

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

SANDPIPER CDN, LLC,
Patent Owner.

IPR2025-00826
Patent 9,021,112 B2

Before JEFFREY S. SMITH, SHEILA F. McSHANE, and
MICHAEL T. CYGAN, *Administrative Patent Judges*.

CYGAN, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

A. *Background and Summary*

Google LLC. (“Petitioner”) filed a Petition requesting an *inter partes* review of claims 1–23 of U.S. Patent No. 9,021,112 B2 (Ex. 1001, “the ’112 patent”). Paper 1 (“Pet.”). The Petition is supported by a Declaration from Dr. Todd C. Mowry. Ex. 1008 (“Mowry Declaration”). Sandpiper CDN, LLC. (“Patent Owner”) filed a Preliminary Response to the Petition. Paper 8 (“Prelim. Resp.”). Patent Owner’s Preliminary Response is supported by a Declaration of Dr. Samuel Russ. Ex. 2013 (“Russ Declaration”). The proceeding was referred to this panel by the Acting Chief Administrative Judge for determination of whether to institute trial under 35 U.S.C. § 314. Paper 14. Based on the preliminary record, we instituted an *inter partes* review of the ’112 patent. Paper 15 (“Inst. Dec.”). Patent Owner’s request for Director Review of the Institution Decision was denied. Paper 22.

Patent Owner filed a Response accompanied by a second declaration from Dr. Russ. Paper 25 (“PO Resp.”); Ex. 2018 (“2nd Russ Dec.”). Patent Owner also filed a deposition of Dr. Mowry. Ex. 2021 (“Mowry Dep.”). Petitioner filed a Reply accompanied by a second declaration from Dr. Mowry. Paper 27 (“Pet. Reply”); Ex. 1047 (“2nd Mowry Dec.”). Patent Owner filed a Sur-reply. Paper 33 (“PO Sur-reply”). We held an oral hearing on August 6, 2026, and a transcript of that hearing is included in the record. Paper 37 (“Tr.”).

B. Real Parties-in-Interest

Petitioner identifies itself as a real party-in-interest. Pet. 82. Patent Owner identifies itself as a real party-in-interest. Paper 4, 1.

C. Related Matters

The parties represent that the '112 patent is involved in *Sandpiper CDN, LLC v. Google LLC*, 2-24-cv-03951 (CDCA) May 10, 2024. Paper 4, 1; Pet. 82.

D. The '112 Patent

The '112 patent is titled “Content Request Routing and Load Balancing for Content Distribution Networks.” Ex. 1001, code (54). The '112 patent issued on April 28, 2015, from Application No. 12/050,648, filed on March 18, 2008, and is a division of U.S. Application No. 09/982,721, filed on October 18, 2001. *Id.* at codes (21), (22), (62). The '112 patent relates to “[a] content distribution mechanism that distributes content of a content provider at various sites across a network and selects the site that is nearest a content requestor using an anycast address that resides at each of the sites,” which “are configured as nodes [that] include a content server and a DNS server.” *Id.* at code (57). “The DNS servers are so associated with the content servers at their respective nodes as to resolve the name of the content provider to the IP address of the content servers at the nodes.” *Id.* “The DNS servers each are assigned the anycast address in addition to a unique address.” *Id.*

E. Illustrative Claim

Claim 1 is representative of claims 1–12, and recites as follows:¹

¹ Bracketed organization added as per the Petition. Pet. viii.

1. [1p] A method of content delivery in a network, the method comprising:

[1a] (A) providing a plurality of Domain Name System (DNS) servers associated with a Content Delivery Network (CDN), said plurality of CDN DNS servers sharing a common anycast address, wherein each CDN DNS server is associated with a respective plurality of content servers;

[1b] (B) causing said plurality of CDN DNS servers to be authoritative for a hostname associated with a content provider by causing said common anycast address to be associated with said hostname;

[1c] (C) responsive to a request for content associated with the content provider and issued by a client, said request including at least said hostname,

[1d] (cl) causing said hostname to be resolved to said common anycast address by an Internet Service Provider (ISP) DNS server; and then

[1e] (c2) by one of said plurality of CDN DNS servers, resolving said hostname to identify an IP address for use by the client to retrieve the content from a content server.

Ex. 1001, 8:63–9:18.

Claim 13 is illustrative of claims 13–23, and recites as follows:²

13. [13p] A method of content delivery for delivering content on behalf of a plurality of content providers, the method comprising:

[13a] (A) providing a plurality of Domain Name System (DNS) servers, said plurality of DNS servers sharing a common anycast address, wherein each DNS server is associated with a respective plurality of content servers;

[13b] (B) configuring each DNS server and respective plurality of content servers to support content delivery for a plurality of content providers, wherein each of the plurality of

² Bracketed organization added as per the Petition. Pet. x–xi.

content providers has a respective hostname associated therewith;

[13c] (C1) responsive to a first request for first content associated with a first content provider of said plurality of content providers, said first request including at least a first hostname associated with the first content provider,

[13d] (c11) by a first DNS server of said plurality of DNS servers, resolving said first hostname to identify a first IP address to be used for retrieval of the first content from a first content server of said content servers associated with said first DNS server;

[13e] (c12) by a switch associated with said resolving DNS server of step (c11), selecting the first content server from said respective plurality of content servers associated with the DNS server of step (c11); and

[13f] (c13) attempting to serve said first content from the first content server; and

[13g] (C2) responsive to a second request for said first content associated with said first content provider of said plurality of content providers, said second request including at least the first hostname associated with the first content provider,

[13h] (c21) by a second DNS server of said plurality of DNS servers, resolving said first hostname to identify a second IP address for retrieval of the first content from a content server associated with the second DNS server;

[13i] (c22) by a switch associated with said resolving DNS server of step (c21), selecting the second content server from said respective plurality of content servers associated with the DNS server of step (c21); and

[13j] (c23) attempting to serve said second content from the second content server.

Id. at 9:54–10:30.

F. Evidence

Petitioner relies on the following patent document evidence.

Name	Patent Document	Exhibit
Glines et al. “Glines”	WO 01/39470 A1, May 31, 2001	1002 ³
Gupta et al. “Gupta”	US 6,405,252 B1, June 11, 2002	1003
Chung et al. “Chung”	US 6,470,389 B1, Oct. 22, 2002	1004
Chiou et al. “Chiou”	US 6,792,507 B2, Sept. 14, 2004	1005
Colby et al. “Colby”	US 6,006,264, Dec. 21, 1999	1006

G. Prior Art and Asserted Grounds

Petitioner asserts that claims 1–23, including independent claims 1, 13, 18, 19, 21, 22, and 23 would have been unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–8, 10–23	103(a) ⁴	Glines
1–8, 10–23	103(a)	Glines, Gupta
4	103(a)	Glines, Chung
4	103(a)	Glines, Gupta, Chung
7–9, 19, 20	103(a)	Glines, Chiou
7–9, 19, 20	103(a)	Glines, Gupta, Chiou
10–22	103(a)	Glines, Colby
10–22	103(a)	Glines, Gupta, Colby
19, 20	103(a)	Glines, Chiou, Colby
19, 20	103(a)	Glines, Gupta, Chiou, Colby

³ We vary from our typical practice of referring to the page number of the Exhibit and instead refer to the page number of the underlying document, to match the usage of the parties and prevent confusion.

⁴ We apply pre-AIA 35 U.S.C. § 103(a) to the '112 patent because it was filed before March 16, 2013. Ex. 1001, codes (22), (62); Pet. 6.

II. ANALYSIS

A. *Legal Standards*

A claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, “would have been obvious at the time the invention was made to a person having ordinary skill in the art [to which said subject matter pertains].” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of non-obviousness.⁵ See *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. *Level of Ordinary Skill in the Art*

Petitioner asserts that a person of ordinary skill in the art (“POSITA”) at the critical time “would have had at least a bachelor’s degree in computer science, electrical engineering, or a related field, and at least two years of work or research experience in the field of content delivery management or networks,” and that “additional education could substitute for work experience.” Pet. 3 (citing Ex. 1008 ¶¶ 51–53). Patent Owner provides substantially the same assessment. PO Resp. 16. We adopt Petitioner’s proposed level of ordinary skill, as it appears to be consistent with the specification of the ’112 patent and the prior art of record.

⁵ Neither party presents evidence or arguments regarding objective evidence of non-obviousness.

C. Claim Construction

In an *inter partes* review, we construe a patent claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b).” 37 C.F.R. § 42.100(b). Under this standard, the words of a claim generally are given their “ordinary and customary meaning,” which is the meaning the term would have to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc).

Neither party proposes any express claim construction. Pet. 3; PO Resp. 16. We address the parties’ interpretation of the scope of “causing said hostname to be resolved” in our discussion of Petitioner’s assertions for limitation [1.d]. Based on the record before us, we determine that no claim term requires express construction.

D. Obviousness of claims 1–8 and 10–12 over Glines

Petitioner asserts that claims 1–8 and 10–12 are unpatentable under 35 U.S.C. § 103 as obvious over Glines. Pet. 7. Patent Owner argues against this assertion. PO Resp. 23.

1. Glines

Glines is titled “Optimal Request Routing by Exploiting Packet Routers Topology Information.” Ex. 1002, code (54). Glines relates to a “technique for redirecting client computer requests for content files to the closest replica of the requested content, by using anycast messaging.” *Id.*, code (57). A request to resolve a domain name is forwarded to a group of network-distributed name servers, and the closest name server responds to

the anycast message by returning a unique network address for the content server that is topologically closest to the client computer. *Id.*

2. *Analysis of Claim 1*

We begin our analysis of Petitioner’s obviousness contentions with Petitioner’s assertions as to claim 1.

[1p] A method of content delivery in a network, the method comprising: [1a] (A) providing a plurality of Domain Name System (DNS) servers associated with a Content Delivery Network (CDN), said plurality of CDN DNS servers sharing a common anycast address, wherein each CDN DNS server is associated with a respective plurality of content servers; [1b] (B) causing said plurality of CDN DNS servers to be authoritative for a hostname associated with a content provider by causing said common anycast address to be associated with said hostname; [1c] (C) responsive to a request for content associated with the content provider and issued by a client, said request including at least said hostname,

Patent Owner does not contest Petitioner’s assertions as to limitations [1p]–[1c]. PO Resp. 23–29. Petitioner asserts that these limitations are taught by Glines’s redirection of client requests for content to the closest replica of requested content by anycast messaging, through internet network 30, content delivery network DNS servers 53 sharing anycast address 50.100.20.1 and each attached to multiple content servers 51, wherein each of DNS 53 is authoritative for its hostname “example.com,” and root DNS server 38 returns the anycast address and provides a content server IP address so that the user may retrieve the requested content. Pet. 8–19 (citing Ex. 1008, 1:4–2:3, 6:8–15, 7:1–8, 11:1–12, 12:24–13:2, 13:9–14, 14:17–15:4, 16:15–17:2, 17:20–19:6; Ex. 1008 ¶¶ 75–96, 119–140). We have reviewed Petitioner’s assertions relating to limitations [1p]–[1c] and find them supported by the record. Pet. 17–19.

Id. at 21. Annotated Figure 1 highlights local DNS resolver 18, connected to user's computer 12 and internet 30, which is connected to a TLD Name Server 38, and DNS servers 52-1 through 53-3.

Patent Owner contests Petitioner's assertions as to limitation [1d]. PO Resp. 24–27. Patent Owner argues, “[t]he Petition identifies Glines's local resolver 18 as the claimed ‘*ISP DNS Server*’ but relies on the behavior of root DNS server 38 to teach the function of resolving of the hostname recited by [1d].” *Id.* at 25. Patent Owner points to Petitioner's reliance on root server 38 to return the anycast address; i.e., to perform the claimed resolution of the hostname to the anycast address. *Id.* (citing Pet. 20–21). Patent Owner argues that Petitioner has shown that Glines's root server 38, not Glines's local DNS resolver 18, performs the claimed resolving function. *Id.* Patent Owner argues that the failure to show that Glines's local resolver 18 performs the claimed resolving function causes Petitioner's assertions to fail to show that limitation [1d] is taught. *Id.*

In our Institution Decision, we agreed with Patent Owner that

[b]ecause Glines's local resolver 18 does not resolve a hostname to a common anycast address, it does not teach limitation [1d] regardless of whether it is an ISP DNS server, or if it would have been obvious for it to be an ISP DNS server that “perform[s] the same functions as Glines ascribes to local DNS resolver 18.” Pet. 22–23. Therefore, Petitioner has not shown an entity in Glines that is an ISP DNS server that resolves a hostname to a common anycast address.

Inst. Dec. 11–12.

In Petitioner's Reply, Petitioner argues that the claim language requires “**causing** said hostname to be resolved” by the ISP DNS server, and

not that the ISP DNS server need resolve the hostname itself. Pet. Reply 3. Petitioner points to '112 patent's use of an ISP DNS server to support its interpretation. *Id.* Petitioner argues that in the '112 patent, ISP DNS server 70a sends a request to the ABCD DNS server 4, which returns the anycast address of the CDN nodes back to the ISP DNS server. *Id.* (citing Ex. 1001, 7:2–9, Fig. 5). Petitioner further points to discussion in the '112 patent of “conventional” Web transactions in which the ISP DNS server relies upon DNS servers to resolve the hostname for the ISP DNS server. *Id.* at 4–7. Petitioner argues that these descriptions in the '112 patent indicate that “causing said hostname to be resolved” would be understood as having a plain meaning encompassing an ISP DNS server using other DNS servers in resolving a hostname. *Id.* at 7.

Patent Owner replies, arguing that the architecture of the '112 patent is distinguishable from that of Glines. PO Sur-reply 7. Specifically, Patent Owner states that because “DNS server 70a in the '112 patent directly queries ‘the ABCD DNS server 64 ([]DNS Req 94), which returns the anycast address,’” “DNS server 70a is directly involved in performing the step of ‘*causing said hostname to be resolved to said common anycast address,*’ by at least determining the DNS resolution path and initiating performance of that task.” *Id.*

The '112 patent description supports this interpretation, stating:

That is, the end-user station (acting as a content requestor) sends a request to the local DNS server 70a (“DNS Req 92”) [ISP DNS server]. That server 70a resolves the name, *ultimately* by sending a request to the CDN DNS anycast address. The DNS server 70a sends a request to the ABCD DNS server 64 (“DNS Req 94”), which returns the anycast address of the CDN nodes 76 to the requesting DNS server 70a (DNS Resp 96).

Ex. 1001 7:2–9.

However, this is the same manner of DNS resolution ascribed by both parties to Glines. Glines's ISP DNS server 18 causes a hostname to be resolved by directly querying Glines's server 38. Because Patent Owner admits it is sufficient that a server may cause a hostname to be resolved by "directly quer[ying]" a second server, the record supports Petitioner's assertion that Glines causes a hostname to be resolved to said common anycast address.⁶ *See* PO Sur-reply 7.

Patent Owner also argues that the Reply's arguments amount to a new theory of unpatentability. PO Sur-reply 5–6. Patent Owner argues that the Petitioner relies on DNS server 38, not DNS resolver 18, for performing element [1.d].

We do not agree. The Petition states that Glines discloses that the anycast is resolved by an ISP DNS server. Pet. 20. The Petition identifies Glines's local ISP DNS resolver 18 as the claimed ISP DNS server. *Id.* The Petitioner further asserts that Glines's ISP DNS resolver 18 sends the request to the DNS server 38, but states that "Glines's local DNS resolver, an ISP DNS server, thus causes the hostname . . . to be resolved." *Id.* at 21–22. The Petition also drew an analogy with the '112 patent and the role of local DNS server 70a in the Petition. *See* Pet. 20–21. Because the Petition and the Reply both identify Glines's local ISP DNS resolver 18 as causing the hostname to be resolved, Petitioner has not advanced a new theory of unpatentability in its Reply.

⁶ At oral argument, Patent Owner suggested a narrower claim reading, but admitted that this had not been briefed. Tr. 36:15–38:9, 44:9–16. We do not address this reading because it was not set forth in the briefing. In the briefing, Patent Owner took the broader reading discussed here. *See* Tr. 41:12–23; PO Sur-reply 7.

[1e] and then (c2) by one of said plurality of CDN DNS servers, resolving said hostname to identify an IP address for use by the client to retrieve the content from a content server.

Petitioner asserts that Glines teaches this limitation by, after receiving the common anycast address, CDN DNS name server 53 “will then respond by reporting the unique IP address of its associated replica content server 51,’ thus resolving the hostname to identify an IP address for use by the client to retrieve the content from a content server as claimed.” Pet. 25–26 (citing Ex. 1002, 15:6–16:2).

Patent Owner does not specifically contest this assertion. PO Resp. 23. Petitioner’s assertion is supported by Glines. Glines describes name server 53 as a DNS name server that “report[s] the unique IP address” of the content server that is used by the browser to retrieve the requested file. Ex. 1002, Fig. 1, 15:6–16:8.

For the above described reasons, Petitioner has shown, by a preponderance of the evidence, that claim 1 would have been obvious over Glines.

3. Analysis of claims 2–8 and 10–12

Claims 2–8 and 10–12 depend from claim 1, and are rejected over Glines. Pet. 26–39. Patent Owner does not separately contest these rejections. *See* PO Resp. 23. We have reviewed Petitioner’s assertions for each of these claims. With respect to claims 2 and 3, Petitioner asserts that Glines’s DNS server-adjacent router connections of networks teach the claimed network point of presences). Pet. 26–30. With respect to claim 4, Petitioner points to Glines’s teaching that associated name and content servers may share a cluster address. *Id.* at 31–32. With respect to claim 5,

Petitioner points to its assertions for claims 3 and 4. *Id.* at 32–33. With respect to claim 6, Petitioner points to Glines’s content server returning the requesting file. *Id.* at 33–34. With respect to claim 7, Petitioner asserts that Glines’s system confirms content is available before returning it, and that a person having ordinary skill in the art would have understood the benefits of obtaining unavailable content. *Id.* at 34.⁷ With respect to claim 8, Petitioner asserts that Glines’s content provider “example” provides content from “www.example.com,” thereby associating the content provider with an origin server. With respect to claim 10, Petitioner asserts that Glines describes a load balancing policy to select a content server within a service group. *Id.* at 38. With respect to claims 11 and 12, Petitioner points to the level 4 switch in Glines as an option for selecting a content server within a service group in accordance with a load balancing policy. *Id.* at 38–39.

Patent Owner does not contest these further limitations of claims 2–8, 10, and 12. Patent Owner contests the switch limitation of claim 11; we address this *infra*, finding Petitioner’s assertions to be persuasive. *Infra* § II.E.2.

⁷ The Institution Decision questioned Petitioner’s support for this assertion. Inst. Dec. 18–19 (addressing identical reasoning for claim 19). Neither party addressed this issue. However, Patent Owner describes Glines in a manner conceptually consistent with Petitioner’s characterization; i.e., that a determination that content is unavailable would prompt obtaining that content. PO Resp. 19 (citing Ex. 1002, 14:8–12 (“If the content is not available locally, ‘a request to resolve the location of ‘example.com’ is then sent to a root DNS server 38,’ which ‘will be recursively worked through multiple root servers associated with the Internet 30 (not shown in FIG. 1) to resolve the IP address for a DNS server authoritative for the requested domain name.’”))).

We determine that each of these assertions are supported by the trial record, and determine that Petitioner has shown, by a preponderance of the evidence, that each of claims 2–8 and 10–12 would have been obvious over Glines on the complete trial record.

E. Obviousness of claims 13–23 over Glines

Petitioner asserts that claims 13–23 are obvious over Glines. Pet. 1. Patent Owner provides two primary arguments against Petitioner’s assertions that claims 13–23 are obvious over Glines. We begin by addressing these arguments, and then turn to analysis of the remaining limitations of each claim.

1. “a plurality of content providers” (claims 13–18, 22, and 23)

Each of claims 13 (limitations [13b], [13c], [13g]), 18 (limitations [18p], [18b], [18e]), 22 (limitations [22b], [22e]), and 23 (limitations [23b], [23c], [23e]) recite a “plurality of content providers.” Ex. 1001, 9:61–65, 10:42–49, 12:7–11, 12:25–39. Claims 14–17 depend from claim 13, and therefore also require that limitation. Ex. 1001, 10:31–40. Patent Owner argues that Glines has not been shown to teach this limitation. PO Resp. 36–41. The parties’ analysis focuses primarily on claim 13, and we begin there.

a) Claim 13: “to support content delivery for a plurality of content providers, wherein each of the plurality of content providers has a respective hostname associated therewith”

With respect to claim 13, Petitioner states, “Glines expressly discloses that its system may be used with either a ‘single provider’ or ‘multiple providers,’ and thus discloses content delivery on behalf of a *plurality* of content providers, as claimed.” Pet. 40 (citing Ex. 1002, 17:3–9; Ex. 1008 ¶¶ 258–261). Although Petitioner refers to limitation [1b] for teachings

relating to [13b], the Petition provides assertions concerning a plurality of content providers in addressing claim 13's preamble [13.p]. Pet. 39–40. Specifically, Petitioner asserts, “[a] POSITA would have understood Glines’s disclosure of providing content from an origin source would have included supporting more than one origin source (e.g., more than one website or content provider).” Pet. 40 (citing Ex. 1002, 12:11–22, 13:21–14:3; Ex. 1008 ¶ 262). Petitioner compares Glines’s use of “www.example.com” and the ’112 patent’s use of “www.abcd.com” as both referring to a “placeholder that is representative of one or more hostnames that may be serviced” by the systems. Pet. Reply 13–14 (citing Ex. 1002, 13:21–14:3; Ex. 1001, 3:24–54; Ex. 1008 ¶¶ 22–23, 120–121). Petitioner points to evidence in the art that content delivery networks were known in the art to provide content from many content providers. *Id.* at 14. Petitioner further asserts that it would have been obvious to have added content providers as a repetition of an existing element. *Id.* at 15 (citing *B/E Aerospace, Inc. v. C&D Zodiac, Inc.*, 962 F.3d 1373, 1380 (Fed. Cir. 2020)).

(1) The Petition explains how Glines teaches a plurality of content providers

Patent Owner first argues that Petitioner does not provide any argument as to how the prior art teaches a plurality of content providers. PO Resp. 37. Patent Owner points to Petitioner’s tables that refer to its analysis of limitation [1b], which does not recite a plurality of content providers. *Id.* at 38 (citing Pet. 41, 48, 54). Patent Owner argues that Glines is relied on for a singular content provider; e.g., www.example.com. *Id.* (citing Ex. 1002, 6:23–7:13, 13:15–15:10); *see* Ex. 1008 ¶¶ 120 (“Glines discloses ‘www.example.com[]’ as an exemplary hostname associated with a content provider”), 124.

Patent Owner’s argument that the Petition provides no such argument is unavailing because Petitioner has provided explanations in its discussion of the preamble of claim 13, as discussed above. Pet. 40; Pet. Reply 13. When read in context, we find that the Petition’s statement, “[a] POSITA would have understood Glines’s disclosure of providing content from an origin source would have included supporting more than one origin source (e.g., more than one website or content provider)” applies to the claim as a whole. Pet. 40 (citing Ex. 1002, 12:11–22, 13:21–14:3).

Patent Owner further argues that the Petition does not explain how a person of ordinary skill in the art would have understood Glines’s description of a single website, www.example.com, to include additional content providers. PO Resp. 38. Patent Owner argues that Petitioner’s evidence as to how CDNs operate is untethered to Glines, because Glines uses “replica content servers,” not multiple content providers. PO Sur-reply 19. Patent Owner argues that Dr. Russ’s testimony on this point has not been addressed by Petitioner.

Petitioner’s showing as to “a plurality of content providers” is persuasive. In the ’112 patent, the term “content provider” is equated to a company. Ex. 1001, 3:10–12 (“a fictitious company ‘ABCD’ is used as an example of a content provider having a Web site on a network.”). The content provider provides content, such as Web pages, that may be stored on a computer system. *Id.* at 3:18–19 (“The Web server 12 is a computer system containing content (e.g., Web pages) for a content provider”). The computer system is connected to a DNS system that resolves hostnames for the company’s content stored on that computer. *Id.* at 3:21–30 (“the DNS system 14 for the company ‘ABCD’ would have information for host names ending in ‘.abcd.com’”).

We agree with Petitioner that Glines's "www.example.com" teaches a plurality of content providers by acting as an example representing actual content providers, in the same manner as "abcd.com" acts as a stand in for the individual company host names in the '112 patent. Pet. Reply 13; Ex. 1001, 3:61–62 ("in the example, 'www.abcd.com'"). Dr. Mowry's deposition testimony is also consistent with the '112 patent's description of an example host name representing multiple content providers, stating,

if I have a business that is a content delivery network business, I have customers. So I want to provide content for, say, ESPN.com, or CNN.com. So in that example, those things are different content providers. So in the '112 Patent, it is -- their example is ABCD.com, I think. Yeah. That's just a stand in name for a content provider.

Ex. 2021, 87:7–17.

Evidence from both parties on the nature of a CDN further supports Petitioner's interpretation of Glines's example (www.example.com) representing a plurality of content providers. Dr. Mowry attests that Glines describes a CDN. Ex. 1008 ¶ 84 ("Glines's computer network 10, including internetwork 30, local area network 14, and name server local area networks, is a Content Delivery Network (CDN)."). Dr. Russ does not contest Dr. Mowry's testimony that Glines is a CDN. *See* Ex. 2013. Dr. Russ attests that CDNs "enable content providers to quickly deliver online content." Ex. 2013 ¶ 26 (describing an "Overview of the State of the Art").

To the extent that Patent Owner raises the question of whether CDN evidence is relevant to Glines's teaching (PO Sur-reply 19), there is also evidence that Glines's anycast addressing exists in the context of multiple content providers. Glines uses anycast addressing. Ex. 1002, code (57) ("A technique for redirecting client computer requests for content files to the

closest replica of the requested content, by using anycast messaging.”). Evidence relied upon by Dr. Russ indicates that anycast routing is used in the context of multiple content servers. Ex. 2017 (“How Anycast Works”), 4 (discussing the benefits of anycast and providing an example of a user searching for content from www.venicegazette.com and then www.dailyplanet.com).

Based upon the entirety of the trial evidence, we determine that Petitioner has sufficiently shown that Glines, by describing “www.example.com,” teaches multiple content providers as set forth in claim 13.

(2) Petitioner has not provided a new basis for its obviousness theory

Patent Owner further argues that Petitioner has improperly shifted theories from the Petition. PO Sur-reply 18. Patent Owner argues that the Petition only cited to a single passage in Glines as teaching of multiple providers, and that such description of “multiple providers” in Glines does not refer to content providers, as required by the claims, but instead to network providers. PO Resp. 38–39 (citing Ex. 1002, 17:3–14). In its Sur-reply, Patent Owner notes that Petitioner has “abandoned this theory in its Reply” and instead, relies on “a new passage of Glines discussing name servers.” PO Sur-reply 18.

We determine that Petitioner’s Reply argument is not newly presented. We agree with Patent Owner that the context of “multiple providers” in Glines does not sufficiently indicate content providers rather than network providers. However, the Petition referenced not only Glines’s “multiple providers,” but also other disclosures of Glines in asserting that Glines taught multiple content providers. Pet. 40. The Petition states, “[a]

POSITA would have understood Glines’s disclosure of providing content from an origin source would have included supporting more than one origin source (e.g., more than one website or content provider).” *Id.* (citing Ex. 1002, 12:11–22, 13:21–14:3). This is the same argument being made in the Reply. In the Reply, Petitioner describes Glines’s use of “www.example.com” and the ’112 patent’s use of “www.abcd.com” as both referring to a “placeholder that is representative of one or more hostnames that may be serviced” by the systems. Pet. Reply 13–14 (citing Ex. 1002, 13:21–14:3). Because both the Petition and Reply cite to the same section of Glines for the same assertion, that Glines would be understood to provide content from more than one content provider, the Reply has further explained its assertions in the Petition, not introduced a new argument.

(3) *Petitioner’s “replication” argument*

Patent Owner further argues that Petitioner has not shown how such replication of additional content providers would occur. PO Resp. 38. Patent Owner argues that Glines only teaches a single content provider, and that the Petition’s “replication” assertion is unsupported by the record. *Id.* at 39–40. Patent Owner characterizes Dr. Mowry’s testimony on this issue as conclusory, and failing to fill the gaps of the Petition. *Id.* at 40. Patent Owner argues that Petitioner has not shown how modifying Glines to provide content from multiple providers would operate or how it would achieve expected results. PO Sur-reply 19.

Because we have determined that Petitioner has sufficiently shown that Glines’s description of an example content provider teaches the use of multiple content providers, we need not address Petitioner’s alternate contention that replication of a single content provider would have been

obvious over the knowledge in the prior art. We note that for limitation [13g] (“responsive to a second request”), Petitioner relies on (1) the term “requests” in Glines and (2) the same “repeating a process” argument made in [13p]. Ex. 1008 ¶ 294. Patent Owner has not argued that Glines does not teach the “second request” limitation of [13g]. PO Resp.; PO Sur-reply. We determine that at least the plural status of “requests” in Glines sufficiently teaches the second request set forth in [13g].

b) Claims 18, 22, and 23

Petitioner’s assertions for the “plurality of content providers” limitation of claims 18, 22, and 23 refer back to its assertions for claim 13. Pet. 48 (citing to Petitioner’s assertions for limitations [13p] and [13b]), 53 (citing to Petitioner’s assertions for limitation [13p]), 54 (citing to Petitioner’s assertions for limitations [13p] and [13b]). Patent Owner contests that Glines teaches a plurality of content providers for the same reasons as argued for claim 13. PO Resp. 36–41; PO Sur-reply 16. Consequently, we disagree with Patent Owner’s arguments for the same reasons set forth above with respect to claim 13.

2. *“by a switch . . . selecting the first content server from [a] plurality of content servers associated with the DNS server” (Claims 13–22)*

Claim 13 recites, “by a switch associated with said resolving DNS server of step (c11), selecting the first content server from said respective plurality of content servers associated with the DNS server of step (c11).” Ex. 1001, 10:8–11. Claim 18 recites, “at least one switch associated with each set of content servers. . . [that] is operable to perform load balancing to select the content server from the set of content servers associated with the

resolving DNS.” *Id.* at 10:53–67. Claims 19 (limitation [19f]), 21, and 22 recite similar limitations.

Petitioner, referring to its assertions for claim 11, asserts that “Glines describes a Layer 4 switch used for ‘standard load balancing’ among multiple content servers to apply a load balancing policy and select a content server.” Pet. 38–39 (referring to Ex. 1002, 19:10-16), 41–42, 44–45. Petitioner states, “it would have been obvious [] to manage more than one request [in Glines,] including [managing] multiple requests for the same or different content” using different DNS servers. Pet. 43–44 (citing Limitation [13h]; Ex. 1008 ¶¶ 306–314).

Glines, at the section cited by Petitioner, states,

Requests get delivered to the DNS server at the anycast address purely by the topological closeness of the requesting clients.

However, within the service group, standard load balancing and replication techniques can also apply, such as multiple content servers (returning multiple local IP addresses to a name lookup), layer 4 switches, etc. Multiple DNS servers within the group all listening to the anycast address would also be possible.

Load balancing across service groups requires an additional mechanism. Using a relatively standard approach, the DNS server in the service group can advertise a load metric to other service groups, and it can measure the load of the local content servers. When local load reached some watermark, it can load shed to content servers in other service groups by returning their IP address to name lookups coming at the anycast address.

Ex. 1002, 19:11–22.

Petitioner’s declarant Dr. Mowry attests that Layer 4 switches distribute load across many servers. Ex. 1008 ¶ 243 (citing Exs. 1017, 1026). Dr. Mowry describes Level 4 switches as balancing load across

server hosts by “providing a mapping from a single host name to multiple IP addresses.” *Id.* (citing Ex. 1026, 2–3). Dr. Mowry provides an example in which Glines’s name server 53 responds with the “unique IP address of its associate replica content server 51” having the requested content. *Id.* ¶ 250 (citing Ex. 1002, 15:26–16:2). Dr. Mowry further attests that Glines describes a service group as “a peered name server 53 and its content servers 51”; i.e., having multiple servers within a service group. *Id.* ¶ 251 (citing Ex. 1002, 18:17–19 as describing “content servers ‘in the service group’”).

We determine that Glines supports Petitioner’s assertion that a service group may contain multiple content servers with a single name server. For example, Glines states that when a DNS host fails, but the content servers in the service group are functioning, clients who have resolved the service name into a local IP address would continue to get service. Ex. 1002, 18:12–19. Because the service group may contain multiple content servers, Glines’s description of standard load balancing techniques applies to the content servers within that service group. *Id.* at 19:13–15.

Patent Owner argues that Glines refers to a Layer 4 switch, but does not teach that it is used to “*select the content server from said respective plurality of content servers.*” PO Resp. 44. Patent Owner argues that such load balancing is accomplished by returning multiple local IP addresses to a name lookup, which. PO Resp. 45 (citing Ex. 1002, 19:13–16; Ex. 2018 ¶ 81). However, Glines describes this as one of two alternative methods of load balancing, with the other being “layer 4 switches.” Ex. 1002, 19:13–16. Although Dr. Russ attests that using the name lookup approach would be sufficient, that does not negate Glines’s alternative teaching of a layer 4 switch. Ex. 2018 ¶ 81. Thus, we determine that Petitioner has persuasively

shown that Glines describes layer 4 switches as a method for selecting a content server within a service group.

Patent Owner argues that Glines separately teaches load balancing within a service group and the use of a layer 4 switch. PO Resp. 46; PO Sur-reply 22 (citing Ex. 2018 ¶¶ 80, 82). However, Glines explicitly describes the use of a layer 4 switch as part of its load balancing “within the service group.” Ex. 1002, 19:13–20.

Consequently, we determine that Glines teaches the “switch” limitations of claims 13–22.

3. *Claims 13–22*

Petitioner asserts that limitations [13a]–[13f] are taught by Glines in the same manner as limitations [1a]–[1c], [1e], and claims 6 ([13f]) and 11 ([13e]). Pet. 41–42. Petitioner further asserts that limitation [13g] is taught by Glines’s description of client “*requests*”; i.e., that Glines teaches a client making a second request for content. Pet. 42 (citing Ex. 1002, 6:13–15, 9:9–17, 10:5–12). Petitioner asserts that such requests would be expected to include requests for the same or different content, and that the content may be provided at different times and to different users. *Id.* (citing Ex. 1008 ¶¶ 294–295). Regarding limitation [13h], Petitioner points to dependent claim 15 that specifies both DNS servers are the same server, and asserts that Glines’s “requests” teaches that limitation under that interpretation, which is encompassed by limitation [13h] as a parent claim to claim 15. *Id.* at 43. Petitioner further asserts that where the DNS servers are different, that interpretation is taught by Glines’s anycast resolution, in which both DNS servers share the same anycast address and respond by identifying its associated content server 51. *Id.* at 44 (citing Ex. 1002, 14:17–16:8; Ex.

1008 ¶ 306). We have previously addressed limitations [13p] (plurality of content providers) and [13i] (switch). *Supra* §§ II.E.1–2. Petitioner asserts that claims 14–17 would have been obvious over Glines for the same reasons set forth with respect to claims 10, 11, and 13. Pet. 47–48.

Petitioner asserts that claim 18 would have been obvious over Glines for the same reasons set forth with respect to claims 6, 10, 11 and 13. Pet. 48–49.

With respect to claim 19, Petitioner asserts limitations [19p]–[19h] would have been obvious over Glines for the same reasons as asserted for claims 1, 2, 6, 7, and 11. Pet. 50–51. Petitioner asserts that the additional limitations of dependent claim 20 would have been obvious over Glines for the additional reasons provided in Petitioner’s assertions against claims 10, 12, and 14. *Id.* at 51–52. Petitioner asserts that claims 21 and 22 would have been obvious over Glines for the same reasons provided for claims 1, 11, and 13. *Id.* at 52–54.

Patent Owner does not contest Petitioner’s assertions for claims 13–22, except as to the switch and plurality of content providers limitations, which we have addressed. *Supra* § II.E.1–2. We have reviewed Petitioner’s assertions for each of these claims, and determine that Petitioner has shown, by a preponderance of the evidence, that each would have been obvious over Glines on the complete trial record.

4. *Claim 23*

We have addressed Patent Owner’s arguments against Petitioner’s assertion that Glines teaches “a plurality of content providers,” and determined that Petitioner sufficiently shows Glines to teach that limitation. *Supra* § II.D.4. Patent Owner also argues that Glines does not teach

limitation [23e], “a second request for second content associated with a second content provider.” PO Resp. 29 (emphasis omitted).

Petitioner asserts that limitation 23[e] is taught by Glines because “[r]epeating Glines’s resolution process for the same or different content was an obvious and expected implementation of Glines [including] providing a user content at different times, or content to different users.” Pet. 57. Petitioner further points to Glines’s providing content to “client requests.” *Id.* (citing Ex. 1002, 6:3–15). Petitioner points to Glines’s “exemplary request for content via ‘http://www.example.com/homepage.html,’” and argues that such resolution of actual requests would require no modification of Glines to implement. *Id.* (citing Ex. 1008 ¶¶ 463–465). Petitioner presents an example of a first request for Yahoo! News for the first content of the Yahoo! News homepage, and a second request for the second content of an article linked to that homepage yet associated with Reuters, a second content provider. Pet. 54–56 (citing Exs. 1024, 1025).

Patent Owner first argues that the Yahoo! News example does not show that Reuters is a second content provider because a content provider is the entity displaying content on its web page; in this example, Yahoo! News. PO Resp. 29–34 (“Yahoo! News is the entity having the Web site on the network— not Reuters. . . . That Yahoo! News displays as part of the Web page an article seemingly authored by Reuters is immaterial.”) (citing Ex. 2018 ¶ 66; Ex. 2021, 92:20–93:15). However, the content provider described in the ’112 patent is a company, not a Web site. Ex. 1001, 2:60–63 (“‘Content provider’ refers to an entity [that] . . . produces the content for the Web site.”). The ’112 patent states that the content provider entity “may operate a Web server system or may use the services of a hosting provider.”

Ex. 1001, 2:60–63. Such description indicates that a content provider entity need not operate its own Web server system. Thus, Reuters may be a content provider even though Yahoo News provides the Web site on the network, so long as Reuters is the entity that provides the content for that Web site. Thus, we agree with Petitioner’s assertion that Reuters is a second content provider.

Patent Owner next argues that Petitioner has not shown that the Yahoo! News/Reuters evidence establishes the state of the general knowledge in the art at the relevant time. PO Resp. 35. Dr. Mowry attests that Yahoo! News “by 2001 was in widespread use.” Ex. 1047 ¶ 30 (citing Exs. 1042, 1043, 1046); Ex. 1008 ¶ 449. Dr. Mowry further attests that known content at that time “includes content associated with content providers Yahoo! News and Reuters.” Ex. 1047 ¶ 33 (citing Ex. 1008 ¶¶ 446–553, 459–65). Patent Owner acknowledges this evidence without arguing that such evidence is insufficient to show the state of general knowledge in the art at the relevant time. PO Sur-reply 14–15. Instead, Patent Owner alleges that this evidence is improperly submitted in the Reply. *Id.* We disagree with this conclusory allegation, because Dr. Mowry’s original declaration set forth testimony that Yahoo! News was known in the art at the relevant time, and Dr. Mowry’s Reply declaration provides supporting evidence to address Patent Owner’s argument that insufficient evidence supported that testimony. Ex. 1008 ¶ 449; PO Resp. 35. Based on the entirety of the trial record, we determine that Yahoo! News, an example of news aggregator websites, was part of the general knowledge in the art at the relevant time.

Patent Owner argues that there is no showing that the claimed “*first request*” and “*second request*” were within the common knowledge of those

skilled in the art. PO Resp. 35. However, Petitioner relies on Glines’s “requests” in the plural as teaching the claimed first and second requests. Pet. 57 (citing Ex. 1002, 6:3–15, 9:9–17, 10:5–12). We agree with Petitioner that Glines, by describing *inter alia* that “client requests are automatically routed to the closest available content server,” teaches multiple requests for content. Ex. 1002, 6:3–5. Consequently, Petitioner does not rely on the general knowledge of the art for the teaching of two distinct requests.

Patent Owner further argues that general knowledge may not be used to supply a missing claim limitation. PO Resp. 36 (citing Ex. 2023, “Memorandum re Enforcement and Non-waiver of 37 C.F.R. § 42.104(b)(4) and Permissible Uses of General Knowledge in Inter Partes Reviews”). The General Knowledge Memorandum “imposes on petitioners a procedural requirement to identify in the petition where each claim element is found in the prior art patents or printed publications relied upon.” General Knowledge Memorandum, 3. The Memorandum states that “as applied in some cases, [37 C.F.R. § 42.104(b)(4)] may be narrower than 35 U.S.C. § 311(b).” *Id.* However, this Memorandum is applicable only to IPR petitions “filed on or after September 1, 2025.” Because the instant IPR petition was filed on April 15, 2025 (Paper 5, 1), the Memorandum does not control this IPR proceeding. Moreover, we determine that by setting an applicability date of “any petition for IPR filed on or after September 1, 2025” for the General Knowledge Memorandum, the Office did not intend to change the “waiv[er of] enforcement of Rule 104(b)(4)” set by prior USPTO Memoranda for petitions filed prior to September 1, 2025. *Id.* at 1 n.1, 3. We are bound by this intent and the prior USPTO Memoranda. Consequently, we maintain the currently existing waiver of 37 C.F.R.

§ 42.104(b)(4) recognized by the General Knowledge Memorandum, and do not rely on its provisions in this decision.

For the above-described reasons, we determine that Petitioner has shown Glines to teach “a second request for second content associated with a second content provider” as set forth by limitation [23e].

5. *Conclusion*

In summary, Petitioner shown, by a preponderance of the evidence, that each of claims 1–8 and 10–23 would have been obvious over Glines.

F. Obviousness of claims 1–8 and 10–23 over Glines and Gupta

In this ground, Petitioner relies on Glines for the same teachings as in its Glines-only assertions, except as discussed below. Pet. 7–80. Although we have determined that Petitioner’s Glines-only assertions sufficiently show that these claims would have been obvious over Glines, we address Petitioner’s Glines-Gupta assertions over the same claims for completeness. *See* Final Written Decision Procedures for AIA Trial Proceedings, July 29, 2025, <https://www.uspto.gov/sites/default/files/documents/20250729095727582.pdf>.

1. Gupta

Gupta is titled, “Integrated Point of Presence Server Network.” Ex. 1003, code [54]. Gupta describes a network of point of presence (“POP”) servers sharing a hostname. *Id.* at code [57]. Gupta’s network includes multiple customers (customer1.com and customer2.com) connected through routers and the Internet to nameservers attached to web servers and web caches. *Id.* at Fig. 1. Gupta’s network addresses integrated load

balancing to reduce latency while providing static content to a user. *Id.* at 3:26–51.

2. *Claims 1–8 and 10–12*

a) *Limitation [1d]*

With respect to claim 1, Petitioner relies upon the teachings of Glines except as to limitation [1d]. Pet. 8–26. Claim limitation [1d] recites, “causing said hostname to be resolved to said common anycast address by an Internet Service Provider (ISP) DNS server.”

Petitioner’s alternate Gupta-based ground is based on a potential interpretation in which the local resolver 18 of Glines is not an ISP server. Pet. 22.⁸ In such an interpretation, Petitioner asserts that it would have been obvious to use Gupta’s client DNS server, part of ISP 60, instead of Glines’s local DNS resolver 18. Pet. 22. Petitioner asserts that such a modified server would “perform the same functions as Glines ascribes to local DNS resolver 18,” that is, “resolving a host name into an IP address.” Pet. 23–24. Petitioner further asserts that such a combination “would not alter the features of Glines discussed elsewhere in this petition.” *Id.* at 25.

Patent Owner argues that even so, the functions of DNS resolver 18 do not include causing the resolution of the hostname to the anycast address. PO Resp. 28. Patent Owner states that in such a combination, Petitioner relies on “‘root DNS server 38’ for that purpose.” *Id.* (citing Pet. 20–21).

As discussed *supra*, Glines’s ISP DNS server 18 causes a hostname to be resolved by directly querying Glines’s server 38. *Supra* § II.D.2. In the asserted combination, the (for purposes of this ground, non-ISP) DNS server

⁸ Patent Owner does not, in fact, argue that Glines’s local resolver 18 is not an ISP server. PO Resp. 26–27.

18 of Glines would be replaced by an ISP server performing the same functions but as an ISP. Pet. 23. Petitioner's combination does not displace root server 38 as performing the anycast resolution. Gupta's lack of anycast resolution in its ISP server 170 does not affect the combination because anycast resolution is performed by Glines's server 38, now queried by an ISP server rather than Glines's non-ISP server 18. Consequently, Petitioner's asserted combination teaches limitation [1d].

b) Motivation to combine

Patent Owner also argues that a person having ordinary skill in the art would not have combined the teachings of Glines and Gupta. PO Resp. 47–55.

Petitioner asserts that it would have been obvious to have used an ISP server as taught by Gupta for Glines's local DNS resolver 18 (if it is not already so). Pet. 23–24. First, Petitioner contends, the use of ISP-provided DNS servers are associated with speed and efficiency because “ISP-provided DNS servers are typically located in close proximity to a user's physical location, making them faster and more efficient than more distant DNS servers.” Pet. 22 (citing Ex. 1011, 128; Ex. 1013, 5:35–54), 24 (citing same); Ex. 1008 ¶ 169. Use of an ISP-provided server would also “ensure compatibility with ‘typical’ Internet service architecture.” Pet. 24 (citing Ex. 1011, 128; Ex. 1013, 5:35–54). Petitioner asserts that such a modification would “have [been] nothing more than the simple substitution of known elements . . . to yield predictable results,” because of “the ubiquity of ISP-provided DNS servers.” *Id.* at 25 (citing Ex. 1008 ¶ 169).

Petitioner further asserts that a person having ordinary skill in the art would have found it obvious to modify Glines to use multiple WebCache

servers with each name server, as taught by Gupta. Pet. 15 (citing Ex. 1003, Fig. 1; Ex. 1008 ¶¶ 109–110). Petitioner asserts that such a combination would have been nothing more than combining known elements to yield predictable results. *Id.* at 16 (citing Ex. 1008 ¶¶ 111–118). Petitioner further asserts that using multiple WebCache servers at each name server location would enable load balancing, redundancy, and failure tolerance at these locations. *Id.* Petitioner points to Glines as suggesting such techniques and advantages. *Id.* at 13, 16.

Patent Owner argues against this reasoning. PO Resp. 50–55. Patent Owner, citing testimony of Dr. Russ, argues that Glines and Gupta disclose fundamentally different architectures and techniques for delivering content. PO Resp. 50 (citing Ex. 2018 ¶¶ 85–90). However, Petitioner does not propose importing any of Gupta’s architectures or techniques for delivering content. *See* Pet. 25 (“Combining Glines with Gupta in this way would not alter the features of Glines discussed elsewhere in this petition”). Petitioner only proposes that Glines’s DNS server be (if not already) an ISP-provided DNS server, and that its content servers be multiplied. Pet. 15, 24. Consequently, differences in Gupta’s operation, such as its use of unicast addressing, are not part of the proposed combination, and those differences do not tend to make the combination any less obvious.

Patent Owner also argues that Petitioner’s ISP reasoning is purely hindsight because it “is an aspect of the claimed feature that was distinguished over the prior art during the prosecution of the ’112 patent.” PO Resp. 50–52. Patent Owner’s argument that Petitioner reverse-engineered this motivation from the ’112 patent is unavailing because hindsight reconstruction of a claim is only impermissible when such reconstruction relies solely on the patent itself. *In re McLaughlin*, 443 F.2d

1392, 1395 (CCPA 1971). Here, Petitioner cites to evidence outside of the '112 patent and its prosecution history. Pet. 22 (citing Ex. 1011, 128; Ex. 1013, 5:35–54). The cited evidence supports Petitioner's assertions. Ex. 1011, 128 (desired proximity of ISP servers); Ex. 1013, 5:35–54 (“a POP [point-of-presence] which is geographically proximate typically results in a faster and more reliable connection with the network”). Patent Owner does not specifically contest that these are features associated with an ISP server.

Patent Owner further argues that such advantages are “decoupled from the actual behavior disclosed in Glines,” in which name server and file server are “preferably located physically near one another.” PO Resp. 52–54 (citing Ex. 2018 ¶ 86). However, Patent Owner does not explain why such proximity would tend to discourage Glines's local DNS server from being an ISP server. We note that Patent Owner does not argue that Glines's local DNS server 18 is not, itself, an ISP server. Patent Owner merely argues that such proximity is incompatible with Gupta's architecture. PO Resp. 53–54. However, as discussed above, any such incompatibility is not relevant to Petitioner's combination because it does not import any of Gupta's architecture.

Patent Owner argues that a section of the Petition labeled “Motivation to Combine Glines with Gupta,” and the cites to Dr. Mowry's declaration therein, contain no specific reasons to combine. PO Resp. 47–49. However, Patent Owner acknowledges “two additional feature-specific[] purported motivations to combine Glines and Gupta.” PO Resp. 49–50. Thus Patent Owner was clearly on notice of Petitioner's reasons to combine outside that section of the Petition.

Consequently, we determine that Petitioner has shown sufficient reason to combine Gupta's teaching of an ISP server with Glines's relied-upon teachings.

c) Conclusion

Patent Owner does not contest any other teaching of Gupta relied upon for claims 1–8 and 10–12. For the foregoing reasons, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 1–8 and 10–12 would have been obvious over the combination of Glines and Gupta.

3. Claims 13–23

In Petitioner's obviousness assertions of claims 13–23 over Glines and Gupta, Petitioner relies on Glines primarily for Gupta's teachings of a plurality of content providers, as an alternative ground should Glines not be found to teach that itself. Pet. 39. Petitioner does not rely on Gupta for the other contested "switch" limitation. PO Resp. 46.

Petitioner asserts that a person having ordinary skill in the art would have looked to Gupta's teachings of a plurality of content providers (if not taught by Glines), and combined them with the teachings of Glines. Pet. 39–41. Petitioner asserts that Gupta teaches multiple content providers, including "customer1 and customer2." *Id.* (citing Ex. 1003 7:8–20). Petitioner's assertions are supported by Gupta, which describes such customers as relating to websites, e.g., "customer1.com." Ex. 1003, 8:53–59; Ex. 1008 ¶ 266 ("'customers' --plural--can store content 'such as HTML, images, video, sound, software, or the like on the network for fast and highly available access by clients (endusers).'" (citing Ex. 1003, 2:9–17)).

Petitioner asserts that it would have been obvious to have applied Gupta's teachings to store and provide content from multiple content providers (e.g., multiple websites) as combining known element in the prior arts according to understood principles. Pet. 40–41; Ex. 1008 ¶ 267. Petitioner asserts that such a combination would “maximize the usefulness and value of Glines's system by providing Glines's service to more than one customer/content provider.” Pet. 41 (quoting Ex. 1008 ¶ 267). Petitioner further points to the similarities of the two references, stating, “both disclose DNS servers and associated content servers that are connected to a network and function together to resolve hostnames and deliver content.” *Id.* at 7 (citing Ex. 1008 ¶¶ 68–71).

Patent Owner does not dispute that this combination would teach the claim limitations. *See* PO Resp. 41–43. Nor does Patent Owner appear to contest the advantages of “maximiz[ing] the usefulness and value of Glines's system by providing Glines's service to more than one customer/content provider.” Pet. 41 (Pet. § VII.M) (citing Ex. 1008 ¶ 27). Nor does Patent Owner directly challenge Petitioner's statement that modifying Glines to store and provide content from multiple content providers would have been nothing more than combining known elements in the prior art according to understood principles, with an expectation of success. *Id.* (citing Ex. 1008 ¶ 27).

Instead, Patent Owner focuses on statements made in the Petition's general explanation of reasons to combine (Pet. § VII.A) rather than the specific Glines/Gupta combination for a plurality of content providers (Pet. § VII.M). In that section, Petitioner states that the combination “appl[ies] Gupta's use of multiple WebCache servers with each name server to Glines to yield a system with multiple content servers for each name server.” *Id.* at

8. Dr. Mowry contends that “doing so would have allowed more content to be stored in association with each name server, improving Glines’s ability to deliver content to a user via the closest name server.” Ex. 1008 ¶ 73. Patent Owner argues that providing additional storage capacity does not translate to support for multiple content providers. PO Resp. 42. Patent Owner also argues that Glines already uses multiple servers for each name server; i.e., file servers 51-3. *Id.* (citing Ex. 1002, Fig. 1).

Patent Owner’s argument is unavailing. Patent Owners’ argument concerning replacement of addressing and file server techniques with Gupta’s load balancing techniques does not address the specific combination asserted for limitation [13b]. Neither the Petition nor Dr. Mowry indicates that Gupta’s WebCache servers are part of the modification required to enable Glines to handle multiple content providers/websites. Pet. 40–41; Ex. 1008 ¶¶ 265–67. Although Dr. Russ attests that Glines and Gupta “disclose fundamentally different architectures and techniques for accomplishing content delivery,” Dr. Russ addresses only the Petition’s general “Motivation to Combine” Section (Pet. § V.A), and not the Petition’s specific rationale for modifying Glines to include multiple content providers as taught by Gupta. Ex. 2013 ¶¶ 57–63; Ex. 2018 ¶¶ 83–91. This testimony appears to address a different combination, involving load allocation, and not the rationale asserted for the multiple content providers limitations. Ex. 2018 ¶ 91 (“Therefore, it is my opinion that a POSITA would not have had reason to replace or augment Glines’s anycast addressing and peered DNS and file server techniques with Gupta’s disparate load allocation techniques.”).

In view of the foregoing, Petitioner’s assertion that modifying Glines to store and provide content from multiple content providers (multiple

websites) would have been nothing more than combining known elements in the prior art according to understood principles, with an expectation of success, is supported by the complete trial record. Consequently, we determine that Petitioner has shown persuasive reason to have combined Petitioner's relied-upon teachings of Glines and Gupta to teach a plurality of content providers as recited in claims 13, 18, 22, and 23, and through dependency, claims 14–17.

We have determined that Petitioner has shown Glines to teach the remaining limitations of claims 13–23. *Supra* § II.E. Consequently, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 13–23 would have been obvious over Glines in view of Gupta.

G. Obviousness of claim 4 over additional teachings of Chung

Petitioner asserts that claim 4, if not obvious over Glines or the combination of Glines and Gupta, would have been obvious over Glines or Glines/Gupta in view of Chung. Pet. 1. We have determined that claim 4 would have been obvious over Glines or Glines/Gupta. *Supra* §§ II.D.3, II.F.2. Patent Owner does not specifically contest Petitioner's assertions against the additional limitations of claim 4. PO Resp. 23.

Petitioner applies Chung for its teaching that hosting content on server clusters was known in the art. Pet. 60 (citing Ex. 1004, 1:15–40, 2:33–3:10). Petitioner asserts that it would have been obvious for Glines's servers, which “operate quite closely together . . . such as on a common local area network segment”), to have explicitly been a cluster, as taught by Chung. *Id.* at 60–61. We determine that this assertion, including its reason to combine Chung's cluster teaching, is supported by the trial record. Consequently, we determine that Petitioner has shown, by a preponderance of the evidence,

that claim 4 would have been obvious over Glines in view of Chung, and over the combined teachings of Glines, Gupta, and Chung.

H. Obviousness of claims 7–9, 19, and 20 over additional teachings of Chiou

Petitioner asserts that claims 7–9, 19, and 20, if not obvious over Glines or the combination of Glines and Gupta, and claim 9 not previously addressed, would have been obvious over Glines or Glines/Gupta in view of Chiou. Pet. 1. We have determined that claims 7–9, 19, and 20 would have been obvious over Glines or Glines/Gupta. *Supra* §§ II.D.3, II.E.4, II.F.2, II.G.4. Patent Owner does not specifically contest Petitioner’s assertions against the additional limitations of claim 4. PO Resp. 23.

Petitioner relies on Chiou’s teachings of “confirming the validity of available content and either serving valid available content or obtaining valid content from a ‘target’ server and serving that content.” Pet. 63 (citing Ex. 1005, 12:52–13:40, Fig. 4). Petitioner asserts that a person having ordinary skill in the art would recognize that this feature would “ensure only valid content is served and improve user experience.” *Id.* at 64 (citing Ex. 1008 ¶¶ 514–517). With respect to claim 9, Petitioner further relies on Chiou’s use of a table that is checked for unlocated or stale content, in which case, the table is used to identify the target device from which to obtain the content. *Id.* at 64–65 (citing Ex. 1005, 12:52–13:40). Petitioner asserts that the table enables a “reduced lookup time by determining the source of data directly,” thereby making “the system more robust against DNS outages, misconfigurations, or delays.” *Id.* at 66 (citing Ex. 1008 ¶¶ 529–532). We determine that this assertion, including its reason to combine Chiou’s table-based determination, is supported by the trial record. Consequently, we determine that Petitioner has shown, by a preponderance of the evidence,

that claims 7–9, 19, and 20 would have been obvious over Glines in view of Chiou, and over the combined teachings of Glines, Gupta, and Chiou.

I. Obviousness of claims 10–22 over additional teachings of Colby

Petitioner asserts that claims 10–22, if not obvious over Glines or the combination of Glines and Gupta, would have been obvious over Glines or Glines/Gupta in view of Colby. Pet. 1. We have determined that claims 10–22 would have been obvious over Glines or Glines/Gupta. *Supra* §§ II.D.3, II.F.2, II.G. Patent Owner does not specifically contest Petitioner’s assertions based upon Colby’s teachings. PO Resp. 23.

Petitioner applies Colby’s teaching of a switch, if not taught by Glines. Pet. 68. Petitioner asserts that Colby applies a switch for selecting a server from a plurality of servers to provide content to a using a load-balancing algorithm. *Id.* at 69 (citing Ex. 1006, 6:7–28, 20:1–33, Fig. 1c). Petitioner asserts that a person having ordinary skill in the art would have recognized the load distribution benefits of Colby’s switch, which selects the “best-fit” server based on load, connection count, and/or capacity. *Id.* at 68 (citing Ex. 1006, 6:7–28, 20:1–33). We determine that this assertion, including its reason to combine Colby’s switch-based server selection, is supported by the trial record. Consequently, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 10–22 would have been obvious over Glines in view of Colby, and over the combined teachings of Glines, Gupta, and Colby. We further determine, for the foregoing reasons, that Petitioner has shown, by a preponderance of the evidence, that claims 19 and 20 would have been obvious over the combined teachings of Glines, Chiou, and Colby, and over the combined teachings of Glines, Gupta, Chiou, and Colby.

III. CONCLUSION

After reviewing the record and weighing the evidence offered by both parties, we determine that Petitioner shows by a preponderance of the evidence that claims 1–23 are unpatentable.

In summary:

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–8, 10–23	103	Glines	1–8, 10–23	
1–8, 10–23	103	Glines, Gupta	1–8, 10–23	
4	103	Glines, Chung	4	
4	103	Glines, Gupta, Chung	4	
7–9, 19, 20	103	Glines, Chiou	7–9, 19, 20	
7–9, 19, 20	103	Glines, Gupta, Chiou	7–9, 19, 20	
10–22	103	Glines, Colby	10–22	
10–22	103	Glines, Gupta, Colby	10–22	
19, 20	103	Glines, Chiou, Colby	19, 20	
19, 20	103	Glines, Gupta, Chiou, Colby	19, 20	
Overall Outcome			1–23	

IV. ORDER

For the foregoing reasons, it is:

ORDERED that Petitioner has established by a preponderance of the evidence that claims 1–23 are unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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FOR PETITIONER:

Erika Arner
Kara Specht
Sydney Kestle
Cara Regan
Daniel Tucker
Alexander Boyer
William Neer
FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, LLP
erika.arner@finnegan.com
kara.specht@finnegan.com
sydney.kestle@finnegan.com
cara.regan@finnegan.com
daniel.tucker@finnegan.com
alexander.boyer@finnegan.com
willaim.neer@finnegan.com

FOR PATENT OWNER:

Jason Eisenberg
Dan Block
Kristina Kelly
Steven Pappas
STERNE, KESSLER, GOLDSTEIN & FOX PLLC
jasone-ptab@sternekessler.com
dblock-ptab@sternekessler.com
kckelly-ptab@sternekessler.com
spappas-ptab@sternekessler.com