

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NETFLIX, INC.,
Petitioner,

v.

LAURI VALJAKKA,
Patent Owner.

IPR2022-01568
Patent 8,495,167 B2

Before BARBARA A. PARVIS, GREGG I. ANDERSON, and
CHARLES J. BOUDREAU, *Administrative Patent Judges*.

PARVIS, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Netflix, Inc. (“Petitioner”) filed a Petition (Paper 2 (“Pet.”)) requesting an *inter partes* review of claims 1, 3–6, 8, 9, 11–17, 19, and 20 (“challenged claims”) of U.S. Patent No. 8,495,167 B2 (Ex. 1001, “the ’167 patent”) pursuant to 35 U.S.C. §§ 311–319. Lauri Valjakka (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

We have authority to determine whether to institute review under 35 U.S.C. § 314 and 37 C.F.R. § 42.4.

Upon consideration of the contentions and the evidence of record at this juncture, we conclude Petitioner establishes a reasonable likelihood of prevailing in demonstrating the unpatentability of the challenged claims of the ’167 patent. Accordingly, we grant Petitioner’s request and institute an *inter partes* review of all challenged claims of the ’167 patent and with respect to all grounds set forth in the Petition.

II. BACKGROUND

A. *Real Parties-in-Interest*

Petitioner identifies itself, Netflix, Inc., as the real party-in-interest. Pet. 87. Patent Owner names Lauri Valjakka as the real party-in-interest. Paper 5, 2.

B. *Related Matters*

Pursuant to 37 C.F.R. § 42.8(b)(2), the parties inform us that the ’167 patent is asserted against Petitioner in the following district court case: *Valjakka v. Netflix, Inc.*, Civil Action No. 4:22-cv-01490-JST (N.D. Cal., filed September 13, 2021). Pet. 87, Paper 5, 2. Patent Owner also identifies several other district court cases concerning the ’167 patent. Paper 5, 2–3.

C. The '167 Patent

The '167 patent is titled “Data Communications Networks, Systems, Methods, and Apparatus.” Ex. 1001, code (54). The '167 patent relates to the network distribution of content. *Id.* at 1:50–57. Figure 1 of the '167 patent, reproduced below, illustrates a data communications network.

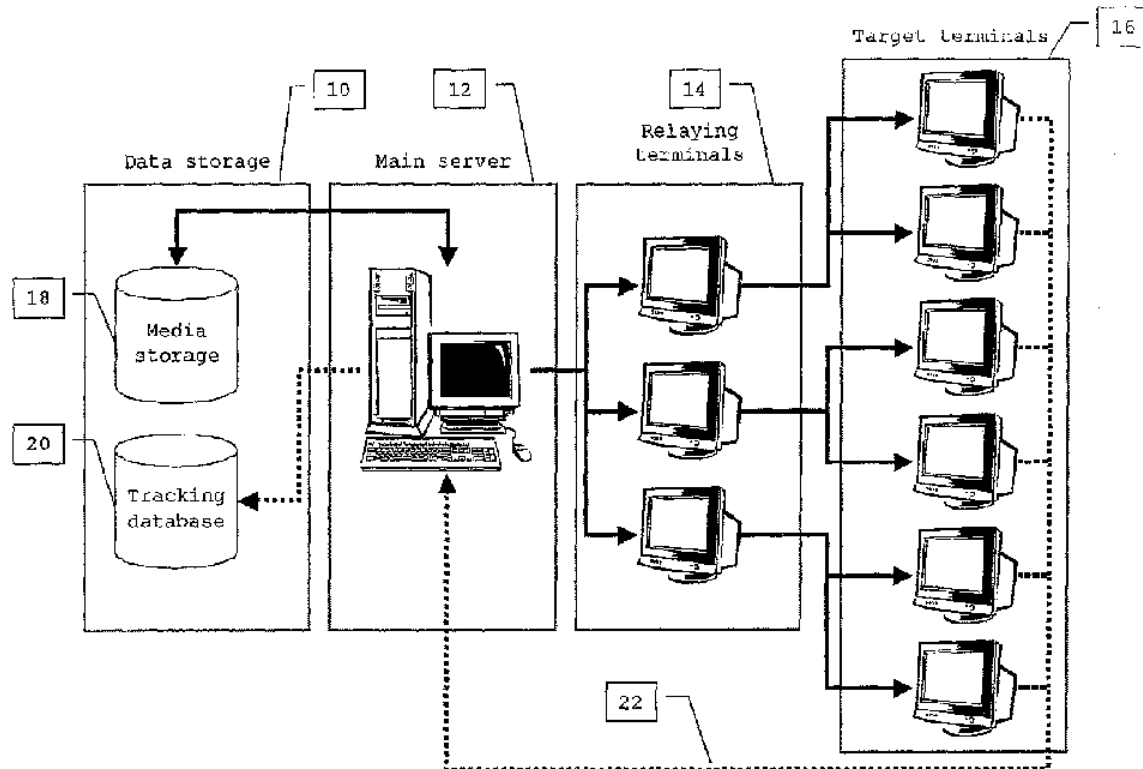


Figure 1, above, illustrates a data communications network having data storage 10, main server 12, and terminals 14, 16. *Id.* at 1:50–58, 2:4–13.

Data storage 10 includes media storage system 18 for storing content and tracking database 20 that is used for managing the operation of the data communications network. *Id.* at 1:53–58. The '167 patent describes “content” as “any type of data of interest to end users, including but not limited to text, graphics, video, audio, executable code etc.” *Id.* at 1:60–62. The '167 patent describes tracking database 20 as keeping records of transactions between main server 12 and terminals 14, 16 to monitor

performance, such as communication speed and reliability, of relaying terminals 14. *Id.* at 2:35–40.

The '167 patent explains that content is retrieved from the storage system by the main server and forwarded on to the terminals 14, 16 by the main server 12. *Id.* at 2:17–20. Each of the first set of terminals 14, referred to in Figure 1 as relaying terminals 14, also is adapted to operate as a relay server by forwarding data to one or more of second set of terminals, referred to in Figure 1 as target terminals 16. *Id.* at 2:25–29. The '167 patent describes that the “term ‘target terminal’ used here means a terminal which is the intended recipient of content (a data file) from medial storage 18.” *Id.* at 2:23–25.

D. Illustrative Claim

Petitioner challenges claims 1, 3–6, 8, 9, 11–17, 19, and 20 of the '167 patent. Pet. 1. Independent claim 1, reproduced below, is illustrative of the claimed subject matter.

1. [1P]¹ A data communication network comprising: [1A] a plurality of terminals; and
 - [1B.1] a main server adapted to manage selective retrieval of data from [1C] a first server by [1D] at least one target terminal selected from said plurality of terminals, [1B.2] said main server being distinct from said first server; and
 - [1E] a network information database containing terminal performance information, [1F] wherein at least two of said terminals are adapted to act as relay servers for serving data retrieved from said first server to at least one target terminal; and [1G] wherein the main server is adapted to send transport requests direct to at least one first target terminal on the basis of said

¹ Petitioner's designations to reference the elements of claim 1 are set forth in brackets. Pet. 38–40. Herein we refer to the elements of claim 1 using Petitioner's designations.

- terminal performance information, and [1H] wherein the main server is further adapted to monitor response times of terminals in the network and in which terminals are selected to act as relay servers for a particular data transfers [sic] on the basis of their relative response times, [1I] and the first target terminal is adapted to act as relay server; and
- [1J] wherein each such transport request includes [1J.1] details of data to be retrieved, [1J.2] the address of the first server from which the data is to be requested by the first target terminal, [1J.3] the addresses of at least one second target terminal to which the data from the first server to be relayed by the first target terminal and [1J.4] an indication of a relative performance of a further target terminal based on the terminal performance information stored in the network information database; and
- [1K] wherein terminals adapted to act as relay servers are adapted to modify transport requests received from the main server or from other relay servers and to transmit the modified transport request to selected target terminals from a set of target terminals identified in the transport request, [1L] wherein the modified transport request further includes addresses of further target terminals for which the recipient of the modified transport request is to act as relay server; and
- [1M] wherein data to be retrieved by said target terminals are divided into a series of packets for transmission to said target terminals and [1N] each of said terminals is adapted to communicate directly with said main server to acknowledge receipt of the last packet of a series routed thereto.

Ex. 1001, 7:64–8:38.

E. Evidence

Petitioner relies on the patent document references summarized in the table below.

Name	Patent Document	Exhibit
Lee	US 7,194,549 B1, issued March 20, 2007	1009
Yau	US 2002/0066026 A1, published May 30, 2002	1010

Petitioner relies on the non-patent literature reference summarized below.

Name	Non-Patent Literature Title	Author(s)	Exhibit
Green	<i>Content Internetworking Architectural Overview</i> , Network Working Group Internet-Draft, Internet Engineering Task Force (2001). ²	M. Green, et al.	1005
Amini	<i>Distribution Requirements for Content Internetworking</i> , Network Working Group Internet-Draft, Internet Engineering Task Force (2001). ³	L. Amini, et al.	1006

Petitioner also relies on the Declaration of Kevin Jeffay, Ph.D. (Ex. 1003) as supporting its contentions that the challenged claims are unpatentable.

² Last retrieved from
<https://web.archive.org/web/20020220110227/http://www.ietf.org/internet-drafts/draft-green-cdn-p-gen-arch-03.txt>.

³ Last retrieved from
<https://web.archive.org/web/20020127010152/http://www.ietf.org/internet-drafts/draft-amini-cdi-distribution-reqs-02.txt>.

F. Asserted Grounds

Petitioner asserts that the challenged claims of the '167 patent are unpatentable based on the following ground (Pet. 2):

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
1, 3–6, 8, 9, 11–17, 19, 20	103(a) ⁴	Green, Amini, Lee, Yau

III. ANALYSIS

A. Legal Standards

A patent claim is unpatentable under 35 U.S.C. § 103(a) 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) when in evidence, objective evidence of obviousness or nonobviousness, i.e., secondary considerations.⁵ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

⁴ The '167 patent was filed July 30, 2002. Ex. 1001, code (22). Because the challenged claims of the '167 patent have an apparent effective filing date before March 16, 2013, the 35 U.S.C. §§ 102 and 103 provisions of the Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, §§ 3(b)–3(c), 3(n)(1), 125 Stat. 284, 285–87, 293 (2011) do not apply. Our analysis would not change under the AIA versions of §§ 102, 103.

⁵ The parties have not presented objective evidence of obviousness or nonobviousness at this stage of the proceeding.

B. Level of Ordinary Skill in the Art

Petitioner asserts that a person of ordinary skill in the art the time of the invention “would have possessed a Bachelor of Science degree from an accredited institution in computer science, computer engineering or an equivalent and 1-2 years of experience with distributed file or storage systems and application layer protocols.” Pet. 9 (citing Ex. 1003 ¶ 38). Petitioner also asserts “[a]dditional education could substitute for professional experience and significant work experience could substitute for formal education.” *Id.*

Patent Owner states it “partially agrees with Petitioner’s statement on the level of ordinary skill.” Prelim. Resp. 3. In particular, Patent Owner agrees that a person of ordinary skill in the art (POSITA) “would have possessed a Bachelor of Science degree in Computer Science” but argues that “Petitioner is incorrect about the 1-2 years of experience needed,” contending that “[t]he level of experience for such network engineering skill is much, much higher to at least over a decade of experience if not more.” *Id.* at 3–4. Patent Owner bases its dispute on the work experience of two authors of prior art references asserted by Petitioner. *Id.* at 4.

Factors pertinent to a determination of the level of ordinary skill in the art include “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.” *Envtl. Designs, Ltd. v. Union Oil Co. of Cal.*, 713 F.2d 693, 696–697 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). “Not all such factors may be present in every case, and one or more of these or other factors may predominate in a

particular case.” *Id.* Patent Owner’s argument best pertains to the last factor, i.e., the level of skill of active workers in the field. Patent Owner’s evidence, however, pertains to only two individuals and, at this early stage, we do not discern a reason to require that an author of a prior art reference be a person of ordinary skill.

On the current record, we find Petitioner’s proposal is consistent with the level of skill reflected in the ’167 patent Specification. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). We, therefore, adopt Petitioner’s proposal. Our conclusions herein, however, would not change under Patent Owner’s proposal.

C. Claim Construction

We construe the challenged claims by applying the standard used in federal courts, in other words, “the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b),” which is articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b) (2020). 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*, 415 F.3d at 1312–13.

Petitioner asserts the “parties in the co-pending district court litigation identified two terms for construction — ‘*data*’ and ‘*modified transport request*.’” Pet. 9. Petitioner asserts that although it “agrees with Defendant’s constructions” proposed in that proceeding, it “does not believe any terms require construction to resolve the patentability disputes in this proceeding.”

Id. Petitioner asserts that it “applies the plain and ordinary meaning for the claim terms” in its Petition. *Id.*

Patent Owner asserts “[a]fter the filing date of Petitioner’s Petition, the Court issued a Claim Construction Order for certain claim terms of the ’167 Patent.” Prelim. Resp. 2. Patent Owner submits the constructions set forth in the Claim Construction Order, which are summarized in the table below.

Claim Term	Construction Adopted by the District Court
“modified transport request”	“transport request that is modified by a relay server to include addresses of further target terminals” Prelim. Resp. 3; Ex. 2002.
“data”	“files or parts of files or equivalents thereof that are stored on a server, downloaded from the server by a terminal and stored by the terminal for subsequent use, as distinct from a stream of files or parts of files or equivalents thereof that is transmitted by a server and is temporarily buffered by terminals” Prelim. Resp. 3; Ex. 2002.

Patent Owner has not indicated in the instant proceeding that it disputes the District Court’s claim constructions. *See generally id.*

Neither party has urged that we construe the aforementioned claim terms in the instant proceeding. Based on the record before us, we do not discern a need to construe explicitly those claim terms to resolve a dispute before us in this proceeding. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (stating that “we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))). We, therefore, use the plain and ordinary meanings of those terms. However, our analysis at this

preliminary stage would not change using the constructions adopted by the District Court. Prelim. Resp. 3; Ex. 2002.

D. Overview of the Asserted Art

1. Green

Green is titled “Content Internetworking Architectural Overview,” and presents a general architecture and core building blocks used in the internetworking of Content Networks. Ex. 1005, 1–2.⁶ Figure 1 of Green is reproduced below.

⁶ For Green and Amini, we use the pagination in the upper right corner of the original document, not the pagination added by Petitioner in the bottom right corner of each page of the Exhibit.

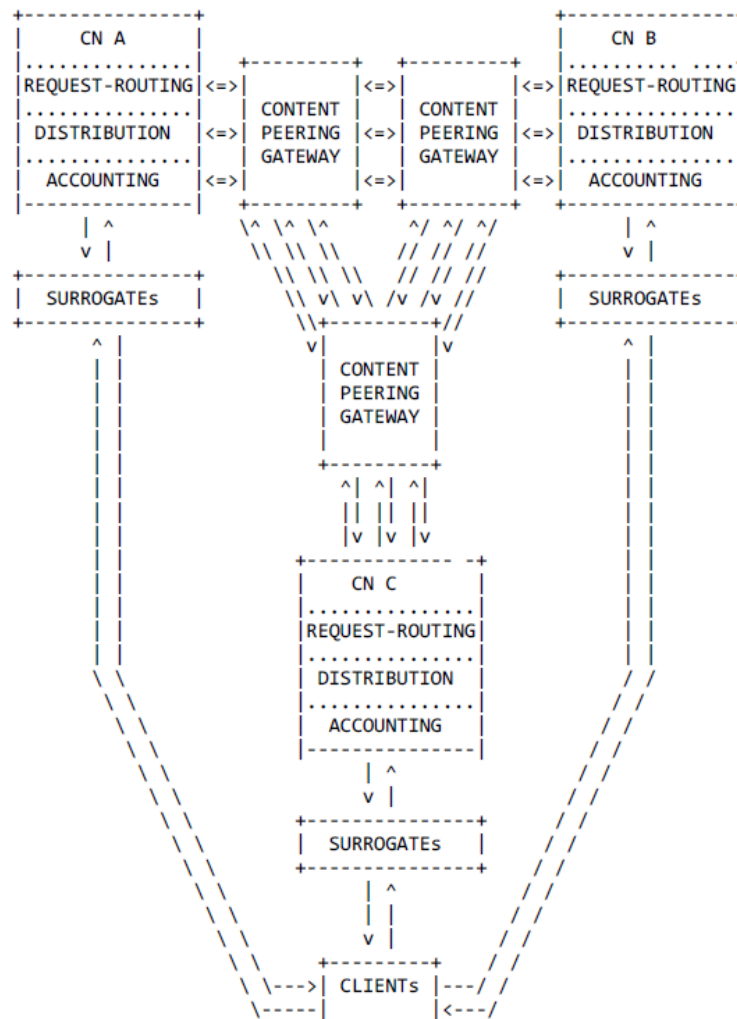


Figure 1 is a conceptual view illustrating the peering of three Content Networks; Content Network (CN) A, CN B, and CN C, which are peered through interconnection at Content Peering Gateways, and are presented as a virtual CN to clients for content delivery by the aggregated set of surrogates. *Id.* at 6.

Green describes that its content internetworking system moves content closer to the client by copying content from the origin to surrogates. *Id.* at 16. Green describes that the surrogates then have the content available when it is requested by a client. *Id.*

2. *Amini*

Amini is titled “Distribution Requirements for Content Internetworking.” Ex. 1006, 1. Amini states that it “specifies requirements for interconnecting, or peering, the distribution systems of Content Networks (CN).” *Id.* Amini explains that “[d]istribution internetworking requires advertising the capabilities of a CN offering distribution services, moving content from one CN to another, and signaling requirements for consistent storage and delivery of content.” *Id.*

In accordance with Amini’s distribution internetworking flow, distribution capabilities advertisements are received by a content source from one or more content destinations. *Id.* at 10. Amini describes requirements for a protocol for distribution capabilities advertisements. *Id.* at 11. In particular, Amini describes that the protocol must provide the ability to specify distribution capabilities in terms of one or more attributes. *Id.* at 12. Those attributes include (1) a profile identifier that is to be used by the content source when requesting service; (2) the footprint of areas served by the content network, which is expressed according to IP network addresses/prefixes; (3) the storage capacity the content network can provide; and (4) the maximum output bandwidth available from the content network. *Id.* at 12–13.

Also, in accordance with Amini’s distribution internetworking flow, the content source will send a content signal requesting distribution services. *Id.* at 10. Amini describes content signaling protocol requirements, which include attributes defined for content signals. *Id.* at 14–15. The attributes defined for content signals include (1) a unique identifier for the specific content set; (2) the uniform resource identifier (URI) for the content; (3) an identification of the channel where the authoritative copy of the content may

be retrieved; (4) the service profile identifier, which may encode content source or content designation specific information; and (5) the size of the content. *Id.* at 15–16.

3. *Lee*

Lee is titled “Multicast System Using Client Forwarding.” Ex. 1009, code (54). *Lee* relates to a multicast system that uses clients to forward packets over a network. *Id.* at 1:6–8. Figure 2B of *Lee* illustrates a topology of a data network and is reproduced below. *Id.* at 3:51–52.

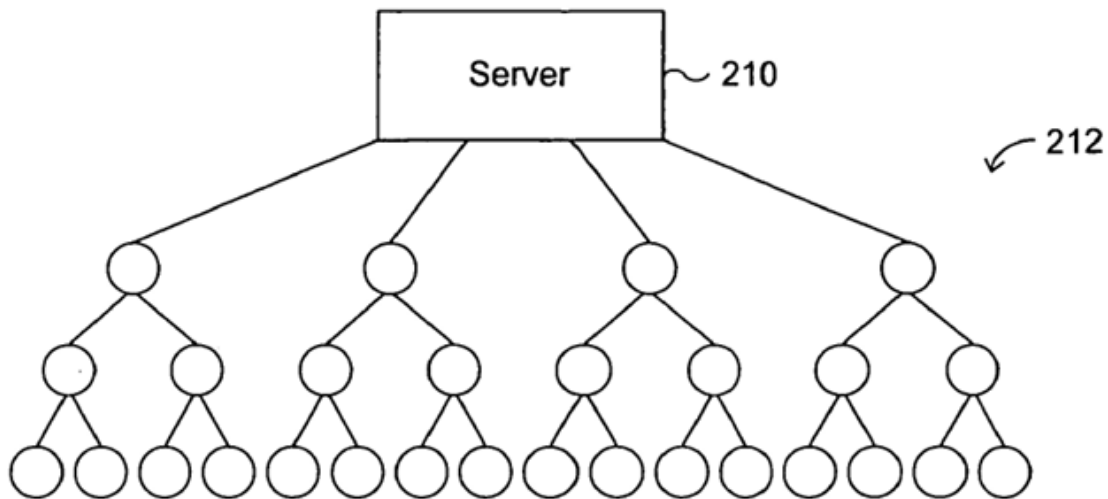


Figure 2B

Figure 2B is a block diagram illustrating the topology of a data network including server 210, which provides multicast data to a web of clients 212. *Id.* at 6:16–18.

As shown in Figure 2B, *Lee* describes that server 210 sends data directly to only the first set of four primary clients. *Id.* at 6:18–19. The data

is forwarded from the primary clients to the next level of secondary clients. *Id.* at 6:19–20. Lee describes that data may be forwarded to multiple cascaded levels of clients. *Id.* at 6:20–21.

4. *Yau*

Yau is titled “Method, System and Article of Manufacture for Data Distribution Over a Network.” Ex. 1010, code (54). Yau relates to the delivery of data to multiple recipients using a network. *Id.* ¶ 1. Yau describes that transmission instructions for distributing content include “information regarding the location of the data, as well as a set of clients indicating downstream recipients of the data.” *Id.* ¶ 29. Yau also describes an “acknowledge receipt 452” operation. *Id.* ¶ 49. In particular, Yau describes a client notifying a distribution-coordinating server of a new data acquisition to allow the server to track the flow of the data and ensure full and proper distribution. *Id.*

E. *Unpatentability of Claims 1, 3–6, 8, 9, 11–17, 19, and 20*

Petitioner argues that claims 1, 3–6, 8, 9, 11–17, 19, and 20 are unpatentable as obvious over Green, Amini, Lee, and Yau. Pet. 2. We address Petitioner’s and Patent Owner’s arguments below.

1. *Independent claims 1 and 9*

Claims 1 and 9 are independent claims that recite similar recitations, except claim 1 is directed to a “data communication network” and claim 9 is directed to a method.

We start by noting that Patent Owner disputes Petitioner’s proposed combination on the basis that a document entitled “A Model for Content Internetworking (CDI)” submitted as Exhibit 1007 and referred to by the parties as “Day” is not available as prior art. *See, e.g.*, Prelim. Resp. 5. At

this early stage in the proceeding, we do not consider Petitioner's arguments or Dr. Jeffay's testimony regarding Day.

a) Reasoning to Combine

With respect to combining the teachings of Green and Amini (referred to by Petitioner as the IETF-CI (Internet Engineering Task Force-Content Internetworking) documents), Petitioner contends the following:

A POSITA would have been motivated to combine the teachings of the IETF-CI documents because the documents originate from the same working group within the IETF and collectively discuss the IETF-CI architecture. (NF-1003, ¶42.) Additionally, the IETF-CI documents expressly suggest the combination. Green instructs the reader to consult Amini “for distribution peering protocol requirements.” (Green, 22.) Amini cites to Green for details of the architecture for Content Internetworking (CI). (Amini, 2.)

Pet. 11.

With respect to combining the teachings of Green, Amini, and Lee, Petitioner presents five reasons that a person having ordinary skill “would have been motivated to use Lee’s data network, illustrated in Figure 2B,” “as the internal distribution system of a [Content Network] (CN)” in Green’s Figure 4. *Id.* at 30–35. First, Petitioner argues that the IETF-CI documents do not address “internal mechanisms used within Content Networks” and, therefore, a person having ordinary skill in the art “would have been motivated to search for references describing distribution networks and would have considered Lee.” *Id.* at 32 (citing Ex. 1003 ¶ 71; Ex. 1005, 4, 17; Ex. 1009, 1:7–8). Second, Petitioner argues “the IETF-CI documents suggest use of a multicast system such as disclosed by Lee for a distribution network” by stating that “it may be desirable to have the Content Destination join a **multicast channel**.” *Id.* at 33 (citing Ex. 1003 ¶ 72; Ex. 1006, 7).

Third, Petitioner argues that a person having ordinary skill in the art would have made the proposed combination because it “allows an individual CN in IETF-CI to scale to include additional [Content Peering Gateways] CPGs (if desired and additional surrogates” and use of multicast “ensures efficient distribution with a CN.” *Id.* (citing Ex. 1003 ¶ 69). Fourth, Petitioner argues a person having ordinary skill in the art “would have further been motivated to use Lee’s multicast system as the distribution system for a CN because Lee’s multicasting system ‘work[s] with legacy routers that are not multicast enabled in a heterogeneous network’ and does ‘not require the servers to send packets to each of the multicast clients.’” *Id.* at 34 (citing Ex. 1009, 1:48–51; Ex. 1003 ¶ 73). Fifth, Petitioner argues that the proposed combination “is merely the simple substitution of one known element (Lee’s network) for another (unspecified internal CN distribution system of IETF-CI).” *Id.* (citing Ex. 1003 ¶ 74).

With respect to adding the teachings of Yau to arrive at the combination Green, Amini, Lee, and Yau, Petitioner argues a person having ordinary skill in the art “would have been motivated to consider Yau for further implementation details,” such as Yau’s acknowledgement and message addressing. *Id.* at 35 (citing Ex. 1003 ¶¶ 75–76). Regarding acknowledgement, Petitioner argues a person having ordinary skill in the art “would have also recognized numerous technical and business motivations” for incorporating Yau’s acknowledgements that provide the content provider with confirmation that content has been successfully deployed. *Id.* at 67 (citing Ex. 1003 ¶ 121). Petitioner argues, for example, that a content provider would have made the proposed modification “to ensure its content is distributed across CNs for load balancing purposes” and “to ensure the

content was available in major consumer markets.” *Id.* Regarding message addressing, Petitioner argues that a person having ordinary skill in the art “would have understood the addresses for downstream clients in the distribution tree are included in the content requesting signal (‘transport request’) to inform the primary client of its downstream distribution tree—i.e., the clients to which it forwards received messages.” *Id.* at 63 (citing Ex. 1003 ¶ 114).

In response, Patent Owner presents two arguments in support of its position that a person having ordinary skill in the art would not have made Petitioner’s proposed combination. Prelim. Resp. 5, 6, 13–17. First, Patent Owner argues the IETF-CI documents “contain **draft** potential Internet standards from March, 2001 (which **expired** at the IETF in August, 2001) and were never tested, never implemented or published by the IETF as standards.” *Id.* at 5; *see also id.* at 13–16 (arguing Green and Amini would not have been used because they “were in draft stage at the time in March 2001, expired in August, 2001 and were never adopted by the Internet Engineering Task Force as protocol standards or best practices”). Second, Patent Owner argues “a POSITA would not have combined Lee, which relates to protocols for intra-network communications for a live broadcasting network, with IETF-CI, which relates to entire cached content networks speaking to one another (internetworking) over the Internet.” *Id.* at 6; *see also id.* at 16–21 (arguing that Amini and Green describe protocols for entire cached, content networks, not for communications between servers and terminals in a multicast system for forwarding packets) (citing Ex. 1005, 3; Ex. 1006, 2).

We preliminarily determine Patent Owner's first argument (*id.* 5, 13–16) does not undermine Petitioner's position based on the record at this early juncture because even assuming Green and Amini were drafts that were not implemented or published as standards, that does not preclude use of the documents to show obviousness. Patent Owner does not dispute that Green and Amini are prior art publications. *See generally id.*

We preliminarily determine Patent Owner's second argument that a person having ordinary skill in the art would not have combined Lee, which relates to protocols for intra-network communications for a live broadcasting network, with the IETF-CI documents, which relate to cached content networks internetworking over the Internet (*id.* at 6, 16–21), does not undermine Petitioner's position based on the record at this early juncture. Contrary to Patent Owner's argument that the IETF-CI documents relate to only cached content networks, and not push architectures, each of Green and Amini describes “[r]eplication of content may take place using a push model, or a pull model, or a combination of both.” Ex. 1005, 18; Ex. 1006, 6. Also, Green describes a distribution overview that describes a “goal of the Content Internetworking system is to move content closer to the CLIENT.” Ex. 1005, 16. Amini describes a distribution flow in which a content source sends a content signal requesting distribution services. Ex. 1006, 10. Also, the IETF-CI documents are not limited to communications between entire content networks as Patent Owner argues. *See, e.g.,* Prelim. Resp. 16. Green, for example, describes content is moved closer to the client by copying content from its origin server to surrogate servers. *Id.*

For the aforementioned reasons, at this juncture, we are persuaded that Petitioner has articulated sufficiently persuasive reasoning, based on the

evidence of record, as to why one of ordinary skill in the art would have made Petitioner's proposed modifications. We find that Petitioner's reasoning is not undermined by Patent Owner's arguments based on the preliminary record before us at this early stage in the proceeding.

b) Elements 1P, 1A–1I, and 9A–9I

Claim 1 recites the following:

1. [1P] A data communication network comprising: [1A] a plurality of terminals; and

[1B.1] a main server adapted to manage selective retrieval of data from [1C] a first server by [1D] at least one target terminal selected from said plurality of terminals, [1B.2]

said main server being distinct from said first server; and

[1E] a network information database containing terminal performance information, [1F] wherein

at least two of said terminals are adapted to act as relay servers for serving data retrieved from said first server to at least one target terminal; and [1G] wherein

the main server is adapted to send transport requests direct to at least one first target terminal on the basis of said terminal performance information, and [1H] wherein the main server is further adapted to monitor response times of terminals in the network and in which terminals are selected to act as relay servers for a particular data transfers [sic] on the basis of their relative response times, [1I] and the first target terminal is adapted to act as relay server; and

Ex. 1001, 7:64–8:15. Elements 9A–9I include similar recitations.

Petitioner relies on Lee for teaching the “data communication network,” “plurality of terminals,” “main server,” “network performance information database,” and “monitor[ing] response times” in the aforementioned recitations. Pet. 40–46, 55–59 (citing, e.g., Ex. 1009, code (57), 4:44–50, 5:27–29, 5:33–36, 5:58–60, 6:17–20, 6:29–31, 8:20–32, 8:43–59, 9:10–19, Figs. 2B, 6B, 7). For instance, Petitioner relies on Lee's

“network topology illustrated in Figure 2B,” clients 212, and server 210 for teaching the “data communication network,” “plurality of terminals,” and “main server.” *Id.* at 40–46 (citing, e.g., Ex. 1009, code (57), 4:44–50, 6:17–20, 8:43–59, Figs. 2B, 7). Petitioner relies on Lee’s performance parameter, client record, and server process for monitoring clients for teaching the “network performance information database” and “monitor[ing] response times” recited in claims 1 and 9. *Id.* at 55–59 (citing, e.g., Ex. 1009, 4:44–50, 5:27–29, 5:33–36, 5:58–60, 8:20–32, 8:43–59, 9:10–19, Figs. 6B, 7). Petitioner also argues that Green and Yau provide overlapping teachings including that each of Green and Yau discloses data communication networks. *Id.* at 40–44 (citing, e.g., Ex. 1005, 17, Fig. 4; Ex. 1010 ¶ 20, Fig. 1).

Petitioner relies on the combination of Green, Amini, Lee, and Yau for teaching “send[ing] transport requests,” “manag[ing] selective retrieval,” and “at least two of said terminals are adapted to act as relay servers for serving data retrieved from said first server to at least one target terminal.” *Id.* at 47–55 (citing, e.g., Ex. 1005, 8, 17, 19; Ex. 1006, 7, 11, 14–18; Ex. 1009, 2:19–22, 5:66–6:3, 6:8–9, 8:11–13, Fig. 2B). Petitioner submits the testimony of Dr. Jeffay in support of its positions for elements 1P, 1A–1I, and 9A–9I. *Id.* at 40–59 (citing, e.g., Ex. 1003 ¶¶ 81–104).

Patent Owner argues that the asserted art does not teach elements 1G–1I. *See, e.g.*, Prelim. Resp. 6–8, 25–27, 30. Patent Owner argues that each individual reference does not teach elements 1G–1I. *Id.* For instance, Patent Owner argues that Amini does not teach that the main server is adapted to send transport requests direct to at least one first target terminal *on the basis of said terminal performance information*. *Id.* Petitioner, however, relies on

Lee for that teaching. *See, e.g.*, Pet. 55–59 (citing, *e.g.*, Ex. 1009, 4:44–50, 5:27–29, 5:33–36, 5:58–60, 8:20–32, 8:43–59, 9:10–19, Figs. 6B, 7). Patent Owner argues that in Lee “packets are only received directly from the main server, not a first server in addition to a main server.” Prelim. Resp. 8; *see also* 25–27. Petitioner, however, relies on Green and Amini for teaching the content provider or origin. *See, e.g.*, Pet. 42, 47–48 (citing Ex. 1005, 17, Fig. 4; Ex. 1006, 11). Attacking references individually does not undermine Petitioner’s showing of obviousness. *See In re Keller*, 642 F.2d 413, 426 (CCPA 1981) (nonobviousness cannot be established by attacking prior art teachings individually where the ground of unpatentability is based upon a combination of the prior art teachings).

We preliminarily find that Petitioner’s contentions are supported sufficiently by the cited portions of the asserted art. We further preliminarily find that Patent Owner’s contentions do not undermine Petitioner’s showing based on the preliminary record at this juncture of the proceeding. After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently that the combination of Green, Amini, Lee, and Yau teaches elements 1P, 1A–1I, and 9A–9I for purposes of institution.

c) Elements 1J and 9J

Element 1J in claim 1 recites the following:

[1J] wherein each such transport request includes [1J.1] details of data to be retrieved, [1J.2] the address of the first server from which the data is to be requested by the first target terminal, [1J.3] the addresses of at least one second target terminal to which the data from the first server to be relayed by the first target terminal and [1J.4] an indication of a relative performance of a further target

terminal based on the terminal performance information stored in the network information database; and

Ex. 1001, 8:16–8:24. Element 9J is similar.

Petitioner relies on Amini for describing that the transport request includes the details of data to be retrieved. Pet. 60–62 (citing, e.g., Ex. 1006, 2, 13–18). Petitioner relies on the combination of Lee and Yau for describing that the transport request includes “the address of the first server from which the data is to be requested by the first target terminal” and “the addresses of at least one second target terminal to which the data from the first server to be relayed.” Pet. 62–66 (citing, e.g., Ex. 1009, 2:19–22, 6:8–9, 6:20–21, 8:16–18, 8:38–40, 10:47–52, Figs. 2B, 9C; Ex. 1010 ¶ 29).

Petitioner relies on the combination of Amini and Lee for teaching that the transport request includes an indication of relative performance. Pet. 55–62 (citing, e.g., Ex. 1006, 2, 13–18; Ex. 1009, 4:44–50, 5:27–29, 5:33–36, 5:58–60, 8:20–32, 8:43–59, 9:10–19, Figs. 6B, 7). Petitioner submits the testimony of Dr. Jeffay in support of its positions for elements 1J and 9J. *Id.* at 60–66 (citing, e.g., Ex. 1003 ¶¶ 106–118).

Patent Owner argues that the asserted art does not teach element 1J. *See, e.g.*, Prelim. Resp. 7–10, 28–34. We preliminarily find that Patent Owner’s arguments are premised on an overly narrow reading of the asserted prior art that does not consider what the prior art teaches from the perspective of a person having ordinary skill in the art. *See Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1361 n.3 (Fed. Cir. 2008) (“What a prior art reference discloses or teaches is determined from the perspective of one of ordinary skill in the art.”). For instance, Patent Owner argues that Amini’s content signal is not a “transport request,” but instead is “merely ‘propagation of content meta-data.’” *See, e.g.*, Prelim. Resp. 7; *see also id.* at

30–31 (same), 33 (arguing the IETF documents does not teach transport requests because only “meta-data and instructions for forwarding” are sent). Patent Owner also argues that the combination of the IETF documents and Lee does not teach that the transport request includes address information. *Id.* at 7–10, 28–34. Amini, however describes that content signaling includes a service provide ID that may encode “Content Source or Content Destination specific information.” Ex. 1006, 16. Yau teaches that “[t]he transmission instructions can include information regarding the location of the data, as well as a set of clients indicating downstream recipients of the data.” Ex. 1010 ¶ 29. Yau also teaches that its methods and systems “can be implemented on one or more computer networks based on TCP/IP and/or HTTP.” *Id.* ¶ 36.

We preliminarily find that Petitioner’s contentions are supported sufficiently by the cited portions of the asserted art. We further preliminarily find that Patent Owner’s contentions do not undermine Petitioner’s showing based on the preliminary record at this juncture of the proceeding. After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently that the combination of Green, Amini, Lee, and Yau teaches elements 1J and 9J for purposes of institution.

d) Elements 1K, 1L, 9K, and 9L

Elements 1K and 1L in claim 1 recite the following:

[1K] wherein terminals adapted to act as relay servers are adapted to modify transport requests received from the main server or from other relay servers and to transmit the modified transport request to selected target terminals from a set of target terminals identified in the transport request, [1L] wherein the modified transport request

further includes addresses of further target terminals for which the recipient of the modified transport request is to act as relay server; and

Ex. 1001, 8:25–8:33. Elements 9K and 9L are similar.

Petitioner relies on the combination of Lee and Yau for teaching modifying the transport request and that the modified transport request further includes “addresses of further target terminals for which the recipient of the modified transport request is to act as relay server.” Pet. 62–66 (citing, e.g., Ex. 1009, 2:19–22, 6:8–9, 6:20–21, 8:16–18, 8:38–40, 10:47–52, Figs. 2B, 9C; Ex. 1010 ¶ 29). Petitioner submits the testimony of Dr. Jeffay in support of its positions for elements 1K, 1L, 9K, and 9L. *Id.* at 62–66 (citing, e.g., Ex. 1003 ¶¶ 112–118).

Patent Owner argues that the asserted art does not teach elements 1K and 1L. *See, e.g.*, Prelim. Resp. 10–12, 29–35. Patent Owner argues “Lee’s ‘primary clients’ only forward multicast data to a downstream client that is preselected by the server.” *Id.* at 11. Patent Owner argues Lee “only has dumb/passive clients that are directed and controlled by the main server 210” and, thus, Lee’s clients “do not modify the order from the server to simply forward data to another client node.” *Id.* at 29–30; *see also id.* at 32 (“Lee’s clients are dumb or passive, they do not modify anything from the server 210.”). Patent Owner argues that the IETF-CN documents do not describe a modified transport request because those documents describe content networks that “simply send content data from one CN to another CN.” *Id.* at 30. Patent Owner further argues “Yau has ‘a transmission instruction [that] includes information regarding “downstream recipients of the data.””” *Id.* at 12 (citing Pet. 63).

Similar to our analysis regarding elements 1J and 9J regarding “transport request,” we preliminarily find that Patent Owner’s arguments are premised on an overly narrow reading of the asserted prior art that does not consider what the prior art teaches from the perspective of a person having ordinary skill in the art. *See Sundance*, 550 F.3d at 1361 n.3 (“What a prior art reference discloses or teaches is determined from the perspective of one of ordinary skill in the art.”). Relying on the testimony of Dr. Jeffay, Petitioner argues “[a]t each level in the distribution hierarchy, the transport request is modified to add addresses of further downstream clients.” Pet. 51 (citing Ex. 1003 ¶¶ 93–94).

Petitioner further argues the following:

As discussed above, Lee’s server 210 “transmit[s] the information to a primary client” and “instruct[s] the primary client to forward the information to a secondary client.” (Lee, 2:19-22; 6:8-9 (“The server directs certain clients to forward packets to other clients”).) Lee teaches that the record stored for each client at the server includes receive client fields 38, 640 that “are used to store the identity of clients to which the client is transmitting.” (Lee, 8:38-40; Figure 6B.) Lee explains its records include IP addresses for clients. (See Lee, 8:16-18.) For example, as illustrated in Figure 9C, “a command is received from the server to transmit to the new client” and “the client starts forwarding packets to the forwarding address of the new client specified by the server.” (Lee, 10:47-52.) Thus, although not explicit, Lee’s transport request from server 210 to a primary client must include the address for the primary server to which the request is transmitted. (NF-1003, ¶¶ 113-114.)

Pet. 63. Petitioner also relies on the teachings of Yau as additional supporting evidence, arguing “Yau expressly teaches a transmission instruction includes information regarding ‘downstream recipients of the data.’” *Id.* (citing Ex. 1010 ¶ 29.)

We preliminarily find that Petitioner’s contentions are supported sufficiently by the cited portions of the asserted art. We further preliminarily find that Patent Owner’s contentions do not undermine Petitioner’s showing based on the preliminary record at this juncture of the proceeding. After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently that the combination of Green, Amini, Lee, and Yau teaches elements 1K, 1L, 9K, and 9L for purposes of institution.

e) Elements 1M, 1N, 9M, and 9N

Elements 1M and 1N in claim 1 recite the following:

[1M] wherein data to be retrieved by said target terminals are divided into a series of packets for transmission to said target terminals and [1N] each of said terminals is adapted to communicate directly with said main server to acknowledge receipt of the last packet of a series routed thereto.

Ex. 1001, 8:34–8:38. Elements 9M and 9N are similar.

Petitioner relies on the combination of Amini, Lee, and Yau for teaching “data to be retrieved by said target terminals are divided into a series of packets” and that “each of said terminals is adapted to communicate directly with said main server to acknowledge receipt of the last packet of a series routed thereto.” Pet. 66–68 (citing, e.g., Ex. 1006, 13; Ex. 1009, 1:7–8, 6:29–30; Ex. 1010 ¶ 49, Fig. 2C). Petitioner submits the testimony of Dr. Jeffay in support of its positions for elements 1M, 1N, 9M, and 9N. *Id.* (citing, e.g., Ex. 1003 ¶¶ 119–121).

We preliminarily find that Petitioner’s contentions are supported sufficiently by the cited portions of the asserted art. At this preliminary juncture in the proceeding, Patent Owner does not address elements 1M and

1N. *See generally* Prelim. Resp. After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently that the combination of Green, Amini, Lee, and Yau teaches elements 1M, 1N, 9M, and 9N for purposes of institution.

f) Conclusion

After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently, for purposes of institution, that the combination of Green, Amini, Lee, and Yau teaches each recitation of claims 1 and 9. Also, at this juncture, we are persuaded that Petitioner has articulated sufficiently persuasive reasoning, based on the evidence of record, as to why one of ordinary skill in the art would have made Petitioner's proposed modifications.

Accordingly, we conclude that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claims 1 and 9 are unpatentable under 35 U.S.C. § 103(a) as obvious over Green, Amini, Lee, and Yau.

2. Independent Claims 16, 17, 19, and 20

Independent claims 16 and 17 are similar to independent claim 1, except claim 16 is directed to a "network server" and claim 17 is directed to a "network terminal." Claims 19 and 20 each are directed to a "computer program product" and correspond to claims 16 and 17, respectively. We preliminarily find that Petitioner accounts for all differences between claims 1, 16, 17, 19, and 20. Pet. 68–80. Patent Owner relies on its arguments for claims 1 and 9 and does not argue claims 16, 17, 19, and 20 separately. Prelim. Resp. 35.

After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently, for purposes of institution, that the combination of Green, Amini, Lee, and Yau teaches each recitation of claims 16, 17, 19, and 20. Also, at this juncture, we are persuaded that Petitioner has articulated sufficiently persuasive reasoning, based on the evidence of record, as to why one of ordinary skill in the art would have made Petitioner's proposed modifications.

Accordingly, we conclude that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claims 16, 17, 19, and 20 are unpatentable under 35 U.S.C. § 103(a) as obvious over Green, Amini, Lee, and Yau.

3. Dependent Claims 3–6, 8, and 11–15

Dependent claims 3 and 4 recite “wherein terminals acting as relay servers are adapted to select further downstream target terminals to act as further relay servers on the basis of their relative performances of the further target terminals indicated in said transport request” and “wherein the first server is a terminal adapted to act as relay server,” respectively. Claims 11 and 12 include similar recitations. Petitioner relies on Amini's teaching of a content network advertising its capability to content servers and Amini's teachings relating to distribution system interworking described with respect to Figure 1 illustrating content networks placed between the origin and the destination. Pet. 81–83 (citing Ex. 1006, 5, 11, 13, 14, 17, Fig. 1). Petitioner submits the testimony of Dr. Jeffay in support of its positions for dependent claims 3, 4, 11, and 12. *Id.* (citing, e.g., Ex. 1003 ¶¶ 144–147).

Patent Owner disputes Petitioner's showing for dependent claims 3, 4, 11, and 12, arguing that no terminal acts as a relay server that then selects

further downstream terminals. Prelim. Resp. 36. Petitioner argues “the CN [content network] ensures *components in its network* meet[] the agreed upon performance metrics (e.g., bandwidth).” Pet. 81 (emphasis added) (citing Ex. 1003 ¶ 144). We preliminarily find Petitioner’s argument and Dr. Jeffay’s testimony (Pet. 81; Ex. 1003 ¶ 144) are consistent with Amini’s teachings (Ex. 1006, 11, 13, 14) at this early juncture.

Patent Owner also argues “Amini has no teaching or suggesting that a terminal or client within the network may be a first server and also adapted to act as a relay server for the same content.” Prelim. Resp. 37. Patent Owner argues “Amini’s CN’s are simply pulling different content from different networks.” *Id.* Petitioner argues that in the architecture shown in Figure 1 of Amini, “content networks B and C are placed between” the origin and the destination and “[i]n this architecture, CN C is a content source when communicating with CN B and a content destination when communicating with CN D (Origin) and CN B is a content source when communication with CN A and a content destination when communicating with CN C.” Pet. 82 (citing Ex. 1006, 5). We preliminarily find Petitioner’s arguments and Dr. Jeffay’s testimony (Pet. 82; Ex. 1003 ¶¶ 146–147) consistent with the evidence of record at this early juncture and are not undermined by Patent Owner’s arguments.

Dependent claim 5 recites “wherein each of said terminals is adapted to communicate directly with said main server in an upstream direction.” Claim 13 includes a similar recitation. Petitioner relies on Lee’s network topology and transmission of performance information from clients to the server. Pet. 83–84 (citing Ex. 1009, 6:27–32, Fig. 2C). Petitioner submits the testimony of Dr. Jeffay in support of its positions for dependent claims 5 and

13. *Id.* (citing, e.g., Ex. 1003 ¶ 149). Patent Owner argues “[n]owhere in Lee does the disclosure specifically state that the clients transmit their own data directly to the server in an upstream direction.” Prelim. Resp. 38. Lee, however, describes that server 210 gives “instructions to the clients” and measures performance. Ex. 1009, 6:30–32. Lee also describes receiving performance data. *Id.* at 6:28; *see also id.* at 4:44–47 (describing that the server establishes a connection and “sends a small amount of test data to the client along with an instruction to send a reply back to the server”). We preliminarily find Petitioner’s arguments and evidence are consistent with the evidence of record at this early juncture and are not undermined by Patent Owner’s arguments.

Dependent claims 6 and 8 recite “wherein data is routed to said terminals as routed network protocol traffic such as TCP/IP traffic” and “wherein data is transmitted in binary format,” respectively. Dependent claims 14 and 15 include similar recitations. Petitioner relies on Green, Amini, Yau, and other evidence that HTTP and TCP/IP were known protocols and it was known to transmit data in a binary format. Pet. 84–86 (citing Ex. 1005, 28–30; Ex. 1006, 12, 14; Ex. 1009, 1:7–8; Ex. 1010 ¶¶ 20, 36; Ex. 1012). Petitioner submits the testimony of Dr. Jeffay in support of its positions for dependent claims 6, 8, 14, and 15. *Id.* (citing, e.g., Ex. 1003 ¶¶ 151–154).

Patent Owner argues that Lee does not disclose explicitly the use of TCP/IP and binary format of data transmission is not disclosed. Prelim. Resp. 38–39. Yau, however, expressly describes use of TCP/IP protocol. Ex. 1010 ¶ 36 (explaining “the methods and systems described herein can be implemented on one or more computer networks based on TCP/IP or

HTTP”). Also, Petitioner has provided sufficient reasoning to combine for purposes of institution. Pet. 35, 63 (citing Ex. 1003 ¶¶ 75–76, 114); *see also supra* § III.E.1.a (discussing Petitioner’s reasoning to combine). Attacking references individually does not undermine Petitioner’s showing of obviousness. *See Keller*, 642 F.2d at 426 (nonobviousness cannot be established by attacking prior art teachings individually where the ground of unpatentability is based upon a combination of the prior art teachings).

Also, Petitioner has shown sufficiently for purposes of institution that data divided into a series of packets for transmission and encryption was a known technique for transmission. Pet. 66–68, 85–86 (citing, e.g., Ex. 1005, 28–30; Ex. 1006, 12, 13; Ex. 1009, 1:7–8, 6:29–30; Ex. 1010 ¶ 49, Fig. 2C). We, therefore, preliminarily find Petitioner has shown transmission of data in a binary format was known. We preliminarily find Petitioner’s arguments and evidence are consistent with the evidence of record at this early juncture and are not undermined by Patent Owner’s arguments.

We have considered Petitioner’s arguments and evidence for dependent claims 3–6, 8, and 11–15. Pet. 81–86. We also have considered Patent Owner’s arguments in its Preliminary Response. Prelim. Resp. 36–40. After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently, for purposes of institution, that Petitioner has shown sufficiently that the combination of Green, Amini, Lee, and Yau teaches the further recitations in each of dependent claims 3–6, 8, and 11–15. Also, at this juncture, we are persuaded that Petitioner has articulated sufficiently persuasive reasoning, based on the evidence of record, as to why one of ordinary skill in the art would have made Petitioner’s proposed modifications. We preliminarily find that Patent

Owner's contentions do not undermine Petitioner's showing based on the preliminary record at this juncture of the proceeding.

Accordingly, we conclude that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that dependent claims 3–6, 8, and 11–15 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Green, Amini, Lee, and Yau.

IV. CONCLUSION

For the foregoing reasons, we conclude that the information presented in the Petition establishes a reasonable likelihood that Petitioner would prevail in showing that claims 1, 3–6, 8, 9, 11–17, 19, and 20 of the '167 patent are unpatentable.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that *inter partes* review of claims 1, 3–6, 8, 9, 11–17, 19, and 20 of the '167 patent is hereby instituted on all grounds stated in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial will commence on the entry date of this decision.

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