

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

WITHROW NETWORKS INC.,
Patent Owner.

IPR2025-00775
Patent 10,771,849 B2

Before JEAN R. HOMERE, MICHAEL R. ZECHER, and
JASON J. CHUNG,
Administrative Patent Judges.

CHUNG, *Administrative Patent Judge.*

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

I. INTRODUCTION

Petitioner, Google LLC (“Google”), filed a Petition requesting an *inter partes* review (“IPR”) of claims 1–9 of U.S. Patent No. 10,771,849 B2 (Ex. 1001, “the ’849 patent”). Paper 2 (“Pet.”). Patent Owner, Withrow Networks Inc. (“Withrow”), filed a Preliminary Response. Paper 7 (“Prelim. Resp.”). Based on the authority delegated to us by the Director under 37 C.F.R. § 42.4(a), we may not institute an IPR unless the information presented in the Petition and any preliminary response thereto shows “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). Taking into account Withrow’s Preliminary Response, we conclude that the information presented in the Petition establishes that there is a reasonable likelihood that Google would prevail in demonstrating at least one of claims 1–9 of the ’849 patent is unpatentable. Pursuant to § 314, we hereby institute an IPR as to these claims of the ’849 patent.

A. Real Parties in Interest (“RPIs”)

Google identifies itself and YouTube, LLC as RPIs. Pet. 1. Withrow identifies itself as an RPI. Paper 4 (Withrow’s Mandatory Notices), 1.

B. Related Matters

The parties indicate that the ’675 patent is the subject of the following district court case: *Withrow Networks, Inc. v. Google LLC*, No. 5:24-cv-03203-PCP (N.D. Cal. filed May 28, 2024). Pet. 1; Paper 4, 1.

C. The ’675 Patent

The ’849 patent, titled “Multimedia System for Mobile Client Platforms,” issued from U.S. Patent Application No. 16/181,285, filed on

November 5, 2018. Ex. 1001, codes (54), (21), (22). The '849 patent is a continuation of U.S. Patent Application No. 15/016,821, filed on February 5, 2016, which is now U.S. Patent No. 10,171,873 (“the '873 patent”). *Id.* at code (63). The '873 patent is a continuation of U.S. Patent Application No. 11/107,952, filed on April 18, 2005, which was abandoned. *Id.*

The '849 patent generally relates to “issues of the wireless Internet, specifically to methods of multimedia transmission and playback for mobile clients.” Ex. 1001, 1:6–8. The '849 patent acknowledges that the prior art discloses “[v]ideo and audio playback exist on certain cell phone handsets.” *Id.* at 1:21–22. The '849 patent, however, states that current ways of “distributing multimedia data over the wireless Internet to mobile clients are constrained by existing wireless bandwidth, and the real-time decoding, processing and displaying of multimedia content with limited hardware capabilities.” *Id.* at 1:12–17.

The '849 patent purports to address this need by efficiently creating transmittable multimedia objects and optimizations for digital video encoding. Ex. 1001, 2:64–65, 4:7–8. Figure 1, reproduced below, illustrates a distributed network for multimedia-on-demand according to an example. *Id.* at 4:61–5:7.

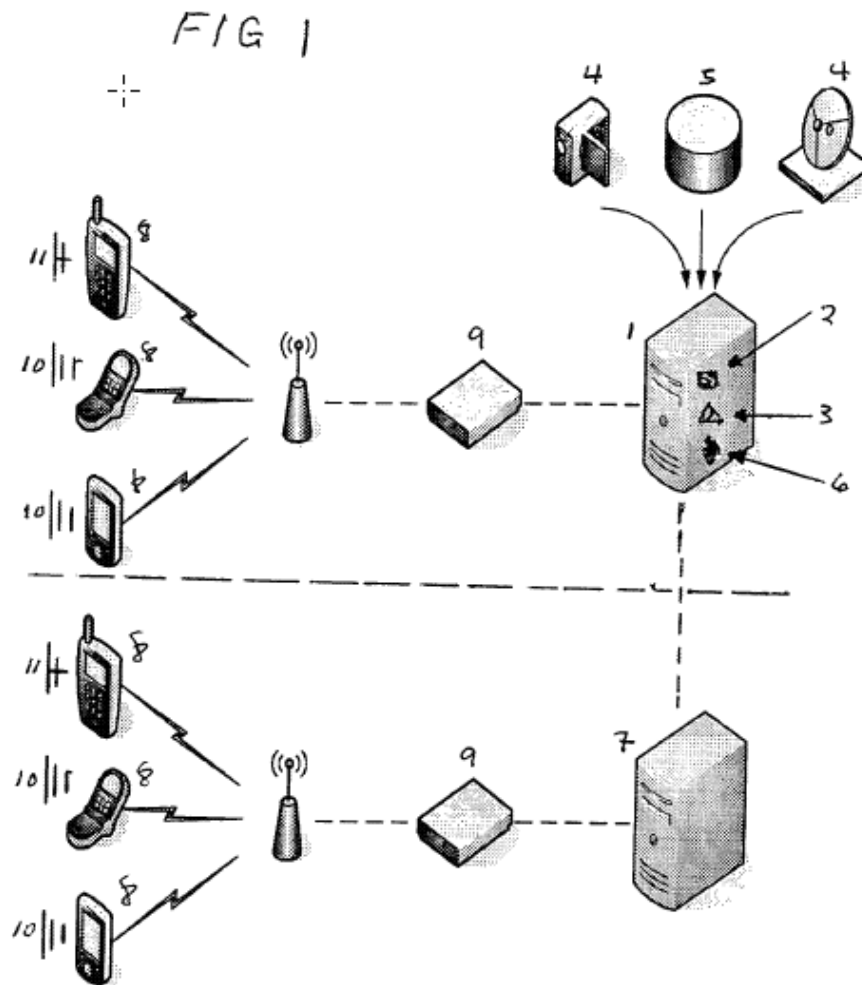


Figure 1 illustrates centralized content server system 1 that utilizes transcoder 2 to parse received audio and video content, which multimedia object creator 3 uses to create multimedia objects from live broadcast 4. *Id.* at 6:18–20, 8:58–60. Centralized content server system 1 also is capable of transcoding and creating multimedia objects from archived multimedia files 5. *Id.* at 6:20–22.

D. Challenged Claims

Claims 1, 6, and 7 are independent. Independent claim 1 recites “[a] method,” independent claim 6 recites “[a] multimedia player,” and

independent claim 7 recites “[a] system.” Ex. 1001, 19:19–36, 20:1–44. Claims 2–5, 8, and 9 directly depend from independent claim 1. *Id.* at 19:40–57, 20:45–56. Independent claim 1 is illustrative of the challenged claims and is reproduced below.

1. 1[preamble] A method comprising:

1[a.i] receiving audio and video segments encoded in a digital encoding format with an encoding rate; 1[a.ii] wherein, said audio and video segments are associated with object parameters and supplied host path identification to form multimedia objects;

1[b.i] requesting by a multimedia player, transmission of said multimedia objects; 1[b.ii] wherein said multimedia objects are located using http and received by said multimedia player from servers using a wireless connection;

1[c.i] playing back received multimedia objects by the multimedia player; 1[c.ii] wherein the multimedia player is configured to play multimedia objects in a sequence such that fluidity, video quality and audio quality are maintained by selecting a plurality of said multimedia objects that reflect available network bandwidth, 1[c.iii] autonomously adjusting said selection and playback according to the multimedia object parameters and supplied host path identification, 1[c.iv] and by utilizing optimized decoding processes to maintain quality playback.

Id. at 19:19–36 (with bracketed annotations provided by Google in the Petition).

E. Asserted Prior Art References

Google relies on the prior art references set forth in the table below.

Name¹	Reference	Dates	Exhibit No.
Carmel	US 6,389,473 B1	issued May 14, 2002; filed Mar. 24, 1999	1003
Mattavelli	Signal Processing IX, Theories and Applications; Computational Graceful Degradation for Video Decoding, 2309–2312	Sept. 1998	1004
Wang	A Platform-Based MPEG-4 Advanced Video Coding (AVC) Decoder with Block Level Pipelining	Dec. 15–18, 2003	1007
Carmel '432 ²	US 5,841,432	issued Nov. 24, 1998 filed Feb. 9, 1996	1009
Carmel '230 ³	US 6,397,230 B1	issued May 28, 2002 filed Aug. 27, 1997	1010
Forecast	US 7,096,481 B1	issued Aug. 22, 2006 filed Mar. 31, 2000	1016
Wolters	Audio Engineering Society; Convention Paper 5871	Presented at the 115 th Convention, Oct. 10– 13, 2003, New York, NY, USA	1041
Guo	US 7,398,312 B1	issued July 8, 2008; filed Mar. 29, 2000	1051
Yu	US 7,099,389 B1	issued Aug. 29, 2006; filed Dec. 10, 2002	1061

¹ For clarity and ease of reference, we only list the first named inventor.

² This reference is incorporated into Carmel. Ex. 1003, 2:41–46, 6:65–7:3.

F. Asserted Grounds of Unpatentability

Google challenges claims 1–9 of the ’849 patent based on the asserted grounds of unpatentability set forth in the table below. Pet. 3, 13–86.

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–9	103(a) ⁴	Carmel, Mattavelli
1–9	103(a)	Carmel, Wang
1–9	103(a)	Carmel, Wang, Wolters
1–9	103(a)	Carmel, Wang, Wolters, Guo, Yu, Forecast
1–9	103(a)	Carmel, Mattavelli, Guo, Yu, Forecast

II. ANALYSIS

A. Claim Construction

In this IPR, claim terms are construed using the same claim construction standard as in a civil action under 35 U.S.C. § 282(b). *See* 37 C.F.R. § 42.100(b). That is, claim terms generally are construed in accordance with their ordinary and customary meaning, as would have been understood by a person of ordinary skill in the art, in view of the specification and the prosecution history pertaining to the patent at issue. *See id.* The ordinary and customary meaning of a claim term “is its meaning to the ordinary artisan after reading the entire patent,” and “as of the

³ This reference is incorporated into Carmel. Ex. 1003, 2:41–46, 6:65–7:3.

⁴ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the ’849 patent is a continuation of a patent application filed before this date, the pre-AIA version of § 103 applies. Ex. 1001, codes (21), (22), (63).

effective filing date of the patent application.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313, 1321 (Fed. Cir. 2005) (en banc).

In the Petition, Google states that it “does not presently contend that any [claim] term requires express construction.” Pet. 6. In response, Withrow acquiesces; in particular, Withrow argues “the Board need not construe any terms of the ’849 Patent. Petitioner does not contend any [claim] terms require express construction.” Prelim. Resp. 13 (citing Pet. 6).

Based on the preliminary record, there is no readily discernible controversy between the parties that requires us to construe any claim terms at this time. *See, e.g., Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that “we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

B. Obviousness over the Combined Teachings of Carmel and Mattavelli

Google contends that claims 1–9 of the ’849 patent are unpatentable under 35 U.S.C. § 103 as obvious over the combined teachings of Carmel and Matavelli. Pet. 13–70. Google contends that the combined teachings of Carmel and Mattavelli account for the subject matter of each challenged claim, and provides reasoning as to why a person of ordinary skill in the art would have been prompted to modify the teachings of these references. *Id.* Google submits a Declaration of Nathaniel Polish, Ph.D. to support its positions. *See* Ex. 1002.

Based on the preliminary record, we determine that Google has shown that there is a reasonable likelihood that it would prevail in demonstrating at least one of claims 1–9 of the ’849 patent is unpatentable. We begin our

analysis with the principles of law that generally apply to an asserted ground based on obviousness, we then assess the level of skill in the art, next we provide brief overviews of Carmel and Mattavelli, and then we address the parties' contentions with respect to independent claims 1, 6, and 7.

1. Principles of Law

A claim is unpatentable under § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, “would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective indicia of obviousness or non-obviousness (i.e., secondary considerations, such as commercial success, long-felt but unsolved need, failure of others, etc.).⁵ *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966). We analyze the asserted grounds based on obviousness with the principles we identify above in mind.

2. Level of Skill in the Art

In determining whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham*, 383 U.S. at 17. “The importance of resolving the level of ordinary skill in the art lies in the necessity of

⁵ At this stage in the proceeding, Withrow does not present arguments or evidence of secondary considerations. *See* Prelim. Resp.

maintaining objectivity in the obviousness inquiry.” *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991). The “person having ordinary skill in the art” is a hypothetical construct, from whose vantage point obviousness is assessed. *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998).

Factors pertinent to a determination of the level of ordinary skill in the art include “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.” *Envtl. Designs, Ltd. v. Union Oil Co. of Cal.*, 713 F.2d 693, 696 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). “Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case.” *Id.* at 696–97.

Relying on the testimony of Dr. Polish, Google argues the following:

[a] person of ordinary skill in the art . . . would have possessed at least a bachelor’s degree in computer science, computer engineering, electrical engineering, 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 and vice versa.

Pet. 5–6 (citing Ex. 1002 ¶¶ 18–23). In the Preliminary Response, Withrow argues:

[t]he level of ordinary skill in the art . . . is a person with a bachelor’s degree in electrical engineering, computer engineering, computer science, or a related field, and two to three

years of experience in the design or development of (1) video processing systems, audio processing systems, and/or the equivalent; and (2) networking and communications systems, or the equivalent. Additional graduate education could substitute for professional experience, or significant experience in the field could substitute for formal education.

Prelim. Resp. 13.

We do not discern a material difference between the assessments of the level of skill in the art advanced by either party, nor does either party premise its arguments exclusively on its own assessment. For purposes of institution, we adopt Google’s assessment because (1) it is consistent with the ’849 patent and the asserted prior art; and (2) it is supported by the testimony of Dr. Polish. We note, however, that our obviousness analysis would be the same under each party’s assessment.

3. Overview of Carmel (Ex. 1003)

Carmel generally relates to “network data communications” and, in particular, “to real-time multimedia broadcasting over a network.” Ex. 1003 1:10–12. Figure 2 of Carmel, reproduced below, illustrates a computer broadcast network in accordance with one embodiment. *Id.* at 5:43–45.

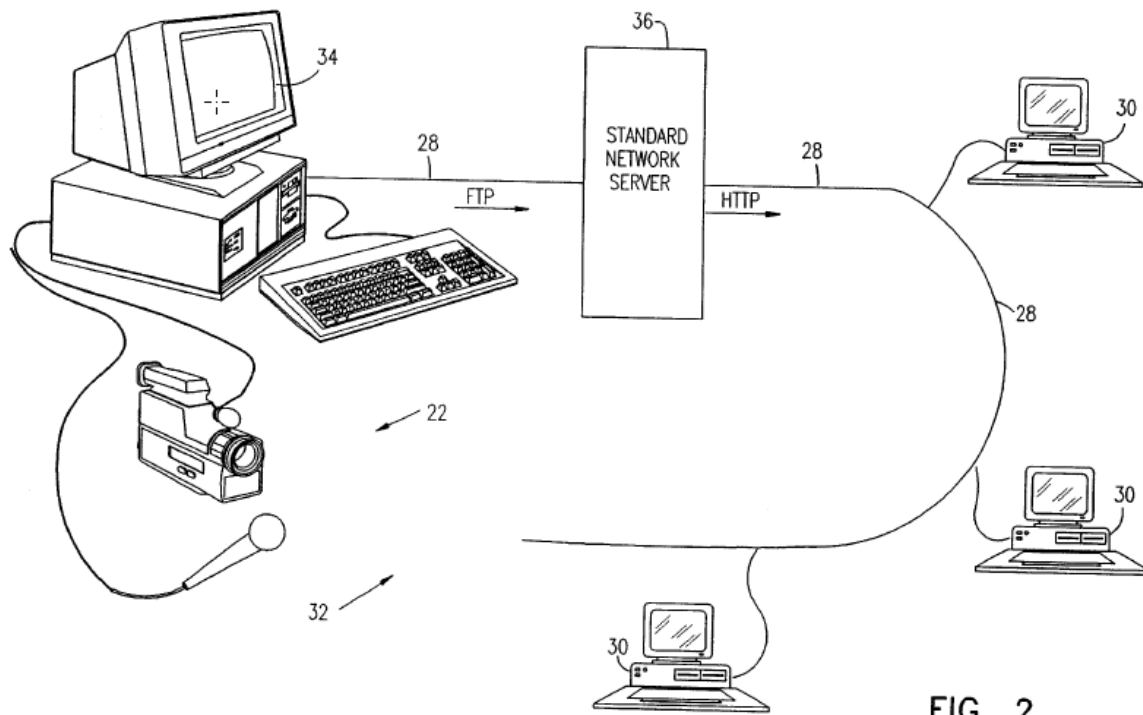


FIG. 2

Figure 2 illustrates computer system 32 that remotely broadcasts a multimedia sequence over network 28. *Id.* at 6:24–26. Computer system 32 includes transmitting computer 34 that generates the sequence, a plurality of clients 30, and network server 36, all of which communicate over network 28. *Id.* at 6:28–31. After preparing the multimedia sequence, computer 34 uploads the sequence over network 28 using the Internet File Transfer Protocol (“FTP”) or other Internet protocols. *Id.* at 6:50–54. The sequence is preferably generated and compressed in real-time and may include an interview program, an entertainment event, a sports event, or a pre-recorded sequence. *Id.* at 6:57–60. Clients 30 connect to network server 36 and receive this sequence substantially in real-time. *Id.* at 7:4–5. Clients 30 preferably download the sequence using the Hypertext Transfer Protocol (“HTTP”) or other Internet protocols. *Id.* at 7:5–8. Because HTTP is widely used by modern web browsers, clients 30 will usually only need to add a

Java applet or plug-in to their existing web browsers in order to receive and playback the broadcast. *Id.* at 7:12–17.

4. Overview of Mattavelli (Ex. 1004)

Mattavelli generally relates to Computational Graceful Degradation (“GCD”). Ex. 1004, 2309. More specifically, Mattavelli discusses a more efficient usage of hardware processing power to provide results of possibly lower visual quality, but respecting real-time constraints when a required processing needs exceed the available processing resources. *Id.* Mattavelli states that this technique can be applied to decoding of compressed video sequences such as Motion Picture Experts Group 4 (“MPEG-4”). *Id.* Mattavelli concludes that simulations show successful implementation of the GCD approach for MPEG-4 video decoding. *Id.* at 2312.

5. Claims 1, 6, and 7

Our analysis below focuses on the limitations of independent claim 1 by relying on the bracketed annotations provided by Google in the Petition. *See* Pet. 13–55. For the most part, the same arguments and evidence Google provides to explain how the combined teachings of Carmel and Mattavelli account for all the limitations of independent claim 1 equally apply to the corresponding limitations of independent claims 6 and 7. *Compare* Pet. 13–55, *with* Pet. 65–67.

The preamble of independent claim 1 recites 1[preamble]—“[a] method comprising.” Ex. 1001, 19:19.⁶ To the extent the preamble should

⁶ “In general, a preamble limits the invention if it recites essential structure or steps, or if it is ‘necessary to give life, meaning, and vitality’ to the

be treated as limiting, Google contends that Carmel teaches a method for real-time broadcasting from a transmitting computer to one or more client computers over a network, which teaches the preamble recitation of “[a] method comprising” in claim 1. Pet. 13 (citing Ex. 1003, code (57), 3:24–27).

Independent claim 1 recites limitation 1[a.i], which states “receiving audio and video segments encoded in a digital encoding format with an encoding rate.” Ex. 1001, 19:20–21. Google argues that Carmel teaches a data stream of multimedia data that includes a combination of video and audio/sound. Pet. 13 (citing Ex. 1003, 2:29–40). Google argues that Carmel teaches the data stream comprises a series of data slices and each slice contains a segment of video and audio data. Pet. 14 (citing Ex. 1003, 7:18–25). Google argues that Carmel’s clients 30 connect to network server 36 and receive the multimedia sequence substantially in real-time. Pet. 17 (citing Ex. 1003, 7:4–5, 7:12–17, 11:5–8). Google alleges that Carmel’s receiving of multimedia sequence that include segments of video and audio data in real-time teaches the limitation “receiving audio and video segments.” Pet. 17 (citing Ex. 1003, 7:4–5, 7:12–17, 11:5–8).

Google argues that Carmel teaches encoding step 80 illustrated in Figures 5 and 7 compresses the data using any suitable compression method known in the art such as GSM 6.10 (audio), H.263 (video), and MPEG

claim.” *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999)). “[A]s a general rule preamble language is not treated as limiting.” *Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F.3d 1335, 1347 (Fed. Cir. 2012) (citing *Allen Eng’g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1346 (Fed. Cir. 2002)).

standards (audio and video). Pet. 15–16 (citing Ex. 1003, 11:23–52, Figs. 5, 7). That is, Google alleges Carmel’s different compression methods teaches the limitation “encoded in a digital encoding format.” Pet. 15–16 (citing Ex. 1003, 11:23–52, Figs. 5, 7).

Google argues that encoding the slices includes encoding slices at a plurality of different quality levels such that the files corresponding to a given one of the slices have a different, respective data size for each of the quality levels. Pet. 16–17 (citing Ex. 1002 ¶¶ 124–126; Ex. 1003, 3:5–13, 4:39–47, 5:15–18). Google alleges that Carmel’s encoding at different quality levels teaches the limitation “encoded in a digital encoding format with an encoding rate.” Pet. 16–17 (citing Ex. 1002 ¶¶ 124–126; Ex. 1003, 3:5–13, 4:39–47, 5:15–18).

Independent claim 1 recites limitation 1[a.ii], which states “wherein, said audio and video segments are associated with object parameters and supplied host path identification to form multimedia objects.” Ex. 1001, 19:21–24. As noted above, Google argues that Carmel’s segments of video and audio data teaches “audio and video segments.” Pet. 14 (citing Ex. 1003, 7:18–25); *see also* Pet. 18 (relying on the arguments pertaining to limitation 1[a.i]). Google argues that Carmel teaches each slice has a corresponding file and each file has one or more time-stamps. Pet. 18–19 (citing Ex. 1003, 7:23–31). Google argues, for multi-level streams, Carmel teaches that each multimedia slice includes size identifier 61 and header 43 that includes data such as a title, author, copyright, formats of data in the data stream, the duration of the multimedia sequence represented by the stream, and a description of available stream levels and associated data sizes. Pet. 19 (citing Ex. 1003, 8:42–55, Fig. 3D). Google alleges that Carmel’s

time-stamps, size identifier, and data in header 43 teach the claimed “object parameters” that are associated with audio and video segments. Pet. 18–19 (citing Ex. 1003, 7:23–31, 8:42–55, Fig. 3D).

Google argues that Carmel teaches the sequence of multimedia slices and files created by computer 34 are uploaded to network server 36 using FTP or other Internet protocols. Pet. 22 (citing Ex. 1003, 6:50–7:3, Figs. 2, 4). Google argues Carmel teaches that, when uploading the slices/files to network server 36, computer 34 opens a plurality of links, each link having its own Uniform Resource Locator (“URL”). Pet. 23 (citing Ex. 1003, 9:17–19). Moreover, Google argues that Carmel teaches clients 30 connect to network server 36 to download the sequence using HTTP or other Internet protocols. Pet. 23 (citing Ex. 1003, 7:4–17). Google alleges that Carmel’s use of URLs and Internet protocols, such as FTP and HTTP for downloading and uploading multimedia slices/files, teaches the limitation “supplied host path identification.” Pet. 22–24 (citing Ex. 1003, 6:50–7:3, 7:4–17, 9:17–19, Figs. 2, 4). Google argues Carmel teaches both encoded slices of multimedia data at multiple quality levels are saved within a single file and embodiments where each encoded slice is saved as a separate file. Pet. 19–20 (citing Ex. 1003, 8:42–9:5, 5:15–18). Google alleges that whether Carmel’s slices are saved within a single file or as a separate file, Carmel’s file or files teaches the limitation “form a multimedia object.” Pet. 19–20 (citing Ex. 1003, 8:42–9:5, 5:15–18).

Independent claim 1 recites limitation 1[b.i], which states “requesting by a multimedia player, transmission of said multimedia objects.” Ex. 1001, 19:25–26. As noted above, Google alleges that whether Carmel’s slices are saved within a single file or as a separate file, Carmel’s file or files teaches

the limitation “multimedia objects.” Pet. 19–20 (citing Ex. 1003, 8:42–9:5, 5:15–18). Google argues that Carmel teaches receiving and playing back a broadcast using a Java applet or plug-in on a client’s web browser. Pet. 26 (citing Ex. 1003, 7:12–17). Google alleges that Carmel’s Java applet or plug-in teaches the claimed “multimedia player” and Carmel’s broadcast teaches the claimed “transmission.” Pet. 26 (citing Ex. 1003, 7:12–17). Google argues that Carmel teaches the client selects one of the available quality levels in the stream. Pet. 26–27 (citing Ex. 1003, 10:64–11:8, Fig. 6B). Google alleges that Carmel’s client selection teaches the claimed “requesting.” Pet. 26–27 (citing Ex. 1003, 10:64–11:8, Fig. 6B).

Independent claim 1 recites limitation 1[b.ii], which states “wherein said multimedia objects are located using http and received by said multimedia player from servers using a wireless connection.” Ex. 1001, 19:26–28. As noted above, Google alleges that whether Carmel’s slices are saved within a single file or as a separate file, Carmel’s file or files teaches the limitation “multimedia objects.” Pet. 19–20 (citing Ex. 1003, 8:42–9:5, 5:15–18). Also noted above. Google alleges that Carmel’s Java applet or plug-in teaches the claimed “multimedia player.” Pet. 26 (citing Ex. 1003, 7:12–17). Google argues that Carmel teaches downloading the data stream from the server using HTTP, which Google alleges teaches the limitation “wherein said multimedia objects are located using http and received by said multimedia player.” Pet. 28 (citing Ex. 1003, 2:11–15, 7:4–9, 10:35–47, Fig. 6B).

As for the limitation “wireless connection,” Google argues that Carmel teaches the use of a wireless connection between a client and server via its incorporation by reference of both Carmel ’432 (Ex. 1009) and

Carmel '230 (Ex. 1010). Pet. 31 (citing Ex. 1003, 6:65–7:3, 2:41–46). That is, by relying on the Carmel '432 and Carmel '230, Google argues that Carmel teaches connecting computers through virtual communication lines such as wireless communications. Pet. 31–32 (citing Ex. 1009, 3:21–35, 3:32–53; Ex. 1010, 11:50–57).

Regarding the limitation “servers,” Google argues that, if limitation 1[b.ii] requires a plurality of servers, Carmel in view of knowledge of a person having ordinary skill in the art at the time of the invention (hereinafter, “PHOSITA”) renders such an arrangement as obvious. Pet. 32 (citing Ex. 1002 ¶¶ 165–166). According to Google, a PHOSITA would have been motivated to include two or more of Carmel’s servers 36 hosting copies of the sequence of multimedia objects to provide a faster, more robust, adaptable system that would ensure sufficient bandwidth/download rates and that client 30 (and multimedia player thereon) receives the series of multimedia objects in the proper sequence with only a minimal necessary transmission delay. Pet. 32 (citing Ex. 1003, 10:48–63). Google argues that the receipt of multimedia data from multiple host servers and benefits from doing, so such as having a more stable and scalable streaming output and reducing latency, was known in the art. Pet. 32–33 (citing Ex. 1002 ¶ 166).

Independent claim 1 recites limitation 1[c.i], which states “playing back received multimedia objects by the multimedia player.” Ex. 1001, 19:29–30. Google argues that Carmel teaches receiving and playing back a broadcast using a Java applet or plug-in on a client’s web browser. Pet. 33–34 (citing Ex. 1003, 7:12–17). Google alleges that Carmel’s Java applet or plug-in teaches the claimed “multimedia player.” Pet. 33–34 (citing Ex. 1003, 7:12–17). As noted above, Google alleges that whether Carmel’s

slices are saved within a single file or as a separate file, Carmel's file or files teaches the limitation "multimedia objects." Pet. 19–20 (citing Ex. 1003, 8:42–9:5, 5:15–18). Google argues that Carmel teaches client computers decoding the sequence and playing back the data stream responsive to indices of the files, which Google alleges teaches the limitation "playing back received multimedia objects by the multimedia player." Pet. 33–35 (citing Ex. 1003, 3:66–4:2, Fig. 6B).

Independent claim 1 recites limitation 1[c.ii] that states "wherein the multimedia player is configured to play multimedia objects in a sequence such that fluidity, video quality and audio quality are maintained by selecting a plurality of said multimedia objects that reflect available network bandwidth." Ex. 1001, 19:30–34. Once again, as noted above, Google alleges that Carmel's Java applet or plug-in teaches the claimed "multimedia player." Pet. 26 (citing Ex. 1003, 7:12–17). Also, as noted above, Google alleges whether Carmel's slices are saved within a single file or as a separate file, Carmel's file or files teaches the limitation "multimedia objects." Pet. 19–20 (citing Ex. 1003, 8:42–9:5, 5:15–18). Google argues that Carmel refers to the multimedia data stream as a "sequence" and uses time-stamps to ensure proper synchronization and proper playback in sequential order, which Google maps to the limitation "wherein the multimedia player is configured to play multimedia objects in a sequence." Pet. 35–36 (citing Ex. 1003, 2:1–21, 7:4–8, 7:18–31, 12:6–12). Google asserts that each of Carmel's clients 30 is capable of reconstructing and outputting the multimedia data for the appreciation of a user so that the multimedia sequence is played back just as it was input in the computer in a proper sequence. Pet. 36–37 (citing Ex. 1003, 10:48–54, 12:6–12). Google alleges

that Carmel’s “proper sequence” teaches the claimed “such that fluidity . . . maintained.” Pet. 36–37 (citing Ex. 1003, 10:48–54, 12:6–12, 13:29–35).

Google argues that Carmel teaches each time slice in stream 41 includes multimedia data at multiple quality levels. Pet. 37–38 (citing Ex. 1003, 8:42–9:9, Fig. 3D). Google argues that Carmel teaches level one slices have a smaller data volume than the level two slices and, therefore, level one slices are transmitted over a lower bandwidth data link, while maintaining the required slice timing indicated by time stamps. Pet. 37–38 (citing Ex. 1003, 8:42–9:9, Fig. 3D).

Google alleges that Carmel’s transmission over a lower bandwidth data link teaches the claimed “multimedia objects that reflect available network bandwidth.” Pet. 37–40 (citing Ex. 1003, 8:42–9:9, 10:64–11:9, 7:35–41, Fig. 3D). Google asserts that Carmel’s lower data rate transmission usually is at the expense of inferior sound or image quality and each of clients 30 choose the quality level appropriate to the bandwidth of its link on network 28 to network server 36, which Google alleges teaches the limitation “video quality and audio quality are maintained by selecting a plurality of said multimedia objects that reflect available network bandwidth.” Pet. 37–40 (citing Ex. 1003, 8:42–9:9, 10:64–11:9, 7:35–41, Fig. 3D). Google also contends that, in its infringement allegations in related litigation, Withrow argues that selecting an initial quality level for audio and video based on multiple versions of each stream that fit available bandwidth satisfies the limitation “fluidity, video quality and audio quality are maintained by selecting a plurality of objects that reflect available network bandwidth.” Pet. 39 (citing Ex. 1055, 50–52; Ex. 1002 ¶ 181).

Independent claim 1 recites limitation 1[c.iii], which says “autonomously adjusting said selection and playback according to the multimedia object parameters and supplied host path identification.” Ex. 1001, 19:34–37. As noted above, Google contends that whether Carmel’s slices are saved within a single file or as a separate file, Carmel’s file or files teaches the limitation “multimedia object.” Pet. 19–20 (citing Ex. 1003, 8:42–9:5, 5:15–18). Once again, as noted above, Google alleges that Carmel’s time-stamps, size identifier, and data in header 43 teach the claimed “object parameters” that are associated with audio and video segments. Pet. 18–19 (citing Ex. 1003, 7:23–31, 8:42–55, Fig. 3D). Google also alleges that Carmel’s use of URLs and Internet protocols, such as FTP and HTTP for downloading and uploading multimedia slices/files teaches the limitation “supplied host path identification.” Pet. 22–24 (citing Ex. 1003, 6:50–7:3, 7:4–17, 9:17–19, Figs. 2, 4). Google argues that Carmel teaches that clients 30 periodically makes an assessment of the rate of data transfer over the link from the server and, if necessary, changes the quality level accordingly such as by selecting a lower quality level and playing the lower quality level back faster or vice versa. Pet. 43 (citing Ex. 1003, 10:64–11:15, Fig. 6B). Google argues that Carmel’s clients 30 with multimedia player thereon do this periodic assessment without server-side intervention, which Google maps to the limitation “autonomously.” Pet. 43 (citing Ex. 1003, Fig. 6B; Ex. 1002 ¶¶ 194–196). Google argues that Carmel, therefore, teaches the limitation “autonomously adjusting said selection and playback according to the multimedia object parameters and supplied host path identification.” Pet. 43 (citing Ex. 1003, 10:64–11:15, Fig. 6B).

Independent claim 1 recites limitation 1[c.iv] that says “and by utilizing optimized decoding processes to maintain quality playback.” Ex. 1001, 19:37–39. Google argues that Matavelli teaches CGD techniques include using optimization methods, which Google maps to the limitation “utilizing optimized decoding processes.” Pet. 48–49 (citing Ex. 1004, 2311–2312, 2309). Google argues that, if limitation 1[c.iv] requires employing both video and audio optimization, Matavelli teaches or suggests this because Mattavelli discusses its goal is to respect the real-time constraints with the lowest degradation in the video/audio content. Pet. 49 (citing Ex. 1004, 2311–2312).

As for “to maintain quality playback,” Google argues that the combination of Carmel and Mattavelli teaches and renders obvious this limitation. Pet. 45 (citing Ex. 1002 ¶¶ 199–200). Google argues that Mattavelli teaches CGD methods that output degraded video quality to ensure that fluidity or real-time continuity of playback is maintained, which Google maps to the phrase “to maintain quality playback.” Pet. 46 (citing Ex. 1004, 2309, 2312).

Turning to rationale to combine, Google contends that Carmel and Mattavelli are both directed to processing multimedia data playback “for the appreciation of a user,” while providing the highest perceived audio and video output quality possible in view of system constraints to ensure playback continuity. Pet. 50–51 (citing Ex. 1003, 10:48–54, 11:9–18, 7:35–49, Figs. 3D, 6B; Ex. 1004, 2309, 2310). Google argues that both Carmel and Mattavelli pertain to compression of multimedia data using well-known coding and compression standards for video streaming. Pet. 51 (citing Ex. 1003, 7:25–26, 11:24–52; Ex. 1004, 2309–2311). Google argues a

PHOSITA would appreciate both Carmel and Mattavelli complement each other because Carmel pertains to addressing constraints to available network bandwidth, whereas Mattavalli relates to addressing limits on available processing resources at the client/multimedia player. Pet. 52 (citing Ex. 1003, Abstract, 7:36–41; Ex. 1004, 2309–2312). Google argues that a PHOSITA would have been motivated to combine the complementary teachings in Carmel and Mattavelli to create a more robust streaming system that addresses both bandwidth constraints and client processing limits to provide a best possible playback experience. Pet. 52 (citing Ex. 1002 ¶¶ 212–215). Google argues that Mattavelli teaches merely optimizing transmission bandwidth is not sufficient and is potentially harmful, which provides an express motivation to combine Carmel’s and Mattavelli’s complementary teachings to ensure that different, related links in the streaming playback chain are optimized together. Pet. 53 (citing Ex. 1002 ¶¶ 216–217; Ex. 1004, 2310). In addition, Google argues Carmel contains an express disclosure that would have motivated a PHOSITA to combine Carmel with Mattavelli’s complementary teachings because Carmel states that multimedia playback is achieved “preferably with only a minimal necessary transmission and decoding delay.” Pet. 53–54 (citing Ex. 1002 ¶ 218; Ex. 1003, 10:50–54).

Withrow does not specifically respond to these arguments, except for limitations 1[c.ii] and 1[c.iv] discussed *infra*. See generally Prelim. Resp. Nonetheless, the burden of persuasion remains on Petitioner to demonstrate unpatentability. See *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). Based on the preliminary record, we discern no deficiency in Google’s characterizations of Carmel, Mattavelli, or

the general background knowledge in the art. In addition, for purposes of institution, we are persuaded by Dr. Polish's testimony concerning the relevant disclosures in Carmel and Mattavelli.

At this stage of the proceeding, Withrow argues that Carmel and Mattavelli does not teach limitations 1[c.ii] and 1[c.iv]—"such that fluidity, video quality and audio quality are maintained" and "utilizing optimized decoding processes to maintain quality playback." *See* Prelim. Resp. 18–24. We address these arguments below.

a. Limitations 1[c.ii] and 1[c.iv]—"such that fluidity, video quality and audio quality are maintained" and "utilizing optimized decoding processes to maintain quality playback"

In the Preliminary Response, Withrow argues that Mattavelli teaches CGD does the exact opposite of maintaining quality playback because Mattavelli teaches providing results of poorer quality multimedia when results of a desirable quality cannot be obtained in real-time. Prelim. Resp. 19–23. Withrow also argues that Mattavelli's disclosures regarding the flaws associated with using CGD (i.e., not maintaining video or audio quality) must be used in the Google's combination of Carmel and Mattavelli, which fails to teach or render obvious to maintain "fluidity, video quality and audio quality." *Id.* at 23–24.

Based on the preliminary record, Google presents sufficient evidence that would support a finding that Mattavelli teaches "to maintain quality playback." Pet. 46 (citing Ex. 1004, 2309, 2312). Google argues Mattavelli teaches CGD methods that output degraded video quality to ensure that fluidity or real-time continuity of playback is maintained. Pet. 46 (citing Ex. 1004, 2309, 2312). Google argues Mattavelli ensures that real-time continuity of playback is maintained, which means a viewer can enjoy

watching the multimedia stream without the stream stopping repeatedly.
Pet. 46 (citing Ex. 1004, 2309, 2312). On this preliminary record, Mattavelli appears to teach or fairly suggest the notion of maintaining quality playback.
Pet. 46 (citing Ex. 1004, 2309, 2312).

We also take this opportunity to note that the phrase “to maintain quality playback” might be considered a statement of intended purpose (claim 1) and possibly be a statement of intended use (claim 6).^{7,8} In

⁷ We note that, in some circumstances, the U.S. Court of Appeals for the Federal Circuit has held that the Board may adopt a claim construction of a disputed term that neither party proposes without running afoul of the Administrative Procedure Act, *see* 5 U.S.C. § 551 *et seq.* (1946) (“APA”).⁷ *See, e.g., Praxair Distrib., Inc. v. Mallinckrodt Hosp. Prods. IP Ltd.*, 890 F.3d 1024, 1034 (Fed. Cir. 2018) (rejecting argument that Board violated patent owner’s “procedural rights by adopting a claim construction that neither party proposed”); *WesternGeco LLC v. ION Geophysical Corp.*, 889 F.3d 1308, 1328 (Fed. Cir. 2018) (“[T]he Board is not bound to adopt either party’s preferred articulated construction of a disputed claim term.”). Parties are well aware that the Board may stray from disputed, proposed constructions. *See WesternGeco*, 889 F.3d at 1328 (“Having put it at issue, WesternGeco was well aware that the Board could alter its construction in the final written decision.”).

⁸ “An[]intended use or purpose usually will not limit the scope of the claim because such statements usually do no more than define a context in which the invention operates.” *Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp.*, 320 F.3d 1339, 1345 (Fed. Cir. 2003). Such statements often appear in a claim’s preamble, but can appear elsewhere in the claim. *See In re Stencel*, 828 F.2d 751, 754 (Fed. Cir. 1987). It is well settled that statements of intended use can arise in method claims, where such statements do not add structural limitations to the claims. *See, e.g., TomTom, Inc. v. Adolph*, 790 F.3d 1315, 1317, 1323–24 (Fed. Cir. 2015) (construing generating language in a recited method for generating and updating data for use in a destination tracking system as mere intended use

contrast, the recitation of “to maintain quality playback” in claim 7 does not appear to be a statement of intended use because this claim recites “configured to.”^{9,10}

Regarding the limitation “such that fluidity, video quality and audio quality are maintained,” on this preliminary record, Google presents sufficient evidence that would support a finding that Carmel teaches “such that fluidity, video quality and audio quality are maintained.” Pet. 38–40 (citing Ex. 1055, 50–52; Ex. 1002 ¶ 181). In particular, Google asserts that Carmel’s client 30 reconstructs and outputs the multimedia data for the appreciation of a user so that the multimedia sequence is played back just as it was input in the computer in a proper sequence. Pet. 37–38 (citing Ex. 1003, 10:48–54, 12:6–12). Google’s reliance on Carmel’s disclosure of playing back the multimedia data in “proper sequence” appears to teach or fairly suggest the limitation “such that fluidity, video quality and audio

of the invention); *In re Anderson*, 662 F. App’x 958, 963 (Fed. Cir. 2016) (non-precedential) (agreeing with the Board that claimed “for use” language is a statement of intended use that did not add a structural limitation to the claimed system or method).

⁹ *In re Giannelli*, 739 F.3d 1375, 1378–80 (Fed. Cir. 2014) (explaining that when supported by the specification, recited elements of an apparatus “adapted to” or “configured to” perform a function have a narrower meaning than merely an intended use of the elements themselves).

¹⁰ The doctrine of claim differentiation creates a presumption that claim 7 (reciting “configured to”) and claims 1 and 6 (claims 1 and 6 do not recite “configured to”) are different in scope. *See Seachange Int’l, Inc. v. C-COR Inc.*, 413 F.3d 1361, 1369 (Fed. Cir. 2005). During trial, we invite the parties to brief whether claim 7’s “configured to” language creates a presumption that claims 1 and 6 recite intended purpose and intended use language, respectively.

quality are maintained.” Pet. 37–38 (citing Ex. 1003, 10:48–54, 12:6–12, 13:29–35).

Moreover, Google argues that Carmel teaches each time slice in stream 41 includes multimedia data at multiple quality levels. Pet. 37–38 (citing Ex. 1003, 8:42–9:9, Fig. 3D). Google argues that Carmel teaches level one slices have a smaller data volume than the level two slices and, therefore, level one slices are transmitted over a lower bandwidth data link, while maintaining the required slice timing indicated by time stamps. Pet. 37–38 (citing Ex. 1003, 8:42–9:9, Fig. 3D).

Furthermore, on this preliminary record, Google asserts that Carmel’s lower data rate transmission usually is at the expense of inferior sound or image quality, and each of clients 30 choose the quality level appropriate to the bandwidth of its link on network 28 to network server 36, which Google alleges teaches the limitation “video quality and audio quality are maintained by selecting a plurality of said multimedia objects that reflect available network bandwidth.” Pet. 37–38 (citing Ex. 1003, 8:42–9:9, Fig. 3D).

Also, on this preliminary record, we are persuaded by Google’s contention that Withrow’s infringement allegations in related litigation provides as least some insight into what it means to maintain “fluidity, video quality and audio quality.” Notably, in its infringement allegations in the related litigation, Withrow argues that selecting an initial quality level for audio and video based on multiple versions of each stream that fit available bandwidth satisfies the limitation “fluidity, video quality and audio quality are maintained by selecting a plurality of objects that reflect available network bandwidth.” Pet. 39 (citing Ex. 1055, 50–52; Ex. 1002 ¶ 181).

This appears to align with Carmel’s teaching of playing back the multimedia data in a “proper sequence,” which seems to teach or fairly suggest the limitation “such that fluidity, video quality and audio quality are maintained.” Pet. 37–38 (citing Ex. 1003, 10:48–54, 12:6–12, 13:29–35).

Therefore, at this stage in the proceeding, we do not agree with Withrow’s arguments.

b. Summary

In summary, Google has shown a reasonable likelihood that it would prevail on its assertions that the subject matter of independent claims 1, 6, and 7 would have been obvious over the combined teachings of Carmel and Mattavelli.

C. Remaining Obviousness Grounds

Because Google demonstrates a reasonable likelihood of success in showing that at least one claim of the ’849 patent is unpatentable, we institute an IPR as to claims 1–9 of the ’849 patent based on all the grounds challenging these claims raised in the Petition. *See* 37 C.F.R. § 42.108(a). Therefore, at this stage of the proceeding, it is not necessary for us to provide another assessment of claims 1–9 of the ’849 patent under the remaining obviousness grounds raised in the Petition.

III. CONCLUSION

Taking into account Withrow’s Preliminary Response, we conclude that the information presented in the Petition demonstrates that there is a reasonable likelihood that Google would prevail in challenging at least one of claims 1–9 of the ’849 patent as unpatentable. Accordingly, we institute an IPR as to all challenged claims and all the grounds raised in the Petition.

See 37 C.F.R. § 42.108(a). At this stage of the proceeding, we have not made a final determination with respect to the construction of any claim term or the patentability of the challenged claims.

IV. ORDER

Accordingly, it is

ORDERED that, pursuant to 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a), an IPR is hereby instituted as to all challenged claims and all the grounds raised in the Petition; and

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

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