

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CHARTER COMMUNICATIONS, INC.,
Petitioner

v.

TOUCHSTREAM TECHNOLOGIES, INC.
Patent Owner

Patent No. 8,356,251
Filing Date: September 26, 2011
Issue Date: January 15, 2013
Title: PLAY CONTROL OF CONTENT ON A DISPLAY DEVICE

Inter Partes Review No.: IPR2024-01231

DECLARATION OF DAVID B. LETT

**IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW UNDER 35
U.S.C. §§ 311-319 AND 37 C.F.R. § 42.100 *et seq.***

TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	PROFESSIONAL BACKGROUND AND QUALIFICATIONS	1
3.	MATERIALS CONSIDERED	7
4.	UNDERSTANDING OF APPLICABLE LEGAL STANDARDS.....	11
5.	THE RELEVANT ART AND LEVEL OF ORDINARY SKILL IN THE RELEVANT ART	16
6.	CLAIM CONSTRUCTION.....	17
7.	OVERVIEW OF THE '251 PATENT.....	21
7.1.	Prosecution History	23
1.	Prosecution History of the '998 Application.....	23
2.	Prosecution History of the '289 Patent.....	23
3.	Prosecution History of the '251 Patent.....	24
8.	OVERVIEW OF THE PRIOR ART	28
8.1.	Streaming Formats and VOD	28
8.2.	Media Players	30
8.3.	Applications on TVs and STBs	31
8.4.	Device Casting.....	32
8.5.	Remote Viewing.....	33
8.6.	File Extensions and MIME Types.....	34
8.7.	Application Programming Interfaces (APIs).....	36
8.8.	Look-Up Tables (LUTs).....	38
8.9.	U.S. Pat. No. 9,490,998 - Danciu (Ex. 1112)	38
8.10.	U.S. Pub. No. 2009/0172757 - Aldrey (Ex. 1115).....	50
8.11.	U.S. Pub. No. 2004/0078812 - Calvert (Ex. 1111)	56
8.12.	U.S. Pub. No. 2009/0248802 - Mahajan (Ex. 1114)	63
9.	IDENTIFICATION OF HOW CLAIMS ARE UNPATENTABLE	67
10.	SUMMARY OF OPINIONS WITH RESPECT TO THE '251 PATENT	67
11.	Danciu-Mahajan or Danciu-Mahajan-Calvert Render Claims 1-26	

Obvious.....	68
11.1 Independent Claim 1.....	68
11.2 Dependent Claim 2	94
11.3 Dependent Claim 3: “The method of claim 1 wherein converting the command into corresponding programming code to control the media player includes using information in a look-up table.”	97
11.4 Dependent Claim 4: “The method of claim 3 wherein the look-up table stores a plurality of specific commands, each of which represents, respectively, a corresponding command for a different media player.” ..	98
11.5 Dependent Claim 5: “The method of claim 1 wherein the universal command represents an instruction to play the video content, to stop playing the video content or to pause playing the video content.”	100
11.6 Dependent Claim 6: “The method of claim 1 wherein the video content is an interactive video game.”	100
11.7 Dependent Claim 7: “The method of claim 1 wherein the video content is streaming media.”	102
11.8 Dependent Claim 8: “The method of claim 1 wherein the synchronization code is uniquely associated with the display device on which the video content is to be played.”	103
11.9 Dependent Claim 9: “The method of claim 8 wherein the synchronization code is different from an IP address associated with the display device and is different from a MAC address associated with the display device.” 103	
11.10 Dependent Claim 10: “The method of claim 8 wherein assigning a synchronization code includes assigning a randomly generated code to the display device each time the display device connects to the server system.”	104
11.11 Independent Claim 11.....	105
11.12 Dependent Claim 12: [12A]-[12C]: “The system of claim 11 including: a library storing protocols or application programming interfaces, wherein the server system is configured to check the identity of the media player identified in the one or more signals from the personal computing device, load an appropriate set of protocols or application programming interfaces from the library based on the identity of the media player, and convert the command from the personal computing device into a corresponding programming code to control the media player.”	109

11.13	Dependent Claim 13: “[13A]-[13C]: “The system of claim 11 including: a look-up table storing a plurality of commands each of which is for a particular type of media player, wherein the server system is configured to convert the command into corresponding programming code to control the media player based on information in the look-up table.”	109
11.14	Dependent Claim 14: “The system of claim 11 wherein the look-up table stores a correspondence between the universal command and a plurality of specific commands, each of which is for a different media player.”.	109
11.15	Dependent Claim 15: “The system of claim 14 the server system is configured to convert the universal command by selecting from among the plurality of specific commands stored in the look-up table.”	110
11.16	Dependent Claim 16: “The system of claim 11 wherein the universal command represents an instruction to play the video content, to stop playing the video content or to pause playing the video content.”	110
11.17	Dependent Claim 17: “The system of claim 11 wherein the video content is an interactive video game.”	110
11.18	Dependent Claim 18: “The system of claim 11 wherein the video content is streaming media.”	111
11.19	Dependent Claim 19: “The system of claim 11 wherein the synchronization code is uniquely associated with the display device on which the video content is to be played.”	111
11.20	Dependent Claim 20: “The system of claim 19 wherein the synchronization code is different from an IP address associated with the display device and is different from a MAC address associated with the display device.”	111
11.21	Dependent Claim 21: “The system of claim 19 wherein the server system is configured to assign as the synchronization code a randomly generated code each time the display device connects to the server system.”	111
11.22	Independent Claim 22.....	112
11.23	Dependent Claim 23: “The method of claim 22 wherein the display device comprises a television set with a display screen.”	117
11.24	Dependent Claim 24: “The method of claim 22 wherein the display device comprises a laptop or personal computer.”	117
11.25	Dependent Claim 25: “The method of claim 22 wherein each of the first and second commands represents an instruction to play the respective video file, to stop playing the respective video file or to pause playing the	

respective video file.”	118
11.26 Dependent Claim 26: “The method of claim 22 wherein the display device checks whether the respective media player needed to play the particular one of the video files already is loaded in the display device before obtaining a copy of the media player over the Internet.”	118
12. Aldrey-Mahajan Renders Claims 1-26 Obvious	119
12.1 Independent Claim 1.....	119
12.2 Dependent Claim 2	135
12.3 Dependent Claim 3: “The method of claim 1 wherein converting the command into corresponding programming code to control the media player includes using information in a look-up table.”	137
12.4 Dependent Claim 4: “The method of claim 3 wherein the look-up table stores a plurality of specific commands, each of which represents, respectively, a corresponding command for a different media player.”	138
12.5 Dependent Claim 5: “The method of claim 1 wherein the universal command represents an instruction to play the video content, to stop playing the video content or to pause playing the video content.”	140
12.6 Dependent Claim 6: “The method of claim 1 wherein the video content is an interactive video game.”	140
12.7 Dependent Claim 7: “The method of claim 1 wherein the video content is streaming media.”	141
12.8 Dependent Claim 8: “The method of claim 1 wherein the synchronization code is uniquely associated with the display device on which the video content is to be played.”	142
12.9 Dependent Claim 9: “The method of claim 8 wherein the synchronization code is different from an IP address associated with the display device and is different from a MAC address associated with the display device.”	142
12.10 Dependent Claim 10: “The method of claim 8 wherein assigning a synchronization code includes assigning a randomly generated code to the display device each time the display device connects to the server system.”	143
12.11 Independent Claim 11.....	144
12.12 Dependent Claim 12: [12A]-[12C]: “The system of claim 11 including: a library storing protocols or application programming interfaces, wherein	

the server system is configured to check the identity of the media player identified in the one or more signals from the personal computing device, load an appropriate set of protocols or application programming interfaces from the library based on the identity of the media player, and convert the command from the personal computing device into a corresponding programming code to control the media player.”	148
12.13 Dependent Claim 13: “[13A]-[13C]: “The system of claim 11 including: a look-up table storing a plurality of commands each of which is for a particular type of media player, wherein the server system is configured to convert the command into corresponding programming code to control the media player based on information in the look-up table.”	148
12.14 Dependent Claim 14: “The system of claim 11 wherein the look-up table stores a correspondence between the universal command and a plurality of specific commands, each of which is for a different media player.”.	148
12.15 Dependent Claim 15: “The system of claim 14 the server system is configured to convert the universal command by selecting from among the plurality of specific commands stored in the look-up table.”	148
12.16 Dependent Claim 16: “The system of claim 11 wherein the universal command represents an instruction to play the video content, to stop playing the video content or to pause playing the video content.”	149
12.17 Dependent Claim 17: “The system of claim 11 wherein the video content is an interactive video game.”	149
12.18 Dependent Claim 18: “The system of claim 11 wherein the video content is streaming media.”	149
12.19 Dependent Claim 19: “The system of claim 11 wherein the synchronization code is uniquely associated with the display device on which the video content is to be played.”	149
12.20 Dependent Claim 20: “The system of claim 19 wherein the synchronization code is different from an IP address associated with the display device and is different from a MAC address associated with the display device.”	150
12.21 Dependent Claim 21: “The system of claim 19 wherein the server system is configured to assign as the synchronization code a randomly generated code each time the display device connects to the server system.”	150
12.22 Independent Claim 22.....	150
12.23 Dependent Claim 23: “The method of claim 22 wherein the display device	

comprises a television set with a display screen.”	155
12.24 Dependent Claim 24: “The method of claim 22 wherein the display device comprises a laptop or personal computer.”	157
12.25 Dependent Claim 25: “The method of claim 22 wherein each of the first and second commands represents an instruction to play the respective video file, to stop playing the respective video file or to pause playing the respective video file.”	157
12.26 Dependent Claim 26: “The method of claim 22 wherein the display device checks whether the respective media player needed to play the particular one of the video files already is loaded in the display device before obtaining a copy of the media player over the Internet.”	157
13. CONCLUSION.....	158
CLAIM LISTING APPENDIX.....	159

I, David B. Lett, declare that I have personal knowledge of the facts set forth in this declaration and, if called to testify as a witness, could and would do so competently.

1. INTRODUCTION

1. I have been retained as an expert witness on behalf of the Petitioners, Charter Communications, Inc., for the above-referenced *inter partes* review proceeding.

2. I have been asked to provide a declaration regarding certain matters pertaining to U.S. Patent No. 8,356,251 (“the ’251 Patent”) (Ex. 1101) and the unpatentability grounds set forth in the Petition for this proceeding. My experience with television distribution systems, Set Top Boxes (STBs), Electronic Program Guides (EPGs), Video on Demand (VOD), and content delivery systems provides me with an understanding of the subject matter described and claimed in the ’251 Patent.

3. I am being compensated at my usual consulting rate of \$385 per hour for my work on this matter. My compensation is in no way dependent upon my opinions or testimony or the outcome of this proceeding. I have no financial interest in the party or in the outcome of this proceeding.

2. PROFESSIONAL BACKGROUND AND QUALIFICATIONS

4. I am a technical consultant and product development industry veteran with expertise in electronics, software, hardware, video, audio, and data communications, having led product development organizations in cable, satellite, consumer electronics, home automation, asset tracking, remote tank logistics, and alarm industries. My current curriculum vitae is attached as Appendix A and some highlights

follow.

5. I earned my B.S. in Electrical Engineering (1982) with high honors from the University of Tennessee in Knoxville, Tennessee. I also attended the Georgia Institute of Technology from 1986 to 1987, completing 40% of the required degree hours for the M.S. Electrical Engineering program.

6. From 1982 to 1985, I worked at Scientific Atlanta as an Electrical Engineer designing video, audio, and data communications equipment for the cable television industry. I designed software and hardware including addressable data transmitters, video sync suppression scramblers, transaction format converters, and data channel monitors for addressable Cable Television systems and Set Top Boxes.

7. From 1983 to 1985, while working at Scientific Atlanta, I also worked as an Assistant Professor at DeVry Institute of Technology, teaching courses in electronics and microprocessor hardware/software.

8. From 1985 to 1990, I worked at Wegener Communications as a Senior Electrical engineer, designing satellite communications equipment including forward error correction (FEC) coding systems, PSK modems, and analog control systems for RF modulators and PSK demodulators. I was promoted to the Hardware Engineering Manager, where I managed product development of video, audio, and data satellite receivers, modulators, graphics display systems, DSP-based companders, FSK and PSK satellite modems, multiplexers, forward error correction (FEC) codecs, RF upconverters and downconverters, and baseband analog and digital processing components.

9. In 1990, I returned to Scientific Atlanta, which was acquired by Cisco in 2006. I worked as Engineering Manager running the set top box engineering group where I was promoted to Director and Vice President during my tenure until 2011. I led the design of many cable set top boxes and systems through the evolution of analog video, addressability, downloadable software, electronic program guides, digital video, VOD, software applications, high-definition TV, DVR, DOCSIS, full spectrum tuners, and multiroom DVR. These systems implemented various technologies including DOCSIS 1/2/3 and hybrid gateways, 802.11, IPTV, DVR, cable modems, ADSL, VDSL, DVB-T/C/S, bootloaders, factory diagnostics, application frameworks, Nagra, DRMs, conditional access, secure microprocessors, device management, Android, Adobe Flash, Linux, DVD play/record, MPEG-4, MPEG-2, H.264, NTSC, PAL, DAVIC, MoCA, high-performance CPUs, cablecards, network processors, HDMI, multiple video/audio display interfaces, 2D/3D graphics, multiple RF tuners, and full spectrum tuners.

10. From 2011 to 2016, I worked for EchoStar Technologies, which served as the product development organization for sister company DISH Network. I served as Vice President of Engineering and was the Head of the Atlanta research and development center. I led the development of satellite set top boxes, consumer electronic equipment, and a home automation and security system. Technologies used included video/audio, IoT, H.265, HEVC, 3D, Satellite, wireless, MoCA, transcoding, embedded C Linux applications, mobile applications (IOS and Android), SaaS, web applications (Javascript, HTML), BSS/OSS, AWS cloud storage, 2-way video/audio streaming, authentication, and VoIP.

11. In 2016, I started an independent consulting business in technology and intellectual property projects. I have consulted in various technology areas and industries including consumer electronics, Internet of Things (IoT), cable, satellite, television, media, and cryptocurrency.

12. From 2019 to 2022, I worked as Chief Technology Officer for Telular, an Ametek company. I was responsible for the development of Industrial Internet of Things (IIoT) recurring revenue solutions, combining wireless technologies, purpose-built hardware, and SaaS in the commercial telematics, security and home automation markets and sold under the SkyBitz and Telguard brands.

13. My record of professional service includes awards on products I designed and developed from several organizations in my field of expertise, including Best of Show, Technology Emmy, and Best of Innovations.

14. I am a named inventor on 86 patents and published patent applications corresponding to the areas of my professional work. The patents and published applications involving video and audio technologies include:

- U.S. Patent No. 9,882,736 titled “Remote Sound Generation for a Home Automation System”
- U.S. Patent No. 9,615,139 titled “Determining Device That Performs Processing of Output Pictures”
- U.S. Patent No. 8,549,567 titled “Media Content Sharing Over a Home Network”
- U.S. Patent No. 8,161,388 titled “Interactive discovery of display device characteristics”
- U.S. Patent Nos. 8,120,924, 7,240,217, 6,785,817, 6,564,324, 6,212,278, and 5,440,632 titled “Reprogrammable Subscriber Terminal”
- U.S. Patent No. 7,908,625 titled “Networked Multimedia System”
- U.S. Patent Nos. 7,861,272 and 7,849,486 titled “Networked Subscriber Television Distribution”
- U.S. Patent Nos. 7,774,820 and 7,069,578 titled “Settop Cable Television Control Device and Method Including Bootloader Software and Code Version Table for Maintaining and Updating Settop Receiver Operating System Software”
- U.S. Patent No. 5,771,064 titled “Home Communications Terminal having an Applications Module”

- U.S. Patent No. 5,715,515 titled “Method and Apparatus for Downloading On-Screen Graphics and Captions to a Television Terminal”
- U.S. Patent No. 5,657,414 titled “Auxiliary Device Control for a Subscriber Terminal”
- U.S. Patent No. 5,592,551 titled “Method and Apparatus for Providing Interactive Electronic Programming Guide”
- U.S. Patent No. 5,539,822 titled “System and Method for Subscriber Interactivity in a Television System”
- U.S. Patent No. 5,357,276 titled “Method of Providing Video On Demand with VCR Like Functions”
- U.S. Patent Application Publication Nos. 2004/0068753 and 2008/0072272 titled “Video Transmission Systems and Methods for a Home Network”
- U.S. Patent Application Publication No. 2004/0133911 titled “Subscriber Network in a Satellite System”

15. I have a general understanding of the U.S. patent prosecution process and of the novelty and non-obviousness requirements for patentability.

16. I believe that my extensive industry experience and educational background qualify me as an expert in the relevant field of multimedia content management retrieval and distribution systems. I am knowledgeable of the relevant skill set that would have been possessed by a hypothetical person of ordinary skill in the art at the time of the invention of the '251 Patent, which I (as I discuss below) understand is late 2010 or early 2011.

3. MATERIALS CONSIDERED

17. In formulating my opinion, I reviewed and considered U.S. Pat. No.8,356,251 to Strober (Ex. 1101), as to which I am offering my opinion regarding the validity of certain claims, as discussed herein.

18. In preparing this declaration, I also reviewed and considered the Petition and the file history of the '251 Patent (included in Ex. 1104) as well as the following references:

- Ex. 1103: Curriculum Vitae of David B. Lett
- Ex. 1104: Certified Copy of Prosecution History of U.S. Pat. No. 8,356,251
- Ex. 1105-10: Omitted
- Ex. 1111: U.S. Pub. No. 2004/0078812 (“Calvert”)
- Ex. 1112: U.S. Pat. No. 9,490,998 (“Danciu”)
- Ex. 1113: U.S. Pat. Application No. 61/411,386 (“Danciu Provisional”)
- Ex. 1114: U.S. Pub. No. 2009/0248802 (“Mahajan”)
- Ex. 1115: U.S. Pub. No. 2009/0172757 (“Aldrey”)
- Ex. 1116-19: Omitted
- Ex. 1120: Joint Claim Construction Statement, *Touchstream Technologies, Inc. v. Google LLC*, 6:21-cv-00569-ADA (WDTX) (Feb. 8, 2022)
- Ex. 1121: Exhibit 1 to Joint Disputed Claim Terms Charts, *Touchstream Technologies, Inc. v. Vizbee, Inc.*, 1:17-cv- 06247-PGG-KNF (SDNY) (Aug. 6, 2018)
- Ex. 1122: Jury Instructions, *Touchstream Technologies, Inc. v.*

Google LLC, 6:21-cv-00569-ADA (WDTX) (July 21, 2023)

- Ex. 1123-29: Omitted
- Ex. 1130: U.S. Pub. No. 2002/0104096 (“Cramer”)
- Ex. 1131: U.S. Pat. No. 7,356,575 (“Shapiro”)
- Ex. 1132: U.S. Pat. No. 7,269,842 (“Estipona”)
- Ex. 1133: U.S. Pub. No. 2004/0267899 (“Rahman”)
- Ex. 1134: U.S. Pub. No. 2004/0098533 (“Henshaw”)
- Ex. 1135: U.S. Pub. No. 2004/0172656 (“Kim”)
- Ex. 1136: Omitted
- Ex. 1137: U.S. Pat. No. 7,343,419 (“Robinson”)
- Ex. 1138-40: Omitted
- Ex. 1141: CODING OF MOVING PICTURES AND AUDIO, *MPEG-4 Overview* (Int’l Org. Standardisation 2002)
- Ex. 1142: Robert Godwin-Jones, *Digital Video Update: YouTube, Flash, High-Definition*, 11 LANGUAGE LEARNING & TECH. 16, 17 (2007)
- Ex. 1143: John C. Paolillo et al., *A Network of Social Media Platform History: Social Structure, Dynamics and Content on YouTube*, PROC. 52ND HAWAII INT’L CONF. ON SYS. SCIS., 1, (2019)
- Ex. 1144: *YouTube Opens Internet Video to Masses; Serving 3 Million Videos Daily and Growing, YouTube Unveils a Fast, Fun, and Easy Service for Consumers to Broadcast Original Video*, MARKET WIRE, Dec. 15, 2005
- Ex. 1145: *Hulu Debuts via Private Beta and on Distribution Partners AOL, Comcast, MSN, MySpace and Yahoo!; Company Announces Major Licensing Deals with Metro-Goldwyn-Mayer Studios*

Inc. and Sony Pictures Television; Providence Equity Partners Makes Strategic Investment in News Corporation/NBC Universal Online Video Joint Venture, BUS. WIRE, Oct. 29, 2007

- Ex. 1146: *Blockbuster Offers Cheaper Online Rental*, ASSOCIATED PRESS, Jun. 13, 2007
- Ex. 1147: *Adobe Delivers Flash Player 9 With H.264 Video Support; HD Quality Web Video and Audio Now Available With Adobe Flash Player Update*, BUS. WIRE, Dec. 4, 2007
- Ex. 1148: *Microsoft Unveils Silverlight to Power the Next Generation of Media Experiences on the Web; Leading Media Companies and Solution Providers Announce Support for New Solution for Video and Interactivity on Mac- and Windows-Based Web Browsers*, PR NEWSWIRE US, Apr. 16, 2007
- Ex. 1149: *Former Apple Multimedia Pioneers Unveil WebTV; New Company Brings Internet to Television Viewers*, PR NEWSWIRE, Jun. 12, 1996
- Ex. 1150: *Netflix, TiVo Team Up After 4-Year Courtship*, ASSOCIATED PRESS, Oct. 30, 2008
- Ex. 1151: *TiVo and Amazon.com Announce New Service Enabling Amazon Unbox Video Download to TiVo; TiVo Subscribers Will Soon Be Able to Watch Amazon Unbox Movies and TV Shows on Their TVs*, BUS. WIRE, Feb. 7, 2007
- Ex. 1152: *Wall Crumbling Between Televisions and Computers*, AGENCE FRANCE PRESSE – ENGLISH, Jan. 8, 2009
- Ex. 1153: *ENHANCED TV BINARY INTERCHANGE FORMAT 1.0*, ETV (OpenCable Specifications, Nov. 25, 2009)
- Ex. 1154: *Award-Winning Sonos™ Digital Music System Begins Shipping to Customers*, PR NEWSWIRE US, Jan. 27, 2005
- Ex. 1155: *Sonos Introduces the Sonos™ ZonePlayer ZP80*, PR NEWSWIRE, Jan. 4, 2006
- Ex. 1156: *Sonos Introduces the Sonos Controller for iPhone; Free Application Lets Music Lovers Control Leading Multi- Room Music*

- System from Their iPhone*, PR NEWSWIRE, Oct. 28, 2008
- Ex. 1157: *AT&T Opens R&D Lab in Cambridge, England*, BUS. WIRE, Feb. 10, 1999
 - Ex. 1158: *Microsoft Releases Windows NT 4.0 Terminal Server Edition*, M2 PRESSWIRE, Jun 16, 1998
 - Ex. 1159: *TeamViewer: TeamViewer 3.0 Beta Published; Next Generation of the Popular Remote Support Software*, M2 PRESSWIRE, Aug. 27, 2007
 - Ex. 1160: *3am Labs Announces \$10 Million Series A Financing; McNamee Lawrence & Co. Acts as Exclusive Financial Advisor to 3am Labs*, BUS. WIRE, Nov. 16, 2004
 - Ex. 1161: *Expertcity's GoToMyPC Product Wins A People's Choice Award At Upside Events' Showcase 2001*, INTERNET WIRE, Feb. 1, 2001
 - Ex. 1162: *TV2Me(R) Goes Global By Partnering With Leading Asian Online Entertainment Company; Manila-Based ESL Adds Sales and Marketing Muscle to Bring Pioneering Place Shifting Technology to Wider Market*, PR NEWSWIRE US, May 16, 2006
 - Ex. 1163: *CES Innovations 2005 Award and Red Herring Finalist for 100 Most Innovative Companies are Latest Commendations for Sling Media*, BUS. WIRE, Nov. 11, 2004
 - Ex. 1164: Final Written Decision, IPR2022-00795 (Sep. 27, 2023)
 - Ex. 1165: Patent Owner Response, IPR2022-00795 (Jan. 13, 2023)
 - Ex. 1166: Omitted
 - Ex. 1167: *Progressive Networks Launches the First Commercial Audio-On-Demand System Over the Internet*, BUS. WIRE, Apr. 10, 1995
 - Ex. 1168: *Progressive Networks' RealVideo Launched With Wide Industry Support*, PR NEWSWIRE EUROPE, February 10, 1997
 - Ex. 1169: Omitted
 - Ex. 1170: U.S. Prov. App. No. 61/477,998

- Ex. 1171: U.S. Pat. No. 8,904,289 (“the ’289 Patent”)
- Ex. 1172: Certified Copy of Prosecution History of U.S. Pat No. 8,904,289
- Ex. 1173: U.S. Pat. No. 9,767,195 (“the ’195 Patent”)
- Ex. 1174: Certified Copy of Prosecution History of U.S. Pat. No. 9,767,195
- Ex. 1175: U.S. Pat. No. 11,048,751 to Strober (“the ’751 Patent”)
- Ex. 1176: Certified Copy of Prosecution History of U.S. Pat. No. 11,048,751
- Ex. 1177: U.S. Pat. No. 8,356,251 to Strober (“the ’251 Patent”)
- Ex. 1178: Certified Copy of Prosecution History of U.S. Pat. No. 8,356,251
- Ex. 1179: (Omitted)
- Ex. 1180: My analysis of Danciu Claim 1 in view of Danciu Provisional
- Ex. 1181: Annotated Copy of Danciu Provisional in view of Danciu
- Ex. 1183 Claim Construction Order, *Touchstream Technologies, Inc. v. Charter Communications, Inc. et al*, 2-23-cv-00059-RJG (E.D. Tex.) (July 9, 2024)

4. UNDERSTANDING OF APPLICABLE LEGAL STANDARDS

19. Although I am not an attorney, I have a general understanding of the applicable legal standards pertaining to the patentability issues presented in this proceeding. I understand that the Petitioner is challenging the patentability of the claims of the ’251 Patent based on the following grounds:

- Claims 1-26 as obvious under pre-AIA 35 § 103(a) based on Danciu in view of Mahajan.
- Claims 1-26 as obvious under pre-AIA 35 § 103(a) based on Danciu in view of Mahajan and Calvert.
- Claims 1-26 as obvious under pre-AIA 35 § 103(a) based on Aldrey in view of Mahajan.

20. I understand that, in this *inter partes* review, Petitioner has the burden of proving that each challenged claim is unpatentable by a preponderance of the evidence.

21. I understand that to be valid, a patent claim must be “novel,” and is invalid if “anticipated” by a single prior art reference. I further understand a reference anticipates if it discloses each and every element as arranged in the claim so as to enable a person of ordinary skill in the art to make and use the claimed invention without undue experimentation.

22. I understand that a patent claim is unpatentable if, at the time of the invention, it would have been obvious to one of ordinary skill in the art to combine the teachings of the prior art to yield the patent claim. It is my understanding that this determination is made after weighing the following factors: (1) the level of ordinary skill in the pertinent art; (2) the scope and content of the prior art; (3) the differences between the prior art as a whole and the claim at issue; and (4) as appropriate, other objective considerations identified below.

23. It is my understanding that the prior art and claimed invention should be

viewed through the knowledge and understanding of a person of ordinary skill in the art - one should not use his or her own insight or hindsight in deciding whether a claim is obvious. I further understand that a claim may be rendered obvious if a person of ordinary skill in the art can implement the claimed invention as a predictable variation of a known product. I further understand that a person of ordinary skill in the art is presumed to have knowledge of the relevant prior art at the time of the claimed invention, which comprises any prior art that was reasonably pertinent to the particular problems the inventor faced.

24. I understand that a showing of obviousness requires some articulated reasoning with a rational underpinning to support the combination of the references. I understand that in consideration of the issue of obviousness it is important to identify whether a reason existed at the time of the invention that would have led a person of ordinary skill in the pertinent art to combine elements of the references in a way that yields the claimed invention.

25. I understand that a claim may be considered unpatentable for obviousness for various reasons. I have been informed that the following exemplary rationales may support a finding of obviousness:

- (A) combining prior art elements according to known methods to yield predictable results;
- (B) substituting one known element for another to obtain predictable results;
- (C) use of a known technique to improve similar devices in the same way;
- (D) applying a known technique to a known device ready for improvement to yield predictable results;
- (E) choosing from a finite number of identified, predictable solutions with a reasonable expectation of success;
- (F) known work in a field that prompts variations in the work in the same or a different field that leads to predictable results; and
- (G) some teaching, suggestion, or motivation in the prior art that would have led a person of ordinary skill in the art to modify a prior art reference or combine multiple prior art references or teachings to arrive at the claimed invention.

26. I understand that various objective or “real world” factors may be indicative of non-obviousness. I understand that such factors include:

- (A) the commercial success of the claimed invention;
- (B) the existence of a long-felt, unresolved need for a solution to the problem solved by the claimed invention;
- (C) failed attempts to solve the problem solved by the claimed invention;

copying of the claimed invention;

(D) unexpected results of the claimed invention;

(E) praise for the claimed invention by others in the relevant field; and

(F) willingness of others to accept a license under the patent because of the merits of the claimed invention.

27. It is my understanding that the prior art references themselves may provide a suggestion, motivation, or reason to combine, but other times the link may be based on the common sense of the person of ordinary skill in the pertinent art. I further understand that obviousness analysis recognizes that market demand, rather than scientific literature, often drives innovation, and market demand is sufficient motivation to combine references.

28. It is my understanding that a particular combination may be proven obvious merely by showing that it was obvious to try the combination. For example, common sense is a good reason for a person of ordinary skill to pursue known options when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions.

29. I further understand that a proper obviousness analysis focuses on what was known or obvious to a person of ordinary skill in the art, not just the patentee. Accordingly, it is my understanding that any need or problem known in the field at the time of invention and addressed by the patent can provide a reason for combining the limitations in the manner claimed.

5. THE RELEVANT ART AND LEVEL OF ORDINARY SKILL IN THE RELEVANT ART

30. I understand that obviousness is determined from the vantage point of a person of ordinary skill in the relevant art at the time of the alleged invention (“POSITA”). The ’251 Patent is directed to controlling the presentation of content on a display device, and I agree that this represents the relevant field of art. *See* Ex. 1101, Abstract. I understand that a person of ordinary skill in the art is one who is presumed to be aware of all pertinent art, thinks along conventional wisdom in the art, and is a person of ordinary creativity.

31. I believe that a person of ordinary skill in the art of the ’251 Patent at the time of the alleged invention of the ’251 Patent would have a degree in computer or electrical engineering, computer science, information systems, or a similar discipline, along with three-to-four years of experience with the design and/or implementation of network-based content delivery systems, such as video-on-demand (VOD), cable systems, and Internet video streaming. I worked in the relevant field with such persons at, and leading up to, the time of the alleged invention of the ’251 Patent, and thus, I am familiar with the knowledge that such persons had at the time (*i.e.*, late 2010 and early 2011).

32. All of my statements in this declaration regarding what a person of ordinary skill in the art would have known, understood, appreciated, been motivated to do, etc., refer to a person of ordinary skill in the art in late 2010, before the earliest claimed priority date of the ’251 Patent (which, as I discuss below, is April 21, 2011).

6. CLAIM CONSTRUCTION¹

33. I understand that my analysis requires an understanding of the scope of the claims of the '251 Patent. I understand that claim terms subject to *inter partes* review, absent some other definition provided in the patent, are given their ordinary meaning to a person of ordinary skill in the art in light of the patent specification. Therefore, in my analyses given below, I have assumed that all claim terms are given their ordinary interpretation as would have been understood by a POSITA reading the patent specification as of the priority date.

34. I understand that Application No. 13/245,001 (“the '001 Application”), which eventually became the '251 Patent, was filed on September 26, 2011. It is further my understanding that the '001 Application was the third in a chain of applications claiming priority to an application filed on April 21, 2011. It is my understanding that the '251 Patent is entitled to a priority date of the filing date of the earliest application from which the '251 Patent claims priority, *i.e.*, April 21, 2011.

35. It is my understanding that in an IPR of claims 1, 2, and 5-9 of the '251 Patent, the panel of Administrative Patent Judges found that the term “‘media player’ refers to software and not to a hardware device.” Ex. 1164, 13. The panel did not

¹ It is my understanding that in the related Civil Action in the District Court for the Eastern District of Texas, Patent Owner proposed plain and ordinary meaning for the claim terms of the '251 Patent and that the U.S. District Judge gave all these terms their plain and ordinary meaning except for “media player” which the Court construed as “software for playing media.” Ex. 1183, p. 9.

expressly construe any other terms of claims 1, 2, and 5-9 of the '251 Patent. Ex. 1064, 13.

36. It is my understanding that in an IPR of the '251 Patent, involving similar claim terms to the present, Patent Owner characterized certain claim terms. Regarding the claim term “media player,” Patent Owner asserts “[c]onsidering the intrinsic record, including the file history, an ordinary artisan would have understood the ordinary and customary meaning of ‘media player’ in the '251 Patent refers to application software and does not encompass hardware devices.” Ex. 1165, 13. Additionally, Patent Owner asserts, “[t]he term ‘programming code,’ which appears in claim 1 of the '251 Patent, should be construed as ‘computer program instruction(s) encoded for execution by a data processing apparatus (such as a computer processor).’” Ex. 1165, 16.

37. It is my understanding that in a Civil Action in the District Court for the Southern District of New York, Patent Owner proposed the following constructions for claim terms of the '251 Patent:

Term/Phrase	Patent Owner’s Proposed Construction
“synchronization code”	“No construction necessary. This term should be given its plain and ordinary meaning, which is ‘an identifier that can be used to facilitate a connection between two or more devices.’” Ex. 1121, 1.
“storing”/”store”	“No construction necessary. This term should be given its plain and ordinary meaning, which is ‘placing in a location for subsequent use.’” Ex. 1121, 2.

“programming code”	“No construction necessary. This term should be given its plain and ordinary meaning, which is ‘instructions for a computer.’” Ex. 1121, 4.
“universal playback control command”	“No construction necessary. This term should be given its plain and ordinary meaning, which is ‘command for controlling playing of content.’” Ex. 1121, 6.
“playback control command”	“No construction necessary. This term should be given its plain and ordinary meaning, which is ‘command for controlling playing of content.’” Ex. 1121, 6.
“media player”	“No construction necessary. This term should be given its plain and ordinary meaning, which is ‘a computer application operable to present content and control presentation of content.’” Ex. 1121, 7.
“assigning, by a server system, a synchronization code to the display device; receiving, in the server system, a message from a personal computing device that is separate from the server system and separate from the display device, wherein the message includes the synchronization code”	“Associating identification information of a display device based on information that is received by the server from a personal computing device that allows communication among the server system and the different devices.” Ex. 1121, 11.
“a synchronization code assigned by the server system to the display device and received by the server system in a message from the personal computing device”	“The server system associates identification information of a content presentation device based on information provided to the server system from a personal computing device.” Ex. 1121, 12.
“a synchronization code that was assigned to the display device by a server system, the server system subsequently storing, based on a message from a personal computing device that is separate from the server system and the display device, an	“The server system associates identification information of a content presentation device based on information provided to the server system from a personal computing device that allows communication among the server system and the

association between the display device and the personal computing device, the message from the personal computing device including the synchronization code”	different devices.” Ex. 1121, 12-13.
--	--------------------------------------

38. It is my understanding that in a Civil Action in the District Court for the Western District of Texas, Patent Owner proposed the following claim constructions:

Term/Phrase	Patent Owner’s Proposed Construction
“universal command”	“plain and ordinary meaning - no construction needed alternatively, plain and ordinary meaning, which is ‘a standard command used for controlling playback of media content such as play or pause’” Ex. 1120, 2.
“unique identification code assigned to the content presentation device” and “synchronization code assigned to the content presentation device”	“plain and ordinary meaning - no construction needed alternatively, plain and ordinary meaning which is ‘[unique identification code] / [synchronization code] associated with a content presentation device’” Ex. 1120, 2.
“[identify/identifying/include information indicating] a location of the particular media player”	“plain and ordinary meaning, which is, provide information that locates or may be used to locate the particular media player” Ex. 1120, 2.
“identifying, [by the server system,] programming code corresponding to the action control command, wherein the programming code is for controlling presentation of the content presentation device using the particular media player”	“plain and ordinary meaning - no construction needed alternatively, plain and ordinary meaning for ‘programming code’ which is ‘instructions that the media player can recognize and execute’” Ex. 1120, 3.

39. It is my understanding that in a Civil Action in the District Court for the Western District of Texas, the U.S. District Judge gave all terms of claim 1 of the '251 Patent their plain and ordinary meaning. Ex. 1122, 19.

7. OVERVIEW OF THE '251 PATENT

40. The '251 Patent states that it relates to “creation, storage, manipulation and access of media playlists used in conjunction with display devices and control of the display devices.” Ex. 1101, 1:19-21.

41. The alleged invention of the '251 Patent relates to controlling playing of content on a display device. Ex. 1101, 2:66-3:37, 5:54-6:6, 6:51-9:33. The system of the '251 Patent includes a personal computing device 20 (**red**), a display 23 (**green**), and a server system 24 (**blue**).

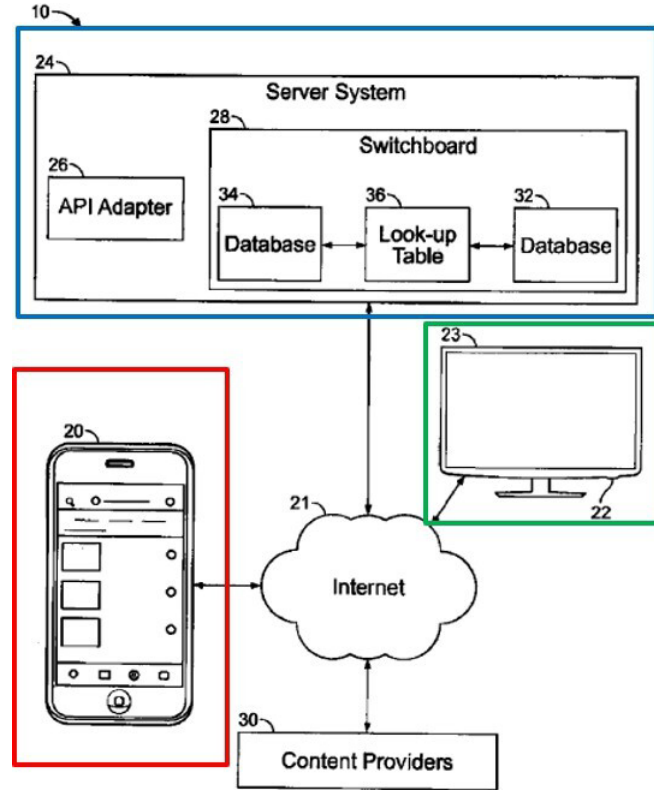


FIG. 1

Ex. 1101, Fig. 1 (annotated)

42. A user may use the personal computing device 20 (e.g., a smartphone) to control content on the display device 23. Ex. 1101, 3:1-3, 3:56-60, 4:23-35, 5:42-53, 6:51-62, 7:35-52, 7:58-8:7, 8:33-44. The personal computing device 20 and the display device 23 may be connected to and communicate via a network, for example the Internet 21. Ex. 1101, 2:66-3:1, 3:12-18. The server system 24 connected to the network may facilitate control of the content on the display device 23. Ex. 1101, 3:10-15, 3:39-41, 4:7-15, 4:27-29, 4:40-47, 4:65-5:7, 5:26-41, 6:3-6, 6:23-32, 6:46-50, 6:56-60, 7:17-41, 7:65-8:5, 8:29-32; 8:62-9:2, 9:11-28.

7.1.Prosecution History

43. The '251 Patent was filed as Application No. 13/245,001 on September 26, 2011. Ex. 1101, p. 1. The '251 Patent is a continuation of Application No. 13/157,821 (U.S. Pat. No. 8,904,289 (“the '289 Patent”)), which claims priority to U.S. Provisional Application No. 61/477,998 (“the '998 Application”) filed on April 21, 2011. *Id.* The prosecution histories of these applications are discussed below.

1. Prosecution History of the '998 Application

44. The '998 Application was filed on April 21, 2011, as a provisional patent application. Ex. 1170, 35. A Filing Receipt was mailed on May 6, 2011. *Id.*

2. Prosecution History of the '289 Patent

45. The '289 Patent was filed on June 10, 2011 as Application No. 13/157,821 (“the '821 Application”). Ex. 1171, 1.

46. A Non-Final Office Action rejected all of the claims. Ex. 1172, 178- 225. Claims 1-12 were rejected as being directed to non-statutory subject matter. *Id.*, 180. Claims 1-43 were rejected over prior art. *Id.*, 181-224. In response, the originally filed claims were canceled for new claims. *Id.*, 303-308.

47. Subsequently, claim 53 was amended and a terminal disclaimer was filed over U.S. Pat. No. 8,356,251. See *id.*, 322-323, 327-328.

48. A Final Office Action allowed claims 44-58 and rejected claims 59-61 as directed to non-statutory subject matter. *Id.*, 335-339.

49. After amending claim 59 to include “at least one processor,” *id.*, 363- 364,

a Notice of Allowance issued on July 8, 2014. *Id.*, 369-376. The '289 Patent issued on December 2, 2014. *Id.*, 464.

3. Prosecution History of the '251 Patent

50. The '251 Patent was filed as Application No. 13/245,001 (“the '001 Application”) on September 26, 2011, as a continuation of the '289 Patent. Ex. 1101, 1.

51. A Non-Final Office Action rejected claims 12-21 as being directed to non-statutory subject matter. Ex. 1104, 63. Claims 1-10, and 12-26 were rejected as anticipated by prior art, and claims 11, and 22 were rejected as obvious over prior art. *Id.*, 63-81.

52. In response to the Non-Final Office Action, amongst other amendments, Applicant amended claim 1 as follows:

A machine implemented method of controlling presentation of video content on a display device by a media player, the method comprising:

receiving, in a server system, one or more signals from a remote personal computing device, the one or more signals specifying a video file to be acted upon and identifying a media player for playing the video content, the one or more signals further including a universal playback control command for controlling ~~the presentation~~ playing of the video content of the display device by the media player,

converting, by the server system, the universal playback control command into corresponding programming code ~~used by the display device~~ to control

playing of the video content on the display device by the media player, wherein converting the universal playback control command includes selecting from among a plurality of specific commands, each of which represents a corresponding playback control command for a respective media player, and

storing, in a database associated with the server system, a message for transmission to or retrieval by the display device, wherein the message specifies the video file to be acted upon, identifies the media player for playing the video content, and includes corresponding programming code ~~used by the display device to control~~ playing of the video content on the display device by the media player in accordance with the universal playback control command.

Id., 209. Independent claims 12 and 23 were amended to recite similar subject matter. *Id.*, 211, 214.

53. In the Remarks section of Applicant's response, Applicant states that claim 1 "is amended to clarify that the command is a playback control command." *Id.*, 190.

Further, Applicant states that:

In the context of the present application, it is clear that a "media player" refers to application software for playing back the video content. Thus, the claims and specification refer in some cases, for example, to "loading" or "unloading" a media player (*see, e.g.*, Specification at page 4, line 22, page 9, lines 18-27). A particular display device, therefore, may, in some cases, be able to load or store any one of different media players.

Id., footnote 2.

54. Further, in its Remarks, Applicant qualifies claim 1 in that:

[t]he method may be used to facilitate, for example, a user's creating a playlist based on videos from multiple

sources and playing back any of the videos, where the server system acts as a single interface that can be used to control the different media players (*i.e.*, the computer software applications) that may be needed to play the various video files.

Id., 191.

55. Applicant further states that “the server system,” of claim 1, “acts as an interface for facilitating the transfer of information contained in the one or more signals (received from the personal computing device) to the display device.” *Id.*, 193.

56. In its Remarks, Applicant states that claim 23 recites a method that includes “the display device retrieving from a server system first information.” *Id.*,

196. To support this language, Applicant states that “in some implementations, the display device can retrieve the information by periodically checking entries in a database or polling the database to determine where [sic] there are any new messages directed to it.” *Id.*, footnote 4.

57. Further, in its Remarks, in an attempt to distinguish the claims over prior art reference 2011/0060998 (“Schwartz”), Applicant makes a distinction between “receiving” and “retrieving.” *Id.*, 197. In particular Applicant states that “although the target rendering device can receive the playback control instructions from the DDC component 110, the target rendering device does not ‘retrieve’ such information.” *Id.*

58. A Final Office Action finally rejected all of claims 1-4 and 6-27 over the same prior art. *Id.*, 216-249.

59. An Examiner interview was conducted on August 16, 2021, during which

the attendees discussed prior art reference, Schwartz. *Id.*, 270.

60. A Notice of Allowance issued on August 16, 2012, including an examiner's amendment, and indicating that authorization for the amendment was given in telephonic interviews on July 26, 2012, and July 30, 2012. *Id.*, 271-287. Claim 1 was amended as follows:

Claim 1. A machine-implemented method of controlling presentation of video content on a display device [[by a]] that loads any one of a plurality of different media player players, the method comprising:

assigning, by a server system, a synchronization code to the display device;

receiving, in the server system, a message from a personal computing device that is separate from the server system and separate from the display device, wherein the message includes the synchronization code;

storing, by the server system, a record establishing an association between the personal computing device and the display device based on the synchronization code;

receiving, in [[a]] the server system, one or more signals from ~~a remote~~ the personal computing device, the one or more signals specifying a video file to be acted upon and identifying a particular media player for playing the video content, the one or

more signals further including a universal playback control command for controlling playing of the video content on the display device by the particular media player,

converting, by the server system, the universal playback control command into corresponding programming code to control playing of the video content on the display device by the particular media player, wherein converting the universal playback control command includes selecting from among a plurality of specific commands, each of which represents a corresponding playback control command for a respective media player; and

storing, in a database associated with the server system, a ~~message~~ information for transmission to or retrieval by the display device, wherein the ~~message~~ information specifies the video file to be acted upon, identifies the particular media player for playing the video content, and includes the corresponding programming code to control playing of the video content on the display device by the particular media player in accordance with the universal playback control command.

61. Applicant filed a Petition to Withdraw an Application from Issue After Payment of the Issue Fee on September 13, 2012, (*id.*, 453) along with an Information Disclosure Statement containing additional prior art. *Id.*, 456. The Petition was granted on September 13, 2012. *Id.*, 449.

62. A second Notice of Allowance issued on October 10, 2012. *Id.*, 592-596. The '251 Patent issued on January 15, 2013. *Id.*, 621.

63. A Certificate of Correction issued on April 9, 2013. *Id.*, 627.

8. OVERVIEW OF THE PRIOR ART

8.1.Streaming Formats and VOD

64. Media access via the internet was ubiquitous by 2010. As early as the late 1990s and early 2000s, Internet streaming media was widely accessible. Progressive Networks (now RealNetworks) introduced the RealAudio Player and

format in 1995, enabling audio streaming over the internet. *See, e.g.*, Ex. 1167. In 1997, Progressive Networks introduced the RealVideo format, expanding its services into video streaming. *See, e.g.*, Ex. 1168. The rapidly increasing commercially available Internet speeds during this time precipitated a boom in video-on-demand (VOD) and streaming media offerings and correspondingly the creation of many different media formats, platforms, and players.

65. By the early to mid-2000s, many multimedia formats were available for downloading and streaming on-demand content via the Internet. *See, e.g.*, Ex. 1130, [0007], [0014], [0015], [0018], [0069], [0273]. The different formats varied by, for example, compression methods and player compatibility. *See, e.g., id.*, [0015], [0018], [0273]; *see also, e.g.*, Ex. 1131, 1:33-50, 7:5-12, 28:36-55. Some of the prominent multimedia formats of that time include MPEG Audio Layer III (MP3) (*see, e.g.*, Ex. 1131, 28:36-51, 30:3-27, 31:1-9), RealNetwork's RealAudio (*see, e.g.*, Ex. 1131, 11:65; *see also, e.g.*, Ex. 1132, 4:62-67) and RealVideo (*see, e.g.*, Ex. 1132, 4:62-67), Microsoft's Windows Media formats including Windows Media Video (WMV) (*see, e.g.*, Ex. 1131, 7:5-12, 13:17-24; *see also, e.g.*, Ex. 1133, [0033]) and Windows Media Audio (WMA) (*see, e.g.*, Ex. 1134, [0002], [0033]; *see also, e.g.*, Ex. 1130, [0183]; *see also, e.g.*, Ex. 1133, [0033]), Apple's QuickTime (MOV) (*see, e.g.*, Ex. 1131, 1:33-50, 7:5-12, 11:35-67, 28:36-51; *see also, e.g.*, Ex. 1130, [0007], [0014], [0022]), Flash (*see, e.g.*, Ex. 1133, [0004]), MPEG-2, and MPEG-4 (*see, e.g.*, Ex. 1141).

8.2. Media Players

66. Some media formats were supported by multiple media players. *See, e.g.*, Ex. 1135, [0005]. Other media formats, however, were proprietary and required proprietary media players for playback. *See, e.g.*, Ex. 1135, [0004], [0013]; *see also, e.g.*, Ex. 1130, [0018]. For example, RealPlayer and QuickTime were proprietary players. *See, e.g.*, Ex. 1135, [0005], [0013]. Therefore, it was well known by this time that different media players may be needed for accessing media in different formats. *See e.g., id.*

67. Media players were available as standalone software. *See e.g.*, Ex. 1130, [0018]. By the early to mid-2000s, it was well known to have multiple media players on a single device for accessing and playing different media formats. *See e.g., id.* In addition to standalone media players, by the early 2000s, it was well known that web browsers could execute media players, often referred to as browser plug-ins, to access web-embedded media. *See e.g., id.*, [0015]. Additionally, it was well known by this time that web browsers (e.g., Netscape and Internet Explorer) would load different media player plug-ins to access different media in different formats. *See e.g., id.*, [0011], [0014]. For example, Adobe Flash Player was a widely used browser plug-in during this time. *See, e.g.*, Ex. 1142. It enabled interactive multimedia content, animations, games, and video playback embedded within web pages. *Id.* Flash was used on YouTube's video streaming platform upon its launch in 2005. *Id.* Apple's QuickTime browser plug-in enabled access to QuickTime MOV videos directly from web browsers. *See e.g.*, Ex. 1130, [0014],

[0015], [0019]. Similarly, the RealPlayer and Windows Media Player plug-ins enabled access to Real media and Windows Media content directly from web browsers. *See e.g., id.*

68. Popular services began offering browser-accessible streaming content in the mid-2000s. YouTube (2005) (*see, e.g.,* Ex. 1143, *see also, e.g.,* Ex. 1144), Hulu (2007) (*see, e.g.,* Ex. 1145), and Netflix (2007) (*see, e.g.,* Ex. 1146) all began offering on-demand streaming services in the early to mid-2000s. Many of these platforms used different media players. For example, YouTube and Hulu leveraged Adobe's Flash Player. Ex. 1142, Ex. 1147. Netflix used a media player based on Microsoft Silverlight. Ex. 1148. It was well known that a web browser would load any of these various different players depending on the content provider accessed.

8.3.Applications on TVs and STBs

69. By 2010 it was well known that televisions (TVs), set-top boxes (STBs), and digital video recorders (DVRs) could execute software for various purposes, including web browsing and media streaming. For example, WebTV was introduced in 1996. Ex. 1149. WebTV was an STB that allowed users to browse the internet and access email using their TV. *Id.* In 2008, TiVo, a popular DVR brand, introduced streaming Netflix and YouTube access to their devices in addition to the already offered Amazon Unbox (a VOD service). Ex. 1150, Ex. 1151. During this time, TV manufacturers, including, for example, Samsung, LG, Panasonic, Sony, and Toshiba, were producing

Internet-enabled TVs. At least by 2010, some of these Internet TVs had access to a plethora of content streaming services and games via downloadable software applications. Ex. 1152.

70. Around this time, a consortium of technology companies began developing Enhanced TV Binary Interchange Format (EBIF) applications. EBIF allowed for the creation and deployment of interactive applications on STBs. EBIF aimed to enhance the viewing experience by enabling interactive applications while watching TV programming. Ex. 1153.

8.4.Device Casting

71. Device casting, the process of wirelessly transmitting or streaming media content from one device to another, was well-known by 2010. Casting typically involves leveraging wireless technology like Wi-Fi to connect a source device and a target device. The user typically “casts” the content from the source device to the target device without a physical connection. For example, in 2005, Sonos released its Digital Music System. Ex. 1154. The Sonos system comprised a controller, a player, and a storage device (with a media library), all wirelessly connected. The Sonos system allowed users to access their media library from the controller wirelessly and cast media from the storage device to the player. In addition to casting and control, in 2006, Sonos enabled, from its controller, access to and control of Internet radio and various online audio services like Rhapsody and Audible.com. Ex. 1155. The Internet media selected from the wireless controller was

streamed to the player via the Internet. In 2008, Sonos released a smartphone application turning any supported smartphone into a wireless controller. Ex. 1156.

8.5.Remote Viewing

72. Remote computer access is a technology that allows a user to access and control a computer, its desktop environment, applications, and files from a remote location using another device. By 2010, the concept of remote computing was well known. For example, in the late 1990s, the Olivetti & Oracle Research Lab (later acquired by AT&T) created the Virtual Network Computing (VNC) system. VNC allows users to remotely access and control a computer's desktop environment over a network. Ex. 1157. Additionally, in the 1990s, Microsoft introduced the Windows Terminal Server Edition. Ex. 1158. Terminal Server provided a solution in which applications are executed on the server and remotely displayed on the client. *Id.* In addition to the above, by the mid-2000s, at least the following remote computing solutions were commercially available: TeamViewer, LogMeIn, and GoToMyPC. Ex. 1159, Ex. 1160, Ex. 1161. In addition to the remote desktop services mentioned above, remote control of standalone media applications was also well-known by 2010. For example, iTunes Remote App and Unified Remote were available and well-known by 2010.

73. In 2003 TV2ME introduced a product to enable one to control and watch TV live from their own cable or satellite Set Top Box subscription sent over the internet, later called space shifting or place shifting. *See, e.g.,* Ex. 1162. This was followed by

similar products from a number of companies, for example the first edition of the Slingbox came to market in late 2005. *See, e.g.* Ex. 1163. These products used computers or mobile apps to control playing of content on a display device. Ex. 1101, 2:66-3:41, 5:51-54, 6:51-62, 7:1-7, 7:12-9:33. The place shifting systems included a personal computing device, a display (connected to a place shifting product), and a server system similarly to the '251 Patent that allowed a user to use the personal computing device to control content on the display device just like the '251 Patent. Ex. 1101, 3:1-3, 3:56-60, 4:23-35, 5:42-54, 6:51-62, 7:35-52, 7:59-8:7, 8:33-44.s

8.6.File Extensions and MIME Types

74. By 2010, it was well known that file extensions (typically the three characters after the last period in a filename, e.g., “.mp3”) could be used to identify the format of a file and the software necessary to access it. The concept of file extensions can be traced back to the 1970s and 1980s with the development of operating systems such as CP/M and later MS-DOS. These systems used file extensions to indicate the type of content stored in a file and the associated software needed to open it. This system transitioned to the web as it developed during the 1990s.

75. Additionally, in the early days of the Internet, Multipurpose Internet Mail Extensions (MIME) types were introduced as a standard way to classify files on the Internet based on their nature and format. MIME was initially developed to extend the capabilities of email messages beyond plain text, allowing for the inclusion of

multimedia. MIME provided a way to label different types of content within email messages using MIME types. The MIME standard extended to web content generally, enabling web servers to identify the type of files they were sending to browsers.

76. MIME is a two-part identifier that consists of a primary type and a subtype, separated by a forward slash (/). An extension is a suffix of characters appended to the end of a file name, usually after a period. Examples of some of the MIME types and extensions of the file formats described above and used before 2010 are included in the following table:

Media Format	MIME Type	Extensions
MP3	audio/mpeg	.mp3
RealAudio (RA)	audio/x-pn-realaudio	.ra, .rm, .ram
RealVideo (RV)	video/vnd.rn-realvideo	.rv, .rmvb
Windows Media Audio	audio/x-ms-wma	.wma
Windows Media Video	video/x-ms-wmv	.wmv
QuickTime MOV	video/quicktime	.mov
Flash Video	video/x-flv	.flv
MPEG-2 Audio and Video	audio/mpeg, video/mpeg	.mpeg, .mpg

77. Since their inception, extensions and MIME types have been used to identify the correct program to open or access a specific file. For example, it was well known that a browser would look at the MIME type and/or extension of an embedded media file to identify which program or plug-in to load for file access. *See e.g.*, Ex. 1137, 1:47-52, 4:54-7:8. If a browser identifies a MIME type or extension for which it does

not have a supporting plug-in, it may indicate an error and prompt the user to download and install a supporting plug-in.

8.7.Application Programming Interfaces (APIs)

78. By 2010, it was well known that software could be split into different applications. An Application Programming Interface (API) is a set of rules, protocols, and tools that allows different software applications to communicate with each other. APIs allow for the integration of functionalities from one application into another. The concept of APIs can be traced to the 1960s and 1970s when programmers created reusable code libraries to perform specific tasks. These libraries allowed developers to encapsulate complex operations into manageable functions. A well-known and fundamental part of APIs is API procedure calls. An

API procedure call requests a specific function provided by an API that developers can use to interact with a software library or service. API procedure calls allow developers to request specific actions or services from the API, enabling them to integrate external functionality into their own applications. By 2010, it was well known that API procedure calls could be used to perform a wide range of tasks, including, for example, retrieving data from remote servers and sending data to a service.

79. The term Application Programming Interfaces was used at least as early as the 1970s. In the 1980s, operating systems like UNIX popularized the use of libraries that exposed interfaces for hardware interactions. APIs gained even more prominence in the 1990s with the rise of Graphical User Interfaces (GUIs). The Windows API (WinAPI), provided by Microsoft, provided developers a way to create applications that could interact with the Windows Operating System and its graphical elements.

80. As the Internet gained prominence in the 1990s and early 2000s, APIs started to be used for web-based interactions. For instance, the Simple Object Access Protocol (SOAP) was developed to define APIs for remote procedure calls over the Internet. Additionally, Representational State Transfer (REST) was popularized as a lightweight way to design APIs for web services. The explosion of the Internet and mobile applications of the early to mid-2000s led to an increased demand for APIs.

By 2010 many technology companies, such as Google, Facebook (2007), and Twitter (2006), opened their platforms through APIs, allowing developers to integrate their services into third-party applications.

8.8.Look-Up Tables (LUTs)

81. A look-up table (LUT) is a simple data structure technique for associating pieces of data. LUTs were used before the advent of the modern computer. For example, LUTs were used in ancient civilizations to speed up hand calculations of complex functions. More contemporarily, LUTs were one of the earliest functionalities implemented in computer science. In modern computer science and engineering, LUTs are essentially tables that map input values (keys) to corresponding output values (values). LUTs, therefore, can be understood to comprise key-value pairs. Each key is associated with a specific value, which can be any kind of data. By 2010, it was well known that LUTs could be used as a database technique to speed up data retrieval, reduce computational load, simplify complex logic, and cache frequently accessed data.

8.9.U.S. Pat. No. 9,490,998 - Danciu (Ex. 1112)

82. U.S. Pat. No. 9,490,998 to Danciu et al. (“Danciu”) indicates on its face that it was filed on March 7, 2011, as Application No. 13/041,964 which claims priority to, and incorporates by reference, U.S. Provisional Application No. 61/411,386 filed on November 8, 2010 (“Danciu Provisional”). Ex. 1112, p. 1. I

understand that the Danciu Patent qualifies as prior art under pre-AIA 35 U.S.C. § 102(e) because its filing date (March 7, 2011) is before the earliest priority date of the '251 Patent (April 21, 2011). It is my opinion that Danciu Provisional provides written description support for at least one independent claim of Danciu and provides written description support for the disclosure relied on in Danciu. Indeed, upon reviewing a version of Danciu Provisional noting its correspondence to Danciu (Ex. 1181), I find the disclosures have no meaningful substantive differences - the changes are minor edits for clarity, such as the omission of "remote control 80" which appears to be erroneously included in Figure 4 of Danciu Provisional. Further analysis of how Danciu Provisional provides support of claim 1 in Danciu is attached as Ex. 1180. Thus, I also understand that Danciu qualifies as prior art under pre-AIA 35 U.S.C. § 102(e) as of its priority date (November 8, 2010). Additionally, I also understand that neither the Danciu Patent nor Danciu were considered during prosecution of the '251 Patent. Ex. 1101, pp. 1-3.

83. Much like the '251 Patent, Danciu generally relates to network-server assisted control of content on a network-connected display device via a network-connected controller. *See* Ex. 1113, Abstract, [0001], [0004], [0018], [0019]; Ex. 1112, Abstract, 1:9-10, 1:39-50, 3:13-55. Danciu states that its disclosure relates to "techniques for controlling networked devices, such as personal computers, tablet computers, cellular phones, televisions, and gaming consoles." Ex. 1113, [0001];

Ex. 1112, 1:9-10. Danciu further states that its disclosure is “directed to techniques for exchanging information between a networked device, such as a network-enabled television, and web-enabled device, such as a remote control, via a network service (e.g., a ‘cloud service’). Ex. 1113, [0004]; Ex. 1112, 1:39-50. “In an example, the web-enabled device can transmit control information via the network service to the networked device to control playback of media content (e.g., audio and/or video content) on the networked device.” Ex. 1113, [0004]; Ex. 1112, 1:39-50.

84. Danciu further describes that techniques of its disclosure “relate to a network service or ‘cloud service’ that acts as an intermediary between a remote control device and a controlled device.” Ex. 1113, [0018]; Ex. 1112, 3:14-16. “For example, the network service may receive commands from a remote control and transmit the commands to a controlled device.” Ex. 1113, [0018]; Ex. 1112, 3:15-

17. Danciu describes that its “remote control may include a remote control application executing on a mobile device, such as a cellular telephone or a tablet computer.” Ex. 1113, [0018]; Ex. 1112, 3:21-24. “The controlled device may include any Internet-connected device capable of receiving commands, such as an Internet- connected television, a set top box, a personal video recorder, a gaming console, or other networked device.” Ex. 1113, [0018]; Ex. 1112, 3:24-28.

85. Figure 1 of Danciu is a block diagram of a “networked environment” Ex. 1113, [0024], Fig. 1; Ex. 1112, 4:58-59, Fig. 1. Danciu’s “networked

environment 10 includes remote control 14 [(blue)] that communicates with controlled device 18 [(red)] via network 22 and servers 24A-24N” (green). Ex. 1113, [0024]; Ex. 1112, 4:58-64.

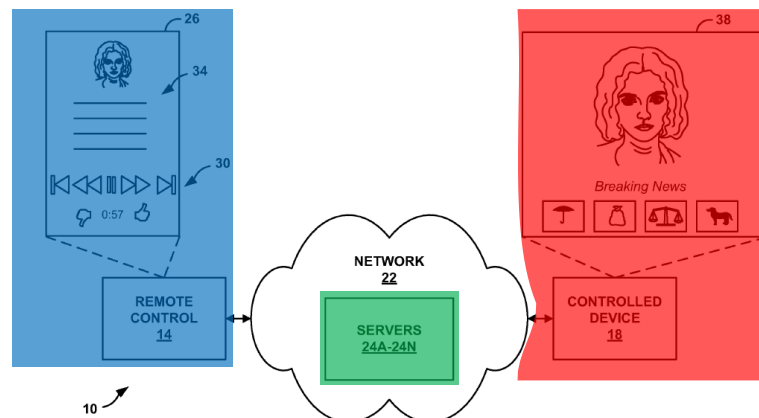


FIG. 1

Ex. 1113, Fig. 1 (annotated)

86. Danciu’s remote control can be, for example, mobile phones, personal digital assistants (PDAs), laptop computers, portable gaming devices, portable media players, e-book readers, watches, and desktop computers. Ex. 1113, [0024]; Ex. 1112, 5:1-8. Danciu’s controlled devices may include network-enabled televisions and set top boxes. Ex. 1113, [0027]; Ex. 1112, 5:42-44.

87. Danciu’s remote control may include a user interface to present information to a user such as “controls 30 and information 34 associated with content being played on controlled device 18.” Ex. 1113, [0026]; Ex. 1112, 5:31-33. The controls may include, for example, “fast forward, reverse, skip ahead or back, play, stop, move

to new content, etc.” Ex. 1113, [0026]; Ex. 1112, 5:33-36. Additionally, the information presented to the user may include, for example, content playback information and content playlist information. Ex. 1113, [0026]; Ex. 1112, 5:37-41.

88. Danciu describes that the controlled device may include a display for content. Ex. 1113, [0028]; Ex. 1112, 5:64-6:13. The “controlled device 18 receives one or more messages from remote control 14 via network 22 and servers 24 to alter the content that is rendered on display 38 of controlled device 18.” Ex. 1113, [0028]; Ex. 1112, 5:66-6:2.

89. Danciu explains that messages from the remote control may contain control information for controlling and/or altering one or more functions of the controlled device. See Ex. 1113, [0025], [0066], [0074], [0075], [0078], [0083]; Ex. 1112, 5:13-28, 14:37-64, 16:47-67, 17:21-29, 18:27-41. The control information may include, for example, “stop playback, begin next playback item, etc.” Ex. 1113, [0074], [0078]; Ex. 1112, 16:47-55, 17:26-29. Additionally, Danciu’s server may “process and/or repackage the control information of the message into a new message.” Ex. 1113, [0075]-[0078], [0083]; Ex. 1112, 16:55-17:43, 18:36-38.

90. Danciu explains that the data servers include data repositories for storing information such as “identification numbers, session identifiers, and any other information required to carry out data transfer between remote control 14 and controlled device 18.” See Ex. 1113, [0006], [0007], [0030], [0064], [0070], Fig. 5; Ex. 1112, 2:6-19, 2:20-35, 6:40-49, 13:62-65, 15:59-16:6, Fig. 5. “[T]he data repositories of servers

24 may be structured as one or more tables, databases, linked lists, radix trees, Google File Systems, Google BigTable database systems, or other suitable data structure.” Ex. 1113, [0030], [0064]; see Ex. 1112, 6:46-49; 14:6-9.

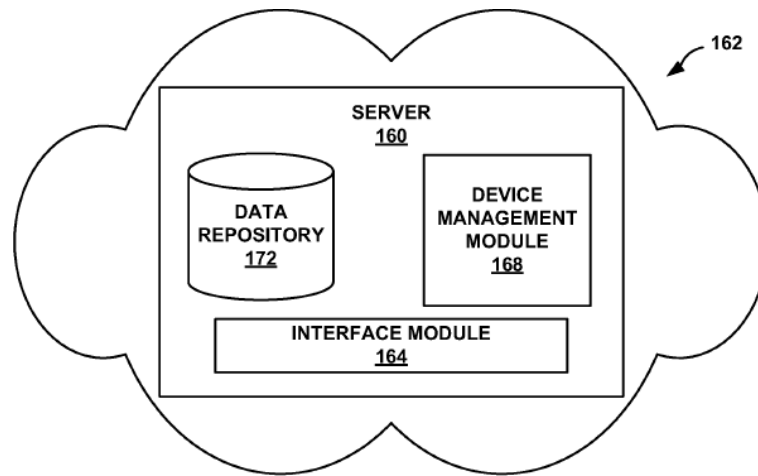


FIG. 5

Ex. 1113, Fig. 5

91. Danciu describes that its network and servers “facilitate an exchange of data” by operating as an intermediary between the remote control and controlled device. *See* Ex. 1113, [0018], [0023], [0031]; Ex. 1112, 3:14-25, 4:46-57, 6:50-55. Additionally, the servers may “pair” the remote control and controlled device so that “information and commands” can be transmitted between the remote control and the controlled device. *See* Ex. 1113, [0019], [0021]-[0023], [0025], [0027], [0031], [0035]-[0040], [0050], [0061], [0065], [0068]-[0070], [0076]; Ex. 1112, 3:34-4:57, 5:13-28, 5:42-63, 6:50-7:10, 7:59-8:58, 10:63-11:6, 13:16-32, 14:10-36, 15:28-16:6, 17:1-12. For example, the remote control and controlled device may notify the servers that they are connected to the network and available for pairing. *See* Ex. 1113, [0031], [0061], [0065]; Ex. 1112, 6:60-

64, 13:19-23, 14:10-16. Danciu states that its “[s]ervers may assign unique identification numbers to each authorized remote control 14 and controlled device¹⁸.” *See* Ex. 1113, [0021], [0022], [0031], [0035], [0037], [0064], [0065]-[0067], [0073], [0081]; Ex. 1112, 4:4-6, 4:32-45, 7:6-8, 7:61-63, 8:15-19, 13:62-14:9, 14:21-36, 14:37-47, 16:24-46, 17:66-18:16. Further, “[t]o pair remote control 14 and controlled device 18, servers 34 may create a session that includes all of the issued unique identification numbers.” *See* Ex. 1113, [0021], [0022], [0031], [0035], [0037], [0065], [0066], [0079]; Ex. 1112, 4:4-13, 4:32-45, 7:6-11, 7:59-67, 8:11-34, 14:18-64, 17:44-43.

92. Danciu further describes that QR codes can be used to pair remote controls and controlled devices. *See* Ex. 1113, [0022], [0038], [0039], [0061], [0069], [0073]; Ex. 1112, 4:32-45, 8:23-45, 13:27-32, 15:42-51, 16:32-41. For example, a controlled device, “may present a user with a QR code that identifies a session that has been created by servers 68.” *See* Ex. 1113, [0022], [0038], [0061], [0069]; Ex. 1112, 4:32-39, 8:23-34, 13:27-32, 15:42-51. “The user may scan the QR code with one of remote controls 62.” *See* Ex. 1113, [0022], [0038], [0069]; Ex. 1112, 4:32-39, 8:23-34, 13:27-32, 15:42-51. “Upon scanning the QR code, remote control 62A transmits a message to servers 68 requesting that servers 68 issue remote control 62A a unique identification number and add remote control 62A to the session associated with the QR code, thereby pairing remote control 62A with controlled device 64A.” *See* Ex. 1113, [0022], [0038], [0069]; Ex. 1112, 4:32-39, 8:23-34, 13:27-32.

93. Danciu describes that its servers receive messages from the remote control

and controlled device and route messages to members of the session. *See* Ex. 1113, [0019]-[0021], [0032], [0033], [0075], [0078], [0079], [0083], [0087], Figs. 6-9; Ex. 1112, 3:34-4:20, 7:17-29, 7:36-40, 16:61-65, 17:35-40, 17:49-55, 18:34 19:32, Figs. 6-9. For example a user may select a control on the remote control to alter content on the displayed device. Ex. 1113, [0032]; Ex. 1112, 7:19-21. In response, the remote control may transmit a message to the server identifying the remote control. *See* Ex. 1113, [0025], [0032], [0074]; Ex. 1112, 5:13-28, 7:12-29, 16:47-54. Referring to the device identifiers, the server may route the message to the appropriate controlled device which executes the appropriate action. *See* Ex. 1113, [0019]-[0021], [0032], [0033], [0075], [0078], [0079], [0083], [0087], Figs. 6-9; Ex. 1112, 3:34-4:20, 7:17-29, 7:36-40, 16:61-65, 17:35-40, 17:49-55, 18:34-19:32, Figs. 6-9.

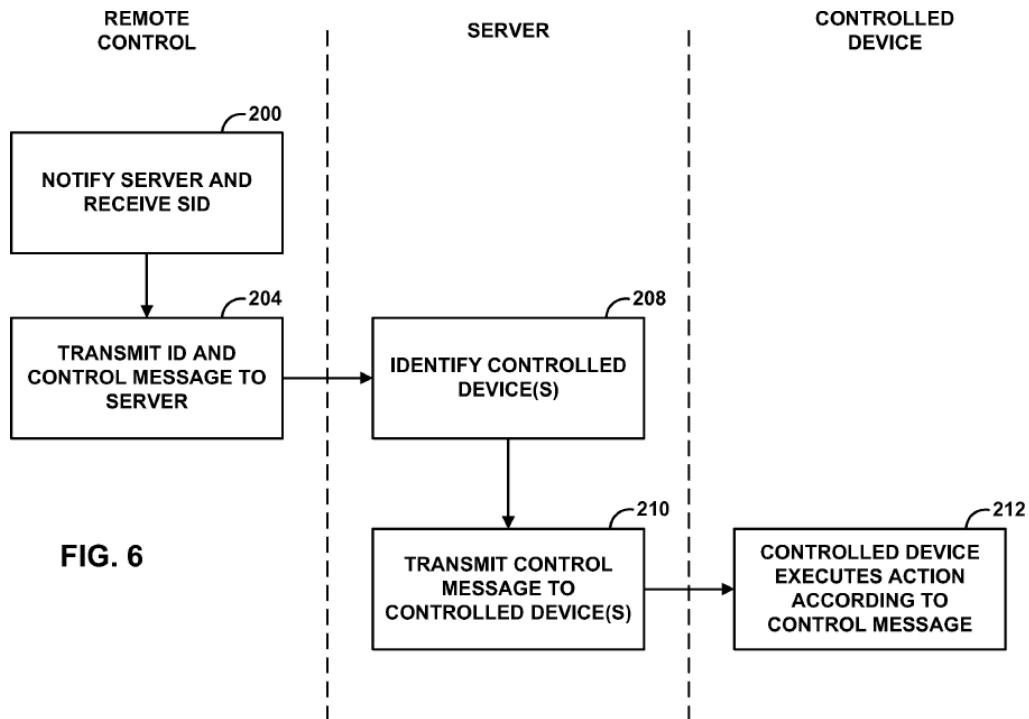


FIG. 6

Ex. 1112, Fig. 6

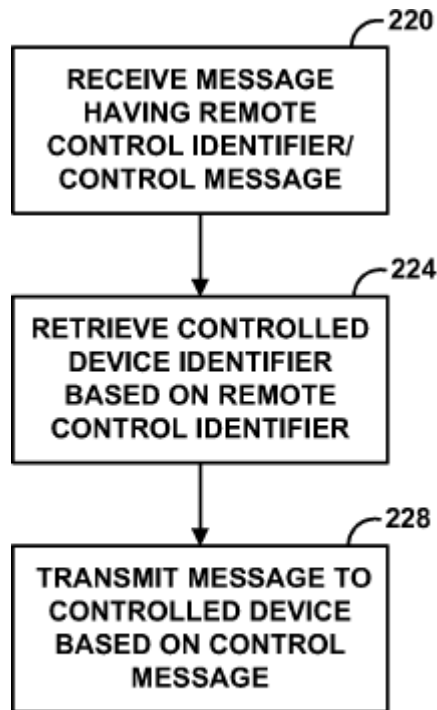


FIG. 7

Ex. 1112, Fig. 7

94. Danciu, Figure. 2 illustrates an environment having multiple remote controls and controlled devices connected via a network and servers. Ex. 1113, [0034], Fig. 2; Ex. 1112, 7:41-47, Fig. 2. Danciu describes that more than one remote control to be paired with a single controlled device, and a single remote control to be paired with more than one controlled device. *See* Ex. 1113, [0039]-[0040]; Ex. 1112, 8:35-58. Further, the plurality of remote controls and controlled devices can be different makes and models and configured in different ways. Ex. 1113, [0034]; Ex. 1112, 7:41-58.

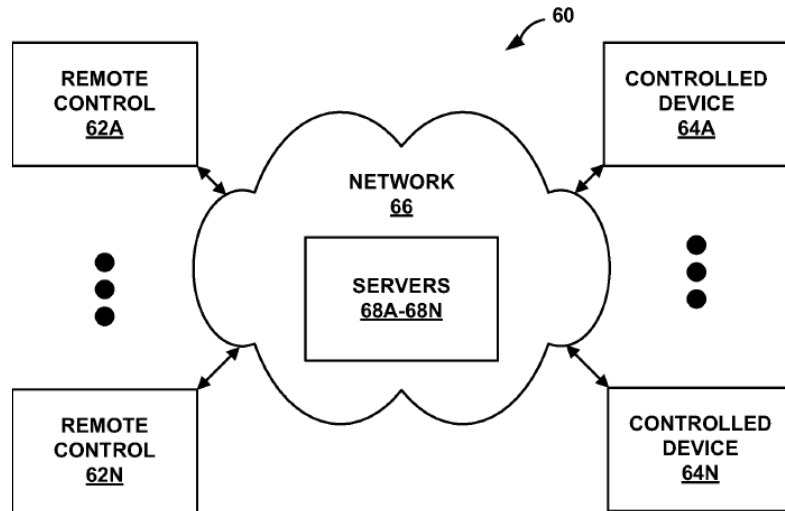


FIG. 2

Ex. 1112, Fig. 2

95. Danciu describes that the remote control may execute one or more applications including, for example, “a remote control application, web browsers, e- mail, programs to retrieve stock quotes, programs to search for restaurants, programs that retrieve current and future weather information, games, a program to search the internet, a program that provides news, a program that provides maps, and other programs.” *See* Ex. 1113, [0044]-[0048]; Ex. 1112, 10:11-16 .

96. Danciu explains that the remote control application may allow a user to initiate commands being sent to a controlled device via the server, and to initiate contact with the server for pairing the remote control and controlled device. Ex. 1113, [0049]-[0050]; Ex. 1112, 10:45-11:6. Additionally, the remote control application may be a server application accessible via, for example, a web browser. *See* Ex. 1113, [0049], [0081]; Ex. 1112, 10:56-62, 18:3-8.

97. Figure 4 of Danciu is a block diagram of a controlled device. Ex. 1113,

[0051], Fig. 4; Ex. 1112, 11:7-21, Fig. 4. The controlled device may be configured to transmit data/requests and receive data/responses from the servers. *See* Ex. 1113, [0059]; Ex. 1112, 12:50-59. The controlled device may be used to “navigate to a web page on the Internet in order to display the content hosted by the web page (e.g., YouTube®, Hulu®, Netflix®, other subscription or non subscription based video content).” Ex. 1113, [0052]; Ex. 1112, 11:31-35. Further, the controlled device may be configured to present audio and/or video content from “a cable service provider, a satellite television provider, content accessible via the World Wide Web, or other content providers.” Ex. 1113, [0053]; Ex. 1112, 11:41-44.

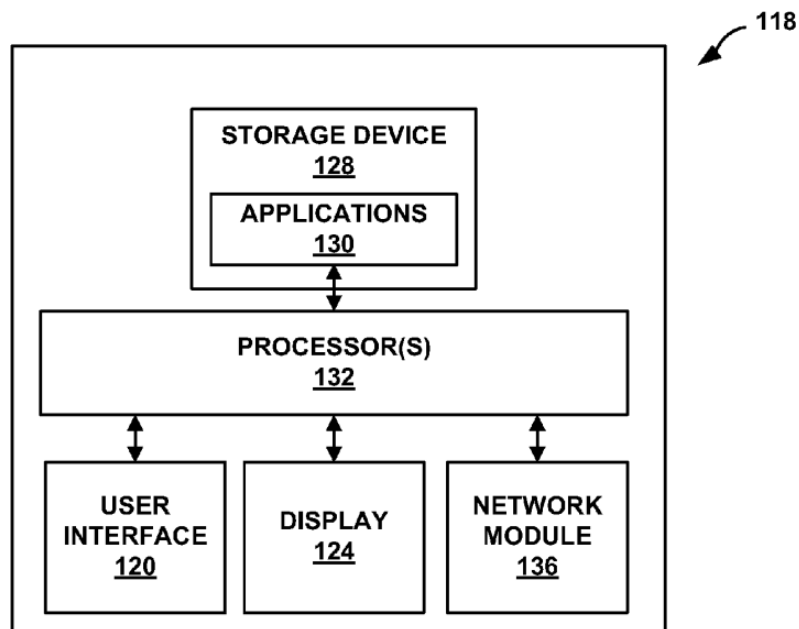


FIG. 4

Ex. 1112, Fig. 4

98. Danciu describes, as illustrated in reproduced Figure 4, the controlled device (e.g., “network-enable television” or a “set top box”) may store and execute

applications. *See* Ex. 1113, [0027], [0055]; Ex. 1112, 5:42-45, 11:56-67. Applications on the controlled device can be preinstalled or “downloaded by a user from a server via a network, such as servers 24 and network 22 shown in FIG. 1.” Ex. 1113, [0027], [0055]; Ex. 1112, 5:42-45, 11:56-67.

99. Danciu describes many examples of applications that may execute on the controlled device including “an application for displaying television content provided by a satellite or cable provider, an application for displaying content hosted on the World Wide Web, a web browser application, a social networking application, an e-mail application, programs to retrieve stock quotes, programs to search for restaurants, programs that retrieve current and future weather information, games, a program to search the Internet, a program that provides news, a program that provides maps, and other programs executed by processor 132.” Ex. 1113, [0058]; 12:32-49.

100. Danciu states that its “[c]ontrolled device 118 may be used . . . in conjunction with a remote control.” Ex. 1113, [0060]; Ex. 1112, 13:4-15. To this end, Danciu describes that “storage device 92,” of the remote control, “may store application instructions associated with a video application or web browser application for displaying video content from the World Wide Web (e.g., YouTube® content, Hulu® content, Netflix® content, etc.),” and cause the display device to display content to the user. Ex. 1113, [0004], [0025], [0060], [0066], [0074], [0075], [0078], [0083]; Ex. 1112, 1:39-50, 5:13-28, 13:4-15, 14:37-64, 16:47-67, 17:21-29, 18:27-41.

8.10. U.S. Pub. No. 2009/0172757 - Aldrey (Ex. 1115)

101. U.S. Pub No. 2009/0172757 to Aldrey (“Aldrey”) indicates on its face that it was published on July 2, 2009, from Application No. 11/966,652. Ex. 1115, p. 1. I understand that Aldrey qualifies as prior art to the ’251 Patent under pre-AIA § 102(b) because Aldrey published more than one year prior to the earliest priority date (April 21, 2011) of the ’251 Patent. I also understand that Aldrey was not considered during prosecution of the ’251 Patent. Ex. 1101, pp. 1-3.

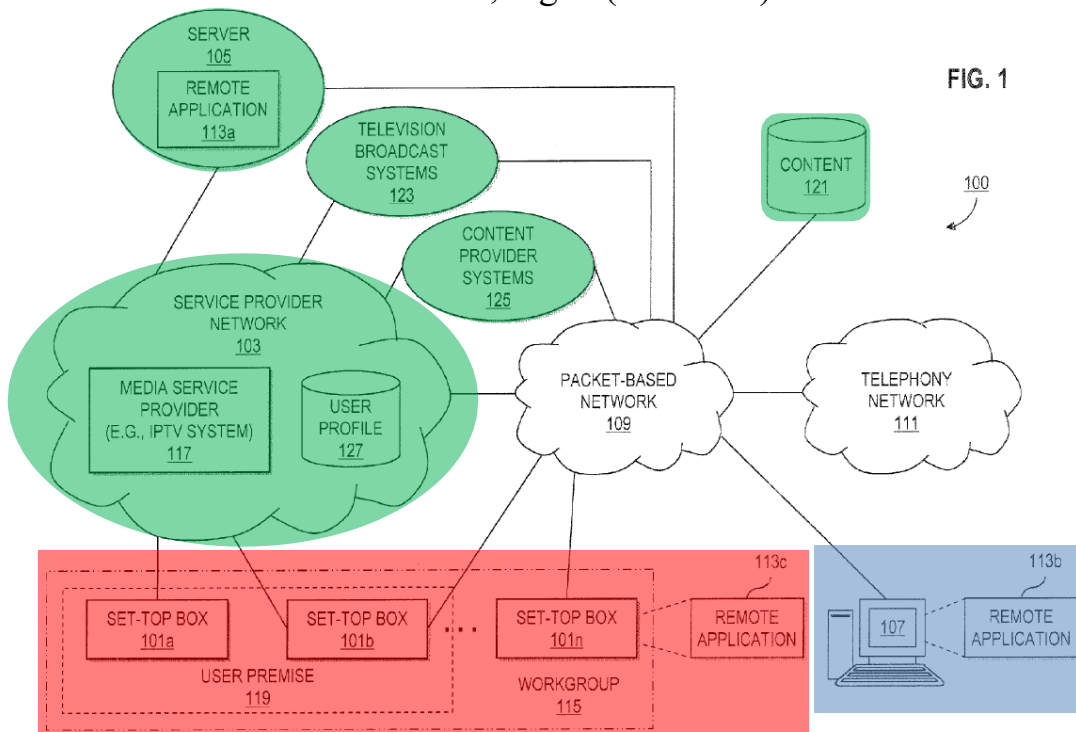
102. Much like the ’251 Patent, Aldrey generally relates to a system for network-server assisted control of content on a network-connected display device via a network-connected controller. Ex. 1115, Abstract, [0013], [0014], [0018], [0019]. As Aldrey states:

an individual . . . may, via a client-user interface (such as a web-based application 113a implemented on server 105, a computing application 113b executed on, for instance, a PC, or a media based application 113c operating on, for example, STB 101n), access one or more media based devices (e.g., STBs 101a-101n) logically associated with one another . . . so as to control, configure, or otherwise program STBs 101a-101n in real-time from an “online” or “networked” session.

Ex. 1115, [0019].

103. Aldrey's Figure 1, illustrates "a system capable of providing remote set-top box management." Ex. 1115, [0013]. Aldrey's system allows remote control of media content on one or more network-connected set-top boxes (STB) (**red**) via one or more end terminals 107 (**blue**) over a network as facilitated by one or more servers (**green**).

Ex. 1115, Fig. 1 (annotated)



104. Aldrey describes that the end terminal may execute a remote application. Ex. 1115, [0026]. The remote application may make content available at the STBs, "such as content retrieved over a data network, e.g., stored at content repository 121." Ex. 1115, [0020]. Aldrey's content may include "AV content (e.g., broadcast television programs, VOD programs, AOD programs, pay-per-view programs, IPTV feeds, DVD related content, etc.), pre-recorded media content, data communication services content (e.g.,

commercials, advertisements, videos, movies, songs, images, sounds, etc.), Internet services content (streamed audio, video, or pictographic media), and/or any other equivalent media form.” Ex. 1115, [0021].

105. Aldrey describes that its STB may be any device capable of processing audio/video content for a user, such as “a television set, a digital video disc (DVD) player, a video-enabled phone, an AV-enabled personal digital assistant (PDA), and/or a personal computer (PC), as well as other like technologies and customer premises equipment (CPE).” Ex. 1115, [0012].

106. Aldrey’s STBs can receive and/or transmit content and control commands from multiple sources. Ex. 1115, [0020], [0032], [0035]-[0039], [0042], [0043], [0044], [0046], [0048], [0082], [0086]. Aldrey’s control commands may, for example, specify a content selection, and Aldrey’s remote applications may “enable users to make content available at one or more STBs.” Ex. 1115, [0020], [0046], [0048], [0082]. Aldrey describes that, in response to the commands, media content may be presented, including, for example, “displaying,” “playing,” “rewinding,” and “forwarding.” Ex. 1115, [0044]. Additionally, Aldrey describes that selecting an identifier of a media content item “may cause the content item to be retrieved from an associated link.” Ex. 1115, [0060].

107. Aldrey, Figures 5a and 5b illustrate processes for the control of one or more STBs. Ex. 1115, [0008], [0072]-[0073], [0083].

FIG. 5a

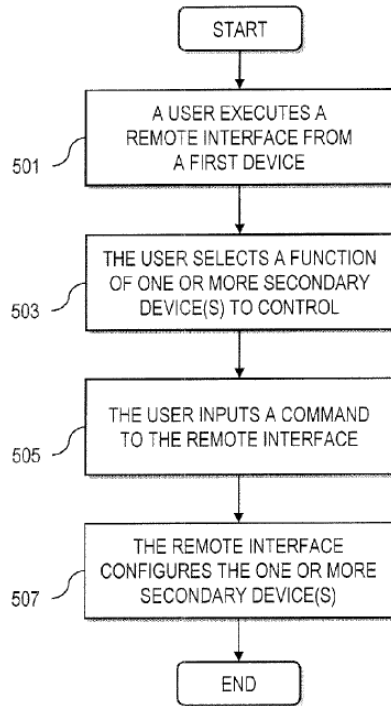
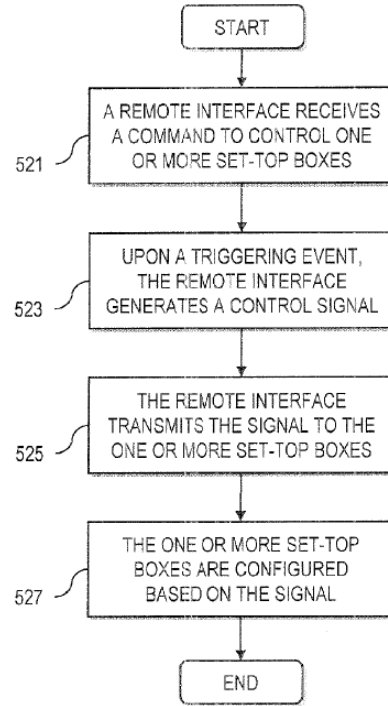


FIG. 5b



Ex. 1115, Figs. 5a, 5b

108. Aldrey explains that its servers 105 may receive one or more commands from the end terminal 107 for controlling one or more STBs. Ex. 1115, [0030]. Aldrey describes that its remote interface may receive a command to control one or more of the STBs. Ex. 1115, [0079], [0083]. Subsequently, The STBs may receive one or more control signals, and the STBs may be configured based on the received control signals. Ex. 1115, [0082], [0086]. Further, Aldrey explains that the process for controlling the one or more STBs may be effectuated “either directly or indirectly via server 105 and/or MSP 117.” Ex. 1115, [0080].

109. Aldrey describes using metadata appended to its control commands to facilitate the remote control system. Ex. 1115, [0036], [0037]. Particularly, Aldrey

describes that metadata appended to the control commands may include information about the selected content, for example, “file name, type,” “titles,” and “access methods,” wherein the metadata may be used “for control or guiding purposes.” Ex. 1115, [0036]. Additionally, metadata may include information that describes “characteristics of content-bearing entities” to assist in the discovery and control of the media content. Ex. 1115, [0037].

110. Aldrey describes a method for authenticating its devices for use in its system. Ex. 1115, [0039], [0040], [0051], [0052], [0063], [0065]-[0067], [0074]. The authentication may require “a user name and password, a key access number, a unique machine identifier (e.g., media access control (MAC) address), etc., as well as a combination thereof.” Ex. 1115, [0039], [0051], [0067]. Additionally, Aldrey contemplates utilizing one device of the system to authenticate with a second device of the system. As Aldrey states, “authentication procedures on a first device (e.g., STB 101a) may identify and authenticate a second device (e.g., terminal 107) and/or third device (STB 101b-101n) communicatively coupled to, or associated with, the first device.” Ex. 1115, [0040], [0051].

8.11. U.S. Pub. No. 2004/0078812 - Calvert (Ex. 1111)

111. U.S. Pub. No. 2004/0078812 to Calvert (“Calvert”) indicates on its face that it was published on April 22, 2004, from Application No. 10/250,640. Ex. 1111, p. 1. I understand that Calvert qualifies as prior art to the ’251 Patent under pre-AIA § 102(b) because Calvert published more than one year prior to the earliest priority date (April 21, 2011) of the ’251 Patent. I also understand that Calvert was not considered during prosecution of the ’251 Patent. Ex. 1101, pp. 1-3.

112. Calvert describes a system for aggregating audio and video content from multiple sources into a unified listing for selection and delivery to a playback device. Ex. 1111, Abstract, [0020]-[0044], Figs. 1-7. Content aggregator 102 (**green**) has multiple media services available to it that include audio and/or video content. Ex. 1111, [0020]-[0021], [0024]-[0025], Figs. 1-2. The media services may be in a variety of formats (e.g., RealMedia, QuickTime, Windows Media) and may be live (e.g., a television station broadcast) or prerecorded (e.g., a movie on demand). Ex. 1111, [0021]. Upon request, content aggregator 102 may provide a listing of available services to playback device 202 (**red**) which displays the listing on display device 222. Ex. 1111, [0025]-[0027], [0033]-[0038], Figs. 2-4.

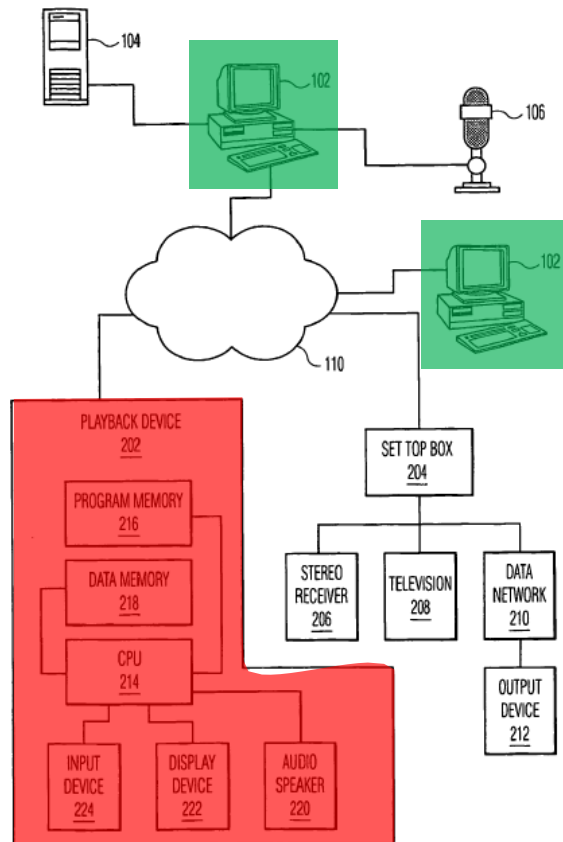


FIG. 2

Ex. 1111, Fig. 2 (annotated)

113. Calvert describes that users may receive media services in the form of streaming media. Ex. 1111, [0005]. Software on the user's device, for example, "REALPLAYER™, MACROMEDIA PLAYER™, and MP3PRO™" process the media into an "audio/video signal for playback on an output device (computer, receiver, stereo, television set)." Ex. 1111, [0005]. Calvert describes that the "Internet provides a listener with the ability to access thousands of media services" which may be accessed using a link (e.g., a URI) to a file on a website or by "using a media player that receives streaming feeds of media services." Ex. 1111, [0006].

114. Accordingly, Calvert explains, that its disclosure relates to enabling the “indexing and acquisition of media services from a plurality of content aggregators.” Ex. 1111, [0008]. Further, “[a] listing of media services is generated by the indexing of available media services from the plurality of content aggregators.” Ex. 1111, [0008]. Additionally, Calvert describes that its disclosure relates to “the retrieval and output of a selected media service available from the plurality of content aggregators to a playback device.” Ex. 1111, [0008].

115. Calvert explains that its media services may be available in a plurality of different formats, and played back via one of a plurality of media players. As Calvert states, “media services may purport to a type of media file format (e.g., REALAUDIO®, REALMEDIA®, APPLE QUICKTIME®, MICROSOFT® WINDOWS MEDIA™ FORMAT, MPEG-2 LAYER III AUDIOM and MP3®) that is played back via a media player (REALPLAYER®, WINAMP®, and MICROSOFT® WINDOWS MEDIA™ PLAYER).” Ex. 1111, [0021].

116. Calvert describes that its “[p]layback device 202 communicates with content aggregator 102 to request a listing of media services available from content aggregator 102 and to receive media services.” Ex. 1111, [0025], [0027]. Calvert explains that its communications may comprise “procedural calls” formatted through the use of an API. Ex. 1111, [0025]. This API may “comprise[s] a series of functions that are used by a program or device to initiate a specific action.” Ex. 1111, [0025].

117. Calvert describes a sample data structure for communications between its

playback device and content aggregator that comprises “media service menus, the locations (URIs) and types of media service formats (Real Audio, Microsoft Media Player, MP3) available from the providers of the media services that correspond to a stylesheet.” Ex. 1111, [0031]. Calvert describes a three-level document object model (DOM) data structure and “Multipurpose Internet Mail Extensions (MIME) compliant classes and object types are used to define the objects available.” Ex. 1111, [0031].

118. Calvert explains that using the DOM “allows playback device 202 to support new document types and media formats.” Ex. 1111, [0032]. “For example, a new content aggregator uses a new multimedia player to play back available media services.” Ex. 1111, [0032]. “Playback device 202, when requesting a media service from the new content aggregator, will read the corresponding DOM and locate the new multimedia player (either by a [sic] embedded locator in the DOM or by referring to an external database).” Ex. 1111, [0032]. “Playback device 202 then requests a codec (update) for the new media player, which is stored once the codec is received.” Ex. 1111, [0032].

119. Calvert describes that the playback device requests and receives a lists of media services from content aggregators. Ex. 1111, [0033], [0037], Fig. 9. As illustrated in Figure 9 (reproduced below), Calvert's different media services can be associated with different player applications ("apps") (purple) Ex. 1111, Fig. 9 . The user selects the media service from the list. Ex. 1111, [0038].

900

```

<?xml version="1.0"?>
<!--MEDIAMATCH_CONTENT_LIST-->
<!DOCTYPE list [
  <ELEMENT mediaservice (location, media_title, player_app, performer, genre, copyright)>
  <ELEMENT location (#PCDATA)>
  <ELEMENT media_title (#PCDATA)>
  <ELEMENT player_app (#PCDATA)>
  <ELEMENT performer (#PCDATA)>
  <ELEMENT genre (#PCDATA)>
  <ELEMENT copyright (#PCDATA)>
]
>
</list>

<mediaservice>
  <location>http://www.musicstesters.com/buggy/travoltaswing.MP3</location>
  <media_title>TravoltaSwing</media_title>
  <player_app>MP3</player_app>
  <performer>Travolta_John</performer>
  <genre>Bluegrass</genre>
  <copyright>1989</copyright>
</mediaservice>

<mediaservice>
  <location>121.12.113.331</location>
  <media_title>The_Big_Sleep</media_title>
  <player_app>MPEG_4</player_app>
  <performer>Bogart_Humphrey</performer>
  <genre>Mystery</genre>
  <copyright>1946</copyright>
</mediaservice>

<mediaservice>
  <location>111.345.44.332</location>
  <media_title>Steve_Dahl</media_title>
  <player_app>RealAudio</player_app>
  <performer>Dahl_Steve</performer>
  <genre>Talk_Show</genre>
  <copyright>2001</copyright>
</mediaservice>
</list>

```

FIG. 9

Ex. 1111, Fig. 9 (annotated)

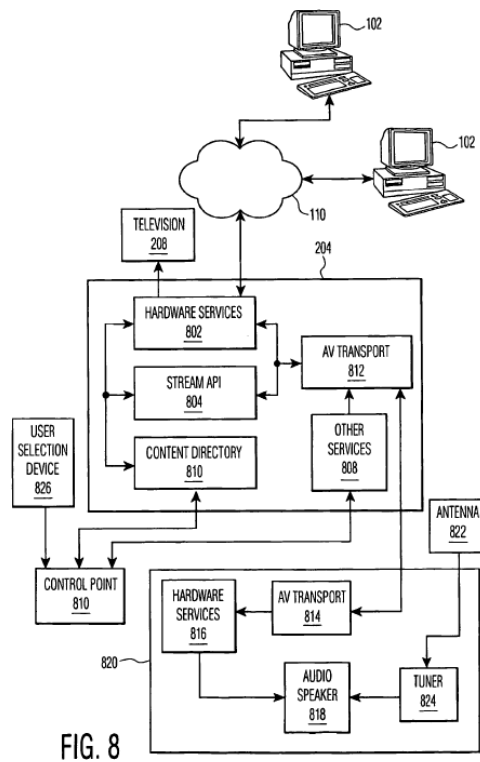
120. Calvert states that the request for a media service may be an HTTP or MIME compliant request. Ex. 1111, [0040]. “Along with standard HTTP redirect processing HTTP processor API 404 analyzes the HTTP response header to determine whether the response is a stream, media file, or other type of multimedia format (e.g., a REALPLAYER® based stream, a non-streamed MP3 file, or a video signal). Ex. 1111, [0040]. Once the determination is made, HTTP processor API 404 accepts data comprising the selected media service.” Ex. 1111, [0040].

121. Calvert explains that its content adapter processes the received media service data depending on information in the response, for example, “indicating the format of the media service, the corresponding playback application 608, output requirements of the media service.” Ex. 1111, [0041], [0042]. Once processed, the data is “sent to player application 608 (media player) that outputs or “plays” media service data.” Ex. 1111, [0043].

122. Calvert also describes combining lists of media services retrieved from multiple content aggregators. Ex. 1111, [0052]-[0058]. Calvert describes a request to multiple content aggregators for a list of media services by executing a call that builds a set of commands used to access the different content aggregators. Ex. 1111, [0052]-[0055], [0057].

123. Referring to Figure 8, Calvert describes that a control point connected to a set top box can transmit a command to the set top box to display the available

media serves on a connected display. Ex. 1111, [0063]. Calvert describes that the displayed available media services can be used as an electronic programming guide. Ex. 1111, [0063]. Further, the media services can be selected from the listing of services via a selection device. Ex. 1111, [0064]. The selection device transmits signals to the control point. Ex. 1111, [0064]. The control point formats and sends a request for the media service to the content aggregator. Ex. 1111, [0064]. The content aggregator receives the request and transmits data comprising the media service. Ex. 1111, [0065]. The media service is processed and output. Ex. 1111, [0066]-[0067].



Ex. 1111, Fig. 8

8.12. U.S. Pub. No. 2009/0248802 - Mahajan (Ex. 1114)

124. U.S. Pub. No. 2009/0248802 to Mahajan et al. (“Mahajan”) was filed as Application No. 12/060,620 on April 1, 2008 and published on Oct. 1, 2009. Ex. 1114, p. 1. I understand that Mahajan is prior art under 35 U.S.C. § 102(b) because its publication date (Oct. 1, 2009) is more than a year before the earliest priority date of the '251 Patent (April 21, 2011). I also understand that Mahajan was not considered during prosecution of the '251 Patent. Ex. 1101, pp. 1-3.

125. Mahajan discloses a client-server collaboration session wherein user commands (orange) may be forwarded from a server (blue) for controlling media content (purple) that is playing on a client device (red). Ex. 1114, [0011]-[0013], Figs. 1, 2, 4.

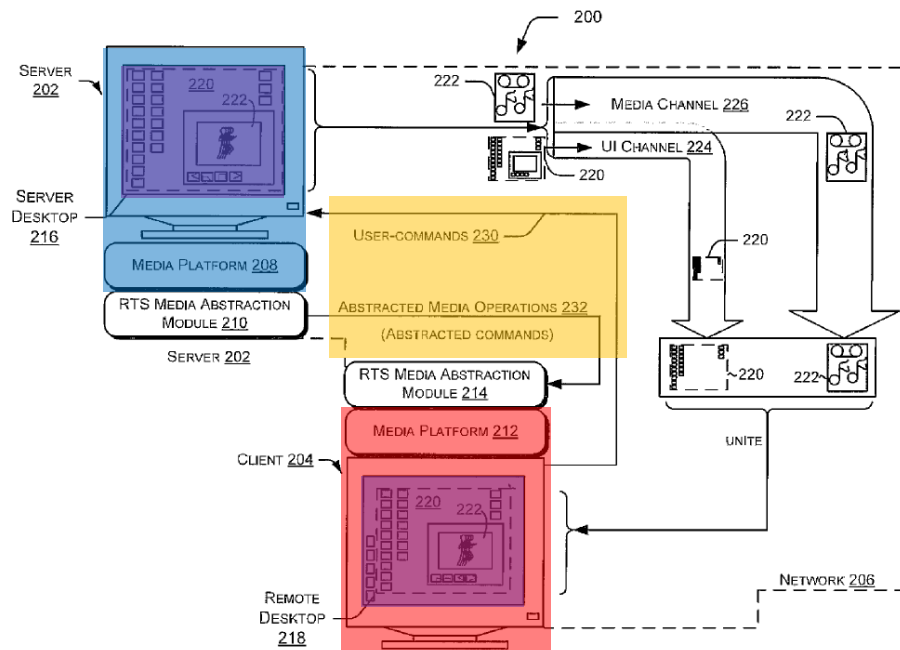


Fig. 2

Ex. 1114, Fig. 2 (annotated)

126. Mahajan's media content can be in different formats. Ex. 1114, [0012]. The media content can be processed by a "media player that employs one or more media platforms configured to handle the format of the media file." Ex. 1114, [0012]. Mahajan's media content may be processed by the client based on commands forwarded from the server. Ex. 1114, [0012]-[0014].

127. Mahajan describes that media players can perform media operations such as playback commands. Ex. 1114, [0011]-[0014], [0021]-[0023], [0034]-[0037], [0039], [0040], [0049], [0050], [0060]-[0063], [0072]. The commands may be platform specific, and the client and server may not support the same commands. Ex. 1114, [0011]-[0014], [0021], [0022], [0035]-[0037], [0060]-[0063]. Accordingly, Mahajan describes an abstraction functionality "allowing media operations to be effectively conveyed in a collaboration session between server and client. Ex. 1114, [0013], [0014], [0022], [0023], [0025], [0036], [0037]-[0040], [0045], [0046], [0050], [0060]-[0063].

128. In particular, Mahajan describes a system in which user generated playback commands are received at the server. Ex. 1114, [0021], [0034], [0035], [0049]-[0050]. The server may determine whether the client supports the source media format. Ex. 1114, [0050]. Mahajan's system abstracts the playback commands and converts the playback commands from server platform specific commands to generic playback commands. Ex. 1114, [0013], [0014], [0022], [0024], [0036], [0038], [0039], [0042].

Mahajan describes that in certain cases, the generic playback commands may be understood by the client. Ex. 1114, [0024]. The abstracted generic media playback commands may additionally be translated into client platform specific media playback commands. Ex. 1114, [0013], [0014], [0022], [0036], [0040], [0042], [0063], Figs. 3, 5.

129. Mahajan's Figure 3 depicts an API for command abstraction and conversion between a server and a client. Ex. 1114, [0037]-[0043], Fig. 3. Mahajan describes the use of mapping tables to facilitate the command abstraction and conversion. Ex. 1114, [0038], [0040]. The commands may be "in response to one or more actions that may be specific to events associated with the playback of media files." Ex. 1114, [0037].

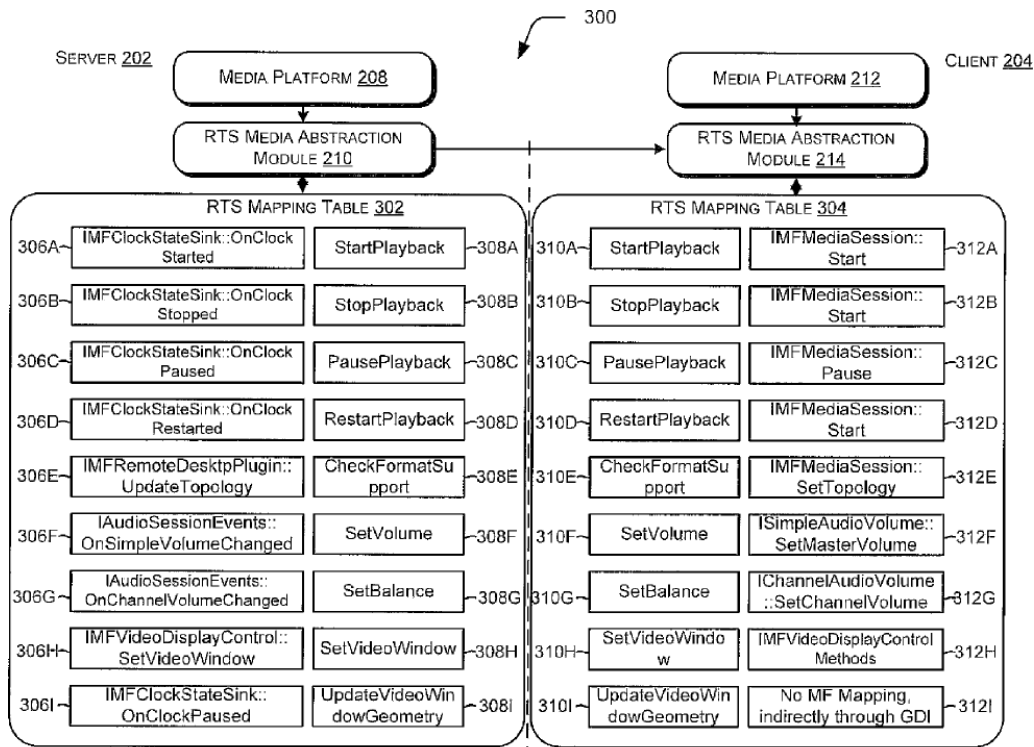


Fig. 3

Ex. 1114, Fig. 3

130. Mahajan describes, for example, how “pause” or “restart” command is translated from a first type of media application command (e.g., a Media Foundation platform command “IMFClockStateSink::OnClockPaused”) to a second type of media application command (e.g., a DShow platform command “IMFMediaSession::Pause”). Ex. 1114, [0039], [0040], Fig. 3. For example, Mahajan describes how the Media Foundation platform command is converted into a generic “StartPlayback” command using a first mapping table. Ex. 1114, [0039]. The generic “StartPlayback” command is subsequently converted to a DShow platform specific “play” command based on a second mapping table. Ex. 1114, [0040].

9. IDENTIFICATION OF HOW CLAIMS ARE UNPATENTABLE

131. I was asked to consider whether claims 1-26 of the '251 Patent are rendered obvious by Danciu and Mahajan. Having considered Danciu and Mahajan, and the claims in question, it is my opinion that the combination of Danciu and Mahajan renders obvious claims 1-26.

132. I was asked to consider whether claims 1-26 of the '251 Patent are rendered obvious by Danciu, Mahajan, and Calvert. Having considered Danciu, Mahajan, and Calvert, and the claims in question, it is my opinion that the combination of Danciu, Mahajan, and Calvert renders obvious claims 1-26.

133. I was asked to consider whether claims 1-26 of the '251 Patent are rendered obvious by Aldrey and Mahajan. Having considered Aldrey and Mahajan, and the claims in question, it is my opinion that the combination of Aldrey and Mahajan renders obvious claims 1-26.

10.SUMMARY OF OPINIONS WITH RESPECT TO THE '251 PATENT

134. It is my opinion that claims 1-26 of the '251 Patent are rendered obvious by Danciu in view of Mahajan or Danciu in view of Mahajan and Calvert.

135. It is my opinion that claims 1-26 of the '251 Patent are rendered obvious by Aldrey in view of Mahajan.

11. Danciu-Mahajan or Danciu-Mahajan-Calvert Render Claims 1-26

Obvious

136. The following section provides a limitation by limitation analysis showing how Danciu in view of Mahajan and Danciu in view of Mahajan and Calvert renders claims 1-26 obvious. To help illustrate how the disclosures of these references map to the claim limitations, I have color coded some of my remarks and some figures in the noted art below.

11.1 Independent Claim 1

11.1.1 [1A] “A machine-implemented method of controlling presentation of video content on a display device that loads any one of a plurality of different media players, the method comprising:”

137. I have been informed that the preamble is not limiting. That aside, it is my opinion that Danciu teaches the preamble. Danciu discloses a controlled device 18 (“display device”, **red**), which may be a computing device such as an Internet- connected television, set-top box (STB) or personal video recorder (DVR), connected via network 22, which includes servers 24A-24N (**green**), to a remote control 14 (**blue**). Ex. 1112, 5:42-63.

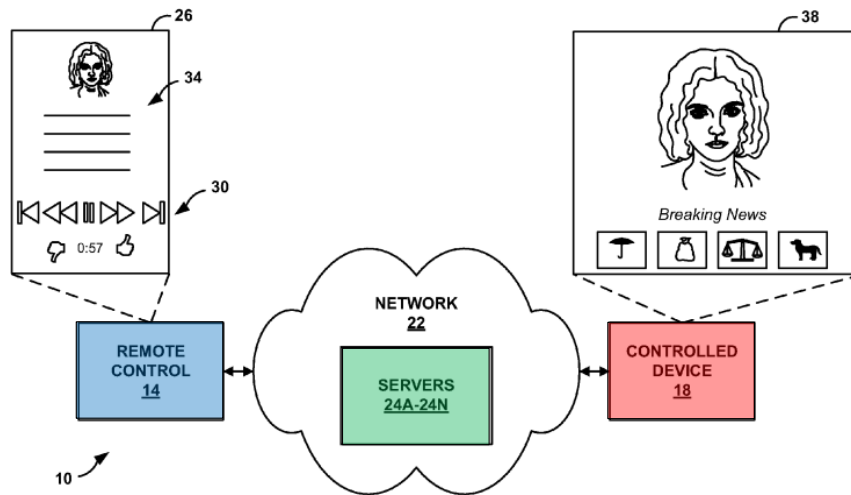


FIG. 1

Ex. 1112, Fig. 1 (annotated)

138. Danciu discloses that controlled device 18, or 118 as shown in Figure 4 below, is a computing device that includes one or more processors 132. Ex. 1112, 11:7-13. The one or more processors 132 execute program instructions stored on a non-transitory/tangible storage medium (such as RAM, ROM, or electronic storage media of storage device 128) in order to perform operations. Ex. 1112, 12:1-16.

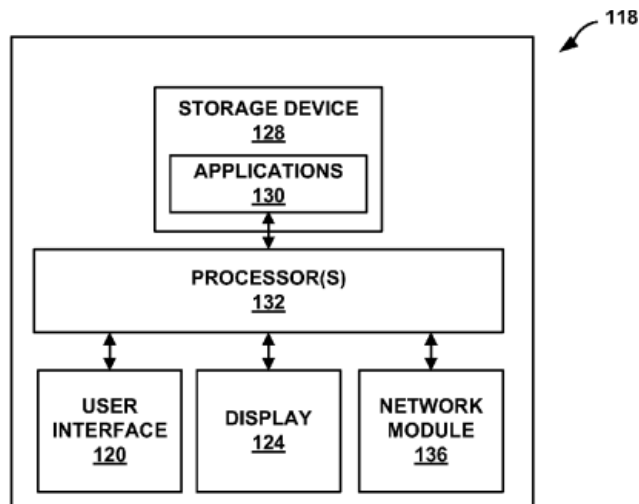


FIG. 4

Ex. 1112, Fig. 4

139. Danciu teaches that the video content that may be displayed using an application such as a web browser loaded on the controlled device. Ex. 1112, 11:40- 44, 12:32-49, 13:4-15. Additional detail as to how Danciu, Mahajan, and Calvert teach loading of a media player may be found above in Sections 8.9, 8.11, and 8.12.

140. Therefore, in my opinion, Danciu-Mahajan or Danciu-Mahajan-Calvert teaches limitation [1A].

11.1.2 [1B] “assigning, by a server system, a synchronization code to the display device;”

141. It is my opinion that Danciu teaches the elements of limitation [1B].

142. Danciu discloses that a “network service [“**server system**”] may assign each remote control and each controlled device a unique identifier” for pairing. Ex. 1112, 4:4-13, 6:41-8:49, 13:62-14:36, 15:59-16:6. The unique identifier may be considered a synchronization code because it synchronizes a session to which the remote control

wishes to join. Danciu discloses an example where the controlled device presents a user with a QR code, which the user may scan with the remote control 14. Ex. 1112, 4:36-45, 8:23-49, 13:16-32, 15:28-58. The remote control 14 may be a mobile device such as a phone, a non-portable device such as a desktop computer, or any other suitable device. Ex. 1112, 5:1-12. The QR code provided to the controlled device (“the display device”) for input on the remote control (“personal computing device”), may be considered as a synchronization code because it synchronizes a session that the remote control wishes to join. This is consistent with the ’251 Patent, which states that “the synchronization code 48 can be displayed, for example, on a splash page of the display device as text on the screen or as an image such as a QR code [green] and can be entered into the mobile phone 20, for example, manually by the user or by scanning the code into the mobile phone,” just as Danciu describes. Ex. 1101, 5:17-21, Fig. 7A.

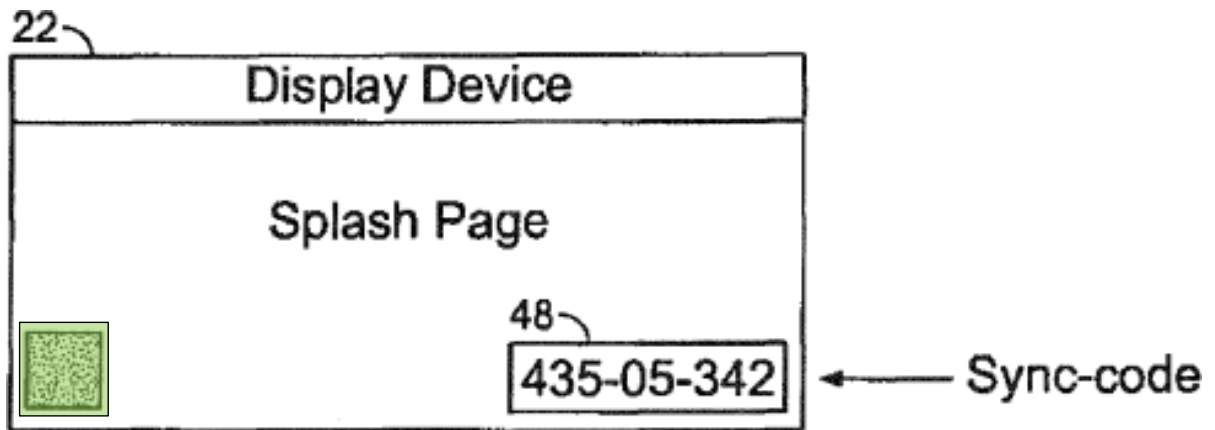


FIG. 7A

Ex. 1101, Fig. 7A (annotated)

143. Finally, the QR code is assigned by the server in Danciu. Danciu teaches that the QR code “identifies a session that has been created by servers 68.” Ex. 1112, 8:25-27. This session is “maintained by the network service.” Ex. 1112, 4:39-41. Danciu also teaches that the QR code is generated by the device management module, which is stored on the servers. Ex. 1112 15:38-62, Fig. 5. Thus, a POSITA reading Danciu’s disclosure would have understood that the QR code is thus assigned by the server system, and stored in memory on the remote server device at least during the process of generating the code.

144. Therefore, in my opinion, Danciu teaches limitation [1B].

11.1.3 [1C] “receiving, in the server system, a message from a personal computing device that is separate from the server system and separate from the display device, wherein the message includes the synchronization code;”

145. As discussed above regarding limitation [1B], Danciu teaches that a “network service may assign each remote control and each controlled device a unique

identifier” that is used in pairing. Ex. 1112, 4:4-13, 6:41-7:10; *see above* Section 11.1.2. In another example, the controlled device (“the display device”) may present a user with a QR code, which the user can scan with the remote control (“a personal computing device”). Ex. 1112, 4:36-45, 5:1-12, 8:23-49, 13:16-32, 15:28-

58.

146. Danciu teaches the claim element that “Upon scanning the QR code, remote control 62A transmits a message to servers 68 requesting that servers 68 issue remote control 62A a unique identification number and add remote control 62A to the session associated with the QR code, thereby pairing remote control 62A with controlled device 64A.” Ex. 1112, 8:23-34, 15:38-58, Fig. 5. It would have been obvious to a POSITA that the remote control would need to communicate information, such as an indication of the scanned QR code, in a message to the server in order to initiate pairing. Ex. 1112 15:38-58, Fig. 5. This creates a unique identifier for the session between the remote control and the controlled device. Ex. 1112, 4:4- 36, 7:6-10, 8:11-22. Danciu teaches that “After adding remote control 14 and controlled device 18 to the session, messages generated by remote control 14 and controlled device 18 include their unique identification numbers, so that the servers

24 recognize remote control 14 and controlled device 18 as being included in the session.” Ex. 1112, 7:11-40. Danciu also teaches that the QR code is generated by the device management module, which is stored on the servers. Ex. 1112, 15:38-62, Fig. 5. Further, the session identifiers and other session information are stored on a data repository of the servers. Ex. 1112, 6:34-50, 13:62-14:1, 15:28-41, 15:59-16:6.

147. Therefore, it is my opinion that Danciu teaches limitation [1C].

11.1.4 [1D] “storing, by the server system, a record establishing an association between the personal computing device and the display device based on the synchronization code;”

148. Danciu teaches that, upon receiving a message comprising the unique identifier and/or the QR code, a record establishing an association is stored, as the resultant session identifiers and other session information are stored on a data repository of the servers. Ex. 1112, 6:50-55, 13:62-14:1, 15:28-41, 15:59-16:6. For example, Danciu discloses that “device management module 168 identifies and stores associations of remote controls 62 and controlled devices 64 to facilitate repeat communication between remote controls 62 and controlled devices 64.” Ex. 1112, 15:34-38, Fig. 5. As another example, Danciu discloses that “[a]s shown in FIG. 5, server 160 may be comprised as a single unit with ... a data repository 172” and “an entry within data repository 172 may identify an association between a remote control and a controlled device.” Ex. 1112, 13:40-43, 14:2-4.

149. Therefore, in my opinion, Danciu teaches limitation [1D].

11.1.5 [1E] “receiving, in the server system, one or more signals from the personal computing device, the one or more signals specifying a video file to be acted upon and identifying a particular media player for playing the video content,”

150. It is my opinion that Danciu teaches the elements of limitation [1E].

151. The remote control 14 (**blue**) in Danciu provides commands such as “fast forward, reverse, skip ahead or back, play, stop move to new content, etc.” via servers 24 (**green**) for controlling content being played on controlled device 18 (**red**). Ex. 1112, 5:29-37. The controlled device 18 (“the display device”) is provided with commands from the remote control (“one or more signals from the personal computing device”) that were received by the servers (“receiving, in the server system”). Ex. 1112, 5:64-6:2, 10:45-53.

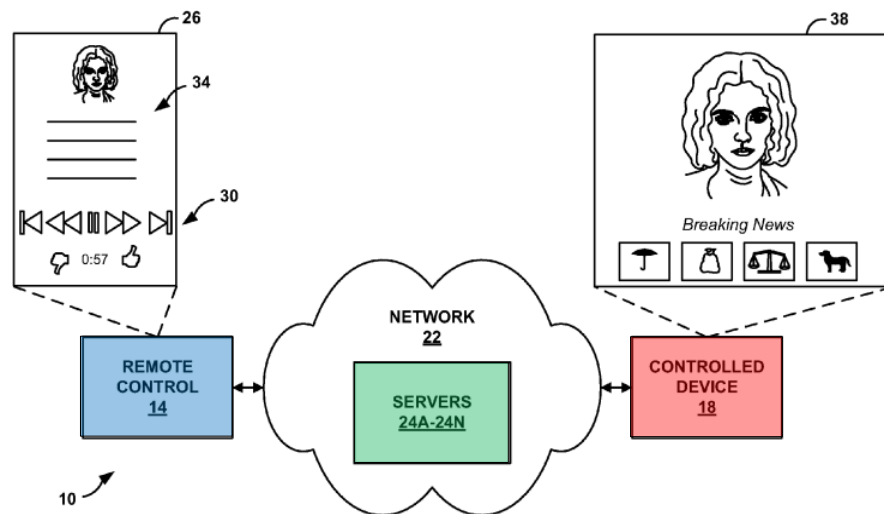


FIG. 1

Ex. 1112, Fig. 1 (annotated)

152. Danciu teaches that the servers direct the messages in a session from the remote control to the controlled device. Ex. 1112, 6:50-60, 7:17-29, 8:11-34, 10:45-53, 15:42-58, 16:24-17:12. Danciu further describes that “[f]or example, server 24 may query a database of stored identification numbers to determine which controlled device is associated with the session that includes the remote control identifier. Server then transmits the control information to the intended controlled device 18 (210).” Ex. 1112, 16:56-61.

153. Danciu discloses using the session identification numbers to “route the messages to other members of the session. For example, a user may actuate one of controls 30 of remote control 14 to alter the content displayed on display 38 of controlled device 18.” Ex. 1112, 7:17-20. In Danciu’s disclosure, there may be separate messages from the remote control to the server, and from the server to the controlled device. Ex. 1112, 16:24-17:10, 17:21-43. For example, when the server receives a message from the remote control that is intended for the controlled device, “server 24 may process and/or repackage the control information of the message into a new message.” Ex. 1112, 16:63-67.

154. Danciu teaches “identifying a particular media player for playing the video content.” The received messages include a session identifier (SID) and control information generated by the remote control for the controlled device. Ex. 1112, 14:13-64. “For example, a user may actuate one of controls 30 of remote control 14 to alter the content displayed on display 38 of controlled device 18.” Ex. 1112, 7:18- 20. The “user

interface 26 [of the remote control 14] may display controls 30 and information 34 associated with content being played on controlled device 18.” Ex. 1112, 5:31-33. The controlled device executes “the video or web browser application” for the desired media player to display content such as YouTube, Hulu, Netflix, or other such video content services. Ex. 1112, 11:31-35, 13:11-15

155. Figure 1 of Danciu shows a user interface 26 of the remote control (**blue**) displaying the same content (**purple**) as that depicted on the display 38 on the controlled device (**red**).

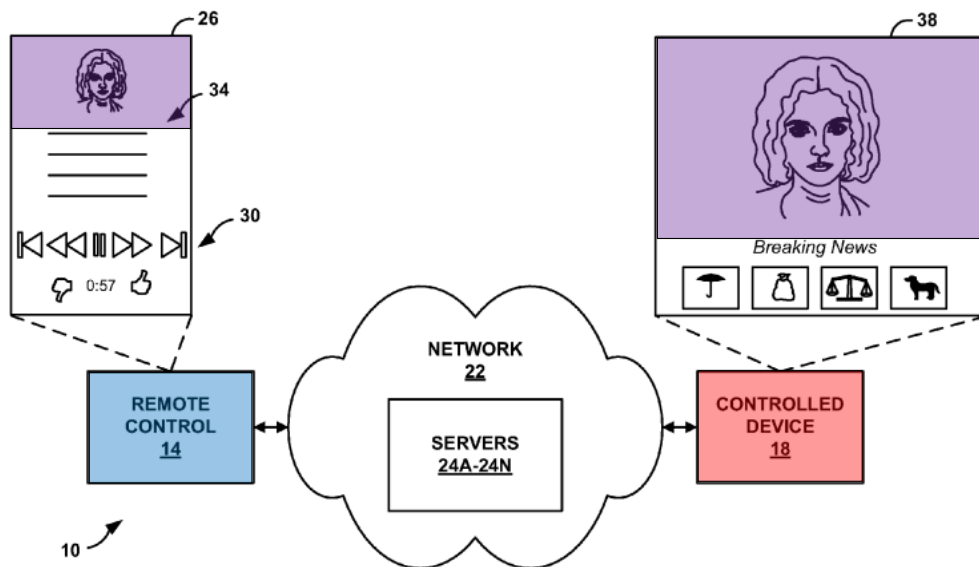


FIG. 1

Ex. 1112, Fig. 1 (annotated)

156. To the extent that it is argued that Danciu does not explicitly state that this is the same content (purple), a POSITA would have understood that this is the same content in view of the depiction in Figure 1 and the context of Danciu as a whole, especially since Danciu teaches that the “controls 30 and information 34” are “associated with content being played on controlled device 18.” Ex. 1112, 5:29-41. Also, a POSITA would have understood that when a user “actuate[s] one of controls 30 of remote control 14 to alter the content displayed on display 38 of controlled device 18,” as stated in Danciu, the controls are for the claimed “first piece of content” that is to be played on the controlled device.” Ex. 1112, 7:17-29. Also, Danciu teaches that “[r]emote control 75 may include a remote control application (e.g., a remote control application stored with applications 94 stored in storage device 92) that allows a user to initiate commands being sent to a controlled device, such as controlled device 18 shown in FIG. 1.” Ex. 1112, 10:45-49, 16:47-54, 17:21- 43, Fig. 3. Therefore, a POSITA would also have understood that Danciu teaches “identifying a particular media player for playing the video content,” because the remote device (“the personal computing device”) sends commands for a video application, which may be a web browser, presenting the content displayed on the controlled device (“the display device”).

157. To the extent that it is argued that Danciu does not explicitly disclose how to implement transmission of commands from a server to a client, this would have been obvious to a POSITA in view of Mahajan. Mahajan discloses a client- server collaboration session wherein a user may enter commands (orange) to a server (blue)

for controlling content (**purple**) that is playing on a client device (**red**). Ex. 1114, [0011]-[0013], Figs. 1, 2, 4. The platform accomplishes this by translating between universal commands and platform specific media playback commands that can be understood by the client's media platform. Ex. 1114, [0012]-[0013], [0022], [0035]-[0036], [0041], Figs. 3, 5. Furthermore, a POSITA would have understood Mahajan's disclosure to teach that the command pathways between the client and server are bidirectional. In this way, commands may also be sent from the client to the server.

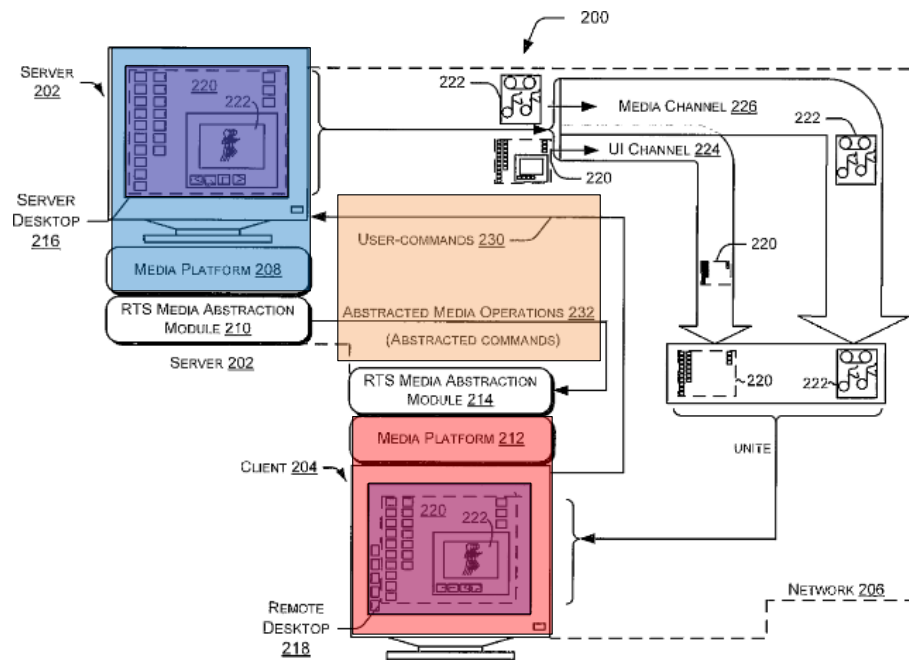


Fig. 2

Ex. 1114, Fig. 2 (annotated)

158. Thus, based on the disclosure in Mahajan, 1) commands for a type of media playing application on the server are received at a server, 2) the commands are translated into a generic or abstracted command corresponding to the first type of media playing application, 3) the abstracted command is transmitted to the client, 4) the client interprets the generic commands for a selected first type of media playing application, and 5) the commands are executed by the first type of media playing application. Ex. 1114, [0035]-[0036], Figs. 1, 2. Mahajan states that “[a] more detailed example for accomplishing the media command abstraction in a remote terminal session is described below in relation to Figure 3.” Ex. 1114, [0036]. Figure 3 shows an API for translating between commands received at a server 202 (blue) to a client 204 (red):

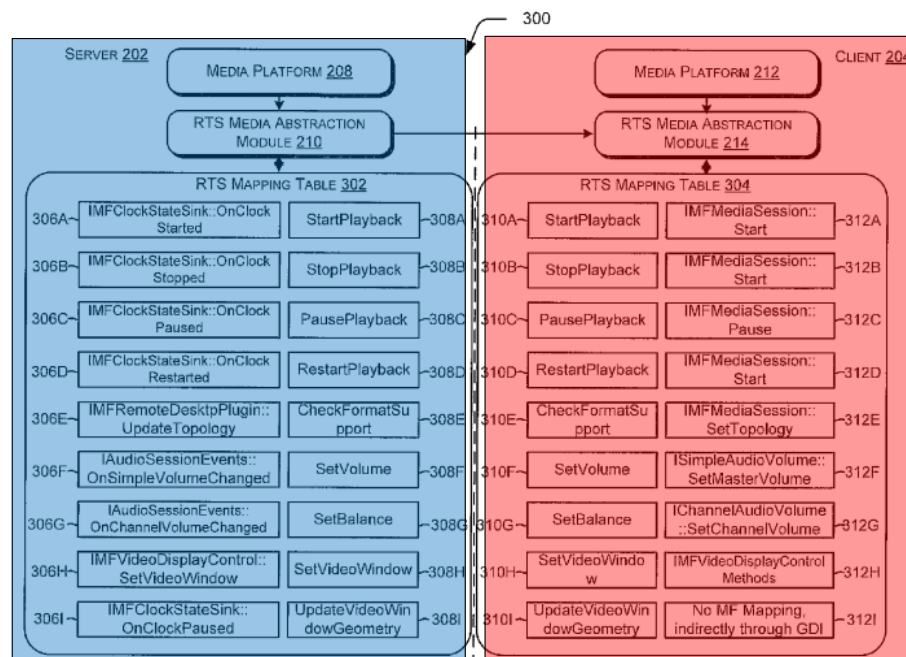
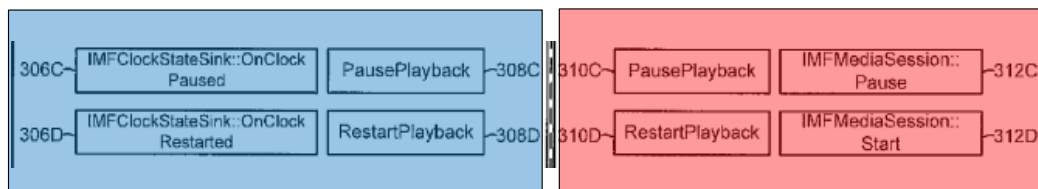


Fig. 3

Ex. 1114, Fig. 3 (annotated)

159. These commands show how, for example, a “pause” or “restart” command is translated from a first type of media application command (e.g., a Media Foundation platform command “IMFClockStateSink::OnClockPaused”) to a second type of media application command (e.g., the corresponding DShow platform command “IMFMediaSession::Pause”). Ex. 1114, [0037]-[0043], Fig. 3.



Ex. 1114, Fig. 3 (annotated)

160. Mahajan further describes that these commands “may be specific to events associated with the playback of media files” such as “when a media file is accessed for playback by one or more users at the client.” Ex. 1114, [0037]. The ’251 Patent describes how a user of its system uses similar commands:

The message from the mobile phone 20 contains a transmission code that includes data regarding the user information (e.g., user identification or account number), the secondary display it wants to connect to (e.g., television set 22 with display 23), the location and name of the media player for the selected video, **the command (e.g., play, pause, rewind, etc.)**, and the video file to be acted upon.

Therefore, in the illustrated implementation, a universal adapter 26 is provided to interpret and convert a standard or **universal command (e.g., play, pause, etc.)** into the specific command recognized by the media player.

Ex. 1101, 4:29-35, 5:58-62 (emphasis added).

161. Furthermore, in the Touchstream-Google case, the Patent Owner stated that the plain and ordinary meaning of “universal command” is “a standard command used for controlling playback of media content **such as play or pause.**” Ex. 1120, p. 2. Signals containing the commands, which are particular to the media content playing on the type of media player of Mahajan’s server, are in this way a “specifying a video file to be acted upon and identifying a particular media player for playing the video content.”

162. In my opinion, based on the teachings of Mahajan, a POSITA would have been motivated to implement Danciu’s system, comprising a remote control sending commands to a controlled device via a server, using known techniques for sending commands for media playback between a server and a client, such as is taught by Mahajan. Mahajan and Danciu, describe a system in which a user can command media on a controlled device to “play,” “stop,” etc. Ex. 1114, [0014]; Ex. 1112, 5:29-41. A POSITA would have understood that Mahajan’s server-command teachings could be implemented on Danciu’s remote control, particularly because both disclosures reference those devices as being a mobile phone. Ex. 1112, 5:1-28; Ex. 1114, [0017]. In my opinion, a POSITA would have been motivated to apply Mahajan’s teachings of converting or translating commands since a POSITA would have understood Danciu’s remote control,

which may be a portable device such as a cell phone, to likely employ applications different from Danciu's controlled device, which may be a set top box or personal video recorder. Ex. 1112, 5:1-6:13.

163. In this way, combining Mahajan with Danciu would have been nothing more than applying a known technique (Mahajan's system for sending commands) to a known device (Danciu's remote control system) ready for improvement to yield predictable results (Danciu's remote control would translate commands associated with a first type of media playing application to a generic format, and transmit them to the controlled device, which would translate them to a command associated with a second type of media playing application for execution). Mahajan teaches a system similar to the one in Danciu where commands are sent from a remote device to control media playback on another device.

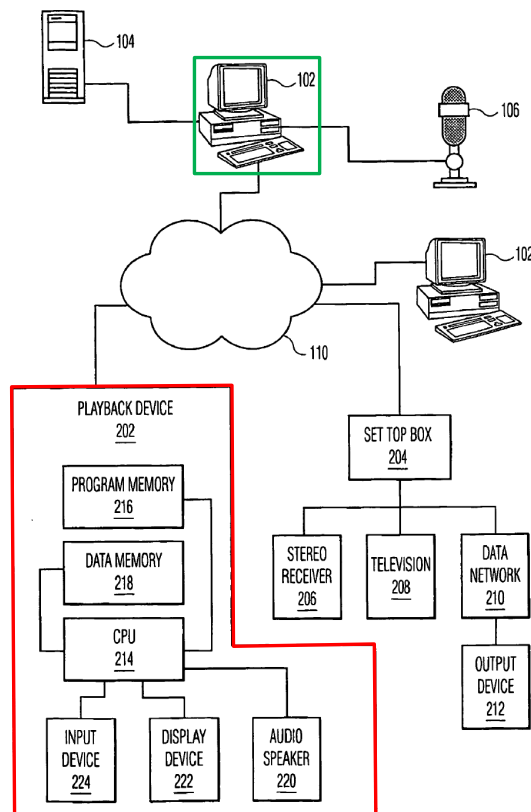
164. Additionally, a POSITA would have had the skills and knowledge to implement support for sending commands to different devices in Danciu's system by incorporating the ability for a remote control to translate commands from those associated with a first type of media playback application to another type of command such that they can be understood by the controlled device, as taught by Mahajan. The improvements described by Mahajan are directed to the context of a commonly encountered computing environment at the time. Ex. 1114, [0016]. Thus, a POSITA would have expected success in applying Mahajan's teaching to the Danciu system, which is similar to the system in Mahajan.

165. In Mahajan, the system identifies the first type of media playing application from the plurality of media playing application types based on the data source and the capabilities of the client. Ex. 1114, [0050]. Mahajan teaches an example where “the server 402 determines the sources media format to be MPEG IV” and then the “server’s RTS media abstraction module 420 can query whether the client, such as the client 404, supports the MPEG IV media format.” Ex. 1114, [0050]. The client then utilizes information from the server to determine the answer, and “the client 404 may determine that it has a media platform, such as media platform 408 that supports the media format.” Ex. 1114, [0050].

166. Once a command is received, those commands “are associated with platform specific commands.” Ex. 1114, [0063], Fig. 5 (step 508). The system thus identifies the media player (e.g., a Dshow platform operating on the client) in response to receiving the commands in the received set of messages. Ex. 1114, [0037]-[0043], [0059]-[0063], Figs. 3, 5. The commands are parsed, at least in part, by determining that the media platform of the client supports a media format associated with the piece of content. Ex. 1114, [0050].

167. Next, to the extent that it is argued that Danciu-Mahajan does not teach “identifying a particular media player for playing the video content”, I note that it was known before the priority date of the ’251 Patent to select between a plurality of media players based on messages referencing a piece of content as shown in Calvert.

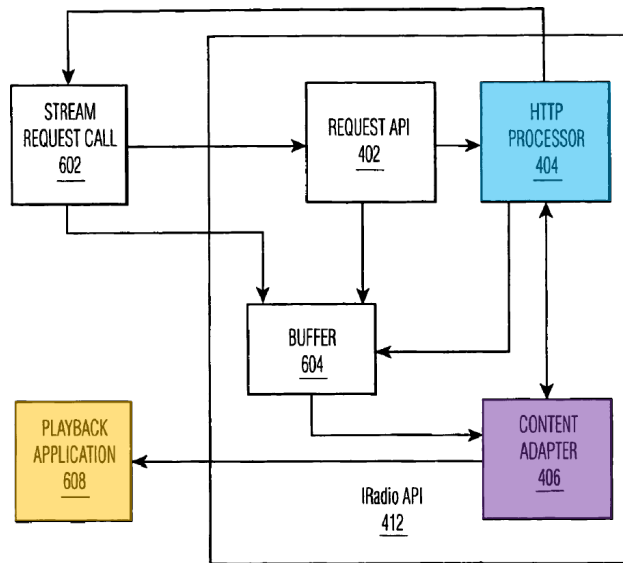
168. As discussed above in Section 8.11, Calvert discloses a system for making content available from multiple media services via content aggregator 102 (green) in a way that playback device 202 (red) can request, receive, and output the content to a display device 222 and/or audio speaker 220. Ex. 1111, [0020]-[0021], [0024]-[0027], [0030]-[0044], Figs. 1-4, 6.



Ex. 1111, Fig. 2 (annotated)

169. The content in Calvert may be in a variety of media formats such as RealMedia, QuickTime, and Windows Media, which may require different corresponding media player applications, such as RealPlayer, QuickTime player, and Microsoft Media Player to output the content. Ex. 1111, [0021], [0042]-[0043].

170. Calvert describes selecting from this plurality of media players based on information received in a message from the content aggregator and/or the media service provider. Ex. 1111, [0038]-[0040]. Calvert describes that after receiving a response from the media service provider, the HTTP processor 404 (**light blue**) and Content Adapter 406 (**purple**) analyze the response to determine “the format of the media service, the corresponding playback application 608,” and “output requirements of the media service.” Ex. 1111, [0040]-[0042], Fig 6. Based on that analysis, the media service data is sent to the appropriate player application 608 (**orange**). Ex. 1111, [0040]-[0044], Fig. 6.



Ex. 1111, Fig. 6 (annotated)

171. Calvert describes that the content aggregator 102 may transmit data parameters to the playback device 202 indicating the available media service formats (e.g., RealAudio, Microsoft Media Player, MP3) available from the various media service providers including before a particular piece of content is selected. Ex. 1111, [0030]-[0032]. Playback device 202 may store this information in a Data Object Model (DOM) and read the DOM to determine what media player is used by a media service. Ex. 1111, [0031]-[0032].

172. In my opinion, based on Calvert, a POSITA would have understood that a media playing application, such as an application running on the controlled device, could include multiple media players. A POSITA also would have understood that which media player to use for a particular item of content could be determined based on information included in a message regarding the content from the remote control to the controlled device. A POSITA would also have understood that information about what

media player corresponds to a particular piece of content could be supplied to the controlled device before a user selects the piece of content, and thus information on the corresponding media player could be included in the message from the remote control to the controlled device. A POSITA would have been motivated to implement Danciu-Mahajan's system in view of Calvert's teachings to support multiple media players and select between them in order to provide more options for playing back content to Danciu-Mahajan's users. A POSITA would have been further motivated to include multiple media players in view of Danciu's disclosure that multiple media players, including YouTube, Hulu, and Netflix, should be supported. Ex. 1112, 11:22-35; 12:32-49, 16:55-67, 17:21-43. The routine use of multiple media player applications to support streaming media of different formats would have provided a POSITA with motivation to employ such players as additional applications in the system of Danciu.

173. Combining Calvert with Danciu would be merely using known techniques (supporting multiple media players for streaming content) to improve similar devices (the server-based streaming video systems in Danciu-Mahajan and Calvert) in the same way (selecting between media players based on the format of the content). Calvert teaches a system similar to the system disclosed in Danciu where information is received indicating what content is available, a user select from that content, and a server provides information to the playback device regarding how to access and output the content.

174. Additionally, a POSITA would have had the skills and knowledge to implement support for multiple media players in Danciu's system, as taught by Calvert,

by incorporating into Danciu the ability to select between multiple media players based on information received in messages from the server. Thus, a POSITA would have expected success in applying Calvert's teaching to the similar Danciu system.

175. Therefore, in my opinion, Danciu-Mahajan or Danciu-Mahajan-Calvert teach limitation [1E].

11.1.6 [1F] “the one or more signals further including a universal playback control command for controlling playing of the video content on the display device by the particular media player,”

176. As I discussed above for limitation [1E], Danciu-Mahajan and Danciu-Mahajan-Calvert teach a system in which commands are translated into a universal format for transmission to a client device.

177. Danciu describes that, “Controlled device 18 receives the control message and performs the appropriate action.” Ex. 1112, 7:17-29. More specifically, in response to commands, “Processor 120 then executes the video or web browser application and causes display 124 to display content to the user.” Ex. 1112, 13:4-32, 5:29-37, 5:64-6:2, 16:55-67, 17:21-43. And bringing in the teachings from Mahajan, these commands comprise playback commands such as “play”, “pause”, or “restart”. *Id.* And they are a “universal . . . command” because the devices need not be aware of all possible media platforms, and can instead convert genericized commands into platform-specific commands as appropriate. Ex. 1114, [0014], [0021]-[0022], [0037]-[0043], [0047]-[0050], [0053], [0063], Fig. 3, Fig. 5. The genericized commands are converted from the server's platform-specific media command (which the client may not be able to

understand) to a genericized media command (which the client can receive and recognize) via the server's RTS media abstraction module before being sent.

178. Therefore, in my opinion, Danciu-Mahajan or Danciu-Mahajan-Calvert teach [1F].

11.1.7 [1G] “converting, by the server system, the universal playback control command into corresponding programming code to control playing of the video content on the display device by the particular media player, wherein converting the universal playback control command includes selecting from among a plurality of specific commands, each of which represents a corresponding playback control command for a respective media player; and”

179. Danciu-Mahajan teaches converting the universal playback command into corresponding programming code. Mahajan's Figure 3 shows an API for translating between commands received at a server (**blue**) to a client (**red**):

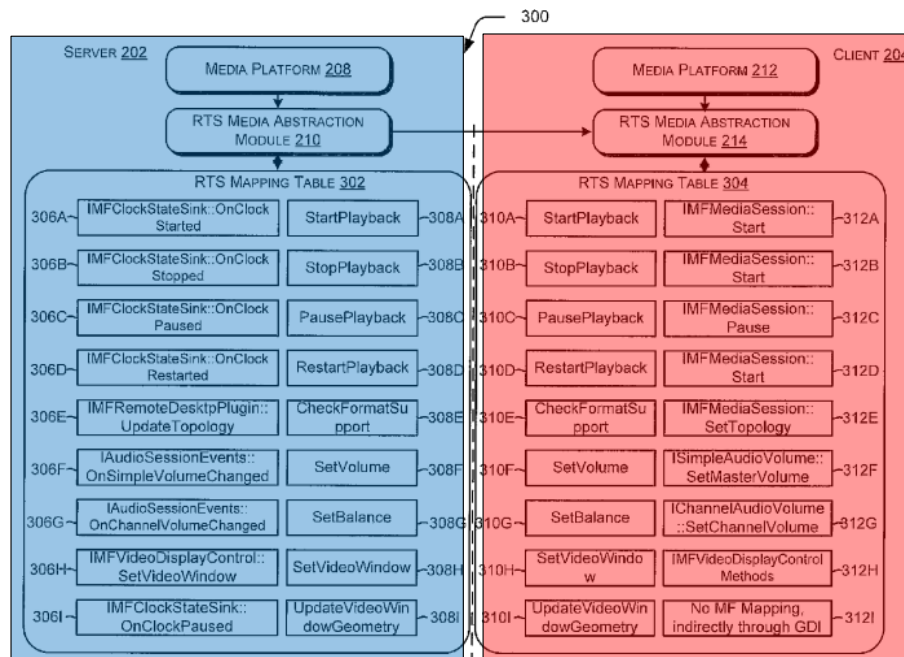
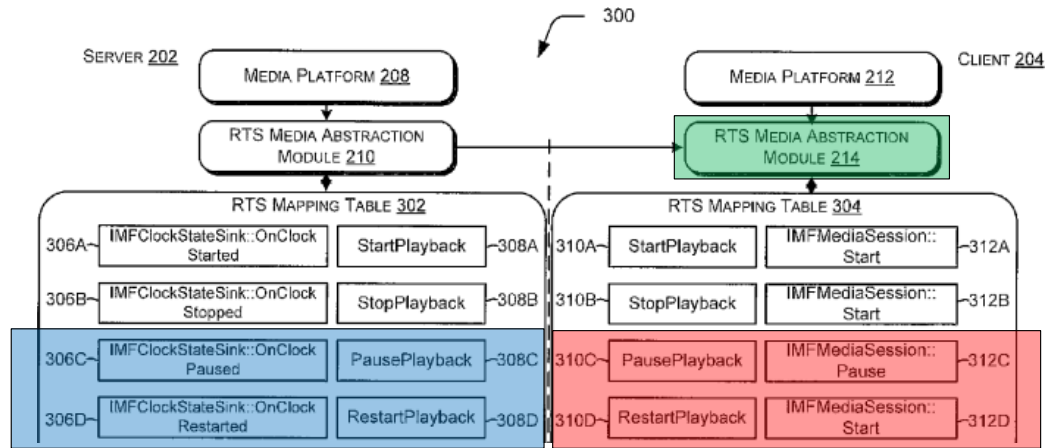


Fig. 3

Ex. 1114, Fig. 3 (annotated)

180. The disclosed API has commands including, for example, to “pause” or “restart” content on a remote media application command (e.g., a Media Foundation platform command “IMFClockStateSink::OnClockPaused”) corresponding to a particular media player associated with a given device (e.g., the corresponding DShow platform command “IMFMediaSession::Pause”). Ex. 1114, [0037]-[0043], Fig. 3. The RTS Media Abstraction module of the client (an API converter, **green**) converts the commands received by the client (**red**) from the server (**blue**). Ex. 1114, [0037]-[0043], [0063], Fig. 3, Fig. 5.



Ex. 1114, Fig. 3 (annotated)

181. In my opinion, a POSITA would have understood that the RTS Media Abstraction Module is a software intermediary that converts commands from one interface (e.g., a genericized interface) into another (e.g., the interface of the first type of media playback application).

182. Furthermore, it would have been obvious to a POSITA that the RTS Media Abstraction Module could be located on Mahajan’s client, server, or on an intermediary device. Mahajan describes the system as operating using a “collaboration media abstraction layer 130” that is responsible for translating commands. Ex. 1114, [0022], [0023]. Mahajan further states that the distribution manager 418 and multimedia component 446, which include the RTS Media Abstraction modules, can make use of a “virtual channel connection” as part of a “distributed topology.” Ex. 1114, [0051]. Based on Mahajan’s disclosure that the system can operate in a distributed environment, it would have been obvious to a POSITA that one or more RTS Media Abstraction Modules could operate at a server, such as in Servers 24A-24N. Ex. 1114, [0018], [0058], [0078].

183. These commands “may be specific to events associated with the playback of media files” such as “when a media file is accessed for playback by one or more users at the client.” Ex. 1114, [0037]. In this way, messages containing the commands, which are particular to the media content playing on the type of media playing application of the server, are thus “selecting from among a plurality of specific commands, each of which represents a corresponding playback control command for a respective media player.”

184. Therefore, it is my opinion that Danciu-Mahajan or Danciu-Mahajan-Calvert teach limitation [1G].

11.1.8 [1H] “storing, in a database associated with the server system, information for transmission to or retrieval by the display device, wherein the information specifies the video file to be acted upon, identifies the particular media player for playing the video content, and includes the corresponding programming code to control playing of the video content on the display device by the particular media player in accordance with the universal playback control command.”

185. Danciu teaches that the QR code “identifies a session that has been created by servers 68.” Ex. 1112, 8:26-27. And this session is “maintained by the network service.” Ex. 1112, 4:39-41. Danciu also teaches that the QR code is generated by the device management module 168, which is stored on the servers. Ex. 1112, 15:38-58, Fig. 5. Thus, a POSITA reading Danciu’s disclosure would have understood that the QR code is assigned by the server system, and stored in memory on the remote server device at least during the process of generating the code. This creates a unique session number for the session between the remote control and the controlled device. Ex. 1112, 4:4-36,

7:6-10, 8:11-34. The session identifiers and other session information are stored on a data repository of the servers. Ex. 1112, 6:41-60, 13:62-14:1, 15:28-41, 15:59-16:6, Fig. 5, Fig. 7. This includes storing control information for a particular application (e.g., “stop playback”) while the server determines a controlled device corresponding to a command. Ex. 1112, 17:21- 43, 17:66-18:54, Fig. 7, Fig. 8. The command may be further formatted for a particular device, as taught by Mahajan. *See* Sections 11.1.5-11.1.6.

186. Therefore, in my opinion, Danciu-Mahajan teaches limitation [1H].

11.2 Dependent Claim 2

11.11.1 [2A]: “The method of claim 1 including:”

187. As discussed, it is my opinion that Danciu-Mahajan and Danciu- Mahajan-Calvert teach claim 1 for the reasons set forth above. *See* Section 11.1.

11.11.2 [2B]: “checking, in the server system, the identity of the media player identified in the one or more signals from the personal computing device;”

188. As noted above in Section 11.1.5, Danciu-Mahajan teach receiving one or more signals “identifying a particular media player for playing the video content”. Ex. 1112, 5:29-6:2, 10:45-53; Ex. 1114, [0012]-[0013], [0022], [0035]-[0036], [0041], Fig. 3, Fig. 5.

189. To the extent that the Patent Owner argues that Danciu does not teach “checking, in the server system, the identity of the media player identified in the one or more signals from the personal computing device,” I note that it was known before the

priority date of the '251 Patent to check the identity of a particular media player based on information received in a signal, as shown in Calvert.

190. As discussed above in Section 11.1.5, Calvert describes controlling playback of content that may be in a variety of media formats such as RealMedia, Apple QuickTime, and Microsoft Windows Media, which may require different media player applications, such as RealPlayer, QuickTime Player, and Microsoft Windows Media Player to output the content. Ex. 1111, [0021], [0042]-[0043]. Calvert describes identifying the appropriate media player based on information received in a message to determine “the format of the media service, the corresponding playback application 608” and “output requirements of the media service.” Ex. 1111, [0040]-[0042], Fig. 6.

191. In my opinion, based on the teachings of Calvert, a POSITA would have understood that the server in Danciu could identify the appropriate media player from information in the message.

192. Therefore, it is my opinion that Danciu-Mahajan and Danciu-Mahajan-Calvert teach [2B].

11.11.3 [2C]: “loading an appropriate set of protocols or application programming interfaces from a library based on the identity of the media player; and”

193. As discussed above in Sections 11.1.5-11.1.7, Mahajan teaches an API for various commands, such as to “pause” or “restart” content on a remote media application command (e.g., a Media Foundation platform command

“IMFClockStateSink::OnClockPaused”) corresponding to a particular media player associated with a given device (e.g., the corresponding DShow platform command “IMFMediaSession::Pause”). Ex. 1114, [0037]-[0043], Fig. 3.

194. To the extent that the Patent Owner argues that Danciu-Mahajan does not teach “loading an appropriate set of protocols or application programming interfaces from a library based on the identity of the media player,” I note that it was known before the priority date of the ’251 Patent to load API commands from a library based on an identified media player, as shown by Calvert.

195. As I discussed above in Sections 11.1.1 and 11.1.5, Calvert describes selecting from a plurality of media players based on information about the received media and sending the media data to the appropriate selected media player. Calvert also describes that this is accomplished using API calls and that APIs are stored in program memory. Ex. 1111, [0026], [0039]-[0043]. Calvert may not explicitly describe loading APIs from a library, but a POSITA would have known that in order for API commands to be used in a computing device, the API must be loaded and also that a library is a typical data structure used for storing APIs.

196. Therefore, in my opinion, Danciu-Mahajan and Danciu-Mahajan- Calvert teach [2C].

11.11.4 [2D]: “converting the command from the personal computing device into corresponding code to control the media player.”

197. As I discussed above in Section 11.1.7, Danciu-Mahajan and Danciu-

Mahajan-Calvert describe converting between universal commands and platform-specific commands for controlling a media player.

198. Therefore, it is my opinion that Danciu-Mahajan and Danciu-Mahajan-Calvert teach [2D].

11.3 Dependent Claim 3: “The method of claim 1 wherein converting the command into corresponding programming code to control the media player includes using information in a look-up table.”

199. In my opinion, Danciu-Mahajan and Danciu-Mahajan-Calvert teach claim 1 for the reasons explained above. *See* Section 11.1.

200. As discussed above in Sections 11.1.5-11.1.7, Mahajan teaches an RTS Media Abstraction module that converts the commands received by a client from a server. Ex. 1114, [0037]-[0043], [0063], Fig. 3, Fig. 5. This conversion is performed “using information in a look-up table.” Ex. 1114, [0037]-[0042], Fig. 3. Figure 3 of Mahajan shows mapping tables for translating between commands received from a server (blue) to a client (red):

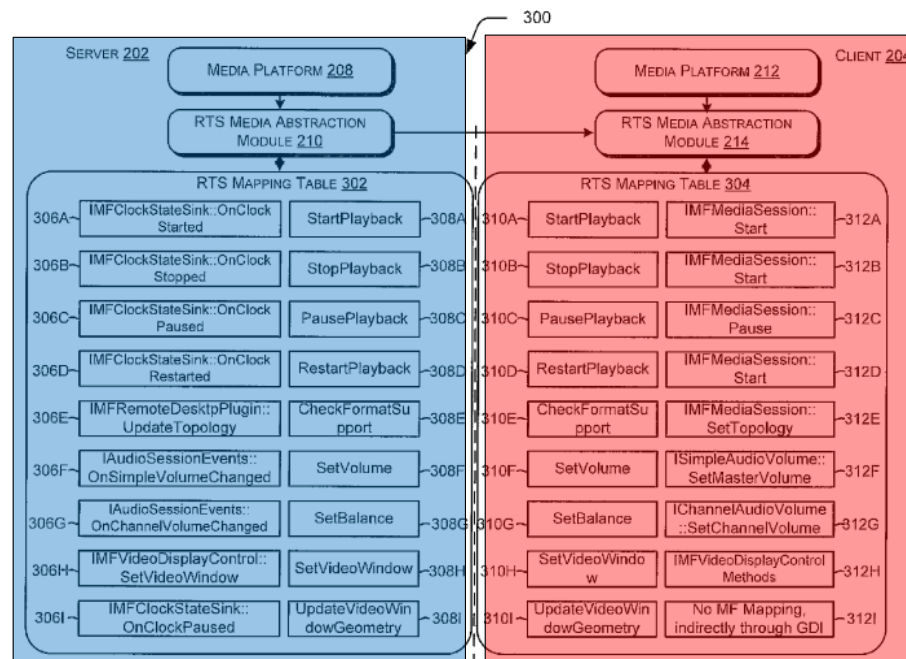


Fig. 3

Ex. 1114, Fig. 3 (annotated)

201. Therefore, in my opinion, Danciu-Mahajan and Danciu-Mahajan- Calvert render claim 3 obvious.

11.4 Dependent Claim 4: “The method of claim 3 wherein the look-up table stores a plurality of specific commands, each of which represents, respectively, a corresponding command for a different media player.”

202. I understand that claim 4 depends from claim 3, and it is my opinion that Danciu-Mahajan and Danciu-Mahajan-Calvert each teach claim 3 as discussed above. See Section 11.3.

203. As I previously discussed in Section 11.3, Figure3 of Mahajan shows mapping tables for translating between commands received from a server (blue) to a client (red):

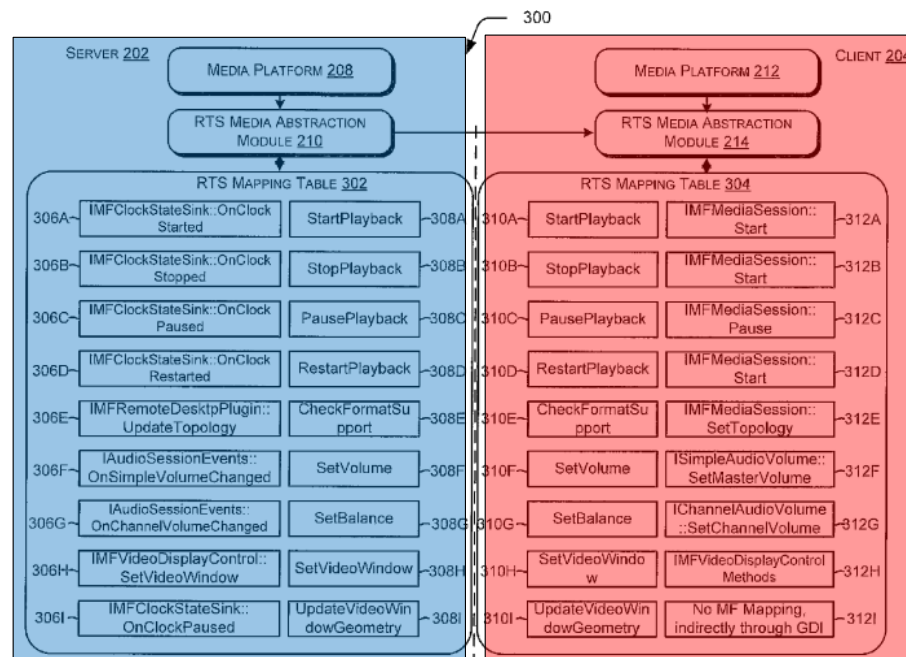


Fig. 3

Ex. 1114, Fig. 3 (annotated)

204. These commands show how, for example, a “pause” or “restart” command is translated from a first type of media application command (e.g., a Media Foundation platform command “IMFClockStateSink::OnClockPaused”) to a second type of media application command (e.g., the corresponding DShow platform command

“IMFMediaSession::Pause”). Ex. 1114, [0037]-[0043], Fig. 3.

205. Therefore, it is my opinion that Danciu-Mahajan and Danciu-Mahajan-Calvert render claim 4 obvious.

11.5 Dependent Claim 5: “The method of claim 1 wherein the universal command represents an instruction to play the video content, to stop playing the video content or to pause playing the video content.”

206. As discussed, it is my opinion that Danciu-Mahajan and Danciu-Mahajan-Calvert teach claim 1 for the reasons above. *See* Section 11.1.

207. As discussed in Section 11.1.5 and 11.4, Mahajan teaches an RTS mapping table for translating between universal commands and particular commands for a given media player. Ex. 1114, [0037]-[0043], Fig. 3. Those disclosed commands include “StartPlayback”, “StopPlayback”, or “PausePlayback”. Ex. 1114, Fig. 3.

208. Therefore, in my opinion, Danciu-Mahajan and Danciu-Mahajan-Calvert render obvious claim 5.

11.6 Dependent Claim 6: “The method of claim 1 wherein the video content is an interactive video game.”

209. As discussed, it is my opinion that Danciu-Mahajan and Danciu-Mahajan-Calvert teach claim 1 for the reasons above. *See* Section 11.1.

210. Danciu teaches that its controlled device and remote device both include processors for playing an interactive video game. Ex. 1112, 10:9-23, 12:32-49. It would have been obvious to a POSITA, in view of these teachings, that the video content under control may comprise an interactive video game. Video games were well-known at the time of invention, and a POSITA reading Danciu’s disclosure that the processor can

control an interactive video game would likewise have understood that commands for controlling content would include commands for controlling an interactive video game being executed by the processor. For example, a user wishing to pause a game may utilize the systems and methods described by Danciu to issue a “pause” command to stop a video game. This would have been obvious to a POSITA in view of the express teachings.

211. To any extent that Patent Owner argues that Danciu doesn’t teach this feature, it is taught by Mahajan. Mahajan teaches that the computing environment for operation of its systems and methods may include a “game console.” Ex. 1114, [0065]. Further, Mahajan teaches that input to its system may be made using a “game pad” or a “game port.” Ex. 1114, [0072]. Thus, it would have been obvious to a POSITA, in view of these express teachings, that the video content under control may comprise an interactive video game. For example, it would have been obvious to a POSITA in view of these express teachings that a user could use a game pad to enter commands for video content on a client. Moreover, in view of the combined teachings of Danciu-Mahajan, a POSITA would have understood that the game pad taught by Mahajan may control a game console as taught by Danciu. This would allow a user to play an interactive video game on a game console remotely via a game pad. This is consistent with the express teachings of both references. Moreover, this would have been nothing more than applying a known technique (Mahajan’s teachings of remote control using a game pad) to a known device (Danciu’s teachings of a client game console) ready for improvement to yield predictable results (Danciu’s client game console is controllable remotely using

Mahajan's game pad). A POSITA would have had a reasonable expectation of success as the combination of these features would have presented little more than implementing the express teachings to the well-known field of video games, and presents no additional technical issues.

212. Therefore, it is my opinion that Danciu-Mahajan or Danciu-Mahajan-Calvert teach claim 6.

11.7 Dependent Claim 7: “The method of claim 1 wherein the video content is streaming media.”

213. In my opinion, Danciu-Mahajan and Danciu-Mahajan-Calvert teach claim 1 for the reasons explained above. *See* Section 11.1.

214. As discussed above in Section 11.1.5, Danciu teaches that the video content may be streaming media, including YouTube, Hulu, Netflix, or other such video content services. Ex. 1112, 5:31-33, 7:17-29, 11:34-35.

215. Therefore, it is my opinion that Danciu-Mahajan or Danciu-Mahajan-Calvert teach claim 7.

11.8 Dependent Claim 8: “The method of claim 1 wherein the synchronization code is uniquely associated with the display device on which the video content is to be played.”

216. In my opinion, Danciu-Mahajan and Danciu-Mahajan-Calvert teach claim 1 for the reasons explained above. *See* Section 11.1.

217. As discussed above in Section 11.1.2, Danciu discloses that a “network service may assign each remote control and each controlled device a unique identifier” that is used in pairing. Ex. 1112, 4:4-13, 4:36-45, 6:41-7:10, 8:23-49, 13:16-32, 15:28-58.

218. Therefore, it is my opinion that Danciu-Mahajan or Danciu-Mahajan-Calvert teach claim 8.

11.9 Dependent Claim 9: “The method of claim 8 wherein the synchronization code is different from an IP address associated with the display device and is different from a MAC address associated with the display device.”

219. In my opinion, Danciu-Mahajan and Danciu-Mahajan-Calvert teach claim 8 for the reasons discussed above. *See* Section 11.8.

220. For example, Danciu teaches that the QR code “identifies a session that has been created by servers 68.” Ex. 1112, 8:25-27. Danciu further teaches that the QR code may identify “a user account or previously initiated session maintained by the network service.” Ex. 1112, 4:39-41. A POSITA would thus have understood that the QR code may be something other than an IP address or a MAC address.

221. Therefore, in my opinion, Danciu-Mahajan or Danciu-Mahajan-Calvert teach claim 9.

11.10 Dependent Claim 10: “The method of claim 8 wherein assigning a synchronization code includes assigning a randomly generated code to the display device each time the display device connects to the server system.”

222. In my opinion, Danciu-Mahajan and Danciu-Mahajan-Calvert teach claim 8 for the reasons discussed above. *See* Section 11.8.

223. As discussed above in Section 11.1.2, Danciu’s pairing methodology uses a uniquely-generated session identifier and/or QR code to associate the remote control to a session with the controlled device. Ex. 1112, 4:4-13, 4:36-45, 6:41-7:10, 8:23-49, 13:16-32, 15:28-58. While Danciu does not explicitly describe whether the session identifier and/or QR code is random, or whether it is generated each time the display device connects, a POSITA would have found such an implementation to be an obvious design choice, for example, to improve security or to prevent an accidental incorrect pairing of devices. Ex. 1112, 13:16-32. For example, when assigning a unique identifier, a POSITA would need to generate numbers in some manner, and the use of random number generation was very well-known in the art, so it would have been an obvious design choice that a random process could be used to generate a unique number.

224. Therefore, in my opinion, Danciu-Mahajan or Danciu-Mahajan-Calvert teach claim 10.

11.11 Independent Claim 11

11.11.1 [11A]: “A system for controlling playing of video content on a display device that loads any one of a plurality of different media players, the system comprising:”

225. As I discussed above in Section 11.1.1, to the extent the preamble is limiting, it is my opinion that Danciu-Mahajan or Danciu-Mahajan-Calvert teaches it.

11.11.2 [11B] “a server system;”

226. As I discussed above in Sections 11.1.1-11.1.2, Danciu discloses a controlled device 18 (“display device”, **red**), which may be a computing device such as a set-top box (STB) or personal video recorder (DVR), connected via network 22, including servers 24A-24N (**green**), to a remote control 14 (**blue**). Ex. 1112, 3:24- 28, 5:42-63.

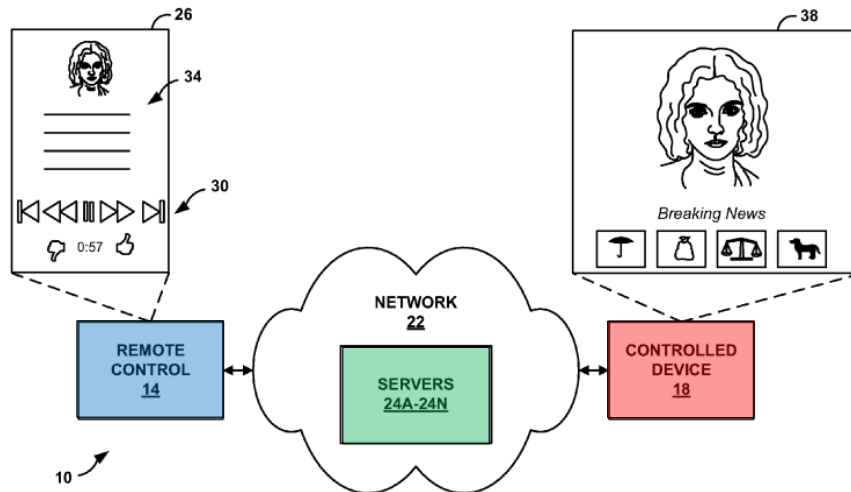


FIG. 1

Ex. 1112, Fig. 1 (annotated)

227. Therefore, in my opinion, Danciu teaches limitation [11B].

11.11.3 [11C]: “a first database storing a relationship between a personal computing device and the display device based on a synchronization code assigned by the server system to the display device and received by the server system in a message from the personal computing device, wherein the personal computing device is separate from the server system and separate from the display device; and”

228. As I discussed above in Sections 11.1.2-11.1.4, it is my opinion that Danciu teaches that, upon receiving a unique identifier, the server system stores a relationship, based on the unique identifier, between the personal computing device and the display device. The resultant session identifiers and other session information are stored on a data repository of the servers. Ex. 1112, 6:40-49, 13:62- 14:1, 15:28-41, 15:59-16:6, Fig. 5.

229. Therefore, in my opinion, Danciu teaches limitation [11C].

11.11.4 [11D]: “a second database;”

230. Danciu teaches that “servers 24 include one *or more* data repositories or databases for storing information, such as identification numbers, session identifiers, and any other information required to carry out data transfer between remote control 14 and controlled device 18.” Ex. 1112, 6:40-46 (emphasis added).

231. Therefore, in my opinion, Danciu teaches limitation [11D].

11.11.5 [11E]: “wherein the server system is configured to receive one or more signals from the personal computing device, the one or more signals specifying a video file to be acted upon and identifying a particular media player for playing the video content, the one or more signals further including a universal playback control command for controlling playing of the video content on the display device,”

232. As I discussed above in Sections 11.1.5-11.1.6, Danciu-Mahajan and Danciu-Mahajan-Calvert teach this feature.

233. Therefore, in my opinion, Danciu-Mahajan and Danciu-Mahajan- Calvert thus teach limitation [11E].

11.11.6 [11F]: “one or more non-transitory computer-readable media storing instructions that when executed by the server system, cause the server system to perform operations including converting the universal playback control command into corresponding programming code to control playing of the video content by the particular media player, wherein converting the universal playback

control command includes selecting from among a plurality of specific commands, each of which represents a corresponding playback control command for a respective media player;”

234. As I discussed above in Section 11.1.7, Danciu-Mahajan and Danciu-Mahajan-Calvert teach this feature.

235. Therefore, in my opinion, Danciu-Mahajan and Danciu-Mahajan-Calvert thus teach limitation [11F].

11.11.7 [11G]: “the server system being further configured to store in the second database information for transmission to or retrieval by the display device, wherein the information specifies the video file to be acted upon, identifies the particular media player for playing the video content, and includes the corresponding programming code to control playing of the video content on the display device by the particular media player in accordance with the universal playback control command.”

236. As I discussed above in Section 11.1.8, it is my opinion that Danciu-Mahajan and Danciu-Mahajan-Calvert teach this feature. As Danciu teaches it may use “one or more” databases, it would have been obvious to a POSITA that the information referenced in limitation [11C] could be stored in one database, and information referenced in limitation [11G] may be stored in another. Ex. 1112, 6:40- 46.

237. Therefore, it is my opinion that Danciu-Mahajan and Danciu-Mahajan-Calvert thus teach limitation [11G].

11.12 Dependent Claim 12: [12A]-[12C]: “The system of claim 11 including: a library storing protocols or application programming interfaces, wherein the server system is configured to check the identity of the media player identified in the one or more signals from the personal computing device, load an appropriate set of protocols or application programming interfaces from the library based on the identity of the media player, and convert the command from the personal computing device into a corresponding programming code to control the media player.”

238. As discussed above, Danciu-Mahajan and Danciu-Mahajan-Calvert teach the system of claim 11. *See* Section 11.11. And, in my opinion, Danciu-Mahajan and Danciu-Mahajan-Calvert further teach the limitations of claim 12 for the same reasons discussed above regarding claim 2. *See* Section 11.2.

11.13 Dependent Claim 13: “[13A]-[13C]: “The system of claim 11 including: a look-up table storing a plurality of commands each of which is for a particular type of media player, wherein the server system is configured to convert the command into corresponding programming code to control the media player based on information in the look-up table.”

239. As discussed above, in my opinion Danciu-Mahajan and Danciu-Mahajan-Calvert teach the system of claim 11. *See* Section 11.11. And, in my opinion, Danciu-Mahajan and Danciu-Mahajan-Calvert further teach the limitations of claim 13 for the same reasons discussed above regarding claims 3 and 4. *See* Sections 11.3-11.4.

11.14 Dependent Claim 14: “The system of claim 11 wherein the look-up table stores a correspondence between the universal command and a plurality of specific commands, each of which is for a different media player.”

240. As discussed above, Danciu-Mahajan and Danciu-Mahajan-Calvert teach the system of claim 11. *See* Section 11.1. And, in my opinion, Danciu-Mahajan and Danciu-Mahajan-Calvert further teach the limitations of claim 14 for the same reasons discussed above regarding claim 4. *See* Section 11.4.

11.15 Dependent Claim 15: “The system of claim 14 the server system is configured to convert the universal command by selecting from among the plurality of specific commands stored in the look-up table.”

241. As discussed above, Danciu-Mahajan and Danciu-Mahajan-Calvert teach the system of claim 14. *See* Section 11.14. And, in my opinion, Danciu- Mahajan and Danciu-Mahajan-Calvert further teach the limitations of claim 15 for the same reasons discussed above regarding claim 4. *See* Section 11.4.

11.16 Dependent Claim 16: “The system of claim 11 wherein the universal command represents an instruction to play the video content, to stop playing the video content or to pause playing the video content.”

242. As discussed above, Danciu-Mahajan and Danciu-Mahajan-Calvert teach the system of claim 11. *See* Section 11.11. And, in my opinion, Danciu- Mahajan and Danciu-Mahajan-Calvert further teach the limitations of claim 16 for the same reasons discussed above regarding claim 5. *See* Section 11.5.

11.17 Dependent Claim 17: “The system of claim 11 wherein the video content is an interactive video game.”

243. As discussed above, Danciu-Mahajan and Danciu-Mahajan-Calvert teach the system of claim 11. *See* Section 11.11. And, in my opinion, Danciu- Mahajan and Danciu-Mahajan-Calvert further teach the limitations of claim 17 for the same reasons discussed above regarding claim 6. *See* Section 11.6.

11.18 Dependent Claim 18: “The system of claim 11 wherein the video content is streaming media.”

244. As discussed above, Danciu-Mahajan and Danciu-Mahajan-Calvert teach the system of claim 11. *See* Section 11.11. And, in my opinion, Danciu- Mahajan and Danciu-Mahajan-Calvert further teach the limitations of claim 18 for the same reasons discussed above regarding claim 7. *See* Section 11.7.

11.19 Dependent Claim 19: “The system of claim 11 wherein the synchronization code is uniquely associated with the display device on which the video content is to be played.”

245. Danciu-Mahajan and Danciu-Mahajan-Calvert teach the system of claim 11. *See* Section 11.11. And, in my opinion, Danciu-Mahajan and Danciu- Mahajan-Calvert further teach the limitations of claim 19 for the same reasons discussed above regarding claim 8. *See* Section 11.8.

11.20 Dependent Claim 20: “The system of claim 19 wherein the synchronization code is different from an IP address associated with the display device and is different from a MAC address associated with the display device.”

246. As discussed above, Danciu-Mahajan and Danciu-Mahajan-Calvert teach the system of claim 19. *See* Section 11.19. And, in my opinion, Danciu- Mahajan and Danciu-Mahajan-Calvert further teach the limitations of claim 20 for the same reasons discussed above regarding claim 9. *See* Section 11.9.

11.21 Dependent Claim 21: “The system of claim 19 wherein the server system is configured to assign as the synchronization code a randomly generated code each time the display device connects to the server system.”

247. As discussed above, Danciu-Mahajan and Danciu-Mahajan-Calvert teach the system of claim 19 for the reasons set forth above. *See* Section 11.19. And, in my opinion, Danciu-Mahajan and Danciu-Mahajan-Calvert further teach the limitations of claim 21 for the same reasons discussed above regarding claim 10. *See* Section 11.10.

11.22 Independent Claim 22

11.22.1. [22A]: “An automated machine-implemented method of presenting video content on a display device that loads any one of a plurality of different media players, the method comprising:”

248. As I showed above in Section 11.1, to the extent the preamble is limiting, Danciu-Mahajan or Danciu-Mahajan-Calvert teaches it.

11.22.2. [22B]: “displaying, by the display device, a synchronization code that was assigned to the display device by a server system, the server system subsequently storing, based on a message from a personal computing device that is separate from the server system and the display device, an association between the display device and the personal computing device, the message from the personal computing device including the synchronization code;”

249. As I discussed above in Sections 11.1.2-11.1.4, Danciu-Mahajan and Danciu-Mahajan-Calvert teach limitation [22B]. Danciu teaches that the controlled device may display a QR code to a user, which the user may scan with the remote control. Ex. 1112, 4:36-45; 8:23-49, 13:16-32, 15:28-58. Danciu teaches that, upon receiving a message comprising the unique identifier and/or the QR code, an association is stored, as the resultant session identifiers and other session information are stored on a data repository of the servers. Ex. 1112, 6:40-49, 13:62-14:1, 15:28- 41, 15:59-16:6.

250. Therefore, in my opinion, Danciu-Mahajan or Danciu-Mahajan-Calvert

teach limitation [22B].

11.22.3. [22C]: “retrieving, by the display device from the server system, first information that specifies a first video file to be acted upon, that identifies a first media player for playing the first video file, and that indicates corresponding programming code to control playing of the first video file on the display device by the first media player in accordance with a first playback control command, wherein the server system previously received, from the personal computing device, one or more signals specifying the first video file, identifying the first media player and including the first playback control command;”

251. As I discussed above in Sections 11.1.5 and 11.1.6, Danciu-Mahajan and Danciu-Mahajan-Calvert teach the features of limitation [22C]. In the instance where multiple commands are sent for the same video file, this meets the limitation regarding “wherein the server system previously received... one or more signals specifying the first video file...” A POSITA would have understood that Danciu’s system was intended to send multiple commands, and when multiple commands are sent a prior command would meet these limitations for the same reasons as discussed herein regarding a later command.

252. Therefore, in my opinion, Danciu-Mahajan and Danciu-Mahajan- Calvert teach limitation [22C].

11.22.4. [22D]: “obtaining, by the display device, over the Internet the first media player for playing the first video file;”

253. Danciu teaches that the video content that may be displayed on the controlled device may include “content accessible via the World Wide Web, or other content providers.” Ex. 1112, 11:41-44. In such an instance, it would have been obvious

to a POSITA that the media player for that Internet content would have been downloaded as part of the webpage. Ex. 1112, 11:43-44, 12:32-49, 13:4-15. It was well known at the time that web pages comprised various embedded applications for viewing video. For example, HTML and Flash players were included in web pages, and were used to play video embedded in web players. *See* Section 8, above. Those plugins could be downloaded as part of the web page, or separately (e.g., Flash player might be downloaded in advance or when not detected as part of the webpage). In some instances, web pages may have their own video content player that would download for their page (e.g., a proprietary player on a given web page). A POSITA would have thus understood that obtaining a media player to play video content on a web page was a well-known aspect of watching video on the Internet at the time. Further, Mahajan teaches that the display device may display a webpage obtained and loaded over the Internet from a server for displaying content. Ex. 1114, [0019]-[0020].

254. To any extent Patent Owner argues that Danciu-Mahajan does not teach this feature, Calvert discloses that when a new media player application that is not already present (and thus not already selected) on the playback device is required to output content, the playback device may request, locate, and store (i.e., install) the required media player on the playback device. Ex. 1111, [0032].

255. Therefore, in my opinion, Danciu-Mahajan or Danciu-Mahajan-Calvert teach limitation [22D].

11.22.5. [22E]: “loading the first media player in the display device;”

256. As I discussed above in Section 11.22.4, Danciu-Mahajan and Danciu-Mahajan-Calvert teach obtaining a media player over the Internet in order to load (e.g., install) it on the controlled device (“the display device”). A POSITA would have understood that applications would commonly be loaded in memory in order to be executed. This is a fundamental concept in executing applications, and was the standard process for operating an application, such as a media player, at the time. Even if an application were stored only temporarily, such as if a web browser downloaded a video player for a specific page, that player would still need to be loaded into RAM so that it could be executed by the processor.

257. Therefore, in my opinion, Danciu-Mahajan or Danciu-Mahajan-Calvert teach limitation [22E].

11.22.6. [22F]: “executing the first playback control command with respect to the first video file using the first media player;”

258. Danciu teaches that the controlled device executes the commands. Ex. 1112, 5:29-37, 5:64-6:2, 7:17-29, 13:4-32, 16:55-67, 17:21-43.

259. Therefore, in my opinion, Danciu-Mahajan or Danciu-Mahajan-Calvert teach limitation [22F].

11.22.7. [22G] - [22J]: “subsequently retrieving, by the display device from the server system, second information that specifies a second video file to be acted upon, that identifies a second media player different from the first media player for playing the second video file, and that indicates corresponding programming code to control playing of the second video file on the display device by the second media player in accordance with a second playback control command, wherein the server system previously received, from the personal computing device, one or more signals specifying the second video file, identifying the second media player and including the second playback control command; obtaining, by the display device, over the Internet the second media player for playing the second video file; loading the second media player in the display device; and executing the second playback control command with respect to the second video file using the second media player.”

260. It is my opinion that limitations [22G]-[22J] simply reflect limitations [22C]-[22F] but for a second video file, second media player different from the first media player, and second playback control command. Ex. 1101, claim 22. This does not introduce any new novel aspects, and presents no new issues different from those

discussed above. Further, Danciu teaches that upon creation of a session, “messages”, which is plural, are routed continually for that session. Ex. 1112, 7:11- 8:58. Accordingly, the controlled device and the remote control would operate in the same manner as described in Sections 11.22.3-11.22.6 for a subsequent command entered by a user of the remote control for the controlled device, which would include converting the command to a second playback control command. A POSITA would thus have understood the same disclosure to teach operation of subsequent commands, and it would have been obvious that the commands could be repeated (or new commands entered) as often as desired to operate the device.

261. Therefore, in my opinion, Danciu-Mahajan or Danciu-Mahajan-Calvert teach limitations [22F]-[22J].

11.23 Dependent Claim 23: “The method of claim 22 wherein the display device comprises a television set with a display screen.”

262. As discussed, it is my opinion that Danciu-Mahajan and Danciu- Mahajan-Calvert teach claim 22 for the reasons set forth above. *See* Section 11.22. Danciu teaches that the controlled device may be an Internet-connected television with a display screen. Ex. 1112, 1:39-50, 3:24-28, 5:42-63, 11:36-44, Fig. 4.

263. Therefore, in my opinion, Danciu-Mahajan or Danciu-Mahajan-Calvert teach claim 23.

11.24 Dependent Claim 24: “The method of claim 22 wherein the display device comprises a laptop or personal computer.”

264. As discussed, it is my opinion that Danciu-Mahajan and Danciu- Mahajan-Calvert teach claim 22 for the reasons set forth above. *See* Section 11.22. Danciu teaches

that the controlled device may “include any Internet-connected device capable of receiving commands. Ex. 1112, 1:39-50, 3:24-27, 5:42-63, 11:36- 44, Fig. 4. A POSITA would have understood a laptop or personal computer to be such a device, as they were very common Internet-connected devices of the time.

265. Therefore, in my opinion, Danciu-Mahajan or Danciu-Mahajan-Calvert teach claim 24.

11.25 Dependent Claim 25: “The method of claim 22 wherein each of the first and second commands represents an instruction to play the respective video file, to stop playing the respective video file or to pause playing the respective video file.”

266. As I discussed above, Danciu-Mahajan and Danciu-Mahajan-Calvert teach the system of claim 22. *See* Section 11.22. Further, it is my opinion that Danciu-Mahajan and Danciu-Mahajan-Calvert teach the limitations of claim 25 for the same reasons I discussed above regarding claim 5. *See* Section 11.5.

11.26 Dependent Claim 26: “The method of claim 22 wherein the display device checks whether the respective media player needed to play the particular one of the video files already is loaded in the display device before obtaining a copy of the media player over the Internet.”

267. As I discussed above, Danciu-Mahajan and Danciu-Mahajan-Calvert teach the system of claim 22. *See* Section 11.22. Danciu-Mahajan and Danciu-Mahajan-Calvert further teach the additional limitations of claim 26 for the same reason discussed in Section 11.22.4. In particular, a POSITA would have understood that a device would have checked if a video player were loaded before obtaining a copy over the Internet. For example, it was well known that web pages could be cached, and a display device would

have determined if a portion of the web page (e.g., a media player) was cached locally before obtaining that data remotely. In another example, it was well known that applications should only be loaded if needed. This would save the user time and bandwidth in downloading a media player. So if a user wished to view a Flash player, the system would determine if the Flash player was on the device. In some instances, this may be by showing an indication that a media player is missing, and directing the user to download it. In other instances, the device could check whether a media player was locally available, and download it automatically. All of these techniques were well known at the time, and a POSITA would have implemented one or more of those techniques as a mere design choice to maximize efficiency in the system.

12. Aldrey-Mahajan Renders Claims 1-26 Obvious

268. The following section provides a limitation by limitation analysis showing how Aldrey in view of Mahajan renders claims 1-26 obvious. To help illustrate how the disclosures of these references map to the claim limitations, I have color coded some of my remarks and some figures in the noted art below.

12.1 Independent Claim 1

12.1.1 [1A] “A machine-implemented method of controlling presentation of video content on a display device that loads any one of a plurality of different media players, the method comprising:”

269. I have been informed that the preamble is not limiting. That said, it is my opinion that Aldrey teaches the preamble.

270. Aldrey discloses a STB 101 which is alternatively contemplated in para.

[0012] as being interchangeable with an interactive television set (a “display device”, **red**) connected via a server provider network comprising a media service provider (MSP) 117 and a user profile repository 127 (**green**) to a remote application running on an end terminal 107 (a “personal computing device”, **blue**). Ex. 1115, [0018]-[0026], [0029]-[0030], Figs. 1-2.

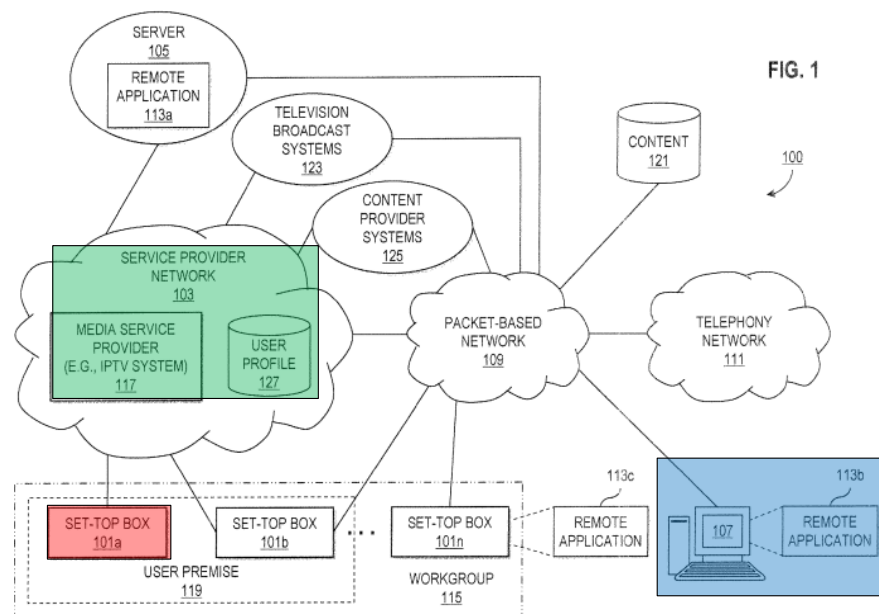
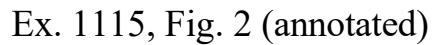
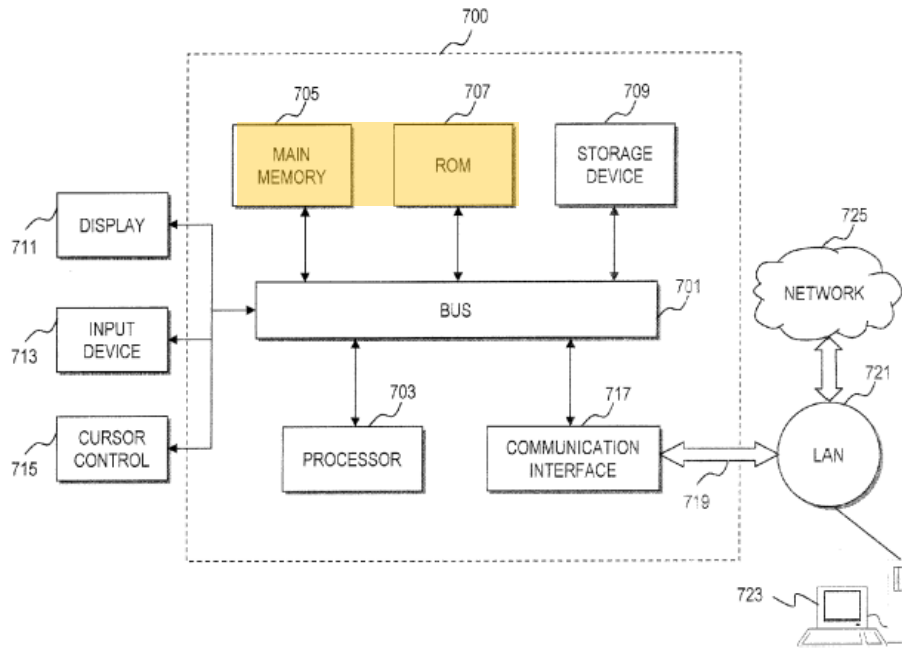


FIG. 2



121

FIG. 7



Ex. 1115, Fig. 7 (annotated)

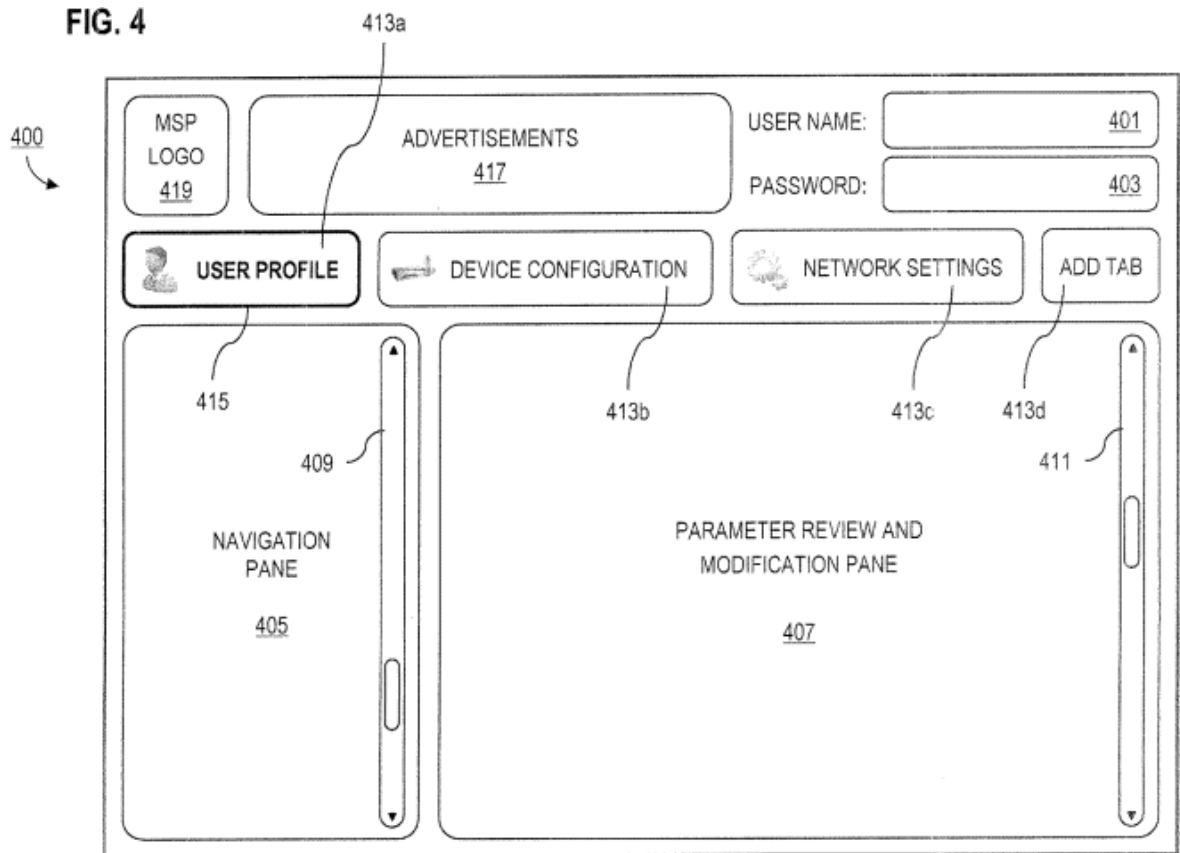
272. Aldrey teaches that the remote application, which can be connected via the Internet, may be loaded as an overlay on the media content in order to control the media being displayed. Ex. 1115, [0019], [0023]-[0025], [0030]-[0031], [0044]-[0047], [0052]-[0053], [0062]-[0066]. Further, Aldrey-Mahajan teaches this feature as described in Section 12.22.4.

273. Therefore, in my opinion, Aldrey or Aldrey-Mahajan teaches limitation [1A].

12.1.2[1B] “assigning, by a server system, a synchronization code to the display device;”

274. In my opinion, Aldrey teaches the elements of limitation [1B].

275. Aldrey discloses a user interface 400 “wherein an authenticated subscriber may directly review and modify user profile information and/or network settings.” Ex. 1115, [0067]-[0071]. This user interface may be executed on any device, including a STB or television. Ex. 1115, [0031]-[0032], [0062]-[0067], Fig. 4.



Ex. 1115, Fig. 4

276. A user, using the user interface, may register one or more devices by entering in device information including, for example, “device type, serial number, registration number, MAC address, phone number, communications link, etc.,” any of which may be a “synchronization code”. Ex. 1115, [0051], [0064]. Using this device information, “MSP 117, server 105, and or one or more remote applications 209a-209c

may obtain configuration parameters and user interface information.” Ex. 1115, [0064]. The end terminal may access the unique identifier, as may be included in a list of subscribers, when modifying or interacting with a user profile at an end terminal. Ex. 1115, [0065]-[0066]. This information is assigned by the remote server system because it is processed by the server and stored in the user profile repository 127. Ex. 1115, [0057]-[0066].

277. Therefore, it is my opinion that Aldrey teaches limitation [1B].

12.1.3 [1C] “receiving, in the server system, a message from a personal computing device that is separate from the server system and separate from the display device, wherein the message includes the synchronization code;”

278. It is my opinion that Aldrey teaches the elements of limitation [1C].

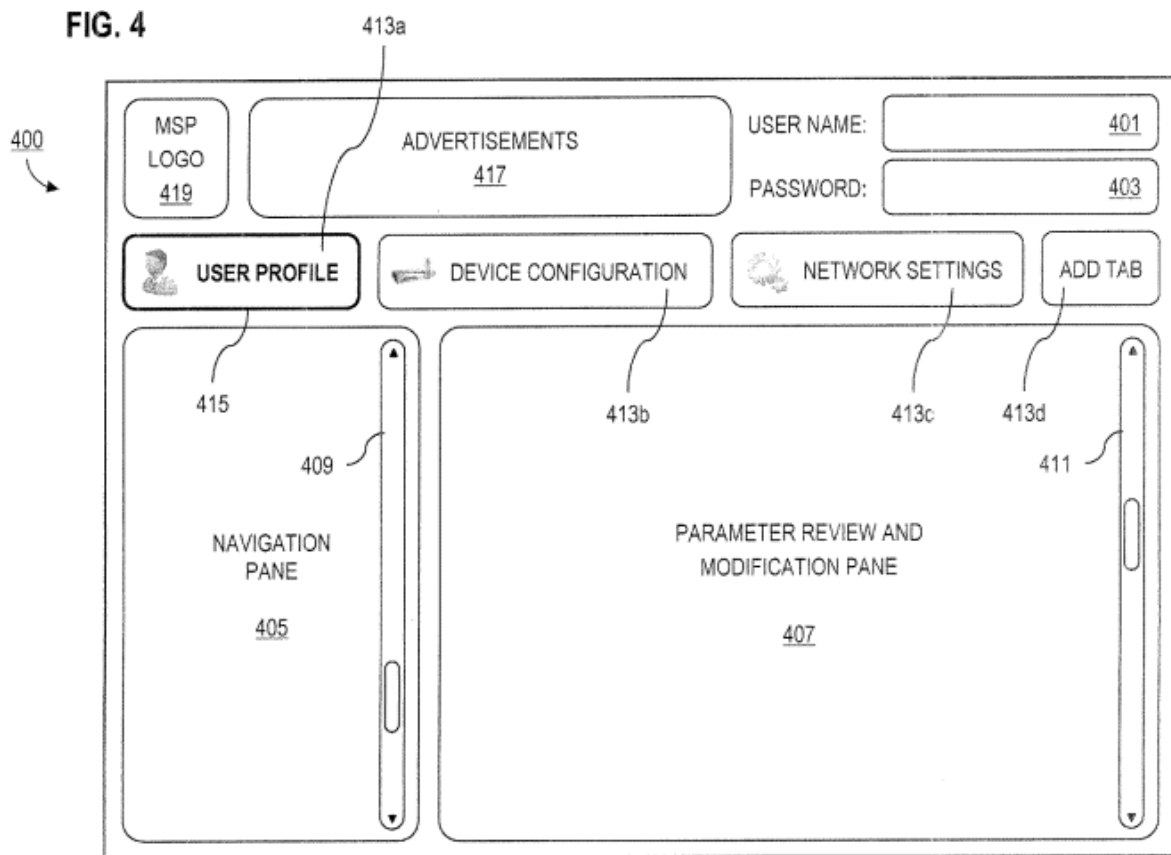
279. Aldrey teaches that “the user may identify devices by entering appropriate device information, such as: device type, serial number, registration number, MAC address, phone number, communications link, etc. As such, MSP 117, server 105, and one or more remote applications 209a-209c may obtain configuration parameters and user interface information from a manufacturer or other third-party supplier.” Ex. 1115, [0064]. This message from the user identifying the device therefore includes the synchronization code.

280. Therefore, in my opinion, Aldrey teaches limitation [1C].

12.1.4 [1D] “storing, by the server system, a record establishing an association between the personal computing device and the display device based on the synchronization code;”

281. As I discussed above for [1B], Aldrey teaches that a user interface is

provided to the user on an end terminal (“a personal computing device”) which involves registration of user profile information and/or configuration data (“an association”) allowing the user to access, via an end terminal, devices identified in records stored in the user profile repository, including a STB or television (“display device”). Ex. 1115, [0042], [0064]-[0072], Figs. 2, 4.



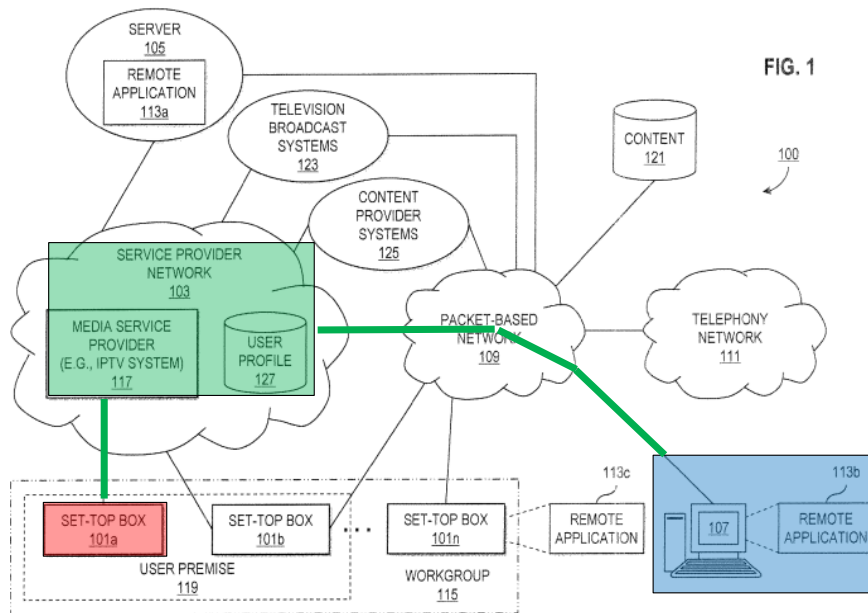
Ex. 1115, Fig. 4

282. The end terminal may access the unique identifier, as may be included in a list of subscribers, when modifying or interacting with a user profile at an end terminal. Ex. 1115, [0065]-[0066].

283. Therefore, in my opinion, Aldrey teaches limitation [1D].

12.1.5 [1E] “receiving, in the server system, one or more signals from the personal computing device, the one or more signals specifying a video file to be acted upon and identifying a particular media player for playing the video content,”

284. Aldrey teaches that “[a] remote application (e.g., remote application 113a) permits users to easily, effectively, and intuitively convey control commands for configuring a plurality of STBs 101a-101n, wherein the control commands affect configuration data relating to such parameters as parental controls, available channel information, favorite channels specified by the user, program recording settings, viewing history, and/or software loaded in the respective STBs 101a-101n, as well as other suitable control parameters.” Ex. 1115, [0020]. Therefore, Aldrey teaches a STB 101 (red) receiving commands from a remote application running on an end terminal 107 (blue). Ex. 1115, [0018]-[0023], [0025]-[0026], Fig. 1. Aldrey also teaches that “connections [green] between the STBs 101a-101n and the end terminal(s) 107 may be established directly or through server 105 and/or MSP 117.” Ex. 1115, [0025], [0035]-[0036], [0039], [0048], [0080]-[0081].



Ex. 1115, Fig. 1 (annotated)

285. Aldrey discloses that “a control command can specify an on-demand content selection, such as a video-on-demand (VOD) or audio-on-demand (AOD) selection [i.e. “piece of content”].” Ex. 1115, [0020], [0025], [0029]-[0030]. Media content can be a variety of content types, including broadcast video, VOD, IPTV, streaming video, or any other type of video from a broadcast system or from third-party providers. Ex. 1115, [0021]. Aldrey also teaches that the media content is distinguished by metadata, in the set of messages, specifying the type of media content to be displayed as well as the content-bearing entities and encoding used to display them. Ex. 1115, [0036]-[0037].

286. In my opinion, it would have been obvious to a POSITA reading Aldrey’s disclosure that the metadata for media content, which specifies content

sources and the type of media content, would include commands specifying a video file to be acted upon and identifying a particular media player. For example, a POSITA reading Aldrey's disclosure of a control command "for acquiring, generating, and/or transmitting content feeds and/or control commands from MSP 117, the television broadcast systems 123, the third-party content provider systems 125, servers 105, end terminals 107, or STBs 101a -101n" would have understood that control command to be specific to the type of media playing application appropriate for a given provider. Ex. 1115, [0038]. It would also have been obvious to a POSITA that commands for controlling software of a device, such as a media playing application, should be formatted specific to the particular hardware and/or software wishing to be controlled.

287. Therefore, in my opinion, Aldrey-Mahajan teaches limitation [1E].

12.1.6 [1F] "the one or more signals further including a universal playback control command for controlling playing of the video content on the display device by the particular media player,"

288. As I discussed above for Danciu-Mahajan in Section 11.1.5, Mahajan teaches implementation details for transmitting commands from a server (e.g., an end terminal) to a client (e.g., a STB or television) through the use of intermediary universal commands. For example, Mahajan's Figure 3 shows an API for translating

between commands received at a server (**blue**) to a client (**red**) using universal commands:

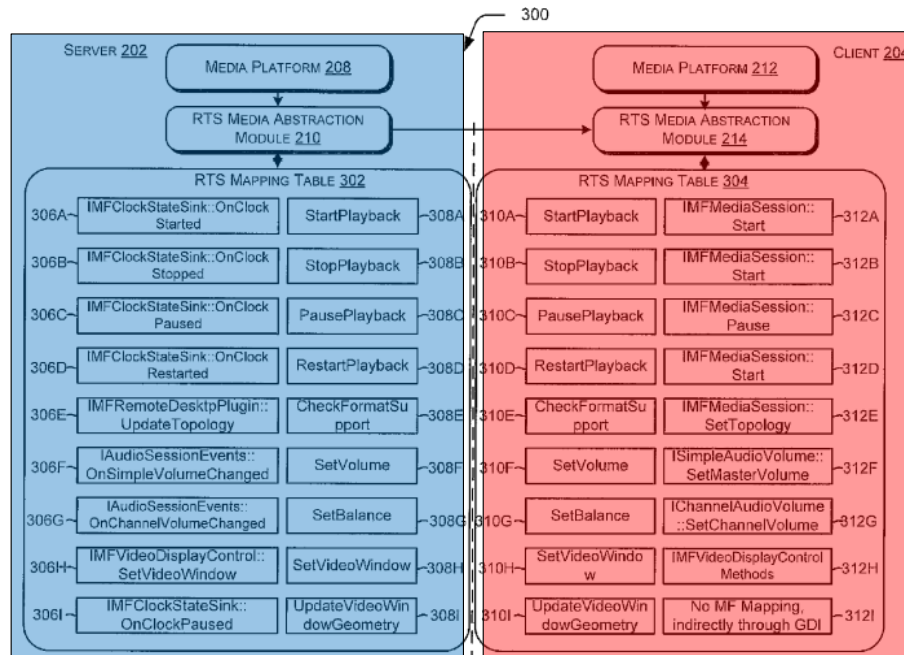
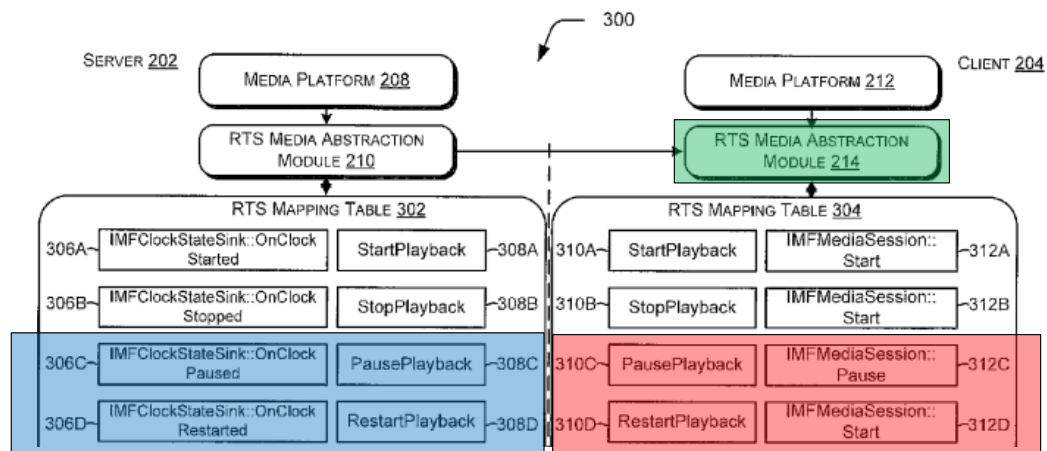


Fig. 3

Ex. 1114, Fig. 3 (annotated)

289. The API includes commands, for example, to “pause” or “restart” content on a remote media application command (e.g., a Media Foundation platform command “IMFClockStateSink::OnClockPaused”) or a first type of media application command (e.g., the corresponding DShow platform command “IMFMediaSession::Pause”). Ex. 1114, [0037]-[0043], Fig. 3. The RTS Media Abstraction module of the client (an API converter, **green**) converts the commands received by the client (**red**) from the server (**blue**). Ex. 1114, [0037]-[0043], [0063], Figs. 3, 5.



Ex. 1114, Fig. 3 (annotated)

290. Based on this disclosure, a POSITA would have understood that the RTS Media Abstraction Module is a software intermediary that converts commands from one interface (e.g., a genericized interface) into another (e.g., the interface of the first type of media playback application). Also, it would have been obvious to a POSITA that messages routed throughout that intermediary comprise universal commands (e.g., “StartPlayback” or “PausePlayback”) as taught in Mahajan. Ex. 1114, [0037]-[0043], [0063], Figs. 3, 5.

291. These commands “may be specific to events associated with the playback of media files” such as “when a media file is accessed for playback by one or more users at the client.” Ex. 1114, [0037]. In this way, messages containing the commands are particular to the media content playing on the type of media playing application of the server.

292. In my opinion, based on the teachings of Mahajan, a POSITA would have been motivated to implement Aldrey's system, comprising an end terminal sending commands to a connected television, using known techniques for sending commands for media playback between a server and a client, as in Mahajan. Mahajan, like Aldrey, teaches a system wherein a user can command media on a controlled device. Ex. 1114, [0014]; Ex. 1115, [0020], [0025], [0029]-[0030]. A POSITA would have understood that Mahajan's server-command teachings could be implemented on Aldrey's end terminal remote control, particularly because both disclosures reference that those devices can be a mobile phone. Ex. 1114, [0017]; Ex. 1115, [0026]. A POSITA would have been motivated to apply the command conversion in Mahajan because a POSITA would have understood that Aldrey's end terminal, which may be a portable device such as a cell phone, would likely employ different applications than Aldrey's STB or television. Ex. 1115, [0023]-[0026].

293. Combining Mahajan with Aldrey would have been nothing more than applying a known technique (Mahajan's system for sending commands) to a known device (Aldrey's web-based UI control control system) ready for improvement to yield predictable results (Aldrey's end terminal would translate commands associated with a first type of media playing application to a command associated with a second type of media playing application on a smart television). Mahajan teaches a system similar to the system in Aldrey where commands are sent from a remote device to control media playback on another device.

294. Additionally, a POSITA would have had the skills and knowledge to implement support for sending commands to different devices in Aldrey's system by incorporating into Mahajan the ability for an end terminal to translate commands from a those associated with a first type of media playback application to another type of command such that they can be understood by a STB, as taught by Mahajan. The improvements of Mahajan are directed to the context of a commonly encountered computing environment at the time. Ex. 1114, [0016]. Thus, a POSITA would have expected success in applying Mahajan's teaching to the similar Aldrey system.

295. Therefore, in my opinion Aldrey-Mahajan teaches [1F].

12.1.7 [1G] “converting, by the server system, the universal playback control command into corresponding programming code to control playing of the video content on the display device by the particular media player, wherein converting the universal playback control command includes selecting from among a plurality of specific commands, each of which represents a corresponding playback control command for a respective media player; and”

296. In my opinion, Aldrey-Mahajan teaches converting the universal playback command into corresponding programming code. As I discussed above in Section 12.1.6, Mahajan's Figure 3 shows an API for translating between commands received at a server (blue) to a client (red):

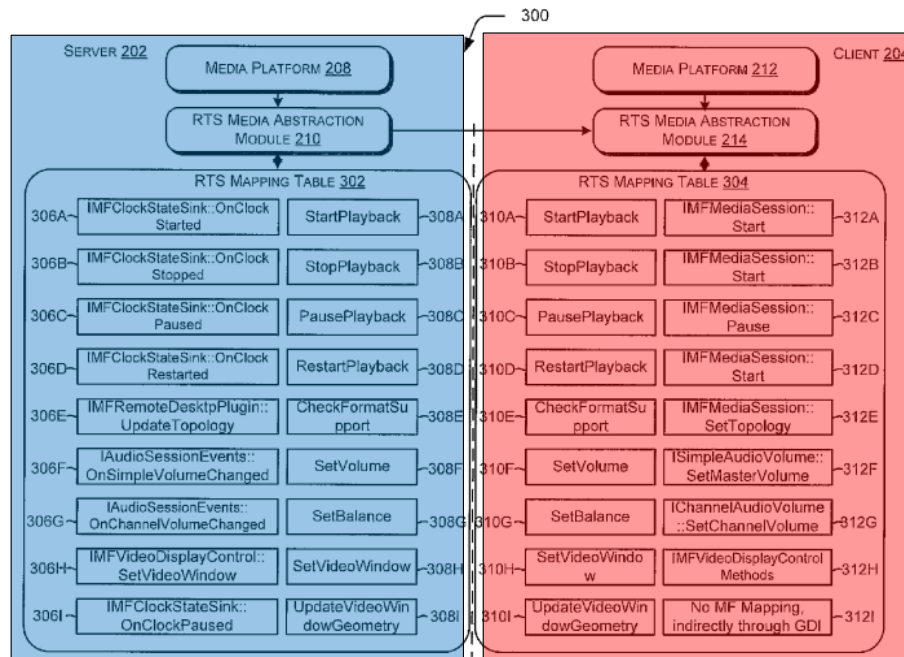
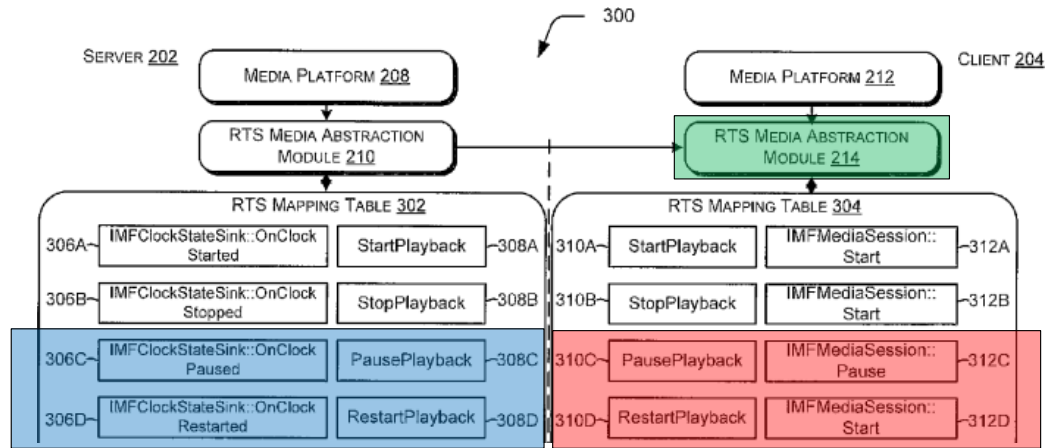


Fig. 3

Ex. 1114, Fig. 3 (annotated)

297. The client's RTS Media Abstraction module (an API converter, **green**) converts the commands received by the client (**red**) from the server (**blue**) using universal commands. Ex. 1114, [0037]-[0043], [0063], Figs. 3, 5.



Ex. 1114, Fig. 3 (annotated)

298. A POSITA would have understood that the RTS Media Abstraction Module is a software intermediary that converts commands from one interface (e.g., a genericized interface) into another (e.g., the interface of the first type of media playback application).

299. Also, it would have been obvious to a POSITA that the RTS Media Abstraction Module could be located on Mahajan's client or server, or on an intermediary device. Mahajan describes its system as operating using a "collaboration media abstraction layer 130" that is responsible for translating commands. Ex. 1114, [0022]-[0023]. Mahajan also states that the distribution manager 418 and multimedia component 446, which make up the RTS Media Abstraction modules, can make use of a "virtual channel connection" as part of a "distributed topology." Ex. 1114, [0051]. Based on Mahajan's teachings that its system can operate in a distributed environment, it would have been obvious to a POSITA that one or more RTS Media Abstraction Modules could operate at a server, such as Service Provider Network 103. Ex. 1114, [0018], [0058],

[0078].

300. Therefore, in my opinion, Aldrey-Mahajan teaches limitation [1G].

12.1.8 [1H] “storing, in a database associated with the server system, information for transmission to or retrieval by the display device, wherein the information specifies the video file to be acted upon, identifies the particular media player for playing the video content, and includes the corresponding programming code to control playing of the video content on the display device by the particular media player in accordance with the universal playback control command.”

301. Aldrey teaches that the MSP 117 allows for the storage of information that can be transmitted to a STB. Ex. 1115, [0025], [0035]. For example, Aldrey teaches that STBs may receive signals and/or data streams, including control commands, which may originate from content servers with associated data repositories. Ex. 1115, [0020]-[0021], [0030], [0032], [0035], [0051]-[0052], [0055]-[0057], [0059]-[0060], [0064], [0066], [0071], [0084]. For example, Aldrey teaches that a STB and/or end terminal “may periodically establish a connection with one or more networks (e.g., networks 103, 109, or 111) and/or one or more repositories (e.g., repository 127) to “push” and “pull” control commands and configuration information”. Ex. 1115, [0032]. The content is stored along with metadata, which may identify the video content and a media player as discussed above regarding limitation [1E] in Section 12.1.5. Ex. 1115, [0036]-[0037].

302. Therefore, it is my opinion that Aldrey-Mahajan teaches limitation [1H].

12.2 Dependent Claim 2

12.2.1 [2A]: “The method of claim 1 including:”

303. In my opinion, Aldrey-Mahajan teaches claim 1 for the reasons discussed above in Section 12.1.

12.2.2 [2B]: “checking, in the server system, the identity of the media player identified in the one or more signals from the personal computing device;”

304. As noted above in Section 12.1.5, Aldrey-Mahajan teach receiving one or more signals “identifying a particular media player for playing the video content.” In my opinion, it would have been obvious to a POSITA reading Aldrey that the metadata for media content, which specifies content sources and the type of media content, would include commands specifying a video file to be acted upon and identifying a particular media player.

305. Therefore, it is my opinion that Aldrey-Mahajan teaches limitation [2B].

12.2.3 [2C]: “loading an appropriate set of protocols or application programming interfaces from a library based on the identity of the media player; and”

306. As discussed above in Sections 12.1.5-12.1.6, Mahajan teaches an API for commands, such as commands to “pause” or “restart” content on a remote media application command (e.g., a Media Foundation platform command “IMFClockStateSink::OnClockPaused”) corresponding to a particular media player associated with a given device (e.g., the corresponding DShow platform command “IMFMediaSession::Pause”). Ex. 1114, [0037]-[0043], Fig. 3.

307. Therefore, it is my opinion that Aldrey-Mahajan teaches limitation [2C].

12.2.4 [2D]: “converting the command from the personal computing device into corresponding code to control the media player.”

308. As discussed above in Section 12.1.6, Aldrey-Mahajan teaches converting between universal commands and platform-specific commands for controlling a media player.

309. Therefore, in my opinion, Aldrey-Mahajan teaches limitation [2D].

12.3 Dependent Claim 3: “The method of claim 1 wherein converting the command into corresponding programming code to control the media player includes using information in a look-up table.”

310. Aldrey-Mahajan teaches the method of claim 1 for the reasons set forth above in Section 12.1.

311. As discussed in Sections 12.1.6 and 12.2.4, Mahajan teaches an RTS Media Abstraction module that converts the commands received by a client from a server. Ex. 1114, [0037]-[0043], [0063], Figs. 3, 5. The conversion is performed “using information in a look-up table.” Ex. 1114, [0037]-[0042], Fig. 3. For example,

Mahajan discloses that “the RTS media abstraction module 214 can locate the generic media operation command “StartPlayback” received from the server 202 in the RTS mapping table 304.” Ex. 1114, [0040]. Figure 3 from Mahajan shows mapping tables for translating between commands received at a server (blue) to a client (red):

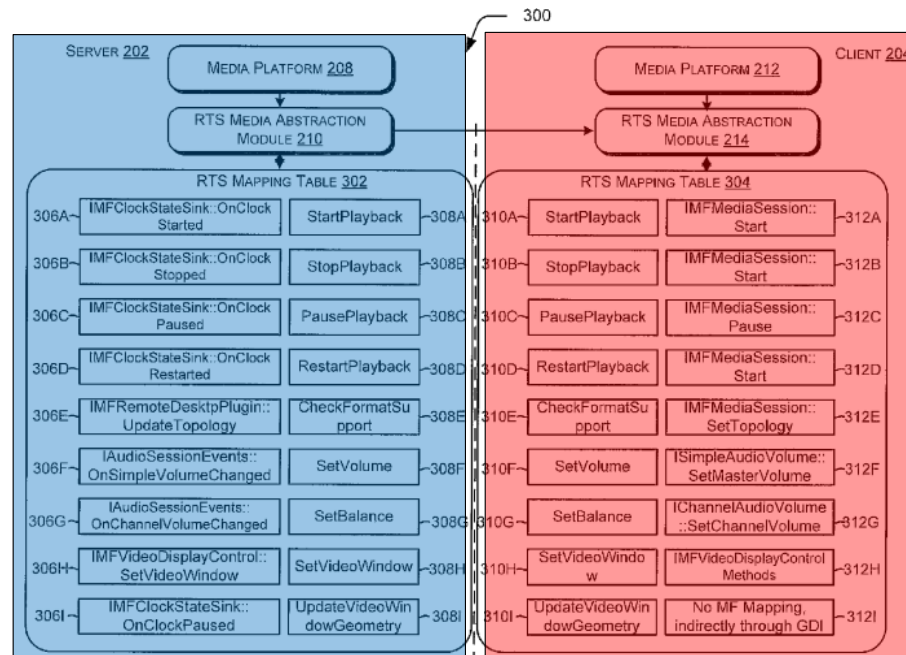


Fig. 3

Ex. 1114, Fig. 3 (annotated)

312. Therefore, in my opinion, Aldrey-Mahajan renders claim 3 obvious.

12.4 Dependent Claim 4: “The method of claim 3 wherein the look-up table stores a plurality of specific commands, each of which represents, respectively, a corresponding command for a different media player.”

313. Claim 4 depends from claim 3, and Aldrey-Mahajan teaches claim 3. *See* Section 12.3

314. As discussed in Sections 11.3 and 12.3, Figure 3 of Mahajan shows mapping tables for translating between commands received at a server (**blue**) to a client (**red**):

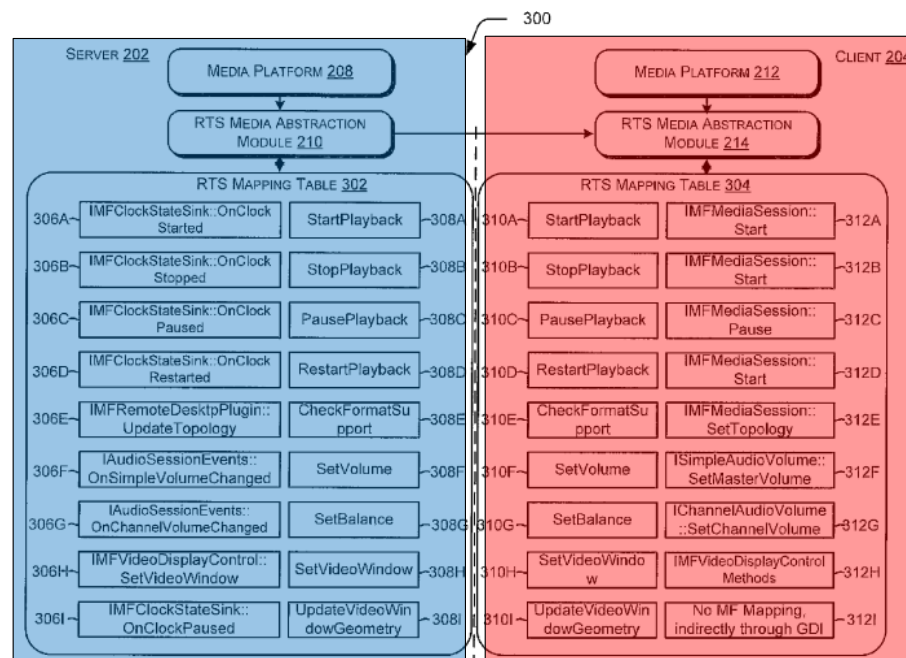


Fig. 3

Ex. 1114, Fig. 3 (annotated)

315. These commands show how, for example, a “pause” or “restart” command is translated from a first type of media application command (e.g., a Media Foundation platform command “IMFClockStateSink::OnClockPaused”) to a second type of media application command (e.g., the corresponding DShow platform command “IMFMediaSession::Pause”). Ex. 1114, [0037]-[0043], Fig. 3.

316. Therefore, in my opinion, Aldrey-Mahajan renders obvious claim 4.

12.5 Dependent Claim 5: “The method of claim 1 wherein the universal command represents an instruction to play the video content, to stop playing the video content or to pause playing the video content.”

317. Aldrey-Mahajan teaches claim 1 for the reasons discussed above. *See* Section 12.1.

318. As I discussed in Sections 12.1.5 and 12.4, Mahajan teaches an RTS mapping table for translating between universal commands and particular commands for a given media player. Ex. 1114, [0037]-[0043], Fig. 3. Those commands include commands to “StartPlayback”, “StopPlayback”, or “PausePlayback”. Ex. 1114, Fig. 3.

319. Therefore, it is my opinion that Aldrey-Mahajan renders obvious claim 5.

12.6 Dependent Claim 6: “The method of claim 1 wherein the video content is an interactive video game.”

320. Aldrey-Mahajan teaches claim 1 for the reasons discussed above in Section 12.1.

321. Mahajan teaches that the computing environment for operation of its systems and methods may include a “game console.” Ex. 1114, [0065]. Also, Mahajan teaches that input to its system may be made using a “game pad” or a “game port.” Ex. 1114, [0072]. Thus, it would have been obvious to a POSITA, in view of these teachings, that the video content under control may comprise an interactive video game. For example, it would have been obvious to a POSITA in view of these express teachings that a user could use a game pad to enter commands for video content on a client. Moreover, in view of the combined teachings of Aldrey- Mahajan, a POSITA would have

understood that the game pad taught by Mahajan may control a game console, as also taught by Mahajan. This would allow a user to play an interactive video game on a game console remotely via a game pad. This is consistent with Aldrey's teachings that "television is no longer a passive medium; it is an interactive entertainment encounter capable of endless configuration and personalization." Ex. 1115, [0015]. This would have been nothing more than applying a known technique (Mahajan's teachings of a game console and remote control using a game pad) to a known device (Aldrey's teachings of a STB for interactive entertainment) ready for improvement to yield predictable results (Aldrey's interactive STB acting as a game console that is controllable remotely using a game pad as taught by Mahajan). A POSITA would have had a reasonable expectation of success as the combination of these features would have presented little more than implementing the express teachings to the well-known field of video games, and presents no additional technical issues.

322. Therefore, in my opinion, Aldrey-Mahajan renders obvious claim 6.

12.7 Dependent Claim 7: "The method of claim 1 wherein the video content is streaming media."

323. Aldrey-Mahajan teaches claim 1 for the reasons discussed above in Section 12.1.

324. As I discussed above in Section 12.1.5, Aldrey teaches that the video content may be streaming media, including on-demand and/or IPTV streaming media. Ex. 1115, [0015], [0020]-[0026], [0029]-[0030].

325. Therefore, in my opinion, Aldrey-Mahajan renders obvious claim 7.

12.8 Dependent Claim 8: “The method of claim 1 wherein the synchronization code is uniquely associated with the display device on which the video content is to be played.”

326. Aldrey-Mahajan teaches claim 1 for the reasons discussed above in Section 12.1.

327. As I discussed in Section 12.1.2, Aldrey teaches that “the user may identify devices by entering appropriate device information, such as: device type, serial number, registration number, MAC address, phone number, communications link, etc.” Ex. 1115, [0051], [0064].

328. Therefore, in my opinion, Aldrey-Mahajan renders claim 8 obvious.

12.9 Dependent Claim 9: “The method of claim 8 wherein the synchronization code is different from an IP address associated with the display device and is different from a MAC address associated with the display device.”

329. Aldrey-Mahajan teaches the method of claim 8 for the reasons discussed above in Section 12.8. Aldrey discloses numerous identifiers, including a

“device type, serial number, registration number” that are not an IP address or MAC address. Ex. 1115, [0051], [0064].

330. Therefore, in my opinion, Aldrey-Mahajan renders claim 9 obvious.

12.10 Dependent Claim 10: “The method of claim 8 wherein assigning a synchronization code includes assigning a randomly generated code to the display device each time the display device connects to the server system.”

331. Aldrey-Mahajan teaches claim 8 for the reasons discussed above in Section 12.8. Aldrey also teaches that other identifiers may be used (“phone number, communications link, **etc.**”). Ex. 1115, [0064] (emphasis added). Aldrey teaches that devices may be authenticated using a “key access number,” which a POSITA would have understood to refer to a randomly-generated access key. Ex. 1115, [0051]. To the extent that it is argued that Aldrey does not describe that the session identifier and/or QR code is random or that it is generated each time the display device connects, a POSITA would have found such an implementation to be an obvious design choice, for example, to improve security or to prevent an accidental incorrect pairing of devices. *Id.* For example, when assigning a unique identifier, it would have been an obvious design choice that a random process could be used to generate a unique number.

332. Aldrey also teaches that the synchronization code is assigned each time the display device connects to the server system because he describes the communication between the servers and STB (“display device”) as online or networked sessions with “media content streaming instances and/or control command[s]”. Ex.

1115, [0019], [0033]-[0034], [0039]-[0040]. Further, Aldrey teaches that “[t]he software may then establish one or more connections to a service provider network 103 through an IP-based connection” and that the “user may register as a new subscriber” and “obtain sufficient authentication information for establishing future sessions.” Ex. 1115, [0063]. A POSITA would be familiar with the well-known practice that sessions are temporary in nature and it would have been obvious that when the sessions are established the code may be assigned each time the display device connects to the server system.

333. Therefore, in my opinion, Aldrey-Mahajan teaches claim 10.

12.11 Independent Claim 11

12.11.1 [11A]: “A system for controlling playing of video content on a display device that loads any one of a plurality of different media players, the system comprising:”

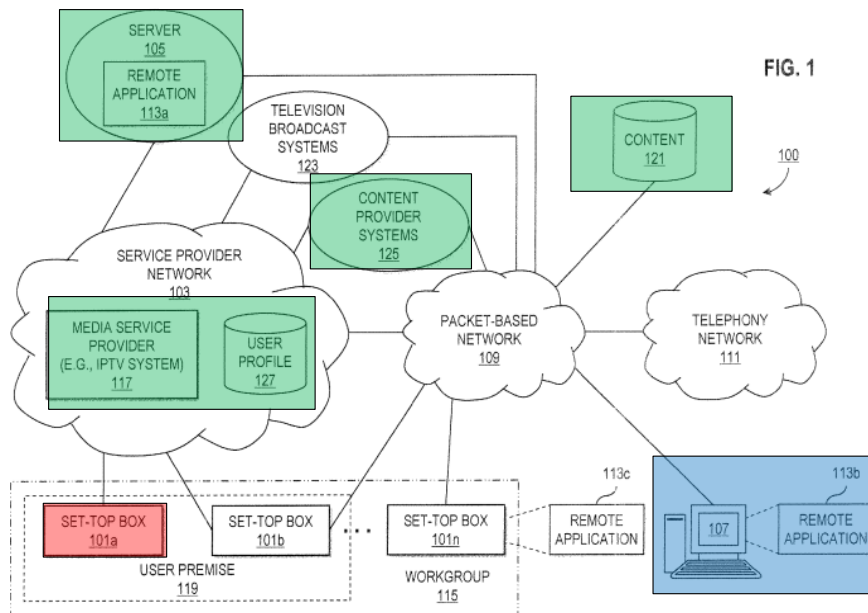
334. As discussed in Section 12.1.1, I have been informed that the preamble is not limiting, but it is my opinion that Aldrey-Mahajan teaches it.

12.11.2 [11B] “a server system;”

335. As discussed in Sections 12.1.1-12.1.2, Aldrey discloses a STB 101 (a “display device”, red) connected via a service provider network 103 to multiple servers including media service provider (MSP) 117 system, user profile repository 127 server, remote management server 105, third-party content provider systems

125, content residing repository server 121, and remote application server 113a (green) to a remote application running on an end terminal 107 (a “personal computing device”, blue). Ex. 1115, [0018]-[0023], [0025]-[0026], [0029]-[0030],

Fig. 1.



Ex. 1115, Fig. 1 (annotated)

336. Therefore, it is my opinion that Aldrey teaches limitation [11B].

12.11.3 [11C]: “a first database storing a relationship between a personal computing device and the display device based on a synchronization code assigned by the server system to the display device and received by the server system in a message from the personal computing device, wherein the personal computing device is separate from the server system and separate from the display device; and”

337. As described in Sections 12.1.2-12.1.4, Aldrey teaches that a user, using the user interface, may register one or more devices by entering in information including a “device type, serial number, registration number, MAC address, phone number, communications link, etc.,” any of which may be a “synchronization code” as claimed. Ex. 1115, [0064]. Using this information, “MSP 117, server 105, and or one or more remote applications 209a-209c may obtain configuration parameters and user interface information.” Ex. 1115, [0064]. This information is stored in the user profile repository 127 (“first database”). Ex. 1115, [0057]-[0066].

338. In my opinion, Aldrey therefore teaches limitation [11C].

12.11.4 [11D]: “a second database;”

339. Aldrey teaches that a STB or end terminal may be in communication with “one or more repositories (e.g., repository 127) to ‘push’ and ‘pull’ control commands and configuration information.” Ex. 1115, [0032].

340. Therefore, in my opinion, Aldrey teaches [11D].

12.11.5 [11E]: “wherein the server system is configured to receive one or more signals from the personal computing device, the one or more signals specifying a video file to be acted upon and identifying a particular media player for playing the video content, the one or more signals further including a universal playback control command for controlling playing of the video content on the display device,”

341. In my opinion, Aldrey-Mahajan teaches [11E] for the reasons I described above in Sections 12.1.5-12.1.6.

12.11.6 [11F]: “one or more non-transitory computer-readable media storing instructions that when executed by the server system, cause the server system to perform operations including converting the universal playback control command into corresponding programming code to control playing of the video content by the particular media player, wherein converting the universal playback control command includes selecting from among a plurality of specific commands, each of which represents a corresponding playback control command for a respective media player;”

342. In my opinion, Aldrey-Mahajan teaches [11F] for the reasons I described above in Section 12.1.7.

12.11.7 [11G]: “the server system being further configured to store in the second database information for transmission to or retrieval by the display device, wherein the information specifies the video file to be acted upon, identifies the particular media player for playing the video content, and includes the corresponding programming code to control playing of the video content on the display device by the particular media player in accordance with the universal playback control command.”

343. As described above in Section 12.1.8, Aldrey-Mahajan teaches this feature. Aldrey teaches that it may use “one or more” databases, so it would have been obvious to a POSITA that the information referenced in [11C] could be stored in one database, and information referenced in [11G] may be stored in another. Ex. 1115, [0030], [0032], [0035], [0052], [0064].

344. Therefore, in my opinion, Aldrey-Mahajan teach [11G]

12.12 Dependent Claim 12: [12A]-[12C]: “The system of claim 11 including: a library storing protocols or application programming interfaces, wherein the server system is configured to check the identity of the media player identified in the one or more signals from the personal computing device, load an appropriate set of protocols or application programming interfaces from the library based on the identity of the media player, and convert the command from the personal computing device into a corresponding programming code to control the media player.”

345. Aldrey-Mahajan teaches claim 11 for the reasons discussed above in Section 12.11. Aldrey-Mahajan teaches the limitations of claim 12 for the same reasons I discussed above for claim 2. Section 12.2.

12.13 Dependent Claim 13: “[13A]-[13C]: “The system of claim 11 including: a look-up table storing a plurality of commands each of which is for a particular type of media player, wherein the server system is configured to convert the command into corresponding programming code to control the media player based on information in the look-up table.”

346. In my opinion, Aldrey-Mahajan teaches claim 11 for the reasons I discussed above in Section 12.11. Aldrey-Mahajan teach the limitations of claim 13 for the same reasons I discussed above for claims 3 and 4. Sections 12.3-12.4.

12.14 Dependent Claim 14: “The system of claim 11 wherein the look-up table stores a correspondence between the universal command and a plurality of specific commands, each of which is for a different media player.”

347. Aldrey-Mahajan teaches claim 11 for the reasons discussed above. Section 12.11. Aldrey-Mahajan teaches the limitations of claim 14 for the same reasons that I discussed above for claim 4. Section 12.4.

12.15 Dependent Claim 15: “The system of claim 14 the server system is

configured to convert the universal command by selecting from among the plurality of specific commands stored in the look-up table.”

348. Aldrey-Mahajan teaches claim 14 for the reasons discussed above. Section 12.14. Aldrey-Mahajan teach the limitations of claim 15 for the same reasons I discussed above for claim 4. Section 12.4.

12.16 Dependent Claim 16: “The system of claim 11 wherein the universal command represents an instruction to play the video content, to stop playing the video content or to pause playing the video content.”

349. Aldrey-Mahajan teaches claim 11 for the reasons discussed above. Section 12.11. Aldrey-Mahajan teaches the limitations of claim 16 for the same reasons I discussed above for claim 5. *See* Section 12.5.

12.17 Dependent Claim 17: “The system of claim 11 wherein the video content is an interactive video game.”

350. Aldrey-Mahajan teaches claim 11 for the reasons discussed above. Section 12.11. Aldrey-Mahajan teaches the limitations of claim 17 for the same reasons that I discussed above for claim 6. Section 12.6.

12.18 Dependent Claim 18: “The system of claim 11 wherein the video content is streaming media.”

351. Aldrey-Mahajan teaches claim 11 for the reasons discussed above. Section 12.11. Aldrey-Mahajan teaches the limitations of claim 18 for the same reasons that I discussed above for claim 7. Section 12.7.

12.19 Dependent Claim 19: “The system of claim 11 wherein the synchronization code is uniquely associated with the display device on which the video content is to be played.”

352. Aldrey-Mahajan teaches claim 11 for the reasons discussed above. Section 12.11. Aldrey-Mahajan teaches the limitations of claim 19 for the same reasons as I discussed above for claim 8. Section 12.8.

12.20 Dependent Claim 20: “The system of claim 19 wherein the synchronization code is different from an IP address associated with the display device and is different from a MAC address associated with the display device.”

353. Aldrey-Mahajan teaches the system of claim 19 for the reasons set forth above. Section 12.19. Aldrey-Mahajan teaches the limitations of claim 20 for the same reasons as I discussed above for claim 9. Section 12.9.

12.21 Dependent Claim 21: “The system of claim 19 wherein the server system is configured to assign as the synchronization code a randomly generated code each time the display device connects to the server system.”

354. Aldrey-Mahajan teaches claim 19 for the reasons discussed above. Section 12.19. Aldrey-Mahajan teaches the limitations of claim 21 for the same reasons that I discussed above for claim 10. Section 12.10.

12.22 Independent Claim 22

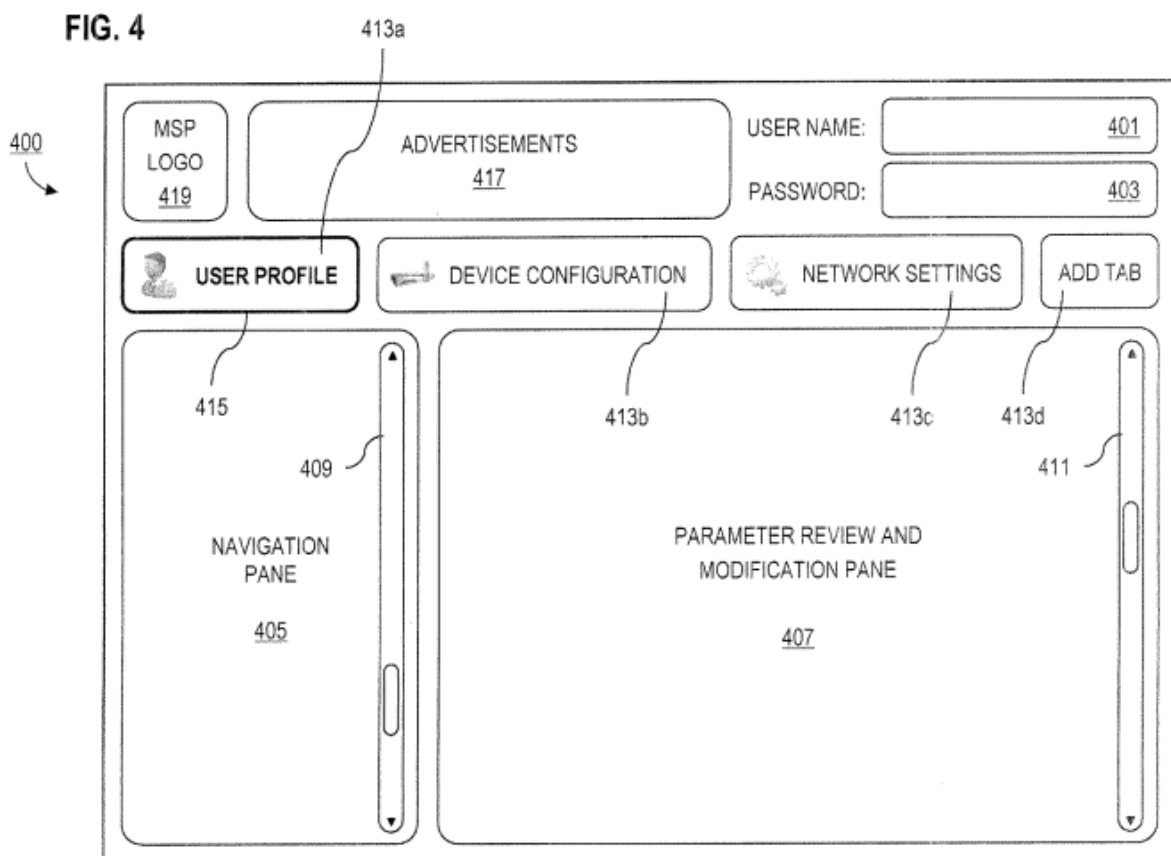
12.22.1. [22A]: “An automated machine-implemented method of presenting video content on a display device that loads any one of a plurality of different media players, the method comprising:”

355. As I previously discussed in Section 12.1.1, I have been informed that the preambles are not limiting, but in my opinion Aldrey-Mahajan teaches [22A].

12.22.2 [22B]: “displaying, by the display device, a synchronization code that was assigned to the display device by a server system, the server system subsequently storing, based on a message from a personal computing device that is separate from the server system and

the display device, an association between the display device and the personal computing device, the message from the personal computing device including the synchronization code;”

356. As described above in Sections 12.1.2-12.1.4, in my opinion, Aldrey-Mahajan teaches [22B]. Aldrey discloses a user interface 400 “wherein an authenticated subscriber may directly review and modify user profile information and/or network settings.” Ex. 1115, [0031], [0067]-[0071], Fig. 4.



Ex. 1115, Fig. 4

357. Therefore, in my opinion, Aldrey-Mahajan teaches [22B].

12.22.3 [22C]: “retrieving, by the display device from the server system, first information that specifies a first video file to be acted upon, that identifies a first media player for playing the first video file, and that indicates corresponding programming code to control playing of the first video file on the display device by the first media player in accordance with a first playback control command, wherein the server system previously received, from the personal computing device, one or more signals specifying the first video file, identifying the first media player and including the first playback control command;”

358. As described in Sections 12.1.5 and 12.1.6, Aldrey-Mahajan teaches the features [22C]. In the instance where multiple commands are sent for the same video file, this meets the limitation regarding “wherein the server system previously received... one or more signals specifying the first video file.” A POSITA would have understood that Aldrey’s system was intended to send multiple commands, and when multiple commands are sent a prior command would meet these limitations for the same reasons as discussed herein regarding a later command

359. Therefore, it is my opinion that Aldrey-Mahajan teaches limitation [22C].

12.22.4 [22D]: “obtaining, by the display device, over the Internet the first media player for playing the first video file;”

360. Aldrey teaches retrieving media content from online (e.g., Internet) sources. Ex. 1115, [0060]. Aldrey also teaches that the remote application, which can be connected via the Internet, may be loaded as an overlay on the media content in order to control the media being displayed. Ex. 1115, [0019], [0023]-[0025], [0030]-[0031], [0044]-[0047], [0052]-[0053], [0062]-[0066]. For example, Aldrey teaches that parameters may alter the “loaded software” in the presentation device. Ex. 1115, [0054].

It was also well known at the time that web pages comprised various embedded applications for viewing video. For example, HTML and Flash players were included in web pages, and were used to play video embedded in web players. *See* Section 8, above; Ex. 1115, [0068], [0075]. Those plugins could be downloaded as part of the web page, or separately (e.g., Flash player might be downloaded in advance or when not detected as part of the webpage). In some instances, web pages may have their own video content player that would download for their page (e.g., a proprietary player on a given web page). A POSITA would have thus understood that obtaining a media player to play video content on a web page was a well-known aspect of watching video on the Internet at the time. In these instances, the remote application functions as the first media player. Also, Mahajan teaches that the display device may display a webpage obtained and loaded over the Internet from a server for displaying content. Ex. 1114, [0019]-[0020].

361. Therefore, in my opinion, Aldrey-Mahajan teaches limitation [22D].

12.22.5 [22E]: “loading the first media player in the display device;”

362. As described in Section 12.22.4, Aldrey-Mahajan teaches obtaining a media player over the Internet in order to load (e.g., install) it on the controlled device (“the display device”). A POSITA would have understood that application would commonly be loaded in memory in order to be executed. This is a fundamental concept in executing applications, and was the standard process for operating an application, such as a media player, at the time. Even if an application were stored only temporarily, such as if a web browser downloaded a video player for a specific page, that player would

still need to be loaded into RAM so that it could be executed by the processor.

363. Therefore, it is my opinion that Aldrey-Mahajan teaches limitation [22E].

12.22.6 [22F]: “executing the first playback control command with respect to the first video file using the first media player;”

364. Aldrey teaches that the controlled device executes the commands. Ex. 1115, [0020], [0025], [0029]-[0030].

365. Therefore, in my opinion, Aldrey-Mahajan teaches limitation [22F].

12.22.7 [22G]-[22J]: “subsequently retrieving, by the display device from the server system, second information that specifies a second video file to be acted upon, that identifies a second media player different from the first media player for playing the second video file, and that indicates corresponding programming code to control playing of the second video file on the display device by the second media player in accordance with a second playback control command, wherein the server system previously received, from the personal computing device, one or more signals specifying the second video file, identifying the second media player and including the second playback control command;

obtaining, by the display device, over the Internet the second media player for playing the second video file;

loading the second media player in the display device; and

executing the second playback control command with respect to the second video file using the second media player.”

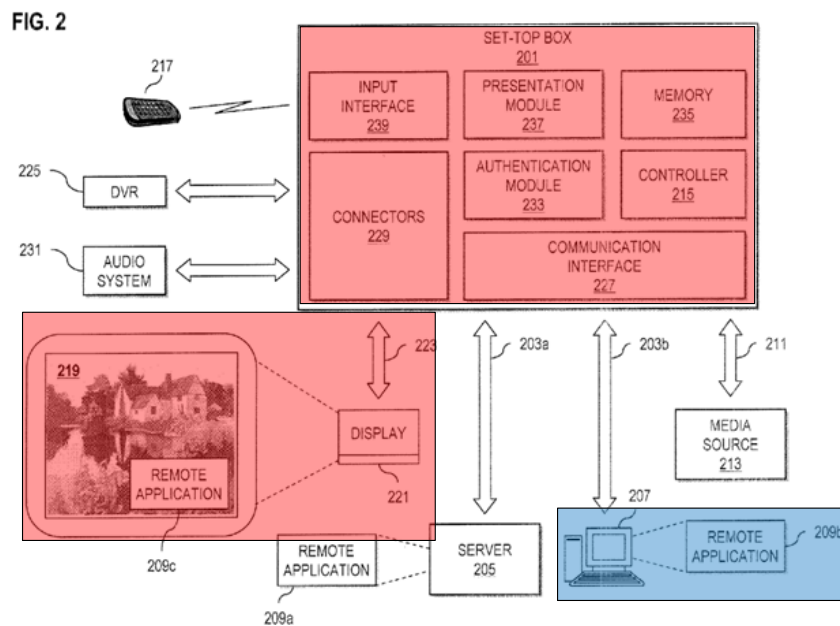
366. Limitations [22G]-[22J] are no different from limitations [22C]-[22F] except for a second video file, second media player different from the first media player, and second playback control command. Ex. 1101, claim 22. Aldrey teaches that multiple messages can be sent “on-the-fly” or “batched.” Ex. 1115, [0042]. Accordingly, the controlled device and the remote control operate in the same manner as described in

Sections 12.22.3-12.22.6 for a subsequent command entered by a user of the remote control for the controlled device, which includes converting the command to a second playback control command. A POSITA would thus have understood the same disclosure to teach operation of subsequent commands, and it would have been obvious that the commands could be repeated (or new commands entered) as often as desired to operate the device.

367. Therefore, it is my opinion that Aldrey-Mahajan teaches limitations [22F]-[22J].

12.23 Dependent Claim 23: “The method of claim 22 wherein the display device comprises a television set with a display screen.”

368. Aldrey-Mahajan teaches claim 22 for the reasons discussed above. *See* Section 12.22. Aldrey teaches that its embodiments employing a STB are equally applicable to a television set. Ex. 1115, [0012]. A POSITA at the time would have understood this disclosure to reference smart televisions, which were known at the time to incorporate some-or-all functionality from a STB. Aldrey’s Figure 2 shows an example of the STB 201 (red) displaying content on “a display 221 (e.g., television)” in response to commands from a remote application running on an end terminal 207 (blue). Ex. 1115, [0042], [0044].



Ex. 1115, Fig. 2 (annotated)

369. Therefore, in my opinion, Aldrey-Mahajan teaches claim 23.

12.24 Dependent Claim 24: “The method of claim 22 wherein the display device comprises a laptop or personal computer.”

370. Aldrey-Mahajan teaches claim 22 for the reasons discussed above. Section 12.22. Aldrey teaches that computer devices described throughout “may include desktop computers, notebook computers.” Ex. 1115, [0026].

371. Therefore, in my opinion, Aldrey-Mahajan teaches claim 24.

12.25 Dependent Claim 25: “The method of claim 22 wherein each of the first and second commands represents an instruction to play the respective video file, to stop playing the respective video file or to pause playing the respective video file.”

372. Aldrey-Mahajan teaches claim 22 for the reasons discussed above. Section 12.22. Aldrey-Mahajan further teaches the limitations of claim 25 for the same reasons that I discussed above regarding claim 5. Section 12.5.

373. Therefore, in my opinion, Aldrey-Mahajan teaches claim 25.

12.26 Dependent Claim 26: “The method of claim 22 wherein the display device checks whether the respective media player needed to play the particular one of the video files already is loaded in the display device before obtaining a copy of the media player over the Internet.”

374. Aldrey-Mahajan teaches claim 22 for the reasons discussed above. Section 12.22. Aldrey-Mahajan teaches the additional limitations of claim 26 for the same reason discussed in Section 12.22.4. In particular, in my opinion, a POSITA would have understood that a device would have checked if a video player were loaded before obtaining a copy over the Internet. For example, it was well known that web pages could be cached, and a display device would have determined if a portion of the web page (e.g., a media player) was cached locally before obtaining that data remotely. In another

example, it was well known that applications should only be loaded if needed. This would save the user time and bandwidth in downloading a media player. So if a user wished to view a Flash player, the system would determine if the Flash player was on the device. In some instances, this may be by showing an indication that a media player is missing, and directing the user to download it. In other instances, the device could check whether a media player was locally available, and download it automatically. All of these techniques were well known at the time, and a POSITA would have implemented one or more of those techniques as a mere design choice to maximize efficiency in the system.

375. Therefore, in my opinion, Aldrey-Mahajan teaches claim 26.

13. CONCLUSION

376. All of the statements made in this declaration of my own knowledge are true. All statements made based on information and belief are believed to be true. I declare under penalty of perjury that the foregoing is true and correct.

Dated: 8 / 7 / 2 0 2 4 By: 
David B. Lett

CLAIM LISTING APPENDIX

U.S. Pat. No. 8,356,251

Designation	Claim Language
Claim 1	
[1A]	1. A machine-implemented method of controlling presentation of video content on a display device that loads any one of a plurality of different media players, the method comprising:
[1B]	assigning, by a server system, a synchronization code to the display device;
[1C]	receiving, in the server system, a message from a personal computing device that is separate from the server system and separate from the display device, wherein the message includes the synchronization code;
[1D]	storing, by the server system, a record establishing an association between the personal computing device and the display device based on the synchronization code;
[1E]	receiving, in the server system, one or more signals from the personal computing device, the one or more signals specifying a video file to be acted upon and identifying a particular media player for playing the video content,
[1F]	the one or more signals further including a universal playback control command for controlling playing of the video content on the display device by the particular media player,
[1G]	converting, by the server system, the universal playback control command into corresponding programming code to control playing of the video content on the display device by the particular media player, wherein converting the universal playback control command includes selecting from among a plurality of specific commands, each of which represents a corresponding playback control command for a respective media player; and
[1H]	storing, in a database associated with the server system, information for transmission to or retrieval by the display device, wherein the information specifies the video file to be acted upon, identifies the particular media player for playing

Designation	Claim Language
	the video content, and includes the corresponding programming code to control playing of the video content on the display device by the particular media player in accordance with the universal playback control command.
Claim 2	
[2A]	2. The method of claim 1 including:
[2B]	checking, in the server system, the identity of the media player identified in the one or more signals from the personal computing device;
[2C]	loading an appropriate set of protocols or application programming interfaces from a library based on the identity of the media player; and
[2D]	converting the command from the personal computing device into corresponding code to control the media player.
Claim 3	
3	3. The method of claim 1 wherein converting the command into corresponding programming code to control the media player includes using information in a look-up table.
Claim 4	
4	4. The method of claim 3 wherein the look-up table stores a plurality of specific commands, each of which represents, respectively, a corresponding command for a different media player.
Claim 5	
5	5. The method of claim 1 wherein the universal command represents an instruction to play the video content, to stop playing the video content or to pause playing the video content.
Claim 6	
6	6. The method of claim 1 wherein the video content is an interactive video game.
Claim 7	
7	7. The method of claim 1 wherein the video content is streaming media.
Claim 8	
8	8. The method of claim 1 wherein the synchronization code is uniquely associated with the display device on which the video content is to be played.

Designation	Claim Language
Claim 9	
9	9. The method of claim 8 wherein the synchronization code is different from an IP address associated with the display device and is different from a MAC address associated with the display device.
Claim 10	
10	10. The method of claim 8 wherein assigning a synchronization code includes assigning a randomly generated code to the display device each time the display device connects to the server system.
Claim 11	
[11A]	11. A system for controlling playing of video content on a display device that loads any one of a plurality of different media players, the system comprising:
[11B]	a server system;
[11C]	a first database storing a relationship between a personal computing device and the display device based on a synchronization code assigned by the server system to the display device and received by the server system in a message from the personal computing device, wherein the personal computing device is separate from the server system and separate from the display device; and
[11D]	a second database;
[11E]	wherein the server system is configured to receive one or more signals from the personal computing device, the one or more signals specifying a video file to be acted upon and identifying a particular media player for playing the video content, the one or more signals further including a universal playback control command for controlling playing of the video content on the display device,
[11F]	one or more non-transitory computer-readable media storing instructions that when executed by the server system, cause the server system to perform operations including converting the universal playback control command into corresponding programming code to control playing of the video content by the particular media player, wherein converting the universal playback control command includes selecting from among a

Designation	Claim Language
	plurality of specific commands, each of which represents a corresponding playback control command for a respective media player;
[11G]	the server system being further configured to store in the second database information for transmission to or retrieval by the display device, wherein the information specifies the video file to be acted upon, identifies the particular media player for playing the video content, and includes the corresponding programming code to control playing of the video content on the display device by the particular media player in accordance with the universal playback control command.
Claim 12	
[12A]	12. The system of claim 11 including:
[12B]	a library storing protocols or application programming interfaces,
[12C]	wherein the server system is configured to check the identity of the media player identified in the one or more signals from the personal computing device, load an appropriate set of protocols or application programming interfaces from the library based on the identity of the media player, and convert the command from the personal computing device into a corresponding programming code to control the media player.
Claim 13	
[13A]	13. The system of claim 11 including:
[13B]	a look-up table storing a plurality of commands each of which is for a particular type of media player,
[13C]	wherein the server system is configured to convert the command into corresponding programming code to control the media player based on information in the look-up table.
Claim 14	
14	14. The system of claim 11 wherein the look-up table stores a correspondence between the universal command and a plurality of specific commands, each of which is for a different media player.
Claim 15	

Designation	Claim Language
15	15. The system of claim 14 the server system is configured to convert the universal command by selecting from among the plurality of specific commands stored in the look-up table.
Claim 16	
16	16. The system of claim 11 wherein the universal command represents an instruction to play the video content, to stop playing the video content or to pause playing the video content.
Claim 17	
17	17. The system of claim 11 wherein the video content is an interactive video game.
Claim 18	
18	18. The system of claim 11 wherein the video content is streaming media.
Claim 19	
19	19. The system of claim 11 wherein the synchronization code is uniquely associated with the display device on which the video content is to be played.
Claim 20	
20	20. The system of claim 19 wherein the synchronization code is different from an IP address associated with the display device and is different from a MAC address associated with the display device.
Claim 21	
21	21. The system of claim 19 wherein the server system is configured to assign as the synchronization code a randomly generated code each time the display device connects to the server system.
Claim 22	
[22A]	22. An automated machine-implemented method of presenting video content on a display device that loads any one of a plurality of different media players, the method comprising:
[22B]	displaying, by the display device, a synchronization code that was assigned to the display device by a server system, the server system subsequently storing, based on a message from a personal computing device that is separate from the server system and the display device, an association between the

Designation	Claim Language
	display device and the personal computing device, the message from the personal computing device including the synchronization code;
[22C]	retrieving, by the display device from the server system, first information that specifies a first video file to be acted upon, that identifies a first media player for playing the first video file, and that indicates corresponding programming code to control playing of the first video file on the display device by the first media player in accordance with a first playback control command, wherein the server system previously received, from the personal computing device, one or more signals specifying the first video file, identifying the first media player and including the first playback control command;
[22D]	obtaining, by the display device, over the Internet the first media player for playing the first video file;
[22E]	loading the first media player in the display device;
[22F]	executing the first playback control command with respect to the first video file using the first media player;
[22G]	subsequently retrieving, by the display device from the server system, second information that specifies a second video file to be acted upon, that identifies a second media player different from the first media player for playing the second video file, and that indicates corresponding programming code to control playing of the second video file on the display device by the second media player in accordance with a second playback control command, wherein the server system previously received, from the personal computing device, one or more signals specifying the second video file, identifying the second media player and including the second playback control command;
[22H]	obtaining, by the display device, over the Internet the second media player for playing the second video file;
[22I]	loading the second media player in the display device; and
[22J]	executing the second playback control command with respect to the second video file using the second media player.
Claim 23	

Designation	Claim Language
23	23. The method of claim 22 wherein the display device comprises a television set with a display screen.
Claim 24	
24	24. The method of claim 22 wherein the display device comprises a laptop or personal computer.
Claim 25	
25	25. The method of claim 22 wherein each of the first and second commands represents an instruction to play the respective video file, to stop playing the respective video file or to pause playing the respective video file.
Claim 26	
26	26. The method of claim 22 wherein the display device checks whether the respective media player needed to play the particular one of the video files already is loaded in the display device before obtaining a copy of the media player over the Internet.