers several dictionary definitions for the terms "protocol" and "data network." ( *Id.*) Further, Lucent contends that this preamble to claim 1 does not limit the claim, but rather states the intended use of the claimed invention.

Extreme contends that this phrase in the preamble means "a formal set of conventions governing the format and relative timing of message exchange between two communications terminals through a single central hub in a circuit-switched, fixed-path Metropolitan Area Network (MAN)." Extreme further contends that this preamble gives "life, meaning, and vitality" to claim 1 and should limit it accordingly. (D.I. 395 at 24.)

Foundry contends that this phrase means "a strict procedure required to initiate and maintain communication in a high speed metropolitan area network wherein data is concentrated at the edges of the network and is switched only through a single centralized hub in which there is only one stage of data switching and one stage of circuit switching resulting in an arrangement in which the order of packets is retained at all times." (D.I. 385 at 19.) Foundry further contends that the preamble should limit claim 1 in these circumstances. (D.I. 385 at 18.)

The Court finds that although references throughout the rest of the claim to the term "data network" rely upon and derive antecedent basis from this preamble language, the preamble does not define "data network." *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 620, 34 USPQ2d 1816, 1820 (Fed.Cir.1995) ("[A] claim preamble has the import that the claim as a whole suggests for it."). Thus, the Court concludes that the preamble states the intended use of the claimed invention. Accordingly, the Court will not construe it as a claim limitation.

Further, the Court finds that Lucent has not made a clear disavowal of protocols used in networks other than metropolitan area networks ("MANs"). The specifications of the patent contains no disclaimer of contexts other than MANs. Rather, all that Defendants can point to in the specification is the absence of any embodiment that lacks a MAN. Similarly, the Court finds no disclaimer of networks other than MANs in the prosecution history. Thus, the Court concludes that Lucent has not made a clear disavowal of embodiments lacking MANs. On the contrary, in the General Description section of the patent specification, it states "[t]he invention claimed herein is a protocol for use with a network such as the MAN described in the Detailed Description." (486 patent at 4:6-8.) Accordingly, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

[27] - "**packet**" is construed to mean "a group of bits, including data and control limitations, which is switched and transmitted as a unit; the data is arranged in a specific format." ( *See* D.I. 387, App. 24 (Modern Dictionary of Electronics 705 (6th ed.1984).))

Lucent contends that this term means "a group of bits including data and control limitations which is switched and transmitted as a unit." (D.I. 396 at 18.)

Extreme contends that this term means "the message unit that leaves the source user to network interface module (UIM) and travels all the way to the destination UIM without alteration." (D.I. 395 at 26.)

Foundry contends that this term means "the message unit that leaves the source user input module and travels all the way to the destination user input module." (D.I. 385 at 22.)

The patent application for the '486 patent was filed on March 31, 1988. The Court finds that Lucent, in support of its contention, cites a dictionary published contemporaneously with the patent application. However, Lucent omits the part of the definition of "packet" where the dictionary specifies that "[t]he data is arranged in a specified format." (D.I.397, App.24.) Further, the Court finds that Defendants impermissibly try to restrict the claim to the particular type of message unit used in the preferred embodiment. Accordingly, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

- "**data packet header**" is construed consistently with its plain meaning as a "data packet header." The Court declines to further interpret the term "data packet header."

Lucent contends that this term means "control information in a data packet that instructs network components how and where to send the packet." (D.I. 396 at 19.)

Extreme contends that the term "header" means "the portion of a packet consisting of a virtual circuit number, source and destination address, group ID, group and other fields shown in Figure 20 of the '486 patent." (D.I. 395 at 26.)

Foundry contends that the phrase "data packet header" means "two distinct and separate sets of control bits preceding the data where the first set of bits contains an identification of the source destination port and where the second set of bits contains at least the packet's source address and destination address, which are flat MAN addresses, and a group identifier and name of the group to which the source user belongs." (D.I. 385 at 21.)

The Court finds that Lucent cites dictionaries that were published in 1999 and 2001 for its proposed construction. The patent application for the '486 patent was filed on March 31, 1988. Because Lucent has not cited to a dictionary published contemporaneously with the patent application, the Court rejects Lucent's proposed construction. Further, the Court finds that Defendants impermissibly try to restrict the claim to the particular type of data packet header used in the preferred embodiment. Accordingly, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

- "**identification of a source**" is construed consistently with its plain meaning as a "identification of a source." The Court declines to further interpret the phrase "identification of a source."

Lucent contends that this phrase should be given its plain English meaning, "evidence of identity of that part of a system from which messages are considered to originate." (D.I. 396 at 20).

Extreme contends that this phrase means "a fixed end user identifier, uniquely identifying the source of a data transmission, identifier assigned by a system administrator and that is independent for the end user system's physical and topological address, and that cannot be altered by the end user." (D.I. 395 at 27.)

Foundry contends that the term "source" means "a MAN name, which is a fixed end user name, that is a 32-bit MAN address, which is not an IP address, assigned by the MAN system that is independent from its physical and topological address." (D.I. 385 at 23.)

The Court finds that Defendants impermissibly try to restrict the claim to the particular type of source used in the preferred embodiment. Further, the Court finds that Lucent has cited telecommunications dictionaries and dictionaries not published contemporaneously with the patent application. In the Court's view, telecommunications dictionaries may not accurately reflect the meaning of "source" to one skilled in the art in a data networking environment. Thus, the Court believes that the Court's construction is consistent with the plain language of the claim and the specification.

- "**identification of a destination**" is construed consistently with its plain meaning as "identification of a destination." The Court declines to further interpret the phrase "identification of a destination."

Lucent contends that this phrase should be given its plain English meaning, and advances no specific construction. (D.I. 396 at 21.)

Extreme contends that this phrase means "a fixed end user identifier, uniquely identifying the destination of a data transmission, identifier assigned by a system administrator and that is independent for the end user system's physical and topological address, and that cannot be altered by the end user." (D.I. 395 at 27.)

Foundry contends that the term "destination means 'a MAN name, which is a fixed end user name, that is a 32-bit MAN address, which is not an IP address, assigned by the MAN system that is independent from its physical and topological address.'" (D.I. 385 at 24.)

The Court finds that Defendants impermissibly try to restrict the claim to the particular type of destination used in the preferred embodiment. As Lucent has not proffered a specific construction of this term, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

[28] - "**means for checking for each data entity that transmission from said source to said destination is authorized prior to transmitting said each data entity to said destination if network transmission capacity is available**" is construed as a means-plus-function limitation. The function of this limitation is checking for each data entity that transmission from said source to said destination is authorized prior to transmitting if network capacity is available. The structure corresponding to this limitation is login authorization table 351, source checker 307, source checker table 308, router 309, and router tables 310.

The parties agree that this is a means-plus-function limitation, governed by 35 U.S.C. s. 112, para. 6. However, the parties disagree with regard to the recited function and the corresponding structure described in the specification for performing the recited function.

Lucent contends that the function of this limitation is checking for each data packet that transmission from the source to the destination is authorized prior to transmitting the data packet if network capacity is

available. (D.I. 396 at 21.) Defendants contend that the function of this limitation is checking for each data entity that transmission from said source to said destination is authorized prior to transmitting if network capacity is available. (D.I. 399 at 21; D.I. 385 at 24.)

Because the terms "data entity" and "packet" both appear in the claim and do not appear to be used interchangeably, the Court will adopt the function as proposed by Defendants. Thus, the Court concludes that the function of this limitation is checking for each data entity that transmission from said source to said destination is authorized prior to transmitting if network capacity is available.

With regard to the corresponding structure, Lucent contends that it is source checker 307 and router 309, as depicted in Fig. 14 and described in the specification of the '496 patent at 41:47-55, 66:42-50 and 66:57-67:2. Lucent seeks to limit the function of this limitation to checking transmission authorization for each *data packet*. Lucent argues that none of the additional limitations that Extreme seeks to include is invoked on a packet-by-packet-basis and thus, they should not be included as part of the corresponding structure. (D.I. 3379 at 24 (citing *Asyst Technologies, Inc. v. Empak, Inc.*, 268 F.3d 1364, 1371 (Fed.Cir.2001).))

Extreme contends that the corresponding structures are structures within the MAN network, including the structures shown in Figure 14, source checker 307, table 308, router 309, table 310, administrative terminal 350 and attached disk memory 351, tables 360, 370, and 375, and the information contained in the tables. (D.I. 399 at 21-22.) Extreme cites Section 10.2 of the patent specification, entitled Building Up The Authorization Data Base, in support of its contention. ('486 patent at 65:23-66:9.) Extreme argues that the source table 308, router tables 310, administrative terminal 350 and attached disk memory 351, tables 360 (database), 370 (user-capability table) and 375 (user capability table), and the information contained in the tables are integral to the authorization function.

Extreme further contends that the phrase "if network transmission capacity is available" is a limitation of claim 1. Specifically, Extreme contends that the limitation reads "transmitting ... if network transmission capacity is available." Thus, Extreme contends that the claimed "means" must include structures that perform the claimed transmitting only if a fixed, predetermined path is established between the source and the destination of the data transmission. (D.I. 399 at 29.)

Foundry agrees that the phrase "if network transmission capacity is available" is a limitation of claim 1, and offers two possible structural analyses depending on whether the phrase is construed to modify the terms "checking" or "transmitting." (D.I. 385 at 25.)

In this case, the Court concludes that the function dictated by the claim language requires that the login authorization table 351, source checker 307, source checker table 308, router 309, and router tables 310 be included as part of the corresponding structure. The function includes checking for each data entity that transmission from the source to the destination is authorized. In checking whether transmission is authorized, "[s]ource checker 307 first checks whether the source of the packet is properly logged in and whether that source has access to the virtual network of the packet." ('486 patent at 41:47-55.) The login data are compared to the login authorization table 351 to check whether the particular user is authorized to access that virtual network from the physical port to which that user is connected. (Id. at 66:24-33.) "If the user is authorized, the tables in source checker 307 and router 309 are updated." (Id. at 66:33-35.) Each subsequent packet or user work unit from that source is then checked, which involves the source checker 307, the authorization table in the source checker 308, the router 309, and the router tables 310. (Id. at 66:57-67:2, 67:305.)

After reviewing the specification and the prosecution history of the '486 patent, the Court concludes that the phrase "if network transmission is available" does not add additional structural requirements to claim 1.

For these reasons, the Court concludes that the structures corresponding to the function dictated by the claim language are login authorization table 351, source checker 307, source checker table 308, router 309, and router tables 310.

## G. The '607 Patent

### 1. *Claim 1* of the '607 Patent

Claim 1 of the '607 patent is directed to an apparatus for receiving and transmitting a broadcast message. In full, with the disputed terms highlighted, Claim 1 of the '607 patent provides:

In a network comprising a plurality of *nodes* interconnected via respective links, an *arrangement* for transmitting a *broadcast message* received at a first one of said *nodes* to at least a second one of said *nodes*, said first *node* being a neighbor of said second *node*, said *arrangement* comprising

*means contained in said first node for receiving via an associated one of said links said message, said message being originated by a third one of said nodes and*

*means contained in said first node for transmitting said message to said second node when the number of links between said first and third nodes is less than the number of links between said second and third nodes and is less than the number of links between said third node and any other neighbor of said second node.*

('607 patent at 8:38-54.) For the reasons that follow, the Court construes the disputed terms as follows:

- "**arrangement**" is construed consistently with its plain meaning as "arrangement." The Court declines to further interpret the term "arrangement."

Lucent contends that this term does not require construction because it is a common English word. (D.I. 396 at 32.) Extreme contends should be given its ordinary meaning "something made by arranging parts or things together." (D.I. 395 at 31.) Foundry does not ask the Court to construe this claim term.

As there are not competing constructions of this term before the Court, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

[29] - "**node**" is construed to mean "a point on a network where information can be sent, received, or forwarded."

Lucent contends that this term means "a point on a network where information can be sent, received, or forwarded." (D.I. 396 at 30.) Extreme contends that this term means "a virtual circuit switch, or Local Area Network (LAN) made up of virtual circuit switches, internal to the network and not a user computer or terminal connected to the network." (D.I. 395 at 31.) Foundry contends that this term means "a network router or switch that is internal to the network." (D.I. 385 at 30.)

The Court finds that Defendants impermissibly try to restrict the claim to the particular nodes described in

the preferred embodiment. In the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

[30] - "**broadcast message**" is construed to mean "a message that is sent to all nodes in the network."

Lucent contends that this phrase means "a message sent to a group of devices." (D.I. 396 at 32.) In support of its contention, Lucent cites several telecommunications dictionaries published between 1984 and 2001. (D.I. 396 at 34-35.)

Extreme contends that this phrase means "a connectionless message addressed to all of the other nodes in the network." (D.I. 395 at 32.) Extreme cites the IEEE Standard Dictionary of Electrical and Electronics Terms published in 1988 in support of its construction. (D.I. 399 at 33.)

Foundry contends that this term means "a message that is sent to all nodes in the network." In support of its contention, Foundry cites the Abstract section of the patent specification and the prosecution history. (D.I. 385 at 31.)

The Court is not persuaded that the dictionaries cited by Lucent are the appropriate sources for defining "broadcast message" as it was used in data networking at the time the '607 patent application was filed in 1990. Further, the definitions proposed by Lucent and Extreme are conflicting. Thus, the Court will look to statements made in the specification and prosecution history to choose between these competing dictionary definitions.

In the Abstract section of the specification, the patent indicates that "[a] facility is provided in a data network to prevent a so-called connectionless broadcast message from flooding the network as a result of each network node retransmitting such messages to its neighboring nodes even though a neighboring node may have received them from another neighbor." In the Background of the Invention section of the specification, the problem that the patent purportedly addresses is the "failure in the provision of connectionless service in a network of communications nodes arranged in an arbitrary topology [to] route, in an efficient manner, a broadcast message from a source node to each of the other nodes." ('607 patent at 1:14-16.) In the Detailed Description of the specification, the patent uses the term "broadcast" and "connectionless" interchangeably, and seeks to "ensure that all of the nodes receive the message." (Id. at 2:14-20.)

After reviewing the prosecution history, the Court finds that, in overcoming the prior art, Lucent distinguished the invention disclosed by the '607 patent from patents directed to routing "multicast" and "limited broadcast" messages. (D.I. 383, App. 10 at LFE067679.) Further, the Court finds that Lucent amended the claim at issue specifically to include the term "broadcast" to qualify the term "message" in order to overcome prior art cited by the Examiner in a rejection notice. ( Id. at LFE067657.)

For these reasons, the Court concludes that the term "broadcast message" is construed to mean "a message that is sent to all nodes in the network," and accordingly chooses the dictionary definition proposed by Extreme.

[31] - "**neighbor**" is construed to mean "two nodes are neighbors when they have a link between them; a link is a bi-directional communication path that terminates at a single node on either end." The Court adopts as its construction the definition of the terms "neighbor" and "link" in the 4,466,060 Riddle patent ("the '060

patent"), which is incorporated by reference in the '607 patent. (D I. 389, App. 29 ('060 patent) at 1:20-24.)

Lucent contends that the term "neighbor" means "two nodes are neighbors when they are connected by a bi-directional communication path that terminates at each of the two nodes at either end of the path." (D.I. 396 at 35.) Extreme contends that this term means "a node directly connected by a link, with no intervening nodes." (D.I. 395 at 34.) Foundry contends that this term should be construed such that "a node A is a neighbor of another node B if and only if node A is directly connected to node B by a communication link in the network, that communication link having no intervening network nodes between node A and node B." (D.I. 385 at 32.)

The Court finds that all three proposed constructions are modifications of the definition of "neighbor" set forth in the Riddle patent that is incorporated by reference in the specification of the '607 patent. Thus, the Court adopts a construction of the term "neighbor" that more closely reflects the definition of the term "neighbor" in the '060 Riddle patent, which is incorporated by reference in the '607 patent.

[32] - **"means contained in said first node for receiving via an associated one of said links said message, said message being originated by a third one of said nodes"** is a means-plus-function limitation subject to interpretation pursuant to 35 U.S.C. s. 112 para. 6. The function of this limitation is receiving via an associated link one of said links said message, said message being originated by a third one of said nodes. The structures corresponding to the function of this limitation are port modules 702-1 through 702-N, as depicted in Figure 7, and the algorithm depicted in Figures 8-10 for constructing a routing table in the node as shown in Figures 5 and 6.

Lucent contends that the function of this limitation is receiving a broadcast message via an associated link. Lucent contends that the corresponding structure is a port module 702-1 through 702-N, as depicted in Figure 7. Lucent argues that the routing table is used for accepting a broadcast message only after it has been received at a node. (D.I. 396 at 36.)

Extreme contends that the function of the limitation is acting as a receptacle of a broadcast message received by way of a channel connected to the first node, said message having begun its existence at a virtual circuit switch that is internal to the network. Extreme contends that the corresponding structure is the nodes shown in Figures 1 or 2 and 7, port modules 702-(1-N) connected to buses 704 and 705 via backplanes, control switch 703, routing tables 501 and 601 shown in Figures 5 and 6, and the algorithms in Figures 8-10 for constructing the routing tables. Extreme argues that a node can only accept a broadcast message based on the information in the routing tables. Extreme further argues that, in the prosecution history, the applicant stated that each node must determine whether to "receiv[e] the broadcast from some other neighbor," thereby implying that the applicant uses the terms "accept" and "receive" interchangeably. (D.I. 395 at 34-35.)

Foundry contends that the function of the limitation is receiving via an associated one of said links said message said message having begun its existence at a network router or switch that is internal to the network. Foundry contends that the corresponding structure is port modules 702-(1-N), and the algorithm for constructing routing tables in accordance with the principles of the invention of Figures 8-10. (D.I. 400 at 34.)

[33] In identifying the function of a means-plus-function claim, a claimed function may not be broadened by ignoring the clear limitations contained in the claim language. Lockheed Martin Corp. v. Space

Systems/Loral, Inc., 249 F.3d 1314, 1324 (Fed.Cir.2001). The function of a "means plus function" claim must be construed to include the limitations contained in the claim language. Id.

Lucent asks the Court to construe the function recited in the limitation "means contained in said first node for receiving via an associated one of said links said message" without addressing the further limitation "said message being originated by a third one of said nodes." This the Court declines to do. Rather, the Court concludes that the function of the limitation is receiving via an associated link one of said links said message, said message being originated by a third one of said nodes.

With regard to the corresponding structure, the Court finds that the language of the claim requires that the message received at a node is identifiable as being originated by a third node. After reviewing the claim language, the specification and the prosecution history of the patent, the Court finds that without construction of its routing table, a node could not receive such a message. ('607 patent at 4:32-38, 4:53-56, 5:56-6:4, 6:38-47, 6:48-8:30.) Thus, the Court concludes that the structures corresponding to the function of this limitation are port modules 702-1 through 702-N, as depicted in Figure 7, and the algorithm depicted in Figures 8-10 for constructing a routing table in the node as shown in Figures 5 and 6.

[34] - **"means contained in first node for transmitting said message to said second node when the number of links between said first and third nodes is less than the number of links between said second and third nodes and is less than the number of links between said third node and any other neighbor of said second node"** is a means-plus-function limitation subject to interpretation pursuant to 35 U.S.C. s. 112 para. 6. The function of this limitation is transmitting the broadcast message to a second node when the number of links between the first and third nodes is less than the number of links between the third node and any other neighbor of the second node. The corresponding structure is port modules 702-1 through 701-N, as depicted in Figure 7, and the algorithm of Figures 8-10 for constructing a routing table in the node, contention bus 704, control switch 703 and its associated routing control memory, and broadcast bus 705.

Lucent contends that the function of this limitation is transmitting the received broadcast message to a second node when the number of links between the first and third nodes is less than the number of links between the second and third nodes and is less than the number of links between the third node and any other neighbor of the second node. Lucent contends that the corresponding structure is one or more of the port modules 702-1 through 702-N, as depicted in Figure 7, and a routing table 501 or 601, as depicted in Figures 5 and 6 of the '607 patent. (D.I. 379 at 38-39.)

Extreme contends that the function of this limitation is transmitting a broadcast message to the second node whenever, and if and only if, the number of links from the third node (the originator of the message) to the first node is less than both (1) the number of links from the originator to the second node and (2) the number of links from the originator to any other neighbor of the second node. Extreme contends that the corresponding structure includes the nodes shown in Figures 1 or 2 and 7, port modules 702-(1-N) connected to buses 704 and 705 via backplanes, control switch 703, routing tables shown in Figures 5 and 6, and the algorithms for constructing the routing tables as shown in Figures 8-10. (D.I. 399 at 38.)

Foundry contends that the function of this limitation is transmitting said message to said second node whenever the number of links between said first and third nodes is less than the number of links between said second and third nodes, and the number of links between said first and third nodes is also less than the number of links between said third node and any other neighbor of said second node. (D.I. 385 at 39.)



Foundry contends that the corresponding structure comprises port module 702(1-N) and the algorithm of Figures 8-10 for constructing a routing table in the node, contention bus 704, control switch 703 and its associated routing control memory, and broadcast bus 705. (D.I. 385 at 37.)

The Court finds that the language of the claim requires that the transmitting function occurs when the number of links between said first and third nodes is less than the number of links between said second and third nodes and is less than the number of links between said third node and any other neighbor of said second node message. After reviewing the claim language, the specification, and the prosecution history of the patent, the Court finds that without construction of its routing table, a node could not transmit such a message. ('607 patent at 4:32-38, 4:53-56, 5:56-6:4, 6:38-47, 6:48-8:30.)

Further, the Court finds that the process of transmitting a message includes directing the message internally through the node by placing the broadcast message on contention bus 704, transporting the message through the control switch 703, placing the message on bus 705, and consulting the routing tables of the other port modules of the node. ('607 patent at 6:5-47.) Thus, the Court concludes that the structures corresponding to the function of this limitation are port modules 702-1 through 702-N and the algorithm of Figs. 8-10 for constructing a routing table in the node, contention bus 704, control switch 703 and its associated routing control memory, and broadcast bus 705.

## **CONCLUSION**

For the reasons discussed, the Court has construed the disputed terms of the patents-in-suit as provided herein. An Order consistent with this Memorandum Opinion will be entered setting forth the meaning of the disputed terms in the patents-in-suit.

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