UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WEBPOWER, INC.,

FRIENDFINDER NETWORKS INC., STEAMRAY INC., WMM, LLC, WMM HOLDINGS, LLC, and MULTI MEDIA, LLC,

DUODECAD IT SERVICES LUXEMBOURG S.À R.L., ACCRETIVE TECHNOLOGY GROUP, INC., ICF TECHNOLOGY, INC., and RISER APPS LLC,

Petitioners

v.

WAG ACQUISITION, LLC
Patent Owner.

Inter Partes Review Case No. IPR2016-01239
U.S. Patent No. 8,364,839

PATENT OWNER'S NOTICE OF APPEAL

via PTAB E2E
Patent Trial and Appeal Board

via Hand Carry
Director of the United States Patent and Trademark Office
c/o Office of the General Counsel, 10B20
Madison Building East, 600 Dulany Street
Alexandria, VA 22314

via CM/ECF
United States Court of Appeals for the Federal Circuit

Pursuant to 35 U.S.C. §§ 141(c), 142, 319 and 37 C.F.R. §§ 90.2(a), 90.3(a), notice is hereby given that Patent Owner WAG ACQUISITION, LLC, ("Patent Owner") hereby appeals to the United States Court of Appeals for the Federal Circuit from the Final Written Decision of the Patent Trial and Appeal Board, entered on December 26, 2017, in case IPR2016-01239, Paper 21 (a copy of which is attached as Appendix A), and from all underlying findings, orders, decisions, rulings, and opinions. This notice is timely filed within 63 days of the December 26, 2017 Final Written Decision, Paper 21. 37 C.F.R. § 90.3.

In accordance with 37 C.F.R. § 90.2(a)(3)(ii), Patent Owner indicates that the issues on appeal include, but are not limited to, the Board's determinations with respect to (i) claim construction, (ii) patentability of claims 5, 12, and 19 of U.S. Patent No. 8,364,839 over the asserted art, (iii) denial of leave to take discovery on whether the Petition was time barred pursuant to 35 U.S.C. § 315(b), and (iv) its findings supporting or relating to the aforementioned issues. Patent Owner also indicates that the issues on appeal include any other issues decided adversely to Patent Owner in any orders, decisions, rulings, or opinions issued in the IPR proceeding.

A copy of this Notice of Appeal is being filed with the Patent Trial and Appeal Board as well as with the Director of the United States Patent and Trademark Office

in accordance with 37 C.F.R. § 90.2(a)(1). In addition, this Notice of Appeal and the required fee are being submitted to the Clerk's Office for the United States Court of Appeals for the Federal Circuit.

Dated: February 26, 2018

By: /Ronald Abramson/
Ronald Abramson

By: /s/Ronald Abramson
Ronald Abramson

(Lead Counsel)
Reg. No. 34,762
Lewis Baach Kaufmann Middlemiss PLLC
405 Lexington Avenue
62nd Floor
New York, NY 10174
Telephone: 212-822-0163
Facsimile: 212-826-7146
ronald.abramson@lbkmlaw.com

Attorney for Patent Owner

CERTIFICATE OF SERVICE (37 C.F.R. § 42.6(e))

The undersigned hereby certifies that on February 26, 2018, a true and correct copy of the above-captioned "Patent Owner's Notice of Appeal" was filed electronically through the Patent Trial and Appeal Board's E2E System and was filed with the Director of the United States Patent and Trademark office c/o the Office of General Counsel via hand delivery to the following address:

Director of the United States Patent and Trademark Office
c/o Office of the General Counsel
United States Patent and Trademark Office
Madison Building East, Room 10B20
600 Dulany Street
Alexandria, VA 22314

CERTIFICATE OF FILING

The undersigned hereby also certify that on February 26, 2018, a true and correct copy of the above-captioned "Patent Owner's Notice of Appeal" was filed electronically with the Clerk's Office of the United States Court of Appeals for the Federal Circuit via CM/ECF, along with a copy of the Final Written Decision (Paper 21).

The undersigned hereby further certifies that the above-captioned "Patent Owner's Notice of Appeal" was served in its entirety on February 26, 2018, upon the following counsel of record for the Petitioner via electronic mail:

Lead Counsel:	Frank M. Gasparo (Reg. No. 44,700) FMGasparo@Venable.com
Backup Counsel:	Jonathan L. Falkler (Reg. No. 62,115) JLFalker@Venable.com Tamatane J. Aga (Reg. No. 65,708) TJAga@Venable.com **Venable LLP** 1270 Avenue of the Americas, 24th Floor New York, NY 10020 Phone: (212) 370-6273 Kevin M. O'Brien (Reg. No. 30,578) Richard V. Wells (Reg. No. 53,757) Matt Dushek (Reg. No. 61,921) Duodecad_WAG@bakermckenzie.com Kevin.O'Brien@bakermckenzie.com Richard.Wells@bakermckenzie.com Matt.Dushek@bakermckenzie.com **Baker & McKenzie LLP** 815 Connecticut Ave NW Washington, DC 20006 Phone: 202-452-7032 Brian G. Bodine (Reg. No. 40,520) Alan D. Minsk (Reg. No. 35,956) Adriane M. Scola (Reg. No. 75,492) BodineB@lanepowell.com MinskA@lanepowell.com ScolaA@lanepowell.com **Lane Powell PC** 1420 Fifth Ave., Suite 4200 Seattle, WA 98111-9402 Phone: 206-223-7406

Dated: February 26, 2018 Respectfully submitted,

By: /Ronald Abramson/
Ronald Abramson

By: /s/Ronald Abramson
Ronald Abramson

(Lead Counsel)
Reg. No. 34,762
Lewis Baach Kaufmann Middlemiss PLLC
405 Lexington Avenue
62nd Floor
New York, NY 10174
Telephone: 212-822-0163
Facsimile: 212-826-7146

APPENDIX A

Trials@uspto.gov
571.272.7822

Paper No. 21
Filed: December 26, 2017

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WEBPOWER, INC.,

FRIENDFINDER NETWORKS INC., STREAMRAY INC., WMM, LLC, WMM HOLDINGS, LLC, and MULTI MEDIA, LLC,

DUODECAD IT SERVICES LUXEMBOURG S.A.R.L., ACCRETIVE TECHNOLOGY GROUP, INC., ICF TECHNOLOGY, INC., and RISER APPS LLC,
Petitioner,

v.

WAG ACQUISITION, LLC,
Patent Owner.

Case IPR2016-01239
Patent 8,364,839 B2

Before TREVOR M. JEFFERSON, BRIAN J. McNAMARA, and PATRICK M. BOUCHER, *Administrative Patent Judges*.

JEFFERSON, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

On December 27, 2016, we instituted *inter partes* review based upon the ground asserted in the Petition (Paper 2, "Pet.") by Webpower, Inc., challenging claims 5, 12, and 19 of U.S. Patent No. 8,364,839 B2 (Ex. 1001, "the '839 patent") and a Preliminary Response to the Petition (Paper 6, "Prelim. Resp.") filed by WAG Acquisition, LLC ("WAG" or "Patent Owner"). Paper 7 ("Dec.") 35–36. We subsequently joined Friendfinder Networks Inc., Streamray Inc., WMM, LLC, WMM Holdings, LLC, and Multi Media, LLC in IPR2017-00784; and Duodecad IT Services Luxembourg S.A.R.L., Accretive Technology Group, Inc., ICF Technology, Inc., and Riser Apps LLC in IPR2017-00785 as parties to the present proceeding. Papers 11, 12. We refer collectively to all petitioners herein as "Petitioner."

In our Decision, we instituted *inter partes* review on the ground that claims 5, 12, and 19 of the '839 patent are unpatentable under 35 U.S.C. § 103(a) over (1) Chen,[1] Willebeek,[2] and Chen FH;[3] and (2) Chen, Cannon,[4] and Chen FH. Dec. 36; *see* Pet. 5 (setting forth grounds).

Following institution, Patent Owner filed a Patent Owner's Response (Paper 10, "PO Resp.") and Petitioner filed a Consolidated Reply to Patent Owner's Response (Paper 14, "Reply"). We held a hearing on September

[1] U.S. Patent 5,822,524, issued October 13, 1998 (Ex. 1004, "Chen").
[2] M. H. Willebeek-LeMair, et al., *Bamba-Audio and Video Streaming Over the Internet*, IBM J. RES. DEVELOP., Vol. 42, No. 2 (1998) (Ex. 1008, "Willebeek").
[3] File History of U.S. Application 505,488 (Ex. 1010, "Chen FH").
[4] U.S. Patent 6,014,706, issued Jan. 11, 2000 (Ex. 1009, "Cannon").

25, 2017, and a transcript of the hearing is included in the record. Paper 20 ("Tr.").

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed below, Petitioner has shown by a preponderance of the evidence that the challenged claims are unpatentable.

A. Related Proceedings

The '839 patent is the same patent that was the subject of *inter partes* review in IPR2015-01036 ("the '1036 IPR"), where our Final Written Decision determined that claims 1, 4, 6, 8, 11, 13, 15, 18, and 20 are unpatentable under 35 U.S.C. § 103(a) as obvious over Chen and Chen FH; and that claims 3, 10, and 17 are unpatentable under 35 U.S.C. § 103(a) as obvious over Chen, Chen FH, and ISO-11172.[5] *Duodecad IT Services Luxembourg S.a.r.l. v. WAG Acquisition, LLC*, IPR2015-01036 (PTAB Oct. 20, 2016) (Paper 17) ("*Duodecad-01036*"). We also note that the '839 patent is at issue in *I.M.L. SLU et al v. WAG Acquisition*, LLC, IPR2016-01658.

[5] International Standard ISO/IEC 11172-1, "Information Technology – Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s – Part 1: Systems," August 1993; International Standard ISO/IEC 11172-1, "Information Technology – Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s – Part 2: Video," August 1993; and International Standard ISO/IEC 11172-1, "Information Technology – Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s – Part 3: Audio," August 1993 (collectively "ISO-11172").

The parties state that the ’839 patent is asserted in nine pending litigations: *WAG Acquisition, LLC v. Sobonito Investments, Ltd. et al.*, Case No. 2:14-cv-1661-ES-MAH (D.N.J.); *WAG Acquisition, LLC v. Multi Media, LLC et al.*, Case No. 2:14-cv-2340-ES-JAD (D.N.J.); *WAG Acquisition, LLC v. Data Conversions, Inc. et al.*, Case No. 2:14-cv-2345-ES-MAH (D.N.J.); *WAG Acquisition, LLC v. Flying Crocodile, Inc. et al.*, Case No. 2:14-cv-2674-ES-MAH (D.N.J.); *WAG Acquisition, LLC v. Gattyàn Group S.à r.l. et al.*, Case No. 2:14-cv-2832-ES-MAH (D.N.J.); *WAG Acquisition, LLC v. FriendFinder Networks Inc. et al.*, Case No. 2:14-cv-3456-ES-MAH (D.N.J.); *WAG Acquisition, LLC v. Vubeology, Inc. et al.*, Case No. 2:14-cv-4531-ES-MAH (D.N.J.); *WAG Acquisition, LLC v. Gamelink Int’l Ltd. et al.*, Case No. 2:15-cv-3416-ES-MAH (D.N.J.); *WAG Acquisition LLC v. WebPower, Inc. et al.*, Case No. 2:15-cv-03581-ES-MAH (D.N.J). Pet. 1–2; Paper 4. One related litigation, *WAG Acquisition, LLC v. MFCXY, Inc. et al.*, Case No. 2:14-cv-3196-ES-MAH (D.N.J.), has been dismissed. Pet. 1–2; Paper 4.

B. The ’839 Patent (Ex. 1001)

The ’839 patent, titled “Streaming Media Delivery System,” issued on January 29, 2013. It describes users viewing or listening to streaming content over Internet connections who encounter interruptions (“drops outs”) due to transmission delays and losses. Ex. 1001, 2:16–23. The ’839 patent addresses a “need for improved systems and methods for delivering streaming content over the Internet or other communications medium, which facilitate continuous transmission of streaming content, respond on demand

without objectionable buffering delay, and perform without disruption or dropouts." *Id.* at 3:24–29.

The '839 patent states that Internet streaming, as practiced in the prior art, relied on a server transmitting streaming media continuously at the playback rate of the media, where the playback rate corresponds to the number of frames-per-second at which the media was encoded for playback at normal speed. *Id.* at 1:30–2:15. Data in each frame can be encoded using Constant Bit Rate (CBR) or Variable Bit Rate (VBR) encoding. *Id.*

A client device for receiving and playing a streamed transmission (e.g., a computer running media player software) typically used a playback buffer (user buffer) for collecting frames of data being streamed. The client would not begin playback until the user buffer was filled to a specified level. The user buffer thus provided a reservoir of data available in the event of packet loss or delay, corresponding to the playback time of the amount of media initially buffered. If losses or delays occurred during transmission, the content of the user buffer (reservoir of data) would shrink as playback continued during the period of such losses or delays. *See, e.g.*, Ex. 1001, 2:16−38. Because playback continued at the playback rate, the buffer did not refill after depletion, other than by suspending playback and waiting for it to refill. Startup of playback always had to wait for the user buffer initially to accumulate data to a specified level, which required a noticeable startup delay.

Figure 1 of the ’839 patent is reproduced below.

Fig. 1

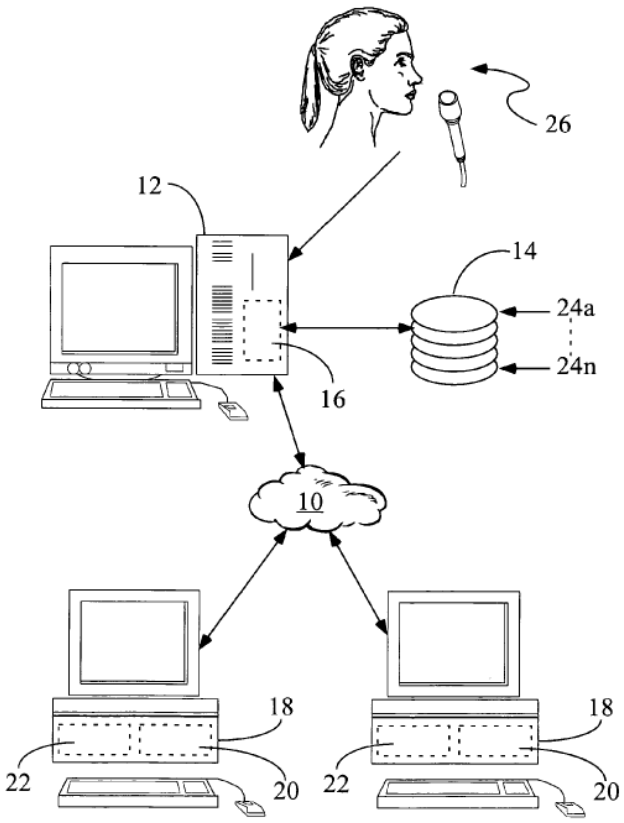


Figure 1 is a schematic diagram that illustrates elements of a streaming media buffering system. *Id.* at 4:1–3. Figure 1 shows server 12 is connected to Internet 10 for transmitting sequenced streaming-media data elements, composed a plurality of time-sequenced data elements. *Id*. at 6:7–14. Associated with server 12 are buffer manager 16 and server buffer 14, which stores at least one of the data elements for transmission. *Id.* at 6:14—17. In one embodiment, buffer manager 16 receives the media data, supplies the media data in order to first-in–first-out (“FIFO”) buffer 14, and maintains pointers 24a–24n into the buffer for each user computer, indicating the last media data element that has been sent to a respective user

and thus indicating the next element or elements to be sent. *Id.* at 6:61–7:6. Once FIFO buffer 14 is full, the oldest data elements in the buffer are deleted as new elements are received. *Id.* at 7:1–10. A predetermined number of data elements are kept in FIFO buffer 14. *Id*.

The server buffer is pre-filled before a user joins the stream and transmission starts. *Id.* at 8:31–44. Pre-filling of the server buffer can be rapid if the data comes from disk storage. If joining a live (real time) transmission in progress, the server buffer is already filled at the time the user joins the stream. Once the server buffer is sufficiently full, the server buffer sends its contents, as fast as the connection will support, to the user system, to rapidly fill the "user buffer" (the playback buffer at the client). The user system can then start playing almost instantaneously. *Id.*

For real-time data sources, such as a radio station, the '839 patent describes that "server buffer 14 might be set to hold (for example) 30 seconds of media data." *Id*. at 7:26–29. "The server buffer 14 is filled the first time the media source connection is established." *Id*. at 7:43–44. "Once server buffer 14 is full, for each new data element received into the buffer the oldest data element is deleted (or displaced) from the buffer." *Id*. at 7:48–50.

Specifically, the '839 patent states:

> Once a connection is made to a user's computer (e.g., user computer 18), server 12 sends the media data to the user computer in the following manner. First, 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, or any lower rate that is a higher rate than the playback rate (referred to herein as a

> "higher than playback" rate), until the predetermined amount of data that had been stored in the server buffer has been transferred to the user's computer. Once the contents of server buffer 14 has been transferred, a steady state condition is reached Wherein as each media data element arrives at server 12, it is immediately sent out to the user computer.

Id. at 7:53–65. If there are no interruptions in the transmission, during "this steady state condition, the media data is sent at a rate that matches the constant fill rate of the server buffer, and is received at the same rate by the user computer." *Id*. at 7:66–8:1

The '839 patent further states:

> With the present invention, as soon as a user connects to the server 12, the server 12 transmits audio/video data as sequential data elements from its buffer 14 to the buffer 20 of the user, at a higher than playback rate. Unlike the prior art, 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. The user's buffer 20 is built up while the media is playing. As each data element is played, it is deleted or displaced from the user's buffer 20.

Id. at 9:8–17. The '839 patent's approach uses the server's built-in transport mechanism, e.g., the server's TCP stack, as a control mechanism. *Id.* at 8:9–13. The server buffer sends data, via the transport mechanism, to the user buffer. At any time, the connection between the server and user buffers, as moderated by the server's transport mechanism, sends as much data as the transport mechanism will accept, and sends the data as fast as the connection will allow. *Id.* at 10:24–33.

During steady state, Transmission Control Protocol (TCP) senses if a transmission interruption or delay occurs and temporarily stops accepting

data, causing data to "back up" in the server buffer and correspondingly to deplete in the user buffer. *Id.* at 8:4–8. When the interruption or delay clears, the "backed up" data is sent to the client side as fast as the connection will support, emptying the accumulated data in the server buffer, restoring the user buffer, and resuming the steady state operation. *Id.* at 10:24–33.

C. Illustrative Claims

Dependent claims 5, 12, and 19 are the challenged claims. Dependent claim 5 and independent claim 1, from which claim 5 depends, are illustrative and reproduced below (Ex. 1001, 15:57–16:25, 16:34–35):

1. A method for distributing streaming media via the Interact [sic] to at least one user system of at least one user, the streaming media comprising a plurality of sequential media data elements for a digitally encoded audio or video program encoded for playback at a playback rate, the user system being assumed to have a user buffer for receiving media data and facilities to play back the streaming media at the playback rate for viewing or listening by said at least one user, from a server having a server buffer for buffering sequential media data elements, said method comprising:

loading the server buffer with streaming media data elements;

sending an initial amount of streaming media data elements to the user system at an initial sending rate more rapid than the playback rate; and

thereafter, sending further streaming media data elements to the user system at about the playback rate and filling the server buffer or moving a data window through the server buffer at about the playback rate;

wherein the initial amount of streaming media data elements, and the initial sending rate, are sufficient for the user system to begin playing back the streaming media while the user buffer continues to fill;

wherein the further streaming media data elements are received at about the playback rate by the user system if there are no interruptions in the transmission of streaming media data elements between the server and the user system; and

wherein said method further comprises detecting if any interruptions in the transmission of streaming media data elements between the server and the user system have occurred such that streaming media data elements that have been sent by the server to the user system have been delayed or not received by the user system.

5. The method of claim 1, wherein the media data elements are provided from a live broadcast.

II. ANALYSIS

A. Claim Interpretation

We interpret claims of an unexpired patent using the broadest reasonable interpretation in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b); *see also Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard as the claim construction standard to be applied in an *inter partes* review proceeding). Under the broadest reasonable interpretation standard, claim terms are generally given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art, in the context of the entire disclosure. *In re Translogic Tech. Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

In IPR2015-01036, our Final Written Decision adopted our preliminary constructions of the following claim terms/phrases from the '839 patent: "playback rate," "at about the playback rate," "the initial

amount of streaming media data elements, and the initial sending rate, are sufficient for the user system to begin playing back the streaming media while the user buffer continues to fill," "sending to the user system [the] unsent streaming media elements in the server buffer at a sending rate more rapid than the playback rate," and "provided from a live broadcast," and "for each of the plurality of user systems, maintaining a record of the last streaming media data element that had been sent to the user system." *Duodecad-01036* at 9. We adopted those constructions summarized below in our Decision to Institute in the present case (Dec. 9–10).

Claim Term/Phrase	Construction
"playback rate"	"A data rate for which the data is encoded to be played out."
"at about the playback rate"	"at approximately the rate at which the media will be played out"
"the initial amount of streaming media data elements, and the initial sending rate, are sufficient for the user system to begin playing back the streaming media while the user buffer continues to fill"	"Enough data is initially sent fast enough so that the player can at least start playback while its buffer continues to fill."
"sending to the user system [the] unsent streaming media elements in the server buffer at a sending rate more rapid than the playback rate"	"At least some of the unsent data in the server buffer is sent at a sending rate more rapid than the playback rate."
"provided from a live broadcast;" and "for each of the plurality of user systems, maintaining a record of the last streaming media data element that had been sent to the user system"	"Live describes something being contemporaneously created and streamed."

Dec. 10 (citing IPR2015-01036, Paper 8).

The parties have not further argued claim construction and we hereby adopt our preliminary constructions as final.

B. Principles of Law

A claim is unpatentable under § 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 skill in the art; and (4) when in evidence, objective indicia of non-obviousness (i.e., secondary considerations). *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We analyze this asserted ground based on obviousness with the principles identified above in mind.

C. Level of Skill in the Art

Petitioner's declarant, Nathaniel Polish, Ph.D., asserts that a person of ordinary skill in the art "would have had a B.S. degree in computer science or electrical engineering (or comparable degree) and two years of experience in networking or streaming media, or a M.S. in computer science or electrical engineering (or comparable degree)." Ex. 1003 ¶ 21. Dr. Polish further states that "[t]hese descriptions are approximate, and a higher level

of education or specific skill might make up for less experience, and vice-versa." *Id.* ¶ 22.

Neither Patent Owner nor its declarant, Mung Chiang, Ph.D., proffers a characterization of the education and experience of a person of ordinary skill, although Dr. Chiang attests that his own qualifications permit him to provide an opinion, "including what a person having ordinary skill in the art would have understood." Ex. 2001 ¶ 10.

We find Dr. Polish's statement of the level of ordinary skill in the art reasonable, and adopt it for this Final Written Decision.

D. Prior Art Asserted

1. Chen (Ex. 1004)

Chen describes a system for the "just-in-time" retrieval of multimedia files over a computer network. Ex. 1004, [54]. Figure 1 of Chen is reproduced below.

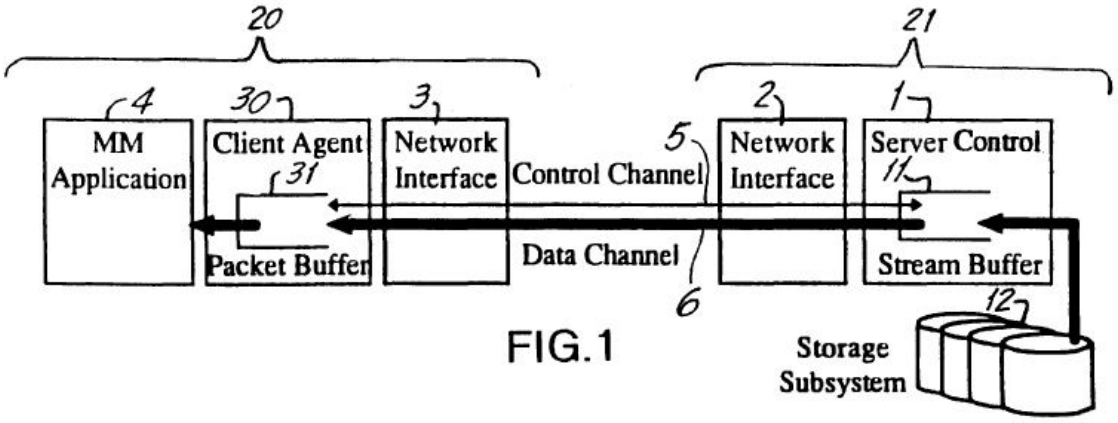


FIG.1

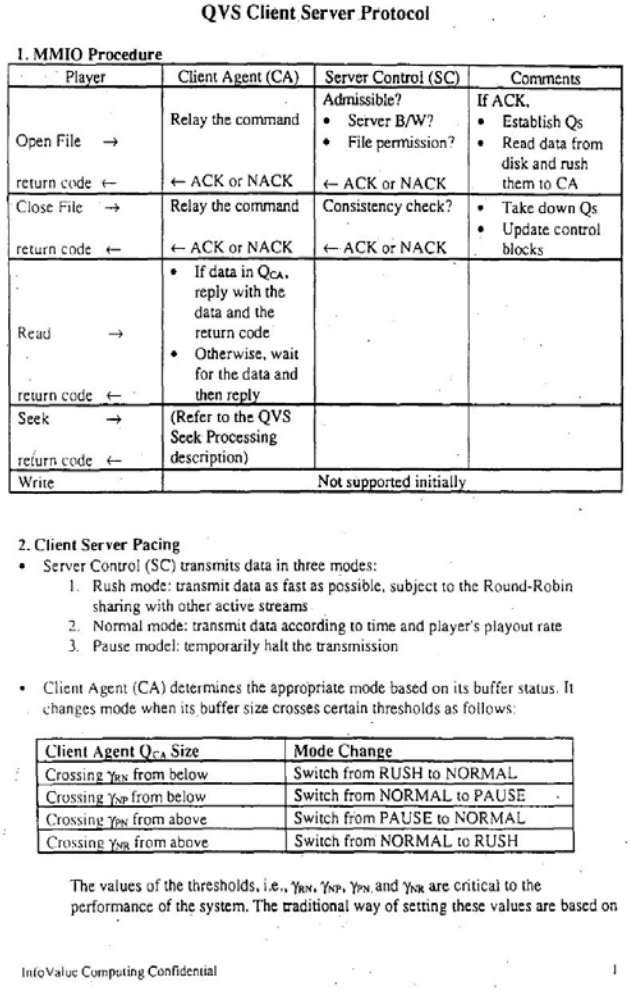
Figure 1 is a schematic illustration showing client machine 20 receiving data streamed from server machine 21 over a network. Data packets are loaded into a "server control stream buffer" 1 for streaming over data channel 6.

Streamed packets are accumulated in "client agent packet buffer" 31 for playback. *Id.* at 4:21, 4:65−5:44, Figure 1.

Chen describes "normal," "rush," and "pause" transmission modes for streaming from a server to a user. *Id.* at 6:1−15 (emphasis omitted). It describes a "water mark" model for buffering streaming content. *Id.* at 6:16−54 (emphasis omitted). The server buffer is like a water bucket having high and low "water marks." *Id.* Water exits the bucket through a spout similar to data exiting a packet buffer as its content is delivered to a user. *Id.* When water in the bucket is at a level between the water marks, transmission occurs in the normal mode. *Id.* The normal mode carries out frame level pacing, i.e., transmission at the playback rate. *Id.* at 10:3−4. When the amount of data falls below the low mark, the transmission mode changes to "rush." *Id.* at 6:42−47 (emphasis omitted). In rush mode, frame level pacing is ignored and data is transmitted as fast as possible. *Id.* at claims 18, 29; Figure 6.

2. Chen FH (Ex. 1010)

Chen FH shows that during prosecution of the application eventually issuing as Chen, patent applicant submitted a Declaration in accordance with 37 C.F.R. § 1.131 for the purpose of predating ("swearing behind") a cited reference. Ex. 1010, 77−79. That Declaration references a "Quick Video Server" ("QVS Sever") exhibit document alleged to describe a commercial embodiment of Chen. *Id.* at 77. The Declaration includes a claim chart mapping the technical documents provided for the QVS server to the then-pending claims. *Id.* at 112–119. Chen FH describes a protocol used by the QVS server and is reproduced below.



QVS Client Server Protocol

1. MMIO Procedure

Player	Client Agent (CA)	Server Control (SC)	Comments
Open File →	Relay the command	Admissible? • Server B/W? • File permission?	If ACK, • Establish Qs • Read data from disk and rush them to CA
return code ←	← ACK or NACK	← ACK or NACK	
Close File →	Relay the command	Consistency check?	• Take down Qs • Update control blocks
return code ←	← ACK or NACK	← ACK or NACK	
Read →	• If data in Q_{CA}, reply with the data and the return code • Otherwise, wait for the data and then reply		
return code ←			
Seek →	(Refer to the QVS Seek Processing description)		
return code ←			
Write	Not supported initially		

2. Client Server Pacing

- Server Control (SC) transmits data in three modes:
  1. Rush mode: transmit data as fast as possible, subject to the Round-Robin sharing with other active streams
  2. Normal mode: transmit data according to time and player's playout rate
  3. Pause model: temporarily halt the transmission

- Client Agent (CA) determines the appropriate mode based on its buffer status. It changes mode when its buffer size crosses certain thresholds as follows:

Client Agent Q_{CA} Size	Mode Change
Crossing γ_{RN} from below	Switch from RUSH to NORMAL
Crossing γ_{NP} from below	Switch from NORMAL to PAUSE
Crossing γ_{PN} from above	Switch from PAUSE to NORMAL
Crossing γ_{NR} from above	Switch from NORMAL to RUSH

The values of the thresholds, i.e., γ_{RN}, γ_{NP}, γ_{PN}, and γ_{NR} are critical to the performance of the system. The traditional way of setting these values are based on

InfoValue Computing Confidential 1

Id. at 86. The QVS Server Protocol describes "PAUSE," "NORMAL," and "RUSH" transmission modes. *Id*. Rush mode is described as "transmit data as fast as possible, subject to the Round-Robin sharing with other active streams." *Id*.

3. Willebeek (Ex. 1008)

Willebeek describes a method of displaying streamed digital video data, including live video, on a client computer using buffers as the client and server. Ex. 1008, 269, FIGURE 6. Willebeek teaches that "[a] Live Bamba system was developed to stream audio and video from a live source

across the Web to multiple recipients." *Id*. at 277. Figure 6 of Willebeek is reproduced below.

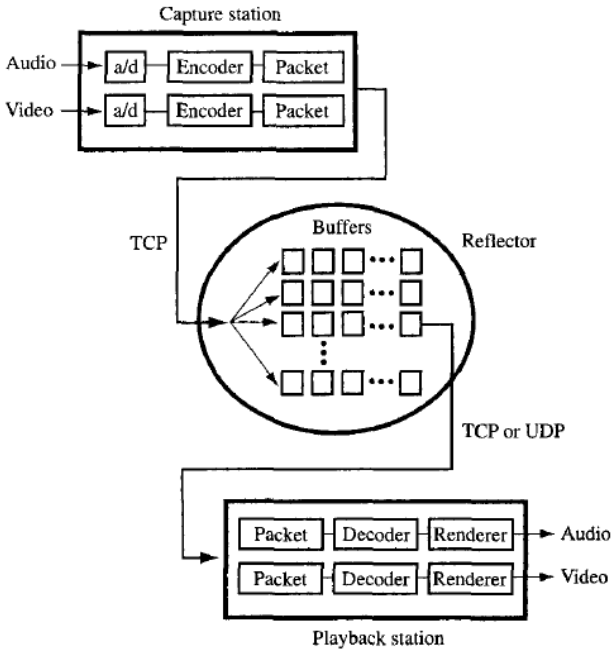


Figure 6
Live Bamba system block diagram.

Willebeek Figure 6 is a schematic diagram of a "Live Bamba system" showing a circular buffer queue containing the most recent several seconds of a live transmission.

Id. at 277. Willebeek states that "[t]he Live Bamba system consists of three primary components (as illustrated in Figure 6 [above]): an audio/video capture station, an audio/video reflector, and an audio/video playback station." *Id*.

> In the capture station, audio and video inputs are converted from analog to digital form, compressed, and then packetized. The Live Bamba packets are transmitted to the reflector via TCP/IP connection that is established between the reflector and the

> capture station. The reflector then establishes and manages multiple connections to interested recipients.

Id. at 277–278. When a new user requests live video, the server produces a new copy of the circular buffer and that copy is used as that user's server buffer. *Id*.; *see also* Figures 6–7.

4. Cannon (Ex. 1009)

Cannon is an issued patent, filed March 14, 1997, describing a method of displaying streamed digital video data, including live video, on a client computer using buffers as the client and server. Ex. 1009, Abstract, Figure 1A. Cannon is discussed in the background section of the '839 patent, and was therefore before the Patent Office during original prosecution, but not considered in combination with Chen. Pet. 10.

Cannon Figure 1A is reproduced below.

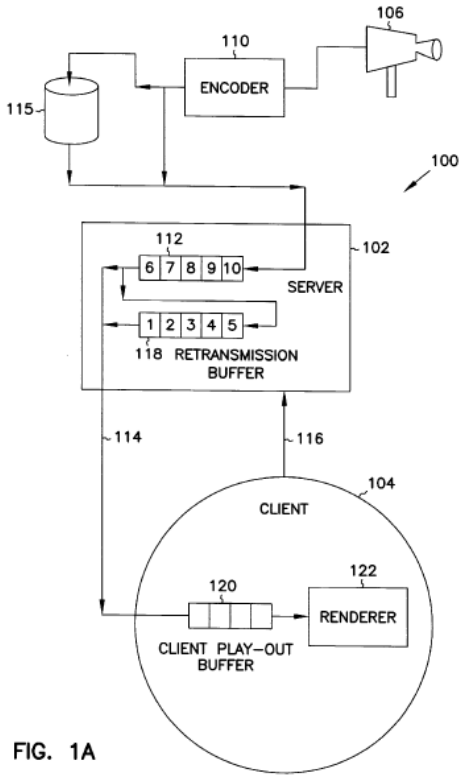


FIG. 1A

Cannon Figure 1A is a schematic diagram of a video camera providing a live feed to an encoder. Figure 1A depicts that computer network 100 includes a server computer 102 and a client computer 104. Video camera 106 records video data, which is digitized and encoded by encoder 110 for transmission to either server 102 or memory 115 for storage. Encoder 110 represents, in one embodiment of the invention, the video source from which data may be streamed to the client via the server. Ex. 1009, 7:10–34. Encoder 110, which may be implemented in hardware or software, may also perform compression on the raw digital video data to improve storage and transmission efficiency. Data packets outputted by encoder 110 (or retrieved from memory 115) are then buffered within server play-out buffer 112 for transmission to client computer 104. Data packets stored in memory 115 may be employed by client computer 104 to facilitate rewind, fast forward, and other control modes. *Id*. As each data packet or group of data packets is outputted from server play-out buffer 112 onto data connection 114 for transmission (e.g., responsive to a command from client computer 104 which is received by server computer 102 via a control connection 116), the same data packet or group of data packets is input into retransmit buffer 118 at the server. *Id*. at 7:35–40.

Retransmit buffer 118 represents a first-in-first-out (FIFO) buffer which retains for a limited time a data packet transmitted from server playout buffer 112. As new data packets are input into retransmit buffer 118, old data packets (starting with the oldest data packets) are discarded from transmit buffer 118. *Id*. at 7:46–65. As data packets are received by client computer 104 from data connection 114, they are inputted into client play-

out buffer 120 to be displayed by renderer application 122. Client play-out buffer 120 may represent, in one embodiment, a FIFO buffer. Client play-out buffer 120 and/or server play-out buffer 112 are typically sized appropriately to minimize latency while taking into account the reliability and stability of network 100 through which data connection 114 traverses. *Id*. at 7:66–8:16.

Although only one control connection 116 and one control connection 114 are shown in FIGURE 1A, a real-time video session may involve multiple data and control connections for the multiple data streams, e.g., video, audio, annotations, and the like. *Id*. at 8:28–8:37.

E. Obviousness Based on Chen (Ex. 1004), Chen FH (Ex. 1010), and Willebeek (Ex. 1008)

Petitioner contends that that Chen in combination with Chen FH teaches the limitations of independent claims 1, 8, and 15. Pet. 16–32, 35–44. Petitioner cites evidence and argument that the three transmission modes described in Chen (Normal, Rush, and Pause) in combination with Chen FH teaches the limitations of claims 1, 8, and 15. *Id*. at 16–32, 42–44 (citing Ex. 1003 ¶¶ 36, 38, 40, 43, 51, 52, 54, 55, 56). Petitioner provides a claim chart with citations to Chen for the limitations of independent claims 1, 8, and 15. Pet. 19–32.

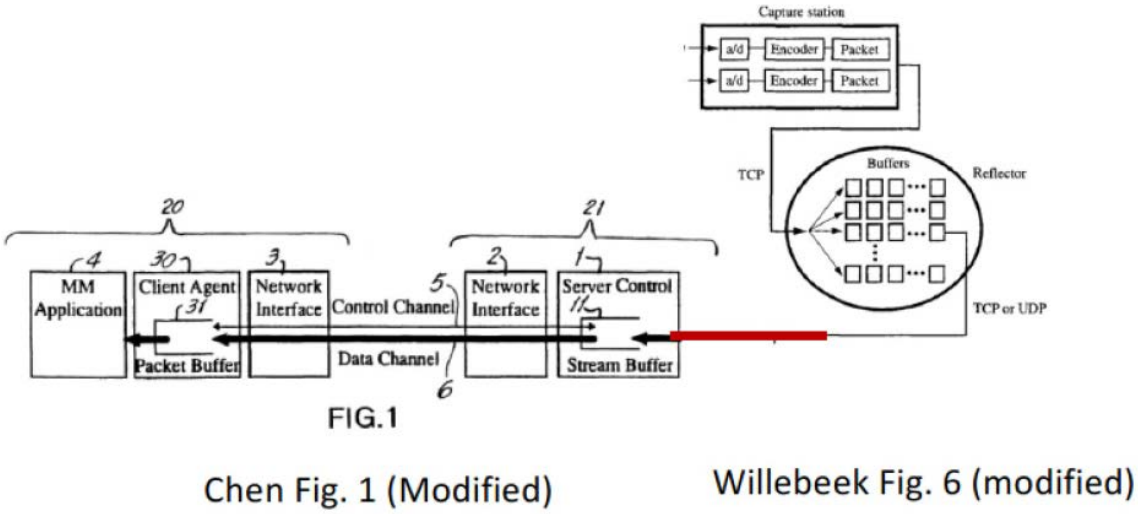
To the extent that Chen does not teach the limitation for "sending an initial amount of streaming media data elements to the user system at an initial sending rate more rapid than the playback rate" as recited in claim 1, Petitioner argues that Chen FH in combination with Chen teaches starting in RUSH mode upon opening of a multimedia file. Pet. 42–44 (citing Ex. 1003

¶¶ 66–67; Ex. 1010, 77–79, 86–87). Petitioner provides an articulated reasoning for the combination of Chen and Chen FH, noting that combination would minimize start delay, and require combining teachings in a known way to achieve predictable results. Ex. 1003 ¶¶ 63–65; *see also* Ex. 1013, 63:14–16. Finally, as Petitioner notes, our Final Written Decision in IPR2015-01036 determined that Chen and Chen FH rendered the limitations of claims 1, 8, and 15 obvious. Reply 1; *Duodecad-01036* at 19–29, 30–35, 43. Patent Owner did not appeal this decision. Accordingly, we determine that Chen and Chen FH teach the limitations of claims 1, 8, and 15 of the '839 patent.

Dependent claims 5, 12, and 19, which depend from claims 1, 8, and 15 respectively, require that the streaming content be generated from a live broadcast. Petitioner contends that claims 5, 12, and 19 are unpatentable as obvious in view of Chen and Willebeek. Pet. 35–39 (citing Ex. 1003). Petitioner argues that a modified version of the Willebeek circulating buffer could be used to feed a live broadcast to a modified version of the Chen server buffer. Pet. 37.

Specifically, Petitioner notes that in a preferred Chen embodiment, shown in Figure 4, a parser 62 extracts frame-by-frame timing information from a multimedia file, placing the timing information in an index file 63, which is used by the server control 64 to pace transmission. Pet. 35 (citing Ex. 1004, 8:43–55). Chen states that the parser can extract the frame information beforehand or on the fly (during multimedia file transmission). Ex. 1004, 8:50–52. Petitioner contends that the Willebeek "capture station" packetizes data from a live stream. Pet. 36 (citing Ex. 1008, 277–278;

Figure 6). These packets are transferred to a server buffer. Petitioner proposes that Willebeek's plurality of buffers, instead of being fed to a playback station (*see* Ex. 1008, Figure 6) would instead be fed to Chen's server control stream buffer, as shown in Petitioner's combination figure, reproduced below.



Pet. 37. Petitioner's modified figure shows an arrangement where the circular buffer of Figure 6 from Willebeek replaces the server buffer from Figure 1 of Chen. Pet. 37–38 (citing Ex. 1003 ¶¶ 51–52). Petitioner presents evidence to support its contention that it would have been obvious to combine Willebeek's teachings of a live capture station and circular buffer queue with Chen so that Chen could provide live video as well as prestored video. Pet. 36 (citing Ex. 1003 ¶ 51). Furthermore, Petitioner asserts that it would have been obvious to configure the combined system so that, if one of Chen's users requested live video, a new copy of a circular buffer queue such as the one produced by Willebeek's capture station and server would become Chen's server buffer. *Id*. at 36–37 (citing Ex. 1003

¶ 52). Because the circular buffer queue contains a few seconds of video, Chen "would then be able to rush the first packets to the user." Pet. 37. After that, the packets would be sent at the normal (playback rate), as they are received—packets would be received at the server as they are generated by the capture station from the live feed and, barring interruptions, would be passed to the client packet buffer 31 at the playback rate. Ex. 1004, 6:33–39.

Petitioner argues Chen and Willebeek both utilize packet data and "it would have . . . been obvious to a POSITA to take Willebeek's teachings to utilize a capture station to receive video, encode it into Chen-compliant packets, and place them in a reflector with a circular buffer queue" as Willebeek teaches. Pet. 39 (citing Ex. 1003 ¶ 54). Petitioner argues:

> A [person of ordinary skill in the art] would have been motivated to combine the teachings in this manner because, as Willebeek describes: "Most recently, streamed audio and video have become available from both stored and live sources on the Web." Ex. 1008 at 277; Polish Decl., Ex. 1003 at ¶ 56. Modifying Chen in this manner would allow the system to provide access to this recently available data source.

Pet. 39.

We have reviewed Petitioner's arguments and evidence with respect to dependent claims 5, 12, and 19, and the claims from which they depend, and conclude that Petitioner demonstrates by a preponderance of the evidence that that claims 5, 12, and 19 would have been obvious in view of Chen, Chen FH, and Willebeek. We address Patent Owner's contentions in response below.

1. Patent Owner's Response and Petitioner's Reply

Patent Owner contends that Willebeek in combination with Chen and Chen FH cannot sustain the RUSH mode attributed to Chen and Chen FH during the broadcast of a live program. PO Resp. 9–11. Specifically, Patent Owner argues that after the circular buffer of Willebeek transfers at RUSH mode in accordance with Chen FH, the remaining data only arrives at the server buffer as it is generated in real time. *Id*. at 10. Thus, Patent Owner asserts the server buffer in the combined Willebeek, Chen, and Chen FH system will be drawn down to an empty state. *Id*. (citing Ex. 2001 ¶¶ 11–14). This drawing down would be irrecoverable and the RUSH mode of Chen FH would no longer be effective, leading to data being passed through at the playback rate. PO Resp. 10–11 (citing Ex. 2001 ¶¶ 13–18, 23).

Patent Owner argues that this depletion in the combination of Chen, Chen FH, and Willebeek is not present in the claims of the '839 patent, which has a "repeatable recovery feature." PO Resp. 14–15 (citing Ex. 2001 ¶ 22; Ex. 2003 (Deposition of Dr. Polish) 79:4–80:22, 84:2–86:21). Patent Owner states that

> [i]n contrast to the Chen/Willebeek combination in which network interruptions will quickly exhaust the server buffer, in the '839 Patent device the server buffer builds up during such interruptions, accumulating data in excess of the incoming real time data, and this excess data is then sent to the client device at a rate faster than the playback rate when the network interruption clears.

PO Resp. 14–15 (citing Ex. 2001 ¶ 22).

Petitioner replies that Patent Owner has not shown that rush mode in Chen would deplete Willebeek's server buffer. Reply 5. We agree with

Petitioner. As Petitioner asserts, Willebeek's rush mode may not deplete the circular buffer as a portion would remain if the client reaches the low water mark before the buffer is depleted. Reply 4 (citing Ex. 1003 ¶ 52). In addition, Patent Owner has identified no limitation of claims 5, 12, or 19 that requires the server buffer not be depleted or that subsequent rush commands cannot deplete the server buffer. Accordingly, we are not persuaded by Patent Owner's argument regarding Chen's RUSH mode in combination with Willebeek.

We are also not persuaded by Patent Owner's argument regarding the "repeatable recovery feature," which Patent Owner argues is recited in independent claims 8 and 15 from which claims 12 and 19 depend. PO Resp. 16 (citing Ex. 1001, 17:29–41, 18:53–64). The feature Patent Owner describes is directed to the ability of the server buffer to reload or refill during interruptions in transmission, which we have already determined are taught by the combination of Chen and Chen FH in IPR2015-01036. *Duodecad-01036* at 30–35, 43. In addition, we are not persuaded that Patent Owner's description of this feature is commensurate with what the claims require, which is that the buffer builds up during interruptions, not that the buffer be impervious to depleting its contents during rush mode. *See* Ex. 1018, 193:4–195:4 (Patent Owner's declarant describing claim 8 limitations as requiring server buildup during interruptions). Finally, we agree with Petitioner that Patent Owner's arguments regarding rush mode are issues with live sources of playback where the buffer is limited to accumulating data at the rate the live broadcast data is created. Reply 8.

Patent Owner's argument that the combination of Willebeek with Chen and Chen FH would require significant reengineering such that it would require a major redesign of Chen is also unavailing. PO Resp. 17–18 (citing Ex. 2001 ¶ 18). Patent Owner's evidence that Chen's scheduler is unnecessary because it is redundant in a combined system with Willebeek does not make the engineering challenges significant and the combination non-obvious. PO Resp. 18; Ex. 2001 ¶ 18. The test for obviousness is what the combined references as a whole would have suggested to a person of ordinary skill in the art, not whether Willebeek can be bodily incorporated into Chen. *See In re Keller*, 642 F.2d 413, 425 (CCPA 1981); *In re Sneed*, 710 F.2d 1544, 1550 (Fed. Cir. 1983). We are not persuaded by Patent Owner's argument or evidence that a redundant scheduler or playback control commands undermines the articulated reasoning with rational underpinnings for the combination of Chen and Willebeek.

With respect to the combination of Willebeek and Chen, we are persuaded by Petitioner's argument and evidence that Willebeek teaches adding live video capability to a system that plays stored video thus creating a combined system that provides both stored and live video playback capabilities. Pet. 35–36; Reply 9. We agree that Willebeek teaches a method to improve playback of stored video similar to the system disclosed in Chen and Chen FH. *See KSR Int'l*, 550 U.S. at 417 (stating that "if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill"). In sum, we conclude that Petitioner has provided

sufficient and persuasive evidence that the use of Willebeek's capture station and circular buffer queue techniques to provide live video to Chen's system involves nothing more than the use of a known technique to improve similar known devices. Pet. 35–36; Reply 9–11; *KSR Int'l*, 550 U.S. at 417.

We are also not persuaded by Patent Owner's argument that the combination of Chen, Chen FH, and Willebeek would not scale to a reasonable number of viewers for a live broadcast. PO Resp. 19–23; Ex. 2001 ¶ 32. Patent Owner's arguments fail to identify any claim limitation that requires scaling for a particular number of viewers for the live broadcast. *Id*.; *see also* Tr. 14:10–15:7 (noting that the RUSH mode is not a question of the claims, but the operation of the references). Indeed, the claims only require a system for "at least one user." Ex. 1001, claims 1, 8, and 15. In addition, we find that Willebeek expressly teaches multiple connections. Ex. 1008, 278. To the extent that Patent Owner contends that Chen would not be combined with Willebeek because of the issues with scaling to multiple broadcasts, Petitioner has not shown that the alleged problems and disadvantages eviscerate the motivation to combine the references. *See Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016) (stating that "a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine." (quoting *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006))).

Collateral Estoppel

Petitioner argues that because Willebeek in combination with Chen and Chen FH would result in an essentially empty server buffer when

operating under Chen's RUSH mode, the combination fails to teach the reloading limitations of independent claim 8 and 15 that are incorporated into dependent claims 12 and 19. PO Resp. 35–38.

Petitioner replies that this issue was litigated in IPR2015-01036 and that Petitioner is estopped from making the same argument. Reply 18–19 (citing *In re Freeman*, 30 F.3d 1459, 1465 (Fed. Cir. 1994)). In addition, Petitioner argues that Chen discloses the limitations when there is an interruption in transmission as discussed in IPR2015-01036. Reply 19 (citing Ex. 1003, 10:40–50; 5:30–34, 10:40–50, Figures 1, 5).

Under the doctrine of collateral estoppel, also known as issue preclusion, a judgment on the merits in a first proceeding precludes relitigation in a second proceeding "of issues actually litigated and determined in the first [proceeding]." *In re Freeman*, 30 F.3d at. In *Freeman*, the court explained that the rationale underlying issue preclusion is that "a party who has litigated an issue and lost should be bound by that decision and cannot demand that the issue be decided over again." *Id*. The court set out the requirements of the doctrine as follows:

> Issue preclusion is appropriate only if: (1) the issue is identical to one decided in the first action; (2) the issue was actually litigated in the first action; (3) resolution of the issue was essential to a final judgment in the first action; and (4) [the party against whom issue preclusion is asserted] had a full and fair opportunity to litigate the issue in the first action.

Id.

We agree with Petitioner that collateral estoppel applies to Patent Owner's argument with respect to the reloading limitation. In IPR2015-01036, Patent Owner argued that the lost packets disclosure in Chen did not

teach or suggest the reloading limitations of claims 8 and 15. *Duodecad-01036* at 30–35. The issue was litigated by Patent Owner and discussed and decided in the final written decision. *Id*.; *see* Tr. 15:8–16:7 (arguing that the final written decision in IPR2015-01036 erred in treatment of the reloading step in claims 8 and 15 and that collateral estoppel does not apply). Indeed, Patent Owner had a full and fair opportunity to litigate whether the features of Chen and Chen FH disclose the reloading limitations of claims 8 an 15.

Even if collateral estoppel is inapplicable to Patent Owner's argument, we agree with Petitioner that Chen and Chen FH disclose the reloading limitations of claims 8 and 15 for the same reasons discussed in IPR2015-01036. *Duodecad-01036* at 30–35. Reply 18–19. To the extent that Patent Owner argues that the combination of Chen with the live system of Willebeek alters the lost packet features of Chen because the combination would result in an essentially empty server buffer that cannot refill or reload as required in claims 8 and 15, we are not persuaded by Patent Owner's argument or evidence that the combination of Willebeek and Chen results in an empty server buffer for the reasons discussed above. Accordingly, we do not agree with Patent Owner that Chen and Willebeek do not teach the reloading limitation of claims 12 and 19.

Conclusion

Based on the forgoing, we determine that Petitioner demonstrates, by a preponderance of the evidence, that claims 5, 12, and 19 are unpatentable under 35 U.S.C. § 103(a) over Chen, Chen FH, and Willebeek.

F. Obviousness Based on Chen (Ex. 1004), Cannon (Ex. 1009), and Chen FH (Ex. 1010)

Petitioner contends that claims 5, 12, and 19 are unpatentable under 35 U.S.C. § 103 as obvious in view of Chen, Chen FH, and Cannon, providing argument and evidence in support of these contentions. Pet. 40–42, 45 (citing Ex. 1003 ¶¶ 59–61).

Claims 5, 12, and 19 require that the streaming video be from a live video source. Petitioner argues that Chen describes the ability to analyze a multimedia file "on the fly" and serve it, but it does not explicitly disclose using packets from a live video source—as the media in Chen is stored on a server. Ex. 1004, Figure 1A, 8:50–55. Petitioner relies on Cannon to disclose a system similar to Chen (using client and server buffers to smooth transmission of streaming video), but with a way to provide both stored and live data streams, permitting the implementation of control features (such as pause, rewind, etc.) on "real-time video streams and/or live video streams." Ex. 1009, 3:56–60. Figure 1A of Cannon discloses a video camera 106 that can provide a live video feed to encoder 110. *Id*. at 7:10–15. The encoder creates data packets that can either be stored, or provided directly to a server buffer 112 for transmission to client computer 104 live. *Id*. at 7:25–34, 12:41–13:3.

Specifically, Petitioner asserts that:

> Cannon teaches that upon selection of a live play mode, the client and server may flush their buffers (Ex. 1009 at 13:64-14:9) and then the server will monitor the stream of encoded video frames as they are sent to the server from the encoder to identify the next I frame. *Id*. at 13:51-63. It will begin transmitting at that frame. *Id*. When combined with Chen, the server would pass this frame

> to the client in RUSH mode—because the client buffer is empty. In this way, the packets would all be sent in RUSH mode until the client buffer fills above the low water mark. As long as the viewer watches live, RUSH mode may continue because packets are consumed as fast as they are received. If, however, the client buffer fills (for example, when a stream is paused, as disclosed in Cannon), the server may enter NORMAL mode, as disclosed in Chen.

Pet. 41.

Petitioner argues that it would have been obvious to one of ordinary skill that this structure could be used to provide packets to the server buffer in Chen, to enable the playback of live video. Ex. 1003 ¶ 59. This would merely involve combining the teachings in a known way to achieve predictable results—the use of a known technique (Cannon's camera and encoder providing packets to a server buffer) to improve similar known devices (Chen's system for serving streaming video). *Id*. Petitioner also argues that one of ordinary skill would understand that the teachings of Chen and Cannon references, both of which use packetized data, could be combined with routine engineering, as Chen can extract frame timing information for its pacing "on the fly." Pet. 42 (citing Ex. 1004, 8:50–61; Ex. 1003 ¶ 61).

We have reviewed Petitioner's arguments and evidence with respect to dependent claims 5, 12, and 19, and the claims from which they depend, and conclude that Petitioner demonstrates by a preponderance of the evidence that that claims 5, 12, and 19 would have been obvious in view of Chen, Cannon, and Chen FH. We address Patent Owner's contentions in response below.

2. Patent Owner's Response and Petitioner's Reply

Patent Owner contends that Chen, Chen FH, and Cannon would not teach the independent claim limitations for fast start up capabilities as claimed, namely:

> (a) sending an initial amount of streaming media data elements to the user system at an initial sending rate more rapid than the playback rate; (b) in which the initial amount of streaming media data elements, and the initial sending rate, are sufficient for the user system to begin playing back the streaming media while the user buffer continues to fill.

PO Resp. 26 (citing Ex. 2001 ¶ 35). In fact, Patent Owner argues that the combination of these references teaches away from these features. *Id*. Patent Owner's argument is based on the RUSH mode depleting the server buffers in the Chen/Cannon combination, which then must wait for frames from a live source to continue to fill the server buffer. PO Resp. 26; Ex. 2001 ¶ 36. Thus, the client buffer is not continuing to fill while frames are being played, and instead, is being emptied, which is the opposite of what independent claims 1, 8, and 15 require. PO Resp. 26; Ex. 2001 ¶ 37. Patent Owner contends that "[t]he client buffer will only briefly fill some time later, after the next frame has come into the server and been rushed to the client, whereupon this newly-arrived frame will be played and once again render the client buffer empty." PO Resp. 27; *see* Ex. 2003, 141:14–145:1.

Petitioner replies that although Chen and Chen FH have already been determined to teach the limitations of claims 1, 8, and 15 (Reply 15–16; *Duodecad-01036* at 30), evidence shows that Chen and Chen FH in combination with Cannon would hold data in the server buffer *before* using

the RUSH command to send the initial data. Reply 16; Ex. 2003, 124:20–24, 143:20–25, 155:1–159:5.

We agree with Petitioner that the RUSH mode from Chen and Chen FH identified by Petitioner does not necessarily deplete the Chen server buffer when used in combination with the live system of Cannon as Petitioner asserts. We agree with Petitioner that although the claims do not require the buffer to "fill" to a certain level after playback begins, this feature would be met when a user selects *pause* after playback begins. Pet. 41; Reply 15. Selecting "pause" would allow the buffer to fill in accordance with the server buffer management that Chen teaches. *See* Pet. 41; Reply 15–16.

We are also not persuaded by Patent Owner's evidence and argument that the combination of Chen and Chen FH with Cannon would render Chen unsuitable for its intended purpose. PO Resp. 31–35; Ex. 2001 ¶¶ 16–17. Contrary to Patent Owner's contentions, the combination does not undercut Chen's water mark system because the combination would run on empty buffers when in live mode with the server operating continuously in RUSH mode. PO Resp. 32–33. As discussed above, Petitioner has presented persuasive evidence that the pause command or a delay to allow the buffer to fill would be sufficient to allow the water marks in Chen to function. Pet. 41; Reply 15–16.

We are also not persuaded by Patent Owner's arguments regarding scaling the combination of Chen, Chen FH, and Cannon to multiple sessions or the complexity of the engineering necessary to combine the system. Patent Owner relies on the same arguments and evidence discussed above

with respect to the combination with Willebeek. PO Resp. 19–23. For the reasons discussed above we are not persuaded that the combination with Cannon presents technical scaling or scheduler issues that vitiates the proposed combination. Petitioner fails to persuasively address the delay or pause mechanism described by Petitioner that would allow the server buffer to fill and operate within the water mark system of Chen.

Patent Owner relies on the same arguments with respect to the reloading limitations of claims 12 and 19 that were presented above with respect to Willebeek. PO Resp. 35–38. For similar reasons discussed above, collateral estoppel applies to Patent Owner's arguments that attempt to relitigate arguments presented in IPR2015-01036. *Duodecad-01036* at 30–35. Even if estoppel did not apply, Patent Owner has not persuasively shown that the combination of Chen and Chen FH with Cannon results in an essentially empty server buffer that would not function under the lost packets feature of Chen.

Conclusion

Based on the forgoing, we determine that Petitioner demonstrates, by a preponderance of the evidence, that claims 5, 12, and 19 are unpatentable under 35 U.S.C. § 103(a) over Chen, Chen FH, and Cannon.

III. CONCLUSION

Based on the evidence and arguments, Petitioner has demonstrated by a preponderance of the evidence that claims 5, 12, and 19 of the '839 patent are unpatentable under 35 U.S.C. § 103(a) over: (1) Chen, Chen FH, and Willebeek; and (2) Chen, Chen FH, and Cannon.

IV. ORDER

Accordingly, it is

ORDERED that claims 5, 12, and 19 of U.S. Patent No. 8,364,839 B2 are held to be unpatentable; and

FURTHER ORDERED that, because this is a final written decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

PETITIONER:
Frank Gasparo
Jonathan Falkler
Venable LLP
fmgasparo@venable.com
JLFalkler@venable.com

For PATENT OWNER:

Ronald Abramson
Lewis Baach PLLC
ronald.abramson@lbkmlaw.com

Ernest Buff
Ernest D. Buff & Associates, L.L.C.
ebuff@edbuff.com