

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

METACLUSTER LT, UAB,
Petitioner,

v.

BRIGHT DATA LTD.,
Patent Owner.

INTER PARTES REVIEW NO. IPR2022-00936
PATENT 11,206,317

PETITION FOR *INTER PARTES* REVIEW UNDER 35 U.S.C. § 312

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PETITIONER'S EXHIBIT LIST

Exhibit	Shorthand	Description
1001	'317 Patent	U.S. Patent No. 11,206,317
1002	'317 File History	Prosecution History of U.S. Patent No. 11,206,317
1003	Olivier	Declaration of Dr. James Olivier
1004	Olivier CV	CV of Dr. James Olivier
1005	Goldstein	U.S. Patent Publication No. 2003/0149720 (Aug. 7, 2003)
1006	Ling	U.S. Patent Publication No. 2006/0206586 (Sept. 14, 2006)
1007	RFC1122	Internet Engineering Task Force, <i>Requirements for Internet Hosts – Communication Layers</i> , October 1989
1008	RFC2616	Internet Engineering Task Force, <i>Hypertext Transfer Protocol – HTTP/1.1</i> , June 1999
1009	RFC Index	August 3, 2001 archived Internet Society webpage for RFC Index from Internet Archive (Wayback Machine), available at: http://web.archive.org/web/20010803120225/http://www.rfc-editor.org:80/rfc-index2.html
1010	<i>Code200</i> CC Order	Claim Construction Memorandum Opinion and Order, Document 97, <i>Luminati Networks Ltd. v. Code200 et al.</i> , Case No. 2:19-cv-00396 (E.D. Tex.)
1011	<i>Teso</i> CC Order	Claim Construction Opinion and Order, Document 191, <i>Luminati Networks Ltd. v. Teso LT et al.</i> , Case No. 2:19-cv-00395 (E.D. Tex.)
1012	Motion for Hearing	Defendants' Motion for Hearing Regarding O2 Micro Issue, Document 444, <i>Bright Data Ltd. v. Teso LT et al.</i> , Case No. 2:19-cv-00395 (E.D. Tex.)
1013	Supplemental CC Order	Supplemental Claim Construction Order, Document 453, <i>Bright Data Ltd. v. Teso LT et al.</i> , Case No. 2:19-cv-00395 (E.D. Tex.)

Exhibit	Shorthand	Description
1014	Buyya	Rajkumar Buyya et al., <i>Content Delivery Networks</i> (2008)
1015	RFC791	Internet Engineering Task Force, Request for Comments 791 <i>Internet Protocol</i> , September 1981
1016	RFC793	Internet Engineering Task Force, Request for Comments 793 <i>Transmission Control Protocol</i> , September 1981
1017	RFC1123	Internet Engineering Task Force, Request for Comments 1123 <i>Requirements for Internet Hosts - Application and Support</i> , October 1989
1018	Tanenbaum	Andrew S. Tanenbaum, <i>Computer Networks</i> (4th ed. 2003)
1019	'511 FH	Prosecution History of U.S. Patent No. 10,484,511
1020	'511 Reexam Order	Order Granting Request for Ex Parte Reexamination of U.S. Patent No. 10,484,511 in 90/014,827
1021	Orler	U.S. Patent Publication No. 2006/0293052 (Dec. 28, 2006)
1022	Vaisanen	U.S. Patent Publication No. 2010/0105443 (Apr. 29, 2010)

I. INTRODUCTION

The Challenged Claims recite well-known concepts of routing of URL's over proxy chains to web servers. In particular, the Challenged Claims recite a "first device" providing URL's and "geographic locations" to a "second device." EX1001, Claim 1. The second device selects an IP address associated with the received geographic location and, based on the selected IP address, forwards the URL on to a "third device," a "fourth device," or the web server. *Id.*, Claims 2-3, 6. These concepts were well known by 2009.

Goldstein discloses routing over a proxy chain where a browser on a client computer (the claimed "first device") "sends a data request to the second proxy" (the claimed "second device") and the "second proxy decides whether to send the request directly to the destination server" (the claimed "web server") "or to a first proxy" (the claimed "third" or "fourth" devices). EX1005, [0042]. Ling likewise describes routing requests over a proxy chain where a proxy service receives web requests and selects the IP address of the next device in the proxy chain. EX1006, [0055]. In Ling, the computer originating the requests is a mobile device. *Id.* A GPS block in a mobile device "obtains real-time geographic location" (the claimed "geographic location") and "provides that information to the proxy service" to use in selecting an IP address for routing. *Id.*

It would have been obvious to a POSITA to operate the system of Goldstein with mobile devices as the client computer and to integrate Ling's the location-based routing. Ling provide explicit motivation for doing so, explaining that when requests originate from a mobile device performing routing "without regard to the location" "results in a delay" and "the cost of providing the information to the user will typically increase." *Id.*, [0006]. This system renders obvious the Challenged Claims.

II. MANDATORY NOTICES

A. Real Party in Interest (37 C.F.R. §42.8(b)(1))

The real parties-in-interest are the Petitioners Metacluster LT, UAB ("Metacluster") as well as Code200, UAB ("Code200"); Teso LT, UAB ("Teso"); and Oxysales, UAB ("Oxysales"); and coretech lt, UAB.

B. Related Matters (§42.8(b)(2))

1. Litigation

The '317 Patent is a continuation of U.S. Patent No. 10,484,511 ("the '511 Patent"), and shares a common specification and priority claim with the '511 Patent as well as U.S. Patent Nos. 10,257,319 (the '319 Patent); 10,484,510 (the '510 Patent); and 10,637,968 (the '968 Patent). Patent Owner ("PO") has accused Code200, Metacluster, and Oxysales of infringing claims of the '511 Patent and the '968 Patent in *Bright Data Ltd. v. Code200, UAB*, Case No. 2:19-cv-00396 (E.D. Tex.) (the "*Code200* Litigation"). PO has also accused Teso, Metacluster, and

Oxysales of infringing claims of the '319 and '510 Patents in *Bright Data Ltd. v. Teso LT, UAB*, Case No. 2:19-cv-00395 (E.D. Tex.) ("*Teso* Litigation"). Together, these actions are the "Related Litigation," and the patents asserted in the Related Litigation are referred to in this Petition as the "Related Patents."

There is no litigation involving the '317 Patent. The table below lists litigation involving patents claiming common priority to the '317 Patent.

Case	Subject Matter
<i>Bright Data Ltd. v. Teso LT, UAB et al.</i> , Case No. 2:19-CV-00395 (E.D. Tex.).	Related Patents
<i>Bright Data Ltd. v. NordVPN</i> , Case No. 2:19-CV-00414 (E.D. Tex.)	Related Patents
<i>Bright Data Ltd. v. NetNut, Ltd.</i> , Case No. 2:21-CV-00225 (E.D. Tex.)	Related Patents
<i>Luminati Networks Ltd. v. BI Science (2009) Ltd.</i> , Case No. 2:19-CV-00397 (E.D. Tex.) (closed)	Related Patents
<i>Bright Data Ltd. v. Code200, UAB et al.</i> , Case No. 2:19-CV-00396 (E.D. Tex.)	Related Patents
<i>Luminati Networks Ltd. v. NetNut, Ltd.</i> , Case No. 2:20-CV-00188 (E.D. Tex.) (closed)	Related Patents

2. *Administrative Proceedings*

RPIs to this Petition previously sought review of Related Patents IPR2021-00122, IPR2020-01266, IPR2021-00249, and IPR2020-01358, in which the Board exercised its discretion and declined to institute review based on the *Fintiv* factors. More recently, the Board granted institution of inter parties review of the '319 and '510 Patents in IPR2021-01492 and IPR2021-01493 filed by non-party NetNut.

RPIs to this Petition have filed petitions for inter parties review along with motions to join NetNut's instituted IPRs in IPR2022-00861 and IPR2022-00862.

Additionally, Petitioner and RPIs have filed three additional IPR petitions challenging patents claiming common priority with the '317 Patent, all of which are pending decision on institution: IPR2022-00103 challenging U.S. Patent No. 11,044,342, IPR2022-00353 challenging U.S. Patent No. 11,044,344, and IPR2022-00687 challenging U.S. Patent No. 11,190,622 ('622 Patent).

The table below lists IPR petitions for patents claiming common priority to the '317 Patent.

IPR Proceeding	Subject Matter
<i>Teso LT, UAB v. Luminati Networks Ltd.</i> , Case No. IPR2021-00122	'511 Patent
<i>Teso LT, UAB v. Luminati Networks Ltd.</i> , Case No. IPR2021-00249	'968 Patent
<i>Code200, UAB et al. v. Luminati Networks Ltd.</i> , Case No. IPR2020-01266	'319 Patent
<i>Code200, UAB et al. v. Luminati Networks Ltd.</i> , Case No. IPR2020-01358	'510 Patent
<i>NetNut Ltd. v. Bright Data Ltd.</i> , Case No. IPR2021-01492	'319 Patent
<i>NetNut Ltd. v. Bright Data Ltd.</i> , Case No. IPR2021-01493	'510 Patent
<i>Code200, UAB v. Bright Data Ltd.</i> , Case No. IPR2022-00103	'342 Patent
<i>Code200, UAB v. Bright Data Ltd.</i> , Case No. IPR2022-00353	'344 Patent

IPR Proceeding	Subject Matter
<i>Data Company Techs. Inc. v. Bright Data Ltd.</i> , Case No. IPR2022-00135	'319 Patent
<i>Data Company Techs. Inc. v. Bright Data Ltd.</i> , Case No. IPR2022-00138	'510 Patent
<i>Metaccluster LT, UAB v. Bright Data Ltd.</i> , Case No. IPR2022-00687	'622 Patent
<i>Code200, UAB v. Bright Data Ltd.</i> , Case No. IPR2022-00861	'319 Patent
<i>Code200, UAB v. Bright Data Ltd.</i> , Case No. IPR2022-00862	'510 Patent
<i>Major Data UAB v. Bright Data Ltd.</i> , Case No. IPR2022-00915	'319 Patent
<i>Major Data UAB v. Bright Data Ltd.</i> , Case No. IPR2022-00916	'510 Patent

To the extent not listed above, presently, every U.S. application and U.S. patent claiming, or which may claim, the benefit of the alleged priority of one or more of the patent applications to which the '317 Patent claims priority include:

1. U.S. Patent No. 8,560,604
2. U.S. Patent No. 10,069,936
3. U.S. Patent No. 10,225,374
4. U.S. Patent No. 10,257,319
5. U.S. Patent No. 10,313,484
6. U.S. Patent No. 10,469,628
7. U.S. Patent No. 10,484,510
8. U.S. Patent No. 10,484,511

9. U.S. Patent No. 10,491,712
10. U.S. Patent No. 10,491,713
11. U.S. Patent No. 10,523,788
12. U.S. Patent No. 10,582,013
13. U.S. Patent No. 10,582,014
14. U.S. Patent No. 10,616,375
15. U.S. Patent No. 10,637,968
16. U.S. Patent No. 10,785,347
17. U.S. Patent No. 10,805,429
18. U.S. Patent No. 10,931,792
19. U.S. Patent No. 10,958,768
20. U.S. Patent No. 10,986,216
21. U.S. Patent No. 11,038,989
22. U.S. Patent No. 11,044,341
23. U.S. Patent No. 11,044,342
24. U.S. Patent No. 11,044,344
25. U.S. Patent No. 11,044,345
26. U.S. Patent No. 11,044,346
27. U.S. Patent No. 11,050,852
28. U.S. Patent No. 11,089,135

29. U.S. Patent No. 11,128,738
30. U.S. Patent No. 11,178,258
31. U.S. Patent No. 11,190,622
32. U.S. Patent No. 11,206,217
33. U.S. Patent No. 11,228,666
34. U.S. Patent No. 11,233,879
35. U.S. Patent No. 11,233,880
36. U.S. Patent No. 11,233,881
37. U.S. Serial No. 17/019,267
38. U.S. Serial No. 17/146,728
39. U.S. Serial No. 17/194,336
40. U.S. Serial No. 17/331,980
41. U.S. Serial No. 17/332,001
42. U.S. Serial No. 17/332,023
43. U.S. Serial No. 17/395,526
44. U.S. Serial No. 17/563,578
45. U.S. Serial No. 17/563,616
46. U.S. Serial No. 17/563,497
47. U.S. Serial No. 17/563,531
48. U.S. Serial No. 17/518,601

49. U.S. Serial No. 17/518,603
50. U.S. Serial No. 17/332,077
51. U.S. Re-examination No. 90/014,875 (U.S. Patent No. 10,257,319)
52. U.S. Re-examination No. 90/014,827 (U.S. Patent No. 10,484,511)
53. U.S. Re-examination No. 90/014,816 (U.S. Patent No. 10,637,968)
54. U.S. Re-examination No. 90/014,652 (U.S. Patent No. 10,637,968)
55. U.S. Re-examination No. 90/014,624 (U.S. Patent No. 10,484,511)
56. U.S. Re-examination No. 90/014,876 (U.S. Patent No. 10,484,510)
57. U.S. Re-examination No. 90/019,041 (U.S. Patent No. 10,491,713)
58. U.S. Re-examination No. 90/014,940 (U.S. Patent No. 11,044,346)
59. U.S. Re-examination No. 90/014,920 (U.S. Patent No. 11,050,852)

C. Lead and Back-Up Counsel (§42.8(b)(3))

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D. Service Information (§42.8(b)(4))

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Petitioner consents to electronic service.

III. GROUNDS FOR STANDING

Pursuant to 37 C.F.R. § 42.104(a), Petitioners certify that the '317 Patent is available for *inter partes* review¹, and Petitioners are not barred or estopped from requesting an IPR on the grounds identified in this Petition. The '317 Patent has not been subject to a previous final written decision in an estoppel-based AIA proceeding.

¹ The '317 Patent includes pre-AIA priority claims, which Petitioners are not challenging in this proceeding.

IV. STATEMENT OF PRECISE RELIEF REQUESTED FOR EACH CLAIM CHALLENGED

A. Claims for Which Review Is Requested (§42.104(b)(1))

Petitioner requests review and cancellation of Claims 1-27 and 29-30.

B. Statutory Grounds of Challenge (§42.104(b)(2))²

Claims 1-27 and 29-30 are invalid under §103(a) over these combinations of art:

Ground	Claims	Prior Art Combination
1	1-9, 14-22, 24-27, 29-30	Goldstein (EX1005), Ling (EX1006)
2	10-13, 23	Goldstein, Ling, RFC1122 (EX1007)

Filed February 6, 2002 and published August 7, 2003, Goldstein is prior art under §102(b).

Filed March 9, 2005 and published September 14, 2006, Ling is prior art under §102(b).

² All Grounds are supported by a POSITA's general knowledge. *Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330, 1337-38 (Fed. Cir. 2020).

First published in October 1989 by the Network Working Group of the Internet Engineering Task Force (“IETF”), RFC1122³ is prior art under §102(b).

V. THE GROUNDS IN THIS PETITION ARE NOT CUMULATIVE

The proposed grounds are not cumulative over the prior art references and combinations considered during prosecution. Goldstein and Ling were not before the Examiner. EX1001, Cover; EX1002. RFC1122 was among the hundreds of references submitted in IDSs during prosecution, but was not substantively discussed by the Examiner. EX1002, 93/477. The Examiner did not issue any rejections beyond a double-patenting rejection over the related ’511 Patent and co-pending application 16/600,505. *Id.*, 240-245/477. As set forth below, the Examiner erred by allowing the claims over the Grounds in this Petition, and the lack of analysis during prosecution weighs against discretionary denial. *Advanced Bionics*,

³ RFC1122 was obtained from <https://datatracker.ietf.org/doc/html/rfc1122> (EX1003, ¶62), and was publicly indexed no later than 2001. EX1009, 76/109, 1/109 (RFC Index archived Aug. 3, 2001). Further, RFC1122 is the companion specification to RFC1123 titled “Requirements for Internet Hosts -- Application and Support” that also published in October 1989. EX1017, 1/98; EX1003, ¶61; EX1009, 76/109. RFC1123 is cited in RFC2616, which the ’317 Patent confirms as prior art. EX1008, 97/114; EX1001, 16:21-22; EX1009, 20/109.

LLC v. MED-EL Elektromedizinische Geräte Ges.m.b.H et al., No. IPR2019-01469, Paper 6 at 10-11 (P.T.A.B. Feb. 13, 2020).

Moreover, the Grounds in this Petition are not cumulative of the examination of the parent '511 Patent. There, Applicants overcame an obviousness rejection over the combination of Yu and Kageyama by arguing non-combinability and that the mapped prior art “first server” sent a list of peers rather than performing the selecting. EX1019, 242-245/467, 33-40/467. The Grounds here do not rely on Yu or Kageyama, and each of Goldstein and Ling disclose the mapped “first server” performing “selecting.”

VI. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art (“POSITA”) as of October 8, 2009⁴—the '317 Patent's earliest claimed priority date—would have had at least a bachelor's degree in Computer Science or related field (or equivalent experience), and at least two years' experience working with and programming networked computer systems. EX1003, ¶¶32-33. The prior art and the '317 Patent also evidence this level of ordinary skill. *See Chore-Time Equip., Inc. v. Cumberland Corp.*, 713 F.2d 774, 779 (Fed. Cir. 1983); *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

⁴ All statements in this Petition about the knowledge and skills of, and what would have been obvious to, a POSITA are offered from this perspective as of this date.

A POSITA would have been familiar with the field of technology described in Section VII below including the underlying principles of Web, Internet, network communication, data transfer, and content sharing across networks, including the HTTP and TCP/IP protocols. EX1003, ¶¶33-34.

VII. FIELD OF TECHNOLOGY

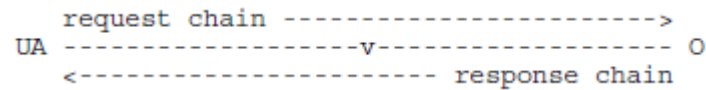
Web communications and routing were well-known prior to the priority date of the '317 Patent. RFC2616, which the '317 Patent recognizes “define[s]” “the HTTP protocol,” was published a decade earlier in 1999.⁵ EX1001, 16:21-22; EX1008, 1/114; EX1003, ¶37. In addition to describing “client” and “server” operations (*see* Section VIII.C), RFC2616 discloses multi-hop routing using “proxy” devices running an “intermediary program which acts as both a server and a client for the purpose of making requests on behalf of other clients.” EX1008, 9/114. That is, while communication may be “accomplished via a single connection (v) between the user agent (UA) and the origin server (O),” “more complicated situation[s]” were also known “when one or more intermediaries are present in the request/response

⁵ RFC2616 was published by the Network Working Group of the IETF in June 1999.

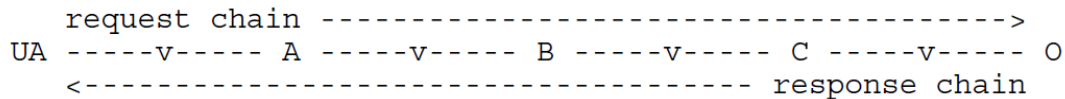
EX1008, 1/114. RFC2616 was obtained from <https://datatracker.ietf.org/doc/html/rfc2616> (EX1003, ¶37) and was publicly indexed no later than 2001. EX1009, 20/109 (RFC Index archived Aug. 3, 2001).

chain,” such as an illustrated chain with “three intermediaries (A, B, and C).” *Id.*, 10/114; EX1003, ¶¶38-39.

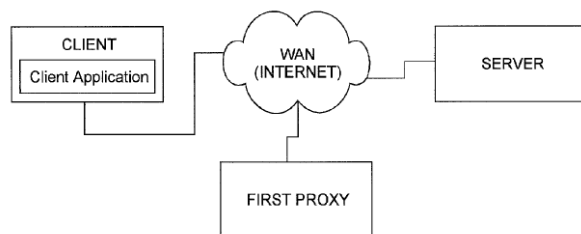
SINGLE CONNECTION



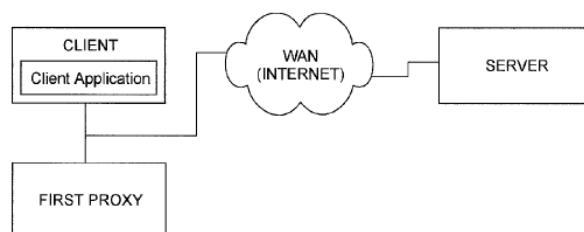
MULTIPLE INTERMEDIARIES



It was also well-known for an intermediary to determine routing of a received request based on that request. EX1003, ¶¶40-41. For example, Goldstein discloses “the use of proxy computers for enhancing access speed over a wide area network such as the Internet.” EX1005, [0004]. “FIG. 1 shows that a first remote proxy computer may be used for enhanced access speed to a remote server computer. FIG. 2 shows that it is know[n] to place the first proxy computer locally to the client computer for improvements in access speed.” *Id.*



*Prior Art
Fig. 1*



*Prior Art
Fig. 2*

Id., FIGs. 1, 2. “The main advantage of a disclosed system with two proxies is that . . . it allows the second proxy to decide, whether to send a request from the browser to the first proxy or directly to the web server.” *Id.*, [0036]. Additionally, “there may be a plurality of the first proxies, varying by their type and location.” *Id.* “Different first proxies can handle different types of data (such as images and text) or apply different transformations to it. The second proxy can select which first proxy to use, based on such factors as location of the destination server, type of data, load on the different first proxies and so on.” *Id.*, [0036].

Goldstein also discloses a system including two proxy devices where content requests from the client are communicated from the client through each of the devices to the web server. *Id.*, [0042], FIG. 5. The web server then sends a web page back to the client via the same path in reverse.

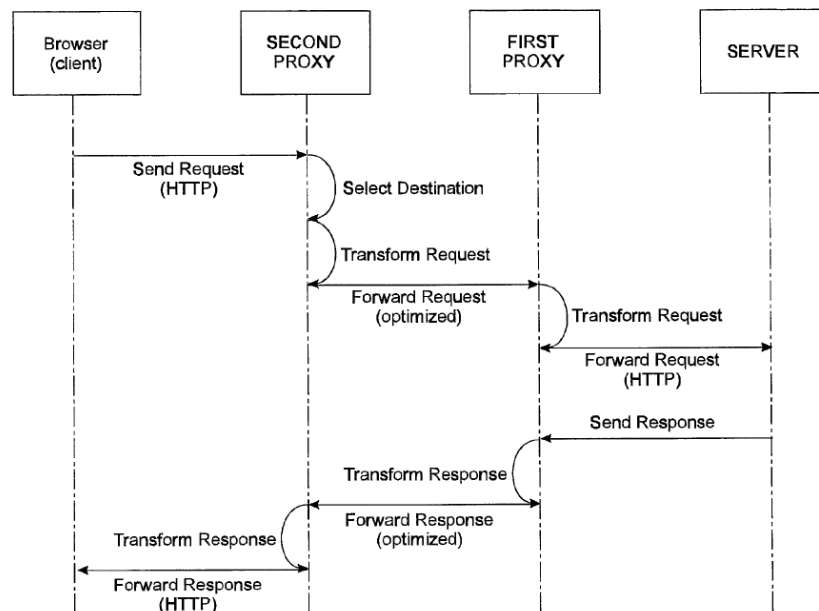
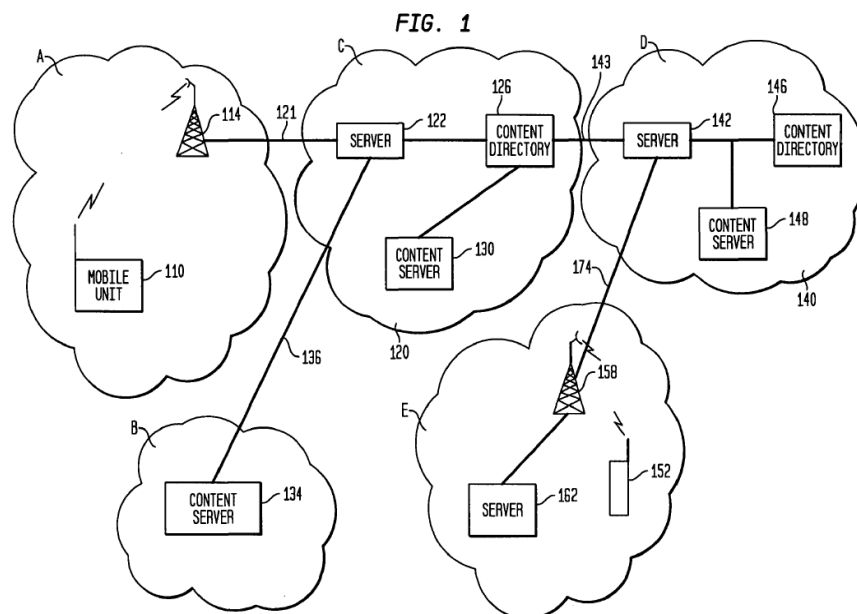


Fig. 5

Id., FIG. 5.

As another example of determining routing across proxies, Ling discloses a proxy service integrated into a mobile client that uses the current geographic location of the mobile client to determine the next proxy server to which to route the user's request for content. EX1006, [0055]. The proxy service then routes the content request to the content server. *Id.*, [0056]. The content is returned to the mobile client via the proxy chain. *Id.*



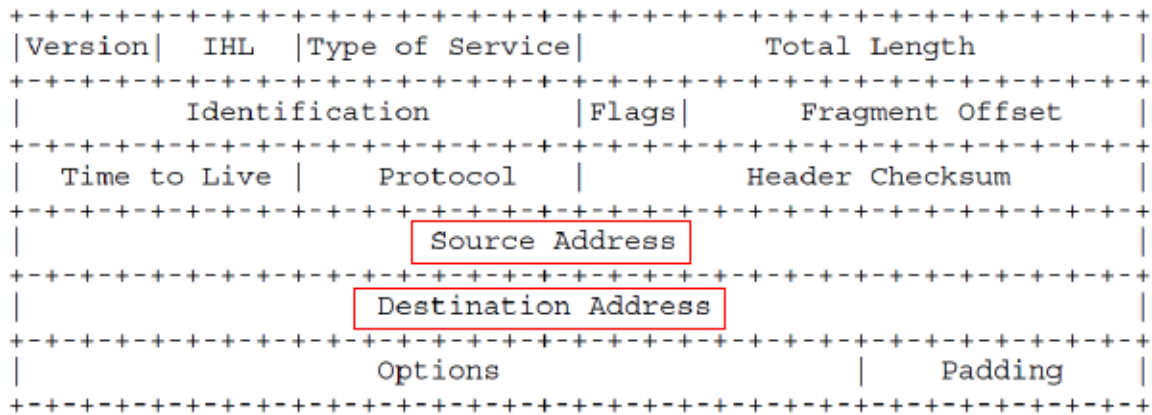
Id., FIG. 1.

Numerous protocols for specifying and routing web content were also known, including “hypertext transfer protocol (HTTP).” EX1006, [0063]; EX1005, [0025], [0028], [0045]. HTTP’s relationship to other well-known Internet standards was

also known, including RFC791⁶ and RFC793.⁷ EX1003, ¶¶42-48; *see also* EX1008, 11/114 (disclosing that “HTTP communication usually takes place over TCP/IP connections”); EX1001, 17:20-27 (describing “TCPIP” as “known” and referencing a “Web server” that “is a TCPIP server”). As annotated in the figure below, IP Packets include a header that includes a “source address” and “destination address”:

⁶ RFC791 was published by the Network Working Group of the IETF in September 1981. EX1015, 1/51. RFC791 was obtained from <https://datatracker.ietf.org/doc/rfc791/> (EX1003, ¶42) and was publicly indexed no later than 2001. EX1009, 87/109, 1/109 (RFC Index archived Aug. 3, 2001).

⁷ RFC793 was published by the Network Working Group of the IETF in September 1981. EX1016, 1/91. RFC793 was obtained from <https://datatracker.ietf.org/doc/rfc793/> (EX1003, ¶45) and was publicly indexed no later than 2001. EX1009, 87/109, 1/109 (RFC Index archived Aug. 3, 2001).



Example Internet Datagram Header

Figure 4.

EX1015, 17/51; EX1016, 57/91 (in TCP, “[a]ny lower level protocol will have to provide the source address, destination address”); EX1003, ¶43. Advanced features of TCP were also known, notably the use of a “‘keep-alive’ mechanism” “[t]o confirm that an idle connection is still active.” EX1007, 102/116; EX1003, ¶48.

VIII. ’317 PATENT

Entitled “System Providing Faster and More Efficient Data Communication,” the ’317 Patent is directed to a method for using proxy servers to fetch web pages for client devices. EX1001, Abstract, FIG. 3.

A. Overview

The ’317 Patent claims bear little resemblance to the specification. The specification discloses use of caching proxies to “improv[e] data communication speed and bandwidth efficiency on the Internet.” EX1001, 1:23-25. The system comprises an acceleration server and a group of identical devices with multiple

modules to act in the role of a client, peer, or agent. *Id.*, 4:43-4:61, 5:8-48, 5:53-55, 9:18-50, 12:33-56, FIGs. 3-6. FIG. 3 labels these identical devices as “client,” “agent,” and “peer” based on the role the device performs when the web browser on client 102 makes a web request.

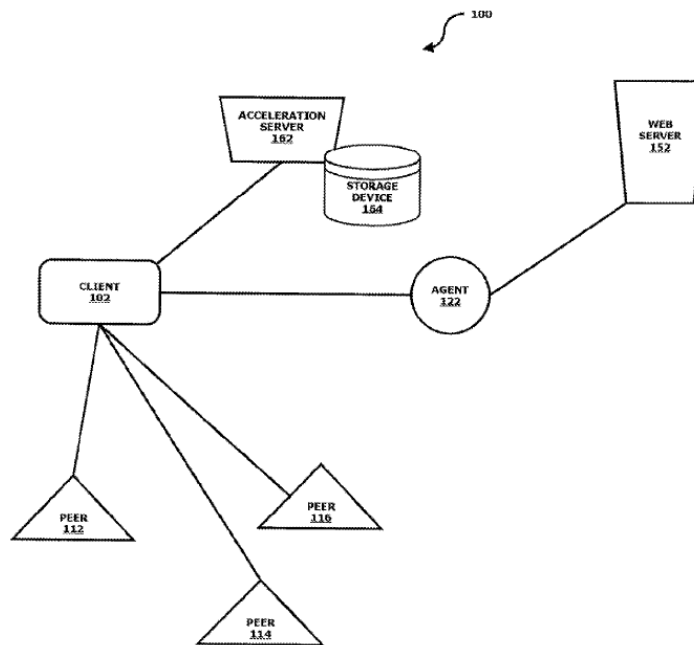


FIG. 3

Id., FIG. 3.

Client 102 sends the web request to acceleration server 162, which responds with a list of agents that may assist. *Id.*, 5:10-19, 5:25-29, 13:8-22. Client 102 then contacts agent 122, which responds with a list of peers that have cached the requested web page, and client 102 contacts an identified peer to obtain the content. *Id.*, 13:62-64, 14:13-58, 15:14-20. The only device disclosed as contacting a web server is agent 122, which does so only when agent 122 does not identify any peers with

cached content. *Id.*, 14:62-15:6. In that case, agent 122 directly contacts the web server, obtains the content, and responds to client 102 identifying itself as the only available peer—there is no use of a “geographical location” by either client 102 or agent 122 in this process. *Id.*, 15:6-11. In fact, the only disclosure of the use of geography or location is that the list of peers is sorted by geographical proximity to the requesting client. *Id.*, 14:52-56.

B. Prosecution History

The prosecution history includes no substantive analysis of any prior art; a single office action was issued raising a double-patenting rejection over the related ’511 Patent, which was overcome by a terminal disclaimer. EX1002, 240-245/477. The Examiner then allowed the claims. *Id.*, 422-430/477.

C. Claim Construction (37 C.F.R. § 42.104(b)(3))

Claim terms are given a meaning in accordance with the standard used in §282(b) civil actions, including their “ordinary and customary meaning ... as understood by [a POSITA] and the prosecution history.” 37 C.F.R. § 42.100(b).

1. “Client device” and “server”

While the independent Challenged Claims use the term “device,” dependent claims 16, 18, 19, 23, 25, and 29 further specify a “device” is a “client device” or “server”—the same terms in the independent claims of the ’511 Patent and Related

Patents.⁸ EX1010, 5/37; EX1011, 3-4/24. As discussed below, across three Orders the district court repeatedly confirmed that “client” and “server” refer to the role the device plays, not any hardware characteristics or label. The Board, in decisions granting institution of IPRs on the ’319 and ’510 Patents, stated: “We credit the district court’s interpretation of the claim terms. Accordingly, for the purposes of this decision we adopt the construction of a ‘client device’ as ‘communication device that is operating in the role of a client.’” IPR2021-012493, Paper 11 at 22; *see also* IPR2021-012492, Paper 12 at 19 (“we adopt the district court’s original construction, with the clarification that the second server is ‘a device that is operating in the role of a server and that is not the first client device’”), 13 (“we agree with Petitioner’s claim constructions, specifically, that ‘the devices in question may be configured to operate in different roles and are characterized by the function they perform (i.e., sending or receiving), not by any physical properties’”).

In each of the *Teso* (for the ’319 and ’510 Patents) and *Code200* (for the ’511 and ’968 Patents) Orders, the Court held that “client device” means “communication device that is operating in the role of a client” and rejected PO’s contention that the term required a “consumer computer.” EX1011, 10-12/24; EX1010, 11-13/37.

⁸ “Client device” appears in Challenged Claims 16, 23, and 29. “Server” appears in Challenged Claims 1, 4, 6, 18-20, 25, 27, and 29.

In the *Code200* Order, the Court, in construing the term “first server,” addressed “whether one component can simultaneously serve as more than one of: the client device, the first server[], and the web server,” concluded “[i]t cannot,” and construed “first server” as “server that is not the client device or the web server.” EX1010, 13-15/37. Subsequently, it became apparent that “server” required further construction, and Petitioner requested a clarified construction of: “a device that is operating in the role of a server and that is not the first client device or the web server.” EX1012, 2/5 (emphasis in original). The District Court declined to formally change the construction, but confirmed “Defendants’ understanding of the scope of the construction[], as represented by the requested clarification[] ..., is correct” and “already embedded in” the original construction. EX1013, 7-11/12. The Court confirmed that “a component can be *configured* to operate in different roles—so long as it does not ‘simultaneously serve as more than one of: the client device, the first server/second server, and the web server.’” *Id.*, 10/12 (emphasis in original).

RFC2616, which the ’317 Patent confirms “define[s]” “the HTTP protocol,” further confirms role-based constructions are correct: “Any given program may be capable of being both a client and a server; our use of these terms refers only to the role being performed by the program for a particular connection.” EX1001, 16:21-22; EX1008, 8/114; EX1003, ¶¶38, 105.

RFC2616 also provides further guidance on each of these “roles,” defining a “client” as “establish[ing] connections for the purpose of sending requests” and a “server” as “accept[ing] connections in order to service requests by sending back responses.” EX1008, 8/114. RFC2616 explains that a “proxy,” the component of Goldstein and Ling mapped to various claim elements, is an “intermediary program which acts as both a server and a client for the purpose of making requests on behalf of other clients.” EX1008, 9/114. These RFC2616 statements would have carried significant weight with a POSITA. EX1003, ¶106.

2. “uses the first IP address as a source address” and “uses the second IP address as a source address”⁹

PO asserted in *Code200* that this language, which is found in dependent Claim 25 of the ’511 Patent, refers to “the IP address of the sender of a communication” and “not the IP address of the web server” (“PO Construction”). EX1013, 2/12. The Court disagreed, holding that the specification “suggests that ‘source’ is used to refer to a content source rather than a communication source” and thus held that “‘source address’ is reasonably limited to the address of the source of content, which in Claim 1 is the web server” (“Court Construction”). *Id.*, 2-5/12. The Petition applies both constructions.

⁹ Challenged Claim 7 includes these claim terms.

IX. REASONS FOR THE RELIEF REQUESTED UNDER 37 C.F.R. §§42.22(A)(2) AND 42.104(B)(4)

A. Ground 1 - Claims 1-9, 14-22, 24-27, and 29-30 are Obvious over Goldstein in view of Ling

1. Goldstein

Goldstein discloses “[a] system and method for communication in a wide area network.” EX1005, [0011]. Goldstein discloses an “objective [] to provide such an invention capable of increasing access speed by a client computer to a server data over a wide area network.” *Id.*, [0012]-[0013]. The system includes a proxy server system with a [blue] “client computer 301,” a [red] “second proxy computer 303,” a [green] “first proxy computer 305,” and a [yellow] “server computer 306.”

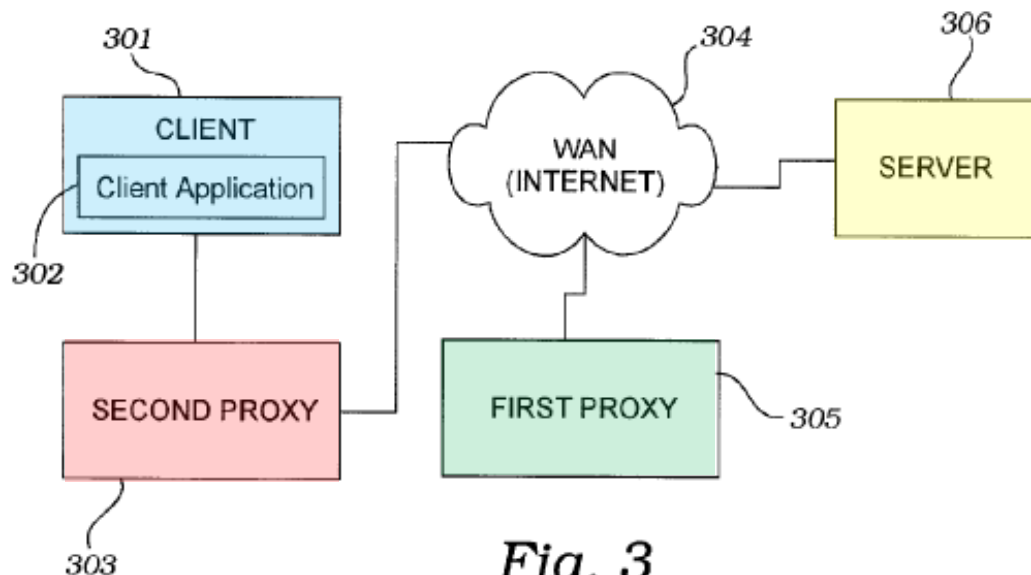


Fig. 3

Id., [0024], [0032], FIG. 3.

A user of client 301 requests content stored on a web server by interacting with a client application 302 on the client. *Id.*, [0025], [0027], [0032], [0042]. “[T]he client application is a browser” “adapted for browsing.” *Id.*, [0025], [0028]. As shown in Figure 5, annotated below, “[t]he browser [yellow] sends a data request to the second proxy.” *Id.*, [0042]. The content request uses HTTP protocol. *Id.*, [0042], FIG. 3. “The second proxy decides whether to send the request directly to the destination server, or to a first proxy.” *Id.*, [0042]. When sending the request to first proxy 305, second proxy 303 [red] “applies transformations to the request, transforming it to the optimized protocol” by “[c]ombining a number of requests in HTTP to one request.” *Id.* “The second proxy now sends the transformed request to the first proxy.” *Id.* “The first proxy [blue] transforms the request back to HTTP and sends it to the destination server.” *Id.* “The server [purple] sends the reply to the first proxy.” *Id.* “The first proxy [green] transforms a reply to the optimized protocol and sends it back to the second proxy.” *Id.* “The second proxy [orange] transforms the reply to HTTP and sends it back to the browser.” *Id.*

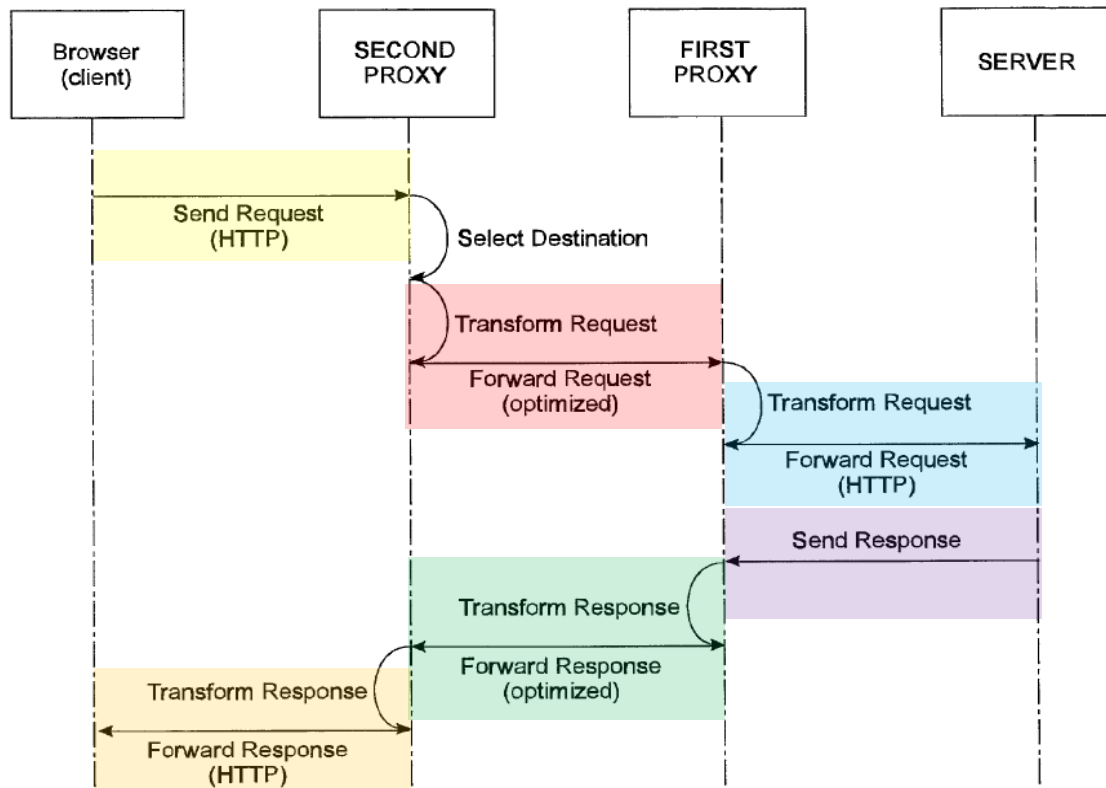


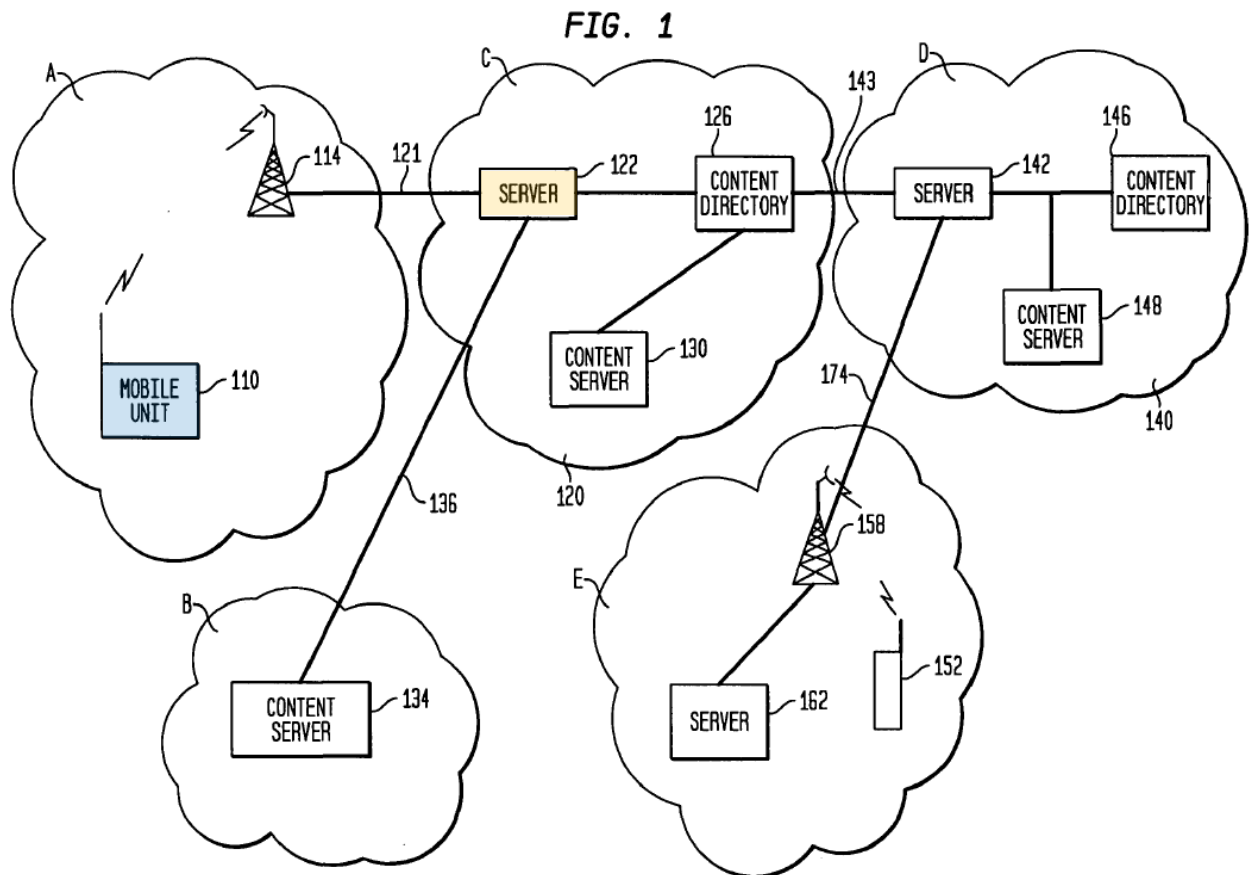
Fig. 5

Id., FIG. 5.

2. *Ling*

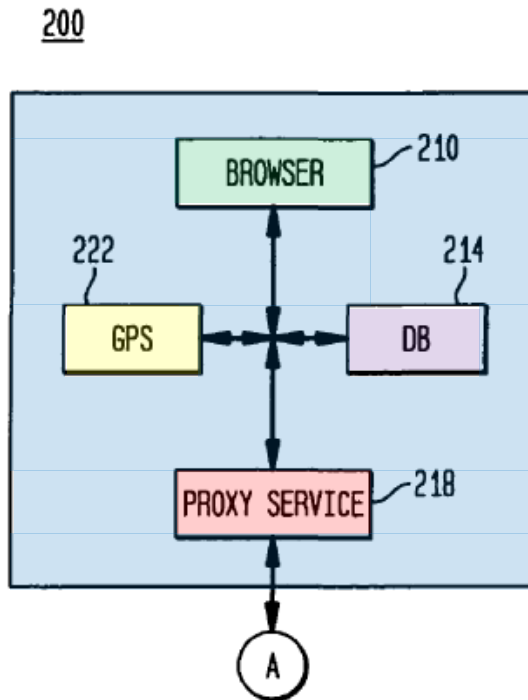
Ling discloses “a method for routing content information to a mobile user or client application” via an “overlay network.” EX1006, Abstract. The system includes a [blue] mobile unit 110/200 that includes an [green] internet browser, a [yellow] GPS 222, a [red] proxy service 218, and a [purple] database 214. *Id.*, [0039], [0054]. “The browser 210, in general, is an application program that allows a user to look at and interact with information on the World Wide Web or Internet. The browser 210 therefore provides an interface to the user so that the user may

request content information that may be located on the Internet.” *Id.*, [0054]. “The proxy service 218 acts as a browser interface that intercepts requests from the web browser and transparently re-directs those requests to a [orange] gateway server.” *Id.*, [0055]. “More particularly, the GPS block 222 obtains real-time geographic location or position information associated with the mobile device and provides that information to the proxy service 218. The proxy service 218 uses the geographic location or position information in accessing the local database 214 to determine the approximate gateway server to which the information should be directed.” *Id.*



Id., FIG. 1.

FIG. 2



Id., FIG. 2.

Proxy service 218 determines the identity of the gateway server 122 to which to direct the request by looking up the location of the gateway server that is geographically close to the mobile unit 110/200 using information in the database 214:

Table 1 represents a portion of a local database, e.g., database 214, according to an aspect of the present invention, wherein the values in the longitude 1 and latitude 1 columns may represent the uppermost left point of a rectangular area, the values in the longitude 2 and latitude columns represent the lower-right most point of the rectangular area, and the values in the IP address column provide a network address of a gateway server residing in the corresponding rectangular area.

TABLE 1

Longitude1	Latitude1	Longitude2	Latitude2	IP
-74.47	40.47	-78.57	40.57	205.132.610
-78.57	40.57	-79.99	50.67	199.23.23.123

Id., [0061]. For example, “[u]sing Table 1, if the mobile device is in the location defined by the upper-left most point (−74.47, 40.47) and the lower-right most point (−78.57, 40.57), then the gateway server with IP address 205.132.6.10 is selected.”

Id., [0062]. Proxy service 218 then modifies the URL included in the request from the browser 210 to create a location specific URL. For example, “if the user sends a request such as HTTP://OSN/draft.PPT, the proxy service intercepts this request and modifies the request letter to HTTP://205.132.6.10/scripts/dispatcher.DLL?HTTP=HTTP://osn/www.cnn.com/draft.PPT, such that the IP address 205.132.6.10 has been dynamically determined by the current location of the mobile unit.” *Id.*

Ling’s devices communicate using known protocols, such as “hypertext transfer protocol (HTTP).” *Id.*, [0063]-[0064].

3. *Motivation to Combine*

It would have been obvious to a POSITA to (a) modify Goldstein’s client computer 301 to be a mobile device with GPS functionality, as is disclosed by Ling for routing content requests based at least partially on GPS data; (b) modify Goldstein to incorporate Ling’s overlay network for efficient delivery of information

(e.g., location-based or location-aware information) to mobile devices based at least partially on the GPS data; and (c) modify Goldstein's second proxy 303 to include the functionality of Ling's proxy service 218 and database 214 to determine a server from which to provide such information based at least partially on the location of the mobile client computer 301. EX1003, ¶108. A POSITA would have been motivated to do so, for example: in response to the exploding use of mobile devices and corresponding demand for mobile access to information, including location-based or location-aware information; and to improve speed and reduce costs associated with routing content to such mobile devices. *Id.* These modifications to Goldstein would have required merely using known hardware (mobile devices and proxy servers) and functionalities (differentiated routing of information requests based on GPS data associated with the mobile devices). *Id.*; EX1006, [0072] ("The various aspects of the present invention may be utilized advantageously by any carrier and existing network structure."). These modifications to Goldstein also would have yielded only predictable results, including meeting Goldstein's stated goals in the context of requests from mobile devices. EX1003, ¶108.

Mobile Devices. Goldstein, filed in 2002, is silent on the type of computer that is the client 301. *See, e.g.*, EX1005, [0024] (describing "a client computer 301 having a client data processing means, a client data storing means, a client operating system, and a client data storing means"). However, by the mid 2000's, Ling

disclosed the expanding use of mobile devices to access content via the internet, such as location-based or location-aware information. EX1006, [0002]-[0003]; EX1003, ¶¶109-110.

As mobile phones—including the iPhone which was released in 2007—became ubiquitous, along with the upgrades in cellular networks and the introduction of 3G technology, a POSITA would have understood that mobile clients and wireless networks had become important components of the Internet. EX1003, ¶111; EX1014, 324/392 (“With the recent development of technologies in wireless access and mobile devices, the mobile network has become a key component of today’s Internet vision.”). Additionally, the:

expansion in computing power has led to a reduction in the size of computing devices and given rise to a new generation of mobile devices that are capable of performing functionality that only a few years ago required processing power that could be provided only by the most advanced desktop computers. Consequently, mobile computing devices having a small form factor have become ubiquitous and are used for execution of a wide range of applications.

EX1022, [0003].

Consistent with Ling’s disclosure of mobile devices with GPS capabilities, by 2009, most mobile clients such as cellular phones included such GPS capabilities. EX1021, [0006], FIG. 1; EX1003, ¶112. As such, a POSITA would have been

motivated to implement Goldstein with mobile client devices including GPS capabilities. EX1003, ¶112.

Overlay Network For Location-Based Content Delivery. Moreover, Ling discloses leveraging mobile device location data to route content requests to different servers. EX1003, ¶113; *see also, e.g.*, EX1006, [0024], [0048], [0052], [0055]. To implement this location-based routing functionality, it would have been obvious to implement Ling’s overlay network with Goldstein’s system. EX1003, ¶113. A POSITA would have been motivated to do so for any of several reasons.

First, a POSITA would have been motivated to further Goldstein’s goal of improved speed and efficiency of content delivery to mobile devices by routing content requests to the server that can most-efficiently provide the requested content. *Id.*, ¶114. A POSITA would have understood that traditional ways of providing Internet content, like allocating additional bandwidth, was impractical in a mobile network. *Id.*; EX1014, 324/392. Ling explains that “[i]n contrast to a fixed-location request for content information, when a mobile user requests information residing on the Internet, the location of the user and the location of the content information may play a role in determining how quickly the information gets routed to the user, the type of information the user may need and the costs associated with providing the requested content information to the user.” EX1006, [0006]. Ling also discloses

that content can be provided more quickly and cost effectively by retrieving the content from a server located closer to the mobile unit. *Id.*

A POSITA would have been familiar with the concept of moving content closer to the client via an overlay or content delivery network, as this type of network was well known. *See, e.g.,* EX1014, 325/392 (“***Content Delivery Networks (CDNs) promise to address these challenges*** by moving the content to the ‘edge’ of the Internet, and thus closer to the end-user [45]... In this context, we define ***mobile CDNs as overlay networks of surrogate servers which deliver content in the mobile wireless network infrastructures.***”) (emphasis added); EX1003, ¶115. And Ling provided such a content delivery network configured to provide content to mobile devices based on device location: “In accordance with this aspect of the present invention, it may prove more efficient if the user receives the requested information from a content server located relatively nearby the mobile unit 110.” EX1006, [0043].

Second, a POSITA would have been motivated to enable Goldstein’s system to provide location-based and location-aware information to such mobile devices. EX1003, ¶116; EX1006, [0003]. For example, Ling’s overlay network “also advantageously allow[ed] for the support of a number of emerging applications, including location-aware notification, location-aware advertising insertion, location-

aware emergency event notification, and real-time traffic reporting.” EX1006, [0073]; *see also id.*, [0006].

Location Proxy Service/Database In Goldstein’s Second Proxy 303. Ling discloses a proxy service 218 and database 214 that “functions as a location resolver, i.e., translating the present geographic location to an IP address of a nearby gateway server.” *Id.*, [0055]. “More particularly, the GPS block 222 obtains real-time geographic location or position information associated with the mobile device and provides that information to the proxy service 218,” which “uses the geographic location or position information in accessing the local database 214 to determine the approximate gateway server to which the information should be directed.” *Id.*

A POSITA would have been motivated to implement this functionality to enable the benefits of Ling’s location-based content routing discussed above. EX1003, ¶¶117-118. In the combined Goldstein-Ling system, rather than implementing proxy service 218 in the mobile client device 301 as Ling discloses, a POSITA would have been motivated to incorporate that functionality of proxy service 218 into Goldstein’s second proxy 303. *Id.* A POSITA would have been motivated to start from Goldstein’s FIG. 3 embodiment and thus implement the logic of Ling’s proxy service 218 in Goldstein’s second proxy 303 both because this was one of two known approaches Goldstein discloses and doing so would have been dramatically more efficient and effective because Goldstein’s system already

includes second proxy 303, whereas not all client mobile devices included a proxy service. EX1003, ¶118. Additionally, Goldstein's second proxy 303 could process wirelessly-transmitted requests from multiple mobile devices, such that any updates to the "local database for storing geographic information and IP addresses of gateway servers" (EX1006, [0055]) could be made more-centrally at the second proxy rather than on each and every mobile device accessing the system. EX1003, ¶118.

Compatible Systems & Expected Results. The above-described modification of Goldstein utilized known components in known ways. EX1003, ¶119. Ling accomplished its goals of improving Internet access for mobile users in a similar way to how Goldstein accomplished its goal of faster Internet access—via proxy devices. EX1006, Abstract. To move the content closer to the user, both Goldstein and Ling disclose proxy devices routing content based on the location of the destination server. EX1005, [0036] ("The second proxy can select which first proxy to use, based on such factors as location of the destination server."); EX1006, [0061] ("[T]he general architecture provides a way for a mobile device to send a request to a gateway server that is geographically close to the current location of the mobile device."). Specifically, Goldstein disclosed "a system for improved communication speed over a WAN 304 such as the Internet, which comprises several computers including a client computer 301," "a first proxy computer 305,"

“a second proxy computer 303,” and “a server computer 306.” EX1005, [0024]. “[T]he client, first proxy, second proxy and server computers interconnected through a wide area network such as the Internet.” *Id.* “The first proxy computer is enabled for communication with the server computer using an application layer protocol.” *Id.* “The second proxy computer is enabled for communication with the client computer using the application layer protocol. The second proxy computer further is enabled for selecting between the server computer and the first proxy computer, for directing a request from the client computer.” *Id.* Goldstein discloses that the second proxy can be a device separate from the client (Figure 3) or integrated into the client (Figure 4), but that the system operates the same in either embodiment. *Id.*, [0032], [0033], [0042] (“second proxy” and “proxy module” perform the same functions); EX1003, ¶119. Similarly, Ling discloses a “method preferably compris[ing] re-directing a user request to one or more gateway servers provided via an overlay network” e.g., proxy servers, to “rout[e] content information to a mobile user.” EX1006, Abstract.

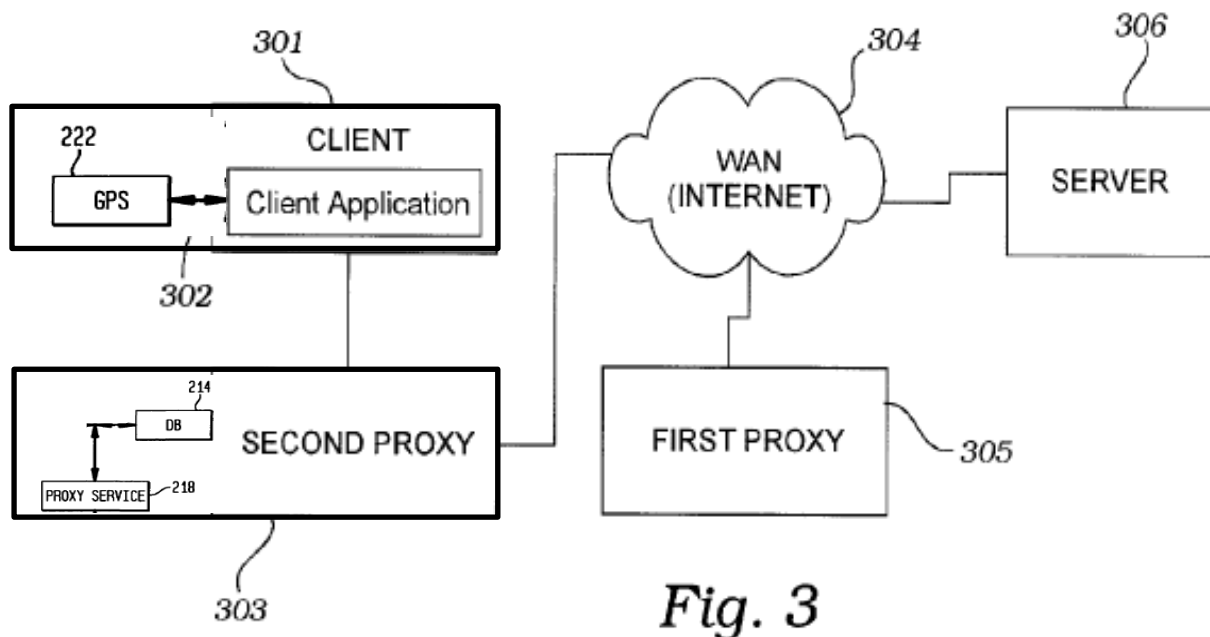
Additionally, Goldstein and Ling both describe using the same communication protocols, such as HTTP. EX1005, [0025], [0027], [0042]; EX1006, [0063]-[0065]. A POSITA would have understood that the use of HTTP disclosed in Ling could easily be implemented in a similar system, like Goldstein, using the same protocols. EX1003, ¶120. Indeed, Ling itself explains that “[t]he various

aspects of the present invention may be utilized advantageously by *any carrier and existing network structure.*” EX1006, [0072] (emphasis added).

Thus, the described modification of Goldstein with Ling’s teachings would have been a simple substitution of known communication protocols to yield predictable results. EX1003, ¶120.

4. *Modification of Goldstein in view of Ling*

The Goldstein-Ling system includes Goldstein’s system with the addition of Ling’s GPS unit 222 in Goldstein’s client 301 and Ling’s proxy service 218 and database 214 in Goldstein’s second proxy 303.



EX1005, [0024], [0032], FIG. 3; EX1006, [0054]-[0055], FIG. 2; EX1003, ¶¶121-122.

Goldstein-Ling is a system used to browse the Internet and access content from a multitude of web servers. EX1005, [0033]; EX1003, ¶123. Both Goldstein and Ling describe the clients making multiple requests for content. EX1005, [0033] (“The browser is configured in such a way, that it sends all of its requests to the second proxy”); EX1006, [0045] (describing one request for restaurant information and another request for weather conditions); EX1003, ¶123. As described by Ling, it would have been obvious to a POSITA to use the mobile client device in Goldstein-Ling to make a second request for web-page that is identified by a second URL which is stored in a second web server, since any user would reasonably expect the system to be able to browse more than one web site and to obtain information stored on different web servers. EX1003, ¶¶123, 128.

5. Element-by-Element Analysis

Limitation 1[p]: “1. A method for fetching, by a first device, a first web-page that is identified by a first Uniform Resource Locator (URL) and is stored in a first web server and a second web-page that is identified by a second URL and is stored in a second web server, for use with a second device that stores a group of Internet Protocol (IP) addresses, each of the IP addresses is associated with a respective geographical location, the method comprising:”

To the extent the preamble is limiting, Goldstein-Ling renders obvious this limitation. EX1003, ¶¶124-128. As discussed for the limitations of Claim 1 below,

Goldstein-Ling discloses a method for fetching, by client 301 (the claimed “first device”) requested content (the claimed “first web-page” and “second web-page”) stored on one or more content servers 306 (the claimed “first web server” and “second web server”) identified by URLs (the claimed “first Uniform Resource Locator (URL)” and “second URL”). EX1003, ¶125. The method uses second proxy 303 (the claimed “second device”) to store a group of IP addresses associated with respective geographical locations. *Id.*, ¶127. Server 306 meets the construction of “server” because it is a device operating in the role of a server by accepting a connection from first proxy 305 to service requests (URL’s) by sending back responses (content) and because it is not the same physical device as client 301 (the claimed “first device”). EX1003, ¶125; Section VIII.C.1.

A client application 302, such as a browser for accessing Internet content (e.g., a web page), identifies webpages using a URL. EX1005, [0032], [0025], [0042], FIG. 5 (showing the browser on the client sending an HTTP request to a web server); EX1006, [0054] (A browser “is an application program that allows a user to look at and interact with information on the World Wide Web or Internet.”); EX1003, ¶126 (a POSITA would have understood that browsers access content from the Internet using URLs and that HTTP requests contain URLs and make use of IP addresses). “URLs (uniform resource locators) such as www.telcordia.com, for example, are used to locate content on the web.” EX1006, [0005]; EX1003, ¶126. “Behind every

URL, however, is an IP address or collection of IP addresses that uniquely identify one or more servers on the Internet. For example, the URL www.cnn.com is served by twelve servers.” EX1006, [0005]. “[T]here [are] a multitude of web servers [], connected to the Internet.” EX1005, [0033].

Proxy service 218 in second proxy 303 “functions as a location resolver, i.e., translating the present geographic location to an IP address of a nearby gateway server.” EX1006, [0055]; EX1003, ¶127. Second proxy 303 maintains a database 214 including a group of IP addresses, each IP address is associated with a respective geographical location as shown in Table 1.

TABLE 1

Longitude1	Latitude1	Longitude2	Latitude2	IP
-74.47	40.47	-78.57	40.57	205.132.610
-78.57	40.57	-79.99	50.67	199.23.23.123

EX1006, [0061]-[0062], TABLE 1; EX1003, ¶127. “Table 1 represents a portion of a local database, e.g., database 214, according to an aspect of the present invention, wherein the values in the longitude 1 and latitude 1 columns may represent the uppermost left point of a rectangular area, the values in the longitude 2 and latitude columns represent the lower-right most point of the rectangular area, and the values in the IP address column provide a network address of a gateway server residing in the corresponding rectangular area.” EX1006, [0061]; EX1003, ¶127.

Limitation 1[a]: “identifying, at the first device, the first URL and a first geographical location that is associated with at least one of the IP addresses in the group;”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶129-134. In Goldstein-Ling, the user identifies requested content using a browser 302, such as Internet Explorer, installed on client 301. EX1005, [0025], [0028], [0033]. “The browser . . . provides an interface to the user so that the user may request content information that may be located on the Internet.” EX1006, [0054], [0014]. “[R]equests for content information are initiated from the” client. *Id.*, [0043]. A POSITA would have understood that the requested content is identified by a URL (the claimed “first URL”) because it is an HTTP request and browsers, like Internet Explorer, use URLs to originate HTTP requests using the URLs. EX1005, FIG. 5; EX1006, [0005]; EX1003, ¶129. For example, the first URL may represent a user request for “local hotels and local restaurants.” EX1006, [0058]. Further, because Goldstein-Ling requests content using location-based URLs, a POSITA would have understood that the URL must be identified. EX1006, [0046]; EX1003, ¶132.

As explained above, Goldstein-Ling includes a GPS block 222 in client 301. Section IX.A.4. “[T]he GPS block 222 obtains real-time geographic location or position information associated with the” client 301 (the claimed “first geographic location”) and “provides that information to the proxy service 218.” EX1006,

[0055]. “The proxy service 218 [in second proxy 303] uses the geographic location or position information in accessing the local database 214 to determine the approximate gateway server to which the information should be directed.” *Id.* “This may be accomplished by using current location information provided by the GPS block 222.” *Id.*, [0061]. For example, “[u]sing Table 1, if the mobile device is in the location defined by the upper-left most point (−74.47, 40.47) and the lower-right most point (−78.57, 40.57), then the gateway server with IP address 205.132.6.10 is selected.” *Id.*, [0062], TABLE 1; EX1003, ¶133.

Limitation 1[b]: “sending, by the first device to the second device, the first URL and the first geographical location;”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶135-138. In Goldstein-Ling, “[t]he browser” in client 301 (the claimed “first device”) “sends a data request to the second proxy” (the claimed “second device”). EX1005, [0042]. This [yellow] step is shown in FIG. 5.

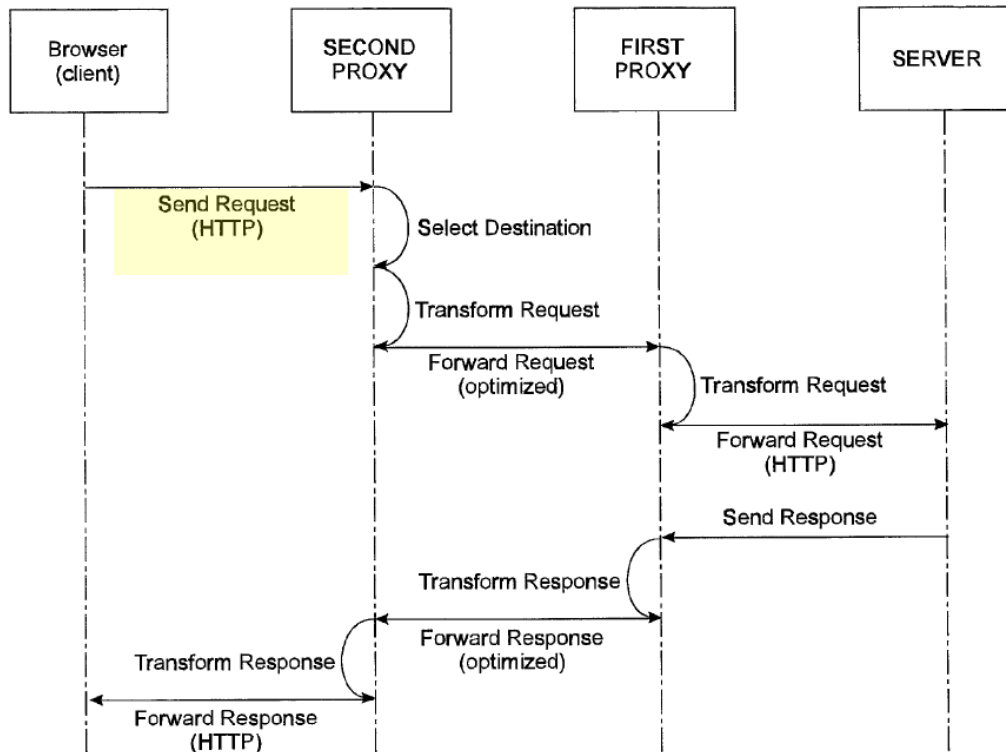


Fig. 5

Id., FIG. 5; EX1003, ¶136. The request is in the form of an HTTP request (the claimed “first URL”). *Id.*, [0025], [0028], FIG. 5. A POSITA would have understood this request to include a URL because “URLs (uniform resource locators) such as www.telcordia.com, for example, are used to locate content on the web.” EX1003, ¶135; EX1006, [0005].

“[T]he GPS block 222” in client 301 “obtains real-time geographic location or position information associated with the [client 301]” (the claimed “first geographic information”) and “provides that information to the proxy service 218” in second proxy 303. EX1006, [0055]. Because GPS block 222 and proxy service 218 are in separate devices, to “provides [the first geographic] information to the

proxy service 218, client 301 (the claimed “first device”) must send the information to second proxy 303 (the claimed “second device”). EX1003, ¶137.

Limitation 1[c]: “receiving, by the first device from the second device, the first web-page, in response to the sending of the first URL and the first geographical location;”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶139-142. Client 301 (the claimed “first device”) receives the requested content (the claimed “first web-page”) corresponding to the first URL from second proxy 303 when “[t]he second proxy transforms the reply to HTTP and sends it back to the browser.” EX1005, [0042]. This [yellow] step is shown in FIG. 5.

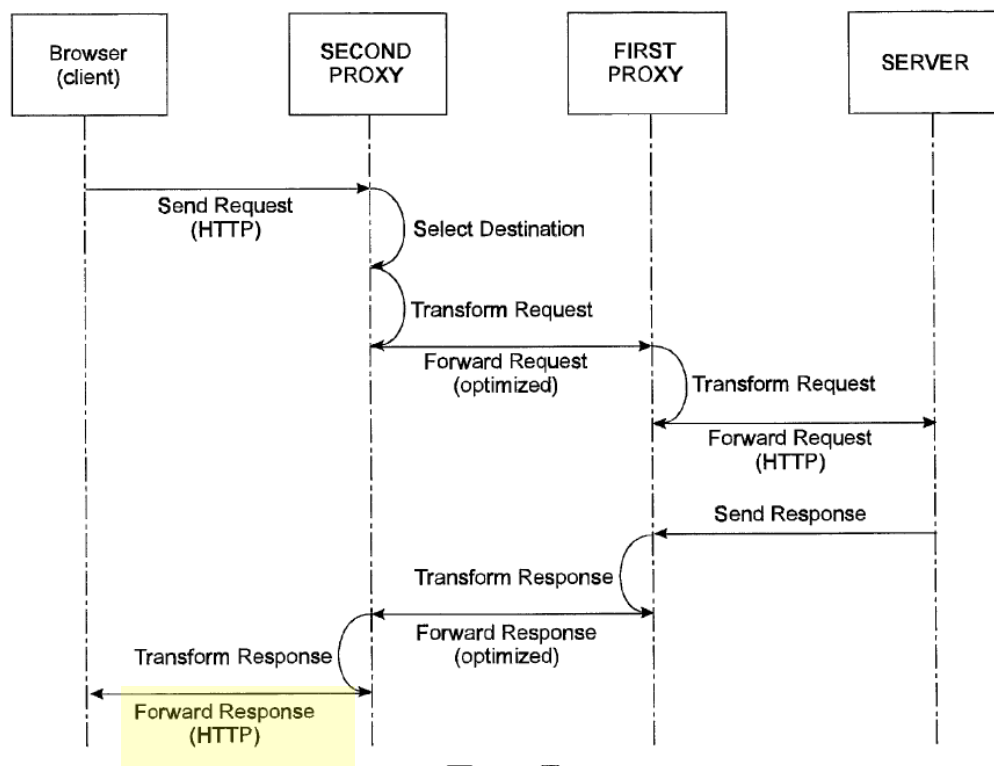


Fig. 5

Id., FIG. 5; EX1003, ¶139; *see also* EX1006, [0056] (“[T]he gateway server 310 then routes the content information to the mobile unit so that the mobile unit can receive or access the requested information.”). Because the reply is “sen[t] back to the browser,” (EX1005, [0042]), and a “browser [], in general, is an application program that allows a user to look at and interact with information on the World Wide Web or Internet,” (EX1006, [0054]) a POSITA would have understood that the reply is a web page because browsers request web pages. EX1003, ¶141.

The receiving is in response to the sending of the first URL because what is received is the content corresponding to the URL generated by the first web server and forwarded back through the proxy chain in response to the web page receiving the URL. EX1003, ¶139. The receiving is in response to the first geographic location for at least two reasons. First, as discussed in Section IX.A, the routing path through the proxy chain of the URL to the first web server and the first web-page back to the first device is selected based on the first geographic location, which the second device uses to select an IP address used in routing. Second, as the geographical location of the client changes, the web server that provides the requested content to the client would also change. EX1003, ¶139. For example, “if a user requests a list of restaurants in geographic area A (“the first web page”), such information may be located in a server in geographic area A.” EX1006, [0045]. When that same user travels to geographic area B, and requests a list of restaurants

in that geographical area (“the second web page”), the information may be located and obtained from a server in geographic area B. EX1003, ¶139.

Limitation 1[d]: “identifying, at the first device, the second URL and a second geographical location that is associated with at least one of the IP addresses in the group;”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶143-146. Goldstein discloses that “there [are] a multitude of web servers [308], connected to the Internet” and the client “sends *all of its requests* to the second proxy.” EX1005, [0033]. A POSITA would have understood Goldstein as teaching that the client makes multiple requests for content at different points in time and that Goldstein-Ling is used to request and deliver multiple items of Internet content to client 301 from any of the “multitude of web servers.” *Id.*, EX1003, ¶143. A system that could only access a single webpage would not be useful or practical. *Id.* Further, Ling describes that “the mobile unit 110 moves about in [a] geographic area.” EX1006, [0043].

Thus, after, at a first time, the user identifies a first URL and GPS block 222 identifies first geographic location as discussed for Limitation 1[b], the process repeats and, at a second time, the user makes another request, generating (and identifying) another URL (the claimed “second URL”). EX1005, [0042]; EX1003, ¶144. For example, the second URL may represent a user request for “local traffic

information.” EX1006, [0058]. And, at that second point in time, GPS block 222 again and “obtains real-time geographic location or position information” (the claimed “second geographic information”). EX1006, [0055]; EX1003, ¶144.

In similar fashion to identifying the first URL and first location described above for Limitation 1[a], Goldstein-Ling discloses identifying, at the first device, the second URL and the second geographical location that is associated with at least one of the IP addresses in the group.

Limitation 1[e]: “sending, by the first device to the second device, the second URL and the second geographical location; and”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶147-148. As explained for Limitation 1[d], a POSITA would have understood that Goldstein-Ling is used to communicate multiple requests for Internet content. *Id.* For the same reasons explained for Limitation 1[b] for the first URL and first geographic location information and correspondence to a second URL and second geographic location information as explained for Limitation 1[d], Goldstein-Ling discloses this limitation. *Id.*

Limitation 1[f]: “receiving, by the first device from the second device, the second web-page, in response to the sending of the second URL and the second geographical location.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶149-150. As explained for Limitation 1[d], a POSITA would have understood that Goldstein-Ling is used to communicate multiple requests for Internet content. *Id.* For the same reasons explained for Limitation 1[c], Goldstein-Ling discloses this limitation by client 301 (the claimed “first device”) receiving the requested content (the claimed “second web-page”) corresponding to the second URL. *Id.*

Limitation 2[a]: “The method according to claim 1, further comprising selecting, by the second device, a first IP address from the group that is associated with the first geographical location in response to the receiving of the first geographical location; and”

Goldstein-Ling renders obvious this limitation. EX1003, ¶151. In Goldstein-Ling, proxy service 218 in the second proxy (the claimed “second device”) uses the geographic location received from client 301 to “translat[e] the present geographic location to an IP address of a nearby gateway server” (e.g., first proxy 305). EX1006, [0055]. To perform this translation, proxy service 218 accesses database 214. “[D]atabase 214 acts as a local database for storing geographic information

and IP addresses of gateway servers.” *Id.* An example of the data structure of database 214 is shown in Table 1.

TABLE 1

Longitude1	Latitude1	Longitude2	Latitude2	IP
-74.47	40.47	-78.57	40.57	205.132.610
-78.57	40.57	-79.99	50.67	199.23.23.123

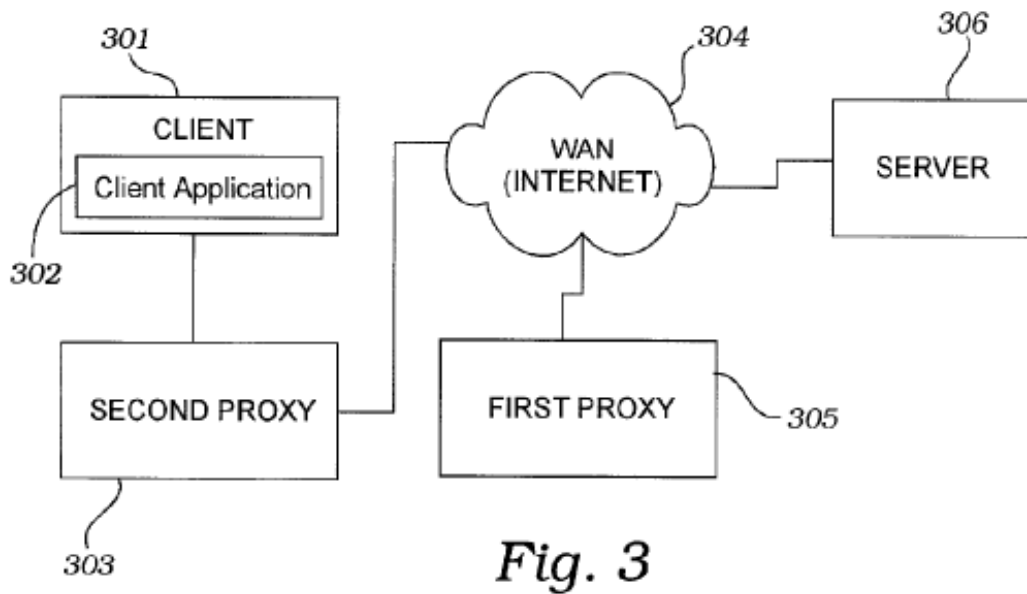
Id., [0061]-[0062], TABLE 1. “The proxy service 218 uses the geographic location or position information in accessing the local database 214 to determine the approximate gateway server to which the information should be directed.” *Id.*, [0055]. Because proxy service 218 “uses the geographic location or position information,” the selection is in response to the receiving of the first geographical location. EX1003, ¶151. “Using Table 1, if the [client 301] is in the location defined by the upper-left most point (−74.47, 40.47) and the lower-right most point (−78.57, 40.57), then the gateway server with IP address 205.132.6.10 is selected.” EX1006, [0062]. As shown in Table 1, servers (e.g., first proxy 305) are identified by an IP address and associated with a location and when proxy service 218 determines the appropriate first proxy 305, it selects the IP address of first proxy 305 (the claimed “first IP address”) from the IP addresses in Table 1 (the claimed “group of IP address”). EX1003, ¶151.

Limitation 2[b]: “selecting, by the second device, a second IP address from the group that is associated with the second geographical location in response to the receiving of the second geographical location.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶152-153. As explained for Limitations 1[d] and 1[e], the second device receives a second geographic location. *Id.* As discussed for Limitation 2[a], each entry in Table 1 includes a location associated with an IP address. Thus, in repeating the selection process in response to receiving the second location, proxy service 218 selects a different IP address (the claimed “second IP address” from Table 1 based on the corresponding associated location. *Id.*

Limitation 3[a]: “The method according to claim 2, for use with a third device addressed in the Internet using the first IP address, and for use with a fourth device addressed in the Internet using the second IP address, the method further comprising:”

Goldstein-Ling renders obvious this limitation. EX1003, ¶154. Goldstein discloses a proxy server system with a client, a first and second proxies, and a web server.



EX1005, [0032], FIG. 5. While only one first proxy 305 is shown in Figure 3, “there may be a plurality of the first proxies, varying by their type and location.” *Id.*, [0036].

First proxy 305 is addressed using an IP address. *See* Limitation 2[a] (proxy module 218 in second proxy 303 identifies first proxy 305 to which to route the client’s content request by selecting an IP address from Table 1); EX1005, [0034]; EX1006, [0055], [0061]-[0062], TABLE 1; EX1003, ¶154. Thus, a *first* first proxy 305 addressed by the first IP address in Table 1 is the claimed “third device” and *second* first proxy 305 addressed by the second IP address in Table 1 is the claimed “fourth device.” EX1003, ¶154.

Limitation 3[b]: “sending, by the second device, the first URL to the third device in response to the selecting of the first IP address; and”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶155-156. Once proxy service 218 in second proxy 303 selects the first IP address, as explained for Limitation 2[a], addressing the *first* first proxy 305, as explained for Limitation 3[a], to which to route the content request, “[t]he second proxy applies transformations to the request, transforming it to the optimized protocol, and sends the transformed request to the first proxy.”

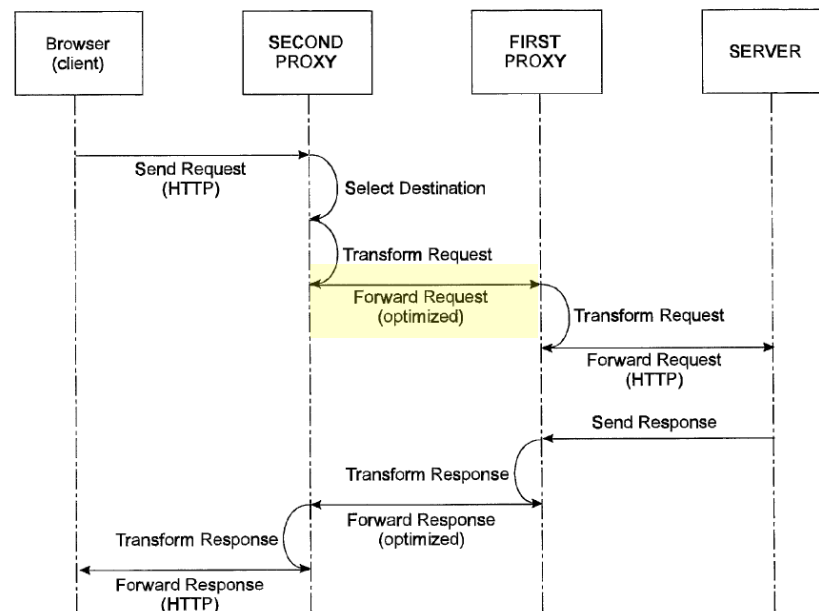
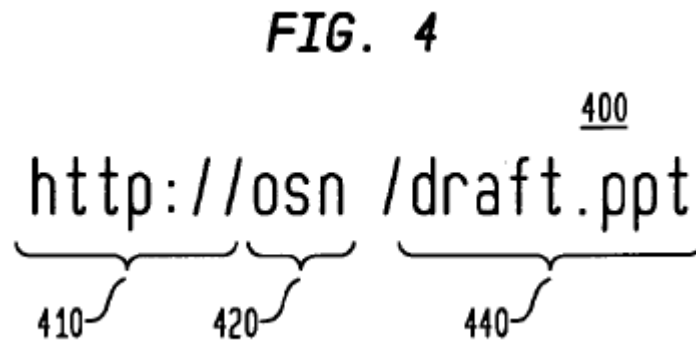


Fig. 5

EX1005, [0042], FIG. 5.

The content request is in the format of a location-based URL. EX1006, [0057]-[0058]; EX1003, ¶156. “[T]he location-based resource locator may employ

the same semantic as a traditional URL.” *Id.*, [0058] An example of a location-based URL is shown in Ling’s Fig. 4.



Id., FIG. 4. “[T]he location-based URL includes a protocol 410, a location-based resolver address 420 and a file name 440.” *Id.*, [0058]. This transformation adds content to the URL, but continues to contain the original first URL and thus, second proxy 303 forwards the first URL to *first* first proxy 305 (the claimed “third device”). EX1003, ¶156. This forwarding is in response to the selecting of the first IP address because that first IP address is used to address the *first* first proxy 305. *Id.*

Limitation 3[c]: “sending, by the second device, the second URL to the fourth device in response to the selecting of the second IP address.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶157-160. As explained for Limitation 3[b], once the proxy service 218 in second proxy 303 selects the second IP address, as explained for Limitation 2[b], addressing the *second* first proxy 305, as explained for Limitation 3[a], second proxy 303 sends the second

URL to the *second* first proxy 305 (the claimed “fourth device”) in response to the selecting of the second IP address. *Id.*

Limitation 4[a]: “The method according to claim 3, further comprising: receiving, by the third device from the second device, the first URL;”

Goldstein-Ling renders obvious this limitation. EX1003, ¶161. After second proxy 303 sends the content request, in the form of a location-based URL to first proxy 305 (*see* Limitation 3[b]), first proxy 305 receives the location-based URL containing the first URL. EX1005, [0042], FIG. 5.

Limitation 4[b]: “sending, by the third device to the first web server the first URL in response to the receiving of the first URL;”

Goldstein-Ling renders obvious this limitation. EX1003, ¶162. After first proxy 305 receives the location-based URL from second proxy 303 (*see* Limitation 4[a]), “[t]he first proxy transforms the request back to HTTP,” that is, back to the original form of the first URL, “and sends it to the destination server” corresponding to the first URL (the claimed “first web server”).

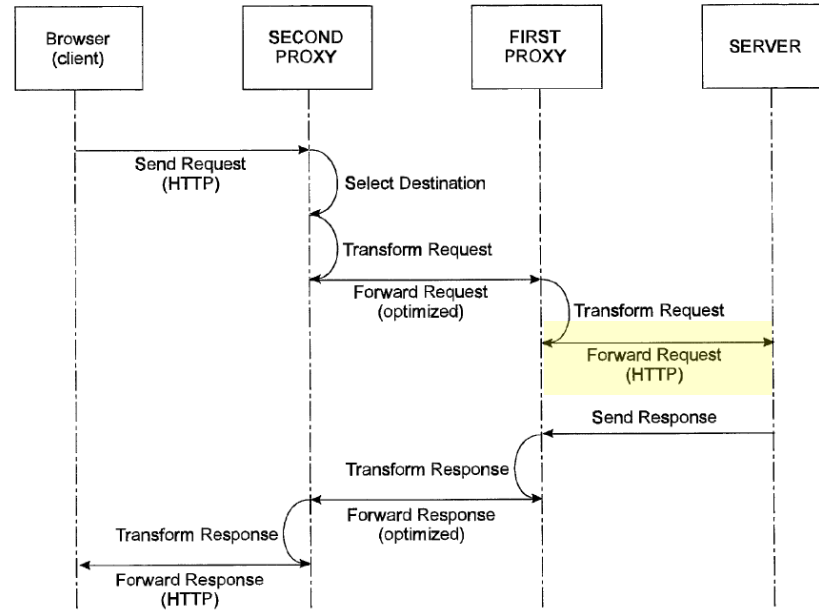


Fig. 5

EX1005, [0042], FIG. 5. Web server 306 is a web server because it houses Internet content and operates in the role of a server by receiving requests and providing content in response to those requests. EX1005, [0004]; EX1003, ¶162; Section VIII.C.1. FIG. 5 shows that the sending is in response to receiving the first URL. EX1003, ¶162.

Limitation 4[c]: “receiving, by the third device from the first web server the first web-page in response to the sending of the first URL;”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶163-164. After receiving the request from first proxy 305 (*see* Limitation 4[b]), “[t]he server sends the reply to the first proxy.”

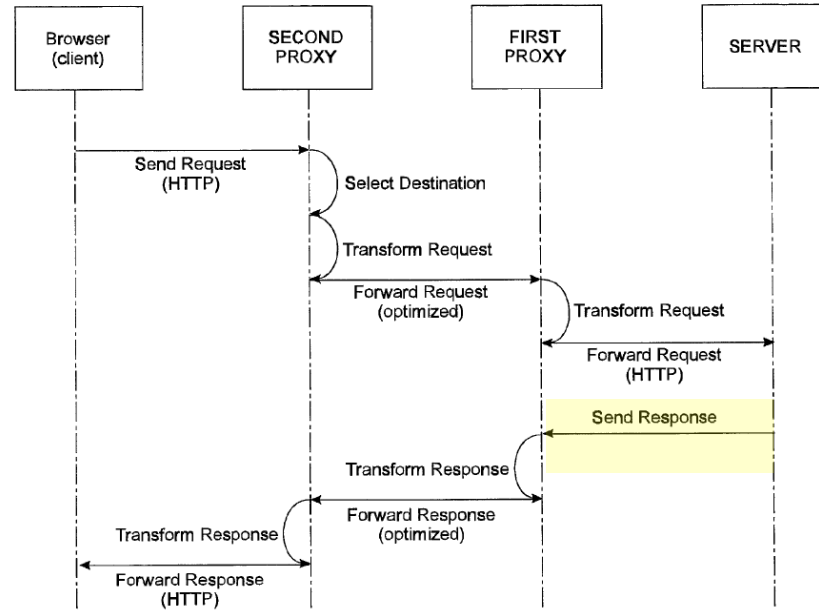


Fig. 5

EX1005, [0042], FIG. 5.

A POSITA would have understood that the response is a web page because it is ultimately returned to the browser on the client. *Id.*, [0042] (“**The server sends the reply to the first proxy.** The first proxy transforms a reply to the optimized protocol and sends it back to the second proxy. The second proxy transforms the reply to HTTP and **sends it back to the browser.**”); EX1003, ¶164. Browsers display web pages. EX1003, ¶164. The receiving is in response to the sending of the first URL as shown in FIG. 5. EX1003, ¶163.

Limitation 4[d]: “sending, by the third device to the second device, the first web-page in response to the receiving of the first web-page;”

Goldstein-Ling renders obvious this limitation. EX1003, ¶165. After receiving the response from web server 306 (*see* Limitation 4[c]), “[t]he first proxy

transforms a reply to the optimized protocol and sends it back to the second proxy”
(the claimed “second device”).

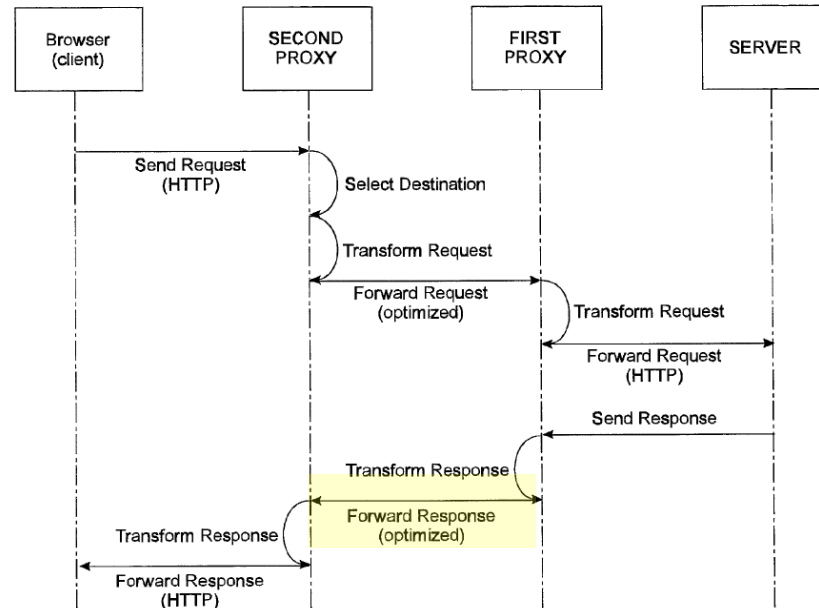


Fig. 5

EX1005, [0042], FIG. 5. As explained for Limitation 4[c], the response takes the form of a web page. EX1003, ¶165. The sending is in response to to the receiving of the first web-page as shown in FIG. 5. EX1003, ¶165.

Limitation 4[e]: “receiving, by the fourth device from the second device, the second URL;”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶166-167. As explained for Limitations 1[d] and 3[c], second proxy 303 (the claimed “second device”) sends the second URL to the *second* first proxy 305 (the claimed “fourth device”) where it is received. *Id.*

Limitation 4[f]: “sending, by the fourth device to the second web server the second URL in response to the receiving of the second URL;”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶168-169. As explained for Limitation 4[b], first proxy 305 receives URLs and, in response to receiving, sends to the corresponding web server. Thus, in response to receiving the second URL, *second* first proxy 305 (the claimed “fourth device”) sends the second URL to the destination server corresponding to the second URL (the claimed “second web server”). *Id.*

Limitation 4[g]: “receiving, by the fourth device from the second web server the second web-page in response to the sending of the second URL; and”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶170-171. As explained for Limitation 4[c], in response to sending the URL, here the second URL, first proxy 305, here the fourth device, receives from the destination server, here the second web server, a reply containing the web page corresponding to the URL, here the second web-page. *Id.*

Limitation 4[h]: “sending, by the fourth device to the second device, the second web-page in response to the receiving of the second web-page.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶172-173. As explained for Limitation 4[d], in response to receiving the web-page, here the second

web-page, first proxy 305, here the fourth device, sends the web page to the second device. *Id.*

Limitation 5[a]: “The method according to claim 4, further comprising: sending, by the second device to the first device, the first web-page in response to the receiving of the first web-page; and”

Goldstein-Ling renders obvious this limitation. EX1003, ¶174. In response to receiving the response from first proxy 305 (*see* Limitation 4[d]), “[t]he second proxy transforms the reply to HTTP and sends it back to the browser” contained in client 301 (the claimed “first device”).

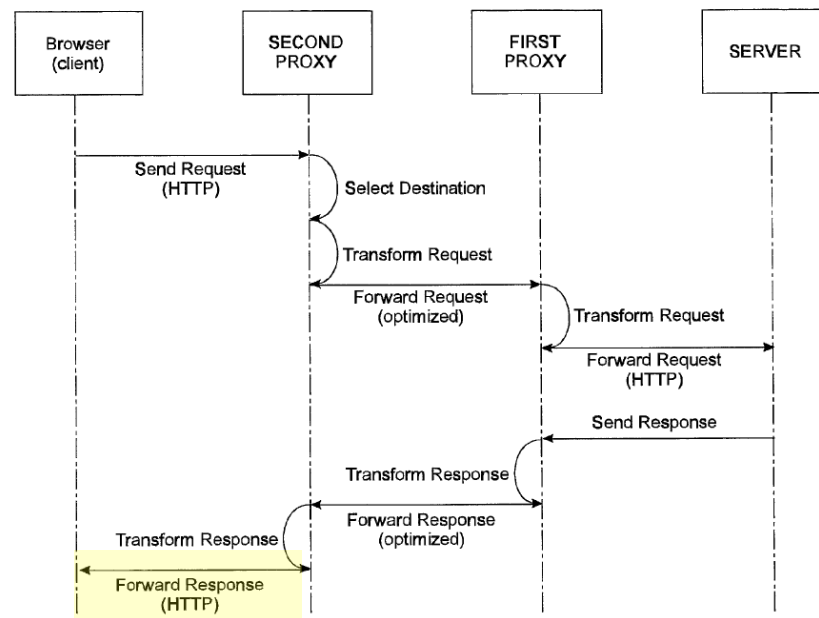


Fig. 5

EX1005, [0042], FIG. 5. As explained for Limitation 4[c], the response takes the form of a web-page, here the first web-page. EX1003, ¶174.

Limitation 5[b]: “sending, by the second device to the first device, the second web-page in response to the receiving of the second web-page.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶175-176. As explained for Limitation 4[h], the fourth device sends the second device the second web-page. As discussed for Limitation 5[a], in response to receiving web-pages the second device sends received web-pages, here the second web-page to the first device. *Id.*

Limitation 6[a]: “The method according to claim 2, further comprising fetching, by the second device in response to the selecting of the first IP address, the first web-page from the first web server using the first IP address; and”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶177-178. Second proxy 303 performs this step in three instances. **First**, as explained for Limitations 3[b], 4[b], and 4[c], in response to selecting the first IP address, second proxy 303 sends the first URL to the third device for further sending to the first web server to obtain the first web-page, using the first IP address by using it as the destination address in contacting the third device. EX1003, ¶177.

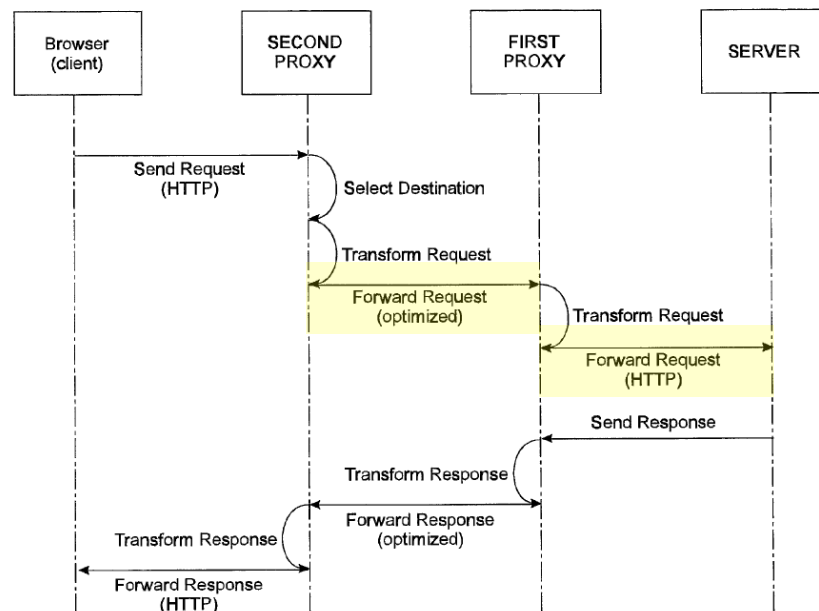


Fig. 5

EX1005, [0042], FIG. 5; EX1003, ¶¶177-178.

Second, Ling explains that the selected gateway server, which would be the selected first proxy (the claimed “third device”) in the combined system, may itself have the content, “then that gateway server would then be able to directly provide the information to the mobile unit” and therefore act as the first web server providing first web-page corresponding to the first URL. EX1006, [0046]. Second proxy 303 uses the first IP address by using it as the destination address in contacting the third device. EX1003, ¶178.

Third, Goldstein explains “second proxy decides whether *to send the request directly to the destination server*” (the claimed “first web server”) “or to a first proxy.” EX1005, [0042]. Where second proxy 303 “send[s] the request directly to

the destination server,” it selects the IP address of the first web server as “the first IP address” and uses the first IP address by using it as the destination address in contacting the first web server. EX1003, ¶178.

Limitation 6[b]: “fetching, by the second device in response to the selecting of the second IP address, the second web-page from the second web server using the second IP address.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶179-180. As explained for Limitations 3[c], 4[f], and 4[g], the fourth device performs the same process for the second URL, second web-page, and second web server for the corresponding first elements and performs the first and second instances of this step as described in Limitation 6[a]. Further, as described in Limitation 6[a], second proxy 303 may route a URL directly to the web server, thereby routing the second URL to the second web-server and using the second IP address by using it as the destination address in contacting the second web server. EX1003, ¶180.

Limitation 7: “The method according to claim 6, wherein the fetching of the first web-page uses the first IP address as a source address, and wherein the fetching of the second web-page uses the second IP address as a source address.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶181-184. Under the **Court Construction**, in the **third** instance described for Limitations 6[a] and

6[b], second proxy 303 uses the first/second IP address as the target address of the first/second web server. EX1003, ¶182.

Under the **PO Construction**, when second proxy 303 sends the first/second URL to either the third/fourth device or the first/second web server, it uses its own IP address as a source address. EX1003, ¶183.

Limitation 8: “The method according to claim 1, for use with a plurality of devices, wherein each one of the devices out of the plurality of devices is addressable in the Internet using an IP address from the group.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶185. Goldstein discloses that the devices in its system communicate over the Internet using the HTTP protocol. *See, e.g.*, EX1005, [0025], [0028], [0042], [0045]. A POSITA would have understood that HTTP protocol over the Internet uses IP addresses to enable communication. EX1003, ¶185; Section VII. Additionally, Ling discloses addressing requests to target devices using IP addresses. EX1006, [0019], [0061]-[0062]. Thus, a POSITA would have understood that each device in Goldstein-Ling is addressable using an IP address. EX1003, ¶185.

Limitation 9: “The method according to claim 8, further comprising communicating, by the second device, with each one of the devices out of the plurality of devices by using the respective IP address from the group.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶186. Goldstein discloses that the devices in its system communicate over the Internet using the HTTP protocol. *See, e.g.*, EX1005, [0025], [0028], [0042], [0045]. A POSITA would have understood that HTTP protocol over the Internet uses IP addresses to enable communication. EX1003, ¶186; Section VII. Additionally, Ling discloses addressing requests to target devices using IP addresses. EX1006, [0019], [0061]-[0062]. Thus, a POSITA would have understood that second proxy 303 communicates with each of the other devices in Goldstein-Ling using an IP address. EX1003, ¶186.

Limitation 14: “The method according to claim 1, wherein the first device is addressed over the Internet using a first Internet Protocol (IP) address, and the method further comprising storing, in the second device, the first IP address.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶187-188. Goldstein discloses that the devices in its system communicate using an application layer protocol such as HTTP protocol. *See, e.g.*, EX1005, [0024], [0025], [0028], [0042], [0045]. A POSITA would have understood that HTTP protocol uses IP

addresses to enable communication. EX1003, ¶187; Section VII. Additionally, Ling discloses addressing requests to target devices using IP addresses. EX1006, [0019], [0061]-[0062]. Thus, a POSITA would have understood that client 301 is addressed using an IP address. EX1003, ¶187.

Additionally, a POSITA would have understood that when second proxy 303 establishes a session with client 301, second proxy 303 must store the IP address of client 301. EX1003, ¶188. For example, when second proxy 303 establishes a session with client 301 so that client 301 communicates an HTTP request for content, a POSITA would have understood that the session setup and maintenance, as well as subsequent routing of URLs through the proxy chains to the web servers 306, necessarily requires, or at a minimum renders obvious, second proxy 303 storing the IP addresses of client 301, first proxy 305, and web server 306. *Id.* Communications by second proxy 303 to each of client 301, first proxy 305, and web server 306 use the stored IP address of client 301, first proxy 305, and web server 306 as the “destination address” in accordance with IP protocols. *Id.* (citing EX1015, 17/51; EX1016, 57/91).

Limitation 15: “The method according to claim 14, further comprising responsive to the receiving of the first URL from the first device, adding the IP address of the first device to the group of IP addresses.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶189-190. Goldstein discloses that the devices in its system communicate using the HTTP protocol. *See, e.g.*, EX1005, [0025], [0028], [0042], [0045]. A POSITA would have understood that HTTP protocol uses IP addresses to enable communication. EX1003, ¶187; Section VII. Additionally, Ling discloses addressing requests to target devices using IP addresses. EX1006, [0019], [0061]-[0062]. Further, a POSITA would have understood devices like client 301 that are on the Internet are addressed using an IP address. EX1003, ¶187.

Because devices on the Internet are addressed by IP addresses, a POSITA would have understood that the session setup and maintenance, as well as subsequent routing of URLs through the proxy chains to web servers, necessarily requires, or at a minimum renders obvious, second proxy 303 storing a group of IP addresses for first proxy 305 and client 301. EX1003, ¶190. Thus, in order for second proxy 303 to establish and maintain sessions with first proxy 305 and web server 306, second proxy 303 would have to store the IP address corresponding to the domain name (e.g., “telcordia.com,” “cnn.com”) the user enters for first proxy 305 and web server 306. *Id.* Likewise, to establish and maintain sessions with client 301, second proxy

303 must store the IP address of client 301, which would be received as the “sending address” when client 301 contacts second proxy 303. *Id.*

Limitation 16: “The method according to claim 1, wherein the first device comprises a client device.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶191. Goldstein discloses that client 301 is a “client computer 301 having a client data processing means, a client data storing means, a client operating system, and a client application instruction set 302.” EX1005, [0024]; EX1003, ¶191. Client 301 meets the construction of “client device” because it is a device that communicates over the Internet and is operating in the role of a client by establishing a connection with second proxy 303 to make requests. EX1003, ¶191; Section VIII.C.1.

Limitation 17: “The method according to claim 16, further comprising executing, by the first device, an application, and wherein the identifying in part of, or in response to, the executing.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶192. Goldstein discloses that the “client computer 301 [has] a client data processing means, a client data storing means, a client operating system, and a client application instruction set 302.” EX1005, [0024], FIG. 3. “[T]he client application is a browser.” *Id.*, [0025]; *see also id.*, [0028]. The user of client 301 requests content using the client application 302, e.g., the browser. *Id.*, [0034], [0042]; EX1003, ¶192. When the

user is interacting with the client application 302, client 301 is executing the client application 302. EX1003, ¶192. Additionally, the user requests content by entering a URL corresponding to the content or clicking on a link to the content that translates as a URL. *Id.*

Limitation 18: “The method according to claim 1, wherein the second device comprises a server device.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶193. Goldstein discloses that second proxy 303 is a computer “having a second proxy data processing means, a second proxy data storing means, and a second proxy operating system.” EX1005, [0024]. Second proxy 303 meets the construction of “server” because it is a device operating in the role of a server by accepting a connection from client 301 to service requests (URL’s) by sending back responses (content) and because it is not the same physical device as client 301 (the claimed “first device”). EX1003, ¶193; Section VIII.C.1.

Limitation 19: “The method according to claim 18, further comprising storing, operating, or using, by the second device, a server operating system.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶194. Goldstein discloses that the second proxy includes “a second proxy operating system.” EX1005, [0024]. As explained for Limitation 18, Goldstein’s second proxy is a

server and thus the operating system on the second proxy is a server operating system. EX1003, ¶194.

Limitation 20[a]: “The method according to claim 1, further comprising fetching, by the second device, the first web-page from the first web server in response to receiving the first URL from the first device; and”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶195-196. See Limitation 6[a] explaining performance of this step. As shown in FIG. 5 and described for Limitation 3[b], second proxy 303 performs the fetching in response to receiving the first URL from the first device. EX1003, ¶195.

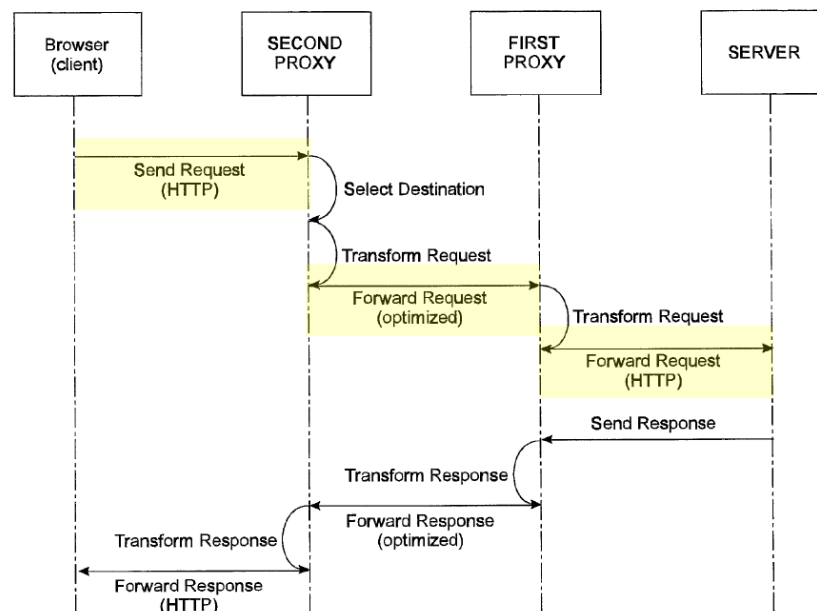


Fig. 5

EX1005, [0042], FIG. 5; EX1003, ¶195.

Limitation 20[b]: “fetching, by the second device, the second web-page from the second web server in response to receiving the second URL from the first device.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶197-198. *See* Limitation 6[b] explaining performance of this step. As discussed for Limitation 20[a], second proxy 303 performs the fetching in response to receiving the second URL from the first device. *Id.*

Limitation 21: “The method according to claim 20, wherein the fetching of the first web-page uses the first geographical location and the fetching of the second web-page uses the second geographical location.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶199-200. As explained for Limitations 2[a] and 2[b], proxy service 218 in the second proxy uses the first and second geographic locations received from client 301 to select the IP address of the *first* and *second* first proxies 305. EX1006, [0055], [0061]-[0062], TABLE 1; EX1003, ¶¶199-200. It then uses the IP address to fetch, via first proxy 305, the web page from web server 306 by sending a Forward Request to the first proxy which in turn sends the request to the web server.

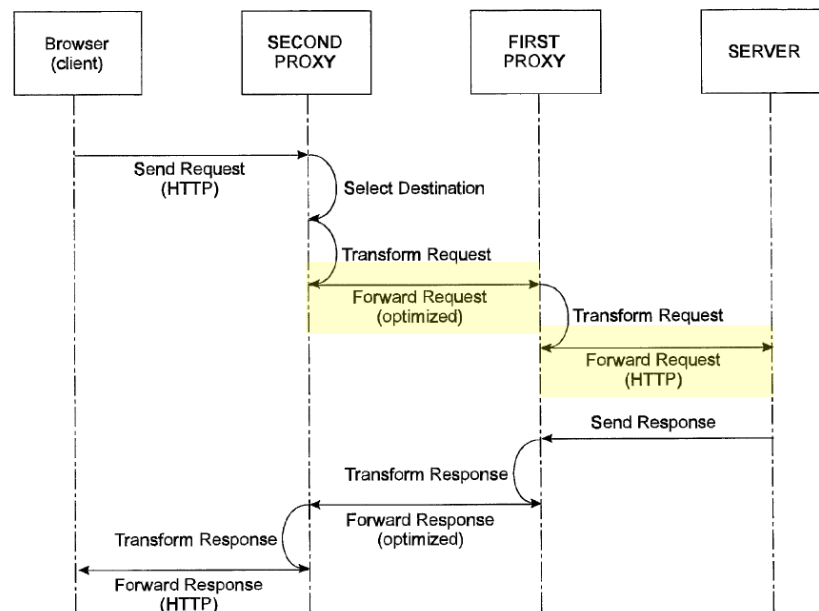


Fig. 5

EX1005, [0036], [0042], FIG. 5; EX1003, ¶¶199-200.

Limitation 22: “The method according to claim 1, wherein each of the IP addresses in the group is associated with a respective device that is identified over the Internet using a respective IP address.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶¶201-202. Both Goldstein and Ling disclose that the devices are addressable using IP addresses. EX1005, [0034] (describing second proxy 303 as communicating with first proxy 305 using the IP address); EX1006, [0019] (describing the use of IP addresses of the target devices), [0061] (describing the database 214 as containing the IP addresses of gateway servers). A POSITA would have understood that each of the devices in Goldstein-Ling are identified over the Internet using a respective IP address.

EX1003, ¶202. For second proxy 303 to establish and maintain sessions with first proxy 305 and client 301, it would have to store the IP address corresponding to each of first proxy 305 and client 301. *Id.* Each of the IP addresses in the claimed group is associated with a respective device (first proxy 305 and client 301). *Id.*

Limitation 24: “The method according to claim 1, further comprising establishing, by the second device, a Transmission Control Protocol (TCP) connection with each of the devices in the group.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶203. Goldstein discloses using TCP/IP for connections between proxy servers was well known. EX1005, [0006]-[0007]. A POSITA would have understood that the TCP/IP protocol would have been used for communications between the devices in Goldstein-Ling to provide the benefits described in Goldstein to a system including mobile devices. EX1003, ¶203; EX1005, [0006] (“The interface comprises a split proxy system that *encapsulates TCP/IP transmissions* into a script transmission, which is not subject to problems in high latency systems, thereby *greatly improving WWW access, via a wireless modem or other low-bandwidth communications network.*”), [0007] (“*[T]he data link from the connected low-end units is a TCP/IP pipe, supporting TCP/IP protocol*, but not the many sophisticated extensions usually associated with TCP/IP. In embodiments *wherein battery-powered units are used*, connected to the Proxy-Server, *battery life is exhibited far beyond what would*

be expected for a battery-powered computer with computing power for browsing the Internet directly.”). In fact, a POSITA would have recognized that using TCP offers many advantages over other communications protocols like UDP, such as reliability, error correction, and flow control. EX1003, ¶203 (citing EX1018, 63/908).

Limitation 25: “The method according to claim 1, wherein the second device is a Transmission Control Protocol/Internet Protocol (TCP/IP) server that communicates over the Internet with the first device using TCP/IP protocol or connection.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶204. Goldstein discloses that using TCP/IP for connections between proxy servers was well known. EX1005, [0006]-[0007]. A POSITA would have understood that the TCP/IP protocol would have been used for communications between client 301 and second proxy 303 to provide the benefits described in Goldstein to a system including mobile devices. EX1003, ¶204; EX1005, [0006]; *see also* Limitation 24, above. Additionally, second proxy 303 meets the construction of “server” because it is a device operating in the role of a server by accepting a connection from client 301 to service requests (URL’s) by sending back responses (content) and because it is not the same physical device as client 301 (the claimed “first device”). EX1003, ¶204; Section VIII.C.1.

Limitation 26: “The method according to claim 1, wherein the first and second devices communicate with each other over the Internet according to UDP, DNS, TCP, FTP, POP #, SMTP, or SQL standard.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶205. Goldstein discloses that the first and second proxies communicate using an application layer protocol, preferably HTTP. EX1005, [0025], [0027], [0032], cls. 1, 2; EX1003, ¶205. A POSITA would have understood that HTTP uses TCP. EX1003, ¶205. Additionally, Goldstein discloses that using TCP/IP for connections between proxy servers was well known. EX1005, [0006]-[0007]. A POSITA would have understood that the TCP/IP protocol would have been used for communications between the devices in Goldstein-Ling. EX1003, ¶205. It would have been obvious for a POSITA to use TCP as it provides many advantages over UDP, such as reliability, error correction and flow control. *Id.* Therefore, the first and second proxies communicate according to the TCP standard. *Id.*

Limitation 27: “The method according to claim 1, further comprising causing the second device to fetch the first web-page from the first web server.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶206. *See* Limitations 6[a] and 20[a].

Limitation 29[a]: “The method according to claim 1, wherein the first web server comprises a web server that is a Hypertext Transfer Protocol (HTTP) server responding to HTTP requests,”

Goldstein-Ling renders obvious this limitation. EX1003, ¶207. Goldstein discloses that its system “implement[s] HTTP 1.1 features.” EX1005, [0045]; EX1003, ¶207. “The first proxy transforms the request back to HTTP and sends it to the destination server.” EX1005, [0042], FIG. 5. Thus, the destination web server 306 is an HTTP server that responds to HTTP requests. EX1003, ¶207. Additionally, server 306 meets the construction of “server” because it is a device operating in the role of a server by accepting a connection from first proxy 305 to service requests (URL’s) by sending back responses (content) and because it is not the same physical device as client 301 (the claimed “first device”). EX1003, ¶207; Section VIII.C.1.

Limitation 29[b]: “wherein the first device comprises a client device, and”

Goldstein-Ling renders obvious this limitation. EX1003, ¶208. *See* Limitation 16.

Limitation 29[c]: “wherein the first and second geographical locations are the same geographical location.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶209. “[T]he GPS block 222 obtains real-time geographic location or position information associated

with the [client 301].”). EX1006, [0055]. A POSITA would have understood that the user of client 301 would make multiple content requests and may remain at the same geographical location. EX1003, ¶209. For example, Ling describes that the user requests a list of restaurants in geographic area A (the current geographic location of the device) and weather information for the same geographic area A. EX1006, [0045].

Limitation 30: “The method according to claim 1, wherein the first webpage comprises audio content, video content, or any combination thereof.”

Goldstein-Ling renders obvious this limitation. EX1003, ¶210. Goldstein discloses that the requested content may be “JPEG images” or “GIF images.” EX1005, [0038]. A POSITA would have understood that a GIF image includes animated (multi-frame) GIF images, which are video content. EX1003, ¶210. Additionally, Ling discloses that the client requests “a movie, which may be delivered as a downloadable video stream to the automobile, using the onboard Web browsing capability.” EX1006, [0052]. Ling also discloses that its devices use HTTP to communicate. *Id.*, [0064]. “The HTTP Protocol is a set of rules for transferring files (text, graphic images, *sound*, *video*, and other multi-media files) on the World Wide Web.” *Id.*

B. Ground 2 - Claims 10-13 and 23 are Obvious over Goldstein in view of Ling and RFC1122

1. RFC1122

Request for Comments (“RFC”) 1122 is titled “Requirements for Internet Hosts – Communication Layers” and provides requirements for link layer, Internet layer, and transport protocols. EX1003, ¶61. It includes a section describing various features of TCP, including the use of a “‘keep-alive’ mechanism” “[t]o confirm that an idle connection is still active.” EX1007, 102/116; EX1003, ¶63. “A ‘keep-alive’ mechanism periodically probes the other end of a connection when the connection is otherwise idle, even when there is no data to be sent.” EX1007, 102/116. “To confirm that an idle connection is still active,” some TCP “implementations send a probe segment designed to elicit a response from the peer TCP.” *Id.* “[T]he probe causes the receiver to return an acknowledgment segment, confirming that the connection is still live. If the peer has dropped the connection due to a network partition or a crash, it will respond with a RST instead of an acknowledgment segment.” *Id.*

2. Motivation to Combine

A POSITA would have been motivated to use the TCP keep-alive functionality of RFC1122 when establishing and maintaining TCP sessions. EX1003, ¶211. Both Goldstein and RFC1122 cover connecting Internet hosts over the Internet using TCP connections. EX1003, ¶211. RFC1122 describes an Internet

host as “[a] host computer, or simply ‘host,’ is the ultimate consumer of communication services.” EX1007, 6/116. Goldstein describes a system for establishing internet communication from a user to a server through a plurality of proxy servers. EX1005, [0011]. Goldstein’s Figure 3 demonstrates that web server 306, client 301, and proxy devices 303 and 305 are all interconnected over the Internet and would make use of the Internet communications services described in RFC1122. EX1003, ¶211.

A POSITA would have recognized the benefits of Goldstein’s devices exchanging TCP keep-alives with each other. *Id.* As one benefit, TCP keep-alives help detect when “a client crashes or aborts a connection during a network failure” and thus prevent server applications from “hang[ing] indefinitely and consum[ing] resources unnecessarily.” EX1006, 102/116; EX1003, ¶211. For example, following the establishment of sessions between client 301, second proxy 303, first proxy 305, and/or web server 306, as discussed for Limitation 14, one of client 301, second proxy 303, first proxy 305, or server 306 could crash. EX1003, ¶211. Without TCP keep-alives, client 301, second proxy 303, first proxy 305, and/or server 306 would unnecessarily expend resources keeping the TCP connection open. *Id.* As another independent example, a POSITA would have known that TCP keep-alives could also prevent periods of inactivity between clients from causing the TCP connection between them to terminate. *Id.*

RFC1122 does specify some potential disadvantages of TCP keep-alives, but a POSITA would have recognized that these disadvantages are outweighed by the benefits listed above. EX1003, ¶212; *see Winner Int’l Royalty Co. v. Wang*, 202 F.3d 1340, 1349 incl. n. 8 (Fed. Cir. 2000) (To assess the obviousness of a combination, “the benefits, both lost and gained, should be weighed against one another,” and “[m]otivation to combine requires” “what is, on balance, desirable.”).

3. *Modification of Goldstein and Ling in view of RFC1122*

A POSITA would have implemented Goldstein-Ling such that during sessions between client 301, second proxy 303, first proxy 305, and/or server 306, the computers would periodically communicate by exchanging TCP keep-alive messages with each other over established TCP connections. EX1003, ¶213. As explained in Sections IX.B.1 and IX.B.2, a POSITA would have recognized that the “connection” RFC1122 refers to is a TCP connection. EX1003, ¶213. In the proxy chain comprising client 301 → second proxy 303 → first proxy 305 → server 306 or the proxy chain comprising a client 301 → second proxy 303 → server 306 , second proxy 303 would periodically send client 301 and first proxy 305 and/or server 306 keep-alive messages over the TCP connections between them. *Id.* Further, in accordance with RFC1122, second proxy 303 would wait for an “acknowledgment” from client 301, first proxy 305, and/or server 306, confirming that the connection is still live. EX1007, 102/116; EX1003, ¶¶213-214.

4. *Element-by-Element Analysis*

Limitation 10[a]: “The method according to claim 9, wherein the communicating comprising: sending, a ‘keep alive’ message; and”

Goldstein-Ling-RFC1122 renders obvious this limitation. EX1003, ¶215. RFC1122 discloses a “‘keep-alive’ mechanism periodically probes the other end of a connection when the connection is otherwise idle, even when there is no data to be sent.” EX1007, 102/116. “To confirm that an idle connection is still active,” some TCP “implementations send a probe segment designed to elicit a response from the peer TCP.” *Id.* Thus, a POSITA would have understood that second proxy 303, using TCP/IP, sends a keep-alive messages to the other devices in the Goldstein-Ling-RFC1122 system. EX1003, ¶215.

Limitation 10[b]: “waiting for a response to the ‘keep alive’ message.”

Goldstein-Ling-RFC1122 renders obvious this limitation. EX1003, ¶216. As discussed above in Section IX.B.3 and for Limitation 10[a], the second proxy 301 sends keep-alive messages to client 301, first proxy 305, and/or server 306 and waits for response from each. *Id.*

Limitation 11: “The method according to claim 10, further comprising responsive to not receiving a response to the ‘keep alive’ message, removing the IP address of the non-responsive device from the group.”

Goldstein-Ling-RFC1122 renders obvious this limitation. EX1003, ¶¶217-218. Goldstein discloses that the second proxy determines whether or not the first proxy is available. EX1005, [0038] (“*if such a first proxy is unavailable*, it should be sent directly to the original server”). Thus, Goldstein discloses not using or removing the IP address of the unavailable device from the group. EX1003, ¶217.

As discussed above in Section IX.B.3 and for Limitation 10[a], second proxy 301 sends “keep alive” messages and determines based upon receipt of “an acknowledgment [from client 301 or first proxy 305] ... confirming that the connection is still live.” EX1007, 102/116; EX1003, ¶218. When a connection is “still live,” the device may be considered “currently online.” EX1003, ¶218. It would have been obvious to a POSITA that if second proxy 303 determines a connection is not active, then it may consider the session terminated and remove the IP address of the terminated device from the group of IP addresses of devices under active session. *Id.* Thus, second proxy 303 maintains a group of IP addresses whose respective clients 301 are current online. *Id.*

Limitation 12: “The method according to claim 10, wherein the sending of the ‘keep alive’ message comprises periodically sending the ‘keep alive’ message.”

Goldstein-Ling-RFC1122 renders obvious this limitation. EX1003, ¶219. As discussed above in Section IX.B.3 and for Limitation 10[a], second proxy 301 periodically sends “keep alive” messages to client 301, first proxy 305, and/or web server 306. *Id.*

Limitation 13: “The method according to claim 9, further comprising receiving a ‘keep alive’ message, by the second device, from each one of the devices out of the plurality of devices.”

Goldstein-Ling-RFC1122 renders obvious this limitation. EX1003, ¶220. As discussed above in Section IX.B.3 and for Limitation 10[a], second proxy 303 periodically sends “keep alive” messages to client 301, first proxy 305, and/or web server 306. *Id.* A POSITA would have understood that the devices to which the second proxy 301 sends “keep alive” messages respond to the message and second proxy 303 receives those responses. *Id.*

Limitation 23: “The method according to claim 1, wherein each of the IP addresses in the group is associated with a respective client device that is identified over the Internet using the respective IP address and is currently online.”

Goldstein-Ling-RFC1122 renders obvious this limitation. EX1003, ¶¶221-223. Both Goldstein and Ling disclose devices that are addressable using IP addresses. EX1005, [0034] (describing second proxy 303 as communicating with first proxy 305 using the IP address); EX1006, [0019], [0061]-[0062] (describing the use of IP addresses of the target devices). A POSITA would have understood that each of the devices in Goldstein-Ling are identified over the Internet using a respective IP address. EX1003, ¶221. For second proxy 303 to establish and maintain sessions with first proxy 305 and client 301, it would have to store the IP address corresponding to each of first proxy 305 and client 301. EX1003, ¶222. Each of the IP addresses in the claimed group is associated with a respective device (first proxy 305 and client 301). EX1003, ¶222. Additionally, client 301 meets the construction of “client device” because it is a device that communicates over the Internet and is operating in the role of a client by establishing a connection with second proxy 303 to make requests. EX1003, ¶222; Section VIII.C.1.

Goldstein discloses that the second proxy determines whether or not the first proxy is available. EX1005, [0038] (“*if such a first proxy is unavailable*, it should

be sent directly to the original server”). Additionally, as discussed above in Section IX.B.3, second proxy 303 determines based upon receipt of “an acknowledgment [from client 301 and first proxy 305] ... confirming that the connection is still live.” EX1008, 102/116; EX1003, ¶223. When a connection is “still live,” the device may be considered “currently online.” EX1003, ¶223.

X. CONCLUSION

For the above reasons, Claims 1-27 and 29-30 are invalid under § 103(a).

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Respectfully submitted,

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CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(a)(i), the undersigned certifies that this Paper—exclusive of the table of contents, mandatory notices under § 42.8, certificate of service, and this certificate of word count—includes 13,599 words.

/Eagle H. Robinson/
Eagle H. Robinson (Reg. No. 61,361)

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e) and 37 C.F.R. § 42.105(a), the undersigned certifies that on April 29, 2022, a complete copy of this Petition for *Inter Partes* Review, Petitioner's power of attorney, and all exhibits were served on Patent Owner at the correspondence addresses of record listed below by FedEx®:

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