

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AKAMAI TECHNOLOGIES, INC.,
Petitioner,

v.

AMHC, INC.,
Patent Owner.

IPR2022-01039
Patent 8,559,426 B2

Before HUBERT C. LORIN, SHARON FENICK, and
SEAN P. O'HANLON, *Administrative Patent Judges*.

LORIN, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background

Akamai Technologies, Inc. (“Petitioner”) filed a Petition to institute an *inter partes* review of claims 1–17 (“the challenged claims”) of U.S. Patent No. 8,559,426 B2 (Ex. 1001, “the ’426 patent”) pursuant to 35 U.S.C. § 311 *et seq.* Paper 3 (“Petition” or “Pet.”). AMHC, INC. (“Patent Owner”) filed a Preliminary Response. Paper 8 (“Preliminary Response” or “Prelim. Resp.”).

We have authority under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the Petition and the Preliminary Response shows that “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a) (2018).

After considering the Petition, the Preliminary Response, and the evidence of record, we deny Petitioner’s request to institute an *inter partes* review as to the challenged claims of the ’426 patent on the grounds of unpatentability presented.

B. Related Proceedings

The parties identify the following related district court proceedings:

- *Akamai Technologies, Inc. v. MediaPointe, Inc. & AMHC, Inc.*, Case No. 2:22-cv-00982 (C.D. Cal. filed February 11, 2022); and
- *Microsoft Corporation v. Steven E Villoria et al.*, Case No. 2:22-cv-01009 (C.D. Cal. filed Feb. 14, 2022).

Pet. 6 (identifying the first case); Paper 5, 2 (identifying both cases).

Petitioner also identifies *inter partes* proceeding IPR2022-01040 that challenges U.S. Patent No. 9,426,195 (which is a parent of the '426 patent). Pet. 6.

C. Real Parties in Interest

Petitioner identifies itself as the real party-in-interest. Pet. 6. Patent Owner identifies itself as the real party-in-interest. Paper 5. Petitioner notes that it is contesting the assignment of the '195 patent in district court. Pet. 8.

D. The '426 Patent

1. Disclosure

The '426 patent relates to “network data transmission, and more particularly to efficient distribution of data” and discloses a “[s]ystem and method for distribution of data packets utilizing an intelligent distribution network.” Ex. 1101, code (54), 1:18–20. The '426 patent explains that its intelligent distribution network (IDN) optimizes delivery of content to large and diversely located client locations by minimizing the impact of network irregularities, minimizing bandwidth usage inherent in data delivery from a single content source to multiple simultaneous viewers, minimizing packet loss resulting in a decrease latency of data stream delivery, maximizing sustained data rates to clients, and providing a back channel of end-user viewing profiles to content providers via the log collection from nodes. *Id.* at 3:14–24.

Figure 2 of the '426 patent, reproduced below, illustrates a transmission path architecture between a content provider and a client, in accordance with a system and method of the '426 patent. *Id.* at 3:55–56, 4:31–32.

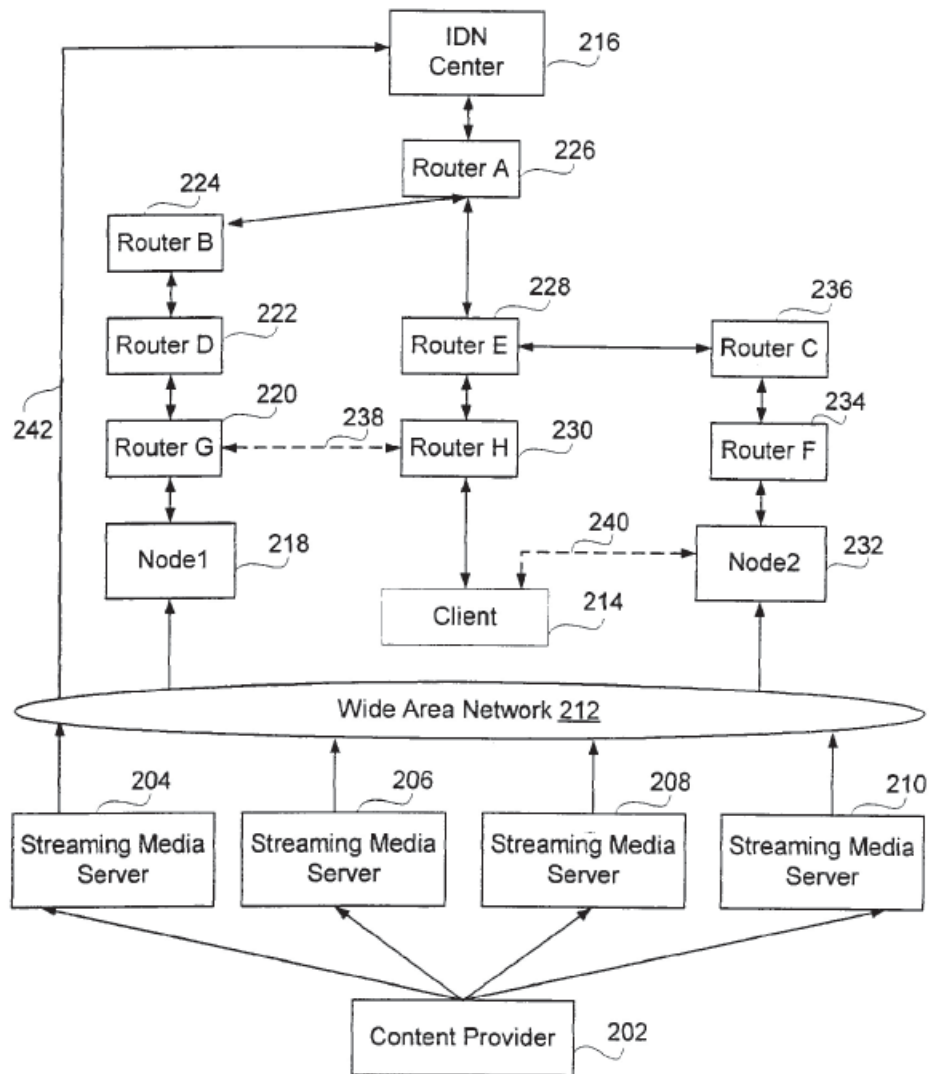


FIG. 2

Figure 2 illustrates a transmission path architecture between a content provider 202 and a client 214.

Client 214 illustrated in Figure 2 selects content from a provider by, e.g., utilizing a URL on a website, and then content provider 202 (whose content is sourced from streaming media servers (SMS) 204, 206, 208 and 210) forwards the content through a Wide Area Network (WAN) 212. *Id.*

at 4:31–48. The provided content is delivered over WAN 212 or by direct connection to Intelligent Distribution Network (IDN) center 216, which subsequently forwards the content through various transmission devices and nodes to client 214. *Id.* Alternatively, the content may be sent directly through various nodes in the IDN system to client 214. *Id.* The transmission nodes, which may include a computing device running SMS and IDN system software, are placed at divergent data locations on the Internet. *Id.* Such data locations may include “bottleneck” routing points. *Id.*

The ’426 patent explains that “IDN center 216 manages the system such that the most efficient route between content provider 202 and client 214 will be utilized.” *Id.* at 4:49–59. In accordance with “[t]he preferred embodiment,” the content is “direct[ed] . . . to client 214 through the IDN center 216 via path 242 through various routers and nodes,” and “[c]ontent may also be transmitted to client 214 through node1 218 and routers G 220 D 222, B 224, A 226, E 228 and H 230,” or “[a]lternatively, another route may send content via node2 232 and routers F234, C236, E228 and H230.” *Id.*

Figure 3 of the ’426 patent, reproduced below, is a block diagram of an IDN center of Figure 2. *Id.* at 3:57.

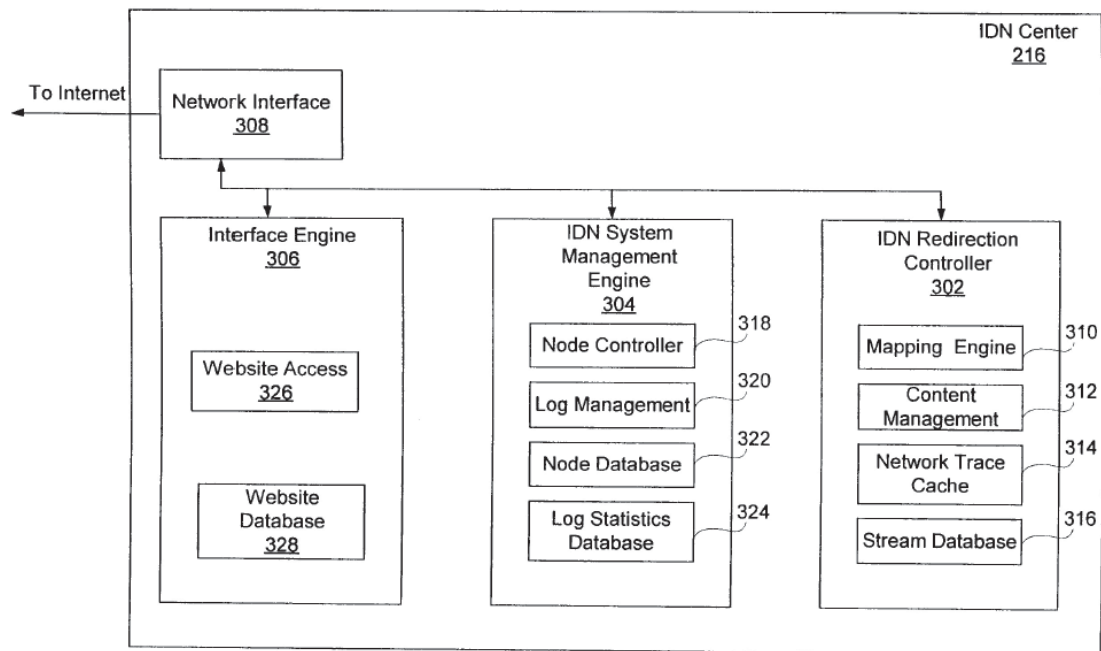


FIG. 3

Figure 3 is a block diagram of IDN center 216 of Figure 2.

IDN center 216 includes an IDN redirection control 302, an IDN system management engine 304, a web interface engine 306, and a network interface 308 for communication with the Internet. *Id.* at 4:60–65. IDN redirection control 302 handles requests for content from clients, using a mapping engine 310 to map points in Internet space, and a content management controller 312 for registering content. *Id.* at 4:65–5:12. Mapping engine 310 performs client location identification, node-client relationship analysis and node-node relay delegations. *Id.* The results of all these traces are stored in network trace cache 314 for future use. *Id.* IDN system management engine 304 includes a node controller 318 and a log management controller 320. *Id.* at 5:13–30. Node controller 318 receives periodic and event based status information from various nodes, and provides updated network information to all nodes as required, thus giving

enough information to each node about its surrounding environment to overcome transient problems. *Id.* A node database 322 stores the information pertaining to each node. *Id.*

The '426 patent describes the IDN system's redirection technology as follows. *Id.* at 6:8–8:67. When an initial request for a particular content is made, IDN center 216 first looks up the client's IP class to determine if previous existing information exists in network trace cache 314 (shown in Figure 3) concerning which node, of the nodes currently relaying or enabled to relay the requested content, is best situated to serve client 214. *Id.* at 6:10–22. If the information does not exist or is outdated, IDN center 216 initiates a trace route to client 214 with mapping engine 310. *Id.* The result of the IDN-client trace route is then compared to known trace routes contained in a lookup table in network trace cache 314 for nodes with the content currently available. *Id.* at 6:34–41. The comparison process provides a hierarchical estimate of a plurality of most likely “electronically best performing” network links from own nodes to client 214. *Id.* at 7:1–15. The '426 patent explains that “[w]hile FIG. 2 only illustrates two nodes, in practice, the number of nodes may be quite high, thus the need to determine the ‘electronically best performing’ links is crucial.” *Id.*

IDN center 216 then passes information regarding the best performing links to a detailed interrogation routine in node controller 318 (shown in Figure 3) that may, for further accuracy, command the likely best performing nodes to trace the route between themselves and client 214. *Id.* Based on latencies (calculated as round trip response times from nodes to a particular router or client), a node (for example, node2 232) is determined as the node best suited to relay content to client 214, and the determined best

node (e.g., node2 232) is then allocated to client 214 as the streaming source that will serve the content stream. *Id.* at 7:44–62, 8:14–16.

Once a client is assigned a “best” or “nearest” node, IDN network trace cache 314 is updated with that client’s class-node mapping. *Id.* at 8:48–59. The ’426 patent explains, “[t]his result may then be used for any other clients originating from the same class IP address range without going through the class mapping procedure again.” *Id.* For example, when a popular site is receiving a plurality of “hits” from clients within the same class IP address range, a large number of these clients can be directed to their electronically nearest or best node from stored client class-node mapping results contained in network trace cache 314 obtained from an earlier client request for the content. *Id.* The ’426 patent further explains that “when client 214 is already receiving a stream from a node, any further clients requesting the same content may ‘piggyback’ off the node.” *Id.* at 8:59–67. In accordance with the ’426 patent, “[t]his would require the subsequent clients to connect, either directly or indirectly through other nodes or transmission devices, to any node that is currently serving the content to client 214” and “[o]nce connected, the subsequent clients can obtain data from the same initial content stream.” *Id.* Thus, only one distribution of the content is required to serve multiple clients. *Id.*

2. *Claims*

The ’426 patent has 17 claims and Petitioner challenges all of the claims. Pet. 1, 11. Claims 1, 2, and 17 are independent. Claims 3–9 depend from claim 1, and claims 10–16 depend from claim 2.

Independent claim 1, reproduced below with reference labels in brackets matching those used in the Petition, is illustrative:

1. [1Preamble] A system comprising:
 - [1A] a management center;
 - [1B] a plurality of nodes configured to: relay a continuous stream of data from a content provider to a first client in response to an initial request for the continuous stream of data, replicate the continuous stream of data, and transmit the replicated stream of data to at least one other client;
 - [1C] wherein the management center comprises a mapping engine that is configured to map trace routes between the management center, at least one of the nodes, and at least the first client so as to determine one or more optimal routes from the management center to the first client via the at least one of the nodes, and
 - [1D] configured to direct a node relaying the continuous stream of data from the content provider to the first client to replicate the continuous stream of data from the content provider, in response to subsequent requests for the continuous stream of data, while the node is relaying the continuous stream of data from the content provider to the first client, and transmit the replicated stream of data to the at least one other client in response to the subsequent requests for the continuous stream of data; and
 - [1E] wherein the management center is configured to downgrade lower priority clients from a higher quality of service network link to a less optimal network link when a higher priority client requests use of the higher quality of service network link.

Ex. 1001, 17:32–59 (bracketed designations added by Petitioner (*see* Pet. 23–58)).

E. The Asserted Grounds

Petitioner challenges claims 1—17 of the '426 patent based on the grounds set forth in the table below.

Ground	Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
I	1–12, 14–16	103(a)	Auerbach, ¹ Tanenbaum, ² Allen ³
II	13	103(a)	Auerbach, Tanenbaum, Allen, Zisapel ⁴
III	17	103(a)	Auerbach, Tanenbaum

Pet. 9.

Petitioner also relies on the Declaration of Samrat Bhattacharjee, Ph.D. (Ex. 1002, “Bhattacharjee Decl.”), as support for various contentions in the Petition. Patent Owner has not submitted a declaration or other testimonial evidence of an expert in support of its contentions.

II. ANALYSIS

A. Claim Construction

For petitions, like this one, filed on or after November 13, 2018, “[claims] of a patent . . . shall be construed using the same claim construction standard that would be used to construe the [claims] in a civil action under 35 U.S.C. [§] 282(b), including construing the [claims] in accordance with the ordinary and customary meaning of such claims as understood by one of ordinary skill in the art and the prosecution history

¹ Auerbach, US 6,832,253 B1, issued December 14, 2004 (Ex. 1003) (“Auerbach”).

² Tanenbaum, A.S., *Computer Networks*, Prentice Hall PTR (3rd ed. 1996) (Ex. 1004) (“Tanenbaum”).

³ Allen, US 7,334,044 B1, issued February 19, 2008 (“Tanenbaum”) (Ex. 1005) (“Allen”).

⁴ Zisapel, et. al, US 6,665,702 B1, issued December 16, 2003 (Ex. 1006) (“Zisapel”).

pertaining to the patent.” 37 C.F.R. § 42.100 (2022); *see also Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005).

Only those terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

Petitioner relies on the ordinary and customary meaning of claim terms as understood by one of ordinary skill in the art in light of the specification and the prosecution history pertaining to the patent. Pet. 22. Petitioner does not propose a construction for any particular claim term. *Id.* (“no terms need to be construed to resolve the issues raised in this Petition”).

Patent Owner on the other hand raises a controversy over the construction of claim terms “relaying” and “replicating.” Prelim. Resp. 14–18; *see* Ex. 1001, *e.g.*, 17:46: “relaying”; 17:47: “replicate”. To the extent the meaning of these terms requires discussion, we provide it in our analysis of the patentability challenges.

B. Legal Standards

A patent claim is unpatentable as obvious if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary

skill in the art; and (4) objective evidence of obviousness or non-obviousness.⁵ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

C. Level of Ordinary Skill in the Art

With regard to the level of ordinary skill in the art, Petitioner contends that:

A POSITA at the time of the alleged invention would have had a Bachelor’s Degree in Computer Science or Computer Engineering, or equivalent experience, and one to two years of experience in the field of computer networking and/or distributed systems, particularly as those systems relate to Internet content delivery.

Pet. 23 (citing Bhattacharjee Decl. ¶ 24).

Patent Owner “does not dispute the qualifications of a person having ordinary skill in the art proposed by the Petitioner.” Prelim. Resp. 11.

We adopt Petitioner’s definition, which is consistent with the patent and prior art.

⁵ The parties have not directed us to any such objective evidence.

D. Overview of the Prior Art References

1. Auerbach (Ex. 1003)

Auerbach “relates to managing the placement of network content such as video programming for efficient distribution” and discloses a “proximity-based content control method [that] ‘propagates’ or positions content based upon ‘proximity’ between various nodes on a network.” Ex. 1003, code (57), 1:6–10. Figure 2A of Auerbach, reproduced below, illustrates a network in which multiple clients, video servers, and other entities communicate over the Internet or a wide area network, and shows how video servers may be chosen for anticipatory loading and for serving client requests. *Id.* at 4:39–42, 6:15–18.

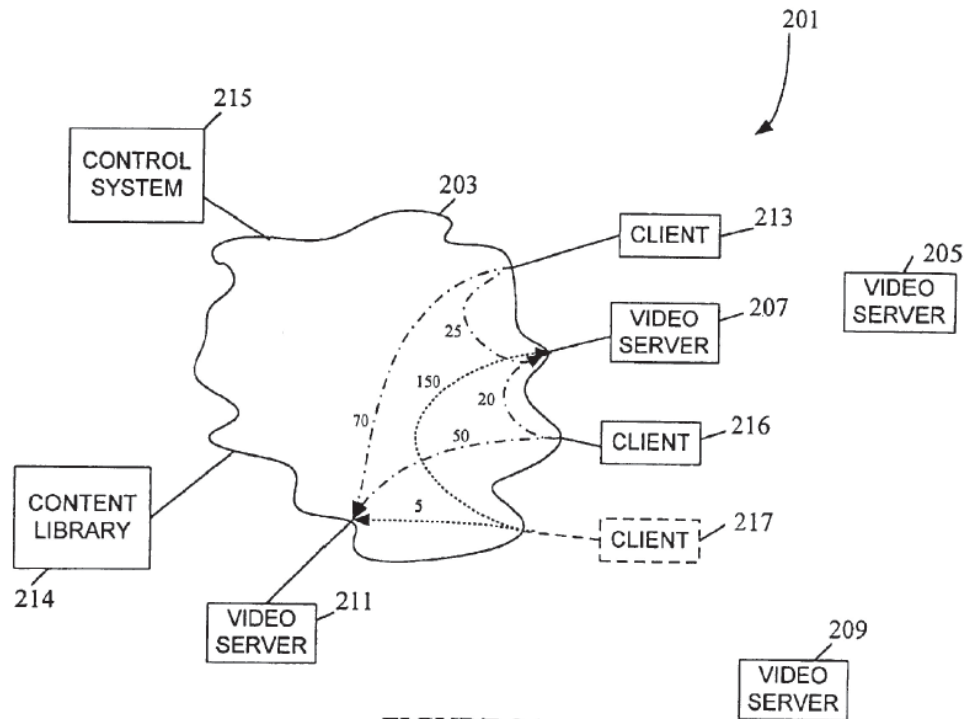


FIGURE 2A

FIG. 2A illustrates a network 201 in which multiple clients, video servers, and other entities communicate over the Internet or a wide area network 203. *Id.* at 4:39–42, 6:15–18.

Video servers 205, 207, 209, and 211 illustrated in Figure 2A provide video content desired by certain clients, such as client 213 and client 216. *Id.* at 6:15–26. Network 201 includes a content library 214 that stores various video titles that may be provided to the video servers. *Id.* When a client places a request for video content, an appropriate video server for serving the client request is identified to fill that request. *Id.* at 6:27–41. Auerbach explains that “[t]he choice of a particular video server to fill requests is based upon the proximity between the client and various potential video servers,” and the logic that makes this decision is represented by a content control system block 215 connected to network 203. *Id.*

When a client (e.g., client 213) places a request for a video title available on any one of the video servers in Figure 2A, the request should be filled by the video server most “proximate” to client 213. *Id.* at 6:42–61. Content control system 215 determines proximity, which “is given integer numbers” whereby “[l]arge numeric values of proximity correspond to ‘distant’ entities, between which the ‘cost’ of transferring video content is relatively great.” *Id.* Figure 2A illustrates client 213 having a proximity of “70” to video server 211 and a proximity of “25” to video server 207. *Id.* As video server 207 is more proximate to client 213, content control system 215 determines that video server 207 should fill the client’s request. *Id.* When client 216 also requests a video content title available on servers 207 and 211, the proximity of client 216 is determined as “20” to server 207 and “50” to server 211, such that content control system 215 determines that the request of client 216 should be handled by video server 207. *Id.*

Auerbach explains that “proximity is also useful in determining where and when to provide ‘anticipatory loading’ of video content from library 214

to the video servers.” *Id.* at 6:65–7:17. When, for example, both video servers 207 and 211 are potential candidates for anticipatory loading of a new video title, Auerbach’s content control system 215 may determine which client or clients are most likely to request such title, and “[i]f it appears that either client 213 or client 216, or both will request the title, proximity considerations dictate that the content be loaded to server 207”; however, “if client 217 may also desire access to the new title, it may make more sense to load the title onto video server 211, rather than server 207.” *Id.*

Figure 2B of Auerbach, reproduced below, shows a process flow diagram for a general procedure used to identify a particular server for either anticipatory loading or providing content to clients. *Id.* at 7:18–20.

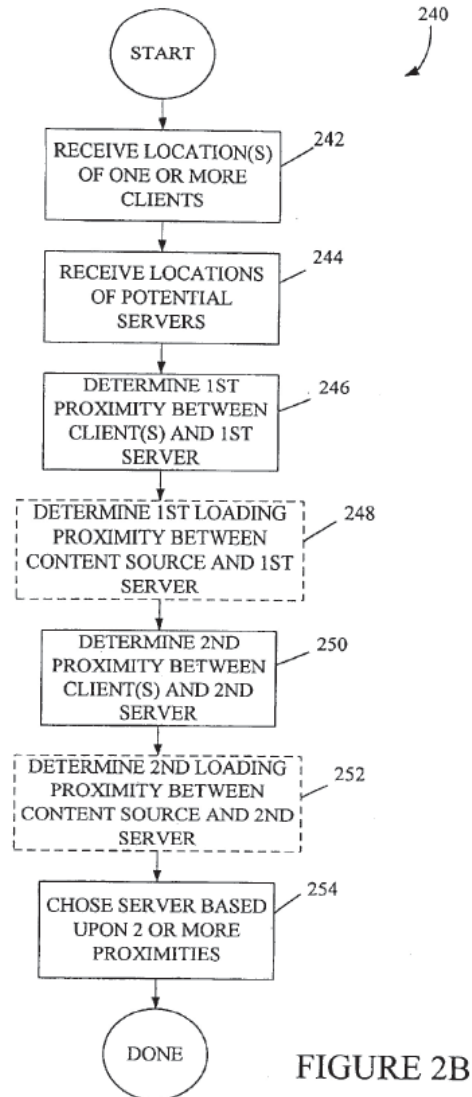


FIGURE 2B

Figure 2B shows a process flow diagram for a general procedure used to identify a particular server for either anticipatory loading or providing content to clients. *Id.* at 7:18–20.

Process 240 shown in Figure 2B begins at step 242 with the content control system receiving or otherwise identifying the location of one or more clients that will require the content. *Id.* at 7:18–30. Next, at step 244, the content control system receives or otherwise determines the locations of two or more servers that can potentially fill the needs of the clients referred to at 242. *Id.* Step 246 then determines a first proximity between the one or more

clients and a first server, and, for anticipatory loading, the control system also determines a “first loading proximity” between the first server and the source of the content of interest (step 248). *Id.* at 7:31–62. Such source may be a video library. *Id.* The content control system therefore has a complete picture of the cost of using the first server to service various clients, and it will compare this cost against that associated with using one or more other potential servers (as identified at step 244). *Id.* The content control system next determines, at step 250, a “second proximity” between the one or more clients and a second server, and at step 252, it optionally determines a “second loading proximity” between an appropriate source of the content and the second server. *Id.* The content control system thus has all the information it needs to make a decision regarding the use of the first or second (or third, etc.) server. *Id.* At step 254, the content control system chooses one server for loading or serving content based upon two or more of the determined proximities, and the content controller may thereafter initiate serving of the content or moving the content. *Id.*

2. *Tanenbaum (Ex. 1004)*

Tanenbaum is a book on computer networks and describes, *inter alia*, how video on demand is implemented. Ex. 1004, xiv, 723–61 (§ 7.7).⁶ Figure 7-88 of Tanenbaum, reproduced below, illustrates a video-on-demand system. *Id.* at 744–45.

⁶ Like the parties (*see, e.g.*, Pet. 19; Prelim. Resp. 27), we cite to the textbook pagination rather than the exhibit pagination.

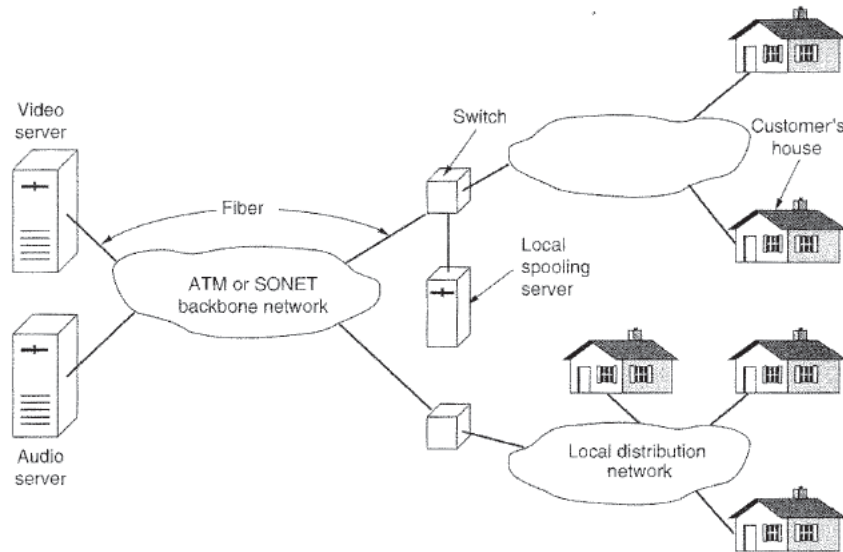


Fig. 7-88. Overview of a video-on-demand system.

Figure 7-88 illustrates a video-on-demand system. *Id.* at 744–45.

Tanenbaum’s Figure 7-88 illustrates a high-bandwidth, wide area backbone network located at the center of the system, and multiple local distribution networks, such as cable TV or telephone company distribution systems connected to the network. *Id.* at 744–745. The local distribution systems reach into people’s houses, where they terminate in set-top boxes. *Id.* Attached to the backbone by high-bandwidth optical fibers are multiple information providers offering pay-per-view video, pay-per-hear audio, specialized services such as home shopping, sports, and news, WWW access, etc. *Id.* Local spooling servers allow videos to be prepositioned closer to the users, to save bandwidth during peak hours. *Id.*

Tanenbaum explains that, “[t]o have (near) video on demand, we need **video servers** capable of storing and outputting a large number of movies simultaneously,” and a distribution network as a “set of switches and lines between the source and destination.” *Id.* at 745, 750. Tanenbaum describes a distribution network that may be a SONET, ATM, or ATM over SONET

backbone, connected to a local distribution network. *Id.* at 750–51. The video servers are controlled by their video server software that includes CPU software (which “defines the nature of the interface that the server presents to the clients (spooling servers and set-top boxes)”), and disk management software—whose “job . . . is to service all the real-time output streams and meet their timing constraints” and to “plac[e] movies on the magnetic disk when they have to be pulled up from optical or tape storage, and handl[e] disk requests for the many output streams.” *Id.* at 745, 747–49.

3. *Allen (Ex. 1005)*

Allen “relates to the field of delivery of multimedia content over a variety of networks” and more particularly, “pertains to multimedia servers which service many clients simultaneously for the delivery of multimedia content which is used and played back at each client.” Ex. 1005, code (54), 1:18–25. Allen describes a method for call and/or connection acceptance control and the optimal delivery of multimedia (audio/video) data over networks, the method establishing and monitoring certain criteria which may be used to maximize the number of simultaneous clients without sacrificing quality-of-service for already-connected clients. *Id.*, code (57) (Abstract). Allen discloses an optimal delivery procedure that, “given a set of clients and associated sessions, . . . continuously establishes content flow rates from the content server to each of its clients so as to maximize aggregate value according to the governing value function.” *Id.* at 1:60–2:5.

Allen’s method employs a Call/Connection Acceptance Control (CAC) procedure that “is responsible for deciding whether a candidate for service can be accommodated without jeopardizing sessions already in progress at the present time or at some time in the future; [and] failing that,

it must decide whether a service request should be queued for a time, or rejected.” *Id.* at 2:32–39. The method further employs flow modulation that manages the communication and data flow between the server and the clients, adaptation to variations in network capacity, and burst transmissions that provide the opportunity to adapt. *Id.* at 2:39–3:15.

Allen explains that when flow modulation maximizes charges to clients with active sessions, higher paying customers may unwittingly be turned away while granting service to lower paying ones. *Id.* at 16:11–20. To avoid this result, Allen discloses a multimedia delivery method that (i) services awaiting clients in the order of their respective service categories, with higher paying clients first, (ii) guarantees that a client, once accepted, will receive acceptable service irrespective of its service category, and (iii) under heavy load conditions, accepts with a higher likelihood higher paying customers rather than lower paying ones. *Id.* at 16:20–31. The multimedia delivery method implements these objectives by dividing total available bandwidth in as many strata as there are service categories. *Id.* at 16:40–67. For example, when two service categories exist (such as Premium and Basic, each entailing an associated cost of service), a prospective client is accepted only if there is sufficient swing capacity available within its service category. *Id.* The swing capacity for a given category is given by the smaller of 1) the difference between its maximum floor flow rate corresponding to the top of the stratum for the service category, and the sum of the minimum rates of all active sessions in its category or below, and 2) available swing capacity overall. *Id.* Moreover, basic clients (that could consume all available bandwidth in the absence of any premium customers) could be throttled back toward their floor flow rates (e.g., a lower

bandwidth) at any time should any premium customer suddenly demand service. *Id.* In contrast, premium customers are allowed to consume the entire bandwidth. *Id.*

4. *Zisapel (Ex. 1006)*

Zisapel “relates to computer networks in general, and in particular to load balancing client requests among redundant network servers in different geographical locations.” Ex. 1006, code (54), 1:10–15. Zisapel’s apparatus and method manage a computer network connected to the Internet by: sending polling requests through a plurality of routes from the computer network to a remote server computer; receiving replies from the remote server computer corresponding to the polling requests; and measuring proximities of the remote server computer to the computer network based on the received replies. *Id.*, code (57) (Abstract).

E. Ground I

Petitioner challenges claims 1–12 and 14–16 as unpatentable under 35 U.S.C. § 103(a) in view of Auerbach, Tanenbaum, and Allen. Pet. 9, 23–70.

1. *Independent claims 1 and 2*

Limitation [1D] of claim 1 recites “[a management center comprising a mapping engine that is] configured to direct a node relaying the continuous stream of data from the content provider to the first client to replicate the continuous stream of data from the content provider, in response to subsequent requests for the continuous stream of data, while the node is relaying the continuous stream of data from the content provider to the first client, and transmit the replicated stream of data to the at least one other client in response to the subsequent requests for the continuous stream of

data.” Ex. 1001, 17:45–54. Thus the “replicat[ing]” of limitation [1D], *inter alia*, must occur “while the node is relaying the continuous stream of data.”

Claim 2 contains a similar limitation: “relaying the continuous stream of data from the content provider to the first client via the selected node; *replicating* the continuous stream of data from the content provider at the selected node, *in response to subsequent requests* for the continuous stream of data, *while* relaying the continuous stream of data from the content provider to the first client.” Ex. 1001, 18:3–9 (emphasis added). Petitioner relies on its arguments with respect to claim 1 when discussing said claim 2 limitation (Pet. 60–61 (regarding limitations [2D]–[2E])), and Patent Owner addresses claims 1 and 2 collectively (Prelim. Resp. 18–30). Accordingly, we will focus our analysis on claim 1, although it applies to claim 2 as well.

a) Petitioner’s Contentions

Petitioner contends that Auerbach teaches the “relaying” of limitation [1D]. Pet. 47 (“[Auerbach’s video server 207] relaying the continuous stream of data [video title] from the content provider [Auerbach’s content library] to the first client [Auerbach’s client 213]” (citing, *inter alia*, Bhattacharjee Decl. ¶¶ 90–95)).

To illustrate, Petitioner provides an annotated version of Auerbach Figure 2, reproduced below. Pet. 27 (discussing limitation [1B]⁷).

⁷ “a plurality of nodes configured to: relay a continuous stream of data from a content provider to a first client in response to an initial request for the continuous stream of data, replicate the continuous stream of data, and transmit the replicated stream of data to at least one other client”

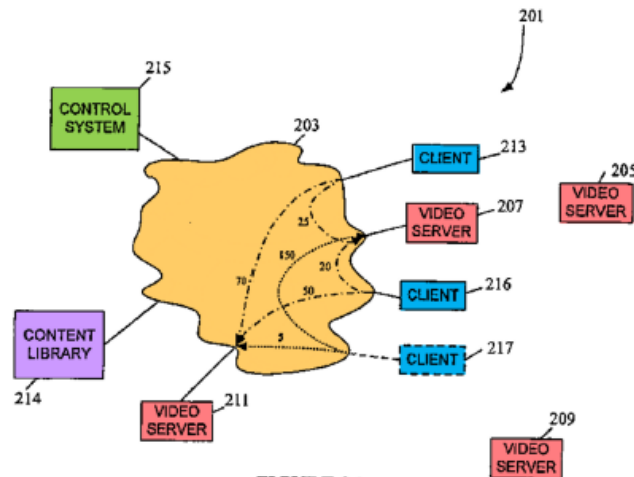
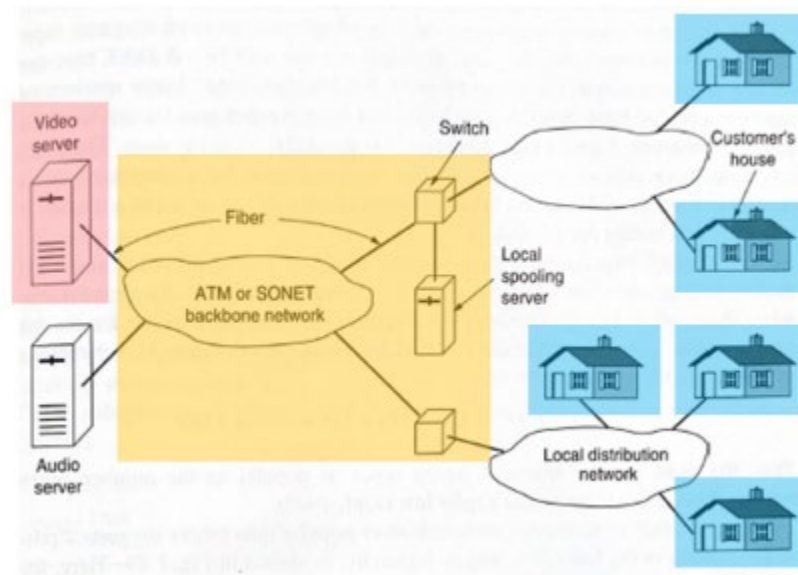


FIGURE 2A

Petitioner’s annotated version of Figure 2A of Auerbach illustrating a content library (214) connected to a wide area network (203) which provides content to servers (e.g., 207) which makes that content available to a client (e.g., 213) upon request.

Turning now to the remainder of limitation [1D], Petitioner contends that a combination of Auerbach and Tanenbaum teaches that limitation. Pet. 46–48. Specifically, Petitioner contends that Tanenbaum discloses “video servers [that] replicate and transmit the *same video title to multiple clients at the same time.*” *Id.* at 29 (citing Ex. 1004, 744–50; Bhattacharjee Decl. ¶ 66). To illustrate, Petitioner provides an annotated version of Figure 7–88 of Tanenbaum, reproduced below, which according to Petitioner shows “a video server [highlighted in pink] transmits video/movie streams to clients over a network [yellow] in response to requests from clients (in ‘customer houses’) [blue].” Pet. 30.



Petitioner’s annotated version of Figure 7–88 of Tanenbaum illustrating a video server [highlighted in pink] transmitting a video stream to customers [blue] over a network [yellow].

According to Petitioner, “Tanenbaum teaches that its video server replicates and transmits copies of a movie to many clients *at the same time*—e.g., as part of a video-on-demand or near-video-on-demand system.” Pet. 31 (citing Ex. 1004, *inter alia*, “744 (‘If video on demand is going to compete successfully..., it may be necessary to allow users [clients] to stop, start, and rewind videos at will. Giving users [clients] this ability virtually forces the video provider to transmit a separate copy [of the video] to each one [i.e., client].’)” (alterations in original); Bhattacharjee Decl. ¶ 68).

As for the two conditions in limitation [1D] requiring the “replicat[ing]” of the content stream (a) “while” “relaying the continuous stream of data from the content provider to the first client”; and, (b) “in response to subsequent requests for the continuous stream of data.”

Petitioner contends, *inter alia*, that:

the combination of Auerbach and Tanenbaum teaches [a management center with a mapping engine] . . . that is configured to direct a node

[Auerbach’s video server 207] relaying the continuous stream of data [video title] from the content provider [Auerbach’s content library] to the first client [Auerbach’s client 213] . . . [and] to replicate the continuous stream of data [the video title] from the content provider [Auerbach’s content library] [e.g., Tannenbaum discloses a video server sending copies of a movie/content stream to multiple clients . . .] . . . while the node is relaying the continuous stream of data from the content provider to the first client [client 213] in response to the subsequent requests for the continuous stream of data and transmit the replicated stream of data to the at least one other client [client 216] [e.g., Tannenbaum discloses a video server sending the requested copies of a content stream “simultaneously,” “at once,” and “at the same time” to multiple clients.

Pet. 46–48 (citing, *inter alia*, Bhattacharjee Decl. ¶¶ 90–95).⁸

Petitioner additionally presents reasoning to combine the teachings of Auerbach and Tanenbaum. *Id.* at 26–35.

b) Patent Owner’s Contentions

Patent Owner contends that the Petition “[f]ail[s] altogether to identify and explain the portions of the asserted art that allegedly teach [claim limitation [1D]’s recited] ‘replicating the continuous stream of data . . . in response to subsequent requests for the continuous stream of data, while [the node is] relaying the continuous stream of data . . .’”. Prelim. Resp. 30 (citing *Intelligent Bio–Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016); 35 U.S.C. § 312(a)(3)).

Regarding Auerbach, Patent Owner directs our attention to Auerbach’s concern over “managing the placement of network content such as video programming for efficient distribution” and that its solution is a “proximity-based content control method [that] ‘propagates’ or positions content based upon ‘proximity’ between various nodes on a network.”

⁸ We do not include Petitioner’s color-coded text.

Ex. 1003, 1:6–10 (a fuller discussion of Auerbach is presented in section II.D.1), code (57); Prelim. Resp. 22–27. Patent Owner explains that Auerbach accomplishes its “proximity-based content control” through “anticipatory loading of content from a library to a server based upon the server’s proximity to a given client-base.” Ex. 1003, code (57); Prelim. Resp. 23. According to Patent Owner, “[t]his type of anticipatory loading of content thus teaches away from replicating a content stream during the relaying of that content in response to subsequent requests for the content by other clients.” Prelim. Resp. 25.

Regarding Tanenbaum, Patent Owner argues that “Tanenbaum is unable to supply” to any combination the recited “replicat[ing]” “while the node is relaying” and “in response to subsequent requests.” Prelim. Resp. 28⁹. “Tanenbaum omits any mention of the temporal requirements of the independent claims which pertain to the replication of the content stream as one of the ways for content organization.” *Id.* According to Patent Owner,

even if Tanenbaum’s video servers may be said to “replicate” content on Tanenbaum’s video servers, such “replicating” is temporally amiss because [it is] not being done [while]¹⁰ the relaying of the stream, and certainly not in response to subsequent requests for the streamed content from other clients, as required by the three independent claims.

Id. at 27–28 (emphases omitted).

⁹ Patent Owner quotes claim 1 as reciting “replicating during relaying” and “replicating in response to subsequent requests,” which do not in fact appear in claim 1. We presume Patent Owner is referring to the actual claim language which is “replicate . . . while the node is relaying” and “in response to the subsequent requests.”

¹⁰ Patent Owner uses the word “during” but the claim uses the term “while.” See footnote 10.

c) Analysis

We agree with Patent Owner’s identified deficiencies in the combination of Tanenbaum and Auerbach. The record shows that neither Auerbach nor Tanenbaum alone disclose “replicat[ing]” “while the node is relaying” and “in response to subsequent requests.” Thus, the question is whether the combination of Auerbach and Tanenbaum would have led one of ordinary skill in the art to limitation [1D].

Petitioner relies on Tanenbaum for the recited “replicat[ing].” Pet. 31. To teach the replicating, Petitioner looks to Tanenbaum’s video-on-demand or near-video-on-demand system, notwithstanding, as Patent Owner (Prelim. Resp. 28) notes, the term “replicat[ing]” does not appear in Tanenbaum. Those systems employ a technique that Petitioner contends meets the claimed “replicating”; that is, Petitioner contends that Tanenbaum’s “video server replicates and transmits copies of a movie to many clients *at the same time—e.g., as part of a video-on-demand or near-video-on-demand system.*” Pet. 31.

But we agree that “even if Tanenbaum’s video servers may be said to ‘replicate’ content on Tanenbaum’s video servers,” Petitioner does not explain adequately how such replication occurs while relaying and in response to subsequent requests as required by the challenged claims. *See* Prelim. Resp. 27–28. Rather, we agree that Tanenbaum teaches video servers that store and output a large number of movies simultaneously. *See id.* at 27 (citing Ex. 1004, 744). Petitioner insufficiently explains how one of ordinary skill in the art would have combined Auerbach’s proximity-based content control method with Tanenbaum’s video servers transmitting copies of a movie to many clients at the same time to reach limitation [1D].

Petitioner provides four rationales that it argues would have led one of ordinary skill in the art to combine Auerbach and Tanenbaum to reach limitation [1D]. Pet. 48 (relying on its discussion of limitation [1B] at Pet. 32–35).

First, Petitioner argues that “Auerbach incorporates Tanenbaum by reference.” Pet. 32 (citing Ex. 1003, 15:39–16:24, 16:25–29; Bhattacharjee Decl. ¶ 70).

We agree that Auerbach incorporates Tanenbaum by reference. *See* Ex. 1003, 16:25–29:

A general discussion of video servers may be found in A. S. Tanenbaum, *Computer Networks*, Third Edition, Prentice Hall PTR, Upper Saddle River, N.J. (1996) [Ex. 1004]. This reference is incorporated herein by reference in its entirety and for all purposes.

See also Pet. 32. But Petitioner does not sufficiently explain how said incorporation–by–reference results in limitation [1D].

Tanenbaum contains a section on video servers that generally discusses a range of possible video servers capable of providing video on demand or near video on demand. Ex. 1004, 745–50. The specific passage that Petitioner is relying upon as teaching “replicating” is equally general. *See* Pet. 48 (citing Ex. 1004, 744):

If video on demand is going to compete successfully with video rental stores, it may be necessary to allow users to stop, start, and rewind videos at will. Giving users this ability virtually forces the video provider to transmit a separate copy to each one.

Ex. 1004, 744. Given the general nature of Tanenbaum’s description of video servers, it is difficult to see how combining such a video server into Auerbach necessarily leads to limitation [1D]. *See* Prelim. Resp. 27–28.

Second, Petitioner argues that “Auerbach and Tanenbaum both relate

to content delivery systems that use video servers for delivering video content to many clients.” Pet. 33 (citing Ex. 1003, 5:11–20; Ex. 1004, 744; Bhattacharjee Decl. ¶ 71). Petitioner states that

Auerbach’s video server delivers movies to clients using video-on-demand and near-video-on-demand techniques. Ex-1003-Auerbach, 1:11-21, 15:64-66. Tanenbaum’s video servers likewise deliver videos to clients using video-on-demand and near video-on-demand techniques, and these techniques enable the video server to deliver the same video to many clients at the same time. Ex-1004-Tanenbaum, 744, 747. Ex-1002-SB-Decl. ¶72.

Id. This shows that Auerbach and Tanenbaum are in the same field of endeavor. But being in the same field of endeavor does not help explain whether one of ordinary skill in the art would have reached limitation [1D] by combining Auerbach and Tanenbaum.

Third, Petitioner argues that “Tanenbaum discloses the benefits of using its replicating technique—*e.g.*, greater efficiency and lower cost when delivering the same video to multiple clients—in a video server system like Auerbach.” Pet. 34 (citing Ex. 1004, 744, 747; Bhattacharjee Decl. ¶ 73). In support, Petitioner quotes Tanenbaum as stating “[t]his scheme... called near video on demand... offers the potential for much lower cost, because the same feed [video] from the video server can go to many users [clients] at once” and that its “video server efficiently handles many ‘simultaneous paying customers’).” Ex. 1004, 744 and 747, respectively; Pet. 34.

We read these statements as attaching the benefits more specifically to the “scheme called near video on demand” and expending “for a 10 million dollar video server,” respectively, and not necessarily to “replicating” per se. *See* Pet. 34. Be that as it may, offering such benefits does not provide us with any insight into how one of ordinary skill in the art would have

combined Tanenbaum’s “replicating” and Auerbach to reach limitation [1D]. Nor does Petitioner explain adequately how the touted benefit of “lower cost” is achieved when using “the most expensive” video servers required for Tanenbaum’s video on demand. *See* Ex. 1004, 747.

As additional support, Petitioner cites Dr. Bhattacharjee’s testimony:

[A] POSITA would have been motivated to combine Tanenbaum with Auerbach given that Tanenbaum discloses the benefits of having a video server making a copy of (*i.e.*, replicating) video content and transmitting the replicated content to multiple clients.

Bhattacharjee Decl. ¶ 73; Pet. 34. Dr. Bhattacharjee further testifies that:

As a result, a POSITA would have been motivated to use Tanenbaum’s teachings (regarding replicating and delivering copies of the replicated content) in Auerbach’s system so that Auerbach’s video server would benefit from increased efficiency and cost savings.

Bhattacharjee Decl. ¶ 73. But we do not see how benefits one might obtain from including Tanenbaum’s “replicating” in Auerbach helps us understand how one of ordinary skill in the art would have incorporated Tanenbaum’s teachings into Auerbach’s system to reach the requirements of limitation [1D]

Finally, fourth, Petitioner argues that “[a] POSITA would have had a reasonable expectation of success in applying Tanenbaum’s replication teachings to Auerbach’s video servers because it would have involved applying well-known techniques to well-known video server systems—Tanenbaum is literally ‘textbook’ technology.” Pet. 34 (citing Ex. 1004, 744–47. Petitioner provides, side-by-side, annotated versions of Figure 6 of Auerbach and Tanenbaum Figure 7–90 to show that “Auerbach and Tanenbaum both describe video servers with similar, well-known

components.” *Id.* (citing Ex. 1003, Fig. 6, 15:39–17:24; Ex. 1004, Fig. 7-90, 745–48; Bhattacharjee Decl. ¶ 74). According to Petitioner

applying Tanenbaum’s teachings to Auerbach would have been a matter of routine implementation well within the skill of a POSITA and would have yielded predictable results—*e.g.*, Auerbach’s video server simultaneously delivering the same video to multiple clients in response to their requests—with a reasonable expectation of success.

Id. at 35 (citing Bhattacharjee Decl. ¶ 75).

The difficulty here is similar to the difficulties we have with the other rationales. Petitioner does not sufficiently explain how one of ordinary skill in the art would have combined Tanenbaum’s “replicating” with Auerbach and reached limitation [1D]. The fact that Auerbach and Tanenbaum both use similar video servers with similar, well-known components, is insufficient to show that one of ordinary skill in the art would have been led to limitation [1D] by combining Auerbach and Tanenbaum. Limitation [1D] is specific, calling for “[a management center comprising a mapping engine that is] configured to direct a node relaying the continuous stream of data from the content provider to the first client to replicate the continuous stream of data from the content provider, in response to subsequent requests for the continuous stream of data, while the node is relaying the continuous stream of data from the content provider to the first client, and transmit the replicated stream of data to the at least one other client in response to the subsequent requests for the continuous stream of data.” The fact that Auerbach and Tanenbaum both use similar video servers with similar, well-known components does not provide any insight into whether combining Tanenbaum and Auerbach would necessarily result in a system satisfying the temporal requirements of limitation [1D].

We have reviewed Dr. Bhattacharjee’s testimony that Petitioner cites but are unable to gain any insight into how combining Tanenbaum and Auerbach yields limitation [1D]. We agree with Patent Owner that “Dr. Bhattacharjee [does not] make any effort to explain how serving the same content to multiple, different clients at the same time [i.e., Tanenbaum] meets the claim limitation that the content be replicated by a selected node during its relay to the first client.” Prelim. Resp. 28–29 (discussing Bhattacharjee Decl. ¶ 75).

d) Conclusion

After considering Petitioner’s and Patent Owner’s contentions in light of the supporting evidence on this record, we agree with Patent Owner that the Petition insufficiently identifies the evidence in support of its contention that “the combination of Auerbach and Tanenbaum teaches” limitation [1D] (Pet. 46). The rationales Petitioner has put forward as motivating one of ordinary skill in the art to combine Auerbach and Tanenbaum do not help explain how one of ordinary skill in the art would have combined Auerbach and Tanenbaum to reach limitation [1D].

Summary as to claims 1 and 2

Petitioner insufficiently shows that the combination of Auerbach and Tanenbaum would lead one of ordinary skill in the art to limitation [1D].

Allen is relied upon for limitation [1E]. Pet. 49–58. Since we find that Petitioner does not sufficiently show the combination of Auerbach and Tanenbaum suggests limitation [1D], we need not address whether Allen meets the subject matter of limitation [1E] as Petitioner has alleged.

For the foregoing reasons, Petitioner has not sufficiently shown that the combination of Auerbach, Tanenbaum, and Allen would have rendered

the subject matter of claim 1 obvious to one of ordinary skill in the art. Accordingly, we determine that Petitioner has not shown a reasonable likelihood of establishing the obviousness of claim 1 under Ground I.

As noted above, Petitioner also challenges independent claim 2 on the same grounds for similar reasons. The analysis presented above for claim 1 applies equally to claim 2. Accordingly, we determine that Petitioner has not shown a reasonable likelihood of establishing the obviousness of claim 2 under Ground I.

2. *Claims 3–12 and 14–16*

Dependent claims 3–12 and 14–16 depend from one of claims 1 and 2, and therefore require all the limitations of claims 1 or 2. Thus, the analysis presented above for claims 1 and 2 applies equally to claims 3–12 and 14–16. For the reasons discussed with respect to claims 1 and 2, Petitioner has not provided a sufficient showing that all the limitations of claims 3–12 and 14–16 of the '426 patent are disclosed or rendered obvious by the combination of Auerbach, Tanenbaum, and Allen.

Accordingly, we determine Petitioner has not shown a reasonable likelihood of establishing the obviousness of claims 3–12 and 14–16 under Ground I.

F. Ground II

Petitioner sets forth an additional ground (Ground II) challenging claim 13 based on a combination of Auerbach, Tanenbaum, Allen, and Zisapel. Pet. 9, 71–74.

Claim 13 depends from claim 2, and therefore requires all the limitations of claim 2.

Based on our consideration of Ground I, we determine that for purposes of institution, Petitioner has not sufficiently shown that the cited prior art combination discloses or renders obvious the subject matter of claim 13.

H. Ground III

Petitioner sets forth an additional ground (Ground III) challenging independent claim 17 based on a combination of Auerbach and Tanenbaum. Pet. 9, 75–82.

Claim 17 includes a limitation ([17F]) that is similar to the one ([1D]) we discussed in relation to Ground I; to wit, “replicating the continuous stream of data from the content provider, in response to subsequent requests for the continuous stream of data, while relaying the continuous stream of data from the content provider through the one or more nodes to the first client.” Ex. 1001, 19, 10–14 (claim 17; [17F]).

Petitioner’s position is the same as advanced for claim 1. *See* Pet. 82 (“Auerbach discloses Elements [17F]-[17G] for the reasons provided for Elements [1B] and [1D].”)

Based on our consideration of Ground I, we determine that for purposes of institution, Petitioner has not sufficiently shown that the cited prior art combination discloses or renders obvious the subject matter of claim 17.

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has not demonstrated a reasonable likelihood that it would prevail with respect to at least one of the claims challenged in the Petition. We decline to institute an *inter partes* review.

IV. ORDER

It is

ORDERED that the Petition is denied; and

FURTHER ORDERED that that no *inter partes* review is instituted.

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Patent 8,559,426 B2

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