

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

CITRIX SYSTEMS, INC.,

Plaintiff,

v.

AVI NETWORKS, INC.,

Defendant.

C.A. No. 17-1843-LPS

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MEMORANDUM OPINION

August 29, 2019
Wilmington, Delaware



STARK, U.S District Judge:

Plaintiff Citrix Systems, Inc. (“Citrix”) brought this suit against Avi Networks, Inc. (“Avi”) asserting infringement of U.S. Patent Nos. 9,148,493 (“the ‘493 patent”) and 8,631,120 (“the ‘120 patent”). The patents-in-suit describe methods of efficiently pooling network client-server connections. (‘493 patent, Abstract) Presently before this Court is the issue of claim construction. The parties submitted technology tutorials (D.I. 114, 120) and claim construction briefs (D.I. 102, 103, 116, 117, 133, 135). The Court held a claim construction hearing on June 25, 2019. (D.I. 141 (“Tr.”))

I. LEGAL STANDARDS

The ultimate question of the proper construction of a patent is a question of law. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 837 (2015) (citing *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 388-91 (1996)). “It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (citation and internal quotation marks omitted). “[T]here is no magic formula or catechism for conducting claim construction.” *Id.* at 1324. Instead, the court is free to attach the appropriate weight to appropriate sources “in light of the statutes and policies that inform patent law.” *Id.*

“[T]he words of a claim are generally given their ordinary and customary meaning. . . . [which is] the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Id.* at 1312-13 (internal citations and quotation marks omitted). “[T]he ordinary meaning of a claim term is its meaning to the ordinary artisan after reading the entire patent.” *Id.* at 1321 (internal quotation marks omitted). The patent “specification is always highly relevant to the

claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Vitronics Corp. v. Conceptoronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

While “the claims themselves provide substantial guidance as to the meaning of particular claim terms,” the context of the surrounding words of the claim also must be considered. *Phillips*, 415 F.3d at 1314. Furthermore, “[o]ther claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment . . . [b]ecause claim terms are normally used consistently throughout the patent.” *Id.* (internal citation omitted).

It is likewise true that “[d]ifferences among claims can also be a useful guide For example, the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.” *Id.* at 1314-15 (internal citation omitted). This “presumption is especially strong when the limitation in dispute is the only meaningful difference between an independent and dependent claim, and one party is urging that the limitation in the dependent claim should be read into the independent claim.” *SunRace Roots Enter. Co., Ltd. v. SRAM Corp.*, 336 F.3d 1298, 1303 (Fed. Cir. 2003).

It is also possible that “the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor’s lexicography governs.” *Phillips*, 415 F.3d at 1316. It bears emphasis that “[e]ven when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction.” *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1372 (Fed. Cir. 2014) (quoting *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004)) (alteration in original) (internal quotation marks omitted).

In addition to the specification, a court “should also consider the patent’s prosecution history, if it is in evidence.” *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995), *aff’d*, 517 U.S. 370 (1996). The prosecution history, which is “intrinsic evidence,” “consists of the complete record of the proceedings before the [Patent and Trademark Office] and includes the prior art cited during the examination of the patent.” *Phillips*, 415 F.3d at 1317. “[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.” *Id.*

“In some cases, . . . the district court will need to look beyond the patent’s intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period.” *Teva*, 135 S. Ct. at 841. “Extrinsic evidence consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Markman*, 52 F.3d at 980. For instance, technical dictionaries can assist the court in determining the meaning of a term to those of skill in the relevant art because such dictionaries “endeavor to collect the accepted meanings of terms used in various fields of science and technology.” *Phillips*, 415 F.3d at 1318. In addition, expert testimony can be useful “to ensure that the court’s understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field.” *Id.* Nonetheless, courts must not lose sight of the fact that “expert reports and testimony [are] generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence.” *Id.* Overall, while extrinsic evidence “may be useful to the court,” it is “less reliable” than intrinsic evidence, and its consideration “is

unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence.” *Id.* at 1318-19. Where the intrinsic record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper. *See Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1308 (Fed. Cir. 1999) (citing *Vitronics*, 90 F.3d at 1583).

Finally, “[t]he construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998). It follows that “a claim interpretation that would exclude the inventor’s device is rarely the correct interpretation.” *Osram GmbH v. Int’l Trade Comm’n*, 505 F.3d 1351, 1358 (Fed. Cir. 2007) (quoting *Modine Mfg. Co. v. U.S. Int’l Trade Comm’n*, 75 F.3d 1545, 1550 (Fed. Cir. 1996)).

II. CONSTRUCTION OF DISPUTED TERMS

A. “Request”¹ and “Response”²

	“request”	“response”
Citrix	No construction necessary Alternatively, “a message for retrieving data”	No construction necessary Alternatively, “a message that includes data responsive to a request”
Avi	“application layer message requesting data from a server and consisting of a header and payload” Alternatively, “application layer message requesting data from a server,	“application layer message responding to a request and consisting of a header and payload” Alternatively, “application layer message responding to a request, including the

¹ This term appears in claims 1, 5, 7-9, 13, 15, and 16-20 of the ‘493 Patent and claims 1, 2, 4-10, and 12-17 of the ‘120 Patent.

² This term appears in claims 1, 7-9, 15, and 16 of the ‘493 Patent and claims 1, 7-9, and 15-17 of the ‘120 Patent.

	including the header and payload if present in the message”	header and payload if present in the message”
Court	“a message for retrieving data carried in one or more transport layer payloads, wherein the message may be modified as long as the message still identifies substantially the same data to be retrieved”	“a message carried in one or more transport layer payloads that includes data responsive to a request, wherein the message may be modified as long as the message still provides substantially the same data”

The parties’ dispute with respect to the “request” and “response” messages centers on two issues: (1) whether the messages must be application-layer messages; and (2) whether a message may be modified while remaining the same message.³ (See D.I. 133 at 1-7; D.I. 135 at 3-7) The Court addresses each issue in turn.

1. Layer of the request and response

The parties first dispute whether the “request” and “response” must be application layer messages. Avi’s construction explicitly requires each message to be an “application layer message,” whereas Citrix’s construction does not. (See D.I. 116 at 4; D.I. 102 at 14)

Citrix and Avi both agree that the “request” and “response” must be *above* the transport layer in the protocol stack. (See D.I. 116 at 4; D.I. 102 at 14) In the four-layer IP protocol stack, the *only* layer above the transport layer *is* the application layer. (See D.I. 102 at 14) Avi’s construction, which explicitly requires the request and response to be application layer messages, thus follows from Avi’s reliance on the IP protocol stack. (See Tr. at 34-35) Citrix, on the other hand, bases its construction on the 7-layer OSI protocol stack. (See D.I. 116 at 4) The OSI stack

³ In their briefing, the parties also seemed to dispute whether the “request” and “response” messages must include both a header and a payload. (See D.I. 102 at 15-16; D.I. 116 at 5-6) However, the parties now agree that the messages need not have both a header and a payload, but rather could include just a header or just a payload. (See Tr. at 19, 27)

contains three layers above the transport layer: the session, presentation, and application layers. (*Id.*) Citrix objects to Avi's construction because it would exclude two layers – the session and presentation layers – that are above the transport layer and could be part of the “request” and “response.” (*See id.*)

The Court's construction of “request” and “response” as messages “carried in one or more transport layer payloads” is consistent with both parties' positions. The Court's construction comports with Avi's position because, in the context of the IP stack, transport layer payloads may only include application-layer data (i.e., the only layer above the transport layer). (*See* D.I. 102 at 14) The Court's construction also comports with Citrix's position because, in the context of the OSI stack, transport layer payloads may include session-, presentation-, and application-layer data. (*See* D.I. 116 at 4)

2. Modification of the request and response

The second dispute relates to whether the “request” and “response” can be modified while remaining the same message. Citrix contends that an intermediary device may add or remove data from a request or response that passes through it, and that even after modification the message is still *the same* request. (*See* Tr. at 20; Tr. at 40; '120 patent, 8:38-9:20) Avi disagrees, arguing that the original request and the modified request are *different* requests.⁴ (*See* Tr. at 40)

The Court agrees with Citrix that a request or response message may be modified by the intermediary device and still be the same message so long as it “engender[s] [substantially] the same data.” (Tr. at 49) This conclusion follows from the specification, which discloses

⁴ This issue is reflected in the briefing as a dispute as to whether the request and response must be “entire” messages. (*See* D.I. 133 at 5; D.I. 135 at 6-7)

embodiments in which the intermediary device inserts a Keep-Alive header into the request message.⁵ (See ‘120 patent, 8:38-9:20) Avi’s construction is disfavored because it would exclude these embodiments. See *Knowles Elecs. LLC v. Iancu*, 886 F.3d 1369, 1375 (Fed. Cir. 2018) (“A claim construction that does not encompass a disclosed embodiment is rarely, if ever, correct.”) (internal alterations omitted). The Court’s construction, thus, includes that the request and response “may be modified” as long as the message still identifies or provides “substantially the same data.”

B. “transport layer connection”⁶

Citrix	No construction necessary Alternatively, “a connection utilizing a network transport layer”
Avi	“connection at the transport layer between two devices such that there is no application layer connection between those two devices”
Court	“a connection at the transport layer between an intermediary device and a client or a server where (1) the intermediary device is not an endpoint of a connection at a layer above the transport layer; and (2) the intermediary device may modify the data that passes through the device over the transport layer connection”

⁵ The Court disagrees with Avi’s contention, raised during the hearing, that the insertion of a Keep-Alive header is not an embodiment of the claims but rather is “a description of the prior art.” (Tr. at 93-97) The insertion of a Keep-Alive header is **both** prior art **and** an embodiment of the claims. The specification explains that the Keep-Alive technique and the inventive transport-layer connection pooling method can be performed **together** to further improve efficiency. (See ‘120 patent, 8:38-40 (explaining that inserting Keep-Alive header improves efficiency by reducing number of application-layer connections that need to be opened and closed); *id.*, 9:51-55 (noting that Keep-Alive insertion can be performed “while incorporating” transport-layer pooling technique of present invention “to provide more efficient connection pooling”))

⁶ This term appears in claims 1-5, 9-13, and 17-20 of the ‘493 Patent and claims 1, 2, 4-5, 7-10, 12-13, and 15-17 of the ‘120 Patent.

The asserted claims all recite the use of “transport layer connection[s]” between a client and an intermediary device, and between the intermediary device and a server.

The parties seem to agree that the intermediary device can modify the application layer data that passes through it.⁷ (*See* Tr. at 113, 115) For clarity, since this point was initially disputed (*see* D.I. 102 at 18; D.I. 103 at 19), the Court’s construction notes that “the intermediary device may modify the data that passes through the device over the transport layer connection.”

The parties disagree about whether the intermediary device may have an application layer connection with the client or the server. Avi contends that a “transport layer connection” between an intermediary device and a client or server cannot include an application-layer connection⁸ between the intermediary device and the client or server (i.e., the intermediary device cannot be *an endpoint* of an application layer connection). (*See* D.I. 117 at 2; Tr. at 115) Citrix argues that the claims do not preclude application layer connection(s) between the intermediary device and/or the client or server. (*See* Tr. at 113-14)

As Avi points out, “the entire purpose of the claimed invention is for the intermediary device to act merely as a pass-through at the transport layer, and not act as an endpoint to the application layer connection.” (D.I. 102 at 17) The patents state that “the present invention is related specifically to an apparatus, method and computer program product for efficiently pooling network *client-server* connections.” (‘120 patent, 6:48-50) (emphasis added) Yet, in a

⁷ In any event, the Court concludes that the intermediary device may modify application layer data that passes through the intermediary device for the reasons explained above with reference to the “request” and “response” terms. (*See supra* Section II.A.2)

⁸ In this section, for simplification, the Court uses the term “application layer connection” in its IP-stack sense – as the highest and only layer above the transport layer. The Court’s construction, which uses the phrase “layer above the transport layer” instead of “application layer connection,” allows it to also be compatible with the 7-layer OSI stack.

system in which the intermediary device has application-layer connections to clients and to servers, there would be no client-server connection but instead client-intermediary device and intermediary device-server connections. Moreover, the inventive methods of connection reuse would be unnecessary if the intermediary device were, itself, an application-layer connection endpoint. (*Cf.* Tr. at 84-85) (parties agreeing that purpose of invention is efficient reuse of transport-layer connections) While Citrix contends that the claims are “agonistic” as to application-layer connection endpoints at the intermediary device (Tr. at 105), the specification persuades the Court that the intermediary device cannot be an endpoint of an application-layer connection, *see On Demand Mach. Corp. v. Ingram Indus., Inc.*, 442 F.3d 1331, 1340 (Fed. Cir. 2006) (“[C]laims cannot be of broader scope than the invention that is set forth in the specification.”); *see also* ‘120 patent, 5:63-6:4; Tr. at 92-93; D.I. 135-1 Ex. A at 78-80.

Accordingly, the Court construes “transport layer connection” such that “the intermediary device is not an endpoint of a connection at a layer above the transport layer.”

CONCLUSION

An appropriate Order follows.

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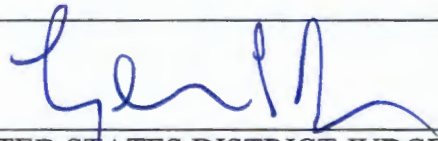
ORDER

At Wilmington, this 29th day of August, 2019:

For the reasons set forth in the Memorandum Opinion issued this date,

IT IS HEREBY ORDERED that the claim terms in this case are construed as follows:

Claim Term	Court's Construction
"request"	"a transport layer payload that includes a message for retrieving data, which may be modified as long as the message still identifies substantially the same data to be retrieved"
"response"	"a message carried in one or more transport layer payloads that includes data responsive to a request, wherein the message may be modified as long as the message still provides substantially the same data"
"transport layer connection"	"a connection at the transport layer between an intermediary device and a client or a server where (1) the intermediary device is not an endpoint of a connection at a layer above the transport layer; and (2) the intermediary device may modify the data that passes through the device over the transport layer connection"


UNITED STATES DISTRICT JUDGE