

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

THE DATA COMPANY TECHNOLOGIES INC.,

Petitioner

v.

BRIGHT DATA LTD.,

Patent Owner

Case IPR2022-00135

Patent No. 10,257,319

DECLARATION OF DR. TIM A. WILLIAMS

Mail Stop PATENT BOARD
Patent Trial and Appeal Board
United States Patent and Trademark Office
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I. INTRODUCTION

1. I, Dr. Tim A. Williams, declare as follows:

2. My full name is Tim Arthur Williams.

3. I have been retained as an independent expert in this matter by counsel for Patent Owner Bright Data Ltd. (“Bright Data”). I have been asked to provide my opinions on certain references in the above-identified *inter partes* review (“IPR”) proceeding, IPR2022-00135, involving U.S. Patent No. 10,257,319 (“the ’319 Patent”).

4. In IPR2022-00138 (the related proceeding) of U.S. Patent No. 10,484,510 (“the ‘510 Patent”): I reviewed the Petition (Paper 2) and the exhibits submitted with the Petition (EXS. 1001-1079); I reviewed the Patent Owner Preliminary Response (“POPR,” Paper 6) and the exhibits submitted with the POPR (EXS. 2001-2009); I reviewed Petitioner’s Reply to the POPR (Paper 8) and Patent Owner’s Sur-reply to the POPR (Paper 9); and I reviewed the Institution Decision (Paper 12) dated May 11, 2022.

5. In IPR2022-00135 (this proceeding): I reviewed the Petition (Paper 2) and the exhibits submitted with the Petition (EXS. 1001-1078); I reviewed the Patent Owner Preliminary Response (“POPR”, Paper 7) and the exhibits submitted with the POPR (EXS. 2001-2009); I reviewed Petitioner’s Reply to the POPR

(Paper 8) and Patent Owner's Sur-reply to the POPR (Paper 9); and I reviewed the Institution Decision (Paper 12) dated June 1, 2022.

6. I reviewed the deposition transcript of Petitioner's expert, Dr. Dave Levin (EX. 2010) dated July 22, 2022, which I understand covered both IPR2022-00135 and IPR2022-00138.

7. I reviewed related patents, including U.S. Patent Nos. 8,560,604 (EX. 2011) and U.S. Patent No. 10,069,936 (EX. 2012) and their file histories (EXS. 1071 and 1072).

8. In the case of *Bright Data Ltd. v. NetNut Ltd.*, Case No. 2:21-cv-00225 (E.D. Tex.)(the "NetNut Litigation" hereafter); I reviewed related patents, including U.S. Patent Nos. 10,491,713 ("the '713 Patent," EX. 2004) and 11,050,852 ("the '852 Patent," EX. 2005) and 11,044,346 ("the '346 Patent"), and their file histories. I reviewed the Claim Construction Order (Dkt. 191)(the "Teso C.C. Order," EX. 1006), the Supplemental Claim Construction order (Dkt. 453)(the "Teso Supplemental C.C. Order," EX. 1009), the February 16, 2021 Order denying defendants' Motion for Judgement on the Pleadings under Fed. R. Civ. P. 12(c) and 35 U.S.C. § 101 (Dkt. 303)(the "Teso Alice Order," EX. 2007), the Declaration of Dr. Vernon Thomas Rhyne (Dkt. 126-5) and the Declaration of Dr. Michael J. Freedman (Dkt. 138-1) in the case of *Bright Data Ltd. v. Teso LT, UAB et al.*, Case No. 2:19-cv-00395 (E.D. Tex.)(the "Teso Litigation" hereafter). I

reviewed my prior declaration in support of Plaintiff Bright Data Ltd.'s Claim Constructions (Dkt. 106-7), the Declaration of Dr. Kimberly Claffy in support of Defendant's Responsive Claim Construction Brief (Dkt. 115-1), and the Court's Claim Construction Order (Dkt. 146)(the "NetNut C.C. Order," EX. 2013) in the NetNut Litigation.

9. As of the date of this declaration, I have reviewed the papers and exhibits submitted in related proceedings involving the '319 and '510 Patents, including IPR2021-01492 and IPR2021-01493 (together, the "NetNut IPRs"); IPR2022-00861 and IPR2022-00862 (together, the "Code200 IPRs"); and IPR2022-00915 and IPR2022-00916 (together, the "Major Data IPRs"). I submitted prior declarations in support of the Patent Owner Preliminary Responses in each of the Code200 IPRs and the Major Data IPRs.

10. I have reviewed other exhibits submitted concurrently with this declaration, as cited and discussed herein.

11. In preparing this declaration, I also had telephone conversations with Bright Data's Chief Technology Officer, Mr. Ron Kol, and Bright Data's consulting source code reviewer from the various Texas litigations involving the '319 and '510 Patents, Mr. Matt McKune.

12. I am being paid for my work preparing this declaration at my normal consulting rate plus reimbursement of direct expenses. My compensation is not

ted to the outcome of this matter and is not based on the substance of the opinions that I provide.

II. QUALIFICATIONS

13. I am an industry professional with over 45 years of experience in wireless communications, computer networking and telecommunications technology. A copy of my CV is attached as Exhibit A.

14. I am currently active currently active as Chief Executive Officer at Beach Technologies, LLC (Danville, CA) a company related to intellectual property consulting.

15. I am also currently active as a Member at Calumet Venture Management (Madison, WI) a company related to the investment into start-up companies.

16. Beginning in 2004, I was the Founder and Chairman at DoceoTech Inc. (Danville, CA) which provides training for engineers in wireless, computer networking, and telephony technologies.

17. From 2008 to 2010, I was Founder and Board Member of BitRail Networks, Inc (Miami, FL). This company designed and produced computer networking equipment. One market the company served was edge devices for residential and community access.

18. From 2006 to 2015, I was Founder and Board Member of BEEcube, Inc. (Freemont, CA). This company built high speed computing and computer networking equipment. One market the company served was networking equipment for backhaul networks used in 5G cellular networks.

19. From 2004 to 2008, I was Founder and CEO of SiBEAM, Inc. This company designed and produced wireless networking IC and equipment.

20. From 1999 to 2000, I was Interim CEO and Advisory Board Member of Atheros Communications, Inc. (Palo Alto, CA) . This company designed and produced wireless networking IC and equipment.

21. From 1998 to 2000, I was CTO of Picazo Communications, Inc. (San Jose, CA). This company built computer networking equipment to provide VoIP PBX functionality.

22. From 1991 to 1998, I was Co-Founder, CTO, VP Engineering of Wireless Access, Inc. (Santa Clara, CA). This company developed over the air communication protocols for communication between the subscriber device and the network.

23. From 1979 to 1991, I was a Member of the Technical Staff at Motorola, Inc. (Schaumberg, IL and Austin, TX). In IL, I designed protocols for Digital voice communications. In TX, I designed ICs for communications including Telecom, Wireless, Cellular and Computer Networking.

24. I have been engaged in over 200 patent related litigations since 1999.

Many of these cases relate to computer networking technologies, including protocols for Internet communications and the architecture of computer networks.

25. I hold degrees from Michigan Technological University (B.S.E.E., 1976) and the University of Texas at Austin (M.S.E.E., 1982 and Ph.D., Electrical Engineering, 1985 and M.B.A., 1991).

26. I am the principal inventor on 28 U.S. Patents all of which relate to communications technologies.

27. I have been a Registered Patent Agent since 2002.

III. LEGAL PRINCIPLES

28. When interpreting a patent, it is my understanding that it is important to view the disclosure and claims of that patent from the level of ordinary skill in that art at the time of the invention. My opinion of the level of ordinary skill in the art is based on my personal experience working and teaching in the technical field of Internet communications, my knowledge of colleagues and others working in that field, my study of the '319 Patent and its file history, and my knowledge of:

- a. The level of education and experience of persons actively working in the field at the time the subject matter at issue was developed;
- b. The types of problems encountered in the art at the time the subject matter was developed;

- c. The relevant prior art patents and publications;
- d. The activities of others working in that field;
- e. The prior art solutions to the problems addressed by the relevant art;
and,
- f. The sophistication of the technology at issue in this case.

29. In determining the level of ordinary skill in the art, I have also considered, among other things: (1) the sophistication of the relevant technology; (2) the rapidity with which innovations are made in that field; and (3) the educational level of active workers in that field. I also understand that these factors are not exhaustive and are merely a useful guide to determining the level of ordinary skill in the art.

30. Taking the above factors into account, based on my experience in the art and my study of the Internet communication systems disclosed in the '319 and '510 Patents (which share the same inventors of Derry Shribman and Ofer Vilenski and a common specification), in my opinion a person of ordinary skill in the art (a "POSA" hereafter) would be an individual who, as of October 8, 2009, the filing date of the shared provisional application, had a Master's Degree or higher in the field of Electrical Engineering, Computer Engineering, or Computer Science or as of that time had a Bachelor's Degree in the same fields and two or more years of

experience in Internet communications. I exceeded that level of skill in the relevant time frame.

31. I understand that for purposes of this IPR, Petitioner and its expert have adopted this proposal for the level of ordinary skill in the art. Petition at 7; EX. 1003 at ¶ 34.¹ I understand that the Board applied this same definition in each of the Institution Decisions in IPR2022-00135 (Paper 12 at 17) and IPR2022-00138 (Paper 12 at 21).

32. Based on the foregoing, I believe that I am qualified to provide reliable opinions in the technical field of the '319 and '510 Patents, including regarding what a POSA would have understood from the specification, drawings, claims, and file histories, as well as from the prior art in the field at the time of the invention (October 8, 2009).

33. When offering opinions about how a POSA would evaluate or understand a particular issue, I have placed myself in the mindset of such a POSA, basing my opinions on the relevant education and skillset of such a POSA.

¹ I understand Petitioner's expert suggested some modifications to the level of ordinary skill in the art. EX. 1003 at ¶¶ 33-34. My analysis herein would not change even with these modifications.

A. ANTICIPATION

34. It is my understanding that “anticipation” exists only if a single alleged prior art reference discloses each and every limitation of the claim at issue, either expressly or inherently. In other words, every limitation of the claim must appear in a single prior art reference for the reference to anticipate that claim. I also understand that all limitations of the claim must be disclosed in the reference as they are arranged in the claim. I also understand that a requirement of a claim that is missing from a prior art reference may be disclosed inherently if that missing requirement is necessarily present in the prior art. I also understand that to be considered anticipatory, the prior art reference must be enabling and must describe the patentee’s claimed invention with sufficient specificity to have placed it in the possession of a POSA. I also understand that a POSA must be able to at once envisage the claimed invention based on the prior art reference without any need for picking, choosing, and combining various disclosures.

B. OBVIOUSNESS

35. I also understand that a patent may be rendered “obvious” based on an alleged prior art reference or a combination of such references plus what a POSA would understand based on his or her knowledge and those references. I understand that a patent cannot be properly granted for subject matter that would have been obvious to a POSA at the time of the alleged invention. It is also my

understanding that in assessing the obviousness of claimed subject matter a POSA should evaluate obviousness over the prior art from the perspective of one of ordinary skill in the art at the time the invention was made (and not from the perspective of either a layman or a genius in that art).

36. It is my further understanding that the question of obviousness is to be determined based on:

- a. The scope and content of the prior art;
- b. The difference or differences between the subject matter of the claim and the prior art (whereby in assessing the possibility of obviousness one should consider the manner in which a patentee and/or a Court has construed the scope of a claim);
- c. The level of ordinary skill in the art at the time of the alleged invention of the subject matter of the claim; and,
- d. Any relevant objective factors (the “secondary indicia”) indicating non-obviousness as I discuss further below.

37. It is also my understanding that the United States Supreme Court clarified the law of obviousness in *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. at 398 and 419 (2007) case (“KSR”), which I have read and incorporate herein by reference. Based on KSR, it is my understanding that to determine whether it would have been obvious to combine known limitations in a manner claimed in a

patent, one may consider such things as the interrelated teachings of multiple patents, the effects of demands known to the design community or present in the marketplace, and the background knowledge of a POSA.

38. It is my further understanding that for a claim to be found invalid as obvious, it must be obvious to a POSA at the relevant time. I also understand that the existence of each and every limitation of the claimed invention in multiple prior art references/systems does not necessarily prove obviousness since most, if not all, inventions rely on building blocks of prior art. Obviousness may be found where, for example, the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

39. It is my further understanding that I should consider whether there was a reason that would have prompted a POSA to combine the known limitations in a way the claimed invention does, taking into account such factors as: (1) whether the claimed invention was merely the predictable result of using prior art limitations according to their known function(s); (2) whether the claimed invention provides an obvious solution to a known problem in the relevant field; (3) whether the prior art teaches or suggests the desirability of combining limitations claimed in the invention; (4) whether the prior art teaches away from combining limitations

in the claimed invention; (5) whether it would have been obvious to try the combinations of limitations, such as when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions; and (6) whether the change resulted more from design incentives or other market forces. I also understand that to render a claim obvious, the cited combination of prior art must provide a reasonable expectation of success for the proposed combination.

40. It is also my understanding that in developing opinions as to whether or not certain claimed subject matter would have been obvious, each claim of a given patent should be considered in its entirety and separately from any other claims. In so doing, it is my understanding that while I should consider any differences between the claimed invention and the prior art, I should also assess the obviousness or non-obviousness of the entirety of a claim covering an alleged invention, not merely some portion of it.

41. It is my further understanding that although the KSR decision I identified above has led to the elimination of the “teaching, suggestion or motivation” test as the sole test for judging whether the prior art can be combined for the purposes of an obviousness assertion, the use of “impermissible hindsight” is still inappropriate when making such an assertion. For example, § 2142 of the Manual of Patent Examining Procedure (“MPEP”) includes a specific direction to

Patent Examiners that: “[t]he tendency to resort to “hindsight” based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.” In my opinion, this direction to Examiners is equally applicable to experts who assert that the general knowledge of a POSA and/or a combination of references invalidates a patent claim through obviousness.

42. I have also been informed that in cases such as the decision *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006), the Court of Appeals for the Federal Circuit (the “CAFC”) has stated that, “[c]are must be taken to avoid hindsight reconstruction by using the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit.” In my opinion, this is also important because, as the Supreme Court also stated in *KSR* at pp. 418-19, “a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.

This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.”

43. Additionally, and also relevant to the above caution to avoid hindsight, it is my understanding that it is not enough to find that prior art references could be combined, and that to show obviousness one must prove that a POSA would actually combine the multiple references to arrive at the claimed invention, including showing that a POSA would be motivated to do so. For example, in the case *PersonalWeb Technologies, LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017), the Federal Circuit clarified that “obviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.” (Emphasis in original.)

44. It is also my understanding that I should consider any objective evidence (sometimes called the “secondary considerations”) that may have existed at the time of the invention and afterwards that may shed light on the non-obviousness of the claims, such as:

- a. Whether the invention was commercially successful as a result of the merits of the claimed invention (rather than the result of design needs or market-pressure advertising or similar activities);

- b. Whether the invention satisfied a long-felt need;
- c. Whether others had tried and failed to make the invention;
- d. Whether others invented the invention at roughly the same time;
- e. Whether others copied the invention;
- f. Whether there were changes or related technologies or market needs contemporaneous with the invention;
- g. Whether the invention achieved unexpected results;
- h. Whether others in the field praised the invention;
- i. Whether persons having ordinary skill in the art of the invention expressed surprise or disbelief regarding the invention;
- j. Whether others sought or obtained rights to the patent from the patent holder; and,
- k. Whether the inventor proceeded contrary to accepted wisdom in the field.

45. It is my further understanding the Board has designated a precedential decision regarding the proper analysis of secondary considerations in the case of *Lectrosonics, Inc. v Zaxcom, Inc.*, IPR2018-01129, Paper 33 (PTAB Jan. 24, 2020)(designated April 14, 2020)(“Lectrosonics” hereafter). I understand that for secondary considerations of non-obviousness to be accorded substantial weight, the patentee must establish a nexus between the evidence and the merits of the

claimed invention. *Id.* at 32. “There is no nexus unless the evidence presented is ‘reasonably commensurate with the scope of the claims.’” *Id.* I understand that a patentee is entitled to a presumption of nexus “when the patentee shows that the asserted objective evidence is tied to a specific product and that product ‘embodies the claimed features, and is coextensive with them.’” *Id.* I understand that “[a] patent claim is not coextensive with a product that includes a ‘critical’ unclaimed feature that is claimed by a different patent and that materially impacts the product’s functionality.” *Id.*

46. I understand that “a finding that a presumption of nexus is inappropriate does not end the inquiry into secondary considerations.” *Lectrosonics* at 33. “To the contrary, the patent owner is still afforded an opportunity to prove nexus by showing that the evidence of secondary considerations is the ‘direct result of the unique characteristics of the claimed invention.’” *Id.* I understand that “there must be a nexus to some aspect of the claim not already in the prior art.” *Id.*

IV. BACKGROUND TO THE FIELD OF TECHNOLOGY

47. In my opinion, a POSA would understand that network components, such as client devices and web servers, communicating over the Internet are identified by Internet Protocol (“IP”) addresses. A web server, one type of network component, typically stores content that may be identified by a uniform resource

locator (“URL”). The IP address includes certain information that can be used to geolocate the network component with a particular IP address.

48. In my opinion, a POSA would understand that an IP packet sent over the internet to, for example, a web server includes an IP header and payload. The IP header includes the Source IP Address (the IP address of the sending network component) and the Destination IP Address (the IP address of the receiving network component, for example, the IP address of the web server). The payload includes the data being transmitted, such as a request for a content stored on the web server.

49. In my opinion, a POSA would understand that, normally, a request for content is sent from a client device (discussed in detail below) to a web server. For example, a customer that is considering buying a product from a store may request content associated with that particular product from the store’s website. That same customer may also request content associated with that same product at a different store’s website. As one example, a customer may request content to see if the product is on sale. Therefore, in my opinion, a POSA would understand that the IP packet would include the Source IP Address associated with the customer’s client device.

50. In my opinion, a POSA would understand that, normally, the web server responds to a request for content by sending the requested content back to

the Source IP Address. In some cases, the response to the request for content may be blocked or spoofed due to, for example, the geographic location of the Source IP Address. As another example, multiple requests having the same Source IP Address may become suspicious and subsequently blocked by the web server.

51. In my opinion, a POSA would understand that, at the time of invention, a different type of network component known as a proxy server may be used as an intermediary between the client device and the web server in order to conceal the original Source IP Address for a request for content. *See* EX. 1001 at Fig. 1. The IP packet will be sent from the original requestor to the proxy server and from the proxy server to the web server. When sending the IP packet from the proxy server to the web server, the proxy server will often replace the original Source IP address of the original requestor with its own IP address. Thus, a POSA would understand that the web server will only “see” the IP address of the proxy server. Instead of being blocked or spoofed, the requested content may be sent back to the original requesting network component via the proxy server.

V. INTRODUCTION TO THE CLAIMS OF THE ‘319 AND ‘510 PATENTS

52. All of the patents claiming priority to Provisional Application No. 61/249,624 filed on October 8, 2009 share the same specification. I agree with the Rhyne C.C. Declaration’s description of the ‘319 and ‘510 Patents, which were at

issue in the Teso Litigation. Each of the patent claims recites a web server. Specifically, the independent claim of the '319 Patent refers to a “first server that comprises a web server” and the independent claim of the '510 Patent refers to a “web server.” In addition, each of the patent claims recites a separate server referred to as the “**second server**” in the '319 and '510 Patents. Finally, each of the independent patent claims in the '319 and '510 Patents recites a “**first client device**” serving as an intermediary between the web server and the second server.

53. Based on my experience in the NetNut Litigation, I note that the '713 and '852 Patents in this same family have claims that additionally recite a “requesting client device” that is not an intermediary.

54. The '319 and '510 Patent claims recite methods performed by elements performed by the “first client device” within a **second server** ↔ **first client device** ↔ **web server** architecture as shown, for example, in the annotated claims in the following table:

'319 Patent	'510 Patent
1. A method for use with a first client device , for use with a first server that comprises a web server that is a Hypertext Transfer Protocol (HTTP) server that responds to HTTP requests,	1. A method for use with a web server that responds to Hypertext Transfer Protocol (HTTP) requests and stores a first content identified by a first content identifier, the method by a first

<p>the first server stores a first content identified by a first content identifier, and for use with a second server, the method by the first client device comprising:</p> <p>receiving, from the second server, the first content identifier;</p> <p>sending, to the first server over the Internet, a Hypertext Transfer Protocol (HTTP) request that comprises the first content identifier;</p> <p>receiving, the first content from the first server over the Internet in response to the sending of the first content identifier; and</p> <p>sending, the first content by the first client device to the second server, in response to the receiving of the first content identifier.</p>	<p>client device comprising:</p> <p>establishing a Transmission Control Protocol (TCP) connection with a second server;</p> <p>sending, to the web server over an Internet, the first content identifier;</p> <p>receiving, the first content from the web server over the Internet in response to the sending of the first content identifier; and</p> <p>sending the received first content, to the second server over the established TCP connection, in response to the receiving of the first content identifier.</p>
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55. The '713 and '852 Patent claims recite methods comprising elements performed by the "requesting client device" within a **requesting client device** ↔ **second server** ↔ **first client device** ↔ **web server** architecture as shown, for example, in the annotated claims in the following table:

'713 Patent	'852 Patent
1. A method for use with a requesting client device that comprises an HTTP client and is identified over the Internet by a first Internet Protocol (IP) address, for use with a first server that is a web server that is Hypertext Transfer Protocol (HTTP) or Hypertext Transfer Protocol Secure (HTTPS) server that respectively responds to HTTP or HTTPS requests and stores a first content identified by a first content identifier, for use with a second server distinct from the first web server and identified in the Internet by a second IP address, the method by the requesting client device	1. A method by a requesting client device that is identified over the Internet by a first Internet Protocol (IP) address, for use with a first server that is a web server that is Hypertext Transfer Protocol (HTTP) or Hypertext Transfer Protocol Secure (HTTPS) server that respectively responds to HTTP or HTTPS requests and stores a first content identified by a first Uniform Resource Locator (URL), and for use with a second server distinct from the first web server and identified in the Internet by a second IP address, the method by the requesting client device comprising:

<p>comprising:</p> <p>identifying, an HTTP or HTTPS request for the first content;</p> <p>sending, to the second server using the second IP address over the Internet in response to the identifying, the first content identifier and a geographical location; and</p> <p>receiving, over the Internet in response to the sending, from the second server via a first client device, the part of, or the whole of, the first content.</p>	<p>generating an HTTP or HTTPS request that comprises the first URL and a geographical location;</p> <p>sending, to the second server using the second IP address over the Internet, the generated HTTP or HTTPS request; and</p> <p>receiving, over the Internet in response to the sending, from the second server via a first client device, part of, or whole of, the first content, wherein the first content comprises a web-page, an audio content, or a video content.</p>
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56. The steps of claim 1 in each of the '319 and '510 Patents are performed by an intermediary client device – a “**first client device**” – located between the second server and the web server. As discussed below, the common specification discloses a “client device” may be, for example, a requesting client device or an intermediary client device.

VI. BACKGROUND OF THE COMMON SPECIFICATION

57. The common specification distinguishes two prior art systems. The first prior art system is the traditional use of a proxy server as an intermediary between a client device and a web server. *See* '319 Patent at 2:8-39. The second prior art system is the traditional use of a peer-to-peer system using caching client devices. *See* '319 Patent at 2:40-3:3. The common specification explains that the prior art systems are cost prohibitive and do not handle dynamic content due to the typical cache-storage methods. As one example, the traditional use of a proxy server, as discussed above, would require a proxy server in almost every city within the United States and across the world. As another example, the traditional use of a proxy server, as discussed above, may still result in being blocked by the web server, if the IP address of the proxy server is used so regularly that it becomes recognizable and/or because the IP address of the proxy server is a commercial IP address as opposed to residential IP address.

58. In contrast, Bright Data's novel use of a client device as an intermediary as recited in the claims lowers costs and is able to handle dynamic content. In my opinion, it would not be obvious to a POSA to use a client device, having limited resources unlike a server, as an intermediary proxy.

VII. REVIEW OF THE COMMON SPECIFICATION

59. The common specification of the '319 and '510 Patents provides several exemplary embodiments in the detailed description and the figures showing that both servers and client devices can be configured to operate as intermediaries. For example, Figure 1 and the associated discussion show a proxy server between one or more client devices and a web server in a communication pathway. *See, e.g., '319 Patent at Fig. 1 and 2:8-15* (“One solution that has been in use is called a "proxy". FIG. 1 is a schematic diagram providing an example of use of a proxy within a network 2. A proxy, or proxy server 4, 6, 8 is a device that is placed between one or more clients, illustrated in FIG. 1 as client devices 10, 12, 14, 16, 18, 20, that request data, via the Internet 22, and a Web server or Web servers 30, 32, 34 from which they are requesting the data.”)

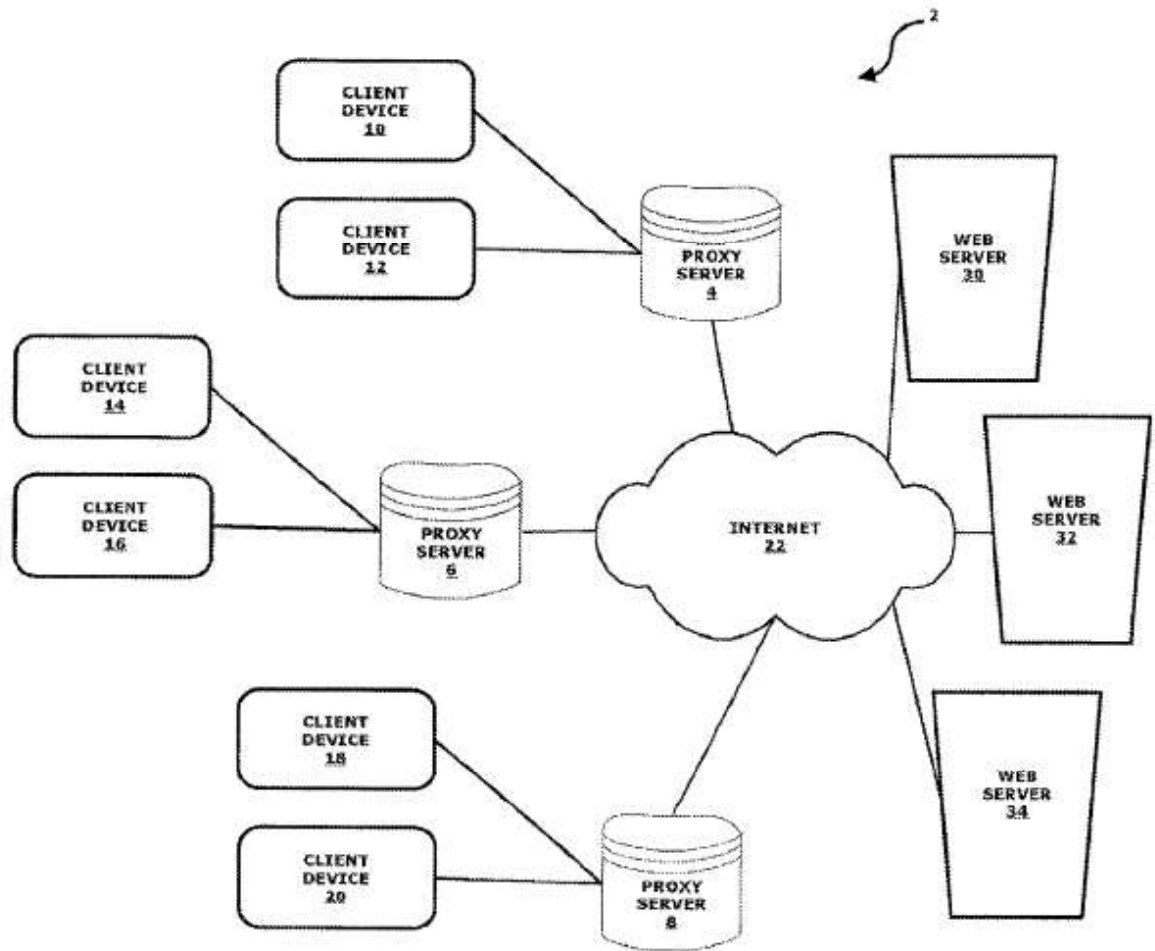


FIG. 1

60. Similarly, Figure 3 shows an exemplary embodiment of network 100 with an agent serving as an intermediary between a client and web server. As described in the specification, the communication network comprises communication devices that can serve as a client, peer, or agent, as well as separate servers and web servers:

“An example of such a communication network 100 is provided by the schematic diagram of FIG. 3. The network 100 of FIG. 3 contains

multiple communication devices. Due to functionality provided by software stored within each communication device, which may be the same in each communication device, each communication device may serve as a client, peer, or agent, depending upon requirements of the network 100, as is described in detail herein. It should be noted that a detailed description of a communication device is provided with regard to the description of FIG. 4.

....

The communication network 100 also contains a Web server 152. The Web server 152 is the server from which the client 102 is requesting information and may be, for example, a typical HTTP server, such as those being used to deliver content on any of the many such servers on the Internet. It should be noted that the server 152 is not limited to being an HTTP server. In fact, if a different communication protocol is used within the communication network, the server may be a server capable of handling a different protocol. It should also be noted that while the present description refers to the use of HTTP, the present invention may relate to any other communication protocol and HTTP is not intended to be a limitation to the present invention.

The communication network 100 further contains an acceleration server 162 having an acceleration server storage device 164.”

’319 Patent at 4:41-5:10.

61. As each communication device is configured to operate as a client, agent or peer as necessary, in my opinion, a POSA would understand client 102 and agent 122 to both be client devices.

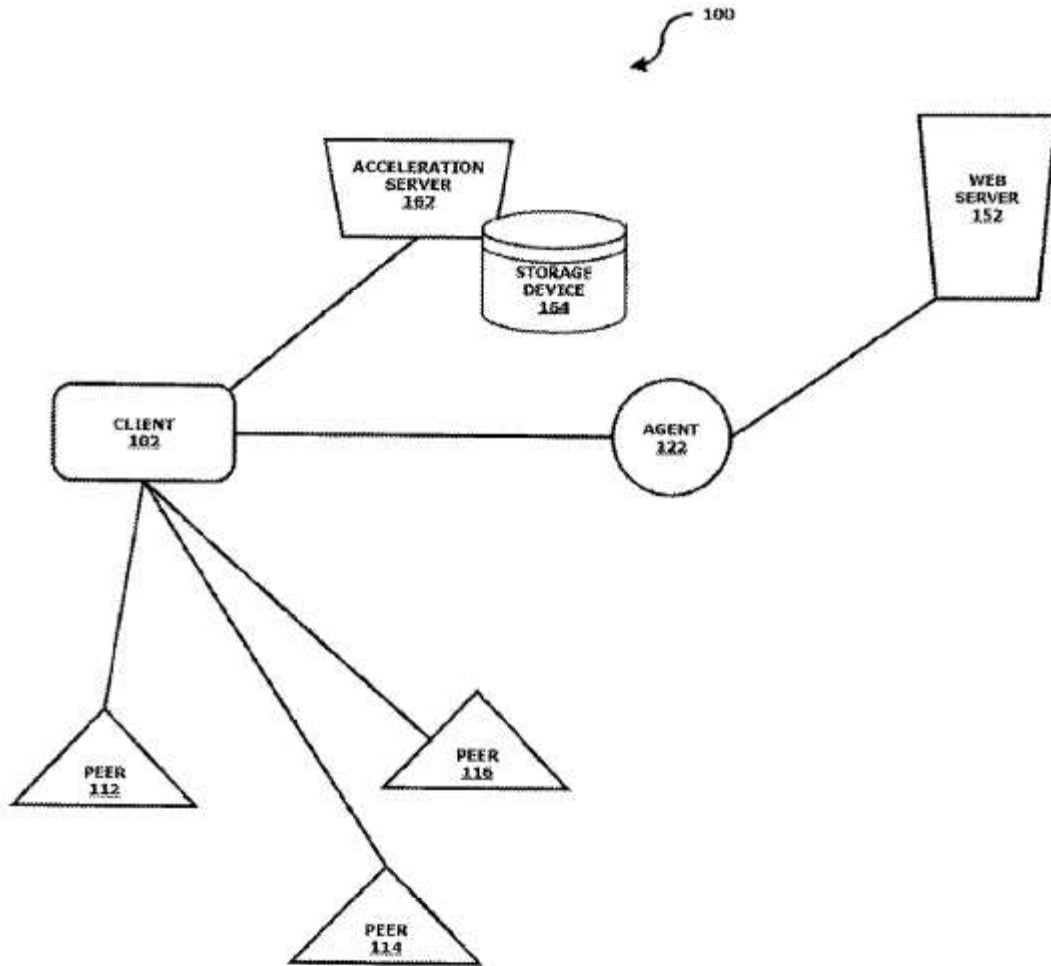


FIG. 3

62. As shown in Figure 3, agent 122, in some embodiments, is a client device which can receive requests for content intended for web server 152. *See, e.g., '319 Patent at 5:21-29.* The common specification also describes that the 'agent' can request this content directly from the web server. *See, e.g., '319 Patent at 15:62-16:11.*

63. The specification discloses how a communication device can be configured to serve as a client, agent, or peer. *See '319 Patent at 4:44-50; 5:21-29;*

see also '319 Patent at 9:12-50. For example, the specification discloses, when executing the fetching method, the requesting client device may be executing the client module 224 disclosed in FIG. 6, while the proxy client device may be executing the agent module 228 disclosed in FIG. 6.

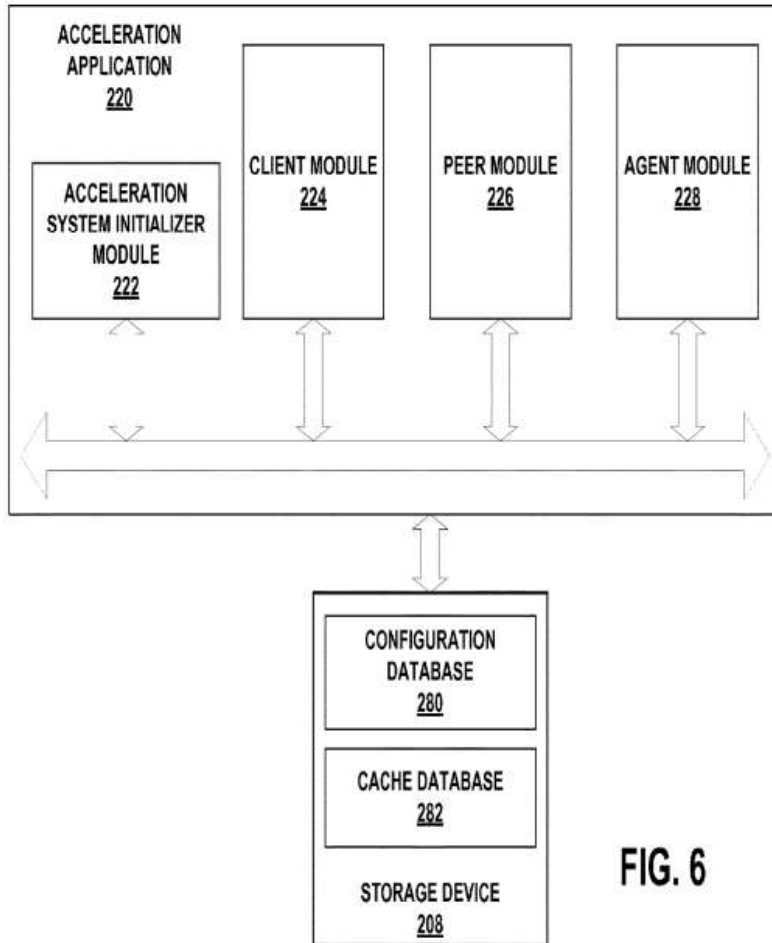
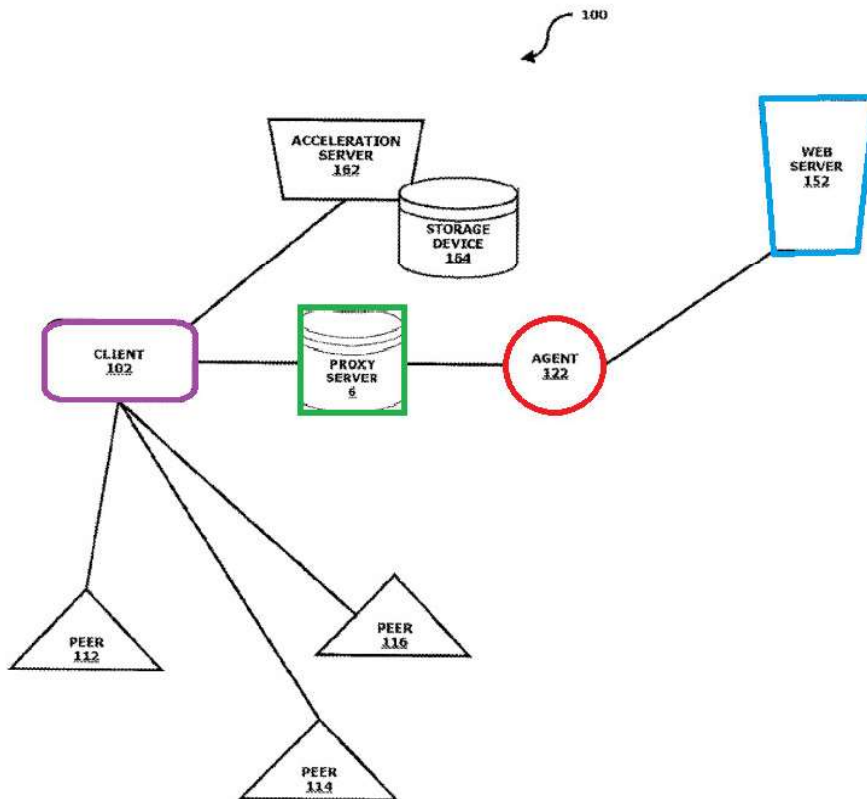


FIG. 6

64. In my opinion, a POSA would understand that proxy server 6 of Figure 1 could be inserted between client 102 and agent 122 of Figure 3, as shown below in a modified version of Figure 3. A POSA would understand the **requesting client device** ↔ **second server** ↔ **first client device** ↔ **web server**

corresponds to client 102 ↔ proxy server 6 ↔ agent 122 ↔ web server 152, as annotated in the modified figure below. Therefore, a POSA would understand the common specification discloses a **requesting client device** ↔ **proxy server** ↔ **proxy client device** ↔ **web server** architecture as well.



VIII. CLAIM CONSTRUCTION

65. It is my understanding that the first step in a proper invalidity analysis requires construing the relevant claims to determine their scope and meaning in view of the patent's specification, file history, and the understanding of a POSA.

66. I understand the Court previously construed certain terms of the '319 Patent and entered a Claim Construction Order (EX. 1006) and a Supplemental Claim Construction Order (EX. 1009) in the Teso Litigation. I understand that the Court again construed certain terms of the '319 Patent and entered a Claim Construction Order (EX. 2013) in the NetNut Litigation.

67. I understand that the Board entered preliminary constructions for certain terms of the '319 Patent in its Institution Decision. Paper 12 at 18-23. In my opinion, I disagree with the Board's preliminary constructions for the terms "client device" and "second server" as discussed below.

A. CLAIM CONSTRUCTION FOR "CLIENT DEVICE"

68. The Board preliminarily construed the term "client device" as a "communication device that is operating in the role of a client." Paper 12 at 22.

69. Based upon the common specification, in my opinion, a POSA would understand the term "client device" to mean a "consumer computer." *See, e.g.*, '319 Patent at 2:44-46 ("In the network 50, files are stored on computers of consumers, referred to herein as client devices."). Alternatively, a POSA would understand the term "client device" to mean a "consumer communication device". In my opinion, these proposed constructions are consistent with the claim language, the specification, and the prosecution histories distinguishing servers from client devices.

70. In my opinion, a POSA would understand a client device is a communication device in the context of the specification. This is consistent with the Court's constructions in the Teso Litigation and in the NetNut Litigation. EX. 1006, EX. 1009, EX. 2013. As described in the specification, "each communication device may serve as a client, peer, or agent" ('319 Patent at 4:48-49) which in my opinion, informs a POSA that client 102, peers 112, 114, 116, and agent 122 are all "client devices" in the context of the specification. *See also* '319 Patent at 4:44-50; 5:21-29.

71. In the NetNut Litigation, Defendant NetNut Ltd. proposed a construction of "client" as "a device operating in the role of a client", but the Court expressly rejected removing the word "communication" from the Court's prior construction of this same term in the Teso Litigation. EX. 2013 at 14. In my opinion, a POSA would understand that 'communication device' has a special meaning in the context of the specification as referring to a 'client device'.

72. The specification discloses HOW a communication device can be configured to serve as a client, agent, or peer. *E.g.*, '319 Patent at 4:44-50; 5:21-29; *see also* '319 Patent at 9:12-50. For example, as discussed above, the specification discloses a **requesting client device** ↔ **proxy server** ↔ **proxy client device** ↔ **web server** architecture. The specification explains, when executing the fetching method, the requesting client device may be executing the client module 224

disclosed in FIG. 6, while the proxy client device may be executing the agent module 228 disclosed in FIG. 6. Therefore, in my opinion, A POSA would understand in the context of the '319 and '510 Patents, a client device is a consumer computer with specific software to operate in accordance with the claims.

73. In the specification, this software is disclosed, for example, in Figure 6 showing acceleration application 220 on communication device 200. Figure 6 and the associated text disclose communication devices having client, peer, and agent modules, but no server module. In my opinion, a POSA would understand from the specification that one "client device" may be configured to be the requesting client device and another "client device" may be configured to be the proxy client device. In my opinion, a POSA would understand the term "client device" to have a consistent definition for either the Requestor or the Proxy.

74. With respect to the modified version of Figure 3 annotated above, in my opinion, a POSA would understand that client 102 corresponds to the requesting client device.

75. With respect to the modified version of Figure 3 annotated above, in my opinion, a POSA would understand that agent 122 corresponds to the proxy client device. Agent 122 is disclosed as a "client device" (as opposed to a server)

that is selected, for example, because agent 122 is closest to the web server 152 (e.g., '319 Patent 5:27; *see also id.* at 5:30-34).

76. In the context of the specification, a client device would be understood to be, more specifically, a consumer computer like a laptop, desktop, tablet, or smartphone. *See, e.g.,* '319 Patent at 2:44-46 (“In the network 50, files are stored on **computers of consumers**, referred to herein as **client devices.**”)(emphasis added). In my opinion, the specification explicitly states that “computers of consumers” are “referred to herein as client devices” and the term “client devices” is used in the claims. *See, e.g.,* '319 Patent at 2:44-46. Therefore, in my opinion, a POSA would understand a “client device” is a consumer computer in the context of the specification. This understanding is also consistent with statements made by Applicant during prosecution of the grandparent application that issued as Patent No. 10,069,936, further discussed below. In my opinion, in the context of the specification, a POSA would understand that a consumer device is distinguished from a commercial device. A POSA would also understand that a consumer device is not a dedicated proxy server.

77. A “consumer” is commonly defined as “a person who buys goods or services for their own use” or “someone who buys goods or services for personal use”. *E.g.,* <https://dictionary.cambridge.org/us/dictionary/english/consumer> (EX. 2015) and <https://www.collinsdictionary.com/us/dictionary/english/consumer> (EX.

2016). This is also consistent with statements made by Applicant during prosecution of the grandparent application that issued as Patent No. 10,069,936, where the applicant stated that client devices are “typically consumer owned and operated.” EX. 1072 at 624.

78. Further, in my opinion, given that the above recited architectures in the ‘319 and ‘510 Patent claims distinguish between client devices and servers (e.g. **proxy server** ↔ **proxy client device** ↔ **web server**) a POSA would understand that the mere inclusion of three interchangeable general use computers in pathway such as a generic **computer** ↔ **computer** ↔ **computer** architecture would not by itself disclose the recited architecture of the ‘319 and ‘510 Patents. The District Court repeatedly acknowledged that a client device is not merely a general-purpose computer. *E.g.*, EX. 2013 at 14-15 (NetNut C.C. Order referencing prior orders by the same court).

79. In my opinion, the recited architecture in the claims of the ‘319 and ‘510 Patents distinguishes the novel use of a client device, rather than a proxy server, as an intermediary. This understanding is consistent with the Teso Alice Order finding the claims of the ’319 and ’510 Patent not abstract. EX. 2007 at 8-9 (“If the claimed methods in this case were simply the receipt and forwarding of information over the Internet, Teso might have a compelling argument. However, it is the use of non-traditional client devices that transforms the Asserted Claims

into non-abstract subject matter.”) This understanding is also consistent with the Teso C.C. Order, the Teso Supplemental C.C. Order, and the NetNut C.C. Order. EXS. 1006, 1009, 2013.

80. In my opinion, a POSA would understand that a client device is typically portable and easily moved, like, for example, a laptop, desktop, tablet or smartphone. I also agree with the applicant’s statements during prosecution that a client device is not a dedicated network element. By contrast, a server is a dedicated network element, as discussed below. I also agree with the applicant’s statements during prosecution that a client device typically uses a single or relatively few connections, unlike a server. I also agree with the applicant’s statements during prosecution that a client device is resource limited (e.g., bandwidth and storage), unlike a server.

81. In my opinion, a POSA would understand that a client device is typically understood (a) to be regularly switched off and taken offline; (b) to be capable of processing only a limited number of requests at any given time, which may for example include a single user login; and/or (c) to have lesser fault tolerance, lesser reliability, and lesser scalability, prioritizing value to client device users over system costs.

82. In my opinion, a POSA would understand “client” to be consistent with its plain and ordinary meaning in the context of “client device” discussed

above. A POSA's understanding of client and client device is further evidenced by extrinsic materials including the February 17, 2015 "Network Fundamentals Study Guide" with a definition of client as "an application that runs on a personal computer or workstation and relies on a server to perform some operations." EX. 2017; *see also* Tannenbaum, et al., "Fifth Edition Computer Networks", EX. 2045 at 5 ("the employees have simpler machines, called clients, on their desks, with which they access remote data, for example, to include in spreadsheets they are constructing").

83. In my opinion, given the specifications discussion of problems associated with the prior art system of using a proxy server as an intermediary (*e.g.*, '319 Patent at 2:8-39) a POSA would NOT consider a proxy client device to encompass a proxy server.

84. In my opinion, a POSA would understand there are structural differences between client devices and servers in the context of the specification and I have seen no contradictory disclosure in the specification or in the prosecution histories. Rather, client devices are repeatedly distinguished from servers in the specification and the prosecution histories.

1. REVIEW OF FIGURES IN THE SPECIFICATION

85. As discussed below, in my opinion, upon reviewing the specification in general, and Figures 1 and 3 in particular, a POSA would understand that proxy

server 6 must be structurally different from agent 122. In my opinion, these figures inform a POSA that a server is not a client device and that a client device is not a server. Proxy server 6 of Figure 1 (prior art) must be structurally different from agent 122 of Figure 3 (inventive embodiment). Petitioner's expert agreed that proxy server 6 of Figure 1 and agent 122 of Figure 3 would be operating in the same roles at a given point in time and so, under the Board's preliminary role-based constructions, Figure 3 collapses onto Figure 1. In my opinion, the Board's preliminary role-based constructions do not account for the structural differences between a proxy server (in Figure 1) and a proxy client device (in Figure 3) and therefore, the role-based constructions are not appropriate.

a. REVIEW OF FIGURE 1

86. For example, Figure 1 is prior art. '319 Patent at 3:66-67. Figure 1 shows proxy server 6 between client devices 14,16 and web server 32. In my opinion, a POSA would understand that client devices 14,16 are client devices and not servers; and a POSA would understand that web server 32 is a server and not a client device.

87. In view of the Board's preliminary role-based constructions, in my opinion, client devices 14,16 are operating in the role of a client and web server 32 is operating in the role of a server. Petitioner's expert agreed. *E.g.*, EX. 2010, Levin Depo. Transcript at 51:3-9 (agreeing Figure 1 discloses client device 14 can

send a request for content to proxy server 6) and 51:11-20 (client device 14 would be operating in the role of a client at that point in time) and 53:17-21 (web server 32 receives the request for content from proxy server 6) and 53:22-54:3 (that is “part of” web server 32 operating in the role of a server at that point in time) and 54:4-10 (web server 32 is NOT operating in the role of a client at that point in time) and 54:23-55:5 (when web server 32 sends a response back to proxy server 6, web server 32 is operating in the role of a server at that point in time).

88. In Figure 1, the exemplary intermediary is proxy server 6. In my opinion, a POSA would understand that proxy server 6 is a server and not a client device.

89. As shown in Figure 1, proxy server 6 (i) receives requests from client devices 14,16 and (ii) sends requests to web server 32. In view of the Board’s preliminary role-based constructions, in my opinion, proxy server 6 would be (i) operating in the role of a server when receiving requests from client devices 14,16 and (ii) operating in the role of a client when sending requests to web server 32. Petitioner’s expert agreed. *E.g.*, EX. 2010, Levin Depo. Transcript at 52:16-23 (when proxy server 6 receives the request for content from client device 14, that is “part of” proxy server 6 operating in the role of a server at that point in time) and 53:7-16 (a when proxy server 6 sends a request for content to web server 32, proxy server 6 is operating in the role of a client at that point in time).

90. Additionally, proxy server 6 (iii) receives a response from web server 32 and (iv) sends the received response from web server 32 to client devices 14,16. In view of the Board's preliminary role-based constructions, in my opinion, proxy server 6 would be (iii) operating in the role of a client when receiving responses from web server 32 and (iv) operating in the role of a server when sending the received responses on to client devices 14,16. Petitioner's expert agreed. *E.g.*, EX. 2010, Levin Depo. Transcript at 55:6-16 (when proxy server 6 receives the response from web server 32, proxy server 6 is operating in the role of a client at that point in time) and 55:16-21 (when proxy server 6 sends the received response to client device 14, proxy server 6 is operating in the role of a server at that point in time).

b. REVIEW OF FIGURE 3

91. Figure 3 is an exemplary embodiment of the present invention. '319 Patent at 4:3-5. Figure 3 shows agent 122 between client 102 and web server 152. In my opinion, a POSA would understand that client 102 is a client device and not a server; and a POSA would understand that web server 152 is a server and not a client device.

92. In view of the Board's preliminary role-based constructions, in my opinion, client 102 is operating in the role of a client and web server 152 is operating in the role of a server. Petitioner's expert agreed. *E.g.*, EX. 2010, Levin

Depo. Transcript at 56:8-12 (agreeing Figure 3 discloses client 102 can send a request for content to agent 122) and 56:13-18 (client 102 is operating in the role of a client at that point in time) and 57:8-14 (when web server 152 receives the request for content from agent 122, that is “part of” web server 152 operating in the role of a server) and 57:15-18 (web server 152 is NOT operating in the role of a client at that point in time) and 57:19-25 (when web server 152 sends a response to agent 122, web server 152 is operating in the role of a server at that point in time) and 58:15-20 (when client 102 receives the response from agent 122, client 102 is operating in the role of a client at that point in time).

93. In Figure 3, the exemplary intermediary is agent 122. In my opinion, a POSA would understand that agent 122 is a client device and not a server.

94. As shown in Figure 3, agent 122 (i) receives requests from client devices and (ii) sends requests to web server 152. In view of the Board’s preliminary role-based constructions, in my opinion, agent 122 would be (i) operating in the role of a server when receiving requests from client device 102 and (ii) operating in the role of a client when sending requests to web server 152. Petitioner’s expert agreed. *E.g.*, EX. 2010, Levin Depo. Transcript at 56:19-25 (when agent 122 receives a request for content from client 102, that is “part of” agent 122 operating in the role of a server at that point in time) and 57:1-7 (when agent 122 sends a

request for content to web server 152, agent 122 is operating in the role of a client at that point in time).

95. Additionally, agent 122 (iii) receives a response from web server 1522 and (iv) sends the received response from web server 1522 to client devices 102. In view of the Board's preliminary role-based constructions, in my opinion, agent 122 would be (iii) operating in the role of a client when receiving responses from web server 152 and (iv) operating in the role of a server when sending the received responses on to client device 102. Petitioner's expert agreed. *E.g.*, EX. 2010, Levin Depo. Transcript at 58:1-7 (when agent 122 receives the response from web server 152, agent 122 is operating in the role of a client at that point in time) and 58:8-14 (when agent 122 sends the received response to client 102, agent 122 is operating in the role of a server at that point in time) and 58:21-59:1 (agreeing that agent 122 is operating in the role of a server when it receives requests from client 102 and that agent 122 is operating in the role of a client device when it sends requests to web server 152).

c. COMPARISON OF FIGURES 1 AND 3

96. Under the Board's preliminary role-based constructions, Petitioner's expert and I agree that proxy server 6 (in Figure 1) and agent 122 (in Figure 3) would be operating in the same roles at a given point in time. Under the Board's preliminary role-based constructions, there is nothing to distinguish the

architectures of Figure 1 and Figure 3. Therefore, in my opinion, a POSA would understand that proxy server 6 must be structurally different from agent 122, consistent with Patent Owner's proposed constructions. In my opinion, these figures inform a POSA that a server is not a client device and that a client device is not a server. That is, proxy server 6 is not the same as agent 122 and vice versa.

97. In my opinion, proxy server 6 of Figure 1 (prior art) must be structurally different from agent 122 of Figure 3 (inventive embodiment) because, as discussed above, proxy server 6 and agent 122 would be operating in the same roles at a given moment in time. Therefore, in my opinion, the Board's preliminary role-based constructions are not appropriate because they fail to account for these structural differences between proxy servers and client devices.

2. REVIEW OF PROSECUTION HISTORIES

98. In my opinion, my understanding of the structural differences between proxy servers and client devices is consistent with the prosecution history as well. For example, in each of the Notices of Allowance, the examiner acknowledged that the "environment" in which the methods are performed is novel. *See, e.g.*, Notice of Allowance dated 1/23/2019, EX. 1002 at 653; Notice of Allowance dated 10/3/2019, EX. 1073 at 519; Notice of Allowance dated 6/29/2018, EX. 1072 at 741. This understanding is also consistent with the Court's Teso Alice Order acknowledging the non-traditional use of client devices in this particular

architecture makes the methods non-abstract. EX. 2007 at 8-9. In my opinion, a POSA would understand that a proxy client device is not the same as a proxy server.

*a. PROSECUTION HISTORY OF THE
GRANDPARENT PATENT NO. 10,069,936*

99. The patent prosecution history of the grandparent, Patent No. 10,069,936, clearly distinguishes client devices from servers. During prosecution, the examiner had rejected then-pending claims over the Garcia reference. *See, e.g.*, EX. 1072 at 304. Applicant responded by amending the claims to specify that the ‘devices’ being used as intermediaries are ‘clients’ in contrast to the teachings of Garcia. EX. 1072 at 349. As Applicant stated, the “the ‘device’ was equated in the Garcia reference to the cache server 306, which is clearly **a dedicated device and performs a server functionality**. The Garcia reference is silent, and actually teaches away from identifying and using another client device for supporting a content request by a specific client.” EX. 1072 at 349 (emphasis in original).

100. The examiner responded that the arguments are moot in view of the new ground(s) of rejection. EX. 1072 at 592. The examiner conceded that “Garcia fails to teach a group of clients for data communication between the web server and a requesting client via one or more clients selected from the group and [] the

selected client receiving the content from the web server and [] the requesting client receiving the content from the selected client.” EX. 1072 at 594.

101. In my opinion, this concession shows that the examiner recognized a server cannot be equated to a client device regardless of the role being performed at a given moment in time. This understanding is consistent with other statements by Applicant during prosecution as, for example, discussed below.

102. Applicant also stated that “[t]here is a clear distinction in the art and as taught by the Garcia reference between clients and servers.” EX. 1072 at 624. Applicant stated that “[c]lient devices, such as client 105 in the Garcia reference, are end-units that request information from servers, use client-related software such as Web browser software, communicate over the Internet using ISP connection, and are typically **consumer owned and operated...**” EX. 1072 at 624 (emphasis added). “[A] client device typically connects to the Internet via an ISP using a single connection.” EX. 1072 at 624. “Clients are inherently [re]sources limited, such as in bandwidth and storage capability.” EX. 1072 at 625.

103. Applicant clearly distinguished servers from client devices: “In contrast, server devices are known in the art to be dedicated devices to store information objects, to be provided to clients upon request.” EX. 1072 at 624.

104. In the Notice of Allowance, the examiner acknowledged that “the limitations of the independent claims, **within its environment**, is allowable subject

matter over the prior art, in light of the specification”. EX. 1072 at 741 (emphasis added). In my opinion, the examiner’s acknowledgement of the “environment” in which the claims operate shows that the examiner appreciated the unique architecture disclosed in the common specification and the novel use of a proxy client device within that architecture. In contrast, the references relied on and cited by Petitioner do not disclose or teach the same architecture, nor do they disclose or teach the claimed methods that operate within that architecture, as further discussed below.

105. In my opinion, upon reviewing the prosecution history of the ‘936 Patent, a POSA would understand that there are structural differences between servers and client devices in the context of the specification.

b. PROSECUTION HISTORY OF THE ‘319 PATENT

106. The patent prosecution history of the parent ’319 Patent further shows that servers and client devices are not interchangeable general use computers. Applicant stated that “a few types of devices (servers / clients) communicating over a network.” EX. 1002 at 162. The applicant argued that “the claims involve specific networking of physical elements such as servers and clients, connected via various networks forming a specific structure and relationships, which are physical apparatuses, and are NO[T] a ‘generic computer’ as stated in the Action.” EX. 1002 at 163. In addition, the applicant further asserted that “the Examiner does not

sufficiently establish that the ‘ordered combination’ of the recited elements also fails to ‘transform the nature of the claim’ into a patent-eligible application.” *Id.*

“Specifically, the claimed components as a combination perform functions that are not merely generic - It is respectfully submitted that the conventional arrangement involves fetching data by a client device from a server device, while the claims disclose a server receiving information from another server via a client device, which is unique and solves a specific problem such as anonymity when fetching information.” *Id.* at 163-164.

107. In the Notice of Allowance, the examiner acknowledged that “the limitations of the independent claims, **within its environment**, is allowable subject matter over the prior art, in light of the specification”. EX. 1002 at 653 (emphasis added). In my opinion, the examiner’s acknowledgement of the “environment” in which the claims operate shows that the examiner appreciated the unique architecture disclosed in the common specification and the novel use of a proxy client device within that architecture. In contrast, the references relied on and cited by Petitioner do not disclose or teach the same architecture, nor do they disclose or teach the claimed methods that operate within that architecture, as further discussed below.

108. In my opinion, upon reviewing the prosecution history of the ‘319 Patent, a POSA would understand that there are structural differences between servers and client devices in the context of the specification.

c. PROSECUTION HISTORY OF THE CHILD ‘510 PATENT

109. In the patent prosecution history of the ‘510 Patent, in the Notice of Allowance, the examiner again acknowledged that the “environment” of the claimed methods was novel over the prior art. EX. 1073 at 519. In my opinion, the examiner’s acknowledgement of the “environment” in which the claims operate shows that the examiner appreciated the unique architecture disclosed in the common specification and the novel use of a proxy client device within that architecture. In contrast, the references relied on and cited by Petitioner do not disclose or teach the same architecture, nor do they disclose or teach the claimed methods that operate within that architecture, as further discussed below.

B. CLAIM CONSTRUCTION FOR “SECOND SERVER”

110. The Board preliminarily construed the term “second server” as “server that is not the client device”, with the clarification that “second server” is a “device that is operating in the role of a server and that is not the client device.” Paper 12 at 22.

111. During the NetNut Litigation, NetNut proposed that the term “second server” should mean “a device operating in the role of a server”. The Court stated it “hereby expressly rejects Defendant’s proposal of referring generically to “a device,”... ” EX. 2013 at 20. The Court reiterated that “second server” means “server that is not the client device.” EX. 2013 at 23.

112. As discussed above, consistent with the Teso C.C. Order, the Teso Supplemental C.C. Order, the Teso Alice Order, and the NetNut C.C. Order, a POSA would understand that the recited architectures in the claims of the ‘319 and ‘510 Patents is not merely satisfied by a generic computer ↔ computer ↔ computer architecture.

113. As discussed above, the claim language itself distinguishes client devices and servers. The specification also distinguishes client devices and servers. A POSA would understand that the mere inclusion of interchangeable general-purpose computers in a pathway such as a generic computer ↔ computer ↔ computer pathway would not by itself disclose the architecture of the claimed methods. In the context of the ‘319 and ‘510 Patents, it would be improper to call one component a client device and another identical component a server. There are many prosecution history statements that client devices and servers are different physical elements, they are different types of network components. In allowing the

issued claims, the examiner found that client devices are distinguished from servers.

114. The Court has repeatedly acknowledged that a server is not a communication device. *E.g.*, Teso Supplemental C.C. Order, EX. 1009 at 10. Even if a server is “operating as a client” according to the RFCs, that does not transform a server into a communication device in the context of the ‘319 and ‘510 Patents. Regardless of the role being performed, a server is not a communication device.

115. In my opinion, the “second server” is separate and distinct from the “first client device” of the claims, consistent with the Court’s constructions. In my opinion, a server is structurally different from a client device as disclosed in the specification or recited in the patent claims. As discussed above comparing Figures 1 and 3, a POSA would understand that a client device is structurally different from a proxy server. In my opinion, a POSA would understand that agent 122 of Figure 3 is not the same as proxy server 6 of Figure 1.

116. In my opinion, a POSA would understand the “second server” recited in the claims to be a server that is not a client device. This proposed construction is consistent with the claim language, the specification, and the prosecution histories distinguishing servers from client devices. A POSA would understand that, in general, a “server” is not a “client device” in the context of the specification. For example, the Court construed “client device” as a communication device in the

Teso Litigation and in the NetNut Litigation. Based on the Court's construction for "client device", a server is not a client device at least in part because a server is not a communication device.

117. In my opinion, a POSA would understand that a server is not a consumer computer. A POSA would consider a server to be a commercial network element, rather than a consumer device. A POSA would understand that, unlike a client device, a server is not portable or moved about by a consumer. I also agree with the applicant's statements during prosecution that a server is a dedicated network element, unlike a client device. I also agree with the applicant's statements during prosecution that a server is capable of a large number of connections, unlike a typical client device.

118. Further, in my opinion, a POSA would understand a server (a) to remain online with greater availability and maximum up time to receive requests almost all of the time (switching off servers can be catastrophic to a network); (b) to efficiently process multiple requests from multiple client devices at the same time; (c) to generate various logs associated with the client devices and traffic from/to the client devices; (d) to primarily interface and respond to the client devices, oftentimes without a Graphical User Interface ("GUI"); (e) to have greater fault tolerance and higher reliability with lower failure rates; and/or (f) to provide

scalability for increasing resources to serve increasing client demands. These server-attributes distinguish a server from a client device.

119. A POSA's understanding of server is further evidenced by extrinsic materials including the February 17, 2015 "Network Fundamentals Study Guide" with a definition of server as "A computer or device on a network that manages network resources. Servers are often dedicated, meaning that they perform no other tasks besides their server tasks." EX. 2017; *see also* Tannenbaum, et al., "Fifth Edition Computer Networks", EX. 2045 at 5 ("data are stored on powerful computers called servers") and EX. 2045 at 6 ("one server can handle a large number (hundreds or thousands) of clients simultaneously").

120. To the extent that the Board's constructions are intended to construe any intermediary computer operating in a **computer ↔ computer ↔ computer** architecture as both a client and server, as discussed above, such construction is inconsistent with the disclosure in the '319 and '510 Patents, the patent prosecution history of at least the '319 Patent, the Teso C.C. Order, Teso Supplemental C.C. Order, the Teso Alice Order and the NetNut C.C. Order. A POSA would NOT understand the recited client devices and servers to be merely interchangeable general use computers.

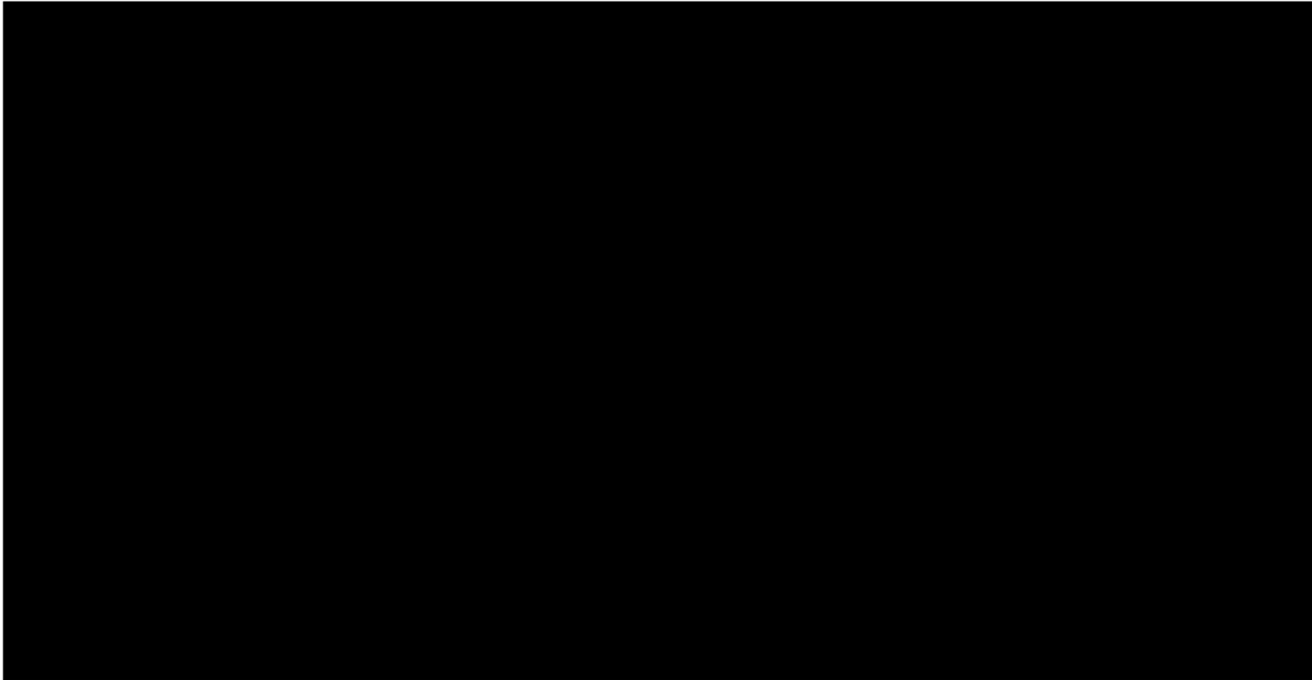
IX. BRIGHT DATA PRACTICES THE CHALLENGED CLAIMS

121. My understanding is that Bright Data (which has undergone many name changes) provides a residential proxy service. In my opinion, Bright Data's residential proxy service practices the methods claimed in the '319 Patent, as discussed below. Bright Data's residential proxy service provides various users' client devices, such as a laptop, desktop, tablet, or smartphone, as a proxy to other users' requesting client devices.

122. The residential IP addresses of proxy client devices are registered. Bright Data currently provides approximately 72 million residential IP addresses associated with real users, in approximately 195 countries, to be used as proxy client devices in its residential proxy service. See <https://brightdata.com/proxy-types/residential-proxies> (EX. 2014).²

123. As confirmed during my conversation with Mr. Kol and as shown in Bright Data's network diagram reproduced below (EX. 2018), Bright Data's residential proxy service operates in the following way:

² I also understand that Bright Data also provides a Software Development Kit ("SDK") to app developers such that a user may agree to configure its client device to participate in the service as a proxy client device in exchange for free or discounted apps. See also <https://brightdata.com/proxy-types/residential-proxies> (EX. 2014)("How does Bright Data acquire its residential IPs?")



a. Upon using the residential proxy service, the customer's client device establishes a TCP connection between itself and the web server, though the Super Proxy and through one or more proxy client devices. Each Super Proxy is a proxy server located somewhere in the world. During my conversation with Mr. Kol, he explained that Bright Data currently has more than 4,000 Super Proxies worldwide, including in the United States.

b. A customer sends an HTTP request for content identified by a URL to a Super Proxy. The Super Proxy sends the request for content identified by a URL to a proxy client device (Peer SDK) that in turn, sends the request for content identified by a URL to a web server using the IP address of the proxy client device as the Source IP Address.

c. The proxy client device obtains the requested content directly from the web server. The proxy client device sends the requested content back to the customer via the Super Proxy through the established connection.

124. I have also reviewed Bright Data's source code for its residential proxy service. I have compiled a separate appendix with a chart of the '319 Patent claims showing where the claimed features of the '319 Patent are found in Bright Data's residential proxy service, including the source code. EX. 2020 (source code claim chart appendix) and EXS. 2021- 2024 (source code itself).

125. In my opinion, the residential proxy service directly corresponds to the network architecture of the modified version of Figure 3 of the '319 Patent where the requesting client device corresponds to client 102, the Super Proxy corresponds to proxy server 6, and the proxy client device corresponds to agent 122. In my opinion, Bright Data's residential proxy service is "reasonably commensurate in scope with the scope of the claims" of the '319 Patent. As discussed herein, the '319 Patent's claims are directed at the novel use of a proxy client device. In my opinion, as discussed herein, Bright Data's residential proxy service embodies the claimed features of the '319 Patent and is coextensive with them.

126. During my conversation with Mr. Kol, I confirmed that the features driving the commercial success of Bright Data's residential proxy service is (a) the

proxy client devices have residential IP addresses that lower the risk of blocking by the web server and (b) the scalability of this architecture given the large number of proxy client devices having residential IP addresses, which are the direct result of the unique characteristics of the '319 Patent claims, i.e., the novel use of a proxy client device to fetch content from a web server.

127. In my opinion, it is the use of a client device as a proxy that enables Bright Data to create a network with millions of nodes to act as proxies. This is an extremely scalable solution that solves the problems identified in the prior art in the background section of the specification. This also solves the problems I discussed in detail regarding blocking by a web server. These client devices are otherwise being used by regular consumers for their usual purposes, making proxy requests created by these devices difficult to distinguish from the requests of the owners of the client devices.

128. These advantages are noted in the following press release for an investment that was made in Bright Data (then known as Luminati) by EMK Capital in 2017:

Luminati is the world's leading enterprise IP proxy network, and helps make the Web more transparent by allowing businesses to see the internet from the consumers' point of view. In the Internet's early days, web pages were simple – every viewer saw the same page. Today, sites are dynamic – they recognize the viewer and show different content, advertisements and prices based on the viewers' geography, demographics, and other identifying information. Websites can also determine if a competitor is comparing prices, or if a security company is auditing them for potential threats. These trends are eliminating the transparency of the Web: for example, they reduce online retailers' ability to compete as retailers can't reliably see the prices that are presented to consumers; similarly these trends make it difficult for security firms to find malicious sites, as such sites are presented only to users of a certain demographic. These developments have also made it difficult for ad networks & website owners to check that the ads they are delivering are safe, because an unscrupulous ad vendor may present malicious ads only to the unsuspecting user but not to the ad network.

Luminati brings back transparency and trust to the Web by enabling its enterprise customers to access the internet through its proprietary network of over 40 million IP addresses. Luminati helps customers to see the Web as it appears to real consumers, without being blocked, slowed or spoofed and to view the Web from different users' perspectives from any city across the globe. Luminati's technology and patent portfolio allow Luminati to operate the only mass-scale residential IP proxy network in the world.

Luminati serves corporate clients, including Fortune 500 companies, in many different sectors which use Luminati's transparency network for ad verification, brand protection, price comparison, fraud prevention, data collection, cyber security, and application performance measurement. Luminati's residential IP service is required for many businesses that need certainty in the accuracy of the data they collect online and the accuracy of the cyber security checks they conduct.

See <https://www.emkcapital.com/emk-acquires-luminati-worlds-largest-ip-proxy-network-brings-transparency-internet/> (EX. 2019). [REDACTED]

[REDACTED] In my opinion, this acquisition is evidence of commercial success, showing non-obviousness of the '319 Patent's claims.

129. As further evidence of Bright Data's commercial success, just last year alone, I understand that Bright Data's residential proxy service [REDACTED], as shown below. In my opinion, this revenue is evidence of commercial success, showing non-obviousness of the '319 Patent's claims.

[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]

[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]

130. **MY UNDERSTANDING OF THE GROUNDS IN IPR2022-00138**

131. Ground 1 alleges anticipation of claims 1, 12-14, and 21-27 by Plamondon, U.S. Pub. No. 2008/0228938, EX. 1010.

132. Ground 2 alleges obviousness of claims 28 and 29 over Plamondon.

133. Ground 3 alleges obviousness of claims 15-17 over Plamondon and RFC 2616 entitled Hypertext Transfer Protocol—HTTP/1.1, EX. 1018.

134. Ground 4 alleges obviousness of claims 17 and 18 over Plamondon and RFC 1122 entitled Requirements for Internet Hosts–Communication Layers, EX. 1014.

135. Ground 5 alleges obviousness of claim 2 over Plamondon and IEEE 802.11-2007 entitled Telecommunications and Information Exchange Between Systems – Local and Metropolitan Area Networks–Specific Requirements–Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications, EX. 1022.

136. Ground 6 alleges obviousness of claims 2-5 and 19-20 over Plamondon and Price, U.S. Pub. No. 2006/0026304, EX. 1023.

137. Ground 7 alleges obviousness of claims 6-11 over Plamondon and Kozat, U.S. Pub. No. 2009/0055471, EX. 1024.

X. OVERVIEW OF PLAMONDON

138. Plamondon is directed at problems of “delays encountered by [wide area network] WAN traffic.” EX. 1010 at [0002]. Plamondon teaches techniques for “accelerating and optimizing network traffic,” including “proxy caching, protocol acceleration, domain name resolution acceleration as well as compression improvements.” EX. 1010 at Abstract.

139. More specifically, Plamondon teaches systems and methods for “accelerat[ing] network traffic by prefetching objects for caching using QoS.” EX.

1010 at [0001]; *see also* Title. Plamondon defines “prefetching” as “identifying a file or object that is likely to be requested by a user and requesting that file or object before it is actually requested.” EX. 1010 at [0009].

140. With respect to FIG. 1A (reproduced below), Plamondon describes the network has one or more clients 102a-102n in communication with one or more servers 106a-106n via one or more networks 104, 104', 104". EX. 1010 at [0202]. Plamondon further describes a client 102 communicates with a server 106 via one or more network optimization appliances 200, 200'. *Id.*

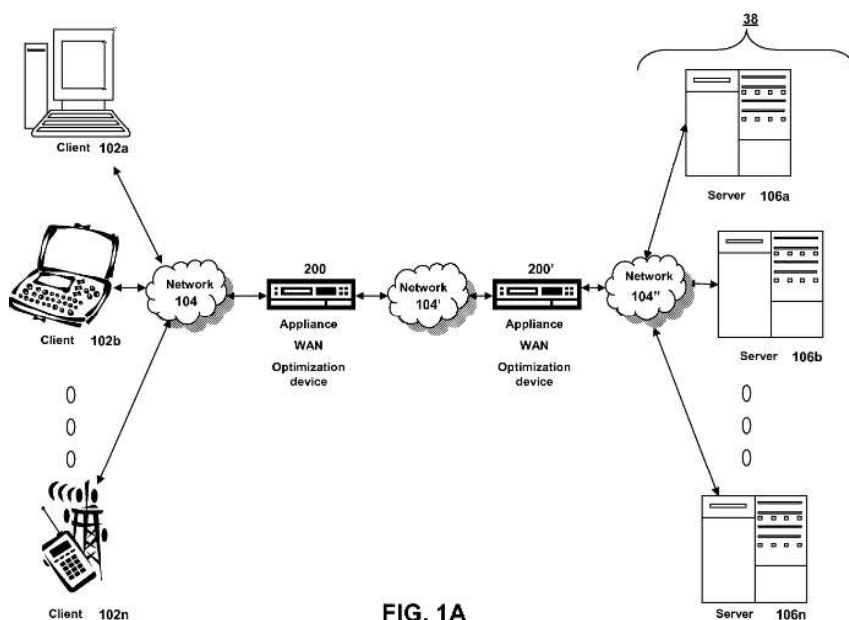


FIG. 1A

141. FIG. 1C (reproduced below) shows other network embodiments disclosed in Plamondon. The top of FIG. 1C shows a client 102 in communication with a server 106 via a single appliance 200. The bottom of FIG. 1C shows a client 102 in communication with a server 106 via an appliance 200' and another

appliance 205'. As described by Plamondon, appliance 205' may be a LAN accelerating or Application Firewall appliance. EX. 1010 at [0228]. Appliances 205, 205' are not discussed in the Petition.

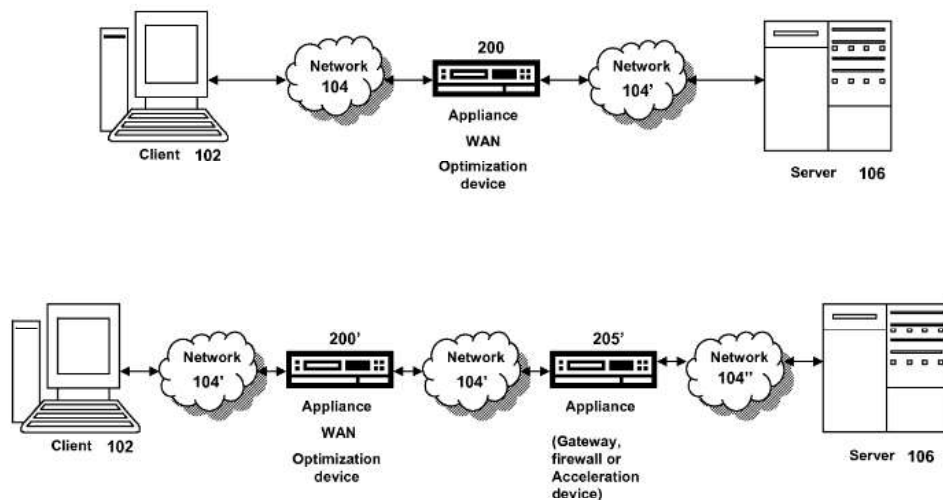


FIG. 1C

142. Plamondon continues to describe that “[i]n one embodiment, the network optimization appliance 200 is designed, configured or adapted to optimize Wide Area Network (WAN) network traffic” and “[i]n some embodiments, a first appliance 200 works in conjunction or cooperation with a second appliance 200' to optimize network traffic.” EX. 1010 at [0202]. “For example, a first appliance 200 may be located between a branch office and a WAN connection while the second appliance 200' is located between the WAN and a corporate Local Area Network (LAN). The appliances 200 and 200' may work together to optimize the WAN related network traffic between a client in the branch office and a server on the corporate LAN.” *Id.*

143. Plamondon also describes that client 102 may be located at a branch office of a corporate enterprise communicating with a server 106 located at a corporate data center. EX. 1010 at [0203].

144. Plamondon further describes that appliance 200 may be located “between” or “on” networks such that “a corporate enterprise may deploy an appliance 200 at the branch office” or “at a corporate data center.” EX. 1010 at [0205].

XI. GROUND 1 (ALLEGED ANTICIPATION BY PLAMONDON) FAILS

145. Petitioner proposes “client device” means “communication device that is operating in the role of a client”. Petition at 9. Also, Petitioner proposes “second server” means “a device that is operating in the role of a server and that is not the first web server.” Petition at 9. As discussed above, in the Institution Decision, the Board applied preliminary role-based constructions for the terms “client device” and “second server”. As discussed above, in my opinion, the role-based constructions of “client device” and “second server” are not appropriate. Even so, under the role-based constructions, in my opinion, Plamondon does not disclose each and every limitation of claim 1 of the ‘319 Patent as discussed below.

A. NO DISCLOSURE OF CLAIM 1, STEP 1 UNDER ROLE-BASED CONSTRUCTIONS

146. Claim 1, step 1 of the '319 Patent recites a first client device “receiving, from the second server, the first content identifier.” Petitioner alleges appliance 200 corresponds to the “first client device” and client 102a corresponds to the “second server” of claim 1. Petition at 15.

147. In my opinion, Plamondon does not disclose a “first client device” receiving the first content identifier from a “second server” as recited in claim 1. Petitioner argues that Plamondon discloses appliance 200 receives requests for content identified by URLs from client 102. Petition at 18. However, in my opinion, at that point in time, appliance 200 is operating in the role of a server, not a client. Petitioner’s expert agreed. EX. 2010, Levin Depo. Transcript at 74:12-17 (agreeing claim 1, step 1 requires that the first client device receives the first content identifier from the second server) and 75:17-76:1 (when appliance 200 receives a request for content from client 102, that is “part of” appliance 200 operating in the role of a server at that point in time) and 76:2-9 (appliance 200 is NOT operating in the role of a client at that point in time) and 76:12-18 (client 102 is operating in the role of a client at that same point in time); *see also id.* at 61:17-25 and 75:6-16. Therefore, under the role-based constructions, appliance 200 cannot correspond to the “first client device” of the '319 Patent’s claims as Petitioner alleges.

148. Additionally, at that same point in time, client 102 is operating in the role of a client, not a server. Petitioner's expert agreed. EX. 2010, Levin Depo. Transcript at 61:11-16 (when client 102 sends a request for content, client 102 is operating in the role of a client at that point in time) and 76:12-18 (same). Therefore, under the role-based constructions, client 102 cannot correspond to the "second server" of the '319 Patent's claims as Petitioner alleges.

149. For at least these reasons, in my opinion, Plamondon does not anticipate claim 1 of the '319 Patent under the role-based constructions for "client device" and "second server".

B. NO DISCLOSURE OF CLAIM 1, STEP 4 UNDER ROLE-BASED CONSTRUCTIONS

150. Claim 1, step 4 of the '319 Patent recites "sending, the first content by the first client device to the second server, in response to the receiving of the first content identifier." Petitioner alleges appliance 200 corresponds to the "first client device" and client 102a corresponds to the "second server" of claim 1. *See, e.g.*, Petition at 15.

151. In my opinion, Plamondon does not disclose a "first client device" sending the received first content to a "second server" as recited in claim 1. Petitioner argues that Plamondon discloses appliance 200 sending the received first content to client 102. Petition at 23-25. However, in my opinion, at that point in

time, appliance 200 is operating in the role of a server, not a client. Petitioner's expert agreed. EX. 2010, Levin Depo. Transcript at 63:20-64:2 (when appliance 200 sends the received response to client 102, appliance 200 is operating in the role of a server at that point in time); *see also id.* at 69:14-19 (when appliance 200 sends the received response to client 102b, appliance 200 is operating in the role of a server at that point in time); *see also id.* at 89:16-90:4 (confirming testimony that when client 102 sends a request, client 102 is operating in the role of a client at that point in time) and 77:10-17 (agreeing claim 1, step 4 requires that the first client device sends the first content to the second server) and 78:7-13 (when appliance 200 sends the requested content to client 102, appliance 200 is operating in the role of a server) and 77:14-20 (when client 102 receives the requested content from appliance 200, client 102 is operating in the role of a client). Therefore, under the role-based constructions, appliance 200 cannot correspond to the "first client device" of the '319 Patent's claims as Petitioner alleges.

152. Additionally, at that same point in time, client 102 is operating in the role of a client, not a server. Petitioner's expert agreed. EX. 2010, Levin Depo. Transcript at 64:3-8 (when client 102 receives the response from appliance 200, client 102 is operating in the role of a client at that point in time); *see also id.* at 70:4-9 (when client 102b receives a response from appliance 200, client 102b is operating in the role of a client at that point in time). Therefore, under the role-

based constructions, client 102 cannot correspond to the “second server” of the ‘319 Patent’s claims as Petitioner alleges.

153. For at least these reasons, in my opinion, Plamondon does not anticipate claim 1 of the ‘319 Patent under the role-based constructions for “client device” and “second server”.

C. NO DISCLOSURE OF ARCHITECTURE OF CLAIM 1 UNDER PATENT OWNER’S PROPOSED CONSTRUCTIONS

154. Petitioner argues that, even under Patent Owner’s proposed constructions, appliance 200 of Plamondon corresponds to the “first client device” and client 102 of Plamondon corresponds to the “second server” of the ‘319 Patent claims. *E.g.*, Petition at 15. I disagree.

155. Petitioner appears to agree with Patent Owner’s description of the **requesting client device** ↔ **second server** ↔ **first client device** ↔ **web server** architecture disclosed in the ‘319 Patent. Petition at 13. Petitioner (relying on Dr. Levin) created a new annotated figure to try to map the disclosure of Plamondon to that of the ‘319 Patent. The annotated figure does not appear in Plamondon.

156. In my opinion, Plamondon’s disclosure is directed to a corporate network environment. Because the client 102, appliance 200, and server 106 of Plamondon are all predetermined components on a corporate network, in my opinion, Plamondon does not teach hiding the identity of client 102 from server

106. For example, in my opinion, in the embodiments cited and relied upon by Petitioner, when appliance 200 sends a request to server 106, Plamondon does not teach that appliance 200 should change the source IP address from that of client 102 to that of appliance 200. Therefore, in my opinion, the server 106 can identify the source IP address as that of client 102.

157. During the deposition, Petitioner's expert merely pointed to paragraph 246 of Plamondon which teaches a two layer TCP connection; one between client 102 and appliance 200 and another between appliance 200 and server 106. EX. 2010, Levin Depo. Transcript at 101:16-103:8. Petitioner's expert agreed that in some embodiments, even with a two layer TCP connection, appliance 200 may re-use the source IP address of client 102. EX. 2010, Levin Depo. Transcript at 103:2-5. Petitioner's expert again relied on the fact that "Plamondon teaches us that these networks can take on virtually any network's topology." EX. 2010, Levin Depo. Transcript at 103:7-8. Therefore, in my opinion, it seems that Petitioner's expert agrees that Plamondon is agnostic regarding anonymity of client 102. In my opinion, that is the opposite of the disclosure of the '319 Patent.

158. Additionally, Plamondon discloses that many business entities desired to consolidate their computing infrastructure to a single geographic location in order to simplify maintenance and administration. EX. 1010 at [0002]. Petitioner's expert agreed that a POSA would understand there are some benefits conferred by

consolidating computing infrastructure in that way. EX. 2010, Levin Depo. Transcript at 94:4-18. Therefore, in my opinion, Plamondon does not teach a network with millions of appliances. In contrast, the disclosure of the ‘319 Patent teaches a network with millions of proxy client devices. In my opinion, a POSA would not arrive at the claimed invention upon reviewing Plamondon.

159. In my opinion, because Plamondon does not disclose the **second server** ↔ **first client device** ↔ **web server** architecture in which the claimed methods of the ‘319 Patent operate, Plamondon does not anticipate at least independent claim 1 of the ‘319 Patent. In my opinion, Plamondon does not disclose each and every limitation of claim 1 “as arranged in the claim” and a POSA would not “at once envisage” the invention of claim 1. As discussed below, in my opinion, client 102 of Plamondon does not correspond to the “second server” of claim 1 of the ‘319 Patent. Further, in my opinion, appliance 200 of Plamondon does not correspond to the “first client device” of claim 1 of the ‘319 Patent.

1. CLIENT 102

160. As discussed above in the overview of Plamondon, in my opinion, Plamondon discloses that client 102 is a predetermined part of a corporate network. *See, e.g.*, EX. 1010 at [0203].

161. Petitioner argues that client 102 of Plamondon acts as a server to clients 102a-n and requests content from server 106 via appliance 200. Petition at

13. Specifically, Petitioner argues that client 102 “has the capacity to function as both a client node seeking access to applications on a server and as an application server providing access to hosted applications for other clients 102a-102n.”

Petition at 13 (emphasis in original). In my opinion, the cited disclosure does not inform a POSA that client 102 corresponds to the “second server” of the ‘319 Patent’s claims.

162. In my opinion, a POSA would understand that an application server normally hosts applications that can be remotely accessed and executed by a requesting client. As described more specifically in Plamondon, an application server may provide “email services such as Microsoft Exchange manufactured by the Microsoft Corporation of Redmond, Wash.” and “any of the applications may comprise any type of hosted service or products, such as GoToMeeting™ provided by Citrix Online Division, Inc. of Santa Barbara, Calif., WebEX™ provided by WebEx, Inc. of Santa Clara, Calif., or Microsoft Office Live Meeting provided by Microsoft Corporation of Redmond, Wash.” EX. 1010 at [0247]. In my opinion, a POSA would understand that an application server is different from a web server that stores data. Normally, a web server is not used to remotely access and execute applications.

163. Further, in my opinion, a POSA would understand that an application server is different from a proxy server that receives requests for content and sends

requests for content on to a web server, normally, using a different Source IP Address and sometimes, providing cache storage. As discussed above, in my opinion, a POSA would understand the “second server” of the ‘319 Patent’s claims to be a proxy server located between a requesting client device and a proxy client device. In my opinion, Plamondon does not disclose client 102 servicing requests for content from clients 102a-102n.³ In my opinion, Plamondon does not disclose client 102 acting as a proxy server.

164. Petitioner also argues that “computing device 100 [and thus each client 102, server 106, and appliance 200] can be any... desktop computer, laptop or notebook computer, server, handheld computer, mobile telephone... or other form of computing or telecommunications device.” Petition at 12 (emphasis in original). In my opinion, the cited disclosure does not inform a POSA that client 102 corresponds to the “second server” of the ‘319 Patent’s claims.

³ Additionally, whenever client 102 is sending requests to appliance 200, client 102 is operating in the role of a client, not a server. Petitioner’s expert agreed. *E.g.*, Transcript at 60:23-61:10 (agreeing the top of Figure 1C discloses client 102 sends requests for content to server 106 and that those requests will be intercepted by appliance 200) and 61:11-16 (when client 102 sends a request for content, client 102 is operating in the role of a client at that point in time); *see also, e.g., id.* at 64:24-65:1 and 65:9-12 (agreeing Figure 1A discloses client 102b can send requests for content to server 106b and that those requests will be intercepted by appliance 200) and 65:3-8 (when client 102b sends a request for content, client 102b is operating in the role of a client at that point in time).

165. The cited paragraph 238 of Plamondon recites a long list of different network components, one of them being a “server” (generally). Petitioner appears to contend that client 102 and appliance 200 can be any of the components on that list of network components. Petition at 12. In my opinion, Plamondon’s disclosure of a long list of generic components does not inform of a POSA of the specific architecture in which the method claims of the ‘319 Patent operate. In my opinion, upon reviewing Plamondon, a POSA would not pick from that long list and choose to make client 102 a server. Further, in my opinion, a POSA would not pick and choose to make client 102 a server in combination with the alleged appliance 200 “client device”. In my opinion, a POSA would not “at once envisage” the **second server ↔ first client device ↔ web server** architecture in which the claimed methods of the ‘319 Patent operate. In my opinion, there is no guidance or disclosure in Plamondon that would inform a POSA to do so.

166. In my opinion, Plamondon does not disclose the **second server ↔ first client device ↔ web server** architecture with “sufficient specificity” to disclose each and every limitation of at least claim 1 of the ‘319 Patent “as arranged in the claim.” In my opinion, Plamondon does not inform a POSA to configure the alleged client 102 “server” as a proxy server receiving requests for content from a client device and sending requests for content to a proxy client device and on to a web server.

167. Further, in my opinion, it seems that Petitioner contends client 102, appliance 200, and server 106 are interchangeable network components and it doesn't matter which is which. It seems that Petitioner argues that Plamondon discloses "anything can be anything".⁴ In my opinion, Petitioner's argument that "anything can be anything" is opposite to the disclosure of the '319 Patent. In my opinion, Petitioner fails to appreciate the **second server** ↔ **first client device** ↔ **web server** architecture in which the claimed methods of the '319 Patent operate. Most specifically, Petitioner fails to appreciate the novel use of a client device performing the method steps of claim 1 of the '319 Patent. My understanding is consistent with the Teso Alice Order finding the claims of the '319 Patent are not abstract. EX. 2007 at 8-9 ("If the claimed methods in this case were simply the receipt and forwarding of information over the Internet, Teso might have a compelling argument. However, it is the use of non-traditional client devices that transforms the Asserted Claims into non-abstract subject matter.")

168. In my opinion, no where does Plamondon disclose client 102 (as a server) communicating with server 106 via appliance 200. More specifically, no where does Plamondon disclose client 102 (as a **proxy** server) communicating with server 106 via appliance 200.

⁴ See also my discussion below regarding Petitioner's expert's "fallback" position regarding Plamondon.

169. In my opinion, based on the disclosure of Plamondon, a POSA would understand the network architecture of client 102 – appliance 200 – server 106 to correspond to a corporate computer – corporate server – corporate server architecture.

2. *APPLIANCE 200*

170. As discussed above in the overview of Plamondon, in my opinion, Plamondon discloses that appliance 200 is a predetermined part of a corporate network. *See, e.g.*, EX. 1010 at [0202] and [0205].

171. In my opinion, based on the disclosure of Plamondon, a POSA would understand appliance 200 to be a corporate server. As disclosed in Plamondon, “the appliance 200 is any of the product embodiments referred to as WANScaler manufactured by Citrix Systems, Inc. of Ft. Lauderdale, Fla. In other embodiments, the appliance 200 includes any of the product embodiments referred to as BIG-IP link controller and WANjet manufactured by F5 Networks, Inc. of Seattle, Wash. In another embodiment, the appliance 200 includes any of the WX and WXC WAN acceleration device platforms manufactured by Juniper Networks, Inc. of Sunnyvale, Calif. In some embodiments, the appliance 200 includes any of the steelhead line of WAN optimization appliances manufactured by Riverbed Technology of San Francisco, Calif. In other embodiments, the appliance 200 includes any of the WAN related devices manufactured by Expand Networks Inc.

of Roseland, N.J. In one embodiment, the appliance 200 includes any of the WAN related appliances manufactured by Packeteer Inc. of Cupertino, Calif., such as the PacketShaper, iShared, and SkyX product embodiments provided by Packeteer. In yet another embodiment, the appliance 200 includes any WAN related appliances and/or software manufactured by Cisco Systems, Inc. of San Jose, Calif., such as the Cisco Wide Area Network Application Services software and network modules, and Wide Area Network engine appliances.” EX. 1010 at [0206]. In my opinion, a POSA would understand that each of these embodiments discloses some type of corporate server, and not a client device in the context of the ‘319 Patent.

172. As discussed above with respect to client 102, paragraph 238 of Plamondon recites a list of different network components, including a desktop, laptop computer, or mobile telephone. Still, in my opinion, none of the cited figures or paragraphs of Plamondon disclose a proxy client device located between a proxy server and a web server. In my opinion, Plamondon’s disclosure does not provide “sufficient specificity” for a POSA to “at once envisage” the **second server** ↔ **first client device** ↔ **web server** architecture in which the claimed methods of the ‘319 Patent operate. Because appliance 200 is not a proxy client device as disclosed in the ‘319 Patent, appliance 200 does not provide the benefits such as enabling a network with millions of nodes to act as proxies to a requesting client device.

D. NO DISCLOSURE OF DEPENDENT CLAIMS

173. Because Plamondon does not anticipate independent claim 1 for the reasons discussed above, Plamondon cannot anticipate dependent claims 12-14 and 21-27. I understand that a dependent claim incorporates all of the limitations of the preceding claim(s) from which it depends. At minimum, Plamondon does not disclose use of a “first client device” between a “second server” and a “web server” as claimed in the ’319 Patent.

1. CLAIM 14

174. In addition to the reasons discussed above with respect to claim 1, in my opinion, Plamondon does not disclose the additional limitations recited in claim 14 of the ‘319 Patent for the reasons discussed below. Claim 14 of the ‘319 Patent recites: “The method according to claim 1, further comprising determining, by the first client device, that the received first content, is valid.”

175. Petitioner cites [0043], [0048], [0450], [0451], [0508], [0512], and [0522]-[0524] as support for alleged anticipation of claim 14. Petition at 28-29.

176. First, paragraphs 43 and 48 are from the “Brief Summary of the Invention” section of Plamondon. In my opinion, Petitioner mischaracterizes the disclosure of Plamondon. In my opinion, the cited paragraphs are vague and fail to inform a POSA that appliance 200 may perform the limitations recited in claim 14 of the ‘319 Patent as Petitioner alleges.

177. Second, paragraphs 450 and 451 are from section F regarding “Systems and Methods of Performing Parallel Revalidation of Cached Objects” as shown in FIGS. 6A-6B of Plamondon. *See* EX. 1010 at [0442]. In my opinion, Petitioner mischaracterizes the disclosure of Plamondon. In my opinion, a POSA would not understand these paragraphs to disclose appliance 200 determines that the first content is valid as recited in claim 14 of the ’319 Patent.

178. Plamondon discloses: “At step 610, the appliance 200 identifies the object of the request and determines the object is located in the cache 232. At step 615, the appliance 200 transmits, in response to the determination, the cached object to the client. At step 620, also in response to the determination, the appliance transmits a request for a status the object from an originating server. The appliance may serve the object at step 615 and transmit a request at step 620 substantially simultaneously to each other. **At step 625, the appliance 200 receives a status of the object or an updated copy of the object from the server.** Based on the response from the server, the appliance 200 updates the cache accordingly.” EX. 1010 at [0444] (emphasis added).

179. In my opinion, a POSA would understand that the cited paragraphs, describing the embodiment of FIGS. 6A-6B of Plamondon, disclose to a POSA that it is the server 106, and not appliance 200, that determines the validity of the “first content”. In this section, in my opinion, Plamondon discloses server 106 will

send a response indicating the validity of the first content to appliance 200. There is no “determining... that the received first content, is valid” by appliance 200 disclosed in the cited paragraphs as recited in claim 14 of the ‘319 Patent.

180. Additionally, paragraph 451 describes a second request from the same client 102 or a different client 102’. In some embodiments, appliance 200 is “aware the revalidation of the first request of the object has recently occurred or is occurring and does not transmit a request for a status of the object to the server **in response to the second request.**” EX. 1010 at [0451] (emphasis added). In other embodiments, appliance 200 “**in response to the second request** determines the remaining period of the expiration of the cached object...” EX. 1010 at [0451] (emphasis added). In my opinion, a POSA would understand from claim 1 that the “received first content” recited in dependent claim 14 must have been received “in response to the receiving of the first content identifier” in the first request. In my opinion, these other embodiments described in paragraph 451 do not disclose appliance 200 determining the validity of the first content received in response to the first request. Therefore, in my opinion, the cited paragraphs do not show anticipation of claim 14 of the ‘319 Patent as Petitioner alleges.

181. Third, paragraphs 508, 512, and 522-524 are from section I regarding “Systems and Method for Prereshening Cached Objects” as shown in FIGS. 9A-9B of Plamondon. *See, e.g.*, EX. 1010 at [0508]. In my opinion, Petitioner

mischaracterizes the disclosure of Plamondon. As described in, for example, paragraph 508, Plamondon's prefetching technique is used “[p]rior to a user requesting the identified object from the page, a prefetcher 904 of the device generates a request for a status or an update to the object in the cache 232 and transmits the generated request to a server 106.” EX. 1010 at [0508] (emphasis added). As further described in that same paragraph, “the technique is referred to as prefetching, because the device validates or updates an object in the cache **in anticipation of or prior to a user requesting the object** identifies by the page.” EX. 1010 at [0508] (emphasis added).

182. As discussed above, in my opinion, a POSA would understand that the “received first content” must have been received AFTER a user requested the content.⁵ In my opinion, the cited paragraphs of Plamondon only discuss prefetching BEFORE a user requested the content. Therefore, in my opinion, the cited paragraphs do not show anticipation of claim 14 of the ‘319 Patent.

183. Fourth, Petitioner cites paragraphs 229-231 of the Levin Declaration (EX. 1003) which relies on the same paragraphs discussed above.

⁵ Petitioner's expert appears to fundamentally misunderstand the claims. *See, e.g.*, Transcript at 133:13-19 (Q: Would you agree that the challenged claims in these matters relate to fetching content after the client has made a request for the content? A: I would not necessarily characterize it as such, no.) and 134:11-15 (Q: So would the first client device receive that first content identifier before there was a request for content? A: I don't see that the claim [1 of the ‘319 Patent] necessarily limits it to that.).

184. Petitioner does not cite any other support for Plamondon's alleged anticipation of claim 14 of the '319 Patent. In my opinion, for the reasons discussed above, Plamondon does not disclose the limitations of claim 14 of the '319 Patent.

2. CLAIM 24

185. In addition to the reasons discussed above with respect to claim 1, in my opinion, Plamondon does not disclose the additional limitations recited in claim 24 of the '319 Patent for the reasons discussed below. Claim 24 of the '319 Patent recites: "The method according to claim 1, further comprising establishing, by the first client device, a Transmission Control Protocol (TCP) connection with the second server using TCP/IP protocol."

186. In my opinion, the portions of Plamondon cited and relied upon by Petitioner only disclose establishing a TCP connection in the context of client 102 sending a request for content. Petitioner's expert pushed back on this during deposition generally referencing the various paragraphs of Plamondon cited in his declaration. *E.g.*, EX. 2010, Levin Depo. Transcript at 87:5-16. The majority of the paragraphs referenced by Petitioner's expert during deposition describe the **hardware** used for establishing a TCP connection. In my opinion, describing the hardware used for establishing a TCP connection does not address the context in which a TCP connection is established. In my opinion, the cited disclosure of

Plamondon related to **establishing** a TCP connection are all in the context of client 102 sending a request for content.

187. In paragraphs 254-260 of Petitioner's expert's declaration, Petitioner's expert cites to paragraphs 252-256, 270, and 275 of Plamondon. All of these cited paragraphs are from section B of Plamondon describing "embodiments of a system and appliance architecture for accelerating delivery of a computing environment to a remote user". EX. 1010 at [0186]. In my opinion, these cited paragraphs describe **hardware** used for establishing a TCP connection. For example, paragraphs 252-256 describe the network stack 267; paragraph 270 describes the multi-protocol compression engine 238; and paragraph 275 describes the sending of SYN-ACK packets. In my opinion, paragraph 275 only references "[w]hen an end node, such as the client 102, opens a new TCP connection with another end node, such as the server 106..." but does not explain the context in which a new connection is opened or established. Overall, in my opinion, the cited paragraphs do not address the context in which a TCP connection is established in Plamondon's network. As discussed below, the other paragraphs cited and relied upon by Petitioner that relate to establishing a TCP connection are all in the context of client 102 sending a request for content.

188. In paragraph 257 of Petitioner's expert's declaration, Petitioner's expert cites to paragraph 350 of Plamondon. This cited paragraph is from section C

of Plamondon describing “embodiments of a client agent for accelerating communications between a client and a server.” EX. 1010 at [0186]. Plamondon discloses that client agent 120 may perform the techniques of method 600 shown in FIGS. 6A-6B upon which Petitioner relies. EX. 1010 at [0452]. In method 600, “at step 605, the appliance 200 intercepts or otherwise receives any type and form of request for an object from a client 102.” EX. 1010 at [0445]. In my opinion, the cited paragraph 350 shows that the portions of Plamondon cited and relied upon by Petitioner only disclose establishing a TCP connection in the context of client 102 sending a request for content.

189. In paragraph 260 of Petitioner’s expert’s declaration, Petitioner’s expert cites to paragraph 571-572 of Plamondon. These cited paragraphs are from section K of Plamondon describing “embodiments of systems and methods for prefetching or using non-cacheable content of dynamically generated pages as compression history.” EX. 1010 at [0186]. Plamondon discloses that, in method 1100, “[t]he device intercepts any type and form of communication from one device to another device identifying a non-cacheable object, such as a page transmitted from a server to a client. In one embodiment, the device intercepts a response from a server to a client's request for a dynamically generated object.” EX. 1010 at [0571]. In my opinion, the cited paragraphs 571-572 show that the portions of Plamondon cited and relied upon by Petitioner only disclose

establishing a TCP connection in the context of client 102 sending a request for content

190. In my opinion, Plamondon does not disclose a first client device establishing a Transmission Control Protocol (TCP) connection with the second server as recited in claim 24. In the context of sending a request for content, client 102 is operating in the role of a client. Petitioner's expert agreed. *E.g.*, EX. 2010, Levin Depo. Transcript at 60:23-61:10 (agreeing the top of Figure 1C discloses client 102 sends requests for content to server 106 and that those requests will be intercepted by appliance 200) and 61:11-16 (when client 102 sends a request for content, client 102 is operating in the role of a client at that point in time); *see also id.* at 64:24-65:1 and 65:9-12 (agreeing Figure 1A discloses client 102b can send requests for content to server 106b and that those requests will be intercepted by appliance 200) and 65:3-8 (when client 102b sends a request for content, client 102b is operating in the role of a client at that point in time). Client 102 never changes roles in the architecture actually disclosed in Plamondon. *See, e.g.*, FIGS. 1A and 1C.⁶ Therefore, under the role-based constructions, client 102 cannot correspond to the "second server" of the '319 Patent's claims as Petitioner alleges.

⁶ Below, I address Petitioner's annotated figure (Petition at 19) that does not appear in Plamondon and, in my opinion, is not supported by the disclosure of Plamondon.

191. At that same point in time, when client 102 sends a request for content that is intercepted by appliance 200, appliance 200 is operating in the role of a server. Petitioner's expert agreed. *E.g.*, EX. 2010, Levin Depo. Transcript at 61:17-25 (when appliance 200 intercepts client 102's request for content, that is "part of" appliance 200 operating in the role of a server at that point in time); *see also id.* at 65:13-20 (when appliance 200 intercepts client 102b's request for content, that is "part of" appliance 200 operating in the role of a server at that point in time). Therefore, under the role-based constructions, appliance 200 cannot correspond to the "first client device" of the '319 Patent's claims as Petitioner alleges.

E. PETITIONER'S EXPERT REPEATEDLY TAKES A FALLBACK POSITION REGARDING PLAMONDON

192. During the deposition, Petitioner's expert repeatedly took a fallback position when confronted with questions about Plamondon's network architecture. EX. 2010, Levin Depo. Transcript at 103:5-8 ("Plamondon teaches us that these networks can take on virtually any network's topology [sic]"); *id.* at 107:10-12 (same); *id.* at 109:3-11 (same); *id.* at 127:22-25 (same); *see also id.* at 108:5-6 ("I don't think [Plamondon] limits it to that, but it also doesn't preclude it") and 114:7-9 (same). Petitioner's expert also opined that "[t]o serve as computing device 100... the components only need to be capable of communication and have sufficient processing power and memory to provide the required functionality for

that component”. EX. 1003 at ¶ 160 (citing EX. 1010 at [0238]). In my opinion, this testimony shows that Petitioner’s expert’s analysis lacks detail and is biased by hindsight.

193. In my opinion, Petitioner’s expert treats the “first client device” and “second server” of the ‘319 Patent’s claims as interchangeable, general purpose computers. *See also, e.g.,* EX. 2010, Levin Depo. Transcript at 104:21-105:2 (Q: Is it your opinion that the computing devices in Plamondon, the computing devices in the ‘319 Patent, and the Price coordinating computer are each general purpose computers? A: Yes, that’s my position. I would agree with that)⁷; *see also* EX. 1003 at ¶388). This testimony is directly contrary to the Court’s Teso Alice Order. EX. 2007 at 8-9.

XII. GROUNDS 2-7 (ALLEGED OBVIOUSNESS OF DEPENDENT CLAIMS)

194. Claim 1 is the only independent claim of the ‘319 Patent. Petitioner does not present any obviousness analysis of the limitations of independent claim

1. I understand that a dependent claim incorporates all of the limitations of the

⁷ Petitioner attempted to rehabilitate its expert’s testimony. *See* EX. 2010, Levin Depo. Transcript at 155:15-156:8 (a POSA would not have understood paragraph 238 of Plamondon to only mean general purpose computer; to the extent that it is not a “special purpose computer” then a POSA would not say that this paragraph is strictly limited to a general purpose computer). In my opinion, a POSA would not view these generic references as teaching the unique architecture in which the method claims of the ‘319 Patent operate.

preceding claim(s) from which it depends. Since Plamondon does not anticipate independent claim 1, for the reasons discussed above, and since Petitioner does not present any obviousness analysis of independent claim 1, if Ground 1 fails then Grounds 2-7 must also fail.

A. GROUND 2 (ALLEGED OBVIOUSNESS OVER PLAMONDON) FAILS

195. For at least the reasons discussed above with respect to claim 1, Ground 2 fails.

B. GROUND 3 (ALLEGED OBVIOUSNESS OVER PLAMONDON AND RFC 2616) FAILS

196. For the reasons discussed above with respect to claim 1, Ground 3 fails. Petitioner does not present any analysis where RFC 2616 (EX. 1018) would cure the deficiencies of Plamondon discussed above. In my opinion, the combination of Plamondon and RFC 2616 does not teach or suggest the inventions of claims 15-17 of the '319 Patent.

197. Additionally, claim 15 depends from claim 14 which depends from claim 1. For the additional reasons discussed above with respect to claim 14, Ground 3 fails.

198. In addition to the paragraphs of Plamondon discussed above with respect to claim 14, Petitioner additionally relied on FIGS. 6A-6B and FIGS. 9A-

9B and for the same reasons, these figures do not disclose the limitations of claims 14 and 15 in my opinion.

199. Petitioner additionally relied on paragraph 449 of Plamondon which discloses different embodiments of step 620 where appliance 200 transmits a request for a status of the object to, for example, server 106. *See also* EX. 1010 at [0444]. One embodiment of such a request is disclosed in paragraph 449 of Plamondon as “a conditional HTTP get request.” In my opinion, a POSA would not understand this paragraph to disclose appliance 200 determining that the first content is valid as recited in claim 14 of the '319 Patent. As discussed above, in my opinion, Plamondon discloses server 106 and not appliance 200 determines validity. For example, it is server 106 that sends a “304 Not Modified Response” to appliance 200.

200. Petitioner additionally relied on paragraphs 509-511 and 513-521 and 525-528. For the same reasons discussed above with respect to the “prefresher 409” of Plamondon, these cited paragraphs do not disclose the limitations of claims 14 and 15 in my opinion.

201. Petitioner additionally relied on paragraph 84 and 85. Paragraphs 84 and 85 are from the “Brief Summary of the Invention” section of Plamondon. In my opinion, the cited paragraphs are vague and fail to inform a POSA that

appliance 200 may perform the limitations recited in claims 14 or 15 of the '319 Patent as Petitioner alleges.

202. Petitioner additionally relied on paragraphs 295-297 and 304 the Levin Declaration (EX. 1003) which relies on the same figures and paragraphs discussed above.

203. Petitioner does not appear to rely on RFC 2616 to modify Plamondon's appliance 200 to perform the "determining" step of claim 14 which is necessarily incorporated in claim 15. *See* Petition at 36-38.

204. Petitioner does not cite any other support for Plamondon's alleged obviousness of claim 15 of the '319 Patent. In my opinion, for the reasons discussed above, Plamondon does not teach or suggest the limitations of claim 15 of the '319 Patent.

205. In addition to the reasons discussed above with respect to claims 1, 14, and 15, in my opinion, Plamondon does not disclose the additional limitations recited in claim 16 of the '319 Patent for the reasons discussed below. Claim 16 of the '319 Patent recites: "The method according to claim 15, further comprising: sending, a message over the Internet in response to the determining that the received first content, is not valid; and receiving, over the Internet in response to the sending of the message, from the second server or from a second client device selected from a plurality of client devices, the first content."

206. Petitioner specifically quotes paragraph [0451] which, as discussed above, is taken out of context because that paragraph relates to a second request, not the first request. Petition at 38.

207. Petitioner also relies on FIGS. 10A-10B and the associated description in paragraphs 537, 538, and 541. Petition at 38. These additional citations do not support Petitioner's allegations with respect to claim 16. As discussed below, appliance 200 does not correspond to the "first client device" of claim 16 and appliance 200' does not correspond to the "second client device" of claim 16.

208. Petitioner alleges that appliance 200' is the "second client device". *E.g.*, Petition at 39. Petitioner goes on to allege that appliance 200 receives the content from appliance 200'. Petition at 40. At that point in time, appliance 200' is operating in the role of a server, not a client. Petitioner's expert agreed. EX. 2010, Levin Depo. Transcript at 68:25-69:7 (when appliance 200' sends the received response to appliance 200, appliance 200' is operating in the role of a server at that point in time).

209. Petitioner alleges that appliance 200' is selected from a plurality of client devices. Petition at 40. However, Plamondon discloses appliances 200 and 200' are in-line of traffic. *See, e.g.*, EX. 1010 at FIG. 1A. If appliance 200' exists in the Plamondon architecture (alternatively, there may only be one appliance 200), then, based on the disclosure of Plamondon cited and relied on by Petitioner, any

alleged message sent by appliance 200 must necessarily pass through appliance 200'. In my opinion, Plamondon does not disclose purposeful selecting of appliance 200' from a plurality of client devices. *See also, e.g.,* EX. 2010, Levin Depo. Transcript at 95:20-96:4 (all traffic from client 102 destined to server 106 would pass through appliance 200).

210. If an object is cached on appliance 200', Plamondon discloses at paragraph 446 that client 102's request for content would be intercepted first by appliance 200 and then forwarded on to appliance 200'. Petitioner's expert agreed. EX. 2010, Levin Depo. Transcript at 111:23-112:5. In my opinion, paragraph 446 does not disclose that a request from client 102 is sent to appliance 200' instead of appliance 200. Based on the teachings of Plamondon, client 102 is not bypassing appliance 200 in favor of appliance 200'. In contrast, the disclosure of the '319 Patent allows a client to select a particular proxy client device from a plurality of possible proxy client devices. *See also, e.g.,* '319 Patent, claim 16.

211. Additionally, in Ground 7, Petitioner alleges that client 102n corresponds to the "second client device" while here in Ground 3, Petitioner alleges that appliance 200' is the "second client device." Given this inconsistency, in my opinion, Petitioner is using hindsight bias to try to map the disclosure of Plamondon onto the claims of the '319 Patent. Also, in my opinion, as discussed

above with respect to appliance 200, appliance 200' is not a client device, but rather some type of server.

212. Additionally, Petitioner appears to argue that the “cache management system” of Plamondon indexes which cache on which component contains the requested content. Petition at 40. In my opinion, this contradicts Petitioner’s other arguments in Ground 7 regarding the combination of Plamondon and Kozat, as discussed below. In my opinion, Petitioner is using hindsight bias to review the claims and try to find corresponding disclosure in Plamondon.

C. GROUND 4 (ALLEGED OBVIOUSNESS OVER PLAMONDON AND RFC 1122) FAILS

213. For at least the reasons discussed above with respect to claim 1, Ground 4 fails. Petitioner does not present any analysis where RFC 1122 (EX. 1014) would cure the deficiencies of Plamondon discussed above. In my opinion, the combination of Plamondon and RFC 1122 does not teach or suggest the inventions of claims 17 and 18 of the ‘319 Patent.

D. GROUND 5 (ALLEGED OBVIOUSNESS OVER PLAMONDON AND IEEE 802.11-2007) FAILS

214. For at least the reasons discussed above with respect to claim 1, Ground 5 fails. Petitioner does not present any analysis where IEEE 802.11-2007 (EX. 1022) would cure the deficiencies of Plamondon discussed above. In my

opinion, the combination of Plamondon and IEEE 802.11-2007 does not teach or suggest the invention of claim 2 of the '319 Patent.

E. GROUND 6 (ALLEGED OBVIOUSNESS OVER PLAMONDON AND PRICE) FAILS

215. For at least the reasons discussed above with respect to claim 1, Ground 6 fails. Petitioner does not present any analysis where Price (EX. 1023) would cure the deficiencies of Plamondon discussed above. In my opinion, the combination of Plamondon and Price does not teach or suggest the inventions of claims 2-5 and 19-20 of the '319 Patent.

216. In my opinion, Petitioner relies on hindsight bias in its analysis of claim 2 in Ground 6. Earlier, in Ground 5, Petitioner expressly relies on IEEE 802.11-2007 in the obviousness analysis of claim 2 to allege (a) appliance 200 is identified by a MAC address and (b) a first message to client 102 comprises the MAC address. Petition at 44-45; *see also* EX. 1003 at ¶¶380-384. Here, in Ground 6, Petitioner makes the same allegations, but IEEE. 802.11-2007 is not a reference relied upon in Ground 6. In my opinion, Petitioner does not provide support for its allegations regarding claim 2 in Ground 6.

217. With respect to “claim 2a” (see Petition at 48), the cited paragraph 253 of Plamondon merely discloses: “In some embodiments, the network stack 267 has any type and form of a wireless protocol, such as IEEE 802.11 and/or mobile

internet protocol.” The cited paragraph 29 of Price merely discloses: “Preferably, the system has the capability of providing a connection from the device to the proxy update system in one or more of multiple different optional ways. For example, the connection may be intermittent or continuous, and/or may be wired or wireless, and/or may include serial or parallel port, USB or PC1394 (“firewire”) connection, connection via AC power wiring such as that found in X-10 devices, Ethernet, Bluetooth or 802.11 wireless, infrared, or any other means, or any combination or sub-combination of the foregoing.” In my opinion, the cited paragraphs do not disclose the limitations of “claim 2a” as Petitioner alleges. In my opinion, the cited paragraphs do not teach the appliance 200 is identified by a MAC address as Petitioner alleges. Petition at 48. The petitioner also explicitly references and relies on its analysis in “section X.” with respect to Ground 5 here in Ground 6. Petition at 48.

218. With respect to “claim 2b” (see Petition at 49), the petitioner additionally cites paragraphs 204, 215, and 228 of Plamondon. Paragraph 204 discloses the network 104 of Plamondon “may be any type and/or form of network...”. Paragraph 215 discloses appliance 205 includes “any type and form of transport control protocol or transport later terminating device, such as a gateway or firewall device” and that appliance 205 may terminate the transport control protocol by “changing, managing, or controlling the behavior of the transport

control protocol connect.” Paragraph 228 of Plamondon refers to the network architecture disclosed in FIG. 1C including appliances 200, 200’, and 205. In my opinion, these cited paragraphs do not disclose the limitations of “claim 2b” as Petitioner alleges. In my opinion, the cited paragraphs do not teach appliance 200 sending during start-up of the appliance 200, a first message to client 102, wherein the first message comprises the MAC address, as Petitioner alleges. Petition at 49-50. The petitioner also explicitly references and relies on its analysis in “section XI.B.” with respect to Ground 5 here in Ground 6. Petition at 49.

219. Price is directed to a system and method for updating software in electronic devices. Petitioner’s expert agreed. EX. 2010, Levin Depo. Transcript at 118:2-6. Price generally describes a software versioning system involving a coordinating computer that automatically or semiautomatically keeps software on subscribing devices updated. Petitioner’s expert agreed. EX. 1003 at ¶ 388. In my opinion, Generally, Price pertains to updating software. Petitioner’s expert agreed. EX. 2010, Levin Depo. Transcript at 118:23-119:5.

220. Petitioner relies on alleged security concerns as a motivation to modify Plamondon based on the teachings of Price. Petition at 47; see also EX. 1003 at ¶ 393. In my opinion, Plamondon already teaches that “policy engine 236 of the appliance 200 uses the collected information to determine and provide access, authentication and authorization control of the client’s connection to a

network 104.” EX. 1010 at [0354]. Plamondon also teaches that “policy engine 236 may include any logic, rules, functions or operations to determine and provide access, control and management of objects, data or content being cached by the appliance 200 in addition to access, control and management of security, network traffic, network access, the compression or any other function or operation performed by the appliance 200.” EX. 1010 [0236]. Therefore, in my opinion, a POSA would not be motivated to modify Plamondon based on the teachings of Price because Plamondon itself already provides a solution to the alleged problem. In my opinion, a POSA would not be motivated to look to the teachings of Price. In my opinion, the embodiments of Plamondon referenced in the Petition would have worked for their intended purpose without adding a solution for software versioning and updating as described in Price.

221. In my further opinion, a POSA would not be motivated to modify Plamondon based on the teachings of Price because such a combination would result in inefficiencies. With respect to the Plamondon-Price combination, Petitioner’s expert argues that when appliance 200 intercepts a request for an updated software version that was requested by client 102a, if the requested updated software version is not already in appliance 200’s cache, then appliance 200 downloads the updated software version over the Internet from a web server and forwards the updated software version to client 102a. EX. 1003 at ¶ 448; *see*

also id. at ¶ 450. Then, Petitioner’s expert argues that client 102 acting as Price’s coordinating computer will re-send the updated software version back to appliance 200 acting as Prices managed device. *Id.* at ¶ 449; *see also id.* at ¶ 450. Petitioner’s expert explicitly states: “appliance 200 downloads the updated software version from the Internet (first from the web server, when acting as a proxy for client 102a, and then again from client 102a, which acts as Price’s coordinating computer)”. *Id.* at ¶ 450.

222. In my opinion, a POSA would not be motivated to combine Plamondon and Price such that client 102 a would resend the same software that was just downloaded by appliance 200 back to appliance 200 again. In my opinion, there would be no need for client 102 to resent the same software that was just downloaded by appliance 200 to its cache.⁸

223. Further, in my opinion, the Plamondon-Price combination would change the functionality of appliance 200 and it would change the functionality of client 102a.

⁸ Petitioner’s expert testified that there may be different types of software cached on appliance 200 and requested by client 102a, referencing the modularity of separated software. In my opinion, this testimony contradicts the analysis of the Plamondon-Price combination set forth in the declaration (EX. 1003) and regardless, Petitioner’s expert acknowledged a potential downside of modularity being that “sometimes you do end up missing out on potential optimizations”. EX. 2010, Levin Depo. Transcript at 147:2-8. In my opinion, even if there were different types of software, this “potential downside” teaches away from combining Plamondon and Price.

224. Also, in my opinion, Petitioner's expert used hindsight bias in proposing a Plamondon-Price combination. For example, Petitioner's expert argued that a POSA in reading Plamondon would have "inferred" that there was a needed solution for software versioning and software updating and that Price would have offered a solution to that problem that a POSA would have "inferred". EX. 2010, Levin Depo. Transcript at 119:12-20. Plamondon only refers to version numbers of software, but Petitioner's expert argued that a POSA "would have inferred that problem from Plamondon." EX. 2010, Levin Depo. Transcript at 119:23-25.

F. GROUND 7 (ALLEGED OBVIOUSNESS OVER PLAMONDON AND KOZAT) FAILS

225. For at least the reasons discussed above with respect to claim 1, Ground 7 fails. Petitioner does not present any analysis where Kozat (EX. 1024) would cure the deficiencies of Plamondon discussed above. In my opinion, the combination of Plamondon and Kozat do not teach or suggest the inventions of claims 6-11 of the '319 Patent.

226. In my opinion, a POSA would not be motivated to combine Plamondon and Kozat. Kozat is directed to a system, method, and apparatus for media streaming with only caching and peer-to-peer forwarding. Petitioner's expert agreed. EX. 2010, Levin Depo. Transcript at 125:24-126:1. Generally,

Kozat discloses a peer-to-peer network. In my opinion, Petitioner is using hindsight bias to combine references based on the disclosure of the '319 Patent itself.

227. Petitioner argues that appliance 200 should be modified to include Kozat's control-server functionality in order to determine if and where the object is cached in the P2P network. *See, e.g.*, Petition at 63. However, Petitioner earlier argued that Plamondon already provides for a "cache management system" and therefore, Kozat's solution would not be necessary. Petition at 40.

228. In my opinion, the embodiments of Plamondon referenced in the Petition would have worked for their intended purpose without adding a solution for cache management as described in Kozat. Petitioner's expert agreed. EX. 2010, Levin Depo. Transcript at 152:11-18 (Q: Would the prefetcher 904 of Plamondon work to manage caching in Plamondon without the addition of any teachings from Kozat? A: Yes, even without the teachings from Kozat, prefetcher 904 could operate, as I described in paragraph 314 [of my '319 declaration] without – without having to combine with Kozat.). Petitioner's expert also expressly testified that "provided there is enough storage capacity at a, say, given appliance 200, [Plamondon] may not strictly need [the solution of Kozat]." EX. 2010, Levin Depo. Transcript at 127:19-21.

XIII. SECONDARY CONSIDERATIONS OF NON-OBVIOUSNESS

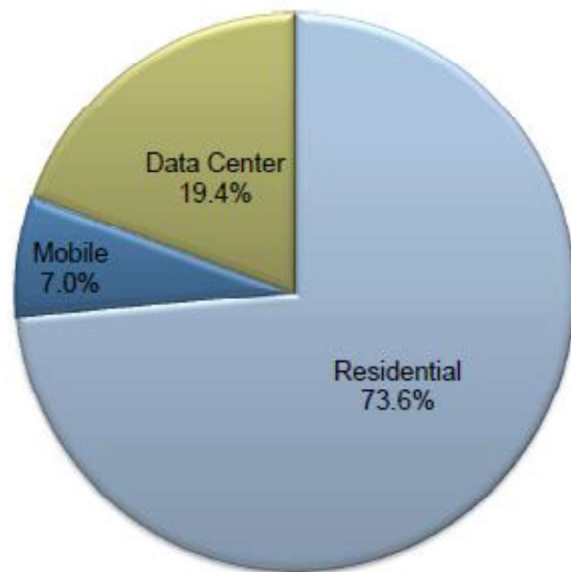
229. In my opinion, as discussed above with respect to Bright Data practicing the ‘319 Patent’s claims, the commercial success of Bright Data’s residential proxy service is driven by the claimed features novel use of a proxy client device. Bright Data’s residential proxy service has grown to dominate the market. According to a 2019 Report by Frost & Sullivan, by 2018, residential proxy services accounted for an estimated 73.6% of the “Internet Protocol proxy network (IPPN)” comprising

“residential IP proxy networks, data center IP proxy networks, and mobile IP proxy networks.” EX. 2025, 2019 Frost & Sullivan Report at 4 and 45.

Bright Data itself, became the estimated market leader with an estimated 53.1% of the IPPN market

in 2018. *Id.* at 48. Frost and Sullivan identified Bright Data’s next biggest competitors in the 2018 timeframe as Oxylabs at 13.3% and Geosurf at 10.6% of the IPPN Market. *Id.* Oxylabs is the brand of Bright Data’s largest competitor comprising five sister companies, Teso LT, UAB, Metacluster, UAB, Oxysales,

**Total IPPN Market:
Vertical Analysis, Global, 2018**



UAB, Code200, UAB and CoreTech, UAB (collectively, "Oxylabs"). EX. 2027, Teso Trial Transcript Day 3, Tomas Okmanas Testimony at 90:3-93:7.

230. It is my opinion that Bright Data's residential proxy service was a success because the use of client devices as proxies solved a long felt, but unresolved need. While traditional data center server proxies could provide some anonymity for the user in accessing a target web site, that web site could still likely identify data center server IP addresses as proxy addresses, because such data center server IP addresses were usually (a) associated with commercial IP addresses; and (b) limited to a block of IP addresses sharing the same IP address prefix and geographic location. In contrast, Bright Data's proxy client devices have residential IP addresses that vary widely from one another without being limited to one block of IP addresses and can have a wide variety of geographic locations. Further, the use of Bright Data's proxy client devices can dramatically increase the scale of IP addresses that can be included in a proxy network. For example, Bright Data currently touts "72 million+ real residential IPs" "shared by real people in our community-sharing network" in 195 countries. EX. 2029 at 4. By comparison, Bright Data touts having 1.6 million datacenter IPs. EX. 2029 at 7.; *see also e.g.* EX. 2026, Teso Trial Transcript Day 1, Ofer Vilenski Testimony at 182:22-197:21. Bright Data was the first company to identify this need and provide a solution using proxy client devices through Bright Data's residential IP network. *Id.* Thus,

it is my opinion that this problem was well-known and that the inventions in the '319 Patent were the first to solve it.

231. During the jury trial in the Teso Litigation, evidence of Oxylabs copying Bright Data's residential proxy service, then under the name "Hola," was presented. For example, Bright Data's Ofer Vilenski and Oxylabs' Tomas Okmanas⁹, both testified that they had a meeting to discuss the "SDK,". EX. 2026, Teso Trial Transcript Day 1, Ofer Vilenski Testimony at 202:12-204:8; EX. 2027, Teso Trial Transcript Day 3, Tomas Okmanas Testimony at 131:23-132:7; 152:8-153:6. Specifically, Mr. Vilenski testified that he asked Mr. Okmanas to incorporate Bright Data's SDK in Oxylabs' applications to expand Bright Data's residential proxy network. *Id.* Mr. Okmanas did not agree to incorporate Bright Data's SDK in Oxylabs' applications, but subsequently released their own SDK for Oxylabs' own residential proxy network. EX. 2027, Teso Trial Transcript Day 3, Tomas Okmanas Testimony at 94:23-95:9; 95:20-97:23.

232. Within days of his meeting with Mr. Vilenski, Mr. Okmanas testified that he sent an email to a third party stating that he was "looking for a company that could make me an extension and promote it. Basically what I am looking [for] is a system that works like hola.org." EX. 2027, Teso Trial Transcript Day 3, Tomas Okmanas Testimony at 152:18-153:6. Mr. Okmanas testified that Oxylabs

⁹ A founder of Tesonet now Oxylabs.

was originally in the data center proxy space, but wanted to develop its own residential proxy service . EX. 2027, Teso Trial Transcript Day 3, Tomas Okmanas Testimony at 95:20-97:1; 103:18-104:10. Mr. Okmanas testified that he believed that he needed to do what Bright Data (previously known as Luminati and Hola) were doing to be successful. *Id.* at 149:13-150:8. In my opinion, this is strong evidence of copying, which is evidence of non-obviousness.

233. At the conclusion of the trial, a jury verdict was issued finding that none of the asserted patent claims were invalid and Oxylabs' infringement was willful, and that Bright Data was entitled to lost profits. EX. 2029, Jury Verdict. Despite the jury verdict finding infringement and willfulness, Oxylabs updated its website stating “[t]he Court has not issued any orders related to continued use of Oxylabs’ residential proxy service.... Oxylabs continues to offer its services in an uninterrupted manner.” EX. 2030 at 8, Oxylabs Legal Timeline. In my opinion, the commitment of Bright Data’s largest competitor to continue offering its residential proxy service despite the jury verdict of willful infringement is strong evidence of its continuing need to offer the residential proxy service – a strong indication of commercial success.

234. It is my further opinion that Bright Data’s residential proxy service has received industry praise including from competitors, and that that praise is tied

to the claims of the '319 Patent as described above.¹⁰ Additionally, competitors like Oxylabs, Smartproxy, and Microleaves have praised the advantages of using a residential proxy service.¹¹

235. In my opinion, the evidence of secondary considerations indicates that the inventions claimed in the '319 Patent would not have been obvious to a POSA at the time of invention.

¹⁰*See, e.g.*, <https://earthweb.com/residential-proxies/> (EX. 2031 at 23-24).

¹¹ *See, e.g.*,

<https://smartproxy.com/blog/what-is-the-difference-between-proxy-servers-and-data-centers> (EX. 2032);

<https://web.archive.org/web/20170913105635/https://microleaves.com/services/backconnect-proxies?promotion=dNPa> (EX. 2033);

<https://web.archive.org/web/20200701171337/https://oxylabs.io/products/residential-proxy-pool> (EX. 2034).

I declare that the foregoing is true and correct under penalty of perjury of the laws of the United States.

Tim Arthur Wilkins

Signed in Danville, CA on August 24, 2022

EXHIBIT A

Tim Arthur Williams, Ph.D.
Curriculum Vitae

Dr. Williams has 45 years of professional experience in wireless communications, networking and telecom technology. He is an entrepreneur who has participated in the organization and operation of start up companies that brought wireless LAN, software VoIP PBX, and 2-way paging technology to the marketplace. Dr. Williams holds numerous patents in wireless and signal processing technology. He is an experienced litigation support consultant with experience in patent infringement matters. Dr. Williams is also a registered Patent Agent.

- | | |
|--|--|
| <ul style="list-style-type: none"> ▪Wireless LAN ▪Cellular and PCS Standards ▪Cellular Telephone Architecture ▪Digital Signal Processing | <ul style="list-style-type: none"> ▪Telecommunications Technology ▪VoIP Technology ▪Computer Networking ▪Wireless Networks & Protocols |
|--|--|

Year	University	Degree
1991	University of Texas at Austin	MBA
1985	University of Texas at Austin	Ph.D., Dissertation: “Digital Signal Processing Techniques for Acoustic Log Data”
1982	University of Texas at Austin	MSEE, Thesis: “Cepstral Processing of Speech Signals”
1976	Michigan Technological University	BSEE

Tim Arthur Williams, Ph.D.
Curriculum Vitae

Professional Experience

From: 2008
 To: 2010
 Organization: Expressume, Inc / Montage Inc. – Milwaukee, WI
 Title: Board Member
 Summary: This company sells software for human resource recruiting. This company was sold in June 2019.

From: 2008
 To: 2014
 Organization: Faculte, Inc. – San Jose, CA
 Title: Board Member
 Summary: This company provided SaaS (Software as a Service) web video based communication products.

From: 2008
 To: 2010
 Organization: BitRail Networks Inc. – Miami, FL
 Title: Founder, Board Member
 Summary: This company sold computer networking solutions.

From: 2008
 To: Present
 Organization: Calumet Venture Management – Madison, WI
 Title: Member
 Summary: This company provides seed capital and management expertise to small companies.

From: 2006
 To: 2015
 Organization: BEEcube Inc. – Fremont, CA
 Title: Founder, Board Member, Board Advisor
 Summary: This company built high speed processing solutions. This company was sold to National Instruments, Inc. in Feb 2015.

Tim Arthur Williams, Ph.D.
Curriculum Vitae

From: 2006
To: 2015
Organization: Topaz Equity, LLC – Danville, CA
Title: Founder, Board Member
Summary: This is a private equity investment company. It owned AtomAMPD which develops, markets and sells software based network solutions.

From: 2004
To: Present
Organization: DoceoTech Inc. – Danville, CA
Title: Founder, Chairman
Summary: This was a training company that provides training for engineers in Wireless, Networking, and Telephony technologies. It is currently owned by Beach Technologies, LLC.

From: 2004
To: 2006
Organization: SiBEAM, Inc. – Sunnyvale, CA
Title: Founder, Chief Executive Officer
Summary: This is a fabless semiconductor company that develops high-speed wireless networking ICs. This company was sold to Silicon Image, Inc. in Apr 2011.

From: 2001
To: 2004
Organization: JetQue, Inc. – Danville, CA
Title: Founder, Chief Executive Officer
Summary: This company created messaging solutions for the mobile professional.

From: 1999
To: 2000
Organization: Atheros Communications, Palo Alto, CA
Title: Interim CEO, Advisory Board Member
Summary: This company builds wireless LAN ICs. Atheros became a public company in May 2004. (ATHR) This company was sold to QCOM in Jan 2011.

Tim Arthur Williams, Ph.D.
Curriculum Vitae

From: 1998
 To: 2000
 Organization: Picazo Communications, Inc. – San Jose, CA
 Title: Chief Technology Officer, Advisory Board Member
 Summary: This company built and sold software PBXs Telephony equipment using VoIP and Circuit Switched Technologies. The company was purchased by Intel.

From: 1996
 To: Present
 Organization: Beach Technologies, LLC – Danville, CA
 Title: Chief Executive Officer
 Summary: This is a consulting company that provides IP services. It owns DoceoTech LLC and Streaming Knowledge LLC, which perform the same services.

From: 1991
 To: 1998
 Organization: Wireless Access, Inc. – Santa Clara, CA
 Title: Co-Founder, Chief Technical Officer, Vice President of Engineering, Vice President of Business Strategy
 Summary: This was a startup company focusing on the Narrow Band PCS equipment market. The company developed the over the air protocols, the subscriber equipment and the ICs to deploy 2-way paging services. The company was sold to Glenarby Electronics.

From: 2014
 To: 2021
 Organization: Through Technology, LLC. – Chicago, IL
 Title: Partner
 Summary: This is a private equity investment company. It owns Through Technology Group, PTE LTD, which is registered in Singapore.

From: 1979
 To: 1991
 Organization: Motorola, Inc. – Austin, TX – Semiconductor Sector

Tim Arthur Williams, Ph.D.
Curriculum Vitae

Title: Sr. Engineer, Member Technical Staff, Sr. MTS
 Summary: Business manager, project leader, and senior technical member of the teams which were responsible for product development of the following systems:

- ADPCM transcoder,
- ISDN U-reference point transceiver,
- CT-2 voice codec and channel modem,
- GSM voice codec and channel modem,
- TDMA voice codec and channel modem
- CDMA voice codec and channel modem, and
- Japanese Digital Cellular voice codec and channel modem.

From: 1976
 To: 1979
 Organization: Motorola Inc. - Chicago, IL - Communications Sector - Digital Voice Privacy Group
 Title: Engineer
 Summary: This group built the first commercial digitally encrypted two-way FM land mobile radio system.

Professional Certifications

- Patent Agent – U.S. Patent and Trademark Office #50,790 (Jan 2002)

Issued Patents

Patent	Date	Description
9,787,471	2017	Data Enciphering or Deciphering using a Hierarchical Assignment System
7,904,117	2011	Wireless Communication Device using Adaptive Beamforming
6,781,962	2004	Apparatus and Method for Stored Voice Message Control
6,600,481	2003	Data entry apparatus and method
6,088,457	2000	Method and apparatus for over the air programming a communication device
5,854,595	1998	Communications apparatus and method with a computer interchangeable integrated circuit card
5,557,642	1996	Direct conversion receiver for multiple protocols

Tim Arthur Williams, Ph.D.
Curriculum Vitae

5,428,638	1995	Method and apparatus for reducing power consumption in digital communications devices
5,345,406	1994	Bandpass sigma delta converter suitable for multiple protocols
5,101,344	1992	Data processor having split level control store
5,001,661	1991	Data processor with combined adaptive LMS and general multiplication functions
4,989,169	1991	Digital tone detector using a ratio of two demodulators of differing frequency
4,972,356	1990	Systolic IIR decimation filter
4,965,762	1990	Mixed size radix recoded multiplier
4,947,363	1990	Pipelined processor for implementing the least-mean-squares algorithm
4,876,542	1989	Multiple output oversampling A/D converter with each output containing data and noise
4,862,169	1989	Oversampled A/D converter using filtered, cascaded noise shaping modulators
4,843,585	1989	Pipelineable structure for efficient multiplication and accumulation operations
4,843,390	1989	Oversampled A/D converter having digital error correction
4,796,219	1989	Serial two's complement multiplier
4,737,925	1988	Method and apparatus for minimizing a memory table for use with nonlinear monotonic arithmetic functions
4,734,876	1988	Circuit for selecting one of a plurality of exponential values to a predetermined base to provide a maximum value
4,727,508	1988	Circuit for adding and/or subtracting numbers in logarithmic representation
4,722,067	1988	Method and apparatus for implementing modulo arithmetic calculations
4,682,302	1987	Logarithmic arithmetic logic unit
4,618,946	1986	Dual page memory system having storage elements which are selectively swapped between the pages
4,406,010	1983	Receiver for CVSD modulation with integral filtering
4,398,262	1983	Time multiplexed n-ordered digital filter

Patent Applications and Continuation Applications

Appl. Num.	Pub. Date	Description
20070037528	2007	Wireless Communication Device using Adaptive Beamforming
20040252679	2004	Stored Voice message Control Extensions
15/711,590	2017	Data Enciphering or Deciphering using a Hierarchical Assignment

Tim Arthur Williams, Ph.D.
Curriculum Vitae

Published Papers

6 Sept 2016 Putnam, Jonathan D. and Williams, Tim A., The Smallest Salable Patent-Practicing Unit (SSPPU): Theory and Evidence. Available at SSRN: <https://ssrn.com/abstract=2835617>

Litigation Experience

See attached.