

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Google LLC,

Petitioner,

v.

Sandpiper CDN, LLC,

Patent Owner.

Case: IPR2025-00826

U.S. Patent No. 9,021,112

Title: Content Request Routing and Load Balancing for
Content Distribution Networks

PETITIONER REPLY

TABLE OF CONTENTS

I.	Glines, alone or with Gupta, teaches and renders obvious claim 1	2
A.	Glines teaches “causing said hostname to be resolved...” under its plain meaning in view of the ’112 specification	2
B.	Glines in view of Gupta renders obvious claim 1’s “ISP” DNS “server”	11
II.	Glines, alone or combined with Gupta, renders obvious “a plurality of content providers” (claims 13, 18, 22, and 23)	13
A.	Glines discloses or at least renders obvious multiple “content providers”	13
B.	The Board correctly found that Glines in view of Gupta renders obvious “a plurality of content providers”	17
III.	Glines, alone or combined with Gupta, renders obvious “a second request for second content associated with a second content provider” (claim 23)	18
IV.	The Petition established obviousness of the claimed “switch” (claims 11, 13, 18, 19, 21, and 22)	22
V.	A POSITA would have found it obvious to combine Gupta’s teachings with Glines	24
VI.	Conclusion	28

TABLE OF AUTHORITIES

CASES	PAGE(S)
<i>Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP</i> , 616 F.3d 1249 (Fed. Cir. 2010)	8
<i>B/E Aerospace, Inc. v. C&D Zodiac, Inc.</i> , 962 F.3d 1373 (Fed. Cir. 2020)	15, 16
<i>Fleming v. Cirrus Design Corp.</i> , 28 F.4th 1214 (Fed. Cir. 2022)	21
<i>KSR Int’l Co. v. Teleflex Inc.</i> , 550 U.S. 398 (2007).....	15, 16, 21
<i>Muniauction, Inc. v. Thomson Corp.</i> , 532 F.3d 1318 (Fed. Cir. 2008)	22
<i>Palo Alto Networks, Inc. v. Centripetal Networks, LLC</i> , 122 F.4th 1378 (Fed. Cir. 2024)	12, 24, 25, 27, 28
<i>Phillips v. AWH Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2005)	8
<i>Soverain Software LLC v. Newegg Inc.</i> , 705 F.3d 1333 (Fed. Cir. 2013)	22
<i>Virtek Vision Int’l ULC v. Assembly Guidance Sys., Inc.</i> , 97 F.4th 882 (Fed. Cir. 2024)	23, 28

** All emphases added unless otherwise noted.

Petitioner's grounds establish that claims 1-23 of the '112 patent are unpatentable and the Board should issue a final written decision cancelling these claims. The primary reference in this proceeding—Glines—teaches the same “two-phase” DNS resolution process using anycast addressing that Patent Owner asserts distinguishes the claims from the prior art. *See* POR 10-11 (citing EX1007, 330), 15-16, 51; Pet. 3-4 (citing EX-1007, 86-90), 8-26. In its Response, Patent Owner misconstrues the claims, distorts Petitioner's grounds, and attacks the asserted references individually instead of addressing their combinations.

With respect to claim 1, Patent Owner attempts to rewrite the claim by ignoring its plain language and corresponding written description. Claim 1 recites “causing” resolution of a hostname, not “perform[ing] DNS resolving” or “resolv[ing]” alone. *See* POR 25-26. The '112 patent describes this as a request-and-response process to resolve the hostname to the anycast address by an ISP DNS server, which is indistinguishable from Glines's teachings.

For claims 13, 18, 22, and 23, Glines teaches and renders obvious serving content on behalf of multiple “content providers.” A POSITA would have understood this upon reading Glines—based on its disclosure and how CDNs like Glines were typically used in the art. Gupta also discloses this by serving content on behalf of various “customers,” as the Board correctly determined at institution. D.I. 23-24.

With respect to claim 23, the Petition relies on Glines for the use-case of resolving the claimed “first” and “second” content that are reachable by requests that both include “said first hostname.” Petitioner’s citation to known Internet content at the time is permissible and does not introduce evidence outside of the grounds, contrary to Patent Owner’s allegations.

Finally, as the Board correctly recognized at institution, the asserted grounds satisfy the claimed “switch” for selecting a content server (claims 11, 13, 18, 19, 21, and 22), and a POSITA would have been motivated to combine Glines and Gupta (claims 1-23). D.I. 15-19, 21-24, 25. Patent Owner’s individual attack on Glines and Gupta fails to address the proposed combination.

The Board should issue a final written decision holding claims 1-23 unpatentable.

I. Glines, alone or with Gupta, teaches and renders obvious claim 1

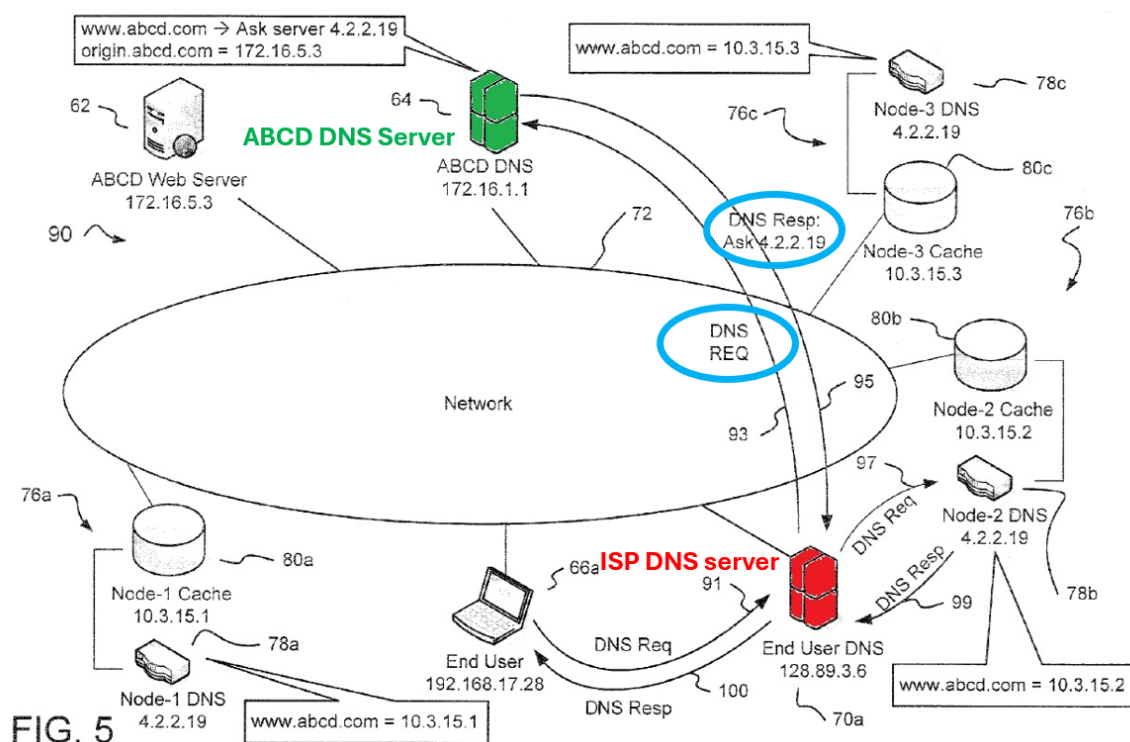
A. Glines teaches “causing said hostname to be resolved...” under its plain meaning in view of the ’112 specification

Glines teaches “causing said hostname to be resolved to said common anycast address by an [ISP] DNS server,” and Patent Owner’s contrary arguments misconstrue the claim. According to Patent Owner, claim 1 requires the ISP DNS server to alone “perform[] the resolution.” POR 25-26. This ignores the plain

language of the claim, defies the written description, and is inconsistent with how a POSITA would have understood how DNS resolution was performed in the art.

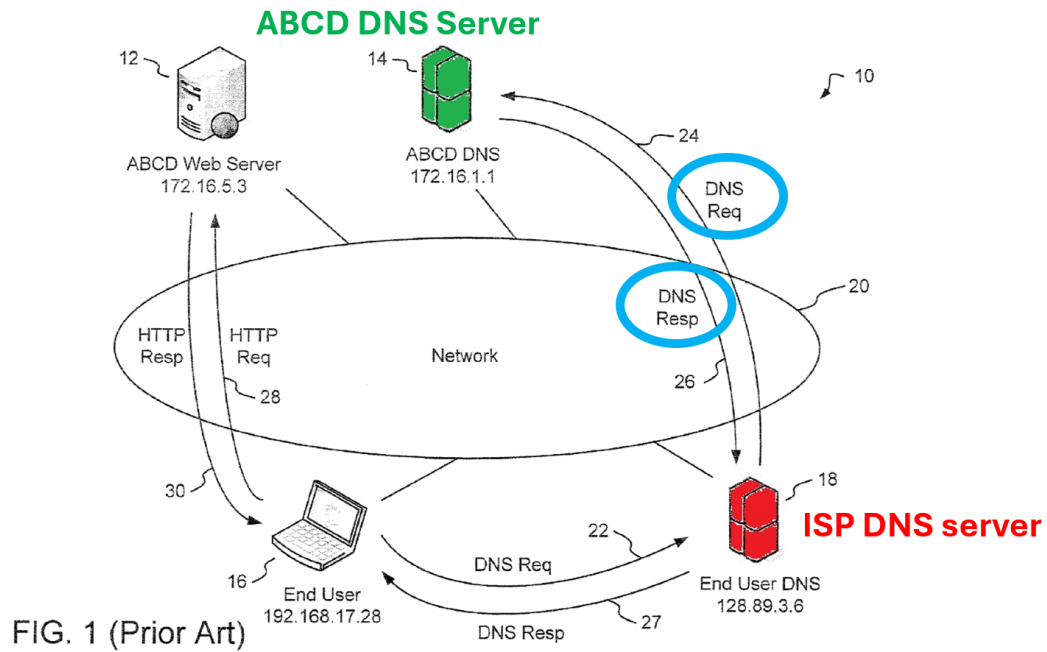
By its plain language, the claim recites “*causing* said hostname to be resolved” by the ISP DNS server. Claim 1 does not require, as Patent Owner asserts, the ISP DNS server to “perform the resolution” or to “resolve[] ‘said hostname’” itself,. *see* POR 25-26, but instead requires the ISP DNS server to “caus[e] the hostname to be resolved.” Claim 1’s “causing” resolution thus encompasses Glines’s local DNS resolver 18 receiving a request to resolve a hostname and sending a request to another server—root DNS server 38—to perform the resolution to the anycast address. Pet. 19-22; Glines, 7:1-8, 13:15-14:5; Mowry ¶¶141-146, 154-156.

The ’112 patent specification supports Petitioner’s understanding of the plain meaning. For example, the ’112 patent discloses that “the end-user station (acting as a content requestor) sends a request to the **local DNS server 70a** (“DNS Req 9[1]”).” EX-1001, 7:2-4. Instead of resolving the hostname itself, the **local DNS server 70a**—the ISP DNS server—“*sends a request* to the **ABCD DNS server 64** (‘**DNS Req 9[3]**’), which returns the anycast address of the CDN nodes 76 to the requesting **DNS server 70a** (**DNS Resp 9[5]**).” *Id.*, 7:5-9. Annotated Figure 5, below, depicts this process and shows the DNS resolution via **DNS Req. 93** and **DNS Resp. 95** between **local DNS server 70a** and **ABCD DNS server 64**:



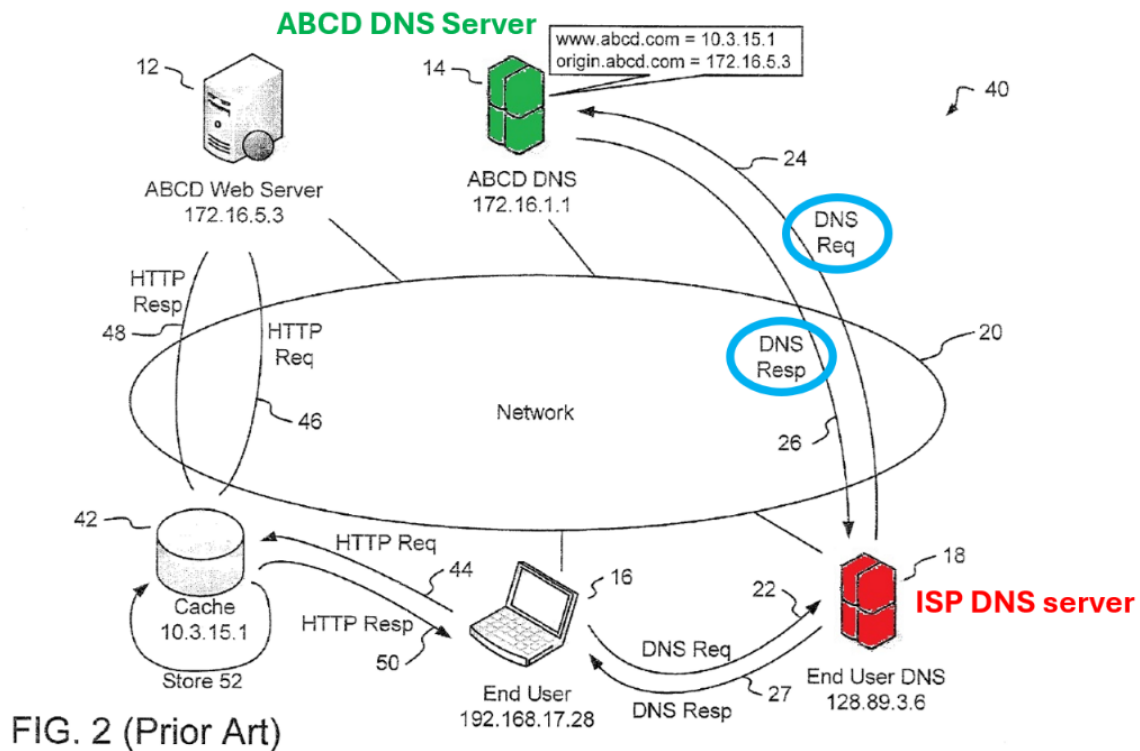
Id., Fig. 5 (annotated).

The '112 patent also acknowledges that the prior art performs this well-known DNS resolution by request-response. For example, in “conventional content delivery Web transaction[s],” an **end-user DNS system 18**—the ISP DNS server—“determines which of the DNS systems ... can resolve this host name *by sending a DNS request to the authoritative DNS system 14* (**‘DNS Req 24’**).” EX-1001, 3:13-54, 2:30-31, Fig. 1. The **authoritative DNS system 14**—not the ISP DNS server—then “resolves the name to an IP address and returns a response containing the IP address to the end-user 16 system via the end-user DNS system 18 (**‘DNS Resp 26’**).” *Id.*, 3:13-54, Fig. 1.



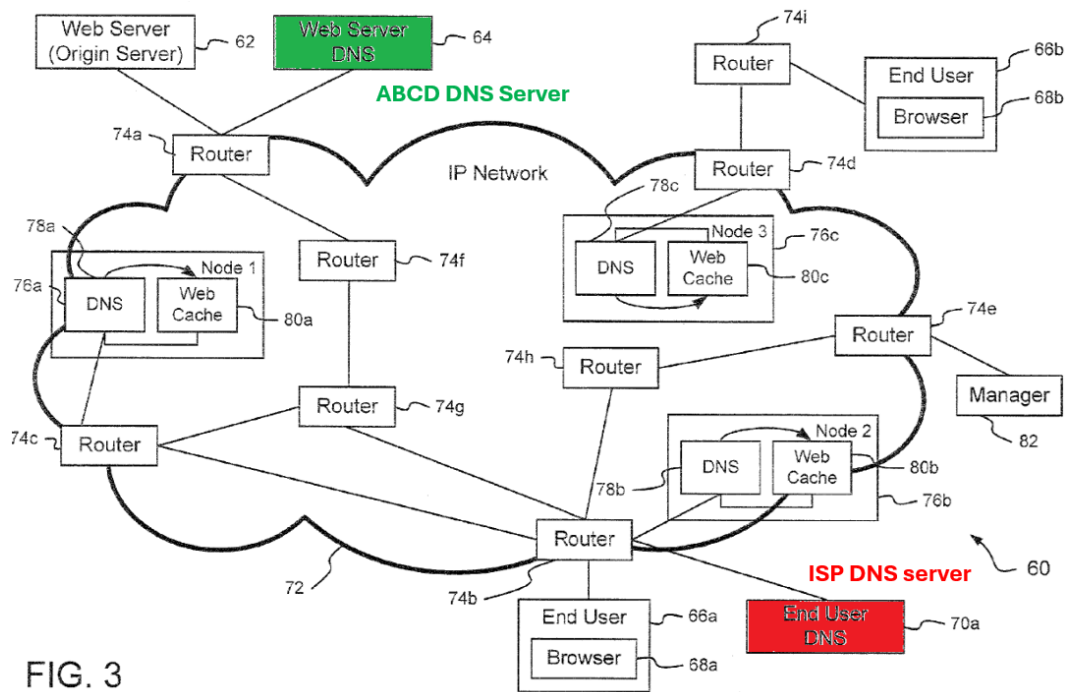
Id., Fig. 1 (annotated).

The same is true of admitted prior art “reverse proxy caching” systems. *See id.*, 3:55-4:17 (“[T]he transaction 40 is the same basic Web transaction as shown in FIG. 1,” where requests “22, 24, 26 and 27 are the same as in FIG. 1.”), Fig. 2. Again, the ’112 patent describes resolution of the hostname by a **DNS Req. 24** and **DNS Resp. 26** between **End User DNS 18** (e.g., ISP DNS server) and **authoritative DNS server 14**:



Id., Fig. 2 (annotated).

The '112 patent further acknowledges this request-response DNS resolution was commonly used in content delivery networks (CDN). *See id.*, 5:18-31, Fig. 3. Again, the **end user DNS system 70a**—the ISP DNS server—resolves a hostname by “*consult[ing]*” an authoritative DNS server (e.g., **DNS system 64**).” *Id.* Within the **DNS system 64**, an “address lookup table” is used to perform the DNS resolution. *Id.*



Id., Fig. 3 (annotated).

Petitioner's plain-meaning interpretation of claim 1's "causing" resolution is therefore consistent with the written description of the '112 patent, including description corresponding to the claimed system and admitted prior art. Tellingly, Patent Owner fails to identify *any* corresponding disclosure supporting its position that "causing" resolution requires the ISP DNS server to "perform" the resolution itself. *See* POR 25-27. This is because the '112 patent does not support Patent Owner's narrowing construction. The written description instead discloses the same process as *Glines*.

To the extent Patent Owner asserts that claim 1's "causing" is a token gerund preceding a step in the claimed method, this is wrong and unsupported by

both the claim and the written description. The applicant for the '112 patent instead intentionally claimed both direct and indirect DNS resolution in claim 1 and thus knew the distinction. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (“Differences among claims can ... be a useful guide in understanding the meaning of particular claim terms.”). Step (c2) of claim 1, for example, recites performing a resolution by the CDN DNS server when it “***resolv[es]*** said hostname to identify an IP address for use by the client to retrieve the content from a content server.” EX-1001, claim 1. In contrast, step (c1) recites “causing” resolution, which encompasses indirect resolution. *Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010) (“different terms in the claims connote[] different meanings”) (citation omitted).

The claimed distinction between “resolving” and “causing” resolution is supported by the written description, which discloses a direct DNS lookup by the CDN DNS servers corresponding to step (c2) and resolution by request-response for the ISP DNS server corresponding to step (c1). *See* EX-1001, 7:16-20 (“the DNS server 78*b* ***resolves***”), 7:5-9 (“The DNS server 70*a* ***sends a request***”).

Petitioner’s interpretation of claim 1 is therefore correct—“causing” resolution of the hostname encompasses Glines’s sending a request to another server to resolve the hostname to the anycast address. Pet. 21 (explaining that “local DNS resolver 18 sends a request to a root DNS server 38 ... [and i]n turn,

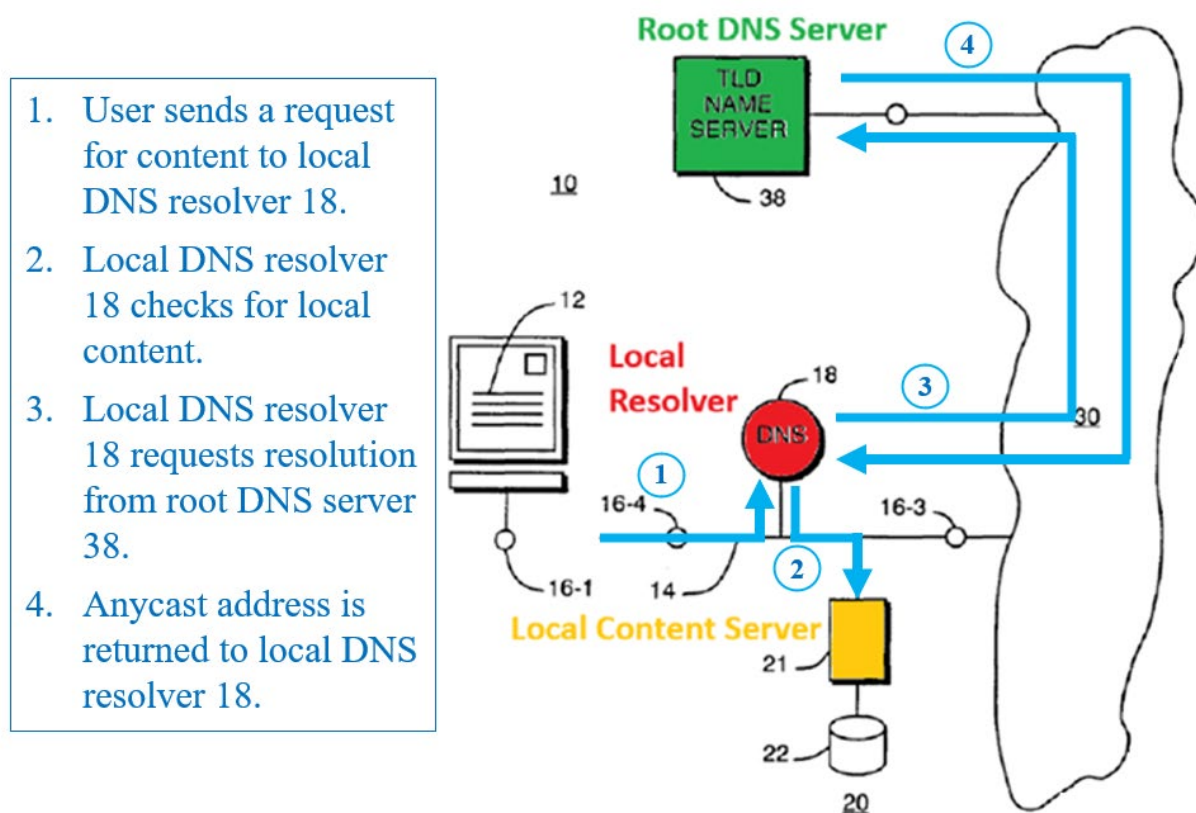
root DNS name server 38 is programmed to ... return the anycast address 50.100.20.1.”) (internal quotes omitted) (citing Glines 13:24-14:15, 7:1-7, 9:9-15, 11:24-28, EX-1008 ¶¶144, 154-156).

Removing all doubt, Petitioner’s interpretation is consistent with how a POSITA would have understood claim 1 in view of known DNS systems. EX-1008 ¶¶36-40 (ISP DNS servers typically “act as an intermediary”); EX-1047 (“Mowry Suppl.”) ¶¶5-23. Consistent with the admitted prior art, a POSITA would have understood that claim 1’s “causing” resolution encompasses DNS resolution by query. Mowry Suppl. ¶¶5-23. That is, ISP DNS servers typically operated as middlemen in the DNS resolution process, first searching locally for the answer and then sending queries to other servers, including authoritative name servers, to perform a DNS lookup. *Id.* Several intermediate requests may be involved before reaching the server ultimately performing the DNS lookup and returning an IP address. *Id.*

Therefore, properly construed, Glines discloses the claimed “causing” resolution of the hostname to the anycast address. *See* Pet. 20-22 (citing Glines, 13:24-14:12, 11:24-28, 7:1-7, 9:9-15; EX-1008 ¶¶154-156); *see also* Pet. 17 (citing Glines, 7:1-8, 14:13-25). A user first sends a request to resolve a hostname to **local DNS resolver 18**—the claimed ISP DNS server. Pet. 20-22; *see also* Glines, 13:15-14:5. If the content is not available locally, **local DNS resolver 18** sends a

request to **root DNS server 38** to resolve the domain. Pet. 20-22; Glines, 14:8-25.

In response, **root DNS server 38** is programmed to return an anycast address to the **local DNS resolver 18**. Pet. 20-22; Glines, 14:8-25. This process is depicted below in annotated Figure 1:



Glines, Fig. 1 (annotated and cropped).

Glines is therefore indistinguishable from claim 1, *see* Pet. 20-22, 17; Glines, 7:1-8, 13:21-14:25; Mowry ¶¶141-146, and the '112 patent's disclosed embodiments, *see* EX-1001, 7:2-9, 3:35-44, 4:1-2, 5:21-31, Figs. 1-5. Patent Owner's position, by contrast, is at odds with the plain language of the claim, its

corresponding written description, admitted prior art, and a POSITA's understanding of the claim. *See* POR 25-26. The Board's contrary findings at institution were preliminary and nonbinding. *Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1068 (Fed. Cir. 2016). Based on a more complete record, the Board should find Glines satisfies this feature. *Id.* ("The Board is free to change its view of the merits after further development of the record, and *should do so* if convinced its initial inclinations were wrong.") (emphasis in original).

B. Glines in view of Gupta renders obvious claim 1's "ISP" DNS "server"

Contrary to Patent Owner's arguments, Petitioner does not rely on Gupta to cure any deficiencies in Glines's anycast resolution process. *See* POR 27-29; Pet. 22-25. Therefore, Patent Owner's contention that "Gupta does not teach use of anycast addressing" and that "Gupta's client DNS server does not resolve a hostname to an anycast address" are irrelevant to the Glines-Gupta combination. *See* POR 27-28. Instead, Glines retains its anycast resolution functionality in the proposed combination. *See* Pet. 23-25.

As explained, if Glines's local DNS resolver 18 is found not to teach or render obvious an "ISP" DNS "server," it would have been obvious to implement Glines's local DNS resolver 18 as an ISP DNS server based on the teachings of Gupta. Pet. 20-25; Mowry ¶¶147-169. The combined system would otherwise

implement the functionality of Glines’s local DNS resolver 18, which, as explained above, causes resolution of the hostname to the anycast address. *See* Pet. 23 (“The modified Glines’s ISP DNS server would perform the same functions as Glines ascribes to local DNS resolver 18”), 25 (“Combining Glines with Gupta in this way would not alter the features of Glines discussed elsewhere in this petition.”).

Patent Owner’s contention that Gupta lacks “anycast addressing” is an irrelevant attack on Gupta that fails to address the Glines-Gupta combination. *Palo Alto Networks, Inc. v. Centripetal Networks, LLC*, 122 F.4th 1378, 1386 (Fed. Cir. 2024) (individual attacks on prior art lack merit because “the Board must consider whether the particular combination argued by the Petitioner ... would meet the claim limitations at issue.”). The Board dismissed similar arguments at institution. *See* D.I. 23 (finding “Patent Owners’ argument ... does not address the specific combination asserted for limitation [13b].”). Glines’s local DNS resolver 18, implemented as an ISP server as taught by Gupta, renders claim 1 obvious. *See* Pet. 23-25; Mowry ¶¶164-169.

Patent Owner is also wrong that “Petitioner does not rely on Glines’s local DNS resolver 18 for performing the resolution recited in element [1d].” *See* POR 27-28. As explained above (*see* Section I.A), Glines’s local DNS resolver 18 performs the claimed “causing” resolution and this functionality remains in the combination. Pet. 19-22 (“Glines’s local DNS resolver, an ISP DNS server, thus

causes the hostname entered as part of the URL to be resolved to the name servers' common anycast address, as claimed.") (citing Glines, 13:21-15:4, 7:1-7; EX-1008 ¶¶141-156). Glines-Gupta therefore renders claim 1 obvious.

II. Glines, alone or combined with Gupta, renders obvious "a plurality of content providers" (claims 13, 18, 22, and 23)

A. Glines discloses or at least renders obvious multiple "content providers"

Patent Owner is wrong that Petitioner presents "no theory" as to Glines's system serving content on behalf of "a plurality of content providers." *See* POR 37-38. To the contrary, Petitioner asserted that Glines discloses this feature or at least renders it obvious. Pet. 39-41; *see also id.*, 53 (asserting "Glines expressly discloses" this feature, or, in the alternative, "adding additional content providers would have been obvious.")).

For example, the Petition explains that a POSITA would have understood Glines's system to serve content, represented as "www.example.com," associated with one or more content providers. Pet. 39-40 ("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)." (citing Glines, 12:11-22, 13:21-14:3; EX-1008 ¶¶262-263)). This is consistent with the '112 patent's "www.abcd.com" as an exemplary hostname. *See id.* (citing Glines, 13:21-14:3; EX-1008 ¶¶262-263); *see also* Pet. 16

(citing Glines, 6:23-7:13, 13:15-15:10; EX-1001, 3:24-54; EX-1008 ¶¶119-124). Glines’s “www.example.com” placeholder is representative of one or more hostnames that may be serviced by Glines’s system. *See* Pet. 39-40; EX-1008 ¶¶120-121.

Indeed, delivering content on behalf of more than one content provider is how content delivery networks of the type disclosed in Glines were known to operate in the art. Mowry Suppl. ¶¶24-28. For example, a POSITA would have readily appreciated that a CDN of the type disclosed in Glines would have been intended and designed to provide content from many content providers because that is their typical business model. *Id.* (citing EX-1018, 3:46-4:60). Patent Owner’s own evidence supports this understanding. *See* EX-2016 at 3-4 (identifying use of CDNs to support multiple content providers, including Reuters, Hulu, King, and others). So do Patent Owner’s own patents: “[t]hose of skill in the art will know and understand, ... , that a CDN can support one or more subscribers, i.e., that a CDN can function as a shared infrastructure supporting numerous subscribers.” EX-1048, 4:19-31. Patent Owner’s expert does not assert otherwise but instead concedes the point: that CDN servers replicate “content from *customers*’ origin servers.” *See, e.g.*, EX-2018 ¶28.

While Patent Owner asserts that Glines’s “providers” are not “content providers,” *see* POR 38-39, Glines discloses delivering content associated with

multiple “domains” that confirms Petitioner’s assertion that “[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).” *See* Pet. 40. For example, Glines discloses that “[e]ach name server [] advertises itself as being authoritative for ***the domains*** associated with the [stored] content files.” Glines, 6:11-15. Each name server 53 may also be “an authoritative DNS resolver ***for domain names*** associated with the [stored] replica content files.” *Id.*, 13:11-13. A POSITA reading Glines therefore would have understood that it serves one or more content providers. *See* Pet. 39-40.

Alternatively, adding content from more than one content provider would have been an obvious modification of Glines. *See* Pet. 40 (citing *B/E Aerospace, Inc. v. C&D Zodiac, Inc.*, 962 F.3d 1373, 1380 (Fed. Cir. 2020); *id.*, 53 (“adding additional content providers would have been obvious.”). The Federal Circuit in *B/E Aerospace*, for example, affirmed a finding of obviousness for a “second recess” where the prior art only taught a “first recess,” holding that mere duplication of a disclosed feature “was nothing more than the predictable application of known technology.” 962 F.3d at 1379 (citing *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007)). Doing so only “involve[d] repetition of an existing element” with a known “benefit of doing so.” *Id.*, 1379-80.

B/E Aerospace’s holding applies here. Adding more origin servers and content providers (and thus content from multiple content providers) to Glines “would have been nothing more than replicating Glines’s teaching of storing and providing content associated with one origin server, with predictable results.” Pet. 40 (citing EX-1008 ¶263). Just like *B/E Aerospace*, a POSITA would have readily understood the benefit of the modification, including “enabl[ing] Glines’s system to support more (and different) content to fulfill user requests.” *Id.*

The Petition and Dr. Mowry identified how such replication would occur and what the results would be, contrary to Patent Owner’s arguments and the Board’s preliminary findings at institution. *See* POR 39-40; DI, 14-15. Petitioner explained that the modified Glines system would “support[] more than one origin source (e.g., more than one website or content provider)” by storing and providing associated content in content servers near users—the same way Glines discloses storing all of its deliverable content. Pet. 40; Mowry ¶¶262-263. This would have been an obvious and trivial modification requiring the storage of additional content and providing that content on request, as Glines already discloses. *KSR*, 550 U.S. at 421 (“A person of ordinary skill is [] a person of ordinary creativity, not an automaton.”). Glines therefore discloses or at least renders obvious “a plurality of content providers” as recited in claim 13.

With respect to this feature in claims 13, 18, and 23, Patent Owner is wrong that “Petitioner refers to its analysis of element [1b] with no further explanation.” POR 38. Where these claims recite multiple “content providers,” Petitioner cross-cited correctly to Element [13p], which provides the analysis of a “plurality of content providers.” *See* Pet. 48 (Element [18p] cross-citing to Element [13p]), 54 (Element [23p] cross-citing to Element [13p]). The Board agreed at institution and found that “Petitioner’s assertions for claims 18 and 23 refer back to its assertions for claim 13.” D.I. 13.

B. The Board correctly found that Glines in view of Gupta renders obvious “a plurality of content providers”

Patent Owner incorrectly asserts that Petitioner did not provide an explanation as to “how the [Glines-Gupta] combination would operate” or “why a POSITA would have had a reasonable expectation of success in combining [Gupta].” POR 41. This is wrong.

Petitioner explained that Gupta discloses hosting content from “more than one specific customer,” including “customer1 and customer2,” and that it would have been obvious to apply these teachings to Glines’s system. Pet. 40-41 (citing Gupta, 7:8-20, 8:53-59; EX-1008 ¶¶264-267). Petitioner also explained why hosting this additional content in Glines’s system, as taught by Gupta, would have been obvious: to “store[] and provide[] content from multiple content providers

(e.g., multiple websites, etc.)” and to “maximize the usefulness and value of Glines’s system.” *Id.* The Board credited this “advantage” at institution and found it “supported in the record[] and by Petitioner’s reasoned explanation.” D.I. 23.

Patent Owner’s additional arguments for Gupta lack merit. POR 41-42. Petitioner does not rely on Gupta’s multiple WebCache servers alone to teach a “plurality of content providers” and thus, Patent Owner’s arguments are irrelevant to this aspect of claim 13. *See* D.I. 23-24. Again, Petitioner explained that the functionality of Glines would be unaltered when combined with Gupta. Pet. 23, 25. For example, Glines would continue to provide content from content servers located nearby requesting users and deliver that content using anycast addressing. *See id.* The available content would include content from one or more content providers (e.g., Gupta’s “customers”) in the combined system. *See id.*

Glines in view of Gupta therefore renders obvious the “plurality” of content providers in claims 13, 18, 22, and 23.

III. Glines, alone or combined with Gupta, renders obvious “a second request for second content associated with a second content provider” (claim 23)

Claim 23 recites two requests for content, one for “first content associated with a first content provider” and another for “second content associated with a second content provider.” Claim 23 further recites both requests including the same “first hostname.” This represents nothing more than an exemplary use case of

Glines where the requested content is “associated with” two different content providers that are reachable by the same hostname (e.g., by two different URLs that include “said first hostname”). Glines, alone or combined with Gupta, renders this obvious “based on Internet content as of the priority date,” including known news websites like Yahoo! News that aggregate content from various sources. Pet. 54-58.

Patent Owner is wrong that Petitioner identifies first and second content “from the same ‘content provider.’” *See* POR 29-36. Instead, consistent with the language of claim 23, Petitioner identifies content “associated with” different content providers based on requests having a common hostname. *See* Pet. 54-58. As explained, the Yahoo! News splash page is the first content “associated with” Yahoo! News. *Id.* The second content is a news article “associated with” Reuters, the second content provider. *Id.* Nothing in Petitioner’s analysis treats different claim elements as the same. *See* POR 31-34. Nor does viewing this content via Yahoo! News’s website conflict with claim 23.

Patent Owner’s attempt at claim differentiation fails to prove otherwise. *See* POR 32 (referencing claim 13). Petitioner does not assert that claim 23 is satisfied by “the same content from the same content provider,” as in claim 13. *See id.* Petitioner instead identifies different content “associated with” different content

providers, where this content is accessible via requests that “includ[e]” the same “first hostname,” as recited in claim 23. Pet. 54-58.

Patent Owner’s contention that the claimed “content provider” must refer to “an entity having a Web site on a network” does not disturb Petitioner’s analysis. *See* POR 33-34. The first and second content identified in the Petition are “associated with” content providers that both “hav[e] a Web site on a network.” *See* EX-1024; EX-1025. Patent Owner’s own evidence confirms this. For example, Dr. Russ identifies evidence describing content from Reuter’s website—the second content provider. *See* EX-2016, 3 (identifying CDN customer website and content provider Reuters). The Reuters link in EX-2016 (*see id.* (linking to Ex. 1045)) explains that Reuters “creates and distributes content” over the Internet, making it a “content provider.” Ex. 1045 at 1; *see also* EX-1043 at 122 (“[A]ll the famous news agencies (Press Association, Reuters etc.) also boast comprehensive Internet services.”). So is Yahoo! News. Pet. 55 (citing EX-1008 ¶449). POSITAs were aware of these websites in the art as of the critical date. Mowry Suppl. ¶¶29-34.

Patent Owner next asserts that Petitioner uses “general knowledge ... to supply a missing claim limitation,” but this is wrong. *See* POR 35-36. The Petition instead relies on known, exemplary content to “demonstrate the knowledge of a person having ordinary skill in the art” in compliance with the Director’s memorandum of July 31, 2025. *See* EX-2023. Exhibits 1024 and 1025 do not form

the basis of Petitioner’s patentability challenge. *See id.*; POR 35. Petitioner instead asserts grounds based on Glines, which discloses how exemplary content was delivered via anycast addressing in the prior art. Pet. 54-58. Petitioner properly relied on a POSITA’s knowledge to inform how Glines’s disclosure of “www.example.com” would have been understood in the art based on known content providers at the time. *See id.* This is an acceptable use of a POSITA’s knowledge. *See* Pet 55 (citing EX-1008 ¶¶ 450-451; Glines, 6:23-7:24, 13:15-15:10).

Any differences between claim 23 and Glines amount to nothing more than “the predictable use of prior art elements according to their established functions.” *KSR*, 550 U.S. at 401; *Fleming v. Cirrus Design Corp.*, 28 F.4th 1214, 1222 (Fed. Cir. 2022). The ’112 patent itself describes prior art systems as serving Internet content to users and places no limitation on the specific URLs or content providers queried by the user. *See* EX-1001, 1:28-35, 3:13-4:17, Figs. 1, 2. Neither does Glines. Instead, as described above, Glines discloses serving content via the placeholder www.example.com. Glines at 6:11-15, 6:23-7:13, 13:11-13, 13:15-15:10; *see also id.*, 9:18-21. Resolving the specific content of claim 23 is nothing more than specifying a “particular web site,” as Glines contemplates. *See id.*, 9:18-21. As explained in the Petition, this amounts to “nothing more than applying the art in understood ways to resolve particular content,” “combining

known content available via the Internet,” and an application that would have “required no modifications of Glines or Gupta to implement.” Pet. 54-57.

The Board should therefore find claim 23 obvious as nothing more than the use of known technology to retrieve Internet content of a particular type with predictable results. *See Muniauction, Inc. v. Thomson Corp.*, 532 F.3d 1318, 1326 (Fed. Cir. 2008) (“[T]he internet and web browser technology” were well known as of 1998); *Soverain Software LLC v. Newegg Inc.*, 705 F.3d 1333, 1344 (Fed. Cir. 2013) (“[Patent Owner] did not invent the Internet, or hypertext, or the URL”; instead, “use of hypertext to communicate [specific information] was a routine incorporation of Internet technology into existing processes.”), *amended on reh’g on other grounds*, 728 F.3d 1332 (Fed. Cir. 2013).

IV. The Petition established obviousness of the claimed “switch” (claims 11, 13, 18, 19, 21, and 22)

The Board correctly credited Petitioner’s analysis demonstrating Glines discloses the claimed “switch,” including use of “layer 4 switches as a method for selecting a content server within a service group.” D.I. 15-19, 25.

Arguing otherwise, Patent Owner asserts that Glines’s Layer 4 switch does not “select the content server.” POR 43-46. According to Patent Owner, Glines instead “return[s] multiple local IP addresses to a name lookup.” *Id.*, 45. This is wrong. As the Board found, Glines’s returning multiple local IP addresses is “one

of two alternative methods of load balancing, with the other being ‘layer 4 switches.’” D.I. 17 (citing Ex. 1002, 19:13-16).

Patent Owner further argues against the express teachings of Glines by asserting that “Glines has no need to cause the disclosed Layer 4 switch to ‘*select*’ the content server” because it teaches replication. *See* POR 45. But Glines discloses both replication *and* load balancing techniques, where load balancing by selecting a content server is accomplished by the layer 4 switch. *See, e.g.*, Pet. 12, 31-32, 38-39; Glines, 19:13-15. Glines’s replication does not disturb its alternative use a switch to select an appropriate content server.

The additional combination of Colby with Glines and Glines-Gupta further satisfies the claimed “switch.” Pet. 68-80. Patent Owner pays lip service to this combination and merely asserts that Glines “do[es] not require the use of an additional switch.” POR 46. Colby discloses both a switch and using the switch to select content servers. Pet. 68-80. It would have been obvious to combine Colby’s functionality with Glines—to the extent Glines does not teach or render this obvious alone—for the reasons provided in the Petition. *Id.* This is so even if Glines’s load balancing “do[es] not require the use of an additional switch,” as Patent Owner contends. *See* POR 46; *see* Pet. 68-80.

Patent Owner’s reliance on *Virtek Vision* fails because Petitioner never argued that mere knowledge of “two alternative arrangements” in the art would

have made it obvious to modify Glines with Colby. *See* POR 46. On this point, Patent Owner does not confront the reasons Petitioner provided for combining Colby with Glines. *See* Pet. 68-69.

The Board should find claims 11, 13, 18, 19, 21, and 22 unpatentable as obvious.

V. A POSITA would have found it obvious to combine Gupta’s teachings with Glines

Patent Owner’s “vastly disparate” arguments amount to more individual attacks that fail to undermine obviousness. *See* POR 47; *see also id.*, 52-55. As noted above, the Board rejected identical arguments for other claim elements at institution because they “do[] not address the specific combination asserted.” D.I. 23. The Board correctly understood that not all aspects of Gupta are incorporated into Glines in the proposed combination. *See id.* Patent Owner’s arguments therefore fail as a matter of law. *Palo Alto*, 122 F.4th at 1386.

Isolating Section VII.A. of the Petition, Patent Owner asserts that Petitioner failed to provide “a single reason” to combine Glines and Gupta. *See* POR 47-48 (citing Pet. 7-8). But Patent Owner acknowledges Petitioner articulated its reasoning throughout the Petition and the Board “credited” Petitioner’s rationale for applying Gupta’s multiple-content-server teachings to Glines. *See* POR 49-50;

see Pet. 14-16, 23-25 (citing Gupta at 4:45-51, 5:65-6:9; EX-1011, 128; EX-1013, 5:35-54; EX-1008 ¶¶164-169).

Addressing these rationales, Patent Owner alleges “impermissible hindsight.” *See* POR 50. In doing so, Patent Owner repeats its “fundamentally different architectures” argument that, as explained above, is irrelevant to the combination. *See* Section I.B; *Palo Alto*, 122 F.4th at 1386. The asserted combination applies Gupta’s use of multiple content servers with each DNS server and an “ISP” DNS “server” to Glines. *See* POR 50; Pet. 14-16, 23-25.¹

Patent Owner next asserts that Petitioner’s rationales piggyback on statements made during prosecution. *See* POR 50-51. This is wrong. Petitioner explained that Glines itself discloses or at least suggests that its local DNS resolver 18 is an ISP DNS server by disclosing that its user is associated with an “Internet Service Provider (ISP).” Pet. 21 (citing Glines, 13:24-14:12, 11:24-28; EX-1008 ¶¶154-156). Petitioner additionally explained that residential users typically access the Internet via an ISP and an ISP DNS server, and that “[t]o the extent Glines does

¹ By asserting that “Glines already discloses ... a system with multiple file servers for each name server (e.g., file servers 51-3 associated with name server 53-3),” Patent Owner concedes that Glines alone teaches the claimed “where each CDN DNS server is associated with a respective plurality of content servers.” POR 49.

not expressly disclose this feature (it does),” Glines in view of Gupta does. Pet. 20-21, 22-25.

That the ’112 applicant distinguished different prior art that did not teach or suggest using anycast addressing from an ISP DNS server does not transform Petitioner’s analysis into hindsight. Petitioner instead relied on the teachings of the asserted references and known methods of accessing the Internet. As explained, substituting Glines’s local resolver 18 for Gupta’s ISP DNS server would have been nothing more than the simple substitution of known elements according to understood principles to yield predictable results and “ensure[d] compatibility with ‘typical’ Internet service architecture.” Pet. 24-25; *see also id.* at 8 (citing EX-1008 ¶¶73-74).

Patent Owner next asserts Petitioner’s motivation to combine Gupta is “decoupled from the actual behavior disclosed in Glines.” *See* POR 52-53. To the extent Patent Owner asserts that Petitioner proposes implementing Glines’s local resolver 18 to resolve content in the way Gupta discloses, Patent Owner is mistaken. Again, Glines’s anycast resolution process remains in the Glines-Gupta combination.

Patent Owner next asserts, incorrectly, that “Glines’s local resolver 18 functions as a cache” and therefore Gupta’s ISP DNS server would not be an obvious substitute. *See* POR 53. Glines expressly discloses its local resolver 18 is a

“local **DNS** resolver 18.” *See* Glines, 11:24-28, 13:9-14:3, 15:11-19. Gupta likewise discloses an ISP client DNS server that resolves a host name into an IP address. Gupta at 5:65-6:9. That Glines’s local DNS resolver 18 may perform additional steps, such as first checking for local copies, is irrelevant to the combination of Glines and Gupta. *See, e.g.*, Glines, 13:21-15:4. As discussed above, Glines discloses “causing” resolution of a hostname to the common anycast address when no local copy is available, which remains unchanged in the Glines-Gupta combination. Pet. 23-25 (citing EX-1008 ¶¶164-169). Gupta separately using “unicast addressing schemes” to resolve content is therefore irrelevant to the combination. *Palo Alto*, 122 F.4th at 1386 (“arguments that attack the disclosures of the two references individually lack merit”) (citation and internal quotations omitted).

Patent Owner next excerpts the Petition to attack Petitioner’s assertion that “Gupta’s ISP 60 [] performs the same functions as Glines’s local DNS resolver 18.” POR 54 (citing Pet. 24). In full, the Petition states: “Gupta’s ISP 60 thus performs the same functions as Glines’s local DNS resolver 18 (*e.g., resolving a host name into an IP address*).” Pet. 24. Petitioner never asserted Glines and Gupta perform the same resolution process. Nor does Petitioner rely on any resolution techniques in Gupta that conflict with those in Glines.

Patent Owner's citation to *Virtek Vision* again fails, *see* POR 47, 49, 54, because Petitioner identified reasons why it would have been obvious to modify Glines to incorporate Gupta's use of a "plurality" of content servers with each CDN DNS server and use of an "ISP" DNS "server" in Glines's anycast addressing system, where Glines already suggests these features. *See* Pet. 7-26. That Glines and Gupta teach systems with *other*, unrelated features is not evidence of incompatibility or a reason they cannot be combined as presented in the Petition. *Palo Alto*, 122 F.4th at 1386.

The Board should therefore find that Petitioner provided sufficient rationale for combining Glines and Gupta in all of Petitioner's "B" grounds. *See* Pet. 1.

VI. Conclusion

For the foregoing reasons and as explained in the Petition, the Board should find claims 1-23 of the '112 patent unpatentable and issue a final written decision cancelling these claims.

Dated: May 21, 2026

Respectfully submitted,

/Erika H. Arner/
Erika H. Arner, Lead Counsel
Reg. No. 57,540

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(c)(1), the undersigned hereby certifies that the foregoing PETITIONER REPLY contains 5,578 words, excluding the parts exempted under 37 C.F.R. § 42.24(c), as measured by the word-processing system used to prepare this paper.

/Erika H. Arner/
Erika H. Arner, Lead Counsel
Reg. No. 57,540

CERTIFICATE OF SERVICE

The undersigned certifies that, in accordance with 37 C.F.R. § 42.6(e) and 37 C.F.R. § 42.105, the foregoing **PETITIONER REPLY** was served on May 21, 2026, via email directed to counsel of record for the Patent Owner at the following:

Jason D. Eisenberg
jasone-PTAB@sternekessler.com

Daniel S. Block
dblock-PTAB@sternekessler.com

Kristina Caggiano Kelly
kckelly-PTAB@sternekessler.com

Steven M. Pappas
spappas-PTAB@sternekessler.com

Ethan Goldschen
egoldschen-PTAB@sternekessler.com

PTAB@sternekessler.com

Dated: May 21, 2026

By: /Daniel E. Doku/
Daniel E. Doku
Senior Litigation Paralegal

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.