

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

WAG ACQUISITION, L.L.C.,
Patent Owner.

IPR2022-01413
Patent 9,762,636 B2

Before HUBERT C. LORIN, JOHN A. HUDALLA, and
STEVEN M. AMUNDSON, *Administrative Patent Judges*.

LORIN, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background

Google LLC (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–12 of U.S. Patent No. 9,762,636 B2 (Ex. 1001, “the ’636 patent”). WAG Acquisition, L.L.C. (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

We have jurisdiction under 35 U.S.C. § 6.

Upon consideration of the arguments and evidence presented by Petitioner, we are persuaded that Petitioner has demonstrated, under 35 U.S.C. § 314(a), a reasonable likelihood that it would prevail in showing the unpatentability of at least one challenged claim.

For the reasons stated below, we institute *inter partes* review as to challenged claims 1–12 of the ’636 patent.

B. Related Proceedings

Petitioner indicates that the ’636 patent is asserted in pending district court litigation styled *WAG Acquisition, L.L.C. v. Google LLC*, No. 6:21-cv-00816-ADA (W.D. Tex.). Pet. 1; *see also* Paper 3 (Patent Owner’s Mandatory Notices), 2.

Petitioner indicates that the ’636 patent is also the subject to the following other pending district court litigations:

- *WAG Acquisition, LLC v. The Walt Disney Company*, No. 2:21-cv-08230 (C.D. Cal., filed Oct. 18, 2021); and,
- *WAG Acquisition, LLC v. Amazon.com, Inc.*, No. 6:21-cv-00815 (W.D. Tex., filed Aug. 6, 2021).

Pet. 1; Paper 3, 2.

Petitioner also makes us aware that the '636 patent is the subject of pending Office proceeding IPR2022-01227 (P.T.A.B.) (filed July 13, 2022). Pet. 1–2. Patent Owner makes us aware that the '636 patent is also subject to the pending Office proceeding IPR2022-01433 (P.T.A.B.) (filed Aug. 23, 2022). Paper 3, 4–5.

Patent Owner makes us aware of other district court litigations involving U.S. Patent Nos. 6,766,376, 8,122,141, 8,327,011, 8,185,611, 8,364,839, 9,742,824, and 9,729,594 related to the '636 patent. Paper 3, 2–4. Patent Owner makes us aware of other Office proceedings involving U.S. Patent Nos. 8,122,141, 8,327,011, 8,185,611, 8,364,839, 9,729,594, and 9,742,824, related to the '636 patent. *Id.* at 4–8.

C. Real Party in Interest

Petitioner identifies Google LLC and YouTube LLC as real parties in interest. Pet. 1. According to Patent Owner, “WAG ACQUISITION, L.L.C. is the real party in interest.” Paper 3, 2.

D. The '636 Patent (Ex. 1001)

1. Disclosure

The '636 patent, titled “Streaming Media Delivery System,” relates “to systems and methods for delivering streaming media, such as audio and video, on the Internet.” Ex. 1001, code (54), 1:52–55.

The '636 patent describes problems with prior-art streaming technologies, where “users viewing or listening to streaming content over Internet connections often encounter interruptions, due to the frequency of unanticipated transmission delays and losses that are inherent in many Internet protocols.” *Id.* at 2:34–38. The patent describes prior-art methods

of addressing this, involving a “pre-buffering technique to store up enough audio or video data in the user’s computer so that it can play the audio or video with a minimum of dropouts.” *Id.* at 2:42–45. After several seconds waiting for playback to begin, the “audio or video data is delivered from the source at the rate it is to be played out.” *Id.* at 2:63–65. Playback would continue, but could still be interrupted by network interruptions. *Id.* at 3:5–41.

The ’636 patent addresses this by, for example, “sending initial streaming media elements to the user system at a sending rate more rapid than the playback rate, to fill the user buffer,” and then continuing sending media elements “at about the playback rate.” *Id.* at 3:60–64. Figure 1, reproduced below, shows a block diagram of the elements of the streaming media buffering system of the ’636 patent. *Id.* at 4:23–25.

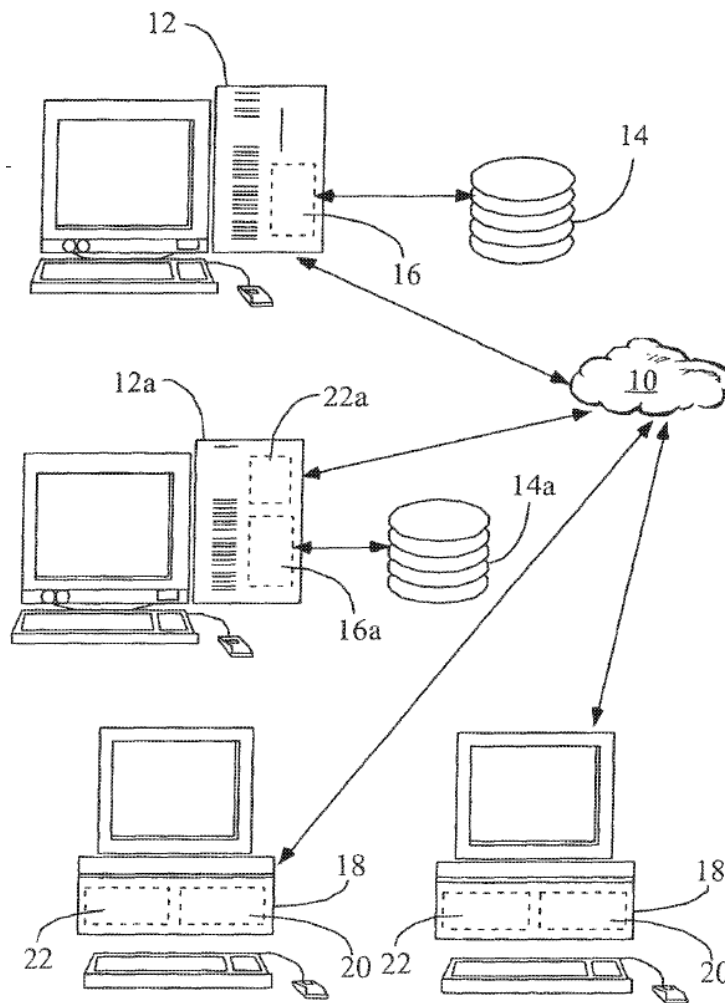


Figure 1 shows streaming server 12, Internet 10, server buffer 14, buffer manager 16, and user computer 18, with buffer 20. *Id.* at 6:30-52.

When a user connects to the server 12, the server transmits audio/video data, as sequential data elements, from the server's buffer 14 to the user buffer 20, at a higher-than-playback rate. *Id.* at 9:36–39. The “media begins to play on the user computer 18 as soon as the user connection is made to the audio server 12 and a minimal amount of data elements have been received and stored in the user's buffer 20.” *Id.* at 9:40–45.

Additionally, the patent describes the user playback device “maintaining a record of the identifier of the last sequential media data element that has been received by said player,” and then “requesting transmission of the next sequential media data elements following said last sequential media data element.” *Id.* at 4:7–11. The patent also describes that:

If the interruptions are so severe as to deplete the user’s buffer and stop the play out, the media player can quickly recover as well, by beginning to play out again without waiting to first build up the buffer, as soon as the media player begins to receive media data elements.

Id. at 6:25–29. The “source server 12 sends the media as sequential data elements at a rate dependent on the quality of the connection with each user computer 18.” *Id.* at 11:13–16.

Initially, the user buffer manager 22 requests the server 12 send media data elements, to start playback. *Id.* at 9:46–47. The server sends elements, at a rate “higher than the playback rate,” until the server’s buffer has been sent. *Id.* at 9:48–53. A “feedback manager may be associated with user computer 18, including means for sending to the source server the serial number of the last data element received, or for requesting more data.” *Id.* at 10:50–53.

2. Claims 1, 3, 4, and 6

Petitioner challenges claims 1–12. Pet. 1. Claims 1, 5, and 9 are independent.

Claim 1 is the independent claim from which claims 2–4 depend. It is reproduced below. Bracketing is added to assist in referring to the claim elements.

1. [preamble]¹ A method for distributing a live audio or video program over the Internet from a server system to a plurality of user systems, the method comprising:
 - 1[a] receiving at the server system a continuous digitally encoded stream for the audio or video program, via a data connection from a live source, in real time, the server system comprising at least one computer;
 - 1[b] upon receipt of the stream by the server system,
 - 1[b(i)] supplying, at the server system, media data elements representing the program, each media data element comprising a digitally encoded portion of the program and having a playback rate,
 - 1[b(ii)] serially identifying the media data elements, said serial identification indicating a time sequence of the media data elements, and
 - 1[b(iii)] storing the media data elements in a data structure under the control of the server system;
 - 1[c] receiving requests at the server system via one or more data connections over the Internet, for one or more of the media data elements stored in the data structure,
 - 1[c(i)] each received request specifying one or more serial identifiers of the requested one or more media data elements,
 - 1[c(ii)] each received request originating from a requesting user system of a plurality of user systems; and
 - 1[d] responsive to the requests, sending, by the server system, the one or more media data elements having the one or more specified serial identifiers, to the requesting user systems corresponding to the requests; wherein
 - 1[d(i)] the data connection between the server system and each requesting user system has a data rate more rapid than the playback rate of the one or more media data elements sent via that connection;

¹ Petitioner's designations to reference the elements of claim 1 are set forth in brackets. Pet. 13–47. Herein we refer to the elements of claim 1 using Petitioner's designations.

- 1[d(ii)] each sending is at a transmission rate as fast as the data connection between the server system and each requesting user system allows;
- 1[d(iii)] the one or more media data elements sent are selected without depending on the server system maintaining a record of the last media data element sent to the requesting user systems;
- 1[d(iv)] all of the media data elements that are sent by the server system to the plurality of user systems are sent in response to the requests; and
- 1[d(v)] all of the media data elements that are sent by the server system to the requesting user systems are sent from the data structure under the control of the server system as the media data elements were first stored therein.

Ex. 1001, 16:28–17:8.

E. Asserted References and Testimonial Evidence

Petitioner relies on the following references:

Name	Reference	Ex. No.
Carmel	U.S. Patent No. 6,389,473 B1, issued May 14, 2002	1003
Ravi	U.S. Patent No. 6,292,834 B1, issued Sept. 18, 2001	1004
Narayan	U.S. Patent No. 6,008,853, issued Dec. 28, 1999	1005

Petitioner also relies on the Declaration of Nathaniel Polish, Ph.D. (Ex. 1002, “Polish Decl.”) as support for the various contentions.

F. Asserted Grounds

Petitioner contends that claims 1–12 of the ’636 patent are unpatentable under the following grounds:

Ground	Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
I	1–12	103(a) ²	Carmel
II	1–12	103(a)	Carmel, Narayan
III	1–12	103(a)	Carmel, Ravi
IV	1–12	103(a)	Carmel, Narayan, Ravi

Pet. 4.

II. ANALYSIS

A. *Principles of Law for Patentability*

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

² The Leahy-Smith America Invents Act, Pub. L. No. 112–29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. §§ 102 and 103. Because the challenged claims of the ’636 patent have an effective filing date before the effective date of the applicable AIA amendments, we refer to the pre-AIA version of 35 U.S.C. §§ 102 and 103 throughout this Decision.

evidence of nonobviousness. *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”)). This burden of persuasion does not shift to Patent Owner, except in limited circumstances not present here. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

B. Level of Ordinary Skill in the Art

Petitioner contends a person of ordinary skill in the art

as of the alleged priority date would have possessed at least a bachelor’s degree in computer science or an equivalent field requiring learning computation principles, and two years of work experience in networking or streaming media systems, particularly audio and video, over the Internet. Additional education could compensate for less practical experience. Conversely, additional practical experience could compensate for less education.

Pet. 8–9 (citing Polish Decl. ¶¶ 21–23).

Patent Owner “does not dispute [Petitioner’s] characterization of a” person of ordinary skill in the art at this stage of the proceeding. Prelim. Resp. 14.

Petitioner’s proposed definition of a person of ordinary skill in the art appears reasonable, and we adopt that definition for our analysis in this decision.

Moreover, Petitioner’s proposed definition appears to be consistent with the level of skill reflected by the prior art of record. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

C. Claim Construction

“[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 claim[s] as [would have been] understood by one of ordinary skill in the art and the prosecution history 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).

Petitioner provides a table of “[c]laim terms [which] have been proposed for construction by Petitioner.” Pet. 9–10. But it “does not presently contend that any term requires express construction.” *Id.* at 9.

Patent Owner indicates, *inter alia*, that it “disagrees with the constructions of certain terms Petitioner has proffered.” Prelim. Resp. 15 (citing Pet. 10). According to Patent Owner, “the claim terms are entitled to their plain and ordinary meaning.” *Id.* However, Patent Owner does not presently contend that any claim term requires express construction. *See generally* Prelim. Resp. 14–19.

We determine that express construction of any term is not required at this stage. To the extent the meaning of any other term requires discussion, we provide it in our analysis of the patentability challenges. In that regard, 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).

Patent Owner discusses findings in earlier proceedings related to U.S. Patent 8,122,141. *See* Prelim. Resp. 15–19; Ex. 1061. This is prompted by Patent Owner's belief that the "Petition suggests that claim constructions and factual findings from earlier Board decisions concerning the '141 patent are applicable here." *Id.* at 15 (citing "*e.g.*, Petition at 34 n.4, 36 n.5"). However, as Patent Owner acknowledges, "[t]he Petition advances no legal arguments as to why findings from earlier proceedings against another patent should be applicable here." *Id.* Accordingly, we find it unnecessary to address claim constructions and factual findings from earlier Board decisions concerning the '141 patent at this stage.

D. Overview of the Prior Art References

1. Carmel (Ex. 1003)

Carmel describes a method for streaming live or prerecorded media from a server to multiple client computers over the Internet. Ex. 1003, 2:1–21. Clients connect to a server to receive a multimedia sequence, "substantially in real time." *Id.* at 7:4–5. Figure 3A of Carmel is reproduced below.

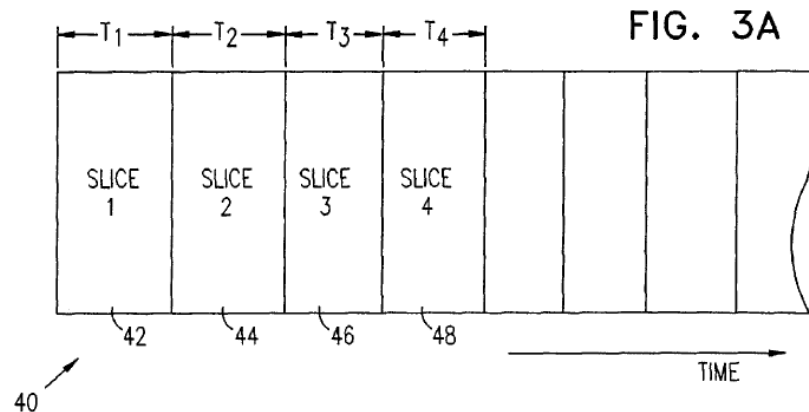


Figure 3A is a block diagram that schematically illustrates a data structure of a stream of broadcast data 40, typically corresponding to a multimedia data sequence. *Id.* at 7:18–22.

Data stream 40 comprises a series of data slices 42, 44, 46, 48, etc., with each slice containing a segment of video and/or audio data that corresponds to a respective, successive time interval T₁, T₂, T₃, etc. Ex. 1003, 7:22–25. Each slice is stored as a corresponding file with a running slice index 1, 2, 3, . . . N, and perhaps also a time stamp that indicates a real time at which the data in the file were recorded or an elapsed time relative to the beginning of the stream. *Id.* at 7:27–32. An index file that comprises a slice ID is uploaded to a server, with the slice ID indicating the index of the file in the data stream that was most recently uploaded. *Id.* at 7:59–64. Each time a new file is uploaded, the slide ID is updated. *Id.* at 7:65–66.

When a client computer connects to the stream, the client computer downloads and analyzes the index file to identify at what point in the stream to begin, to receive the data stream from that point in substantially real time as it is transmitted. Ex. 1003, 8:1–7. For example, a user interface graphic

“slider” may be displayed to computer users, allowing individual users to select the starting point of the streamed media. *Id.* at 8:17–31.

2. *Ravi (Ex. 1004)*

Ravi, titled “Dynamic Bandwidth Selection for Efficient Transmission of Multimedia Streams in a Computer Network,” relates “to the efficient and reliable delivery of multimedia streams over a diverse computer network with dynamically variable bandwidth capacity.” Ex. 1004, code (54), 1:56–60. Ravi seeks “efficient transmission of multimedia streams from a server to a client computer over a diverse computer network including local area networks (LANs) and wide area networks (WANs) such as the internet.” *Id.* at 3:2–6. The “client computer includes a playout buffer, and the transmission rate is dynamically matched to the available bandwidth capacity of the network connection between the server and the client computer.” *Id.* at 3:11–15. The “performance bottleneck is the bandwidth capacity of the network connection.” *Id.* at 7:6–10.

2. *Narayan (Ex. 1005)*

Narayan, titled “Sub-Frame Decoder with Area Dependent Update Rate for Digital Camcorder Transmission Standard,” relates to “encoded video image decoding and especially software only decoding on a personal computer.” Ex. 1005, code (54), 1:10–12. Narayan “employs a digital camcorder to generate the stream of video image data. This is transmitted to a personal computer, preferably a notebook computer, for decoding and display.” *Id.* at 1:66–2:2.

E. Ground 1—Obviousness over Carmel Alone

Petitioner challenges claims 1–12 as unpatentable under 35 U.S.C. § 103(a) over Carmel. Pet. 13–54.

1. Claim 1

Petitioner contends that Carmel teaches or renders obvious all that is claimed. *See* Pet. 13–47.

We observe that Patent Owner has not responded to Petitioner’s challenge as to the preamble and limitations 1[a]–1[d] and 1[d(v)] with any particularity at this stage of the proceeding. *See generally* Prelim. Resp. 19–36. As to these limitations, we have reviewed the evidence Petitioner has presented, briefly discussed below with respect to each limitation, and based on that evidence we determine that at this stage Petitioner sufficiently shows on this record that Carmel teaches the preamble and limitations 1[a]–1[d] and 1[d(v)] as claimed.

Our discussion of limitations 1[d(i)]–1[d(iv)] addresses Patent Owner’s specific arguments.

1. [preamble] A method for distributing a live audio or video program over the Internet from a server system to a plurality of user systems, the method comprising:

Petitioner contends that Carmel teaches the preamble. Pet. 13–14 (citing Ex. 1003, 2:1–4, Abstract).

Petitioner reproduces Figure 2 of Carmel (reproduced below) and explains that “computer 34 ‘receives audiovisual input from input device 22,’ where input device 22 may be a video camera (to capture video and/or audio) or a microphone (to capture audio).” Pet. 14 (citing Polish Decl.

¶ 95). Petitioner explains that Carmel teaches a system whereby computer 34 is a transmitting computer which generates a “multimedia sequence.” *Id.* (citing Ex. 1003, 6:28-30, see also 6:26). According to Petitioner, a person of ordinary skill in the art would understand “‘multimedia’ refers to a broad array of communications, including live video or audio.” *Id.* (citing Ex. 1003, 6:32–35).

In support of its contention that Carmel teaches distributing the live audio or video over the Internet, Petitioner quotes Carmel: “[computer 34,] a plurality of clients 30, and network server 36, all of which communicate over network 28, preferably using the well-known Internet Protocol (IP).” Pet. 14 (quoting Ex. 1003, 6:28–31, referring to Figure 2, reproduced below).

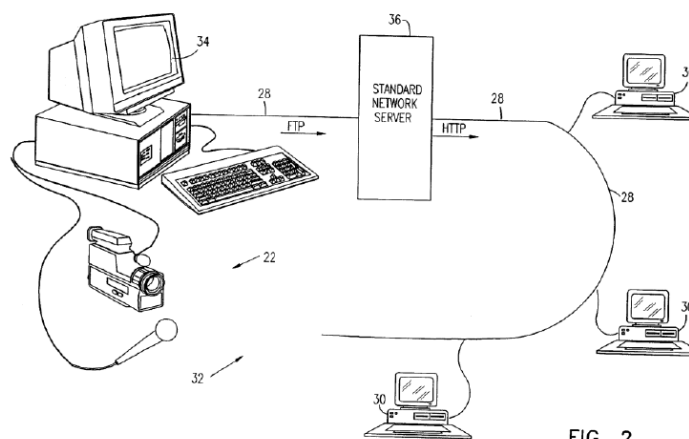


FIG. 2

Figure 2 is a schematic illustration of a computer system comprising a transmitting computer 34 that receives audiovisual input from device 22, a plurality of clients 30, and a network server 36, all communicating with each other over a network 28. Ex. 1003, 6:24–35.

In our view, at this stage, Petitioner sufficiently shows on this record that Carmel teaches the preamble as claimed.

1[a] receiving at the server system a continuous digitally encoded stream for the audio or video program, via a data connection from a live source, in real time, the server system comprising at least one computer;

Petitioner contends that Carmel teaches this step. Pet. 15–16.

Petitioner points to input device 22 as the “live source” in Carmel’s system. Pet. 15 (referring to Figure 2, *see supra*). According to Petitioner, it “provides an ‘audiovisual input’ to the transmitting computer 34.” *Id.* (citing Ex. 1003, 6:32–35).

Petitioner further explains that the “input devices 22 (live source) in Carmel’s system shares a ‘data connection’ with the server system [i.e., transmitting computer 34 and server 36].” Pet. 16. “In Carmel’s embodiment illustrated in Figure 2, the ‘data connection’ is the communication wire connecting the input device(s) 22 to the computer 34.” *Id.* (citing Polish Decl. ¶ 98).

As for the limitation “receiving at the server system a *continuous digitally encoded stream* for the audio or video program,” Petitioner contends that computer 34 receives such a stream from input device 22. Pet. 17 (citing Polish Decl. ¶ 99). That input device 22 transmits such a stream would have been obvious to a person of ordinary skill in the art, according to Petitioner, “[g]iven the state of the art and the common use of digital recording equipment.” *Id.* (citing Polish Decl. ¶ 100). As evidence of the state of the art, Petitioner cites, *inter alia*, video cameras “well known in the art that . . . could output video in digital format to a computer as by the mid-1990s, [such as] the DV (digital video) standard [that] was widely adopted by the camera and video industry.” *Id.* (citing e.g., Ex. 1021, 3; Polish Decl. ¶ 100).

In our view, at this stage, Petitioner sufficiently shows on this record that Carmel teaches the “receiving” step as claimed.

1[b] upon receipt of the stream by the server system,

Petitioner reiterates its contention (see discussion with respect to limitation 1[a]) that Carmel teaches computer 34 (which is part of the server system) receiving an audiovisual input from input device 22. Pet. 18 (quoting Ex. 1003, 6:32–33, 9:64–65 (“Broadcast data are then input to the computer, for example, from input devices 22”)). According to Petitioner, this teaching meets the limitation. *Id.*

In our view, at this stage, Petitioner sufficiently shows on this record that Carmel teaches the limitation as claimed.

1[b(i)] supplying, at the server system, media data elements representing the program, each media data element comprising a digitally encoded portion of the program and having a playback rate,

Petitioner contends that Carmel teaches this step. Pet. 18–21.

Petitioner contends that “Carmel teaches . . . the audiovisual data is input to the computer 34 from the input devices 22.” Pet. 19 (citing Ex. 1003, 7:19–21, 9:66–67). According to Petitioner, this shows Carmel teaches “supplying” audiovisual data “at the server system,” as claimed. *Id.*

Petitioner explains that, after the input, “the data is compressed into data stream 40.” Pet. 19 (citing Ex. 1003, 7:19–21, 9:66–67). “This data stream 40 is ‘then “sliced” . . . into files 42, 44, 46, 48, etc., as shown in FIG. 3A.’” *Id.* (quoting Ex. 1003, 9:67–10:1). Petitioner reproduces Figure 3A of Carmel showing said slices. *Id.* (reproduced below and above in section II.D.1.).

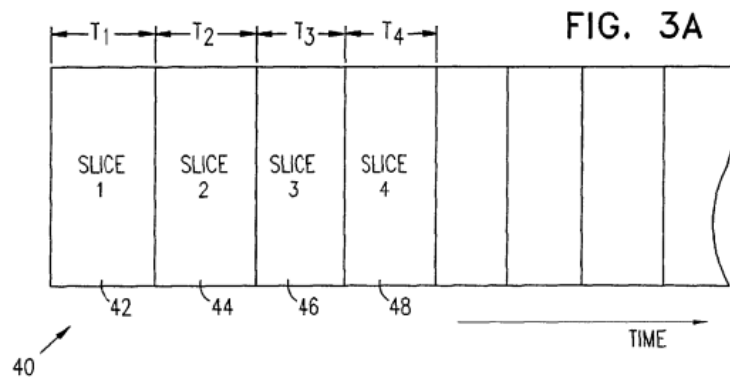


Figure 3A is a block diagram that schematically illustrates a data structure of a stream of broadcast data 40, typically corresponding to a multimedia data sequence. Ex. 1003, 7:18–22.

Petitioner contends that “[e]ach ‘slice’ of the data stream 40 corresponds to a ‘media element.’” Pet. 19 (citing Polish Decl. ¶ 108). In support, Dr. Polish testifies that

Carmel teaches “[e]ach slice contains a segment of video and/or audio data, corresponding to a respective, successive time interval T_1 , T_2 , T_3 , etc.” (Carmel, 7:23–25.) The compilation of slices of the data stream 40 thus “represent the program” of audiovisual data that was provided to computer 34.

Polish Decl. ¶ 108; Pet. 19.

These segments (i.e., slices) meet the “media data elements” limitation of the step because, according to Petitioner, “[t]he ’636 patent explains media data elements are segments of the media data . . . provided to the server system.” Pet. 19–20 (citing Ex. 1001, 6:30–32, 7:16–35, 8:4–6, 9:36–38, 9:45–45, 10:9–12; Polish Decl. ¶ 108).

As for “each media data element comprising a *digitally encoded portion* of the program,” Petitioner contends that a person of ordinary skill in the art would understand that “audiovisual data received by the computer 34 would be digitally encoded.” Pet. 20 (Polish Decl. ¶ 109). Dr. Polish

explains that, when “the digitally encoded data stream 40 (*i.e.*, program) is sliced into portions, . . . each data slice comprises a portion of the program,” and thus would be digitally encoded as well. Polish Decl. ¶ 109; Pet. 20.

As for “each media data element . . . having a playback rate,” Petitioner contends that “[e]ach data slice (media data element) [of Carmel’s data stream 40] has a playback rate.” Pet. 20. In support, Dr. Polish testifies that

[a] person of ordinary skill in the art would therefore understand that a slice of audiovisual data, such as a segment of a video or a segment of an audio recording, would naturally have a playback rate, *i.e.* the rate at which that segment of video or audio plays at normal speed from beginning to end. This is confirmed by Carmel, which explains each slice corresponds to “a respective, successive time interval labeled T_1 , T_2 , T_3 , etc.” (Carmel, 7:23-25.)

Polish Decl. ¶ 111; Pet. 21.

In our view, at this stage, Petitioner sufficiently shows on this record that Carmel teaches the “supplying” step as claimed.

1[b(ii)] serially identifying the media data elements, said serial identification indicating a time sequence of the media data elements, and

Petitioner contends that it would have been obvious to one of ordinary skill in the art to serially identify “media data elements” to indicate a time sequence. Pet. 22–24.

Petitioner explains that Carmel teaches that each slice (*i.e.*, “media data element”) of data stream 40 is identified via a “running slide index.” Pet. 22 (citing Ex. 1003, 2:6–7 (“[e]ach slice is preferably assigned a respective slice index”), 7:27–28). According to Petitioner, “the slices are

identified ‘serially’ because each new slice (and corresponding slice index) is identified by the next available spot in the running slice index.” *Id.* (citing Polish Decl. ¶ 115).

Petitioner contends that it is obvious that the serial identifications (of the slices of Carmel’s data stream 40) “indicat[e] a time sequence.” Pet. 23. This is so because, according to Dr. Polish, a person of ordinary skill in the art “would understand the order of slice indices in the running slice index indicates a ‘time sequence’ of the slices.” Polish Decl. ¶ 116 (footnote omitted); Pet. 23.

In our view, at this stage, Petitioner sufficiently shows on this record that Carmel teaches the “serially identifying” step as claimed.

1[b(iii)] storing the media data elements in a data structure under the control of the server system;

Petitioner contends that Carmel teaches storing media elements in a data structure under the control of the server system. Pet. 24–25.

Petitioner explains that Carmel teaches “the memory available on server 36 is limited, and files 42, 44, 46, etc., will be stored on the server and erased therefrom in a ‘first-in-first-out’ sequence.” Pet. 25 (quoting Ex. 1003, 7:55–58). According to Petitioner, such a storage within a server/memory meets the claimed “data structure” because the ’636 patent similarly describes the “data structure” operating in a first in, first out, sequence. *Id.* (“The ’636 patent [also] characterizes the claimed ‘data structure’ as a FIFO (first in, first out) buffer.”) (citing Ex. 1001, 7:15–35 (“FIFO Server Buffer Implementation”)).

Petitioner further contends that “Carmel’s server 36 and/or the memory structure within that server 36 (data structure) is ‘under the control

of the server system’ [as claimed]” because server 36 is part of Carmel’s server system. Pet. 25 (citing Polish Decl. ¶ 122).

In our view, at this stage, Petitioner sufficiently shows on this record that Carmel teaches the “storing” step as claimed.

1[c] receiving requests at the server system via one or more data connections over the Internet, for one or more of the media data elements stored in the data structure,

Limitation 1[c] requires the server system to receive requests via a data connection over the Internet for the stored media elements. Petitioner explains that Carmel teaches this. Pet. 25–26. “Carmel’s server 36 receives requests via Internet data connections for one or more of the data slices (media data elements) stored in server 36.” Pet. 26 (citing Polish Decl. ¶ 126). Petitioner reproduces Figure 2 (*see supra*) which, according to Petitioner, “clearly teaches the client devices submit requests for multimedia data, and the server system receives those requests.” *Id.* (citing Polish Decl. ¶¶ 126–127).

In our view, at this stage, Petitioner sufficiently shows on this record that Carmel teaches the “receiving” step as claimed.

1[c(i)] each received request specifying one or more serial identifiers of the requested one or more media data elements,

Limitation 1[c(i)] further requires that each received request specify a serial identifier of the requested media data elements. Petitioner explains that Carmel teaches this because “Carmel discloses the client request for a particular data slice 42, 44, 46, etc. specifies the slice by referencing the corresponding slice index.” Pet. 27. As an example, Petitioner quotes Carmel: “When one of computers 30 connects to server 36 and begins to

download the data stream, it first reads the index file [50] in order to identify at what point in stream 40 to begin and to start receiving the data stream.”

Id. (quoting Ex. 1003, 8:1–5; citing 10:42–48, Polish Decl. ¶ 131).

Petitioner explains that Carmel teaches that “the request for a particular slice of data stream 40 specifies the serial indicator (slice index) of the requested slice.” *Id.* at 28–29. Petitioner provides an annotated version of Figure 6A (reproduced below with Petitioner’s highlighting “SELECT SLICE”) of Carmel which “confirms this process is repeated for each slice.” *Id.* at 29.

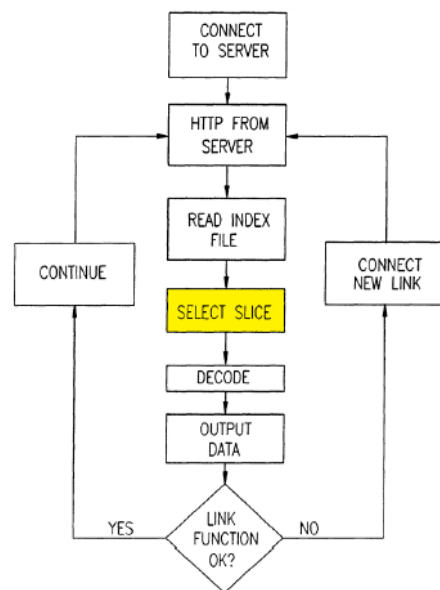


Figure 6A is a flow chart that schematically illustrates a method by which a client downloads and plays back data stream 40 transmitted by computer 34. Ex. 1003, 6:3–6; Pet. 29 (highlighting added by Petitioner).

In our view, at this stage, Petitioner sufficiently shows on this record that Carmel teaches limitation 1[c(i)] as claimed.

1[c(ii)] each received request originating from a requesting user system of a plurality of user systems; and

Limitation 1[c(ii)] requires that each received request originate from a requesting user system of the user systems.

Petitioner explains that “Carmel teaches that the requests for slices of data stream 40 originate” from “user systems,” i.e., clients 30. Pet. 29–30 (citing, *inter alia*, Polish Decl. ¶ 137). According to Petitioner, this is confirmed by, for example, Figure 6A. “Figure 6A shows that the client 30 ‘select[s] [the] slice’ the user wants to download. The request for a slice, therefore, originates from client 30.” *Id.* at 30 (referring to Petitioner’s annotated version of Carmel Figure 6A, reproduced above).

In our view, at this stage, Petitioner sufficiently shows on this record that Carmel teaches limitation 1[c(ii)] as claimed

1[d] responsive to the requests, sending, by the server system, the one or more media data elements having the one or more specified serial identifiers, to the requesting user systems corresponding to the requests; wherein

This step requires the server system to send a media element, having a specified serial identifier, to a requesting user system in response to a request from said requesting user system. Petitioner contends that Carmel teaches this. Pet. 31–32.

Supported by Dr. Polish’s testimony, Petitioner explains that Carmel’s server system sends slices (“media data elements”) specifying slice indices (“specified serial identifiers”) to requesting clients 30 (“requesting user systems”) corresponding to their requests. Pet. 32 (citing Polish Decl. ¶ 142; Ex. 1003, 7:4–9, 6:52–54).

Petitioner explains that, in Carmel’s process, client 30 submits a request for a slice of data stream 40 to server 36 that includes a slice index (i.e., a serial identifier) of the desired data slice. Pet. 32. “[A]fter the client 30 selects a particular slice, the client . . . downloads that slice.” *Id.* (citing Polish Decl. ¶ 143; Ex. 1003, 2:1–21, 3:63–66, 4:7–11, 8:1–11, 8:32–

41, 10:24–54, 13:30–35, Figs. 6A and 6B). According to Dr. Polish, “[a] person of ordinary skill in the art would understand that the client ‘downloading’ the specified slice of data stream 40 [involves] ‘sending, by the server system,’ the specified slice of data stream 40.” Polish Decl. ¶ 144; Pet. 32.

In our view, at this stage, Petitioner sufficiently shows on this record that Carmel teaches the “sending” step as claimed.

1[d(i)] the data connection between the server system and each requesting user system has a data rate more rapid than the playback rate of the one or more media data elements sent via that connection

This step requires the data connection between the server system and requesting user system to be more rapid than the playback rate of the sent media data element.

Petitioner contends that Carmel teaches this. Pet. 33–37.

Petitioner begins by explaining that Carmel teaches an Internet connection between the server system (34) and clients (30) and that that satisfies the claimed “data connection between the server system and each requesting user system.” Pet. 33 (citing, *inter alia*, Polish Decl. ¶ 148). According to Dr. Polish, “a person of ordinary skill in the art would understand the ‘data connection’ is the Internet connection between the server system and each user system.” Polish Decl. ¶ 148; Pet. 33.

Turning now to the question of whether Carmel’s “data connection” (i.e., the Internet) has “a data rate more rapid than the playback rate of the one or more media data elements sent via that connection,” Petitioner answers that question by, *inter alia*, quoting Carmel: “[w]hen the data stream comprises multimedia data, the **data rate** should be generally **equal**

to or faster than the rate at which the data are generated at the transmitting computer.” Pet. 34 (quoting Ex. 1003, 2:56–59 (emphasis by Petitioner)). By this statement, “Carmel explicitly discloses this claim limitation.” *Id.* (footnote omitted).

Petitioner explains that the claim limitation “a data rate more rapid than the playback rate of the one or more media data elements sent via that connection” is satisfied whenever a media data element, playing at normal speed, has a playback rate less rapid than the data rate of the “data connection,” such as the Internet. Pet. 33.

In that regard, Dr. Polish testifies that a faster rate would be accomplished whenever “the rate of sending a given multimedia file across a data connection (such as the Internet) is more rapid than the rate at which the given multimedia file is subsequently played at normal speed.” Polish Decl. ¶ 150; Pet. 33. As an example, “consider a multimedia file ‘file.mp4’ that has a playback rate of 24,000 bits per second . . . [if the file] can be transmitted across the data connection faster than 24,000 bits per second, such as 36,000 bits per second,” then the data connection has a data rate more rapid than the playback rate of the file. *Id.* (citing Ex. 1001, 9:32–35 (“if the user’s connection to the Internet is made via a 56,000 bits per second modem, the user might select a media source encoded for playback at 24,000 bits per second”)).

According to Petitioner, there are other ways the data connection in Carmel’s system can be more rapid than the playback rate. Pet. 34–37. For example, “Carmel discloses a lag recovery technique in which Carmel takes steps ‘to increase the data transmission or reception rate’ including varying the compression/quality level of the slices and the client 30 selecting lower

quality level slices.” Pet. 35 (citing Ex. 1003, 7:36–41, 7:45–49, quoting 11:9–15 (“[I]f the rate is low, such that . . . the slices need to be played as fast as or faster than they are being received, the client will preferably select a lower quality level if one is available.”)). “When the client 30 uses the lag recovery technique, the transmission rate is ‘more rapid than’ the playback rate: data slices are sent to and arrive at client 30 faster than the data slices are being played out.” *Id.* at 35–36 (citing Polish Decl. ¶ 159) (footnote omitted).

Patent Owner disagrees that Carmel teaches a data connection more rapid than the playback rate. Prelim. Resp. 30–36.

First, Patent Owner addresses Carmel’s statement “the data rate should be generally equal to or faster than the rate at which the data are generated at the transmitting computer.” Prelim. Resp. 31 (citing Pet. 34, Ex. 1003, 2:51–59). According to Patent Owner, “[t]his in itself falls short of limitation 1[d(i)], which specifies that the data rate of the connection must be specified to be faster than the playback rate, not ‘equal to or faster.’” *Id.*

However, this argument does not undermine Petitioner’s position. Carmel expressly states “the data rate should be generally equal to *or faster* than the rate at which the data are generated at the transmitting computer.” Ex. 1003, 2:56–59 (emphasis added); Pet. 34. Thus, a data rate of the connection *faster* than the playback rate is expressly taught in Carmel. Since this is what limitation 1[d(i)] calls for, Carmel’s statement does not fall short of limitation 1[d(i)] as Patent Owner argues.

Second, Patent Owner argues that “Carmel does not teach that the provided bandwidth is necessarily greater than the playback rate of the requested media data elements.” Prelim. Resp. 32. According to Patent

Owner, the plain meaning of limitation 1[d(i)] “is that the data connection is *chosen* to have a capability of sending the one or more elements responsive to any request to be responded to over that connection at a rate that must exceed the playback rate of the transmitted elements.” *Id.* at 31–32 (emphasis added).

However, limitation 1[d(i)] does not recite *choosing* a data connection with a data rate necessarily exceeding the playback rate. To satisfy the limitation, the data connection needs only to “ha[ve] a data rate more rapid than the playback rate.” In that regard, Dr. Polish has testified that a faster rate would be accomplished whenever “the rate of sending a given multimedia file across a data connection (such as the Internet) is more rapid than the rate at which the given multimedia file is subsequently played at normal speed.” Polish Decl. ¶ 150; Pet. 33. Dr. Polish gives an example whereby a multimedia file with a playback rate of 24,000 bits per second is transmitted across a data connection at, for example, 36,000 bits per second. *Id.* Dr. Polish then points out that the ’636 patent teaches a similar example whereby a user selecting a media source encoded for playback at 24,000 bits per second is connected to the Internet via a 56,000 bits per second modem. *Id.* (citing Ex. 1001, 9:32–35). Patent Owner has not refuted Dr. Polish’s testimony at this stage. Accordingly, at this stage, Patent Owner’s argument does not undermine Petitioner’s contentions.

Third, Patent Owner argues that Petitioner’s reliance on Carmel’s lag recovery technique “to increase the data transmission or reception rate” and thereby make it more rapid than the playback rate, “confirms that Carmel does not meet limitation 1[d(i)].” Prelim. Resp. 32 (citing Pet. 35; Ex. 1003,

7:36–41). According to Patent Owner, “such [an] ‘increase’ becomes necessary *because* Carmel failed to meet the limitation.” *Id.*

We do not agree with this argument at this stage of the proceeding.

Patent Owner argues that Carmel “does not disclose a mechanism that would *keep* the data rate higher than the playback rate.” Prelim. Resp. 34–35 (emphasis added). But limitation 1[d(i)] does not recite that the data rate of the connection must be *kept* faster than the playback rate. Rather, the limitation only requires a connection with a data rate faster than the playback rate. In that regard, the record appears to sufficiently support Petitioner’s position at this stage.

We have considered all of Patent Owner’s arguments but do not find they undermine Petitioner’s position at this stage.

In our view, at this stage, Petitioner sufficiently shows on this record that Carmel teaches a “data connection between the server system and each requesting user system hav[ing] a data rate more rapid than the playback rate of the one or more media data elements sent via that connection,” as claimed.

1[d(ii)] each sending is at a transmission rate as fast as the data connection between the server system and each requesting user system allows

Above we addressed limitation 1[d], which requires “sending” a media data element, having a specified serial identifier, from the server system to a requesting user system in response to a request from said requesting user system. Limitation 1[d(ii)] requires the “sending” to be at a transmission rate as fast as the data connection between the server system and each user system allows.

Petitioner contends that Carmel teaches or renders this step obvious. Pet. 37–40.

Petitioner begins by explaining that “Carmel discloses that slices of data stream 40 are sent to clients 30 via well-known Internet protocols, such as HTTP, UDP, RTP, or TCP.” Pet. 37 (citing Ex. 1003, 6:50–54, 7:5–9).

Dr. Polish then explains that “[i]t would be obvious to a person of ordinary skill in the art that a server sending data via Internet protocol, such as HTTP or TCP, would send the data as fast as the connection allows.” Polish Decl. ¶ 166; Pet. 37–38. In support, Dr. Polish relies on M.H. Willebeek-LeMair et al., *Bamba – Audio and Video Streaming Over the Internet* (1998) (Ex. 1019) and Jonathan C. Soo, *Live Multimedia over HTTP* (1994) (Ex. 1042). Polish Decl. ¶ 166 (“EX1019, 271-72 (explaining file ‘is transferred to the client (browser station) as fast as TCP/IP can move it’); EX1042, 0002 (‘The server sends data to the client as fast as the TCP connection will accept[.]’)). Dr. Polish also points out that “the ’636 patent itself says as much, stating that ‘media data is sent to the user computer at a rate faster than the playback rate, which may be the highest rate that the data connection between the server and the user computer will support[.]’” *Id.* (quoting Ex. 1001, 8:14–20); Pet. 37.

Patent Owner disagrees that the slices in Carmel are sent “at a transmission rate as fast as the data connection between the server system and each requesting user system allows.” *See, e.g.*, Prelim. Resp. 30–33. Rather, “the techniques so taught [in Carmel] seek in each instance to send the slices in a manner that will *match* the playback rate and maximally use the available bandwidth.” Prelim. Resp. 30 (emphasis by Patent Owner). “If and to the extent that the connection in Carmel may be faster than the

playback rate, Carmel does not teach to send elements over the connection at that faster speed.” *Id.* at 31.

Carmel teaches in such a case to adjust the encoding of the media, during the course of transmission (*i.e.*, mid-transmission), such that the data rate will match the playback rate. *See* Carmel, 11:9-18, 11:40-52. Carmel teaches that bandwidth usage should be maximized when transmitting or receiving slices (by adjusting compression levels and/or element playback duration, or number of connections).

Id.

We have considered Patent Owner’s argument. Patent Owner does not sufficiently undermine Petitioner’s showing that Carmel sends its slices “at a transmission rate as fast as the data connection between the server system and each requesting user system allows” by sending the slices “via well-known Internet protocols, such as HTTP,” as Petitioner contends. Patent Owner specifically directs our attention to two passages in Carmel that discuss (a) client computer 30 preferably selecting a quality level depending on the rate a media element is received versus how fast it needs to be played (Ex. 1003, 11:9–18) and (b) computer 34 determining and adjusting “a compression ratio by which to compress the data, based on the collective bandwidth of its open links with server 36” (*id.* at 11:40–42). Prelim. Resp. 31. However, we do not agree at this stage that these disclosures about the user system’s quality selection and the server system’s compression adjustment undermine Petitioner’s position. If Carmel’s media elements *are* sent at a transmission rate as fast as the Internet would allow, and the user system plays it back at a less rapid rate, then the limitation is satisfied, notwithstanding the quality a user may want to select or the data compression one may want a server system to be adjusted to.

We have considered all of Patent Owner's arguments but do not find they undermine Petitioner's position at this stage.

In our view, taking Patent Owner's argument into account, Petitioner sufficiently shows on this record that Carmel teaches or renders obvious "each sending is at a transmission rate as fast as the data connection between the server system and each requesting user system allows," as claimed.

1[d(iii)] the one or more media data elements sent are selected without depending on the server system maintaining a record of the last media data element sent to the requesting user systems

This limitation requires the sent media elements to be selected "without depending on the server maintaining a record of the last media data element sent."

Petitioner contends that Carmel teaches this. Pet. 40–42.

Petitioner explains, *inter alia*, that Carmel teaches client devices 30 requesting data slices from data stream 40 from server 36 and in response sending the data slices to the requesting client devices. Pet. 26 (citing Ex. 1003, 10:45–47, 11:5–7). According to Petitioner, "the client 30 is responsible for selecting the data slice that is to be transmitted." *Id.* at 40.

Petitioner further states that

[t]he server system in Carmel does not maintain a record of the last data slice sent to client 30. The only information the server system maintains is the running slice index (an index of all the data slices that have been generated at computer 34) and the index file 50, which denotes "the index of the file in data stream 40 that was most recently uploaded by computer 34."

Pet. 40 (quoting Ex. 1003, 7:63–64). "Nowhere does Carmel suggest the server system (computer 34 and server 36) keeps a record of the last data slice sent to a client 30." *Id.*

In support, Petitioner looks to, *inter alia*, Figure 6A of Carmel which, according to Petitioner, “show[s] that Carmel reflects a classic ‘client-pull’ streaming system where the data recipient is responsible for selecting the data to be transmitted. *Id.* at 41 (citing Polish Decl. ¶ 177). Dr. Polish testifies in support that Figure 6A (reproduced above in section II.E.1.1[e]) shows

that the client 30 reads the index file (*e.g.*, “Read Index File”) to “decide and indicate” which slice to download (*e.g.*, “Select Slice”). ([Ex. 1003,] 10:42-45.) The server 36 sends the selected slice to the client 30, where the client 30 decodes (“Decode”) and “outputs the multimedia data for the appreciation of the user” (“Output Data”). (*Id.*, 10:48-50.) The client 30 then checks to verify that the data connection between it and server 36 is acceptable (“Link Function OK?”); and if it is, client 30 “continues” back to the beginning of the process, selecting the next data slice for transmission (“Continue”).

Polish Decl. ¶ 172; Pet. 41. Petitioner contends that this demonstrates that “sending data slices to clients 30 is dependent only on the client’s selection of desired data slices and does not depend on the server 36 maintaining a record of the last data slice sent to the client,” and thereby meets limitation 1[d(iii)]. Pet. 41.

Patent Owner disagrees. Patent Owner contends that Carmel maintains a record of the last data slice sent to the client. Prelim. Resp. 28–29. According to Patent Owner, Petitioner’s contention that “[n]owhere does Carmel suggest the server system (computer 34 and server 36) keeps a record of the last data slice sent to a client 30” “is flatly contradicted by the plain disclosure of Carmel.” *Id.* at 28 (quoting Pet. 40).

Patent Owner begins by pointing out that Carmel “states that the process used to get the slices onto server 36 are also applied, ‘*mutatis*

mutandis, to the method of downloading the files from server 36 to clients 30, as shown in FIG. 6A.” Prelim. Resp. 28 (quoting Ex. 1003, 13:33–35).

Patent Owner then explains that Carmel’s computer “providing the files (be it source computer 34 to server 36, or server 36 to consuming clients 30), *keeps track of the last slice sent.*” Prelim. Resp. 29 (emphasis added). To show this, Patent Owner reproduces Figure 8 of Carmel and discusses the file transfer method it illustrates. *Id.* at 28–29. We reproduce Figure 8 below.

FIG. 8

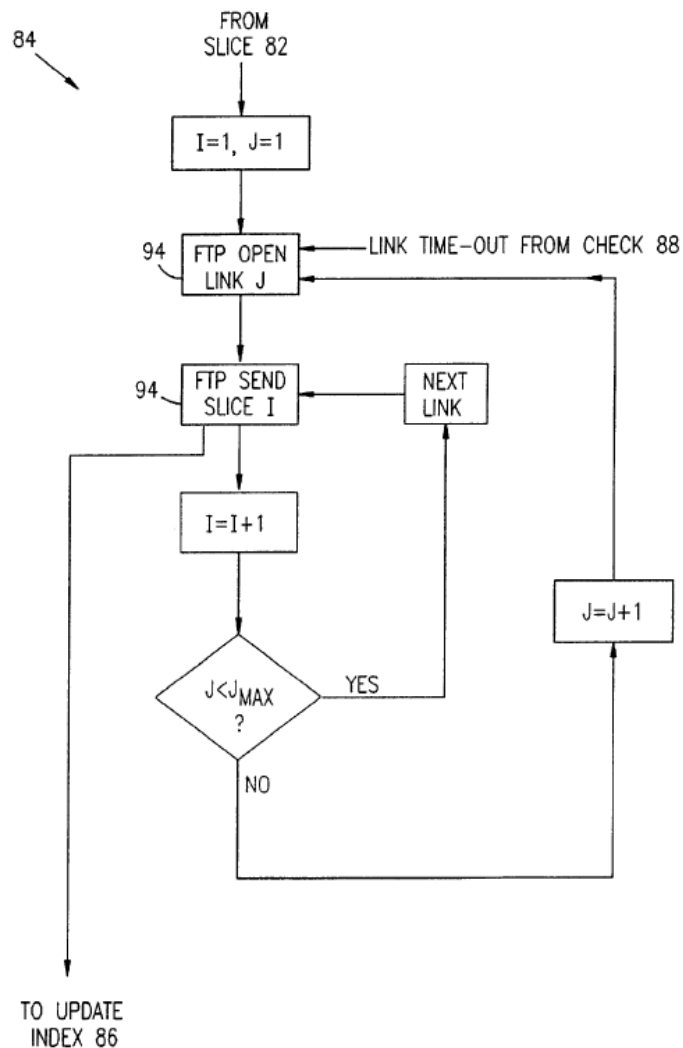


Figure 8 is a flow chart that schematically illustrates a file transfer method. Ex. 1003, 6:15–16; *see also* 12:18–58.

According to Patent Owner, Figure 8 illustrates “the last slice sent [*is kept track of*], via the variable ‘I,’ which is incremented each time a slice is sent.” Prelim. Resp. 29 (emphasis added).

So, as we understand it, Patent Owner is arguing that (a) Carmel keeps track of the last slice because a slice counter is incremented as slices are sent

and (b) by keeping track of the last slice, Carmel “maintain[s] a record of the last media data element sent to the requesting user systems” (1[d(iii)]).

After considering this argument in light of Carmel’s disclosures, including Figures 2, 5, 6A, 6B, and 8, and Petitioner’s assertions, we are of the view that, at this stage, Petitioner has the better position. Thus, we are persuaded preliminarily that Carmel’s client 30 selects data slices for downloading without depending on computer 34 or server 36 maintaining records of requested slices. *See, e.g.*, Ex. 1003, 8:1–11, 10:24–54, Figs. 6A, 6B. Regarding Patent Owner’s arguments, Carmel discloses that (1) the transmitting computer “uploads the sequence of slices to” the network server “substantially in real time” and “preferably using an Internet protocol, most preferably the File Transfer Protocol (FTP)” and (2) the client computers “download the data stream from” the network server “preferably using an Internet protocol, as well, most preferably the Hypertext Transfer Protocol (HTTP).” Ex. 1003, 2:7–15. Figure 2 shows FTP used for uploading to the network server and HTTP used for downloading from the network server. *Id.* at 6:50–52, 7:5–7, Fig. 2.

Figure 5 illustrates a method for uploading to the network server that includes an FTP step, and Figure 8 “illustrates details of FTP” shown in Figure 5. Ex. 1003, 5:66–6:2, 12:18–20, Figs. 5, 8. Although Patent Owner points to Carmel’s disclosure that Figure 8’s method for uploading applies “*mutatis mutandis*” (with the necessary changes having been made) to a method for downloading, Patent Owner identifies no evidence that HTTP employs a counter incremented like the counter depicted in Figure 8 for FTP. This issue is better resolved at trial on a more developed record.

We have considered all of Patent Owner’s arguments but do not find they undermine Petitioner’s position at this stage.

In our view, taking Patent Owner’s argument into account, Petitioner sufficiently shows on this record that Carmel teaches the media data elements “sent are selected without depending on the server system maintaining a record of the last media data element sent to the requesting user systems,” as claimed.

1[d(iv)] all of the media data elements that are sent by the server system to the plurality of user systems are sent in response to the requests; and

Petitioner contends that Carmel teaches this limitation. Pet. 42–43.

Petitioner contends that Carmel teaches server 36 sending data slices “only in response to requests from clients 30.” Pet. 42 (citing Polish Decl. ¶¶ 175–177, 180–181). “Server 36 cannot send data slices without the client’s input and selection.” *Id.* at 43 (citing Ex. 1003, Figs. 6A and 6B).

Petitioner explains, as an example, that, under normal operation, client 30 “preferably monitors the rate of data coming in’ and controls whether to establish multiple links.” Pet. 43 (quoting Ex. 1003, 10:55). According to Dr. Polish, “[a] person of [ordinary] skill in the art would understand from the possibility of multiple links, that client 30 would need to be in control of which data slices are sent on each link in order to ensure that the same data slice is not sent over multiple links—which would cause wasteful and duplicative use of resources.” Polish Decl. ¶ 181; Pet. 43.

Patent Owner disagrees. “The Petition incorrectly alleges on page 42 that ‘Carmel discloses that data slices are sent by the server 36 only in response to requests from clients 30.’” Prelim. Resp. 21 (quoting Pet. 42).

Patent Owner contends “Carmel is not based upon a ‘pull’ methodology. Rather, it is based upon seeking . . . a location in the stream specified by a client request to the server, followed by the server ‘pushing’ the stream from that location to the client.” Prelim. Resp. 21. According to Patent Owner, Carmel teaches that “[r]esponsive to a user input, client 30 selects an appropriate *starting* slice and begins to download and decode (decompress) files 42, 44, 46, etc.” *Id.* (quoting Ex. 1003, 10:45–48) (emphasis by Patent Owner).

Patent Owner contends that limitation 1[d(iv)] requires that “*all* of the media data elements that are sent by the server system to the plurality of user systems are sent in response to the requests.” Prelim. Resp. 22 (quoting 1[d(iv)]) (emphasis by Patent Owner). “[M]erely selecting a starting point does not meet all limitations of 1[d(iv)].” *Id.* at 21.

According to Patent Owner, “there is no actual disclosure in Carmel that all of the slices that are sent by the server are sent in response to requests that specify these slices by number.” *Id.* at 22. Patent Owner explains the Carmel discloses a server seeking “a starting point identified by the client, and for the *server* to then begin continuously streaming slices to the client from that starting point.” *Id.* at 23 (citing Ex. 1003, 10:42–48, Figs. 6A and 6B). “There is no disclosure in Carmel that server 36 ‘requests’ slices from source client 34; the entire uploading process is a push by the client 34 to the server 36.” *Id.* at 24.

Patent Owner disputes that Figure 6A “discloses a situation in which a client 30 requests each and every slice of the stream by slice number” if this what the “Petition suggests.” *Id.* at 26 (emphasis omitted). Patent Owner distinguishes Figure 6A of Carmel, explaining that it “discloses a *single*

request followed by downloading of *multiple* files (seek then push), and not multiple requests for downloading respective multiple files (pull),” as limitation 1[d(iv)] requires according to Patent Owner. *Id.* at 27 (citing Ex. 1003, 10:41–47).

Carmel, when taken in consideration of its own written description, fails to disclose piece-wise requests for each sequential slice as required by limitations 1[d(iv)], 5[e(iv)], and 9[d(iv)], disclosing instead a process of initiating continuous autonomous streaming by the server from a selected slice starting point. The disclosure is for a server that receives a single request (not a plurality of requests), the single request specifying a single serial identifier (not a plurality of identifiers corresponding to the plurality of requests), which materially differs from what is claimed.

Id.

We have considered Patent Owner’s position but it does not undermine Petitioner’s position at this stage.

A principal difficulty lies with Patent Owner’s view that Carmel can only meet the claim limitation if it teaches “client 30 request[ing] *each and every slice of the stream by slice number.*” Prelim. Resp. 26 (emphasis added). Although the limitation calls for “all” of the media data elements to be sent in response to requests, it does not require every slice to be requested by slice number.

Petitioner contends that Carmel teaches server 36 sending data slices “only in response to requests from clients 30.” Pet. 42–43 (citing Polish Decl. ¶¶ 175–177, 180–181).

Patent Owner does not appear to dispute this.

Rather, Patent Owner is arguing that Carmel can only meet the limitation if it teaches “client 30 request[ing] *each and every slice* of the

stream by slice number,” and according to Patent Owner Carmel does not do that. Prelim. Resp. 26 (emphasis added). But, as we stated, the limitation does not require every slice to be requested by slice number. Thus, this argument does not undermine Petitioner’s contention.

In our view, taking Patent Owner’s argument into account, Petitioner sufficiently shows on this record that Carmel teaches media data elements “sent are selected without depending on the server system maintaining a record of the last media data element sent to the requesting user systems,” as claimed.

1[d(v)] all of the media data elements that are sent by the server system to the requesting user systems are sent from the data structure under the control of the server system as the media data elements were first stored therein.

Petitioner contends that Carmel teaches limitation 1[d(v)]. Pet. 44–47.

Petitioner explains, *inter alia*, that the “‘data structure under the control of the server system’ in Carmel is the storage in server 36.” Pet. 44 (citing Polish Decl. ¶¶ 120–123). According to Petitioner, “[a]ll data slices that are sent to clients are sent from server 36.” *Id.* (citing Polish Decl. ¶ 185).

Petitioner further explains that Carmel teaches “all of the media data elements . . . are sent . . . as the media data elements were ‘first stored therein’ [i.e., the server system]” because “the data slices sent from server 36 are sent ‘in the same format’[;] as they were stored in server 36.” Pet. 43–46 (citing Polish Decl. ¶ 188). According to Dr. Polish, “[a] person of ordinary skill in the art would therefore understand server 36 would not alter the format of the data slices prior to sending the slices to clients 30.” Polish Decl. ¶ 188; Pet. 46–47.

In our view, at this stage, Petitioner sufficiently shows on this record that Carmel teaches “all of the media data elements that are sent by the server system to the requesting user systems are sent from the data structure under the control of the server system as the media data elements were first stored therein,” as claimed.

2. Conclusion as to claim 1

After considering Petitioner’s and Patent Owner’s positions, including the supporting Declaration of Dr. Polish (Ex. 1002), and for the reasons set forth above, we are persuaded that, based on the current record, Petitioner has demonstrated a reasonable likelihood of prevailing on its obviousness challenge to claim 1 of the ’636 patent over Carmel.

3. Claims 5 and 9

Claims 5 and 9, drawn to a “server system” and a “computer program product,” respectively, parallel “method” claim 1 discussed above. Petitioner provides charts showing the differences. *See* Polish Decl. ¶¶ 198–199 (claim 1 v. claim 5), 212–214 (claim 1 v. claim 9). However, as Petitioner indicates and as the charts show, claims 5 and 9 “present[] no material differences from claim 1 in terms of the basic functions [they] recite[].” Pet. 49, 54.

Patent Owner does not provide any specific arguments as to these claims. *See* Prelim. Resp. 19–36.

We have reviewed the record. At this stage, on this record, Petitioner has demonstrated a reasonable likelihood of prevailing in demonstrating that claims 5 and 9 of the ’636 patent are taught or rendered obvious over Carmel principally for the reasons discussed with respect to claim 1.

4. Claims 2–4, 6–8, and 10–12

Petitioner contends that claims 2–4, 6–8, and 10–12 depending from independent claims 1, 5, and 9, respectively, are also taught in or rendered obvious over Carmel. Pet. 47–54.

Along with our reasons discussed with respect to the challenge of claim 1, we are persuaded that the evidence relied upon by Petitioner sufficiently supports Petitioner’s contentions regarding claims 2–4, 6–8, and 10–12.

Patent Owner does not provide any specific arguments challenging Petitioner’s patentability position as to these claims. *See* Prelim. Resp. 19–36.

At this stage, on this record, Petitioner has demonstrated a reasonable likelihood of prevailing in demonstrating that dependent claims 2–4, 6–8, and 10–12 of the ’636 patent are taught or rendered obvious over Carmel.

F. Ground II—Obviousness Over Carmel and Narayan

Petitioner challenges claims 1–12 as unpatentable under 35 U.S.C. § 103(a) over Carmel and Narayan. Pet. 54–59.

Patent Owner does not provide any specific arguments as to this Ground, relying on its arguments in connection with claim 1, discussed in section II.E.1.1[d(ii)]–[d(iv)] above. Prelim. Resp. 36.

At this stage of the proceeding, it is unnecessary for us to provide an assessment of claims 1–12 under this ground because Petitioner has demonstrated a reasonable likelihood of success in demonstrating that at least one claim (i.e., claim 1) of the ’636 patent is unpatentable under Ground I. *See* 37 C.F.R. § 42.108(a).

G. Ground III—Obviousness Over Carmel and Ravi

Petitioner challenges claims 1–12 as unpatentable under 35 U.S.C. § 103(a) over Carmel and Ravi. Pet. 59–64. “Ground 3 incorporates Ground 1’s analysis of Carmel alone but adds Ravi’s teachings for limitations 1[d(ii)], 5[e(ii)], and 9[d(ii)].” Pet. 59. Consistent therewith, Petitioner addresses only limitations 1[d(ii)], 5[e(ii)], and 9[d(ii)]. *Id.* at 59–64. Ravi is relied upon “[t]o the extent [these limitations are] not rendered obvious based on Carmel alone.” *Id.* at 60.

At this stage of the proceeding, it is unnecessary for us to provide an assessment of claims 1–12 under this ground because Petitioner has demonstrated a reasonable likelihood of success in demonstrating that at least one claim (i.e., claim 1) of the ’636 patent is unpatentable under Ground I. *See* 37 C.F.R. § 42.108(a).

That being said, we add the following discussion.

Representative limitation 1[d(ii)] calls for “each sending is at a transmission rate as fast as the data connection between the server system and each requesting user system allows.”

Petitioner contends, *inter alia*, that “Ravi . . . teaches transmitting packets of media data from a server to a client computer and selecting a transmission rate to ‘match the . . . bandwidth capacity of the network connection.’” Pet. 60 (quoting Ex. 1004, 6:43–44). According to Dr. Polish, “[a] person of ordinary skill in the art would understand that Ravi’s system sends data ‘as fast as the data connection . . . allows.’” Polish Decl. ¶ 231; Pet. 60.

If the transmission rate “matches” the capacity of the data connection’s bandwidth, the transmission rate is “as fast as” the

data connection allows. If the bandwidth of the data connection increases, Ravi's servers would increase the transmission rate to "match" the allowable transmission rate. Likewise, if the bandwidth of the data connection decreases, Ravi's servers would decrease the transmission rate until the rate matches the allowable data rate.

Polish Decl. ¶ 231.

Petitioner further contends that

[i]t would have been obvious for a [person of ordinary skill in the art] to combine Carmel with Ravi, predictably resulting in the media streaming system of Carmel that uses Ravi's efficient and reliable method of transmitting data slices by matching the transmission rate to the available bandwidth. . . . A [person of ordinary skill in the art] would have known that combining Ravi's transmission methods with Carmel's media streaming system would be successful.

Pet. 61 (citing Polish Decl. ¶¶ 232–236).

Patent Owner argues that "[l]ike Carmel, Ravi is fundamentally a 'push' type system, in which the bandwidth between the client and server is adjusted based upon the client buffer." Prelim. Resp. 37 (citing Ex. 1004, Abstract). In support, Patent Owner quotes Ravi: "[i]f the selected bandwidth is higher than the average client computation rate, buffer 366 will eventually overflow and data packets will have to be discarded." *Id.* at 36–37 (quoting Ex. 1004, 11:26–29).

This argument does not undermine Petitioner's contention which relies on Ravi teaching transmitting packets of media data at a transmission rate matching the bandwidth of the network connection. *See* Pet. 59–61. Whether or not the buffer may eventually overflow and data packets will have to be discarded if the selected bandwidth is higher than the average

client computation rate, the packets of media data would nevertheless still be transmitted at a transmission rate matching the bandwidth capacity of the network connection as Petitioner contends.

Patent Owner also argues that discarding packets when a bandwidth is selected to be higher than the average client computation rate shows Ravi “teaches away” from sending data as fast as the connection will allow. Prelim. Resp. 37 (relying on Ex. 1004, 11:26–29). But again, Petitioner’s contention is that Ravi teaches transmitting packets of media data at a transmission rate matching the bandwidth of the network connection. Whether or not the buffer may eventually overflow and data packets will have to be discarded under certain circumstances, i.e., if the selected bandwidth is higher than the average client computation rate, does not affect Ravi’s teaching of a transmission rate matching the bandwidth of the network connection that Petitioner relies on in support of its contention.

We have considered the parties’ positions and at this juncture we are persuaded that the evidence relied upon by Petitioner sufficiently supports Petitioner’s contentions regarding Ravi.

Along with our reasons discussed with respect to the challenge of claims 1–12 over Carmel alone, on this record, Petitioner has demonstrated a reasonable likelihood of prevailing in demonstrating that claims 1–12 of the ’636 patent are taught or rendered obvious over Carmel and Ravi.

H. Ground IV—Obviousness Over Carmel, Narayan and Ravi

Petitioner challenges claims 1–12 as unpatentable under 35 U.S.C. § 103(a) over Carmel and Narayan. Pet. 64–65.

Patent Owner does not provide any specific arguments as to this Ground, relying on its arguments in connection with claim 1, discussed in section II.E.1.1[d(ii)]–[d(iv)] above. Prelim. Resp. 37.

At this stage of the proceeding, it is unnecessary for us to provide an assessment of claims 1–12 under this ground because Petitioner has demonstrated a reasonable likelihood of success in demonstrating that at least one claim (i.e., claim 1) of the '636 patent is unpatentable under Ground I. *See* 37 C.F.R. § 42.108(a).

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing the unpatentability of at least one of claims 1–12 of the '636 patent. Accordingly, we grant the Petition and institute an *inter partes* review as to all the challenged claims of the '636 patent.

Because we have determined that at least one ground set forth in the Petition satisfies the threshold for institution, trial is instituted as to all grounds set forth in the Petition. *See* 37 C.F.R. § 42.108(a) (“When instituting *inter partes* review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”).

IV. ORDER

It is hereby

ORDERED that, pursuant to 35 U.S.C. § 314(a), *inter partes* review of claims 1–12 of the '636 patent is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of claims 1–12 of the '636 patent shall commence on the entry date of this Decision, and notice is hereby given of the institution of *inter partes* review.

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