United States District Court,
C.D. California.

**ALCATEL INTERNETWORKING, INC., Alcatel N.V., Alcatel Networks Corp., and Alcatel Sel Aktiengesellschaft,**
Plaintiffs/Counterclaim-Defendants.
v.
**CISCO SYSTEMS, INC,**
Defendant/Counterclaim-Plaintiff.

No. CV 00-05799-SVW (CWx)

**Aug. 29, 2002.**

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**ORDER RE: CLAIM CONSTRUCTION**

STEPHEN V. WILSON**, District Judge.**

## I. INTRODUCTION

Plaintiffs/Counterclaim-Defendants Alcatel Internetworking, Inc., Alcatel N.V., Alcatel Networks Corp., and Alcatel Sel Aktiengesellschaft (collectively "Alcatel") allege infringement of United States Patents Nos. 5,020,052 ("'052 patent" or "DePrycker patent"), 5,768,271 ("'271 patent" or "Seid patent"), and 5,781,532 ("'532 patent" or "Watt patent") by Defendant/Counterclaim-Plaintiff Cisco Systems, Inc. ("Cisco"). Cisco alleges infringement of United States Patents Nos. 5,765,032 ("'032 patent" or "Valizadeh patent"), 5,473,599 ("'599 patent" or "Li patent"), and 5,918,019 ("'019 patent" or "Valencia patent") by Alcatel.

Each party has submitted papers in support of its proposed construction of each patent claim at issue and in response to the constructions proffered by the opposing party. In these papers, as modified by The Parties' Revised Joint Pre-Markman Hearing Statement ("Revised Joint Statement"), the parties identified a total of eighty-seven disputed limitations from the six patents in suit.

On December 18-20, 2001, the Court heard argument and received evidence regarding thirty-two disputed terms, pursuant to Markman v. Westview Instruments, Inc., 52 F.3d 967 (Fed.Cir.1995). The Court will now

determine the proper construction of all disputed terms at issue, based on the information presented in the parties' briefs and during the *Markman* hearing.

## II. LEGAL STANDARD

Interpretation of patent claims is a matter of law reserved for the court. *See* Markman v. Westview Instruments, Inc., 517 U.S. 370, 372, 116 S.Ct. 1384, 1387, 134 L.Ed.2d 577 (1996). Claims are to be construed to determine how one with ordinary skill in the relevant art would understand them in the context of the patent. *See, e.g.,* Multiform Dessicants, Inc. v. Madzam, Ltd., 133 F.3d 1473, 1477 (Fed.Cir.1998).

### A. Evidence

"It is well-settled that, 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 P.3d 1576, 1582 (Fed.Cir.1996). "In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such situations, it is improper to rely on extrinsic evidence." *Id.* at 1583.

However, "it is entirely appropriate, perhaps even preferable, for a court to consult trustworthy extrinsic evidence to ensure that the claim construction it is tending to from the patent file is not inconsistent with the clearly expressed, plainly apposite, and widely held understandings in the pertinent technical field." Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1309 (Fed.Cir.1999); *see also* Bell & Howell Document Management Prods. Co. v. Altek Sys., 132 F.3d 701, 706 (Fed.Cir.1997) ( "*Use* of expert testimony to explain an invention may be useful. But *reliance* on extrinsic evidence to interpret claims is proper only when the claim language remains genuinely ambiguous after consideration of the intrinsic evidence ...." (emphasis added)).

Since Cisco has submitted expert testimony that is cited throughout its briefs (and Alcatel has submitted expert testimony in response to Cisco's expert), the Court will review that evidence as background information on the technology, and, to the extent that a claim term is ambiguous after reviewing the intrinsic evidence, the Court will consider the extrinsic evidence in its construction of that term. However, the Court will not rely on the expert testimony as a substitute for the Court's role as the construer of the disputed claim terms at issue.

### B. Means-Plus-Function Claim Elements

The parties seek to have the Court construe several means-plus-function claim elements, pursuant to 35 U.S.C. s. 112 para. 6. However, there is a dispute over the proper method of doing so. Cisco contends that it is only necessary to identify the recited function and the corresponding structure; Alcatel argues that the Court go one step further and construe the meaning of the "means-plus-function" terms. *See* The Parties' Joint Pre-Markman Hearing Statement, at 2. In support of its argument, Alcatel relies on Lockheed Martin Corp. v. Space Systems/Loral, Inc., 249 F.3d 1314 (Fed.Cir.2001). In that case, the court held that after identifying the function, the next step is to "construe the meaning of the words used to describe the claimed function, using ordinary principles of claim construction." Id. at 1324.

Cisco does not dispute this holding, but instead relies on Micro Chemical, Inc. v. Great Plains Chemical Co., 194 F.3d 1250 (Fed.Cir.1999) to justify its proposed methodology. *Micro Chemical,* decided prior to *Lockheed Martin,* does not explicitly state whether the district court should or should not construe the

meaning of the words used to describe the function in a means-plus-function claim. The court acknowledged that "[t]he statute does not permit limitation of a means-plus-function claim by adopting a function different from that explicitly recited in the claim. Nor does the statute permit incorporation of structure from the written description beyond that necessary to perform the claimed function." Micro Chemical, 194 F.3d at 1258 (citing Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1302 (Fed.Cir.1999)).

Neither party is precisely accurate in their interpretation of the proper method of construing means-plus-function claim elements. As *Lockheed Martin* suggests, once identifying the function in accordance with the guidelines set forth in *Micro Chemical* and *Rodime PLC,* the district court should then construe the meaning of the words used to describe the function, utilizing the accepted claim construction principles. Lockheed Martin, 249 F.3d at 1324; *see also* Multiform Pesiccants v. Medzam, Ltd., 133 F.3d 1473, 1479 (Fed.Cir.1998) ("[T]he first step in interpretation of the claim is determination of the meaning of the words used to describe the claimed function, if such meaning is in dispute."); *see generally* IMS Tech. v. Haas Automation, 206 F.3d 1422, 1430-31 (Fed.Cir.2000). *Lockheed Martin* is not changing the method described in previous cases involving means-plus-function claim elements, which is to identify the function and the corresponding structure; it is simply expressing that the district court should construe the function once identified. Once the function has been construed, the Court must identify the structure disclosed in the specification that corresponds with the identified function. "A structure disclosed in the specification is only deemed to be 'corresponding structure' if the specification clearly links or associates that structure to the function recited in the claim." Kahn v. General Motors Corp., 135 F.3d 1472, 1476 (Fed.Cir.1998); *see also* Lockheed Aircraft Corp. v. U.S., 213 Ct.Cl. 395, 553 F.2d 69, 81 (Ct.Cl.1977) ("[A] 'means plus function' claim covers the structure *necessary* to perform the specified function.") (emphasis added).

In their proposed construction, neither party properly applies this method. For example, in the '532 patent, one of the disputed means-plus-function terms is "means for adjusting the transmission rate." Alcatel identifies the function as "changing the rate at which data is transmitted." Alcatel then requests that the Court further construe the term to mean "a system including hardware and/or software that changes the rate at which data is transmitted." Cisco identifies the function as "adjusting the transmission rate in response to the detection of congestion so as to reduce congestion in the network." Cisco then argues that the identified function needs no further construction.

Both parties are wrong. The properly identified function for the phrase "means for adjusting the transmission rate" is, as explicitly stated in the language, "adjusting the transmission rate." FN1 Having identified the function, the Court must then determine the meaning of the words "adjusting the transmission rate." Essentially, the parties attempt to construe the meaning of the words used to describe the claimed function, without first properly identifying the claimed function. Thus, they combined the two steps into one. Alcatel attempts to go one step further in requesting that this Court, once the meaning of the words used to describe the function are construed, proceed to construe the meaning of the entire means-plus-function phrase. That additional construction is not supported by the holding in *Lockheed Martin,* and is not otherwise a proper method for construing means-plus-function claim elements.

FN1. This interpretation is supported by the construction in *Lockheed Martin*. In that case, the district court was faced with construing a "means-plus-function" claim limitation. The limitation was stated as "means for rotating said wheel in accordance with a predetermined rate schedule which varies sinusoidally over the orbit at the orbital frequency of the satellite whereby the attitude of said satellite is offset in response to ..." Lockheed Martin, 249 F.3d at 1320. The Federal Circuit held that function is properly identified as the

language after the "means for" clause and before the "whereby" clause, and thus concluded that the properly identified function for this limitation was "rotating said wheel in accordance with a predetermined rate schedule which varies sinusoidally over the orbit at the orbital frequency of the satellite." Id. at 1324. After identifying the function, the court then construed the meaning of the words used to describe the claimed function. *Id*.

Since there is no authority disputing the propriety of the method identified in *Lockheed Martin* for construing means-plus-function claims, the Court will comport with those guidelines and construe all means-plus-function claims accordingly.

**III. ANALYSIS**

**A. '532 (Watt) Patent**

The '532 patent is entitled "Data Link Interface For Packet Switched Network." Originally filed in 1993, the '532 patent relates to the problem of congestion in packet switched networks, and proposes a solution whereby a data link interface on a router will adjust data transmission rates in the network in response to detected congestion within that network, as well as allocating the available bandwidth along a common link "fairly" FN2 among multiple conversations.

FN2. The Court highlights this term simply because its construction is heavily disputed by the parties, and the use of the term in the Court's summary of the '532 patent should not be interpreted as having any effect on the eventual construction of the terra, discussed further below.

The parties dispute the proper construction of the following terms:

^ "Fair Allocation of Bandwidth"

^ "Predetermined Severe Congestion Threshold"

^ "Dropping Packets When the Detected Congestion Exceeds a Predetermined Severe Congestion Threshold"

^ "Means for Dropping Packets When the Detected Congestion Exceeds A Predetermined Severe Congestion Threshold"

^ "Means for Detecting Congestion"

^ "Means for Enqueuing Packets"

^ "Means for Adjusting the Transmission Rate"

^ "Means for Sorting Traffic by Conversation Between Two Endpoints"

^ "Re-Ordering Packets from Different Conversations on Said Common Link When the Detected Congestion Exceeds a Predetermined Mild Congestion Threshold While Maintaining the Order of

Transmission for Each Conversation"

**"Fair Allocation of Bandwidth"**

Alcatel argues that the term should be construed as "an algorithm or policy to share the available bandwidth." Cisco argues that this term is indefinite, under 35 U.S.C. s. 112 para. 2.

Alcatel claims that the patent specifications describe a fair allocation of bandwidth as a forced sharing of link capacity between active conversations, even during periods of severe congestion. *See* Watt Supp., col. 2, 11. 1-9 (hereinafter Watt, at 2:1-9). However, the patent indicates that it is up to the user to determine exactly how that link capacity is to be shared, by way of selecting particular policies, and setting values to reflect those policies. *See* id., at 4:16-27. The patent discusses the method of "express queuing," as well as "an ever-so-slightly modified form of express queuing" called "fair queuing." *See* id., at 5:59-6:16, Fig. 4.

Cisco contends that the patent does not describe what is meant by "fair," and thus is indefinite. "The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." 35 U.S.C. s. 112 para. 2. As stated in Union Pacific Resources Co. v. Chesapeake Energy Corp., 236 F.3d 684 (Fed.Cir.2001), "The definiteness inquiry focuses on whether those skilled in the art would understand the scope of the claim when the claim is read in light of the rest of the specification." Id. at 692. *See also* Personalized Media v. ITC, 161 F.3d 696, 705 (Fed.Cir.1998) ("If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, s. 112 demands no more."); Exxon Research v. United States, 265 F.3d 1371, 1376-80 (Fed.Cir.2001).

A canon of claim construction instructs that, if possible, claims should be construed so as to preserve their validity. *See Eastman Kodak Co. v. Goodvear Tire & Rubber Co.,* X14 F.3d 1547, 1556 (Fed.Cir.1997) (finding that the court "seeks to interpret claims to preserve, rather than defeat, their validity"); Carman Indus., Inc. v. Wahl, 724 F.2d 932, 937 n. 5 (Fed.Cir.1983). However, "if the only claim construction that is consistent with the claim's language and the written description renders the claim invalid, then the axiom does not apply and the claim is simply invalid." Rhine v. Casio, Inc., 183 F.3d 1342, 1345 (Fed.Cir.1999).

Cisco argues that Alcatel's proposed construction reads the term "fair" out of the claimed "fair allocation of bandwidth." In doing so, Alcatel has arguably failed to properly acknowledge the significance of the term in limiting the scope of the claim. *See* Lantach, Inc. v. Keip Machine Co., 32 F.3d 542, 546 (Fed.Cir.1994) ("All limitations in a claim must be considered meaningful."); Wright Med. Tech., Inc. v. Osteonics Corp., 122 F.3d 1440, 1444 (Fed.Cir.1997). The crux of Cisco's argument therefore relies on its notion that the term "fair" must be properly defined so that one with ordinary skill in the art would know the limitations of the claim.

Cisco attempts to demonstrate that one with ordinary skill in the art would not know what is meant by "fair allocation of bandwidth" by relying on the testimony of its expert ( *see* Lumish Decl., Ex. C ("Acampora '532 Report"), at 6-7), as well as the testimony of the inventor himself. Essentially, through the use of this extrinsic evidence, Cisco has demonstrated that what exactly "fair" means is not uniform, but rather changes over time in response to particular user needs as well as market expectations. *See* Watt Depo., at 87:13-88:3, 90:17-91:2.

Nevertheless, the exact definition as to what is "fair" is not necessary in order to properly construe the

limitations of this term. As Alcatel points out, "fair allocation of bandwidth" is a term of art used both now and in 1993 when the foreign patent first issued. *See* Lucantoni '532 Decl,, at para.para. 26-35. Several technical papers had been published at that time that included discussions on what constitutes fair in the context of allocating bandwidth, as well as proposing queuing algorithms for achieving that fair allocation. *See id.,* at para. 27. In fact, one of those articles is referenced directly in the patent specification. *See id.,* at para. 33; Watt, at 4:4-7. It is not necessary to determine what precisely constitutes "fair," as that definition will vary depending on the user's desired result. The notion of "fair allocation of bandwidth," however, is understood by someone with ordinary skill in the art as a concept by which multiple conversations share the available bandwidth along a common link in a manner specified by the user, but generally in a way that does not allow a heavy usage application to dominate the available bandwidth simply by virtue of its greater load.

Therefore, in light of the presumption of validity in construing a claim, and the determination that one with ordinary skill in the art could understand what is implied by the term "fair allocation of bandwidth," the Court finds that the term is not indefinite. Thus, the Court construes the term "fair allocation of bandwidth" as "an algorithm or policy to share the available bandwidth."

**"Predetermined Severe Congestion Threshold"**

Alcatel's proposed construction of this term is "a predetermined number of queued data units, which is greater than the predetermined mild congestion threshold." Cisco's proposed construction is "a configurable percentage of the absolute congestion threshold which is determined by the router as a function of the number of buffers available and the number and access rates of all of the frame relay links on the router."

As Alcatel notes, the parties have already agreed on the construction of the term "predetermined mild congestion threshold." That construction reads: "A predetermined number of queued data units representing a limit that is. indicative of the presence of congestion." The Alcatel construction attempts to construe the "predetermined severe congestion threshold" as simply a threshold level greater than the "predetermined mild congestion threshold."

Cisco, on the other hand, claims to have derived its definition from the language of the patent itself. Specifically, language in the preferred embodiment describes "severe congestion threshold" as "a configurable percentage of the absolute congestions threshold," and defines the "absolute congestions threshold" as "determined by the router as a function of the number of buffers available and the number and access rates of all of the frame-relay links in the router." Watt, at 5:37-42. Therefore, Cisco's proposed construction is simply a combination of these two definitions.

However, Cisco's proposed construction fails for two reasons. First, Cisco's construction limits the language to apply to only frame relay networks, but the claim language indicates otherwise. In particular, the language of "predetermined severe congestion threshold" is contained in both claims 1 and 8. In claim 4, a claim dependent on claim 1, it claims "A data link interface as claimed in claim 1, *wherein said network is a frame relay network*." Watt, at 7:5-6 (emphasis added). Thus, if "predetermined severe congestion threshold" was construed to apply only to frame relay networks, then the entire language in claim 4 would be rendered meaningless. This construction would be at odds with the notion of claim differentiation. "This doctrine, which is ultimately based on the common sense notion that different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope, normally means that limitations stated in dependent claims are not to be read into the independent claim from which they

depend." Karlin Tech., Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 971 (Fed.Cir.1999); *but see* ATP Corp. v. Lydall, Inc., 159 F.3d 534, 541 (Fed.Cir.1998) (noting that the doctrine of claim differentiation "is a guide, not a rigid rule"). Therefore, reading the language of dependent claim 4 (referring to frame relay networks) into claim 1 is improper, and hence Cisco's construction fails.

Furthermore, Cisco's construction of "predetermined severe congestion threshold" is taken exclusively from the preferred embodiment. However, claims are not ordinarily limited to the preferred-embodiment disclosed in the specification.FN3 *See* Interactive Gift Express v. Compuserve, 256 F.3d 1323, 1341 (Fed.Cir.2001); *cf.* Toro Co. v. White Consol. Indus., Inc., 199 F.3d 1295, 1301 (Fed.Cir.1999) ("It is well established that the preferred embodiment does not limit broader claims that are supported by the written description."). Moreover, in the summary of the invention contained in the patent, the language notes that the preferred network is a frame relay network, not the required network. *See* Watt, at 1:47-49, 60. Finally, as Alcatel points out, the patent history also recognizes that the invention is particularly applicable to a frame relay network, but is also applicable to other types of packet switched networks with virtual connections. *See* Watt, File History, at AL 0000891A.

FN3. Of course, where the patent applicant acts as his or her own lexicographer, the meaning of a term given by the applicant holds. *See* Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1249 (Fed.Cir.1998) (finding that when an applicant is lexicographer, "the definition selected by the patent applicant controls"). In this instance, however, the Court finds that the applicant was merely giving an example in the specification of a "severe congestion threshold" in the context of a frame relay link, and not a definition.

Therefore, the Court construes "predetermined severe congestion threshold" as "a predetermined number of queued data units, which is greater than the predetermined mild congestion threshold."

**"Dropping Packets When the Detected Congestion Exceeds a Predetermined Severe Congestion Threshold"**

Alcatel's proposed construction of this term is "dropping packets after the detected congestion exceeds the predetermined severe congestion threshold." Cisco's proposed construction is "beginning to drop packets for the purpose of reducing congestion only after the detected congestion exceeds the predetermined severe congestion threshold." The difference in the constructions turns on whether the claim allows the packets to be dropped before the detected congestion exceeds the predetermined severe congestion threshold, as Alcatel proposes, or *only after* the predetermined severe congestion threshold is detected, as Cisco proposes.

Alcatel argues that the specification discloses situations where packets are dropped other than when the severe congestion threshold is exceeded. Specifically, the specifications describe a scenario in which frames are queued in a "holding queue" that has a maximum length. "When that length is exceeded, frames are dropped." Watt, at 4:27-32.

Cisco argues that the plain meaning of the claim language supports its construction. "As we have often stated before, as a general rule, all terms in a patent claim are to be given their plain, ordinary and accustomed meaning to one of ordinary skill in the relevant art." Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed.Cir.2001); *see also* Toro Co. v. White Consol. Indus., Inc., 199 F.3d at 1299 ("[W]ords in patent claims are given their ordinary meaning in the usage of the field of the invention, unless the text of

the patent makes clear that a word was used with a special meaning."). In claim 1, the claim language shows that the dropping of packets is the last step in a three-step progression of dealing with increasing congestion in the network. Additionally, the specification describes the dropping of frames as starting after a frame-relay link is severely congested. *See* Watt, at 6:17-20. However, the specification also contains language describing frames as being dropped when "the addition of the frame would cause the link output queue to exceed the severe congestion threshold ..." Watt, at 6:26-30 (emphasis added). In this situation, the language indicates that the frame is dropped when its addition would cause the severe congestion threshold to be exceeded. Therefore, in this scenario, the initial dropping of the frame must necessarily take place before the severe congestion threshold has been exceeded.

Thus, although the claim language indicates that packets will be dropped after the detected congestion exceeds a predetermined severe congestion threshold, nowhere in the plain meaning of the language does the claim require packets to *begin* being dropped *only* after such a threshold is exceeded. In fact, in looking to the specification, the patent indicates instances where packets are in fact dropped prior to exceeding the threshold. Therefore, the Court construes the term "dropping packets when the detected congestion exceeds a predetermined severe congestion threshold" as "dropping packets after the detected congestion exceeds the predetermined severe congestion threshold."

**"Means for Dropping Packets When the Detected Congestion Exceeds A Predetermined Severe Congestion Threshold"**

Both parties agree that the term "means for dropping packets when the detected congestion exceeds a predetermined severe congestion threshold" is a means-plus-function term, subject to 35 U.S.C. s. 112 para. 6. Whether a term is a means-plus-function term is to be construed by the Court as a matter of law. *See* Kemco Sales v. Control Papers Co., 208 F.3d 1352, 1360 (Fed.Cir.2000). Use of the word "means" creates a presumption that the term is to be construed in accordance with section 112 paragraph 6. *See* Kemco Sales, 208 F.3d at 1361; Cortland Line Co. v. Orvis Co., 203 F.3d 1351, 1357 (Fed.Cir.2000). However, when the term recites sufficiently definite structure or material to perform the claimed function, the presumption that such a term is a means-plus-function term may be rebutted. *See* Kemco Sales, 208 F.3d at 1361; *Al-* Site Corp. v. VSI Int'l, 174 F.3d 1308, 1318 (Fed.Cir.1999). In this instance, the term does not recite such a structure, and hence the presumption that it is to be construed as a means-plus-function term holds.

As discussed earlier, the Court will adhere to the Federal Circuit's instructions and construe the meaning of the words used to describe the function in a means-plus-function term. Both parties argue that the function of this term is identical to their construction of the phrase "dropping packets when the detected congestion exceeds a predetermined severe congestion threshold." As previously noted, the parties have misunderstood the notion of identifying a function and construing the words used to describe that function. The identified function in this case is "dropping packets when the detected congestion exceeds a predetermined severe congestion threshold." The proper construction for this function is, as discussed above, "dropping packets after the detected congestion I exceeds the predetermined severe congestion threshold."

There is no dispute over the corresponding structure for performing this function. Both parties agree that the structure is disclosed in the specification. *See* Revised Joint Statement, Ex. E, at 63; Watt, at 4:28-33, 5:52-58, 6:18-45, Fig. 3.

**"Means for Detecting Congestion"**

The Court agrees with the parties that this term is to be construed as a means-plus-function term. As

indicated in the Revised Joint Statement (Ex. E, at 58), there is no dispute over the function or the corresponding structure. The parties agree that the function of "detecting congestion" is construed as "detecting congestion in the network," and the corresponding structure is disclosed in the specification. *See* Watt, at 1:60-63, 2:45-53, 3:66-4:3, 5:10-14, Figs. 2-3. Therefore, no further construction is necessary by the Court.

**"Means for Enqueuing Packets"**

The Court agrees with the parties that this term is to be construed as a means-plus-function term. Again, the Revised Joint Statement indicates that there is no dispute over the identified function or the corresponding structure for this claim element. The function of "enqueuing packets" is construed as "enqueuing packets for transmission over a virtual connection," and the corresponding structure is disclosed in the specification. *See* Revised Joint Statement, Ex. E, at 58-59; Watt, at 3:66-4:15, 4:28-4:33, 5:3-9, 5:32-34, 5:52-64, 6:16-45, Figs. 3-4. Thus, no further construction is necessary.

**"Means for Adjusting the Transmission Rate"**

The Court agrees with the parties that this term is to be construed as a means-plus-function term. The parties dispute the identified function, although agree on the corresponding structure. *See* Revised Joint Statement, Ex. E, at 59-60; Watt, at 1:65-2:1, 2:45-53, 3:66-4:3, 4:16-18, 4:42-51, Figs. 2-3.

The properly-identified claimed function of this means-plus-function term is "adjusting the transmission rate." In construing this function, Alcatel proposes that the function be construed as "changing the rate at which data is transmitted." Cisco's proposed construction is "adjusting the transmission rate in response to the detection of congestion so as to reduce congestion in the network."

While this disputed term is found in claim 1, the language "adjusting the transmission rate" is also found in claim 8. In construing that language, the parties agree that it means "changing the rate at which data is transmitted." Ordinarily, the same word in a patent has the same meaning. *See* CAE Screenplates v. Henrich Fiedler GmbH, 224 F.3d 1308, 1317 (Fed.Cir.2000); Georgia-Pacific Corp. v. United States Gypsum Co., 195 F.3d 1322, 1331 (Fed.Cir.1999). The Court sees no reason to construe the words "adjusting the transmission rate" in claim 1 any differently than in claim 8. Therefore, the Court construes the identified function of "adjusting the transmission rate" as "changing the rate at which data is transmitted."

**"Means for Sorting Traffic by Conversation Between Two Endpoints"**

The Court agrees with the parties that this term is a means-plus function term. The parties agree on the identified function being construed literally as "sorting traffic by conversation FN4 between two endpoints," but disagree on the corresponding structure. *See* Revised Joint Statement, Ex. E, at 60-61. Alcatel argues that the specification discloses a structure that "sorts traffic by conversation between user data devices, and then allocates bandwidth fairly between active conversations." Watt, at 2:6-8. Such a structure, according to Alcatel, is disclosed in the preferred embodiment "as a queue that imposes an exemplary type of a queuing discipline (referred to as Express Queuing) on the output queue that, *inter alia,* 'identif[ies] each frame to be queued as part of a 'conversation' between two endpoints.' " Alcatel's Opening Markman Brief on Claim Construction Regarding United States Patent No. 5,781,532 (Watt) ("Alcatel's '532 Opening Brief"), at 15 (citing Watt, at 5:59-6:2). Furthermore, according to Alcatel, Figures 3 and 4 identify the corresponding structure to perform the identified function.FN5

FN4. The parties also agree that the term "conversation" means "a stream of packets or a flow between a source and a destination associated with a particular data communication." Revised Joint Statement, Ex. E, at 62.

FN5. As discussed in more detail below in the context of the '599 (Li) patent, structure is not limited to physical objects, and can include a program or algorithm capable of carrying out the identified function. *See* WMS Gaming, Inc. v. Int'l Game Technology, 184 F.3d 1339, 1348-49 (Fed.Cir.1999).

Cisco contends that the above language explains the function of sorting packets, but fails to describe any structure to perform this function. It argues that one of ordinary skill in the art would find no such structure in the specification ( *see* Acampora '532 Report, at 6), and asks the Court to find the term indefinite under 35 U.S.C. s. 112 para. 2.

Alcatel counters with testimony from its expert who claims that one of ordinary skill in the art would know of an appropriate structure for sorting packets in accordance with the identified function. *See* Lucantoni '532 Decl., at para. 23. In particular, the description of the preferred embodiment references that a data link connection identifier (DLCI) could be used to identify each queued packet as part of a conversation between two endpoints. *See* Watt, at 6:1-3. According to Lucantoni, "[o]ne of ordinary skill in the art would have been able to configure a device to examine the DLCI and sort the traffic by conversation based on this information." Lucantoni '532 Decl., at para. 24. Furthermore, since traffic may need to be sorted in order to provide a fair allocation of bandwidth, Alcatel contends that the reference to the article "Analysis and Simulation of a Fair Queuing Algorithm," SIGCOMM '89, in the patent ( *see* Watt, at 4:4-7) provides sufficient structure, because it describes an example of how to fairly share bandwidth.

The Federal Circuit has previously held that one may resort to material outside of the specification in order to understand what structure the specification discloses. However, "such resources may only be employed in relation to structure that is disclosed in the specification." Atmel Corp. v. Information Storage Devices, Inc., 198 F.3d 1374, 1382 (Fed.Cir.1999). The particularity requirement of section 112 paragraph 2 cannot be satisfied with regard to a means-plus-function claim element where there is a total omission of structure. "There must be structure in the specification," *Id*.

The court in *Atmel* dealt with a similar situation to the present case, where the party challenging the validity of the patent argued that the means-plus-function claim failed to identify sufficient structure, and thus failed to satisfy the particularity requirement of section 112 paragraph 2. The court held that "[a]ll one needs to do in order to obtain the benefit of that claiming device is to recite some structure corresponding to the means in the specification, as the statute states, so that one can readily ascertain what the claim means and comply with the particularity requirement of para. 2." *Id*. Furthermore, the determination of whether a means-plus-function claim is invalid as indefinite, like all other claims, "depends on whether those skilled in the art would understand the scope of the claim when the claim is read in light of the specification." *Id*. at 1378 (citing North Am. Vaccine. Inc. v. American Cyanamid Co., 7 F.3d 1571, 1579 (Fed.Cir.1993)). In this regard, the court found that a cursory reference to "known techniques" coupled with the citation to an extrinsic article may have been adequate to satisfy the particularity requirement, particularly since expert testimony indicated that this would be sufficient to indicate the precise structure to one of ordinary skill in the art. Atmel, 198 F.3d at 1382.

Here, Alcatel's expert argues that one of ordinary skill in the art would have been able to perform the identified function based on the information in the specification. Cisco's expert, while claiming an absence of structure in the specification, does not argue otherwise. Moreover, the Court finds that the references in the specification to Express Queuing, DLCI, and the "Fair Queuing" article are adequate to satisfy the particularity requirement of section 112 paragraph 2. Accordingly, the Court holds that there is sufficient structure identified in the patent to perform the function of sorting traffic by conversation between two endpoints. *See* S3. Inc. v. Nvidia Corp., 259 F.3d 1364, 1371 (Fed.Cir.2001) (finding that since the uncontradicted evidence indicated that the function identified in the claim was readily implemented from the description in the specification, the claim satisfied the requirements of section 112); *see also* North Am. Vaccine, Inc. v. American Cvanamid Co., 7 F.3d at 1579 (holding that there is a presumption of validity, and the party asserting invalidity had the burden of showing by clear and convincing evidence that the patent is invalid); 35 U.S.C. s. 282 ("A patent shall be presumed valid.... The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity.").

Therefore, the Court finds that the corresponding structure for the function identified in this term is disclosed in the '532 patent at 2:1-7, 4:4-10, 5:65-6:3, Figs. 3-4.

**"Re-Ordering Packets from Different Conversations on Said Common Link When the Detected Congestion Exceeds a Predetermined Mild Congestion Threshold While Maintaining the Order of Transmission for Each Conversation"**

Alcatel's proposed construction for this phrase is "arranging packets from different conversations and preparing them for transmission on the common link without affecting the sequencing of packets within such conversation when the number of packets queued on a common link exceeds a predetermined mild congestion threshold." Cisco's proposed construction is "selecting packets for transmission from among more than one conversation by choosing the packet with the earliest transmission time as determined by the packet's size."

Cisco's proposed construction improperly imposes limitations in claim 8 that are explicitly stated in claim 12. Claim 12 states: "A method as claimed in claim 8, wherein the time when a packet in each conversation would be transmitted is computed on the basis of packet size assuming each conversation had a dedicated link, and the order of transmission is arranged so that the packets with the earliest start of transmission time are sent first." Therefore, the principles of claim differentiation instruct the Court to reject Cisco's proposed construction. *See* Envtl. Designs Ltd. v. Union Oil Co. of Cal., 713 F.2d 693, 699 (Fed.Cir.1985) (holding that it is improper for courts to read into an independent claim a limitation explicitly set forth in another claim). Nowhere in the plain meaning of the language used in claim 8 does it require that the packet with the earliest transmission time be determined based on the packet's size.

Alcatel contends that its proposed construction is proper in the context of the claim in which it appears. *See* Hockerson-Halberstadt, Inc. v. Converse, Inc., 183 F.3d 1369, 1374 (Fed.Cir.1999) ("Proper claim construction ... demands interpretation of the entire claim in context, not a single element in isolation."). In claim 8, the claim language makes clear that the purpose of re-ordering packets is "to achieve fair allocation of bandwidth among different conversations." Watt, at 8:4-6. The preferred embodiment supports this construction by describing a method for re-ordering packets "to attempt to provide a fair allocation of bandwidth to all conversations," whereby the packets from multiple conversations may be re-ordered across a whole link, but not reordered within each conversation. Figure 4 is shown as an example of this re-ordering technique. *See* Watt, at 6:12-17. Cisco's proposed construction, on the other hand, seeks to limit

the claim to the preferred embodiment.

Cisco argues, however, that one of ordinary skill in the art would not be aware of any particular methods for such re-ordering of packets (where packets are re-ordered along a link shared by multiple conversations but the order of packets within each conversation remains the same) other than the method described in the preferred embodiment and the file history (by choosing the packet with the earliest transmission time as determined by the packet's size). In support of this contention, Cisco cites the expert report of its expert, Anthony Acampora. However, nowhere in that report does Acampora claim that one of ordinary skill in the art would not be aware of any method for re-ordering of packets in the manner discussed above other than the method described in the patent. Acampora merely asserts that the patent specification provides only one such method. *See* Acampora '532 Report, at 10. Furthermore, in the declaration of Alcatel's expert, David Lucantoni, he declares that one of ordinary skill in the art would have known of other methods to accomplish such re-ordering, and provides an example of such a method. *See* Lucantoni '532 Decl., at para.para. 47-49.

Therefore, in light of the rules of claim construction, the language of the patent, and the expert testimony used to clarify any potential ambiguity, this Court will not limit the disputed term to only the method disclosed in the preferred embodiment, and specifically claimed in claim 12. Thus, the Court construes "reordering packets from different conversations on said common link when the detected congestion exceeds a predetermined mild congestion threshold while maintaining the order of transmission for each conversation" as "arranging packets from different conversations and preparing them for transmission on the common link without affecting the sequencing of packets within such conversation when the number of packets queued on a common link exceeds a predetermined mild congestion threshold,"

**B. '032 (Valizadeh) Patent**

The '032 patent is entitled "Per Channel Frame Queuing And Servicing In The Egress Direction Of A Communications Network." The patent was filed in 1996. Generally speaking, it proposes a method of queuing and servicing egress traffic from a network in order to avoid the possibility of a busy virtual circuit clogging up an output channel, to the detriment of other data attempting to exit through that same channel.FN6

FN6. This description is intended solely as a generalized summary of the invention. The Court's actual construction of the disputed terms is set forth below.

The parties dispute the proper construction of the following terms:

^ "Network"

^ "Egress Traffic of a Network"

^ "Transmit Channels"

^ "Communications Controller"

^ "Cells"

^ "Frames"

^ "Packets"

^ "First Plurality of Egress Queues"

^ "Second Plurality of Egress Queues"

^ "First Units of Data"

^ "Virtual Channels"

As Alcatel pointed out during the *Markman* hearing, the difference in each parties' proposed construction stems from an overall disagreement as to the scope of this patent. Alcatel contends that the patent is limited to asynchronous transfer mode (ATM) networks delivering data to slower speed customer premises equipment (CPE).FN7 Cisco argues that the patent is not limited to such specific requirements, and that the plain meaning of the claim language supports its view.

FN7. The terms "customer premise equipment" and "customer premises equipment" are used interchangeably in the patent and the parties' briefs, as well as in the context of this memorandum.

Essentially, this disagreement presents somewhat conflicting notions of claim construction. On one hand, it is well-settled that claim terms are to be given their ordinary or accustomed meaning to one of ordinary skill in the art, and modifiers should not generally be added when they are not included in the claim language. *See Johnson Worldwide Assoc.,* 175 F.3d at 989; Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed.Cir.2001); *see also* Toro Co. v. White Consol., Indus., Inc., 199 F.3d at 1299 ("[W]ords in patent claims are given their ordinary meaning in the usage of the field of the invention, unless the text of the patent makes clear that a word was used with a special meaning."). However, the underlying purpose of the patent is an important guide in proper claim construction, and may be utilized to construe the appropriate meaning of a term in a claim. As one court noted: "Nor is there any doubt that the patent's purpose is a proper interpretive guide; the Federal Circuit has held that the purpose of the invention may guide claim construction since 'the problem the inventor was attempting to solve, as discerned from the specification and prosecution history, is a relevant consideration' in construing claims." NEC Corp. v. Hyundai Elecs. Indus. Co., 30 F.Supp.2d 546, 553 (E.D.Va.1998) (citing CVI/Beta Ventures, Inc. v. Tura LP, 112 F.3d 1146, 1160 (Fed.Cir.1997) and Applied Materials, Inc. v. Advanced Semiconductor Materials Am., Inc., 98 F.3d 1563, 1573 (Fed.Cir.1996)); *see also* DeMarini Sports, Inc. v. Worth, Inc., 239 F.3d 1314, 1325 (Fed.Cir.2001) (considering the object of the invention in construing claim terms).

Thus, while claim terms are generally given their plain meaning as used in a claim, if the patent's objective indicates that the term must logically be construed in a more limited manner, then such intrinsic evidence should be considered. With these principles in mind, the Court will now turn to the construction of the specific disputed terms.

**"Network"**

Cisco's proposed construction for this term is "distinct set of interconnected elements used to communicate data among devices. Not limited to ATM networks or standards." Alcatel's proposed construction is "distinct set of interconnected elements used to communicate data in accordance with the asynchronous transfer mode (ATM) standards."

Cisco argues primarily that the plain meaning of the claim language supports its construction. Both parties agree, as is evident from their respective constructions, that a network comprises a "distinct set of interconnected elements used to communicate data." FN8 Alcatel seeks to limit the network in this patent, however, to solely an ATM network. In the patent, the term network is explicitly used in claims 1, 3, 5, 6, 9, 12, 13, and 17. However, only claims 3, 5, 9, 13, and 17 specifically refer to an ATM network. Therefore, as Cisco contends, when a claim was intended to be limited specifically to an ATM network, it was so stated in the claim language, Moreover, claims 3 and 17 are dependent on claims 1 and 14, respectively, and those independent claims do not require the data to come from an ATM network. Therefore, the principles of claim differentiation instruct this Court, in general, not to read limitations into an independent claim when such limitations are expressly called for in another claim. *See* Karlin Tech., 177 F.3d at 971-72 (noting that, while not a rigid rule, the doctrine of claim differentiation "normally means that limitations stated in dependent claims are not to be read into the independent claim from which they depend"); Envtl. Designs, 713 F.2d at 699. Additionally, Cisco argues that construing "network" to refer solely to an ATM network would make the language referring to ATM networks in claims 3, 5, 9, and 17 mere surplusage. *See* Wright Med. Tech., Inc. v. Osteontics Corp., 122 F.3d at 1444 (discouraging the construction of a claim that would "render the contested terms surplusage"); Texas Instruments. Inc. v. U.S. Int'l Trade Comm'n, 988 F.2d 1165, 1171 (Fed.Cir.1993); *see also* Tandon Corp. v. U.S. Int'l Trade Comm'n, 831 F.2d 1017, 1023 (Fed.Cir.1987) ("There is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims. To the extent that the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant.").

FN8. According to the 1996 *IEEE Standard Dictionary of Electrical and Electronic Terms* ( "*IEEE Dictionary*" ), a "network" is "a series of points interconnected by communication channels." Lumish Decl., Ex. 0 ( *IEEE Dictionary* (6th ed.1996)), at 683.

However, Alcatel argues that interpreting the term "network" to reference only ATM networks would not render the contested term surplusage. According to Alcatel, claims 3, 5, 9, and 17, where an ATM network is explicitly referenced, there is also reference to "frames of data formatted according to the frame relay protocol in addition to ATM cells received from the ATM network, and indicate that the incoming ATM cells must be reassembled into frames prior to transmission to the customer premises equipment." Alcatel's Responsive Markman Brief on Claim Construction Regarding United States Patent No. 5,765,032 (Valizadeh) ("Alcatel's '032 Responsive Brief"), at 11.FN9 Therefore, because each claim has an additional limitation other than the reference to an ATM network, each claim has a different scope than every other claim and therefore complies with the requirements of claim differentiation. *See* Tate Access Floors, Inc. v. Maxcess Techs., Inc., 222 F.3d 958, 967 (Fed.Cir.2000) (holding that claim differentiation "does not mean that every limitation must be distinguished from its counterpart in another claim, but only that at least one limitation must differ" (quoting Kraft Foods, Inc. v. International Trading Co., 203 F.3d 1362, 1368 (Fed.Cir.2000)); Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1187 (Fed.Cir.1998) (recognizing that the presumption of a different meaning and scope when different words or phrases are used in separate claims is intended to avoid making a claim superfluous).

FN9. While such additional language is present in claims 3 and 17, such language is not present in claims 5 and 9. Nevertheless, there are other limitations in claims 5 and 9 other than the reference to an ATM network, so Alcatel's argument regarding claim differentiation is still valid.

To the extent that Cisco is arguing that every word in every claim must be construed to have different meaning, such interpretation is not required by the rules of claim construction. In addition to the cases cited above, the Federal Circuit has previously held that "two claims which read differently can cover the same subject matter." Tandon Corp., 831 F.2d at 1023. "That a patentee chose several words in drafting a particular limitation in one claim, but fewer (though similar) words in drafting the corresponding limitation in another, does not mandate different interpretations of the two limitations, since defining a state of affairs with multiple terms should help, rather than hinder, understanding." Kraft Foods, Inc., 203 F.3d at 1368. Furthermore, the claim language should not be construed to enlarge the claim beyond what the inventor has described as the invention. *See* Netword. LLC v. Centraal Corp., 242 F.3d 1347, 1352 (Fed.Cir.2001) ("Although the specification need not present every embodiment or permutation of the invention and the claims are not limited to the preferred embodiment of the invention, neither do the claims enlarge what is patented beyond what the inventor has described as the invention. 'Claim construction' is the judicial statement of what is and is not covered by the technical terms and other words of the claims." (citations omitted)).

Nevertheless, Cisco argues that the use of the term network in the specification comports with its proposed construction. In particular, Cisco points out that the term network is used in every major section of the specification to refer to networks generally ( *see, e.g.,* Valizadeh Supp., col. 1, 11. 5-10; col. 2, 11. 10-11, 46-48, 60-67 (hereinafter Valizadeh, at 1:5-10, 2:10-11, 2:46-48, 2:60-67)), and the specification clearly states "ATM" when discussing this specific type of network as a preferred embodiment ( *see, e.g.,* Valizadeh, at 1:13-39, 3:10-16). Accordingly, Cisco contends that by construing the term "network" in the claims to refer only to ATM networks, the Court would be improperly limiting the claims based on the preferred embodiment. *See* Dow Chem. Co. v. Sumitomo Chem. Co., Ltd., 257 F.3d 1364, 1378 (Fed.Cir.2001) ("It is axiomatic that '[c]laims, not the specification embodiments, define the scope of protection.' " (citation omitted)).

In response, Alcatel contends that where Cisco points to portions of the specification referring to network in the general sense, that is misleading. More specifically, Cisco refers to column 2, lines 46-48, which describes Figure 1 as including simply a "common carrier network." However, in looking at Figure 1 itself, the common carrier network is actually referred to as a "Common Carrier ATM Network." Likewise, the term network is often used when describing a communications controller connected to a "network." As discussed below, Alcatel argues that a communications controller is defined in the patent as an end node to an ATM network, and therefore, if its argument holds, any reference to a network in connection with a communications controller would naturally be referring to an ATM network in particular.

Contrary to Cisco's arguments, Alcatel argues that when the term "network" was used in the claims, it was always referring to an ATM network. In support of this contention, Alcatel puts forth several arguments. First, Alcatel claims that the only common carrier network disclosed in the specification is an ATM network. *Second,* the "Statement of Reasons for Allowance" issued by the Patent Examiner indicates that these claims were permitted because they were limited to an ATM network. Third, although the term "network" generally does not imply a specific type of network, when the patent applicant chooses to be his

own lexicographer, as Alcatel submits is the case here, the applicant's definition of a term controls over the term's ordinary meaning. Finally, Alcatel contends that when discussing the source of egress traffic (hence, the network), the specification uses terms such as "channels," "per-VC queuing," and "virtual circuits," which are all terms associated with ATM networks.

Furthermore, Alcatel points out that the phrase "network," when not specifically referring to ATM networks in the claims, is always used as part of the phrase "egress traffic of a network" (in claims 1 and 12) or "egress traffic directed from a network" (in claim 6). Alcatel argues below that "egress traffic" is always referring to traffic coming from an ATM network to the CPE, and therefore, were that the proper interpretation of "egress traffic," it would support their proposed construction of "network" here.

However, it is apparent that Alcatel is essentially attempting to limit the term "network" as comprising only an ATM network based on the examples given in the preferred embodiment, when the language used in the claim itself is not so limiting. "Particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments." Rhine, 183 F.3d at 1346 (quoting Electro Med. Sys. S.A. v. Cooper Life Sciences, 34 F.3d 1048, 1054 (Fed.Cir.1994)). Although the preferred embodiments only involve ATM networks ( *see* Valizadeh, at 3:11-12 ("According to the presently described embodiments, the network is an ATM network ...")), the specification does contain language explicitly affirming that such embodiments are to be regarded as "illustrative rather than ... restrictive." *Id*. at 5:37-43.

Nevertheless, as Alcatel argues, that "non-restrictive" language does not mention the possibility of other networks applying to this patent, and thus, were the use of the term "network" in the patent understood to mean ATM network, this language would not dispel that interpretation. Moreover, Alcatel asserts that the above language indicating that the specification is non-restrictive is merely "boilerplate" language that should not be regarded as evidence that the network was intended to be anything other than an ATM network. *See* Les Traitments des Eaux Poseidon, Inc. v. KWI, Inc., 135 F.Supp.2d 126, 135 (D.Mass.2001) ("[The patentee] points to boilerplate language in the specification asserting that the general description is 'non-restrictive.' This general language carries little weight however. It is not possible to have an 'essential' structural feature also be 'non-restrictive.' "). However, in this case, unlike *Poseidon,* there is no evidence wherein Cisco explicitly states that it is "essential" under the patent for the network to be an ATM network.

Notwithstanding the absence of the word "essential", there is evidence in the patent history that could be interpreted as requiring that the network be an ATM network in order to distinguish this invention from the prior art. Alcatel argues that the patent examiner found, in the "Statement Of Reasons For Allowance," that ATM was the element of the invention not found in the prior art, and therefore the claims were allowed because they were limited to ATM configurations.FN10 Cisco disagrees with this interpretation. Instead, Cisco contends that the examiner found that "the use of two sets of queues, each with its own service algorithm and set of queuing parameters" was the missing element in the prior art. *See* Cisco's Responsive Brief Re: Interpretation of the Claims of U.S. Patent No. 5,765,032 (Valizadeh) ( "Cisco's '032 Responsive Brief"), at 5. In light of the conflicting interpretations, and based upon the Court's reading of the relevant passage, it is difficult to determine with certainly what the examiner found to be missing in the prior art, whether it was the use of the ATM network or the use of the two sets of queues, each with its own service algorithms and queuing parameters, or both.

FN10. The text of the relevant passage is as follows: "Although the prior art of record disclose several claimed limitations, none of the references fairly teach or suggest a method and an arrangement for queuing

and servicing egress traffic of a network, ATM network and traffic directed from a network to customer premise equipment, wherein each of the provided channel queues and port queues controlled by two service algorithms and two distinct set of queuing parameters, respectively, as recited in independent claims 1, 3, 5, 9 & 15 and the corresponding communications controller as recited in claim 16. Therefore, claims 1, 3, 5, 7, 9, 15 & 16, and their respective remaining dependent claims 10-12, 6 & 21, 8 & 22, and 17-20, are allowable over the prior art of record." Lumish Supp. Decl., Ex. F, at 3.

Regardless, Cisco points out that the terms "channels," "per-VC queuing," and "virtual circuits," which Alcatel claims to be terms used in connection with ATM networks, can be used in connection with other networks. In support of this statement, Cisco refers the Court to Alcatel's web site, in which Alcatel discusses frame relay and uses the terms "channel" and "virtual circuit" in connection with networks other than ATM networks. *See* Lumish Supp. Decl., Ex. H. Additionally, Cisco references a text on virtual private networking, which also uses the term "virtual circuit" in connection with other networks. *See* id., Ex. G.

Moreover, Cisco disputes Alcatel's contention that the applicant was his own lexicographer and therefore the Court should adopt his definition of "network" over the ordinary or accustomed meaning of the term. In order to establish that the applicant is his own lexicographer, the special meaning must appear with reasonable clarity and precision in the patent or its prosecution history. *See Hockerson-Halberstadt,* 222 F.3d at 955; Northern Telecom Ltd. v. Samsung Elecs. Co., 215 F.3d 1281, 1295 (Fed.Cir.2000). In this instance, Cisco argues that Alcatel has failed to demonstrate, other than by reference to the ATM network as the network used in the preferred embodiment, that the patentee had "an express intent to impart a novel meaning." Elekta Instrument S.A. v. O.U.R. Scientific Int'l, Inc., 214 F.3d 1302, 1307 (Fed.Cir.2000); *see also* Johnson Worldwide Assocs. v. Zebco Corp., 175 F.3d 985, 991 (Fed.Cir.1999) (noting that the varied use of a term generally shows that the term has a broad, not a limited, meaning).

Essentially, the proper construction of the term "network" turns on whether the entire patent is limited to only, as Alcatel suggests, egress from ATM networks, or if an ATM network is simply used as a continuous example in the patent, but the invention actually claims application to any type of network, as Cisco suggests. In a plain reading of the background section of the patent, it is clear that the problem that this patent sought to solve was related to the prior configuration of egress queues that would allow a busy virtual circuit to clog up an output port from a common carrier ATM network to the CPE. *See* Valizadeh, at 1:12-2:2. However, merely because the patent was developed in response to problems related to ATM networks, that does not preclude construing the claims as applying to other types of networks, if the claims are written in such a manner, and the patent examiner had accepted such claims.

In sum, Alcatel argues that where the claim term network appears separately from the term ATM, the claim is still referring to an ATM network. This is because it is used in connection with the terms "egress traffic of a network" and "egress traffic directed from a network," which Alcatel contends, as discussed below, must necessarily mean traffic moving from an ATM network to customer premise equipment. Nonetheless, Alcatel's argument regarding the "egress traffic" terms is essentially the same as its argument for "network"- that because the patent proposed to solve a problem associated with a particular type of network, the patent is necessarily limited to claiming application only to that network, despite the absence of such a limitation in the claim language. The plain meaning in the claim language, however, indicates that "network" was not intended to refer to solely an ATM network. Moreover, Alcatel has not demonstrated that the intrinsic evidence is sufficient to require such a limited construction, and overcome the presumption that the term be given its ordinary meaning. Therefore, the Court adopts the agreed upon language between the parties, and

construes "network" as "distinct set of interconnected elements used to communicate data."

**"Egress traffic of a network"**

Cisco contends that this phrase should be construed as "traffic being transmitted out of a network." Alcatel proposes that this phrase be construed as "data that has exited a network and is directed to customer premise equipment."

In support of its proposed construction, Alcatel points primarily to the "background" section of the patent where the egress traffic is directed towards customer premises equipment. *See* Valizadeh, at 1:30-38, 1:58-65. Additionally, certain other points in the specification also indicate CPE as the recipient of the traffic leaving the network. *See id*. at 3:66-4:2, Fig. 1. Moreover, Alcatel claims that the following statement in the background section shows a clear intention to define "egress traffic" as data being transmitted to customer premises equipment: "data received from the common carrier ATM network (i.e. 'egress traffic') is transmitted correctly to the customer premises equipment." *See id*. at 1:30-38.

Alcatel's arguments are unpersuasive. Aside from attempting to limit the claims to the description in the preferred embodiment, Alcatel's contention that the above sentence demonstrates a clear attempt to define "egress traffic" in accordance with Alcatel's proposed construction is incorrect. First, that sentence simply indicates that egress traffic would encompass the situation where traffic was traveling from an ATM network to CPE. It does not limit egress traffic to that situation. Second, the phrase "i.e. 'egress traffic' " is included after the phrase "data received from the common carrier ATM network." If it was intended to be limited to traffic directed to CPE, it would have been included after the phrase "transmitted correctly to the customer premises equipment." Third, the specification also indicates that it is not limiting the schemes described in the specification to the exact scenario disclosed in the specification. *See* Valizadeh, at 3:19-24 ("The queuing and servicing schemes described herein may be readily adapted to any system wherein additional granularity is desired ..."). Finally, in the "Object of the Invention" section of the patent, nowhere does it state that the egress traffic must be directed toward customer premise equipment. "[I]t is an object of the present invention to provide an improved buffering and servicing scheme in the egress direction. This and other objects of the invention are provided by a method for queuing and servicing egress traffic of a network." *Id*. at 2:6-11.

As Cisco points out, the term "egress traffic of a network" is included in several claims (claims 1, 5, 6, 9, 12, 13, and 14), and the term is only explicitly limited to traffic moving towards customer premise equipment in claims 6 and 9. Thus, where the inventor intended to limit the patent to egress traffic moving towards CPE, he was capable of doing so explicitly. Cf. CMFT, Inc. v. Yieldup Int'l Corp., 92 F.Supp.2d 359, 372 (D.Del.2000) (recognizing that when one term is used in the specification and a different term was used in the claim, the inventors were capable of referring to the first term if that was what they had intended to convey). Therefore, as discussed previously, it would be improper to read the limitations from claims referring to customer premises equipment into the claims that specifically do not refer to customer premises equipment.

While the proper construction of "egress traffic of a network" in this patent does not require the traffic to be directed to customer premises equipment, there is still some dispute over whether Cisco's proposed construction is proper. Cisco proposes the construction, "traffic being transmitted out of a network." On the other hand, Cisco's expert claims that one of ordinary skill in the art would understand the phrase to mean "traffic on its way out of a network." Lumish Decl., Ex. AA ("Acampora '032 Report"), at 4. Neither of

these definitions, however, allow for the existence of "transit traffic," which, according to Alcatel's expert, is "traffic that is being transmitted within the network, between the first and last node of the network." Lucantoni '032 Decl., at para. 28. Essentially, under Cisco's proposed construction, all traffic eventually destined to exit the network would qualify as "egress traffic," instead of traffic that actually is exiting the network. In the patent, however, "egress traffic" is always in the process of actually exiting the network, as the entire patent is designed to create a method for queuing and servicing traffic that is in the process of exiting the network. Thus, the claims are clearly referring to only that traffic that has exited or is exiting the network, not all traffic that will eventually exit the network.

Furthermore, while the claim language and specification do not limit the type of "network" to an ATM network, the claims and the specification are not referring to "egress traffic of a network" as simply any traffic that has exited or is exiting any "distinct set of interconnected elements used to communicate data," as is the proper construction of the term "network," discussed above. Since all traffic in the patent is flowing from one type of network to another, all traffic is both entering and exiting a "distinct set of interconnected elements used to communicate data" at the same time, and thus Cisco's proposed construction would not limit "egress traffic of a network" to traffic flowing in any particular direction. Instead, the patent and claim language are more accurately referring to traffic flowing from a network operating at a faster data rate (such as a common-carrier ATM network) to a network operating at a slower rate, and possibly using different protocols (such as customer premises equipment comprising a Frame Relay network). *See, e.g.,* Valencia, at 1:30-32, 37-39, 2:46-48, 3:25-29, 40-43, Figs. 1-2. Thus, when the patent discusses "egress traffic of a network," it is referring to the network operating at a faster rate, whether it is an ATM network or not.

Therefore, the proper construction of "egress traffic of a network" is "traffic that has exited or is exiting a network operating at a faster data rate and directed towards a network operating at a slower data rate."

**"Transmit channels"**

Cisco's proposed construction is "logical channels of data transmitted out of a network." Alcatel's proposed construction is "logical channels of data transmitted to the customer premise equipment."

Essentially, the same dispute exists regarding the construction of "transmit channels" as for "egress traffic of a network." Alcatel claims that it is limited to traffic directed towards customer premise equipment, and Cisco claims that there is no such limitation. Again, Alcatel cites to various points in the specification where the term transmit channels is used in connection with references to customer premises equipment. *See, e.g.,* Valizadeh, at 2:60-3:10. However, as before, the plain language of the claims indicates that "transmit channels" is not limited to data transmitted to the CPE. The term "transmit channels" is used in claims 1, 6, 7, and 12. However, the term is not explicitly referred to in connection with customer premise equipment in claims 1 and 12, but is referred to in such a way in claim 6.FN11 Furthermore, the specification itself notes that "[t]he queuing and servicing schemes described herein may be readily adapted to any system wherein additional granularity is desired for ensuring fairness when data received from multiple receive channels is to be transmitted over a single transmit channel." *Id.* at 3:20-24.

FN11. Claim 7 is dependent on claim 6.

Thus, as before, Alcatel seeks to limit the claim language based on the preferred embodiment, and seeks to read into one claim a limitation included in another claim, which are both at odds with the general

principles of claim construction.

Nevertheless, the principles of claim construction also require that the Court interpret the claims in light of the specification. *See* Network, LLC v. Centraal Corp., 242 F.3d at 1352 ("The claims are always construed in light of the specification, of which they are a part."). Accordingly, in the same manner that the specification makes clear that "egress traffic" is not merely traffic exiting any "network," neither are "transmit channels" simply "logical channels of data transmitted out of a network," as Cisco suggests. Instead, transmit channels are used to transmit data to the slower network (such as customer premise equipment). *See, e.g.,* Valizadeh, at 1:58-65, 2:60-67, 3:11-34, 3:45-55, 6:3-5, Fig. 2.

Therefore, the Court construes "transmit channels" as "logical channels of data transmitted to a network operating at a slower data rate."

**"Communications controller"**

Cisco's proposed construction for this phrase is "an apparatus containing at least the elements of claim 14." Alcatel's proposed construction is "an interface between an ATM network and customer premise equipment."

The term "communications controller" is used in independent claim 14, which sets forth elements comprising the claimed communications controller. The claim begins with the language, "A communications controller comprising ..." and then proceeds to list the elements that comprise the communications controller. *See* Valizadeh, at 8:18-35. Thus, the term is defined by claim 14. Nowhere in claim 14 is the term limited to operating between an ATM network and CPE. In claim 17, however, which is dependent on claim 14, the limitation of an ATM network is added. Therefore, as Cisco contends, the principles of claim differentiation would require that the term as used in claim 14 is not limited by the additional limitations included in claim 17.

Notwithstanding this principle, Alcatel argues that claim 17 has the additional limitation of requiring the second units of data to be frames according to a frame relay protocol. In other words, Alcatel argues that the CPE to which the data is being transmitted can operate according to ATM standards or Frame Relay standards. Since, according to Alcatel, the common carrier network from where the data is being transmitted is always an ATM network, no reorganization is necessary between the ATM network and the CPE if the CPE is operating according to ATM standards. However, if the CPE is operating under Frame Relay standards, then the incoming ATM cells must be reorganized into frames before they can be transmitted to the CPE. Alcatel asserts that it is that process that is being claimed in dependent claim 17, and the term ATM is only being used in claim 17 (as opposed to its omission in independent claim 14) in order to differentiate the ATM protocol from the frame relay protocol. Therefore, according to this argument, Alcatel's proposed construction may be adopted without disturbing the notion of claim differentiation (because the different claims would have different scopes), or making the use of the phrase ATM in claim 17 mere surplusage.FN12

FN12. Nevertheless, as discussed previously, it is the claim itself that should not be made superfluous, not every word within the claim.

Instead, Alcatel points to the specification for a definition of "communications controller," and argues that

this definition controls. The background section of the patent explicitly states: "Communication controllers act as end nodes of common carrier ATM networks and provide entry points so that customers may use the ATM networks. A communication controller connects to an ATM network using a set of one or more common carrier communications links such as high speed T3 or E3 lines, wherein customer premises equipment (i.e. user and network devices) is typically connected to a communication controller using lower speed links such as T1 or E1 lines." Valizadeh, at 1:21-29.

Nevertheless, while this information in the background section is informative, it certainly does not constitute an attempt to change the plain language of the claim that defines the elements of a "communications controller." *See* Process Control Corp. v. Hydreclaim Corp., 190 F.3d 1350, 1357 (Fed.Cir.1999) (noting that it was inappropriate to use the written description to circumvent the plain language of the claim and the clear definition for the disputed claim language found therein); Markman v. Westview Instruments, 52 F.3d at 980 ("[A]ny special definition given to a word must be clearly defined in the specification."). Furthermore, the specification also describes a "communications controller" without reference to an ATM network at column 2, lines 60-67.FN13

FN13. Additionally, Cisco puts forth extrinsic evidence in the form of testimony from its expert, to essentially recite the same legal arguments as *Cisco,* only with the addition of claiming that one of ordinary skill in the art would interpret the terms in the same manner as Cisco suggests. *See* Acampora '032 Report, at 9-10. Aside from Acampora's statements being almost entirely conclusory and offering little, if any, guidance to the Court's construction (and this observation is applicable to almost all of the disputed terms for all of the patents in suit), they are flatly rejected by Alcatel's expert, and thus neither experts' opinions can be regarded as particularly useful in construing these claims. *See* Lucantoni '032 Decl., at para.para. 23-25. Moreover, the Court finds that the meaning of the claim term is clear from the patent itself, and thus the Court need not rely on this extrinsic evidence.

Despite Alcatel's efforts to limit the communications controller to an interface between an ATM network and customer premise equipment, the language of claim 14 is clear. A communications controller in claim 14 is exactly what claim 14 is defining. Therefore, there is no reason to provide an independent construction of "communications controller." However, in an attempt to avoid confusion, the Court construes "communications controller" as "an apparatus comprising the elements of claim 14."

**"Cells"**

**"Frames"**

**"Packets"**

The constructions of these terms are somewhat interdependent, so the Court finds it useful to discuss them together. Alcatel's proposed construction for "cells" is "data formatted in accordance with ATM standards." Cisco's proposed construction for "cells" is "fixed length packets/frames." Alcatel's proposed construction for "frames" is "data formatted in accordance with the frame relay standards." Cisco's proposed construction for "frames" is "formatted set of data, not limited to frame relay." Alcatel's proposed construction for "packets" is "cells of data formatted in accordance with the ATM standards." Cisco's proposed construction for "packets" is "formatted set of data, not limited to ATM."

Alcatel argues, supported by testimony from its expert, that the term "cells" have an ordinary and common meaning to persons skilled in the art, which is data formatted according to the ATM standards. *See* Lucantoni '032 Decl., at para. 45. In the specification, the term "cells" is also defined in accordance with this construction. In particular, the patent states, "ATM networks are cell switching networks that transfer fixed length packets or 'cells' in a time multiplexed manner ..." Valizadeh, at 1:15-16; *see also* Valizadeh, at 1:45-48.

Cisco does not point to any place in the specification where the term "cells" is used in a context other than an ATM network. Nevertheless, Cisco's puts forth two arguments to refute Alcatel's proposed construction. First, Cisco claims that because the term cells is not explicitly referred to in connection with an ATM network in claim 12, as opposed to claims 3, 9, 13, and 17, which clearly refer to an ATM network in the same context as the term cells, then "cells" was not intended to be limited to data formatted only in accordance with the ATM protocol. However, if, as Alcatel argues, "cells" has an ordinary and accustomed meaning to one of ordinary skill in the art as referring only to ATM networks, then simply omitting the phrase ATM network in claim 12 does not amount to an explicit intention by the inventor to define cells in a different manner. *See, e.g.,* Apple Computer, Inc. v. Articulate Sys., Inc., 234 F.3d 14, 21 n. 5 (Fed.Cir.2000) (in order for a patentee to define terms in a way that differs from the common understanding of those skilled in the art, "a patentee must deliberately and clearly point out how these terms differ from the conventional understanding"). Nonetheless, Cisco's expert, once again in direct contrast to Alcatel's expert, claims that "[o]ne of ordinary skill in the art would understand from this that the term 'cells' alone refers to a set of data formatted for some form of network, but not only for an ATM network." Acampora '032 Report, at 9.

In looking at the dictionary definition of the term to resolve this dispute, the relevant definition of "cell" is described as follows: "A packet with fixed length. *Notes:* 1. Each cell has a 5 octet header and 48 octets of data. 2. *This definition is specific to asynchronous transfer mode (ATM). See also:* asynchronous transfer mode; cell relay." *IEEE Dictionary,* at 141 (6th ed.1996) (emphasis added).FN14 Therefore, in accordance with this definition, as well as the description of the term "cell" in the patent specification, the Court acknowledges that the common understanding of "cells" to one of ordinary skill in the art is specific to an ATM network. Furthermore, the patent does not indicate an intention to define this term differently from its customary meaning. Therefore, the Court construes the term "cells" in the ' 032 patent claims as "fixed length packets FN15 formatted in accordance with ATM standards."

FN14. *See* Alcatel's '032 Responsive Brief, Ex. A.

FN15. As discussed further below, the Court construes "packets" as "formatted set of data."

Unlike the term "cells," the terms "frames" and "packets" are not ordinarily limited to one particular type of network. *See* Acampora '032 Report, at 7-8; Lucantoni '032 Decl., at para.para. 42, 47; *IEEE Dictionary,* at 428, 740 (6th ed.1996). Nevertheless, Alcatel argues that in the context of this patent, "frames" are limited to data formatted in accordance with the frame relay standards, and "packets" are limited to data formatted in accordance with the ATM standards.

The term "frames" is used in claims 3, 5, 6, 7, 9, 10, 12, 13, and 17. Claims 3, 12, 13, and 17 specifically

refer to frames "according to a frame relay protocol," whereas the remaining claims using the term "frames" make no such reference. Therefore, this would imply that when the claims intend to limit the term "frames" to being "in accordance with the frame relay protocol," it is explicitly stated.

As before, Alcatel argues that despite the varying use of language among the claims, the term "frames" is always used in the specification as relating to a frame relay network. Since, according to Alcatel, the patent only involves ATM networks or frame relay networks, whenever the patent is using the term "frames" it is referring to data operating according to the frame relay standards. *See* Lucantoni '032 Decl., at para. 42. Such construction is supported by the examples used in the preferred embodiment. *See, e.g.,* Valizadeh, at 3:11-13, 3:61-65. However, were the Court to adopt Alcatel's proposed construction of "frames," it would be limiting the claim term solely based on the examples given in the preferred embodiment, which is inappropriate in this instance. *See* Rhine, 183 F.3d at 1346; Electro Med., 34 F.3d at 1054. Furthermore, as Cisco points out, there are parts of the specification where the term "frames" is used without necessarily referring to a frame relay network. *See* Valizadeh, at 1:45-65, 2:12-16, 2:25-27.

Therefore, the Court construes the term "frames" as "formatted set of data."

With regard to "packets," both parties agree that the customary use of the term does not refer only to ATM networks.FN16 However, Alcatel argues that the term, as it is used in the claim, is only referring to data formatted according to ATM standards.

FN16. According to the *IEEE Dictionary,* "packet" is defined as "a unit of data of some finite-size that is transmitted as a unit." *Id*. at 740 (6th ed.1996).

The term "packets" is found only in claim 6, and is used in the following manner: "a receive processor to assemble packets received from a plurality of receive channels of the network into frames, each frame being assembled based upon a respective set of the packets." Valizadeh, at 6:45-48. Nowhere in the text of claim 6 does it require that the packets come from an ATM network.

Alcatel argues, in similar fashion to its previous arguments, that the patent discloses only one type of common-carrier network, an ATM network, and thus when packets are referenced in claim 6, they must come from an ATM network. Furthermore, in the background section of the patent, the language could be read to imply that packets are synonymous with cells, as the term is used in this patent. Specifically, the patent states: "ATM networks are cell switching networks that transfer fixed length packets or 'cells' in a time multiplexed manner using a plurality of virtual paths ('VPs') and virtual channels ('VCs') defined within the physical transmission medium of the network." *Id*. at 1:15-20. Alcatel argues that the language "packets or 'cells' " indicates a clear intent to use the word "packets" as the equivalent of "cells," which, as this Court has previously acknowledged, refers only to data formatted in accordance with ATM standards.

Nevertheless, Cisco puts forth a more plausible interpretation that the phrase was simply describing "cells" as "fixed length packets," which would accord with Cisco's proposed definition of the two terms. Moreover, this explanation comports with the definition of "cells" in the *IEEE Dictionary* as noted above, which is "a packet with fixed length." *Id*. at 141 (6th ed.1996).

With nothing more, the intrinsic evidence does not indicate a desire of the patentee to define "packets" more narrowly than its customary definition. FN17 That notwithstanding, at first glance, a closer reading of claim

6 creates a problem with Cisco's proposed construction. Cisco argues that both "packets" and "frames" should be construed as "formatted set of data." However, by defining "frames" and "packets" identically, claim 6 effectively reads, "a receive processor to assemble [formatted sets of data] received from a plurality of receive channels of the network into [formatted sets of data], each [formatted set of data] being assembled based upon a respective set of the [formatted sets of data]."

FN17. Once again, both parties have submitted declarations from their experts that provide conclusory opinions as to what they each believe a person of ordinary skill in the art would interpret the term to mean in the context of the claim. Again, each experts' opinion is in direct contrast with the others, and essentially just restates the respective parties' opinion.

Normally, the Court will not construe a term to have its ordinary or accustomed meaning "where the term or terms chosen by the patentee so deprive the claim of clarity that there is no means by which the scope of the claim may be ascertained from the language used." *Johnson Worldwide Assocs.,* 175 F.3d 990; *see also* K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1363 (Fed.Cir.1999). Nevertheless, the Court finds that Cisco's proposed construction does not create this result. Claim 6 clearly intends to assemble a set of data formatted in a certain way into a set of data formatted in a different way. "Proper claim construction ... demands interpretation of the entire claim in context, not a single element in isolation." Hockerson-Halberstadt, Inc., 183 F.3d at 1374. The term "packets" is used in the claim simply to distinguish that formatted set of data from "frames," which is a set of formatted in a different way from "packets," without requiring either set of data to be formatted in a particular way. This is in contrast to the use of the term "cells" in other claims, which is used to describe a set of data formatted specifically in accordance with ATM standards. Thus, the Court finds that the term "packets" has the same meaning as the term "frames," but the two terms are used in conjunction in claim 6 in order for one of ordinary skill in the art to recognize that the two terms refer to formatted sets of data that are formatted differently from each other.

Therefore, the Court construes the term "packets" as "formatted set of data."

**"First plurality of egress queues"**

**"Second plurality of egress queues"**

Cisco's proposed construction for the phrase "first plurality of egress queues" is "two or more queues consisting of the organization in memory of the first units of data (claim 1) or frames (claim 6)." Cisco's proposed construction for "second plurality of egress queues" is "two or more queues, different from the first plurality of egress queues, consisting of the organization in memory of the first units of data (claim 1) or frames (claim 6)." Alcatel's proposed construction of the two phrases are "two or more queues consisting of the organization in memory of data generated from the egress traffic of a network," and "two or more queues, different from the first plurality of egress queues, consisting of the organization in memory of data generated from the egress traffic of a network," respectively.

Since the construction of the phrase "second plurality of egress queues" is agreed upon between the parties-in that it is two or more queues that are different from the first plurality of egress queues, and incorporates the same construction of "first plurality of egress queues" as proposed by each party-the Court will adopt this agreed upon construction of "second plurality of egress queues", and simply determine the proper construction of "first plurality of egress queues."

Cisco's proposed construction effectively reads out the word "egress" from the term. Instead, Cisco proposes to construe the term based on the constructions for the terms "first units of data" and "frames." Curiously, Cisco also argues, as discussed below, that "first units of data" requires no construction. Therefore, were the Court to adopt Cisco's proposed construction, "first plurality of egress queues," as used in claim 1, would be interpreted as simply two or more queues consisting of the organization in memory of a first set of data units, without any regard for the direction that those units are traveling, which is an explicit component of the term. This Court will not ignore the word "egress" in construing the term "first plurality of egress queues." *See* Unique Concepts, Inc. v. Brown, 939 F.2d 1558, 1562 (Fed.Cir.1991) (recognizing that all limitations in a claim are considered meaningful).

Moreover, Cisco offers no evidence from the patent to support its proposal, other than its claim that since claim 1 refers to "first units of data" as comprising the "first plurality of egress queues," and claim 6 refers to "frames" in the same context, the term should be construed based on those terms. As mention above, construing "first plurality of egress queues" based on the terms "first units of data" and "frames" ignores the use of the word "egress" in the claim term, and therefore does not provide a proper construction of the term. Even Cisco's reliance on the testimony of its expert does not support its construction. Prof. Acampora bases the reasoning behind his proposed construction of the term, which, of course, is identical to Cisco's proposed construction, on the opinion that "one of ordinary skill in the art would be very familiar with queues, and would understand them to be logical organization of data in memory." Acampora '032 Report, at 4-5. However, this claim is not simply dealing with queues, but rather with egress queues; it is this very limitation that Cisco fails to recognize in its proposed construction.

Alcatel's proposed construction comports with the language of the claim, as well as the patent specification. In particular, the patent identifies "egress queues", and the word "egress" in general, as coming from the direction of a network. *See* Valizadeh, at 1:35-40, 2:60-67. Therefore, the Court adopts Alcatel's proposed construction of "first plurality of egress queues" as "two or more queues consisting of the organization in memory of data generated from the egress traffic of a network." Accordingly, the proper construction of "second plurality of egress queues" is "two or more queues, different from the first plurality of egress queues, consisting of the organization in memory of data generated from the egress traffic of a network."

**"First units of data"**

Alcatel's proposed construction is "the units of data generated from the data received from the receive channels." FN18 Cisco believes this term is plain on its face and has no special or uncommon meaning, and thus should not be construed by the Court.

FN18. The parties have agreed that the term "receive channels" should be construed as "logical channels of data received by the network." Revised Joint Statement, Ex. C, at 43.

Alcatel argues that its proposed construction is supported by the specification, in particular Figure 3 and its description. *See* Valizadeh, at 4:5-9, Fig. 3. However, Alcatel's construction is not supported by the claim language.FN19 First, the word "generated" does not appear as part of the specification referenced by Alcatel, or in the claim language in claim 1. In fact, it is only in dependent claims 2 and 3 where the claim language specifically discusses the notion of generating the first units of data described in claim 1. Thus, there is no support for using the language from a dependent claim to interpret the term in an independent claim, when such language is absent from the independent claim. Second, Alcatel's proposed construction

would render the language of claim 14 to effectively read as follows: "A plurality of receive channels to receive [the units of data generated from the data received from the receive channels.]" The Court will not unnecessarily construe a term to create that type of confusion and inconsistency in the reading of a claim. Moreover, the claim language specifically refers to the origin of the "first units of data" in claims 1 and 2 as the receive channels, again making it unnecessary to construe this claim in order to incorporate that concept into the claim.

FN19. The term "first units of data" is found in claims 1-3, 14, and 17.

The only apparent reason why the term "first units of data" was used instead of simply "units of data" was to distinguish it from "second units of data," which is found in claims 2 and 3. Thus, there is no additional meaning ascribed to that term that would require construction. Therefore, the Court agrees with Cisco that the term "first units of data" requires no further construction in order to describe its origin.

**"Virtual channels"**

Although the Revised Joint Statement indicates that there is a dispute between the parties over the proper construction of this term (Ex. C, at 47), Cisco has indicated in its opening brief that it no longer disputes Alcatel's proposed construction. "Cisco agrees that 'virtual channels' may be defined in the claims as 'logical channels of data received from the network.' " Cisco's Opening Claim Construction Brief Concerning U.S. Patent No. 5,765,032 (Valizadeh) ("Cisco's '032 Opening Brief"), at 15. Furthermore, neither party has advanced any argument indicating any continued dispute over the proper construction of this term. Accordingly, the Court adopts the construction of this term as "logical channels of data received from the network."

**C. '052 (DePrycker) Patent**

The '052 patent is entitled "Packet Switching Network." As it relates to the claims asserted in this case, this patent, filed in 1986, essentially provides a system for avoiding traffic congestion on a network by first determining whether the communication path selected to transmit particular data packets has the necessary capacity to transmit that data. Only after such a determination has been made are those packets sent along that communication path.FN20

FN20. Once again, this description is intended solely as a generalized summary of the invention. The Court's actual construction of the disputed terms is set forth below.

The parties dispute the proper construction of the following terms:

^ "multiplexing means"

^ "multiplexed output data stream"

^ "processing means"

^ "to form part of said output data stream or not"

^ "total traffic load"

^ "traffic load parameters (ABR, MBR)"

^ "said total traffic load being obtained from traffic load parameters (ABR, MBR) of each of the said input data streams forming part of output data stream"

^ "means to select one of its transmit ports and to transfer packets arriving at one of their receive ports to said selected transmit port"

^ "path setup packet (SETUP)"

^ "first information (ABR, MBR) comprising said traffic load parameters which are indicative of the traffic load constituted by communication packets to be transmitted along said path subsequently to the transmission of said path set up packet"

^ "storage means (ALC, MLC) for storing second information"

^ "second information indicative of said total traffic load constituted by communication packets belonging to communications handled by the switching module"

**"Traffic load parameters (ABR, MBR)"**

Alcatel's proposed construction is "two or more parameters each of which characterize at least the data rate of an input data stream." Cisco's proposed construction is "values identifying the traffic load."

Alcatel argues that, in construing the term "traffic load parameters," the Court should first construe the term "traffic load." Alcatel contends that the ordinary meaning of "traffic load" is some measure of data transmitted over some time period. In other words, according to Alcatel, it is an amount of traffic, expressed as a rate.FN21 Alcatel claims that patent specification supports this construction. In particular, Alcatel cites a portion of the specification that reads, "To this end, the average value ABR and the maximum value MBR of the traffic load or bit rates of the forthcoming communication ..." DePrycker Supp., col. 4, 11. 44-47 (hereinafter DePrycker, at 4:45-47). Alcatel contends that the language "traffic load or bit rates" is a clear definition of "traffic load" as synonymous with "bit rates." Furthermore, Alcatel argues that in every embodiment of the ' 052 patent, "two different parameters each characterizing a rate of a proposed stream are compared to a predetermined limit that is defined in terms of a rate." Alcatel's Responsive Markman Brief on Claim Construction Regarding United States Patent No. 5,020,052 (DePrycker et al.) ("Alcatel's '052 Responsive Brief"), at 9 (citing DePrycker, at 4:45-5:11, 6:5-30, 6:41-59, 7:19-24, 10:26-46).

FN21. Alcatel also argues that the plural term "parameters" indicates a requirement of more than one parameter.

Additionally, the claim language itself cites rates (ABR (average bit rate) and MBR (maximum bit rate)) when referring to "traffic load parameters." *See* DePrycker, at 15:16-19, 15:43-46. Finally, according to Alcatel's expert, "one of ordinary skill in the art at that time would have understood the term 'load,' used with reference to data communications system, to mean an amount of bandwidth (i.e.capacity) which is

measured in terms of rate as opposed to a quantity that could be described by generic traffic parameters." Lucantoni '052 Decl., at para. 28.

Cisco's primary contention with Alcatel's proposed construction is its argument that "traffic load parameters" do not always need to be expressed as rates. Cisco's entire support for this argument is the testimony of its expert, Prof. Acampora, who claims, as does Cisco, that "traffic load parameters" are not always traffic rates. Acampora cites three examples of parameters from a prior art reference that are not rates. *See* Lumish Decl., Ex. S ("Acampora '052 Report"), at 10. Nevertheless, Lucantoni disputes these references, and Acampora's conclusion in general, claiming that those references are examples of traffic descriptors, not traffic load parameters. *See* Lucantoni '052 Decl., at para. 29. Therefore, neither experts' opinion is particularly helpful to the Court in determining the ordinary or accustomed meaning of the term.

In construing claim terms, when the inventor was not his own lexicographer (which the inventor was not with regard to this term), there is first a presumption that the term has its full ordinary or accustomed meaning. *See* K-2 Corp., 191 F.3d at 1362-63; Johnson Worldwide Assocs., 175 F.3d at 989 ("[A] court must presume that the terms in the claim mean what they say, and, unless otherwise compelled, give full effect to the ordinary and accustomed meaning of claim terms."). In this instance, it is unclear whether or not the accustomed meaning requires the traffic load parameters to be expressed in terms of a rate. Nevertheless, the ordinary or accustomed meaning of the term, whether it requires the use of rates or not, must also be tested against the particular use of the word in the patent, in order to determine its proper construction. *See, e.g.,* Cortland Line v. Orvis Co., 203 F.3d 1351, 1356-57 (Fed.Cir.2000) (after determining the ordinary meaning of a disputed word, the court proceeded to compare that word to its use in the patent specification and the prosecution history).

Here, as evidenced by the references to "traffic load" and "traffic load parameters" in the claims and the specification as referring to rates, plus the complete lack of intrinsic evidence identified by Cisco in support of its construction and in opposition to Alcatel's construction, the Court finds that the term "traffic load parameters (ABR, MBR)" as used in claims 6 and 9 FN22 is to be construed as "two or more parameters each of which characterize at least the data rate of an input data stream." FN23

FN22. Claim 9 is dependent on claim 6.

FN23. The term "input data stream" has been agreed upon by the parties to mean "data steam entering the data processing system." *See* Revised Joint Statement, Ex. A, at 5. It is clear from the plain language of claim 6 that the parameters are based on the input data stream. *See* DePrycker, at 15:8-19.

**"Multiplexed Output Data Stream"**

Alcatel's proposed construction is "a data transmission sent out from the data processing system including data from selected multiple data transmissions received by the data processing system." Cisco's proposed construction is "data stream which exits a port of a data processing system and is made up of data from the input data streams transmitting through the port."

This claim element is found in claim 6, which reads in pertinent part: "Data processing system including multiplexing means wherein input data streams are multiplexed so as to form a multiplexed output data

stream applied to at least one output of the system ..." FN24 DePrycker, at 15:8-11.

FN24. The parties have already agreed that the term "output of the system" is properly construed as "hardware through which data exits the data processing system." *See* Revised Joint Statement, Ex. A, at 6.

The difference between the parties' proposals hinges on Cisco's incorporation of the word "port" into its proposed construction.FN25 Somewhat ironically, the parties take almost completely opposite views on claim construction for this patent compared with the previous patent. Here, Cisco argues that the Court should look to the underlying purpose of the patent in order to determine that the phrase requires the word "port" be read into the construction. In contrast, Alcatel points out that the claim language itself never uses the word "port," nor indicates that the "output data stream" must necessarily exit through a single, common port. *See* Northern Telecom Ltd. v. Samsung Elecs. Co., Ltd., 215 F.3d 1281, 1290 (Fed.Cir.2000) (noting that unstated limitations should not be read into the claim language).

FN25. As indicated in their respective briefs, the parties are in agreement that ports are the entry and exit locations of a system. *See* Alcatel's Opening Markman Brief on Claim Construction Regarding United States Patent No. 5,020052 (DePrycker et al.) ("Alcatel's '052 Opening Brief"), at 10 n. 16; Cisco's Responsive Claim Construction Brief Concerning U.S. Patent No. 5,020,052 (DePrycker) ("Cisco's '052 Responsive Brief"), at 6.

In looking at the language of claim 6, the word "port" is certainly not included, nor does the language appear to limit the multiplexed data output stream to a single output, as the language clearly states, "applied to at least one output of the system." Id. at 15:10-11 (emphasis added). Moreover, as evidenced from a reading of claim 9, which is dependant on claim 6, the inventors were capable of using the term "port" when they intended to limit their claim in such a way. *See* id. at 15:34-38.

Regardless, in combining the language of the patent and the parties' agreed upon construction of the term "output of the system," the claim language is clear that the "multiplexed output data stream" is applied to hardware through which data exits the data processing system. Thus, there is no reason for the Court to further define "multiplexed output data stream" to incorporate the location through which the data stream exits, since that limitation is already included elsewhere in the claim.FN26

FN26. Cisco relies heavily on extrinsic evidence to support its proposed construction. While the Court agrees with Cisco as to a portion of its proposed construction, the Court finds no need to analyze Cisco's extrinsic evidence in this instance because the meaning of the disputed term is clear from an analysis of the intrinsic evidence. *See, e.g., Vitronics,* 90 F.3d at 1583 ("In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence.").

Additionally, Cisco objects to Alcatel's use of the word "selected" in its proposed construction. In this regard, Cisco argues that, while not all input data streams of the *entire data processing system* are part of the "multiplexed output data stream," all input data streams *multiplexed onto a particular output port* are part of the "multiplexed output data stream." Alcatel does not disagree with this assessment, and in fact notes that "[d]eleting the word 'selected' in Alcatel's proposed construction would still accurately reflect the clear

meaning of the phrase." Alcatel's '052 Responsive Brief, at 3. Thus, the dispute over this term does not appear material, since neither party disagrees that not all input data streams are necessarily part of the "multiplexed output data stream," but all input data streams selected to be multiplexed onto an output of the system are part of that "multiplexed output data stream."

Therefore, the Court construes the term "multiplexed output data stream" as "a data transmission sent out from the data processing system made up of data from input data streams."

**"Total Traffic Load"**

Alcatel's proposed construction is "information indicative of the aggregate traffic of a multiplexed output data stream obtained from the traffic load parameters." Cisco's proposed construction is "comparator for the total traffic of all input data streams on an output port."

Essentially, Alcatel relies on its proposed constructions for the terms "multiplexed output data stream" and "traffic load parameters," discussed above, in its definition of the term "total traffic load." Cisco, on the other hand, seeks to construe this term by using the word "comparator" FN27 and, once again, incorporating the word "port." In addition to disputing the use of these words in Cisco's construction, Alcatel also disputes the use of the word "all."

FN27. Cisco submits that the word "comparator" is intended to mean a value used for a comparison, and is willing to substitute the word "value" instead.

A plain reading of the claim supports Alcatel's view. The language of claim 6 clearly indicates that the total traffic load is obtained from traffic load parameters of each of the input data streams that comprise the multiplexed output data stream. *See* DePrycker, at 15:8-19. Cisco is correct that the use of the word total does imply that the total traffic load is comprised of the traffic load parameters from all of the input data streams. However, as stated in the claim, it is the total of the traffic load parameters of all of the input data streams *that form the multiplexed output data stream* that determine the total traffic load, and not all of the input data streams on an output *port,* as Cisco suggests.FN28 Therefore, the proper construction of "total traffic load" is "information indicative of the aggregate traffic of a multiplexed output data stream obtained from the traffic load parameters of all input data streams forming said multiplexed output data stream."

FN28. To the extent that this distinction is insignificant because all input data streams selected to be multiplexed onto an output of the system are actually part of the "multiplexed output data stream," this is dealt with in the discussion of "multiplexed output data stream."

**"Multiplexing Means"**

The Court agrees with the parties that this term is to be construed as a means-plus-function term. According to the Revised Joint Statement, the parties agree that the identified function is "multiplexing input data screams to form a multiplexed output data stream," and the corresponding structure is identified in DePrycker, at 3:8-31, 4:31-47, 5:4-14, Fig. 2. *See* Revised Joint Statement, Ex. A, at 5.

As previously discussed, the parties have essentially combined the two steps of first identifying and then construing the relevant function into one step. The properly identified function for this means is

"multiplexing," which is properly construed as "multiplexing multiple input data streams to form a multiplexed output data stream." FN29 Thus, no further construction is necessary.

FN29. The Court added the word "multiple" to the parties' agreed upon construction of "multiplexing," in accordance with the ordinary meaning of the term. *See Webster's Ninth New Collegiate Dictionary,* 779 (1987) (defining "multiplex" as "being or relating to a system of transmitting several messages simultaneously on the same circuit or channel"). Additionally, since the parties do not dispute the meaning of the word "multiplexing," the Court will not provide a separate construction for this word.

**"Said Total Traffic Load Being Obtained From Traffic Load Parameters (ABR, MBR) of Each of Said Input Data Streams Forming Part of Said Output Data Stream"**

Alcatel's proposed construction of this phrase is "the total traffic load which is obtained from traffic load parameters (ABR, MBR) of each of the said input data streams forming part of output data stream." Cisco's proposed construction is "at least one traffic load parameter for every input stream into the multiplexing means is included in the total traffic load."

The primary difference between the parties' proposals is whether there must be more than one parameter included in the total traffic load, as Alcatel suggests, or if only one parameter is sufficient, as Cisco suggests. However, on August 2, 2002, Cisco submitted a brief entitled Notice to the Court Re Claim Construction Positions. In that brief, Cisco stated that "Cisco will agree to Alcatel's position that, tc form the 'total traffic load' of the claims of the '052 patent, two or more types of traffic load parameters are used from each input stream forming part of the output stream." Cisco's Notice to the Court Re Claim Construction Positions ("Cisco's Notice to the Court"), at 1.

Therefore, in light of this concession, there is no real distinction between the two parties' proposed constructions of this term. Thus, the Court construes the above term as "the total traffic load which is obtained from traffic load parameters (ABR, MBR) of each of the said input data streams forming part of output data stream." FN30

FN30. Cisco points out that there is still a dispute as to whether or not the "total traffic load" is obtained from the traffic load parameters from *every* input stream that forms part of the output stream. *See* Cisco's Notice to the Court, at 1. As noted above in the discussion of "total traffic load," the Court finds that the total traffic load is obtained from the traffic load parameters of all input data streams forming the multiplexed output data stream.

**"To Form Part Of Said Output Data Stream or Not"**

Alcatel's proposed construction for this term is "decision whether or not to include an input data stream into the multiplexed output data stream." Cisco's proposed construction is "yes/no decision to include an input stream into the output stream of a port or not."

Both parties recognized that the dispute regarding this term centers around the argument of whether or not the decision of whether to include an input stream into the output stream is definitive. The other dispute concerns Cisco's use of the word "port" in the definition, which was dealt with previously in the discussion of "multiplexed output data stream."

The Court regards the parties dispute over their proposed constructions as virtually insignificant. In plain English, the claim states that the decision is whether to "allow said input data stream to form part of said output data stream *or not*." DePrycker, at 15:13-14 (emphasis added). Either the input data stream will be allowed to form part of the output data stream, or it will not. By its very terms, that is clearly a definitive decision at that time. Nevertheless, the Court sees no need to confuse the unambiguous language of the patent with awkward terminology such as "yes/no decision." Therefore, the Court construes the term "to form part of said output data stream or not" as "a decision whether or not to include the input data stream as part of the multiplexed output data stream."

**"Path Setup Packet (SETUP)"**

Alcatel's proposed construction for the term "path setup packet (SETUP)" is "a packet which contains the traffic load parameters for other packets in the corresponding data stream." Cisco's proposed construction is "initial control packet for an input stream which prepares a path through a network to be followed by other packets of the same communication as the path setup packet, and which contains the traffic load parameters for other packets in the communication."

While it is clear that the "path setup packet" contains the traffic load parameters for the packets in a corresponding communication, the parties' dispute centers on whether the "path setup packet" is required to be the first packet in that communication, which is then followed by the packets in that communication. Cisco argues that, when reading the claims together-claims 1 and 14 in particular-it is clear that the "path setup packet" was intended to be the first packet of a communication. *See* DePrycker, at 14:43-53, 16:43-54. On the other hand, Alcatel argues that the language of claim 9 does not require that the "path setup packet" be the initial packet in a communication, and that the language in claims 1 and 14 refer to a "first packet (SETUP)" instead of a "path set up packet," and thus the doctrine of claim differentiation mandates that the scope of the claims be construed differently. *See, e.g.,* Comark Communications, 156 F.3d at 1187; *but see* Wenger Mfg., Inc. v. Coating Machinery Sys., Inc., 239 F.3d 1225, 1233 (Fed.Cir.2001) ("[C]laim differentiation is not a 'hard and fast rule of construction,' and cannot be relied upon to 'broaden claims beyond their correct scope.' ").

Nevertheless, as Alcatel itself argued to the Court in the context of the claim construction for other patents at issue in this case, claim differentiation only assumes that different *claims* have different meanings, not that every *term* in every claim has a different meaning. *See* Wenger Mfg., 239 F.3d at 1233 ("Under the doctrine of claim differentiation, each *claim* in a patent is presumptively different in scope.") (emphasis added). Therefore, since claims 1 and 14 differ in scope from claim 9 in many ways other than the use of the term "first packet (SETUP)" instead of "path setup packet (SETUP)," requiring the "path setup packet" to be the first packet in a communication would not run afoul of the doctrine of claim differentiation.

Additionally, the language in claim 14 states that "said first packet is said path set-up packet (SETUP)," and the specification identifies the first packet in a communication as the "call set up control packet." *See* DePrycker, at 4:23-24, 16:53-54. In light of the language in the claims and the specification, the Court agrees with Cisco that the "path setup packet" is the first packet in a communication. However, Cisco's argument that the term should also be construed to require that the other packets in the same communication necessarily follow the "path setup packet" does not find support in the claim language.

Therefore, the Court construes the term "path setup packet (SETUP)" as "the initial packet in a data stream

which contains the traffic load parameters for other packets in that data stream."

**"First Information (ABR, MBR) Comprising Said Traffic Load Parameters Which Are Indicative of the Traffic Load Constituted By Communication Packets To Be Transmitted Along Said Path Subsequently to the Transmission of Said Path Set Up Packet"**

Alcatel's proposed construction for this term is "two or more parameters each of which are indicative of the traffic load constituted by communication packets to be transmitted along said path subsequently to the transmission of said path set up packet." Cisco's proposed construction is "values identifying traffic characteristics of the packets comprising a communication."

The parties have offered practically no argument in support of their respective positions, as this term does not even appear in Alcatel's opening brief, nor does it appear in Cisco's responsive brief. To the extent that the term does appear in Cisco's opening brief and Alcatel's responsive brief, neither party explains how this term contains any disputed language that does not include terms already construed by the Court, such as "traffic load parameters" and "path setup packet." FN31

FN31. Additionally, as noted above, Cisco has recently agreed with Alcatel's position that the "total traffic load" is comprised of two or more types of traffic load parameters. Thus, to the extent that the dispute over the construction of this term is based on Cisco's argument that the total traffic load only requires at least one traffic load parameter, that dispute no longer exists.

Therefore, the Court finds no reason to redefine terms already-construed, and accordingly construes the term "first information (ABR, MBR) comprising said traffic load parameters which are indicative of the traffic load constituted by communication packets to be transmitted along said path subsequently to the transmission of said path set up packet" as "traffic load parameters which are indicative of the traffic load constituted by communication packets to be transmitted along said path subsequently to the transmission of said path set up packet."

**"Second Information Indicative of Said Total Traffic Load Constituted By Communication Packets Belonging to Communications Handled By the Switching Module"**

Alcatel's proposed construction for this term is "information indicative of the total traffic load." Cisco's proposed construction is "values reflecting the accumulated traffic load for all of the communications that flow through a port." FN32

FN32. In its briefs, Cisco represents that its proposed construction is "the value or values reflecting the accumulated traffic load for all of the communications that flow through all of the ports of a switching module." Cisco's Opening Claim Construction Brief Concerning U.S. Patent No. 5,020,052 (DePrycker) ("Cisco's '052 Opening Brief"), at 15; Cisco's ' 052 Responsive Brief, at 14. This proposed construction differs from the proposed construction indicated in the Revised Joint Statement, which is quoted above. In order to avoid confusion, the Court will consider both of Cisco's proposals in determining the proper construction of the disputed term.

Alcatel does not identify any support for its proposed construction, which the Court finds to be overly broad. According to the language in the claim, the term is referring to information describing the total traffic

load for all communications flowing through the switching module. Cisco acknowledges this in its opening brief. *See* Cisco's '052 Opening Brief, at 15 ("The claim language is also self-explanatory in describing the second information as indicating the total traffic load for all of the communications that flow through a switching module.").

However, as described in the specification, the "second information" consists of "the average and maximum values of the accumulated traffic loads constituted by all the communications flowing through [a] transmit port TX1/TX8." DePrycker, at 4:34-37. According to the patent, that information is necessary to determine whether that transmit port can accept the communication seeking to be transmitted by comparing the traffic load of the communication (identified in the path setup packet) with the total traffic load flowing through that transmit port, and determining whether the additional traffic load of the communication would exceed the maximum allowed traffic on that communication line. *See* id. at 4:31-5:14.

Thus, while the claim language containing the disputed term does not expressly limit the "second information" to information indicative of the total traffic load for only one output source, and in fact seems to imply that the information is indicative of the total traffic load for the entire switching module, the preferred embodiment does limit the information to describing the accumulated traffic load on only one given output port among many output ports on the switching module. In this regard, the term cannot be construed, as Cisco suggests, as referring to the "second information" as the *combined* accumulated traffic loads for every output port on a switching module, as that construction would read out the preferred embodiment, identified in Figure 2, which shows that the information is for a single transmit port, in order to allow a decision to be made as to whether the communication path would be able to flow through that transmit port.

Therefore, the Court construes the term "second information indicative of said total traffic load constituted by communication packets belonging to communications handled by the switching module" as "information indicative of the accumulated traffic load for all of the communications flowing through at least one output of the switching module."

**"Storage Means (ALC, MLC) For Storing Second Information"**

The Court agrees with the parties that this term is a means-plus-function term. As discussed previously, the construction of means-plus-function terms involves first identifying the function, then construing the function in accordance with the ordinary principles of claim construction, then identifying the corresponding structure that performs the identified function.

As is clear from the plain language of the term, the function is identified as "storing second information." In accordance with the Court's construction of the term "second information," the function is construed as "storing information indicative of the accumulated traffic load for all of the communications flowing through at least one output of the switching module."

The parties agree that the corresponding structure is identified in the ' 052 patent at 4:31-34, 4:45-67, 7:37-41, 8:26-33, 10:66-11:4, 11:15-18, 11:28-33, 13:2-12, 13:63-66, 14:14-19, Fig. 2. *See* Revised Joint Statement, Ex. A, at 11.

**"Processing Means"**

The Court agrees with the parties that this term is a means-plus-function term. As identified in the claim

language, the function is "allowing a said input data stream to form part of said output data stream or not, depending on the result of a comparison of a total traffic load with a predetermined traffic load." *See* DePrycker, at 15:13-16. Since the operative language in the function has already been construed, the Court finds that no further construction is necessary.

The parties agree in large part on the identification of the corresponding structure. The corresponding structure for the above function is identified in the '052 patent at 3:19-23, 4:31-5:14, Fig 2.

**"Means to Select One of Its Transmit Ports and to Transfer Packets Arriving At One of Their Receive Ports to Said Selected Transmit Port"**

The Court agrees with the parties that this term is a means-plus-function term. The parties agree that the function identified by the above term is "selecting a transmit port and transferring packets from the receive ports to the selected transmit port." The Court finds that no further construction of the above function is necessary.

Once again, the parties largely agree on the identification of the corresponding structure. The corresponding structure for the above function is identified in the '052 patent at 3:11-26, 3:54-59, 4:31-5:14, Fig. 2.

**D. '599 (Li) Patent**

The '599 patent is entitled "Standby Router Protocol." Simply put, this patent, filed in 1994, proposes methods for providing continuous routing of data packets such that if a router which is forwarding packets from a host malfunctions or is otherwise inoperable, that data which would have been forwarded by that router will instead be forwarded by another router.

The parties dispute the proper construction of the following terms:

^ Virtual router

^ Group virtual address

^ Coup message

^ Means for adopting the group virtual address

^ Means for issuing a coup message

^ The router will attempt to become the active router

^ Means for disabling, at least temporarily, the means for issuing a coup message

^ Primary router address

^ Standby router

^ Means for assuming a status of standby router (for backing up the active router)

^ Priority

^ Means for automatically comparing the priority (of the router with the priority of the current active router in the network segment)

^ Resign message

^ Means for issuing a resign message

^ Means for removing the group virtual address from an address filter

^ Means for issuing a hello message (to notify other routers)

^ Hello message to notify other routers

^ Means for detecting when a hello message has not been received

^ Means for automatically changing from the status of standby router to the status of active router

^ Means for automatically inserting the group virtual address into an address filter

^ Means for addressing data packets to a virtual router

^ Means for selecting the active router and the standby router (from among the at least two routers)

^ Means for emulating a virtual router

^ The physical router will attempt to become the active router

^ The ability to issue coup messages can e disabled at least temporarily

^ Means for preventing the host from communicating directly with the active router

^ An FDDI or ethernet MAC address for a nonfunctioning router

^ A token ring functional address which is unused by any IP protocols on the router

^ Means for determining a priority of the routers in a network segment

^ Automatically selecting a new active router based upon comparison of the priorities of the multiple routers in the network

^ Said active and standby routers are provided with the ability to issue coup messages for notifying another active router that the active or standby router will attempts to become the active router

^ Detecting a coup message from a new router indicating that is wishes to take over as the active router

^ Selecting the new router as the active router if its priority is higher than that of the active router

^ Disable, at least temporarily, the router's ability to issue a coup message

**"Virtual Router"**

Cisco's proposed construction of "virtual router" is "logical router that is identified by addresses which can be shared by physical routers." FN33 Alcatel's proposed construction is "a virtual entity defined by a group virtual MAC address and a group virtual network layer address that can be emulated by a physical router assuming the state of the active router."

FN33. In the Revised Joint Statement, on which the Court is relying in determining the parties proposed constructions, Cisco actually proposed the following construction: "Logical router that is identified by addresses which can be *adopted* by physical routers." Revised Joint Statement, Ex. B, at 13 (emphasis added). However, in its opening claim construction brief, Cisco once again alters its proposed definition, to Alcatel's disadvantage, since Alcatel's opening brief relied upon the proposed construction contained in the Revised Joint Statement. Nevertheless, because the Court finds both of Cisco's proposed constructions overly broad in light of the patent, the Court does not find it necessary to decide whether Cisco should be held to the proposed construction that they originally put forth, or their new proposed construction.

The patent specification contains the following definition of virtual router:

A virtual router in this invention is defined by virtual MAC layer and network layer (e.g., IP) addresses which are shared by a group of routers running the protocol of this invention. The router selected by the protocol to be the active router (R1, R2 or R3 in this case) adopts these virtual MAC and network layer addresses-possibly in addition to its own addresses-and thus receives and routes packets destined for the group's virtual router.

Li Supp., col. 6, 11. 46-53 (hereinafter Li, at 6:46-53).

This definition contemplates the "virtual router" being defined by virtual MAC layer and network layer addresses. Cisco argues that this definition was not meant to be a definition of "virtual router" since it was not contained in the "Definitions" section of the patent. The Court finds this language inconclusive, as the above language in the specification clearly states that it is defining "virtual router" as it is used "in this invention," and is not simply limiting the definition to a particular embodiment, but the language is found within the description of the preferred embodiment, and therefore it may simply be implied that it is describing only the invention identified in the preferred embodiment.FN34

FN34. Regardless, even if the definition of "virtual router" was referring to the preferred embodiment, that would not preclude the Court from using that definition to construe the claim term "virtual router" if the term "virtual router" is used throughout the patent in a manner consistent with only that definition. *See* Bell Atlantic Network Svcs., Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1271 (Fed.Cir.2001); *see also* Comark, 156 F.3d at 1186 ("We recognize that there is sometimes a fine line between reading a claim in light of the specification, and reading a limitation into the claim from the specification.").

Instead, Cisco attempts to define "virtual router" by using the term "logical router," which is not a term used anywhere in the patent, nor is it claimed to be a term of art, and therefore provides no guidance in defining "virtual router." Cisco offers nothing to support its argument other than the conclusory statement that claim 10 (the first claim to introduce the term "virtual router") "shows that the 'virtual router' is the logical router to which packets are addressed by a host." Cisco's Opening Claim Construction Brief Concerning U.S. Patent No. 5,473,599 (Li) ("Cisco's '599 Opening Brief"), at 7. However, claim 10 never refers to a "logical router," and thus does not support Cisco's proposed construction.

Cisco also argues that a "virtual router" does not have to be comprised of both MAC layer and network layer addresses. In support of this argument, Cisco points to the definition of "virtual address." In that definition, the patent describes the virtual router as adopting "one or more virtual addresses." Li, at 4:36-37. Cisco claims that this demonstrates that a virtual router can be comprised of one or more addresses, and not simply a combination of MAC and network layer addresses. However, Cisco seemingly ignores the next sentence in the definition, which defines a virtual address as encompassing "both MAC layer and network layer addresses" in preferred embodiments. Thus, when the patent defines the virtual router as adopting "one or more virtual addresses," it is referring to adopting one or more combinations of MAC and network layer addresses. Nevertheless, the fact that the patent specifically identified the MAC layer and network layer address as the type of addresses used in preferred embodiments is an indication that the invention could be applicable to other types of addresses.

Finally, Cisco argues that the principles of claim differentiation do not allow the Court to construe "virtual router" as being defined by MAC and network layer addresses because claims 16 and 27 expressly add this address combination as a limitation to claims 10 and 21. However, while the principles of claim differentiation instruct that a claim term should not be construed so as to make a claim superfluous, Alcatel's proposed construction would not make claims 16 and 27 superfluous because they differ from claims 10 and 21 in ways other than the reference to MAC and network layer addresses. *See* Tate Access Floors, 222 F.3d at 967; Comark Communications, 156 F.3d at 1187. In particular, both claims 16 and 27 refer to an IP address rather than simply a network layer address, which, as Cisco's expert acknowledges, is significant since the invention could be used on IPX networks, which do not use IP addresses at all. *See* Lumish Decl., Ex. DD ("Halpern '599 Report"), at 9. Furthermore, claim 16 requires the virtual router of claim 10 to have an IP address and MAC address that is distinct from the IP and MAC addresses of the two or more other routers, thus providing an additional limitation. *See* Li, at 18:37-40.

Despite the flaws in Cisco's arguments, Alcatel's proposed construction is also not without error. Alcatel's argument is entirely based on the language defining "virtual router" in the preferred embodiment, as well as Alcatel's assertion that the specification discloses only MAC and network layer addresses. While the Court agrees that the patent discusses only MAC and network layer addresses, the claim language and the specification (other than the preferred embodiment) indicate that the claims are broader than simply MAC and network layer addresses.

In particular, claims 1 to 9 claim a router that is capable of adopting a group virtual address and becoming the active router,FN35 without any limitation to any particular type of address that must be adopted, be it a MAC address, a network layer address, or both. *See id.* at 17:4-55. Furthermore, claim 10-where the term "virtual router" is first used-also does not make any reference to MAC or network layer addresses. In fact, the first time the terms MAC address or IP address are used in the claims is not until claim 16. while the Court recognized above that claim differentiation does not necessarily indicate that claim 10 was intended to exclude those limitations, the fact that no reference was made in 15 prior claims to any specific type of

addresses that must be used in this patent would apprise one of ordinary skill in the art that those claims were not limited to those specific types of addresses.

FN35. The parties agree that an "active router" is "a router emulating the virtual router." *See* Revised Joint Statement, Ex. B, at 14.

When reading the claims in light of the specification, the Court finds that while a "virtual router" is a virtual entity that is defined by a group virtual MAC address and a group virtual network layer address in the preferred embodiment, there is no limitation to those specific types of addresses. A MAC address is "intended to apply to a specific physical device no matter where it is plugged into the network." *Id*. at 4:25-27. As the patent notes, "This should be distinguished from the case of a network layer address ... which changes depending upon where it is plugged into the network." *Id*. at 4:29-32. Hence, a "virtual router" requires an address capable of being emulated by a physical router (i.e. the active router) that identifies both a physical device and its location in the network. To the extent that another address or set of addresses other than the combination of a MAC address and a network layer address is capable of performing this function, then that type of address or set of addresses could be used to define the "virtual router."

In sum, while Alcatel's proposed construction generally complies with the language of the patent, it limits the claims beyond what the claim language provides. Furthermore, Cisco's proposed construction is overly broad and does not provide a workable definition of a "virtual router." Therefore, the Court construes the term "virtual router" as used in claims 10 through 28 to be "a virtual entity defined by an address or set of addresses capable of identifying a device and its location in the network that can be emulated by a physical router."

**"Group Virtual Address"**

Cisco's proposed construction for "group virtual address" is "an address shared by a group of real network entities and corresponding to a virtual entity." Alcatel's proposed construction is "the MAC address and network layer address of the virtual router."

Both parties essentially rely on the same arguments put forth for the construction of "virtual router." In particular, Cisco's proposed construction is identical to the definition of "virtual address" provided in the patent. *See id*. at 4:33-34. However, following that definition, the patent states that "one router from among a group of routers emulates a virtual router by adopting one or more virtual addresses." *Id*. at 4:35-37. Therefore, in light of the Court's construction of "virtual router," which defines the requirement of the "virtual address", the term "group virtual address" is more accurately defined as "the address of the virtual router."

Thus, the Court construes "group virtual address" as "the address of the virtual router."

**"Coup Message"**

Cisco's proposed construction for "coup message" is "communication sent from one router to another that can cause the sending router to take over as the active router." Alcatel's proposed construction is "a message that is unicast by any router only to the active router to notify such active router that the router sending the message wishes to become the active router."

The major difference between to two proposals is that Alcatel seeks to limit the coup message as used in this patent as only being unicast from the sending router to the active router, while Cisco claims that the coup message can be broadcast to more than one router at a time. Since "coup message" is not explicitly defined in the patent, nor is it a term commonly known to one of ordinary skill in the art, the Court must look to the term's use in the patent, and the overall purpose of the patent, in order to glean its proper meaning as used in the claims. *See* Apple Computer v. Articulate Sys., 234 F.3d at 25 ("[T]he claim must be interpreted in light of the teachings of the written description and purpose of the invention described therein."); Hockerson-Halberstadt, Inc. v. Avia Group Int'l, Inc., 222 F.3d 951, 956 (Fed.Cir.2000) (looking to the written description of the patent in order to determine the meaning of a claim term).

The specification provides support for both proposed constructions. At one point in the specification, the patent describes the "coup message" as being "*broadcast* ... to the active router." Li, at 12:56-57 (emphasis added). However, elsewhere the specification states that "a coup message *may only be received* by the active router." Li, at 14:67-15:1 (emphasis added).

Nevertheless, as used in the claim language, "coup message" is not described as being either broadcast or unicast. It is only described as being intended to "notify a current active router that the router [sending the coup message] will attempt to become the active router." *Li,* at 17.-14-16; *see also* Li, at 18:4-6; 19:2-4; 20:20-23. Therefore, the Court will not limit the term "coup message" to only a unicast message, because it is not so limited in the claim language, and the preferred embodiment is not clear on whether the reference to the "coup message" being received only by the active router was meant to limit a "coup message" to a unicast transmission in all instances. *See* Rhine, 183 F.3d at 1346 (particular embodiments in the specification should not be read into the claims when the claim language is broader than such embodiments).

Thus, the Court construes the term "coup message" as "communication sent from one router to notify the active router that the router sending the message wishes to become the active router."

**"Resign Message"**

Cisco's proposed construction for "resign message" is "a message sent by an active router to inform one or more other routers that the active router will resign its status as active router." Alcatel's proposed construction is "a message, sent by the active router to inform other routers that the active router intends to leave the network, which is unicast by the active router in response to the active router's receipt of a coup message, and is otherwise broadcast."

The proposals follow the same argument pattern seen in justification for the parties' proposed constructions of "coup message." In particular, Cisco argues that the claims do not limit the dissemination of the "resign message" to a unicast message when it is in response to a "coup message." Cisco also points to areas in the specification where the "resign message" is in fact broadcasted, however, it is important to note that none of the examples of a broadcasted "resign message" are in response to a "coup message."

Nevertheless, in contrast to the above discussion of the proper construction for "coup message," where the patent specification did not indicate that the "coup message" necessarily had to be unicast in all circumstances, the patent specification does explain that the "resign message" *must* be unicast in response to a "coup message," otherwise it would conflict with the purpose of the patent. *See* Li, at 12:61-13:3. Therefore, the Court will construe the term so that it comports with the purpose of the patented invention. *See* Apple Computer v. Articulate Sys., 234 F.3d at 25.

Additionally, the Court disagrees with Alcatel that the term "resign message" cannot be defined using the word "resign." The Court finds the meaning of the word "resign" to be plain on its face, and, furthermore, the patent itself uses this term to explain the purpose of a "resign message."

Thus, the proper construction for "resign message" is "a message, sent by the active router to inform other routers that the active router will be resigning from its status as active router, which is unicast by the active router in response to the active router's receipt of a coup message, and is otherwise broadcast."

**"Hello Message to Notify Other Routers"**

Cisco's proposed construction for "hello message to notify other routers" is "a message that operates in whole or in part to notify one or more other routers that the sending router is operational." Alcatel's proposed construction is "a message that includes information indicative of router priority and router status that is broadcast by the active router, the standby router, and, in limited circumstances, a new router."

Once again, the claim language does not provide a clear indication of what is precisely contained in a "hello message," nor is a specific definition set forth in the patent specification. It is clear from the claim language, as well as the language in the specification, that a "hello message" is at least partly intended to notify other routers in the network that a particular router is operational in the system. *See* Li, at 8:49-51, 17:34-36. However, as Alcatel points out, the patent indicates that a "hello message" is also intended to let other routers on the network know of the statuses of the active and standby routers. *See id*. at 8:67-9:5.

Nevertheless, while the patent's summary does indicate that a hello message "preferably includes a router priority, a router status, and the group virtual address," FN36 the Court does not read this language as requiring the construction of a "hello message" to include these elements. In fact, claim 7 specifically adds the elements of router priority, router status, and group virtual address to the "hello message" identified in claim 5, thereby indicating that the "hello message" in claim 5 need not necessarily contain those additional elements. *See id*. at 17:34-36, 45-47.

FN36. Li, at 3:2-4.

Therefore, the Court construes the term "hello message to notify other routers" as "a message intended at least in part to notify other routers that the sending router is operational."

**"Standby Router"**

Cisco's proposed construction for "standby router" is "a router that backs up the active router and may become the active router under certain circumstances." Alcatel's proposed construction is "the router operating in the standby state based on an election to designate that router as the router that will assume the duties of the active router when the active router leaves the network."

Once again, the parties' arguments follow the same pattern: Alcatel argues that, because this is not a term generally known to one of ordinary skill in the art, the Court must look to the patent specification to ascribe meaning to the term; Cisco argues that the claim language does not limit the term in the manner that Alcatel suggests, and hence the term should be construed as broadly as the claim language supports. Again, the Court finds it necessary to look to the language and the purpose of the patent in order to discern the claim

term's intended meaning, which cannot be inconsistent with the manner in which the term is used in the claims. *See* Georgia-Pacific Corp. v. United States Gypsum Co., 195 F.3d at 1332 ("The specification of the patent in suit is the best guide to the meaning of a disputed term."); Apple Computer v. Articulate Sys., 234 F.3d at 25.

The essential differences between the parties' proposed constructions for "standby router" is that Alcatel contends that (1) there can only be one standby router existing at a given time, (2) the standby router is selected by an "election," and (3) the standby router will automatically assume the duties of active router when the active router leaves the network. Cisco's proposed construction does not contain these limitations.

Alcatel points to portions of the specification that support its construction. In particular, the specification describes an example of when the standby router is selected by election, in order to replace the previous standby router that automatically took over as the active router when the previous active router left the group. *See* Li, at 9:6-26. Furthermore, the specification and the claim language appear to contemplate only one standby router operating at a time. *See, e.g.,* Li, at 9:67-10:11, 17:67-18:1.

However, Cisco points out that claim 19 adds an additional limitation to claim 10 that includes a "means for determining a priority of the routers in the network segment." *Id.* at 18:47-50. Cisco contends that the routers' priorities are the values by which an election may be held,FN37 and thus the standby router discussed in claim 10 cannot be limited to a designation by election, because the criteria used in such an election (i.e. the routers' priorities) are specifically incorporated in dependent claim 19.

FN37. The patent specifications describes the elections as priority-based elections. *See* Li, at 9:27-42.

Nevertheless, there is no other indication in the patent of how the new standby router is to be designated once the previous standby router becomes the active router, other than by election. This process is so fundamental to the patent, that it is even explained in the abstract: "If the standby router becomes inoperative or takes over for the active router, other routers in the group hold an election to determine which of them should take over for the standby router." Li, at Abstract. However, nothing in the claims or the specification *require* that the standby router always be designated by election (for example, if the network administrator chooses to designate the standby router), and therefore the Court will not read this requirement into the claim.

Finally, while the patent allows for only one router to function as the standby router at a given time, as Alcatel asserts, the patent does contain instances where the standby router does not become the active router when the active router leaves the network, as Cisco asserts. In particular, when the active router resigns in response to a coup message, as defined above, the active router unicasts a resign message to the sender of the coup message, and the sender, not the standby router, then becomes the active router. *See* Li, at 12:61-13:3. However, the patent does require that the standby router automatically become the active router when the standby router receives a resign message from the active router, or when the standby router does not receive a hello message from the active router within a specified amount of time. *See, e.g.,* Li, 14:1-7, 14:57-15:3. Additionally, the patent recognizes other scenarios under which a standby router will become the active router. *See id.* at 9:60-64.

Therefore, the Court construes the term "standby router" to mean "the router that backs up the active router and becomes the active router under certain circumstances, such as upon receipt of a resign message from

the active router, or when a hello message is not received from the active router within a specified amount of time."

**"Priority"**

Cisco's proposed construction of "priority" is "a value assigned to a router that may be used in the determination of the active router and the standby router." Alcatel's proposed construction is "a value assigned to each router that is used to make the determinations of the active router and the standby router."

The difference between the parties' respective constructions is whether the active and standby routers *must* be determined by priority, or if other methods may be used. However, the Court does not find it proper to construe this term to describe how the term functions in the invention, since the function of "priority" is identified separately in the claims. *See, e.g.,* Li, at 19:11-12 ("[S]electing the new router as the active router if its *priority* is higher than that of the active router.") (emphasis added). The Court instead will construe solely the meaning of the term "priority," which, as the parties agree, is "a value assigned to a router."

**"Primary router address"**

Cisco's proposed construction for "primary router address" is "address associated with the router for a particular interface as a principal identifier of the router." Alcatel's proposed construction is "the network layer address of the router."

Alcatel's contends that its proposed construction is supported by the specification, which refers several times to a "primary IP address." *See, e.g.,* Li, at 9:38-42, 10:63-65. While this is certainly true, the specification also refers several times to a "primary MAC address." *See, e.g.,* Li, at 15:41-48, 15:63-16:32. Furthermore, the claim language itself does not indicate whether the "primary router address" is required to be a network layer address or a MAC address, although the patent only identifies the primary address as being either a network layer address or a MAC address. Aside from those references, however, neither the patent language nor the parties offer any additional guidance as to the proper construction of the term "primary router address."

Nevertheless, it is apparent that the claim language does not limit the "primary router address" to only the network layer address, or to any particular type of address for that matter. Additionally, the use of the terms "primary IP address" and "primary MAC address" in the specification indicate that "primary address" is referring to the principal identifying address of the router, as opposed to the "virtual address," which is the address of the router when it is emulating the "virtual router."

Therefore, the Court construes the term "primary router address" as "address associated with the router as a principal identifier of the router."

**"The Router Will Attempt to Become the Active Router"**

**"The Physical Router Will Attempt to Become the Active Router"**

**"The Ability to Issue Coup Messages Can Be Disabled at Least Temporarily"**

**"Disable, at Least Temporarily, the Router's Ability to Issue a Coup Message"**

The Court agrees with Cisco that these terms are plain on their face and do not require additional construction.

**"An FDDI or Ethernet MAC Address for a Nonfunctioning Router"**

Cisco's proposed construction for this term is "a MAC address for an FDDI or ethernet network, which address is not assigned to a physical router functioning in the network." Alcatel argues that claim 17, in which the above term appears, is indefinite and thus does not meet the requirements of 35 U.S.C. s. 112 para. 2. Alcatel contends that claim 16, on which claim 17 depends, is unclear because it contains the phrase "*the* two or more routers" (emphasis added), and there is no clear indication what routers are being referenced. However, the Court finds it clear that "the two or more routers" in claim 16 is referring to the "at least two physical routers" discussed in claim 10, on which claim 16 depends, and thus Alcatel's argument for indefiniteness fails in this regard.

Furthermore, Alcatel contends that claim 17 is also indefinite because there is no support in the patent to explain what is meant by "a nonfunctioning router." According to Alcatel, one is left to wonder whether this refers to "a virtual router, a broken-down router, or to some other form of router." Alcatel's Opening Markman Brief on Claim Construction Regarding United States Patent No. 5,473,599 (Li et al.) ("Alcatel's '599 Opening Brief"), at 24.

Notwithstanding that argument, while the Court agrees that the patent is devoid of an explanation of "nonfunctioning router," FN38 according to Cisco's expert, the term "nonfunctioning router" would be known to one of ordinary skill in the art to refer to a router that is not functioning in the network. *See* Halpern '599 Report, at 25. Alcatel offers no evidence to refute this assertion, nor does Alcatel even claim that "nonfunctioning router" has no meaning to one of ordinary skill in the art.

FN38. None of the passages in the specification identified by Cisco refer to a "nonfunctioning router," or anything that can be understood to mean a "nonfunctioning router."

Nevertheless, even accepting that "nonfunctioning router" is a term known to one of ordinary skill in the art, Cisco's proposed construction does not comport with the meaning of that term. Cisco seeks to construe the language as an FDDI or ethernet MAC address not assigned to a functioning router. However, the claim term does not refer to an address not assigned to a functioning router; the term refers to an address assigned to a *nonfunctioning router*.

Therefore, Alcatel's argument that claim 17 is indefinite fails, and the Court construes the term "an FDDI or ethernet MAC address for a nonfunctioning router" to mean "an FDDI or ethernet MAC address that is assigned to a router not functioning in the network."

**"A Token Ring Functional Address Which is Unused By Any IP Protocols on the Router"**

Cisco's proposed construction for this term is "a token ring network address which is not being used by the IP protocols of a physical router." In similar fashion as before, Alcatel argues that claim 18, in which the

above term appears, is indefinite and thus does not meet the requirements of 35 U.S.C. s. 112 para. 2. Alcatel contends that the references in claim 18 to "the MAC address" and "the router" of claim 16 is unclear, because there are three different MAC address and routers discussed in claim 16, and therefore there is no way to determine which of those three addresses and routers is being discussed in claim 18.

The Court finds that the phrase "the MAC address" is referring to the MAC address of the virtual router, in the same manner that the phrase "the MAC address" used in claim 17 was also referring to the MAC address of the virtual router. Moreover, if phrase "the MAC address" is referring to the MAC address of the virtual router, then the phrase "the router" must similarly be referring to the virtual router. However, as indicated by the parties' briefs, there is confusion as to whether this is the case. As noted, Alcatel argues that there is uncertainly as to what router is being referenced, since it could be any router referenced in claim 10, such as the virtual router, the active router, or the standby router. Furthermore, Cisco also appears uncertain as to what is meant by "the router," since it initially argues and seeks a construction that "the router" is referring to "a physical router," and then later argues that "the router" instead corresponds to the virtual router. *See* Cisco's '599 Opening Brief, at 15; Cisco's Responsive Brief Re: Interpretation of the Claims of U.S. Patent No. 5,473,599 (Li) ("Cisco's Responsive '599 Brief"), at 19; Revised Joint Statement, Exhibit B, at 36. Even Cisco's expert disagrees that "the router" is the virtual router, and instead argues that it means "a particular router," and proposes a construction that uses the term "physical router." *See* Halpern '599 Report, at 25-26.

The specification only adds to the confusion, as it discloses the following: "In a token ring arrangement, the virtual MAC address can be obtained from 1 of 32 well-known "functional addresses" used by protocols over token ring. *It is important to choose a functional address that is not going to be used in the system in which the standby protocol is running*." Li, at 15:49-53 (emphasis added). This language does not provide any clarity as to what router in the system in which the standby protocol is running is the router that cannot use the functional address. In fact, it appears that the language is referring to all routers in the system, which is directly at odds with the claim language that specifically refers to "the router." Li, at 18:44-46.

The obvious lack of clarity as to what is meant by "the router" is indicative of the fact that those of ordinary skill in the art would not necessarily interpret the bounds of claim 18 in a uniform manner. The Court therefore finds that the claim, when read in light of the specification, does not reasonably apprise those skilled in the art of the scope of the invention. In light of this conclusion, the Court is unable to properly construe the terms in claim 18 as that claim is currently written. While the Court is mindful of the relatively low threshold for finding a claim in compliance with section 112 paragraph 2, the Court cannot rewrite the terms chosen by the patentee. *See* K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1364 (Fed.Cir.1999) ("Courts do not rewrite claims; instead, we give effect to the terms chosen by the patentee.").

In this instance, claim 18 fails to "point[ ] out and distinctly claim[ ] the subject matter which the applicant regards as his invention," and hence the claim is indefinite. *See* 35 U.S.C. s. 112 para. 2; *see also* Solomon v. Kimberly-Clark Corp., 216 F.3d 1372, 1378 (Fed.Cir.2000) ("Determining whether a claim is definite requires an analysis of whether one skilled in the art would understand the bounds of the claim when read in light of the specification. If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, s. 112 demands no more.").

**"Automatically Selecting a New Active Router Based Upon Comparison of the Priorities of the Multiple Routers in the Network"**

**"Said Active and Standby Routers are Provided with the Ability to Issue Coup Messages for**

**Notifying Another Active Router that the Active or Standby Router Will Attempt to Become the Active Router"**

**"Detecting a Coup Message from a New Router Indicating that it Wishes to Take Over as the Active Router"**

**"Selecting the New Router as the Active Router if Its Priority is Higher than that of the Active Router"**

These terms are found in either independent claim 21 or its dependent claims (claims 22 through 28). Since Alcatel argues that claim 21 is indefinite, it contends that these terms are unable to be construed. In contrast, Cisco argues that these terms are plain on their face, and do not require construction.

In reviewing claim 21, the Court agrees with Alcatel that the claim is confusing when read in light of the specification. In particular, claim 21 states the following: "automatically selecting a *new active router* based upon a comparison of the priorities of the multiple routers in the network, wherein said *active* and standby routers are provided with the ability to issue coup messages for notifying another *active* router that the *active* or standby router will attempt to become the *active* router ..." Li, at 18:66-19:4 (emphasis added). Thus, the claim describes an active router notifying another active router that it will attempt to become the active router. However, the specification contemplates the existence of only one active router at any one time. *See* Li, at 4:42-44 ( "*Usually* various members of the group each have the capacity of adopting the virtual address ( *although not at the same time* ) to emulate a virtual entity." (emphasis added)). Therefore, it is possible that one skilled in the art would not understand the bounds of claim 21, and therefore claim 21 would not satisfy the requirements of 35 U.S.C. s. 112 para. 2.

Nevertheless, as Cisco points out, claim 21 distinctly allows for the existence of more than one active router when it identifies "another active router," and therefore there is no ambiguity in reading the claim. In this regard, the Court agrees with Cisco. In other words, regardless of whether this claim comports with one's understanding of the patent as a whole, the scope of the claim can be understood from the claim and the specification. Thus, that is all that is required to satisfy section 112 paragraph 2. *See, e.g.,* Solomon v. Kimberly-Clark Corp., 216 F.3d at 1378.

To the extent that the specification does not enable one to perform the method described in claim 21, that is an invalidity argument under 35 U.S.C. s. 112 para. 1, which is not properly before the Court at this time.FN39

FN39. The distinction between enablement and definiteness is discussed in more detail in the context of the '019 (Valencia) patent, *infra*.

Therefore, despite the potential for invalidity of the claim at a later point in the proceedings, the Court does not find that claim 21-or its dependent claims-are indefinite. Furthermore, the above phrases do not contain any terms requiring construction that have not already been construed previously, and thus the Court finds that the above terms are plain on their face and require no further construction.

**"Means for Adopting the Group Virtual Address"**

The parties dispute 16 terms that they characterize as means-plus-function terms, pursuant to 35 U.S.C. s. 112 para. 6. The Court agrees with the parties that the terms they identify as means-plus-function terms are in fact means-plus-function terms. As discussed previously, the construction of means-plus-function terms involves first identifying the function, then construing the function in accordance with the ordinary principles of claim construction, then identifying the corresponding structure that performs the identified function.

When identifying the corresponding structure, the Court must point out structures identified in the specification that are "clearly linked" to the function recited in the claim. *See* Kahn v. General Motors Corp., 135 F.3d at 1476. However, such structures are not limited to physical objects. When, as here, the structure is an object (i.e. a router) programmed to carry out a specific algorithm, that algorithm also becomes part of the corresponding structure. *See* WMS Gaming, Inc. v. Int'l Game Technology, 184 F.3d 1339, 1348-49 (Fed.Cir.1999) ("In a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm."); *see also* Overhead Door Corp. v. Chamberlain Group. Inc., 194 F.3d 1261, 1273 (Fed.Cir.1999) (holding that accused garage door system and software disclosed in patent did not have an identical "structure" corresponding to the means element because they used different algorithms to perform the recited function.).

Both parties agree that the function identified in the term "means for adopting the group virtual address" is "adopting the group virtual address." Since the term "group virtual address" has already been construed by the Court, as noted above, no further construction of this function is necessary. Having reviewed the specification,FN40 the Court identifies the corresponding structure as Li, at 6:58-62, 7:51-54, 12:43-49, 15:30-48, 16:45-52, Fig. 5.

FN40. Moreover, in looking at the Prosecution History, the patent amendment specifically recognizes that the "means for adopting the group's virtual address" occurs at step 190 of Figure 5. *See* Li, at CLA 0240106.

**"Means for Issuing a Coup Message"**

The parties agree that the function identified in the above term is "issuing a coup message." Having already construed the meaning of "coup message," this function requires no further construction.

With regard to the corresponding structure, having reviewed the specification, FN41 the Court identifies the corresponding structure as Li, at 5:27-6:8, 7:8-15, 11:66-12:10, 12:54-60, 14:45-49, 14:52-56, 14:67-15:1, Figs. 1, 5.

FN41. Again, in looking at the Prosecution History, the patent amendment specifically recognizes that the " 'means for issuing a coup message' and [the] 'means for disabling ... the means for issuing a coup message' ... are shown in Fig. 5 at steps 184 and 182, respectively." Li, at CLA 0240106.

**"Means for Disabling, at Least Temporarily, the Means for Issuing a Coup Message"**

The parties agree that the function identified by the above term is "disabling, at least temporarily, the means for issuing a coup message." No further construction is necessary.

With regard to the corresponding structure, having reviewed the specification, FN42 the Court identifies the corresponding structure as Li, at 11:59-60, 12:5-7, 16:33-53, Fig. 5.

FN42. *See also* Li, at CLA 0240106.

**"Means for Assuming a Status of Standby Router (for Backing Up the Active Router)"**

The function identified by the above term is "assuming a status of standby router for backing up the active router." Since the terms "standby router" and "active router" have already been construed, no further construction is necessary.

With regard to the corresponding structure, having reviewed the specification, FN43 the Court identifies the corresponding structure as Li, at 9:10-18, 9:22-26, 9:32-42, 9:46-48, 9:67-10:2, 10:12-45, 11:22-32, 11:38-45, 11:61-63, 15:4-20, Figs. 3-5.

FN43. *See also* Li, at CLA 0240106 ("[T]he means for assuming the status of standby router of claim 2 is indicated at step 166 of Fig 4.").

**"Means for Automatically Comparing the Priority (of the Router with the Priority of the Current Active Router in the Network Segment)"**

The function identified by the above term is "automatically comparing the priority of the router with the priority of the current active router in the network segment." Since the terms "priority" and "active router" have already been construed, no further construction is necessary.

With regard to the corresponding structure, having reviewed the specification, FN44 the Court identifies the corresponding structure as Li, at 4:64-5:39, 7:8-15, 8:67-9:5, 10:24-27, Figs. 4-5.

FN44. *See also* Li, at CLA 0240106 ("A priority and a means for comparing priorities (claim 3) is indicated in Fig. 4 at step 160 and in Fig. 5 at step 180").

**"Means for Issuing a Resign Message"**

The function identified by the above term is "issuing a resign message." Since "resign message" has already been construed, no further construction is necessary,

With regard to the corresponding structure, having reviewed the specification, the Court identifies the corresponding structure as Li, at 5:27-6:8, 7:8-15, 8:32-41, 11:33-36, 12:61-13:3, 14:57-61, Fig. 1.

**"Means for Removing the Group Virtual Address from an Address Filter"**

The function identified by the above term is "removing the group virtual address from an address filter."

Since "group virtual address" has already been construed, and neither party requests construction of the term "address filter," no further construction is necessary.

With regard to the corresponding structure, having reviewed the specification, the Court identifies the corresponding structure as Li, at 12:61-67, 15:30-48, Fig. 5.

**"Means for Issuing a Hello Message (to Notify Other Routers)"**

The function identified by the above term is "issuing a hello message to notify other routers." Since "hello message to notify other routers" has already been construed, no further construction is necessary.

With regard to the corresponding structure, having reviewed the specification, FN45 the Court identifies the corresponding structure as Li, at 5:27-6:8, 8:67-9:5, 10:23-24, 10:32-37, 10:49-11:32, 13:25-30, Figs. 1, 4.

FN45. *See also* Li, at CLA 0240106 ("A means for issuing a hello message (claim 5) is indicated in Fig. 4 at step 158.").

**"Means for Detecting When a Hello Message Has Not Been Received"**

The function identified by the above term is "detecting when a hello message has not been received." No further construction of this function is necessary.

With regard to the corresponding structure, having reviewed the specification, FN46 the Court identifies the corresponding structure as Li, at 8:67-9:10, 10:4-9, 10:17-23, 10:53-65, 11:18-32, 12:43-47, 13:8-10, 13:22-30, 13:49-61, Figs. 3-5, 7.

FN46. *See also* Li, at CLA 0240106 ("A means for 'detecting when a hello message has not been received from the current active router'.. (claim 6)[is] indicated in Fig. 3 at step[ ] 144.").

**"Means for Automatically Changing From the Status of Standby Router to the Status of Active Router"**

The function identified by the above term is "automatically changing from the status of standby router to the status of active router." Since the terms "standby router" and "active router" have already been construed, no further construction is necessary.

With regard to the corresponding structure, having reviewed the specification, FN47 the Court identifies the corresponding structure as Li, at 6:40-43, 6:58-62, 9:6-10, 9:19-22, 9:38-46, 9:58-10:11, 11:18-22, 11:36-37, 11:63-65, 16:33-53, Figs. 2a, 3-5.

FN47. *See also* Li, at CLA 0240106 ("[A] means for 'automatically changing from the status of standby router to the status of active router' (claim 6)[is] indicated in Fig. 3 at step[ ] ... 146.").

**"Means for Automatically Inserting the Group Virtual Address into an Address Filter"**

The function identified by the above term is "automatically inserting the group virtual address into an address filter." Since "group virtual address" has already been construed, and neither party requests construction of the term "address filter," no further construction is necessary.

With regard to the corresponding structure, having reviewed the specification, the Court identifies the corresponding structure as Li, at 6:58-67, 7:51-54, 8:62-65, 10:61-11:9, 12:9-10, 15:30-48, 16:45-52, Fig. 5.

**"Means for Addressing Data Packets to a Virtual Router"**

The parties agree that the function identified by the above term is "addressing data packets to a virtual router." Since the term "virtual router" has already been construed, all other terms within the above term have their ordinary meaning and no further construction is necessary.

With regard to the corresponding structure, having reviewed the specification, the Court identifies the corresponding structure as Li, at 1:11-14, 4:7-9, 4:34-40, 4:45-50, 6:9-26, 6:40-57, 6:54-7:7, 8:62-65, Figs. 2a, 2b.

**"Means for Selecting the Active Router and the Standby Router (From Among the at Least Two Routers)"**

The function identified by the above term is "selecting the active router and the standby router from among the at least two routers." Since "active router" and "standby router" have already been construed, no further construction is necessary.

With regard to the corresponding structure, having reviewed the specification, the Court identifies the corresponding structure as Li, at 4:64-5:39, 6:59-62, 9:6-10, 9:19-22, 9:27-42, 9:58-10:11, Figs. 3-4.

**"Means for Emulating a Virtual Router"**

The parties agree that the identified function for the above term is "emulating a virtual router." No further construction is necessary.

With regard to the corresponding structure, having reviewed the specification, the Court identifies the corresponding structure as Li, at 4:34-44, 6:59-63, 7:51-54, 8:62-65, 15:30-48, 16:45-52, Figs. 2a-2b.

**"Means for Preventing the Host from Communicating Directly with the Active Router"**

Alcatel argues that claim 14, which contains the above term, is indefinite and thus does not meet the requirements of 35 U.S.C. s. 112 para. 2. In particular, Alcatel argues that the phrase "means for preventing the host from communicating directly with the active router" contained in dependent claim 14 conflicts irreconcilably with the portion of independent claim 10 that states "the active router communicating with the host." According to Alcatel, "[a] router cannot communicate with a host that does not communicate back to it." Alcatel's '599 Opening Brief, at 23. Thus, Alcatel argues that claim 14 is either nonsensical, or it attempts to improperly remove a limitation contained in the independent claim. *See* Texas Instruments, 988 F.2d at 1171 (holding that a claim cannot be construed so as to read an express limitation out of the claims).

However, Alcatel's argument fails for two reasons. First, Alcatel points to nothing in the patent or extrinsic

to the patent that supports its assertion that a router cannot communicate with a host that does not communicate back to it. Therefore, the Court cannot blindly accept Alcatel's deduction without any supporting evidence, in which case there is no contradiction between claims 10 and 14. Furthermore, claim 14 specifically allows the prevention only of direct communication from the host to the active router; nothing in the claim would prevent the host from communicating with the active router via an intermediary, to the extent that is possible. *See* Ethicon Endo-Surgery, Inc. v. United States Surgical Corp., 93 F.3d 1572, 1582 (Fed.Cir.1996) ("We must give meaning to all the words in [the] claims." (quoting Exxon Chemical Patents, Inc. v. Lubrizol Corp., 64 F.3d 1553, 1557 (Fed.Cir.1995))).

As a result, claim 14 is not indefinite, and the above means-plus-function term requires construction. The function identified by the above term is "preventing the host from communicating directly with the active router." Since the term "active router" has already been construed, no further construction of the above term is necessary.

With regard to the corresponding structure, having reviewed the specification, the Court identifies the corresponding structure as Li, at 5:27-6:8, Fig. 1.

**"Means for Determining a Priority of the Routers in a Network Segment"**

The parties agree that the identified function is "determining a priority of the routers in a network segment." No further construction is necessary.

With regard to the corresponding structure, having reviewed the specification, the Court identifies the corresponding structure as Li, at 4:64-5:39, 7:8-15, 8:67-9:5, 10:23-27, 11:54-56, 12:2-6, 12:50-54, Figs. 4-5.

**E. '271 (Seid) Patent**

The '271 patent is entitled "Virtual Private Network." In short, this patent, filed in 1996, proposes a mechanism for operating an improved virtual private network FN48 that functions on the framework of a packet-switching physical network. In particular, the patent proposes a method for providing service and controlling the traffic for this virtual private network independent of the other traffic operating on the physical network.

FN48. This term, as well as the description of the patent in general, is provided only as an overview of the patent and is not indicative of the construction of that term, which is set forth in its entirety below.

The parties dispute the proper construction of the following terms:

^ virtual private network

^ virtual path

^ providing a level of service to the traffic associated with the particular customer of the packet-based network independent of all other traffic on the packet based network outside of the virtual private network's logical

^ domain identification means ... for identifying the respective virtual circuits and virtual paths used by the virtual private network to which the packets are associated

^ pseudo virtual path

**"Virtual Private Network"**

Alcatel's proposed construction for "virtual private network" is "a collection of packet-based network elements logically connected over one or more physical paths." Cisco's proposed construction is "collection of logical nodes and virtual paths dedicated to one network customer." The primary differences between the two constructions is that Cisco seeks to limit the "virtual private network" to being comprised of "virtual paths" FN49 and being dedicated to only one customer, while Alcatel seeks a construction without such limitations.

FN49. In its proposed construction of "virtual path," discussed below, Cisco seeks to limit that term as referring to a logical path with guaranteed bandwidth. Therefore, Cisco's construction of "virtual private network," because it contains the term "virtual path", would necessarily also be limited to guaranteed bandwidth, if the Court were to adopt Cisco's construction of "virtual path."

In determining the proper construction for this term, the Court will first look to the claim language itself. *See* Kraft Foods, 203 F.3d at 1366. In this regard, when the term "virtual private network" FN50 is used in the claim language, it is always specifically described to include "a collection of packet-based network resources including respective network elements, customer premises equipment, virtual paths, and corresponding virtual circuits." *See, e.g.,* Seid Supp., col. 20, 11. 15-18; col. 21, 11. 27-30; col. 23, 11. 3-6 (hereinafter Seid, at 20:15-18, 21:27-30, 23:3-6). Thus, limiting "virtual private networks" to being comprised solely of logical nodes and virtual paths, or limiting it only to network elements, would be at odds with the claim language.

FN50. Since the purpose of this patent is to devise an "improved" virtual private network, it is undisputed that virtual private networks existed before this patent was issued. Unfortunately, there is no consensus from the parties' experts as to what that term meant to one of ordinary skill in the art at that time, so the Court finds the extrinsic evidence of little help.

Next, the Court turns to the language in the specification. *See* Interactive Gift Express v. CompuServe, 256 F.3d at 1336 ("Despite the plain language of the claims, we turn to the specification to discern whether [the inventor] attributed a different meaning to the term ..."). Here, the specification provides support for both parties' constructions. The specification describes virtual private networks as being "simply a collection of network resources taken from an underlying network." Seid, at 1:46-47. The "virtual private network" in this invention is also described as follows:

According to the present invention, in a packet switching (packet-based) network, such as a frame relay (FR) network, which includes network resources made up of networked elements and customer premises equipment interconnected by one or more physical paths, *a VPN [virtual private network] is built above the underlying network and includes selected portions of the network resources. The VPN is a collection of logical nodes and virtual paths (VPs) and includes one or more virtual circuits (VCs),* each VC being a

logical connection between CV terminators including network elements and customer premises equipment.

Seid, at 2:56-66 (emphasis added).

Elsewhere, the patent again describes a "virtual private network" as "a collection of logical nodes and virtual paths," although the patent history shows that Alcatel specifically described the "virtual private network" to include "a collection of network resources including network elements, customer premises equipment, virtual paths, and corresponding virtual circuits." *Id*. at 5:32-34, AL0001143.

Taken together, the claim language itself clearly does not restrict the "virtual private networks" to logical nodes and virtual paths, nor does it only consist of network elements. However, in their proposed constructions of this term, both parties appear to misconstrue the fundamentals of claim construction. When the term "virtual private network" is being used in the claims, it is not creating a new term, but is using a term previously available in the prior art, and then specifically describing in the claims the differences of the virtual private networks in this invention. Therefore, the Court will not construe a claim term to include the limitations that are separately included in the actual claim. The reason why the above-referenced limitations are separately disclosed in every independent claim that contains the term "virtual private network" is because such limitations are not implied in the term itself.FN51

FN51. In similar fashion, Cisco argues that "virtual private networks" must be dedicated to one network customer. However, every claim using the term "virtual private network" contains the limitation that the virtual private network is "carrying traffic associated with a particular customer of the packet-based network." *See, e.g.,* Seid, at 19:66-20:1, 21:11-13, 24:18-20. Therefore, the fact that the inventor included this limitation in every independent claim containing the term "virtual private network" is strong evidence that the limitation was not implicit in the term itself.

The specification and the claim language show that a "virtual private network," as the term is used in the claims, is comprised of selected portions of network resources from the physical network over which the virtual private network is built.FN52 *See id*. at 2:60-62. Any further limitation is contained in the claims themselves. Therefore, the Court construes the term "virtual private network" to mean "collection of selected portions of network resources logically connected over one or more physical paths."

FN52. The extrinsic evidence provided by the parties does nothing to alter the meaning of term as described in the patent.

**"Virtual Path"**

Alcatel's proposed construction for "virtual path" is "a logical connection transmitted over a physical path and through which one or more virtual circuits may be constructed." Cisco's proposed construction is "a logical path through which data belonging to a particular customer's virtual private network travels and which (1) is dedicated to a particular customer and cannot be shared by other customers, and (2) has a guaranteed bandwidth (e.g., committed information rate)." The principle differences between the parties' proposals is that Cisco seeks to include two additional limitations, namely, that the "virtual path" is dedicated to a particular customer, and that it has a guaranteed bandwidth.

Both parties agree that "virtual path" was not a term commonly known to one of ordinary skill in the art at the time of the Seid invention. Therefore, the Court will look to the language in the patent for guidance. In the summary of invention, the patent introduces the term "virtual path" ("VP") as follows: "Segments of the VCs [virtual circuits] are carried by VPs, each VP being a *logical connection* established between two VP terminators which are located in either network elements or customer premises equipment ... *Each VP is allocated a positive guaranteed bandwidth* ..." Seid, at 2:66-3:4 (emphasis added). Elsewhere in the patent, VP's are described as having a guaranteed bandwidth. *See, e.g.*, Seid, at 6:3-4 ("A guaranteed (positive) bandwidth (VP-CIR) is allocated to each VP"), 6:22-23 ("[T]he VP reserves a committed bandwidth ..."), 14:45 ("Each VP is defined by its bandwidth ...").

Alcatel argues that, because "virtual paths" are described as having positive guaranteed bandwidth in claim 9, but not in claim 1 when the term "virtual path" is first introduced in the claims, Cisco is improperly trying to read a limitation from claim 9 into claim 1. *See* Grain Processing Corp. v. American Maize-Products Co., 840 F.2d 902, 911 (Fed.Cir.1988) ("It is improper to read the limitations of one claim into another."). However, construing "virtual path" to require a guaranteed bandwidth would not be reading a limitation from one claim into another. When the reference to guaranteed bandwidth is first made in claim 9, it is being made because the claim also contains a discussion of when congestion occurs on a physical path, which requires "only a virtual path using bandwidth greater than the respective positive guaranteed bandwidth ... to reduce [its] submission rate of packets onto the network." Seid, at 21:39-42. Claim 1 contains no such discussion regarding congestion, and therefore there is no need to refer to a "virtual path" as having a guaranteed bandwidth. However, simply because claim 1 does not contain language regarding guaranteed bandwidth, that does not necessarily imply that such guaranteed bandwidth is not a component of a "virtual path." In fact, a more complete reading of the patent indicates that guaranteed bandwidth is a required facet of a "virtual path."

Furthermore, the specification also indicates that a "virtual path" is assigned to a particular "virtual private network." In particular, the specification states, "A VP can be specified analogous to an FRC [frame relay connection] with the addition of two parameters of operation: *(1) the identity of a VPN [virtual private network] (or reserved subscriber) to which the VP belongs;* and (2) the maximum number of VCs that may be multiplexed on this VP." *Seid,* at 14:8-13 (emphasis added). *Elsewhere,* the specification states that "[t]he set of VPs established for a customer constitutes the customer's virtual private network." *Id.* at 14:40-41. *See also* Seid, at 15:18-19 ("[T]he FR [frame relay] network manager must ... provide the identity of a VPN to which the VP will belong ...").

In response, Alcatel only argues that the patent allows for sharing of bandwidth when certain "virtual paths" are not using their guaranteed bandwidth. *See id.* at 3:44-49, 11:28-32. While this is certainly true, it does nothing to refute the statements in the patent that a "virtual path" is assigned to a particular "virtual private network." FN53

FN53. Cisco seeks a construction that would limit "virtual paths" to being dedicated to a particular customer, not simply to a particular "virtual private network." However, the Court feels that this is too strict a reading of the patent. As discussed previously in the discussion of "virtual private networks," every independent claim addressing "virtual private networks" contains a limitation that the network is "carrying traffic associated with a particular customer of the packet-based network." *See, e.g.,* Seid, at 19:66-20:1, 21:11-13, 24:18-20. Therefore, such limitation need not be read into the construction of "virtual path."

Therefore, the Court construes the term "virtual path" as "a logical connection transmitted over a physical path, which is dedicated to a particular virtual private network and has a guaranteed bandwidth, through which one or more virtual circuits may be constructed."

**"Pseudo Virtual Path"**

Alcatel's proposed construction for the term "pseudo virtual path" is "a logical connection transmitted over a physical path for i carrying data that is not associated with any virtual private network." Cisco's proposed construction is "a virtual path for carrying data that is not associated with any virtual private network." The primary difference between the parties' proposals is that Cisco is seeking to import the construction of "virtual path" (and hence, the limitations associated with that construction) into the construction of "pseudo virtual path."

Nevertheless, in their briefs, the parties appear to agree on the meaning of "pseudo virtual path," they just disagree on the proper way to phrase the construction of the term. Both parties acknowledge that a "pseudo virtual path" is not associated with any virtual private network, and the language of claim 23 makes that point clear. *See* Seid, at 24:44-46 ("[A] pseudo virtual path is provided on each physical path to carry traffic not associated with a virtual private network.").

Therefore, since the non-association of the "pseudo virtual path" with a virtual private network is its primary identifying feature, the Court construes the term "pseudo virtual path" as "a logical connection transmitted over a physical path for carrying data that is not associated with any virtual private network."

**"Providing a Level of Service to the Traffic Associated with the Particular Customer of the Packet-Based Network Independent of All Other Traffic on the Packet-Based Network Outside of the Virtual Private Network's Logical Domain"**

Alcatel's proposed construction for the above term is "a customer's virtual private network receives an agreed upon performance for its traffic regardless of any traffic in the network that is not associated with that virtual private network." Cisco's proposed construction is "resources providing a particular level of service to a particular customer's virtual private network."

Again, both parties are largely in agreement as to the meaning of the above term. In fact, both parties essentially argue that the above language is plain on its face. Cisco argues that the above claim language is "self-explanatory," and Alcatel has stated that it "agrees with [Cisco's] assessment." *See* Cisco's Opening Claim Construction Brief Concerning U.S. Patent No. 5,768,271 (Seid) ("Cisco's '271 Opening Brief"), at 13; Alcatel's Responsive Markman Brief on Claim Construction Regarding United States Patent No. 5,768,271 (Seid et at.) ("Alcatel's '271 Responsive Brief"), at 13.

In light of the parties' arguments regarding the self-explanatory nature of the above term, and the Court's own reading of the term, the Court finds that the language in the above term is plain on its face and requires no further construction.FN54

FN54. The only words in the above term that require independent construction are "virtual private network," which the Court has already construed previously.

**"Identification Means ... For Identifying the Respective Virtual Circuits and Virtual Paths Used By**

**the Virtual Private Network to Which the Packets Are Associated"**

The Court agrees with the parties that the above term is a means-plus-function term subject to 35 U.S.C. s. 112 para. 6. The function referenced in the above term is "identifying the respective virtual circuits and virtual paths used by the virtual private network to which the packets are associated." Since the terms "virtual paths" and "virtual private network" have already been construed by the Court, and the term "virtual circuit" has a construction that was agreed upon by the parties, no further construction of the above function is necessary.

The structure identified in the specification that is linked to the performance of the above function is found in the '271 patent at 6:67-8:13, 9:28-49, 9:64-10:10, Figs. 5-7.FN55

FN55. The parties each inserted an ellipsis in the above term. The language in the claim term that was excluded by the use of the ellipsis is "contained in the packets of a respective customer having a virtual private network." Seid, at 20:27-31. Thus, to the extent that the ellipsis was intended to be nothing more than a space saver-which the Court finds somewhat ironic considering the overall length of the parties' briefings for over eighty disputed claim terms at issue in this case-the Court cannot simply ignore the omitted language. In this regard, the Court agrees with Alcatel that the discussion of the "connection table" is not part of the corresponding structure for this function because the connection table is not "contained in the packets of a respective customer having a virtual private network," which is a requirement for structure identified in the above term. The claims and the specification clearly identify the connection table being included in the network elements, such as a VP-terminator port, and not in the packets themselves. *See* id. at 8:59-61, 21:6-9.

**F. '019 (Valencia) Patent**

The '019 patent is entitled "Virtual Dial-Up Protocol For Network Communication." In short, this patent, filed in 1996, proposes a scheme for a computer user in a remote location to access a private network through a public internet service provider.

The parties dispute the proper construction of the following terms:

^ Local network

^ Private local network

^ Private network

^ Layer 2 forwarding protocol

^ The forwarding protocol

^ Virtual dial-up protocol

^ Encapsulates the point-to-point link level session in a forwarding protocol header

^ Stripping the forwarding protocol

^ Home gateway name

^ Layer 2 tunnel

^ Layer 2 forwarding protocol header

^ Forwarding protocol header

^ Encapsulating the point-to-point protocol session in the layer 2 forwarding protocol header

^ Attaches a forwarding protocol header to the point-to-point protocol session

^ Home gateway

^ Tunnel

**"Layer 2 Forwarding Protocol"**

**"The Forwarding Protocol"**

**"Virtual Dial-Up Protocol"**

The parties agree that these three terms should have the same construction. Cisco's proposed construction for the above terms is "rules for communicating link level (layer 2) information between a remote client and a network through an intermediary." Alcatel's proposed construction is "rules which developed into RFC 2341 entitled "Layer Two Forwarding (Protocol) 'L2F,' " which includes the header format found in figure 9."

Alcatel claims that the term "layer 2 forwarding protocol" FN56 has no ordinary meaning, and so the Court should look to the intrinsic evidence in the patent for the meaning ascribed to the term. Alcatel argues that the "layer 2 forwarding protocol" is used in the patent to describe a specific protocol, known as "L2F." Around the same time as the filing of the ' 019 patent, "L2F" was presented to the Internet Engineering Task Force ("IETF") FN57 by the named-inventor of the ' 019 patent, in a document now identified as RFC 2341. FN58 Alcatel argues that RFC 2341 is substantially identical to the ' 019 patent, and in fact describes the identical data structure identified in Figure 9 of the ' 019 patent. According to Alcatel, the ' 019 patent was written specifically to cover the "L2F" protocol, and thus when the term "layer 2 forwarding protocol" is used in the claims, it is referring specifically to the "L2F" protocol. However, RFC 2341 is extrinsic evidence, FN59 and thus while the Court will accept the reference as illustrative, the Court will not rely on this document to define the claim term unless the intrinsic evidence fails to resolve the ambiguity as to what is meant by "layer 2 forwarding protocol."

FN56. Although the Court will refer to the term "layer 2 forwarding protocol," the analysis applies with equal force to the terms "the forwarding protocol" and "virtual dial-up protocol."

FN57. The IETF is a "large open international community of network designers, operators, vendors, and

researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet. It is open to any interested individual." *See* http:// www.ietf.org/overview.html

FN58. An RFC, or "Request for comment," is a proposal made to the IETF to adopt a particular approach to certain methods or systems as a standard that can be applied by engineers in the industry.

FN59. The patent never mentions RFC 2341. Although it is unclear whether the title "RFC 2341" existed at the time the patent was filed, there is no indication that the inventor had disclosed the existence of RFC 2341 to the Patent Office, and thus the patent and prosecution history are devoid of any specific reference to that document.

Alcatel points to several points in the specification where the patent refers to using "L2F" protocol and "L2F" related features. *See, e.g.,* Valencia Supp., col. 2, 11. 32-34; col. 2, 1. 65-col. 3, 1. 1 ("L2F header"); col. 4, 11. 9-11; col. 4, 11. 23-27 ("L2F packet") (hereinafter Valencia, at 2:32-34, 2:65-3:1, 4:9-11, 4:23-27). Furthermore, with regard to Figure 9, Alcatel argues that this is the only data structure associated with the L2F packet, and that no other data structure for implementing the L2F protocol is described in the ' 019 patent.

In response, Cisco argues that "layer 2 forwarding protocol" is not limited to the L2F protocol described in RFC 2341. Cisco contends that, according to its expert, one of ordinary skill in the art would be familiar with forwarding protocols generally, and that the repeated references in the claims to "layer 2 forwarding protocol" in the context of forwarding information at level 2 (i.e. the link level) "informs one of ordinary skill in the art that the forwarding protocol is forwarding information at the point to point link level which is understood to be layer 2 of the network model." Lumish Decl., Ex. J, at 4-5 ("Leifer '019 Report").FN60 Cisco admits that the term "layer 2 forwarding protocol" requires some rules for forwarding information, but argues that the patent is not limited to any specific set of rules beyond those set forth in the claim, which does not include the rules discussed in RFC 2341.

FN60. In contrast, Alcatel's expert disagrees with Cisco's expert that one of ordinary skill in the art would be familiar with forwarding protocols in general. *See* Lazar '019 Decl., at para. 25. A disagreement between the experts essentially exists with regard to almost all of their pertinent conclusions. Additionally, as noted previously throughout this Order, the Court will not simply rely on expert testimony as a substitute for the Court's role in determining the meaning of the disputed claim terms, which the Court accomplishes primarily by looking to the intrinsic evidence in the patent.

Moreover, Cisco argues that the specification itself discusses "layer 2 forwarding protocol" often in a general sense. According to Cisco, when the patent uses the term "L2F," that is simply an acronym for "layer 2 forwarding protocol," and not a reference to a specific type of protocol named "L2F." *See* Valencia, at 1:62. Furthermore, both the summary of the invention and the claims refer to a "layer 2 forwarding protocol" instead of *the* "layer 2 forwarding protocol," which provides some support for Cisco's argument that "layer 2 forwarding protocol" is not limited to one particular set of rules. *See* id. at 1:62, 15:7.FN61

FN61. However, the Court finds this reference to be of limited evidentiary value, since claim drafting rules

would require an inventor to refer to "layer 2 forwarding protocol" as a "layer 2 forwarding protocol" the first time it is used in the claims.

Essentially, the parties' dispute is centered over whether "layer 2 forwarding protocol" is referring to a general protocol with loosely defined rules, or a specific protocol with specific rules. Cisco contends that Alcatel is improperly seeking to limit the claim to a particular embodiment of that claim. *See* Electro Medical Systems, 34 F.3d at 1054. While it is certainly true that the limitations of one embodiment should not be imported into the claim term, it is also true that the claim term must be read in light of the specification. *See* SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1340-41 (Fed.Cir.2001). Courts have recognized that there is "a fine line between reading a claim in light of the specification and reading a limitation into the claim from the specification." Comark, 156 F.3d at 1186. Nevertheless, if a claim term is used throughout a patent in a manner which is consistent with only a single meaning for that term, then, by implication, the patent has defined the term in that manner. *See* Bell Atlantic Network Svcs., 262 F.3d at 1271. Thus, if the patentee has used the term "layer 2 forwarding protocol" in a manner that can only be consistent with the meaning of the term "L2F" as described in RFC 2341, then that is the definition that the patentee intended, even though it encompasses a preferred embodiment.

In light of these guidelines, the Court finds that the patent is not written in a manner where "layer 2 forwarding protocol" must be limited to only the "L2F" that was described in RFC 2341. Although the patent only describes the embodiment of a protocol almost identical to the description of the "L2F" in RFC 2341, the language of the claims and the specification do not discuss "layer 2 forwarding protocol" and "L2F" as if it were attempting to limit the term to that specific type of protocol. While the parties' experts disagree on whether a person of ordinary skill in the art could infer that "layer 2 forwarding protocol" was referring to any forwarding protocol operating from the data link layer, a plain reading of the patent does not support a conclusion that the claim language was intended to be limited to the specific type of protocol described in RFC 2341. Nevertheless, when read in light of the specification, the claim language also does not support a conclusion that "layer 2 forwarding protocol" was meant to encompass all protocols for forwarding information at the point to point link level.

Alcatel argues that "layer 2 forwarding protocol" could not have been intended to cover all protocols for tunneling FN62 at the data link layer. The prosecution history demonstrates that Cisco had disclosed to the Patent Office the existence of an article that describes another type of forwarding protocol at the data link layer, known as the "Point-to-Point Tunneling Protocol" or "PPTP." *See* Valencia, at CLA 0240205, 0240370 (disclosing the existence of the article "Microsoft tunnels through the 'Net with new protocol" authored by Kevin Fogarty and Tim Greene). The article describes a protocol that would allow a user from a remote cite to access a private network via an internet service provider, in a manner similar to that described in claim 1 of the ' 019 patent, were the Court to construe the term "layer 2 forwarding protocol" as Cisco has proposed.FN63 *See* Alcatel's Opening Markman Brief on Claim Construction Regarding United States Patent No. 5,918,019 (Valencia) ("Alcatel's '019 Opening Brief"), Ex. B; Valencia, at 15:2-12.

FN62. Although the Court provides an official construction of the term "tunnel" below, for the purposes of the immediate discussion, "tunneling" is understood to mean creating a path from the remote client to the home network.

FN63. The Court regards the contents of the article as intrinsic evidence, since the article was mentioned in

the patent and disclosed to the Patent Office as part of the prosecution history. *See, e.g.,* Zodiac Pool Care, Inc. v. Hoffinger Indus., Inc., 206 F.3d 1408, 1414 (Fed.Cir.2000).

Alcatel contends that if L2F means a class of protocols including PPTP, then claim 1 would read on the prior art, namely, the system described in Fogarty & Green. Accordingly, Alcatel argues that the term should be construed so as not to encompass the prior art. *See* Apple Computer v. Articulate Sys., 234 F.3d at 23-24 ("[C]laims should be read in a way that avoids ensnaring the prior art if it is possible to do so."); *Eastman Kodak Co. v. Goodyear Tire & Rubber Co.,* 114 F.3d at 1556 (same).

However, the principle that claims should be read to avoid ensnaring the prior art is simply a guideline, and not an impenetrable rule. In fact, in *Apple Computer,* the court acknowledged the above principle but actually construed the claim term in a manner which did encompass the prior art, since that was the only construction consistent with the claim's language and the written description. *See* Apple Computer v. Articulate Sys., 234 F.3d at 24 (citing Rhine v. Casio, Inc., 183 F.3d at 1345). Furthermore, unlike in *Apple Computer,* where the patent history indicated that the inventor had disclosed a prior art patent to the Patent Office that clearly would be covered by the broad claim construction, all that is present in the '019 file wrapper is a reference to a brief article loosely summarizing the invention in claim 1. Mere disclosure of prior art in the '019 application does not serve as an admission by Cisco that claim 1 is covered by the article under the broader definition of L2F. As Cisco points out, the disclosure of the article to the Patent Office could be viewed as an indication that the PPTP article is actually not anticipatory or obvious prior art. Moreover, an article discussing an invention is not conclusive evidence that article's invention was developed prior to the invention in the '019 patent (and, hence, is not prior art), and Cisco apparently intends to argue that the PPTP actually does post-date the inventions of the '019 patent. *See* Cisco's Responsive Claim Construction Brief Concerning U.S. Patent No. 5,918,019 (Valencia) ("Cisco's '019 Responsive Brief"), at 6 n. 4. Therefore, the disclosure of the PPTP article to the Patent Office does not preclude a construction of the claim that would encompass at least a portion of the potential prior art, since the claims and the specification do not allow for a construction limiting a "layer 2 forwarding protocol" the specific set of rules in RFC 2341.

Therefore, neither Cisco nor Alcatel's proposed construction is correct, as both parties attempt to construe this term to an extreme position not supported by the language of the patent. In light of this lack of guidance provided to the Court by the parties, the Court has carefully reviewed the language of the '019 patent, and has determined the necessary features of a "layer 2 forwarding protocol" described in the corresponding structure set forth in the specification.

Thus, the Court construes the terms "layer 2 forwarding protocol," "the forwarding protocol," and "virtual dial-up protocol" as "rules for enabling a remote client to communicate information with a home network through an intermediary, containing the following features: packaging data at the link level frames of higher protocols; enabling multiplexing (and demultiplexing) multiple remote clients within a single tunnel; encapsulating and packaging data configured in a particular protocol (such as PPP) without regard to the information content of the encapsulated data; structuring packets of data by a layer 2 forwarding protocol header (containing information relating to the layer 2 forwarding protocol operation) and a payload containing the encapsulated data; changing none of the encapsulated data during transmission; obviating the need for authentication or address assignment from the internet service provider; containing no requirement that the remote client be queried a second time; and supporting an arbitrary request/response exchange, in that the network access server can detect the apparent identity of the user and establish a tunnel connection

to the home gateway, where the arbitrary exchange can occur." FN64

FN64. *See* Valencia, at 1:56-59, 1:62-65, 2:7-9, 2:12-15, 2:30-41, 2:50-51, 2:63-3:6, 4:6-10, 4:22-23, 4:26, 4:28-29, 5:23-25, 5:57-6:4, 6:16-28, 6:41-45, 7:60-67, 8:1-9:26 (field descriptions), 14:43-48, 14:54-61, Figs. 2, 5, 7, 9.

**"Layer 2 Forwarding Protocol Header"**

**"Forwarding Protocol Header"**

The parties agree that these two terms should have the same construction. Cisco's proposed construction for the above terms is "initial information fields in a layer 2 forwarding protocol packet." Alcatel's proposed construction is "the header format defined in RFC 2341, entitled 'Layer Two Forwarding Protocol 'L2F',' which is illustrated in Figure 9." Both parties seem to agree that these terms relate to the parties' respective definitions for "layer 2 forwarding protocol" discussed above.

In similar fashion as the above arguments, Cisco claims that the term "layer 2 forwarding protocol header" does not require a specific header format, while Alcatel seeks to construe the term to require the header format in RFC 2341, which is identical to Figure 9. Again, both parties have taken extreme positions that are not supported by a plain reading of the patent.

The word "header" has a customary meaning in this context. As stated in *The Computer Desktop Encyclopedia,* "header: ... In communications, the first part of the message, which contains controlling data, such as originating and destination stations, message type and priority level." Lumish Decl., Ex. M (Alan Freedman, *The Computer Desktop Encyclopedia* (2d ed.1999)), at 395. FN65 The particular formulation of the L2F header set forth in Figure 9 is necessary to an L2F only insofar as it satisfies the necessary features set forth above. Nothing in the patent requires that the L2F header be exactly as described in Figure 9, to the extent that another header formulation could be used to comport with the definition of "layer 2 forwarding protocol" identified above.

FN65. The Court recognizes that this definition is from a source published in 1999, while the '019 patent was filed in 1996. However, a definition of "header" was also provided by a source published in 1992, which is substantially similar to the definition above, indicating that the term "header" had the same customary meaning as the above definition around the time the patent was filed. *See* Lumish Decl., Ex. L ( *The New IEEE Standard Dictionary of Electrical and Electronics Terms* (5th ed.1992)), at 589 (defining "header" as "Identification or control information placed at the beginning of a file or message.").

Therefore, the Court construes the terms "layer 2 forwarding protocol header" and "forwarding protocol header" as "initial information fields of a packet operating according to a layer 2 forwarding protocol."

**"Local Network"**

**"Private Local Network"**

**"Private Network"**

The parties agree that these three terms should have the same construction. Cisco's proposed construction for the above terms is "distinct set of interconnected elements used to communicate data." Alcatel's proposed construction is "distinct set of interconnected elements in a trusted environment used to communicate data." The obvious difference between the two parties' proposals is that Alcatel seeks to limit the construction to requiring a "trusted environment," while Cisco opposes such a limitation.

Both parties agree that the term network is given its ordinary meaning. According to the 1996 *IEEE Standard Dictionary of Electrical and Electronics Terms,* such meaning is "a series of points interconnected by communication channels." Id. at 683 (6th ed.1996). However, Cisco seeks to limit the construction of "private local network" to the definition of "network." Clearly, the inclusion of the modifiers "private" and "local" were meant to limit the above terms to something more narrow than simply a network.

In the patent specification, references are specifically made to local area networks (LANs) as being operated by private customers. *See* Valencia, at 1:19-20, 3:48-51. As Cisco even admits, a "private network" is "a network of communications channels confined to the use of one customer." *See* Cisco's Opening Claim Construction Brief Concerning U.S. Patent No. 5,918,019 (Valencia) ("Cisco's '019 Opening Brief"), at 16; *IEEE Dictionary,* at 683.

While Alcatel argues that the Court should construe the terms to include a "trusted environment," based primarily on the presence of a firewall FN66 in Figure 2 of the ' 019 patent, the Court finds that this requirement is not sufficiently supported by the patent language. The patent language does not appear to alter the ordinary meaning of the terms, and therefore the Court construes the terms "private local network," "private network," and "local network" as "distinct set of interconnected elements confined to the use of one customer used to communicate data."

FN66. The parties agree that the term firewall means "system that precludes unauthorized access to a device or network." *See* Revised Joint Statement, Ex. F, at 84.

**"Tunnel"**

Cisco's proposed construction for "tunnel" is "path between a client and a network through an intermediary." Alcatel's proposed construction is "communication using encapsulation of packets."

Cisco argues that its proposed construction is the meaning of the term "tunnel" understood by one of ordinary skill in the art in 1996. *See* Leifer ' 019 Report, at 10. Alcatel does not dispute that one of ordinary skill in the art would have understood a "tunnel" to exist between a client and a network through an intermediary, but argues that such a definition also applies to connections other than tunnels. *See* Lazar '019 Decl., at para. 49. Alcatel contends that a communication through a tunnel is accomplished in this patent by encapsulating the packets being sent over the tunnel. While this may be true, the claim language does not use the term tunnel to describe the means by which information is delivered over the tunnel, but is obviously referring to the tunnel itself, which is a path, not a communication method. For example, in claim 9, the term tunnel is used in the following manner: "forwarding the encapsulated link level protocol *through the tunnel*." Valencia, at 16:15-16 (emphasis added). The encapsulation requirement is separately referenced in the claim, and the "tunnel" is referred to as the path through which the encapsulated information is sent.

Nevertheless, as is clear from the claim language and the specification, the "tunnel" in this patent is referring to a communication link between a remote client and the *local* network. *See, e.g.,* Valencia, at 4:6-9, 4:31-34, 16:35-36, Figs. 2-3. Therefore, the Court construes the term "tunnel" as "communication path between a remote client and a local network through an intermediary."

**"Layer 2 Tunnel"**

Cisco's proposed construction for this term is "path between a client and a network through an intermediary by which link level (layer 2) information is sent." Alcatel's proposed construction is "communication using encapsulation of packets according to the layer 2 forwarding protocol."

Both sides essentially restate their proposed constructions for the term "tunnel" while incorporating their respective notions of the definition of layer 2 forwarding protocol. As seen from the claim language, a "layer 2 tunnel" is no more than a "tunnel" operating according to a "layer 2 forwarding protocol." *See* Valencia, at 16:37-40, 59-67.

Therefore, in accordance with the Court's construction of the terms "tunnel" and "layer 2 forwarding protocol," the Court construes the term "layer 2 tunnel" as "communication path between a remote client and a local network through an intermediary, operating according to a layer 2 forwarding protocol."

**"Stripping The Forwarding Protocol"**

Cisco's proposed construction for the above term is "removing the layer 2 forwarding protocol information." Alcatel's proposed construction is "removing the layer 2 forwarding protocol header from the packet at the local network."

Both parties agree that the term "stripping" means "removing." The dispute lies in whether the construction should identify the location where the removing takes place, and identify exactly what is being removed. Alcatel is correct that the point at which the removing occurs is at the local network. Both claim 9 (the only claim in which the above term appears) and Figure 7 (the only embodiment of above function) reveal that the stripping occurs after the frames reach the local network. *See* Valencia, at 5:67-6:4, 16:9-21, Fig. 7. However, Alcatel is incorrect in requiring a construction specifically identifying the layer 2 forwarding protocol header as the item being removed when the forwarding protocol is being stripped. Certainly, if all of the layer 2 forwarding protocol information is contained in the header, the header will be removed. Nevertheless, even Alcatel admits that there is no requirement that the header be the only item removed. *See* Alcatel's '019 Responsive Brief, at 10. Since both parties acknowledge that parts of the packet other than the header may be removed during stripping, then there is no reason to cause confusion and impose a limitation in the construction that requires the header to be removed. That notwithstanding, both parties do agree that stripping requires the removal of information related to the layer 2 forwarding protocol.

Thus, the Court construes the term "stripping the forwarding protocol" as "removing the layer 2 forwarding protocol information at the local network."

**"Home Gateway"**

Cisco's proposed construction for the term "home gateway" is "a method, device, or system that permits ingress to and egress from a network." Alcatel's proposed construction is "a network element running layer 2 forwarding protocol application software for performing protocol translation."

Both parties admit that the term "gateway" had meaning to one of ordinary skill in the art in 1996. According to Cisco, the term meant "the combination of hardware and software which, among other functions, decided whether data sent to a network would be allowed in, and data attempting to leave a network would be allowed out." Leifer '019 Report, at 15. According to Alcatel, the term in this context referred to a network layer relay "that stores and forwards packets between dissimilar networks." Lazar '019 Decl., at para. 39. Additionally, as was known at that time, "a gateway performed a translation, so that networks running different protocols could exchange information." Id., Ex. B (Andrew S. Tanenbaum, *Computer Networks* (3d ed.1996)), at 16.

Thus, while the parties disagree as to the specific functions of the "gateway," they do agree that a gateway is a combination of hardware and software that operates as an interface between networks.FN67 More specifically, the gateway in the ' 019 patent controls access to and from a network. *See* Cisco's '019 Opening Brief, at 17 ("The claims of the ' 019 Patent use the term 'home gateway' in its ordinary sense to refer to the gateway on the local or 'home' network which employs authentication processes to decide whether or not a tunnel will be established for the purpose of sending data to and from the local network."); Alcatel's '019 Opening Brief, at 14 ("In the context of the ' 019 patent, the home gateway serves as the point through which the 'private local network' gains access to, and permits authorized access from, an internet.").FN68

FN67. According to the claim language and the specification, the "home gateway" appears to serve several functions, such as authenticating remote clients, encapsulating packets, and establishing tunnel connections. *See, e.g.,* Valencia, at 5:43-6:4, 18:39-49. Therefore, the term will not be construed to limit the home gateway to any particular function.

FN68. Despite its acknowledgment of the gateway's general purpose, Alcatel seeks to limit the construction of the term "home gateway" to performing only protocol translation of the layer 2 forwarding protocol. However, the language of the patent does not support such a limited construction.

Furthermore, while neither party claims that "home gateway" has an ordinary meaning, it is clear from a reading of the patent language that the word "home" was intended to refer to the gateway of the local or private network. When the term "home gateway" is introduced in both the claims and the specification, the term is used in conjunction with the terms "private network" or "local network." *See* Valencia, at 1:22-24 ("The home gateway includes a firewall that prevents unauthorized external access into the private network through internet."), 15:24-26 ("transmitting the random number and the first keyed random number from the internet service provider to a home gateway of the local network").

Therefore, the Court construes the term "home gateway" as "a combination of hardware and software that controls access to and from the local network."

**"Home Gateway Name"**

Cisco's proposed construction for the term "home gateway name" is "name ascribed to a home gateway." Alcatel's proposed construction is "the IP address of the home gateway."

Cisco's proposal is no more than a rearrangement of the words in the disputed term, and provides little, if

any, guidance to understand the term's meaning. On the other hand, Alcatel's proposal seeks to limit the home gateway's name to only an Internet Protocol (IP) address, which may be limiting the claim language to a narrow reading of the specification. Clearly, the "home gateway name" is an identifier of the "home gateway." The only further clarification needed is to determine what type of identifier is authorized under the patent.

Alcatel argues that the identifier must be an IP address because the specification describes only a tunnel running from an internet service provider (ISP), through the Internet, to the home gateway. In this regard, the only method of identifying the home gateway from the Internet is by the use of an IP address. *See* Lazar '019 Decl., at para.para. 44-45. In contrast, Cisco correctly points out that nowhere in the patent is the address of the home gateway expressly required to be an IP address, much less limited to only an IP address.

At the outset, the Court recognizes that the "home network name" must be a network address of some kind, because its purpose is to be identified by the network access server seeking to transmit information from the remote client to the local network through an intermediary. Additionally, in claim 2, the only claim in which this term appears, the claim language specifically describes the home gateway name being transmitted from the remote client to the internet service provider. *See* Valencia, at 15:24-26. Accordingly, the network address must be capable of allowing the ISP to locate the home gateway. While both parties agree that an IP address satisfies this purpose, and was possibly even the only logical method for accomplishing this goal at the time, nothing in the patent suggests that another type of network address could not be used if it would be sufficient to allow the ISP to locate the home gateway.

Therefore, the Court construes the term "home gateway name" as "the network address of the home gateway."

**"Encapsulates the Point-To-Point Link Level Session in a Forwarding Protocol Header"**

**"Encapsulates the Point-To-Point Protocol Session in the Layer 2 Forwarding Protocol Header"**

Alcatel contends that these terms do not comply with the requirements of 35 U.S.C. s. 112 para. 2, and thus are unable to be construed. Cisco argues that these terms are plain on their face, with no special or uncommon meaning, and thus should not be construed by the Court.

As Alcatel points out, and Cisco does not refute, it is nonsensical for a point-to-point link level session and a point-to-point protocol session to be encapsulated in a header. A header, as discussed above, is "the first part of the message, which contains controlling data, such as originating and destination stations, message type and priority level." FN69 *The Computer Desktop Encyclopedia,* at 395; *see also The New IEEE Standard Dictionary* (5th ed.1992), at 589 (defining "header" as "Identification or control information placed at the beginning of a file or message."). The parties also agree that the "point-to-point protocol sessions" means "a communication connection between a source and destination pair using the point to point protocol." Revised Joint Statement, Ex. F, at 78. Therefore, according to this claim term, a communication between a source and destination would be encapsulated solely in the first part of the packet. However, as can be seen from the patent, a packet contains more than simply the header, and thus it appears illogical that an entire communication would be placed in the initial portion of the packet containing only the identifying or control information. *See, e.g.,* Valencia, Figs. 5, 9.

FN69. The Court has previously construed the terms "layer 2 forwarding protocol header" and "forwarding

protocol header" as "initial information fields of a packet operating according to a layer 2 forwarding protocol."

Nevertheless, Cisco argues that, since the parties agree that one of ordinary skill in the art would understand "encapsulating the link level protocol in the forwarding protocol" to be "placing a packet formatted according to the link level protocol in the layer 2 forwarding protocol packet," FN70 then one would understand the above terms to mean placing the packets comprising a point-to-point (link level) protocol session in the header of a (layer 2) forwarding protocol packet. *See* Cisco's '019 Opening Brief, at 24.

FN70. *See* Revised Joint Statement, Ex. J, at 78.

Even if this interpretation is essentially illogical, as Alcatel contends, the Court need not concern itself at this stage with whether the processes identified by the claim terms are capable of being achieved (i.e.enablement); during claim construction, under 35 U.S.C. s. 112 para. 2, the Court must determined whether the terms are capable of being understood (i.e.definiteness).

[D]efiniteness and enablement are analytically distinct requirements, even though both concepts are contained in 35 U.S.C. s. 112. The definiteness requirement of 35 U.S.C. s. 112, para. 2 is a legal requirement, based on the court's role as construer of patent claims ... Definiteness requires the language of the claim to set forth clearly the domain over which the applicant seeks exclusive rights. The test for whether a claim meets the definiteness requirement is 'whether one skilled in the art would understand the bounds of the claim when read in light of the specification.'

Process Control Corp. v. Hydreclaim Corp., 190 F.3d at 1358 n. 2; *see also* 3 Donald S. Chisum, *Chisum on Patents,* s. 8.03 at 8-14 (2001) (noting the difference between the requirements of "definiteness, which claims must meet, from the requirements of enablement, which the disclosures of the specification must meet").

Therefore, the Court does not find the above claim terms indefinite. Instead, the Court construes the term "encapsulates the point-to-point link level session in a forwarding protocol header" as "placing a communication connection between a source and destination pair using the point to point link level protocol in the initial information fields of a packet operating according to a layer 2 forwarding protocol." Similarly, the Court construes the term "encapsulates the point-to-point protocol session in the layer 2 forwarding protocol header" as "placing a communication connection between a source and destination pair using the point to point protocol in the initial information fields of a packet operating according to a layer 2 forwarding protocol."

**"Attaches a Forwarding Protocol Header to the Point-To-Point Protocol Session"**

Once again, Alcatel contends that this term does not comply with the requirements of 35 U.S.C. s. 112 para. 2, and thus is unable to be construed. Cisco argues that this term is plain on its face, with no special or uncommon meaning, and thus should not be construed by the Court.

Both parties essentially offer the same arguments for this term as they had for the above two terms. While Alcatel argues, without any support, that one cannot attach a header to an entire session, this is an argument

regarding enablement, not indefiniteness. There is no argument that one skilled in the art would not understand the bounds of the claim when read in light of the specification, which is the test that must be satisfied for definiteness. *See* Process Control, 190 F.3d at 1358 n. 2; Crown Operations Int'l Ltd. v. Solutia Inc., 289 F.3d 1367, 1379 n. 5 (Fed.Cir.2002).

Therefore, the Court finds that this term is not indefinite under 35 U.S.C. s. 112 para. 2, and requires no further construction.

**IV. CONCLUSION**

The Court hereby concludes that the disputed terms in the '052 patent, the '271 patent, the '532 patent, the '032 patent, the '599 patent, and the '019 patent are to be construed as set forth above.

IT IS SO ORDERED.

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