

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TikTok Inc.
Petitioner

v.

NTECH Properties, Inc.
Patent Owner

IPR2024-01343
U.S. Patent No. 9,923,947

“Method and Apparatus for Efficient, Entertaining Information Delivery”

DECLARATION OF KEVIN ALMEROOTH, PH.D. IN SUPPORT OF
PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 9,923,947

TABLE OF CONTENTS

I.	Introduction.....	1
A.	Qualifications	1
1.	Educational Background.....	1
2.	Career	2
3.	Other Relevant Qualifications.....	10
B.	Previous Expert Witness Testimony	11
C.	Preparation for this Declaration	11
II.	LEGAL UNDERSTANDINGS.....	12
A.	Claim Construction	13
B.	Anticipation	13
C.	Obviousness.....	14
III.	The '947 Patent.....	15
A.	Specification.....	15
B.	Provisional Application (EX1009).....	17
C.	Prosecution History (EX1019).....	17
D.	Prosecution Histories of Other Family Members	18
1.	Prosecution History of Father '261 Patent (EX1018).....	18
2.	Prosecution History of Grand-Father '753 Patent (EX1017) ...	18
3.	Prosecution History of Great-Grand-Father '704 Patent (EX1016).....	19

E.	Level of Ordinary Skill in the Art.....	21
F.	Claim Construction	23
G.	Challenged Claims	23
IV.	The Prior Art.....	24
A.	State of the Art	24
B.	Whitehead (EX1003).....	27
C.	Cristofalo (EX1004).....	29
D.	Marcus '904 (EX1005).....	30
E.	Marcus '156 (EX1008).....	31
V.	Grounds.....	32
A.	<u>Ground 1: Whitehead</u>	32
1.	Claim 1	32
2.	Claim 2: <i>The method according to claim 1, wherein the element comprises at least one of media clips, sidebars, overlays, audio elements, animation elements, and graphical elements residing/displaying within or outside of a player region of the client device.</i>	52
B.	<u>Ground 2: Whitehead and Marcus '904</u>	53
1.	Motivation to Combine & Reasonable Expectation of Success	53
2.	Analysis	56
C.	<u>Ground 3: Cristofalo and Marcus '904</u>	58
1.	Motivation to Combine & Reasonable Expectation of Success	58

2.	Claim 1	61
3.	Claim 2: <i>The method according to claim 1, wherein the element comprises at least one of media clips, sidebars, overlays, audio elements, animation elements, and graphical elements residing/displaying within or outside of a player region of the client device.</i>	72
D.	Secondary Considerations	73
VI.	Conclusion	74

LIST OF EXHIBITS

Exhibit	Description
EX1001	U.S. Patent No. 9,923,947 (“’947 patent”)
EX1002	Declaration of Kevin Almeroth, Ph.D.
EX1003	U.S. Pat. 8,555,318 (“Whitehead”)
EX1004	U.S. Pat. Pub. No. 2002/0152117 (“Cristofalo”)
EX1005	U.S. Pat. Pub. No. 2006/0015904 (“Marcus ’904”)
EX1006	U.S. Patent No. 6,177,931
EX1007	Int’l Publ. No. WO 00/40021 (“Montie”)
EX1008	U.S. Pat. No. 6,032,156 (“Marcus ’156”)
EX1009	Provisional Application for U.S. Pat. No. 9,923,947 (U.S. Prov. Appl. No. 60/934,456)
EX1010	D. Wilkerson, “ACTV hopes to steal print's thunder” (Dec. 8, 2000)
EX1011	Amended Complaint in <i>NTECH Properties, Inc. v. ByteDance Ltd. et al.</i> , No. 2:24-cv-00130 (E.D. Tex.)
EX1012	Ben Hammersley, “Audible revolution” (Feb. 11, 2004)
EX1013	U.S. Pat. No. 6,388,714
EX1014	U.S. Pat. No. 7,467,398
EX1015	Verizon, “Verizon Unlocks Full Potential of Fiber-Based FiOS Internet and Video Services With Advanced 100-Mbps Broadband Home Router” (June 28, 2006)
EX1016	Prosecution History for U.S. Pat. No. 8,145,704
EX1017	Prosecution History for U.S. Pat. No. 8,886,753
EX1018	Prosecution History for U.S. Pat. No. 9,215,261
EX1019	Prosecution History for U.S. Pat. No. 9,923,947
EX1020	List of Recent Expert Witness Engagements of Dr. Kevin Almeroth

IPR of USP 8,145,704
Decl. of Dr. Kevin Almeroth

Exhibit	Description
EX1021	Curriculum Vitae of Dr. Kevin Almeroth
EX1022	R. Gelles-Watnick, “Americans’ Use of Mobile Technology and Home Broadband,” Pew Research Center (Jan. 31, 2024)

I, Dr. Kevin Almeroth, declare as follows:

I. Introduction

1. I have been retained by Quinn Emanuel Urquhart & Sullivan, LLP on behalf of the Petitioner TikTok Inc. (“Petitioner”) as an independent expert in this *inter partes* review (this “Proceeding”) before the Patent Trial and Appeal Board of the United States Patent and Trademark Office (the “Board”) to review claims 1-2 (“the challenged claims”) of U.S. Patent No. 9,923,947 (“the ’9497 patent”). I have been asked by the Petitioner to assist in evaluating the claims and the disclosure of the ’947 patent.

A. Qualifications

2. EX1021 is a true and correct copy of my current CV, which describes my education, patents and publications, employment and research history, and professional activities and awards.

1. Educational Background

3. I hold three degrees from the Georgia Institute of Technology: (1) a Bachelor of Science degree in Information and Computer Science (with minors in Economics, Technical Communication, and American Literature) earned in June 1992; (2) a Master of Science degree in Computer Science (with specialization in Networking and Systems) earned in June 1994; and (3) a Doctor of Philosophy (Ph.D.) degree in Computer Science (Dissertation Title: Networking and System

Support for the Efficient, Scalable Delivery of Services in Interactive Multimedia System, minor in Telecommunications Public Policy) earned in June 1997. During my education, I have taken a wide variety of courses as demonstrated by my minor. My undergraduate degree also included a number of courses more typical of a degree in electrical engineering including digital logic, signal processing, and telecommunications theory.

2. Career

4. I am currently a Professor Emeritus in the Department of Computer Science at the University of California, Santa Barbara (UCSB). While active at UCSB, I held faculty appointments and was a founding member of the Computer Engineering (CE) Program, Media Arts and Technology (MAT) Program, and the Technology Management Program (TMP). I also served as the Associate Director of the Center for Information Technology and Society (CITS) from 1999 to 2012. I have been a faculty member at UCSB since July 1997.

5. One of the major concentrations of my research has been the delivery of multimedia content and data between computing devices, including various network architectures. In my research, I have studied large-scale content delivery systems, and the use of servers located in a variety of geographic locations to provide scalable delivery to hundreds or thousands of users simultaneously. I have also studied smaller-scale content delivery systems in which content is exchanged

between individual computers and portable devices. My work has emphasized the exchange of content more efficiently across computer networks, including the scalable delivery of content to many users, mobile computing, satellite networking, delivering content to mobile devices, and network support for data delivery in wireless networks.

6. In 1992, the initial focus of my research was on the provision of interactive functions (e.g., VCR-style functions like pause, rewind, and fast-forward) for near video-on-demand systems in cable systems; in particular, how to aggregate requests for movies at a cable head-end and then how to satisfy a multitude of requests using one audio/video stream broadcast to multiple receivers simultaneously. This research has continually evolved and resulted in the development of techniques to scalably deliver on-demand content, including audio, video, web documents, and other types of data, through the Internet and over other types of networks, including over cable systems, broadband telephone lines, and satellite links.

7. An important component of my research has been investigating the challenges of communicating multimedia content, including video, between computers and across networks including the Internet. Although the early Internet was used mostly for text-based, non-real time applications, the interest in sharing multimedia content, such as video, quickly developed. Multimedia-based

applications ranged from downloading content to a device to streaming multimedia content to be instantly used. One of the challenges was that multimedia content is typically larger than text-only content, but there are also opportunities to use different delivery techniques since multimedia content is more resilient to errors. I have worked on a variety of research problems and used a number of systems that were developed to deliver multimedia content to users. One content-delivery method I have researched is the one-to-many communication facility called “multicast,” first deployed as the Multicast Backbone, a virtual overlay network supporting one-to-many communication. Multicast is one technique that can be used on the Internet to provide streaming media support for complex applications like video-on-demand, distance learning, distributed collaboration, distributed games, and large-scale wireless communication. The delivery of media through multicast often involves using Internet infrastructure, devices and protocols, including protocols for routing and TCP/IP.

8. Starting in 1997, I worked on a project to integrate the streaming media capabilities of the Internet together with the interactivity of the web. I developed a project called the Interactive Multimedia Jukebox (IMJ). Users would visit a web page and select content to view. The content would then be scheduled on one of a number of channels, including delivery to students in Georgia Tech dorms delivered

via the campus cable plant. The content of each channel was delivered using multicast communication.

9. In the IMJ, the number of channels varied depending on the capabilities of the server including the available bandwidth of its connection to the Internet. If one of the channels was idle, the requesting user would be able to watch their selection immediately. If all channels were streaming previously selected content, the user's selection would be queued on the channel with the shortest wait time. In the meantime, the user would see what content was currently playing on other channels, and because of the use of multicast, would be able to join one of the existing channels and watch the content at the point it was currently being transmitted.

10. The IMJ service combined the interactivity of the web with the streaming capabilities of the Internet to create a jukebox-like service. It supported true Video-on-Demand when capacity allowed, but scaled to any number of users based on queuing requested programs. As part of the project, we obtained permission from Turner Broadcasting to transmit cartoons and other short-subject content. We also connected the IMJ into the Georgia Tech campus cable television network so that students in their dorms could use the web to request content and then view that content on one of the campus's public access channels.

11. More recently, I have also studied issues concerning how users choose content, especially when considering the price of that content. My research has examined how dynamic content pricing can be used to control system load. By raising prices when systems start to become overloaded (*i.e.*, when all available resources are fully utilized) and reducing prices when system capacity is readily available, users' capacity to pay as well as their willingness can be used as factors in stabilizing the response time of a system. This capability is particularly useful in systems where content is downloaded or streamed on-demand to users.

12. Protecting networks, including their operation and content, has been an underlying theme of my research almost since the beginning of my research career. Starting in 2000, I have been involved in several projects that specifically address security, network protection, and firewalls. After significant background work, a team on which I was a member successfully submitted a \$4.3M grant proposal to the Army Research Office (ARO) at the Department of Defense to propose and develop a high-speed intrusion detection system. Key aspects of the system included associating streams of packets and analyzing them for viruses and other malware. Once the grant was awarded, we spent several years developing and meeting the milestones of the project. A number of my students worked on related projects and published papers on topics ranging from intrusion detection to developing advanced techniques to be incorporated into firewalls. I have also used firewalls, including

their associated malware detection features, in developing techniques for the classroom to ensure that students are not distracted by online content.

13. Recent work ties some of the various threads of my past research together. I have investigated content delivery in online social networks and proposed reputation management systems in large-scale social networks and marketplaces. On the content delivery side, I have looked at issues of caching and cache placement, especially when content being shared and the cache has geographical relevance. We were able to show that effective caching strategies can greatly improve performance and reduce deployment costs. Our work on reputation systems showed that reputations have economic value, and as such, creates a motivation to manipulate reputations. In response, we developed a variety of solutions to protect the integrity of reputations in online social networks. The techniques we developed for content delivery and reputation management were particularly relevant in peer-to-peer communication.

14. My involvement in the research community extends to leadership positions for several academic journals and conferences. I am the co-chair of the Steering Committee for the ACM Network and System Support for Digital Audio and Video (NOSSDAV) workshop and on the Steering Committees for the International Conference on Network Protocols (ICNP), ACM Sigcomm Workshop on Challenged Networks (CHANTS), and IEEE Global Internet (GI) Symposium. I

IPR of USP 8,145,704

Decl. of Dr. Kevin Almeroth

have served or am serving on the Editorial Boards of IEEE/ACM Transactions on Networking, IEEE Transactions on Mobile Computing, IEEE Network, ACM Computers in Entertainment, AACE Journal of Interactive Learning Research (JILR), and ACM Computer Communications Review. I have co-chaired a number of conferences and workshops including the IEEE International Conference on Network Protocols (ICNP), IEEE Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON), International Conference on Communication Systems and Networks (COMSNETS), IFIP/IEEE International Conference on Management of Multimedia Networks and Services (MMNS), the International Workshop On Wireless Network Measurement (WiNMee), ACM Sigcomm Workshop on Challenged Networks (CHANTS), the Network Group Communication (NGC) workshop, and the Global Internet Symposium, and I have served on the program committees for numerous conferences.

15. Furthermore, in the courses I taught at UCSB, a significant portion of my curriculum covered aspects of the Internet and network communication including the physical and data link layers of the Open System Interconnect (OSI) protocol stack, and standardized protocols for communicating across a variety of physical media such as cable systems, telephone lines, wireless, and high-speed Local Area Networks (LANs). The courses I have taught also cover most major topics in Internet communication, including data communication, multimedia

encoding, and mobile application design. My research and courses have covered a range of physical infrastructures for delivering content over networks, including cable, Integrated Services Digital Network (ISDN), Ethernet, Asynchronous Transfer Mode (ATM), fiber, and Digital Subscriber Line (DSL). For a complete list of courses I have taught, see my curriculum vitae (EX1021).

16. In addition, I co-founded a technology company called Santa Barbara Labs that was working under a sub-contract from the U.S. Air Force to develop very accurate emulation systems for the military's next generation internetwork. Santa Barbara Labs' focus was in developing an emulation platform to test the performance characteristics of the network architecture in the variety of environments in which it was expected to operate, and, in particular, for network services including IPv6, multicast, Quality of Service (QoS), satellite-based communication, and security. Applications for this emulation program included communication of a variety of multimedia-based services, including video conferencing and video-on-demand.

17. In addition to having co-founded a technology company myself, I have worked for, consulted with, and collaborated with companies for nearly 30 years. These companies range from well-established companies to start-ups and include IBM, Hitachi Telecom, Turner Broadcasting System (TBS), Bell South, Digital Fountain, RealNetworks, Intel Research, Cisco Systems, and Lockheed Martin.

18. Additional details about my employment history, fields of expertise, and publications are further included in my CV (EX1021).

3. Other Relevant Qualifications

19. I am a Member of the Association of Computing Machinery (ACM) and a Fellow of the Institute of Electrical and Electronics Engineers (IEEE).

20. As an important component of my research program, I have been involved in the development of academic research into available technology in the market place. One aspect of this work is my involvement in the Internet Engineering Task Force (IETF). The IETF is a large and open international community of network designers, operators, vendors, and researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet. I have been involved in various IETF groups including many content delivery-related working groups like the Audio Video Transport (AVT) group, the MBone Deployment (MBONED) group, Source Specific Multicast (SSM) group, the Inter-Domain Multicast Routing (IDMR) group, the Reliable Multicast Transport (RMT) group, the Protocol Independent Multicast (PIM) group, etc. I have also served as a member of the Multicast Directorate (MADDOGS), which oversaw the standardization of all things related to multicast in the IETF. Finally, I was the Chair of the Internet2 Multicast Working Group for seven years.

21. I am an author or co-author of approximately 200 technical papers, published software systems, IETF Internet Drafts and IETF Request for Comments (RFCs). A complete list of my publications is in my CV (EX1021).

22. I have been awarded numerous teaching awards, including Computer Science Outstanding Faculty Member (1997-98, 1998-99, 1999-2000, 2004-06, UCSB Spotlight on Excellence Award (2000-01), and UCSB Academic Senate Distinguished Teaching Award (2006-07).

B. Previous Expert Witness Testimony

23. The list of recent matters in which I have testified can be found in EX1020.

C. Preparation for this Declaration

24. In forming my opinions, I have considered the '947 patent specification, including the Abstract, the figures, and the claim language itself, as would have been understood by a person having ordinary skill in the art. I have also reviewed the file history of the '947 patent, the Exhibits that are listed in the list of Exhibits within the Petition, and any other material cited in this declaration.

25. In forming my opinions, I have relied on my personal knowledge and professional experience, and on the documents and information referenced in this declaration.

26. This declaration explains, based on facts and information available to me to date, the subject matter and opinions related to this Proceeding. As such, I am prepared to provide expert testimony regarding opinions formed resulting from my analysis of the issues considered in this declaration if asked about those issues by the Board or by the private parties' attorneys.

27. Additionally, I may discuss my own work, teachings, and knowledge of the state of the art in the relevant time period. I may rely on handbooks, textbooks, technical literature, and the like to demonstrate the state of the art in the relevant period and the evolution of relevant technologies.

28. Throughout this declaration, I refer to specific pages of the '947 patent and other documents. The citations are intended to be exemplary and are not intended to convey that the citations are the only source of evidence to support the propositions for which they are cited.

29. I am being compensated for my time spent on this matter at a rate of \$850 per hour, and my compensation is in no way contingent upon the outcome of this matter or on the opinions I offer. All of the opinions expressed in this declaration are my own.

II. LEGAL UNDERSTANDINGS

30. In this section, I describe my understanding of certain legal standards that I have relied upon in forming my opinions set forth in this declaration. I have

been informed of these legal standards by Petitioner's attorneys. I am not an attorney and I have not thoroughly researched the law on patent invalidity. I am relying only on instructions from Petitioner's attorneys for these legal standards.

A. Claim Construction

31. I have been instructed by counsel that claim construction is a matter of law for the arbiter of law to decide. I understand that in an *inter partes* review, claims are construed using the same claim construction standard that would be used to construe the claim in a civil action.

32. I understand that a patent may include two types of claims, independent claims and dependent claims. An independent claim stands alone and includes only the limitations it recites. A dependent claim can depend on an independent claim or another dependent claim. I understand that a dependent claim includes all the limitations that it recites in addition to the limitations recited in the claim from which it depends.

B. Anticipation

33. I understand that a patent claim is anticipated when a single piece of prior art describes every element of the claimed invention, either expressly or inherently, arranged in the same way as in the claim. For inherent anticipation to be found, it is required that the missing descriptive material is necessarily present in the prior art. I understand that, for the purpose of an *inter partes* review, prior art that

anticipates a claim can include both patents and printed publications from anywhere in the world.

C. Obviousness

34. I understand that a patent claim is unpatentable and invalid if the subject matter of the claim as a whole would have been obvious to a person of ordinary skill in the art of the claimed subject matter as of the time of the invention at issue. I understand that the following factors must be evaluated to determine whether the claimed subject matter is obvious: (1) the scope and content of the prior art; (2) the difference or differences, if any, between each claim of the patent and the prior art; and (3) the level of ordinary skill in the art at the time the patent was filed. Unlike anticipation, which allows consideration of only one item of prior art, I understand that obviousness may be shown by considering more than one item of prior art. Moreover, I have been informed and I understand that the so-called objective indicia of non-obviousness, also known as “secondary considerations,” like the following are also to be considered when assessing obviousness: (1) commercial success; (2) long-felt but unresolved needs; (3) copying of the invention by others in the field; (4) initial expressions of disbelief by experts in the field; (5) failure of others to solve the problem that the inventor solved; and (6) unexpected results. I also understand that evidence of objective indicia of non-obviousness must be commensurate in scope with the claimed subject matter.

III. The '947 Patent

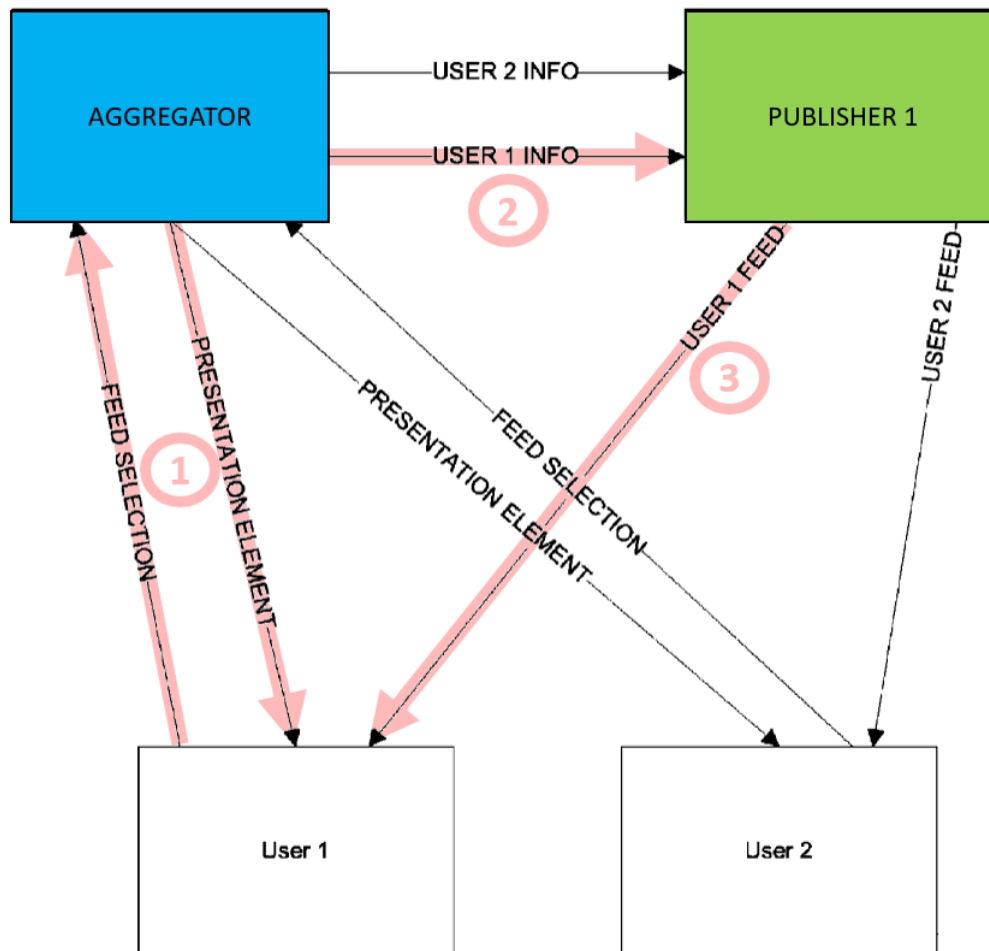
A. Specification

35. The '947 patent is a pre-AIA patent that claims priority to June 13, 2007 based on the filing of U.S. Provisional Patent Application No. 60/934,456 (“the '456 provisional”). It is titled “Method and system for providing media programming” and lists a sole named inventor, Dwight Marcus. The '947 patent was filed as U.S. Patent Application No. 14/967,620 (“the '620 application”) on December 14, 2015 and issued on March 20, 2018. The “Detailed Description” in the '456 provisional consisted of less than 40 paragraphs and a single figure, which eventually became Figure 1 of the '947 patent.

36. The '947 patent specification relies on long-existing technologies, such as “the Internet,” “TCP/IP protocol,” and “MPEG-3 format for video.” EX1001 at 4:16-17, 14:48-58. In addition, like the Marcus '904 publication before it, the '947 patent specification relies on the Marcus '156 patent for all selecting, ordering, and assembling of media programming. EX1001 at 1:26-36, 5:54-51, 9:39-49, 9:65-10:2, 10:36-38.

37. The '947 patent issued with claims 1-2, including independent claim 1. Claims 1-2 are directed to the concept of generating custom media programming

using an “*aggregator*” and a “*publisher*.”¹ These components are shown in the ’947 patent’s Figure 1:



¹ References to claimed “*aggregator*” or a prior art system component being mapped to the “*aggregator*” claim limitation are in blue.

References to claimed “***publisher***” or a prior art system component being mapped to the claimed “***publisher***” are in **green**.

38. Claims 1-2 recite four basic steps. **Step 1:** The *aggregator* provides a user interface presenting available media feeds and receives a user selection of one of those media feeds. **Step 2:** The *aggregator* then provides the user selection and user profile information to the *publisher*. **Step 3:** The *publisher* generates custom media programming comprising the selected media feed and advertising or other media elements and provides the custom media programming to the user. **Step 4 (not shown in Fig. 1):** The *publisher* dynamically updates the inserted advertising or mother media elements based on additional user profile information from the *aggregator*.

B. Provisional Application (EX1009)

39. PO filed the provisional application for the '947 patent (U.S. Prov. Appl. No. 60/934,456) on June 13, 2007. The "Detailed Description" in this provisional application consisted of less than 40 paragraphs and a single figure, which eventually became Figure 1 of the '947 patent.

C. Prosecution History (EX1019)

40. The Examiner rejected the pending claims of the '947 patent application twice as anticipated or obvious. EX1019 at 86-89, 125-129. Eventually, applicant substantially amended the claims. EX1019 at 141. Applicant made the following argument:

This allows the publisher to customize additional elements in the media programming on a user by user basis. The publisher can receive information about a user's graphic location and provide an element (e.g. a sidebar) based on that location (e.g. an ad for a local restaurant). The system continually updates the element based on updated information. This also allows initial content streams to be progressively personalized and each user can receive a personalized 'page' created on the fly in real time for that user. Garcia-Martin is silent on this point and does not teach or suggest all of the elements of claim 1. Claim 2 depends from claim 1 and is allowable based on the above arguments. Applicant respectfully requests that the rejection be withdrawn.

EX1019 at 139.

41. The Examiner allowed the claims. EX1019 at 152-157.

D. Prosecution Histories of Other Family Members

1. Prosecution History of Father '261 Patent (EX1018)

42. The Examiner allowed the new claims of the '261 patent application in the first action. EX1018 at 71-79.

2. Prosecution History of Grand-Father '753 Patent (EX1017)

43. The Examiner rejected the pending claims of the '753 patent application twice as anticipated or obvious. EX1017 at 62-65, 88-93. After the first rejection, applicant made the following arguments:

"Client information" relates to information about a client device and user information relates to information about one or more users. A given user may use different clients and a given client may have different users. According to the specification, client information can include user selections and user information. See, Specification, ¶ [0004]. Client and user information can be independent of each other, such as information that identifies a particular client or user. Client and user information can become dependent, or user information may coincide with client information, at least temporarily, for example when a user is associated with or is using a client.

The Applicant respectfully disagrees with the Examiner. Original claim 1 specified that the media elements, among other things, are “concatenated” according to user information. The ordinary meaning of “concatenate” is this: “to link together, to unite in a successive series or chain, as things depending on each other.” See, Webster’s New Twentieth Century Dictionary (Unabridged), 2d Ed., William Collins + World Publishing Co., Inc. (1977), p. 735 (copy attached). According to the Specification, the invention provides “a concatenated *sequence* of media elements, in which the *order* and selection of media elements is determined by algorithms [and] the algorithms may include as variables the user information.” Specification, at ¶ [0017]. As claimed, the “concatenated” media elements are not just selected, they are ordered in a coherent sequence, in relation to and depending upon each other, and upon user information.

According to applicant, the cited art failed to disclose “‘concatenated’ media elements [that] are not just selected, they are ordered in a coherent sequence, in relation to and dependent upon each other, and upon user information.” EX1017 at 76.

44. After the second rejection, applicant amended then claims and then repeated the argument that the cited art does not disclose “providing to the client individual customized media programming based on a publisher-initiated feed responsive to the feed selection and including media elements selected ordered, and concatenated with the feed that are responsive at least in part to the user information.” EX1017 at 127-132. In response, the Examiner allowed the claims. EX1017 at 182-189.

3. Prosecution History of Great-Grant-Father ’704 Patent (EX1016)

45. PO filed the non-provisional application for the ’704 patent on June 13, 2008. The Examiner rejected the pending claims of the ’704 patent application twice

IPR of USP 8,145,704

Decl. of Dr. Kevin Almeroth

as anticipated or obvious. The Examiner issued a first non-final office action on February 2, 2010 rejecting all the pending claims in light of U.S. Pub. 2006/0167860 Eliashberg et al (“Eliashberg “). EX1016 at 65-72. On August 4, 2010 the applicant submitted remarks in an amendment that Eliashberg “lacks the concatenation of elements of a publisher initiated feed.” EX1016 at 80-92. On October 4, 2010 the Examiner issued a Final Rejection which included new grounds for rejection of the pending claims as obvious under Eliashberg in light of U.S. Pat. No. 7,617,190 (“Wright”). EX1016 at 98-107. On November 4, 2011 the applicant amended the claims to, among other changes, specify a temporal sequence of media programming, and argued that Eliashberg and Wright did not disclose “a temporal sequence of media programming.”

19. (CURRENTLY AMENDED) A method for aggregating media programming, comprising:

- presenting to a user a list of media streams feeds;
- receiving an input signal having data indicative of a selection of one of the media streams feeds from the list;
- providing an output signal having data indicative of the selection;
- receiving, responsive to the output signal, at least the selected media stream a first feed; and
- responsive to the data indicative of the selection based on the first feed and user information, and using at least one algorithm for selection and sequencing of media elements, selecting a temporal sequence of media programming comprising the selected media stream and other media elements, and providing media programming a modified feed to the user, the media programming modified feed comprising the other media elements selected and concatenated in accordance with the temporal sequence with the selected media stream first feed based on the user information.

46. The applicant then argued the prior art lacks “a temporal sequence for generating media programming from a media stream and other media elements of a plurality of media streams.” EX1016 at 131. The Applicant argued the prior art was limited to disclosing a “feed in the form or, for example, a list of RSS headlines.” EX1016 at 131. After that, the Examiner allowed the claims. EX1016 at 140-147.

E. Level of Ordinary Skill in the Art

47. I understand that a person of ordinary skill in the art (“POSITA”) is a hypothetical person who is presumed to be aware of all pertinent art, thinks along conventional wisdom in the art, and is a person of ordinary creativity—not an

automaton. In deciding the level of ordinary skill, I understand that the following factors may be considered:

- The levels of education and experience of persons working in the field;
- The types of problems encountered in the field; and
- The sophistication of the technology.

48. I understand that the asserted claims of the asserted patents must be evaluated from the perspective of a POSITA. In my opinion, the relevant art for this patent relates to delivery of video content over a computer network. I understand that the relevant point in time for determining the qualifications of a person of ordinary skill in the state-of-the-art is the time of the alleged invention, which I assume to be the earliest filing date for the patent. Here, I understand that the earliest alleged priority date is June 13, 2007.

49. In my opinion, a POSITA at the time of the alleged invention would have had at least a Bachelor of Science in electrical engineering, computer engineering, or similar fields and at least two years of practical experience in the field of media processing and/or transmission. More education can supplement for less practical experience, and vice versa.

50. This level of skill is approximate, and more experience would compensate for less formal education, and vice versa. I meet these criteria now and met them at the time of the alleged invention. I have applied this level of skill in my

analysis. My opinions would not change if a slightly higher or lower level of ordinary skill applied.

F. Claim Construction

51. I have been instructed by Petitioner to perform my technical analysis of the disclosures of the prior art by applying the plain and ordinary meaning of all claim terms. I have not been asked to opine on the correctness of any claim constructions.

52. I reserve the right to provide additional opinions concerning claim construction or the application of certain claim constructions to the prior art, as appropriate, and to respond to any particular claim construction-related argument advanced by PO and/or its expert.

53. As described in more detail in the remainder of this declaration, the prior art discloses or renders obvious the challenged claims under any reasonable potential claim interpretation.

G. Challenged Claims

54. I understand that claims 1-2 are at issue in Petitioner's petition for *inter partes* review. They are reproduced below for reference.

Claim	Limitation
1[pre]	A method of generating customized media programming, comprising:
1[a]	providing by an aggregator, to a client device associated with a user, a list of media feeds available from at least one publisher, wherein each

Claim	Limitation
	said media feed comprises a plurality of media elements selected from audio media elements, visual media elements, and combinations thereof;
1[b]	receiving by the aggregator from the client device a selection identifying at least one of the media feeds;
1[c]	providing, to a publisher from the aggregator, the media feed selection received from the client device;
1[d]	analyzing, by the publisher, user information included in the media feed selection;
1[e]	inserting into media programming based on a publisher-initiated feed responsive to the media feed selection, based on the user information, an element based on at least one of positioning, frequency, type, demographic targeting, geo-targeting and psychographic targeting;
1[f]	providing, to the client device, the media programming; and
1[g]	dynamically updating the element in the media programming responsive to additional user information provided by the aggregator.
2	The method according to claim 1, wherein the element comprises at least one of media clips, sidebars, overlays, audio elements, animation elements, and graphical elements residing/displaying within or outside of a player region of the client device.

IV. The Prior Art

55. All of the underlying technologies of the '947 patent claims were well-known to a POSITA. I briefly describe here some of the relevant technologies.

A. State of the Art

56. Since the early days of radio and television broadcasting, media providers have sought to understand their audience and cater to their preferences. By

the 1970s, television programming became further customizable via the advent of local programming insertion. Cable providers would dedicate slots within their national programming for local affiliates to insert their own programming on a market-by-market level.

57. Programming became customizable on an individual subscriber level in the early 1990s with the introduction of electronic program guides (EPGs). With EPGs, a user was able to browse a menu of available television programming and tune to a particular program by selecting its program listing. In addition, EPGs could automatically tune to channels based on user profile data, thereby creating custom media programming. For example, U.S. Pat. No. 6,177,931 (filed in 1998, issued Jan. 23, 2001, § 102(b) art) describes an EPG that monitors user interactions to generate viewer profile information, and then uses that information to automatically tune to a particular advertising channel during a commercial break. EX1006 at 28:11-35:36. As another example, U.S. Pat. No. 8,813,122 (filed in 1999, published July 6, 2000, § 102(b) art) describes generating a “virtual channel” of programming specifically selected based on the user’s profile and then automatically tuning to programming according to a defined schedule. EX1007 at 5-6.C

58. The next step in the evolution of custom media programming was brought by advances in computer technology. By the early 1990s, most components of the modern Internet were in place—including web servers that support HTTP over

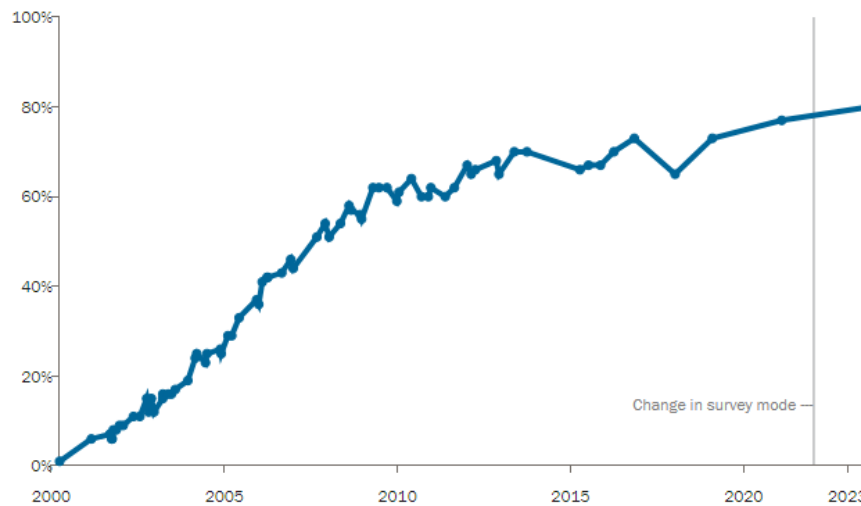
TCP/IP traffic—and codecs for transmitting video over computer networks (such as MPEG) had also been standardized. Importantly, unlike broadcast technology, TCP/IP permits a web server to receive a request from a specific user and respond to that user's request with individualized custom media programming.

59. One limiting factor was that most households in the 1990s did not have sufficient Internet speeds to support video streaming. Standard definition video requires about 0.5 – 1.5 Mbps. In the 1990s, only 56 kbps dial-up was available to most U.S. households with Internet access. This changed with the introduction of broadband Internet connections. In 2000, about 7 million U.S. households had broadband Internet subscriptions. In 2000, only 1% of U.S. households had broadband Internet subscriptions. By 2007, that had grown to about 50%.²

²See <https://www.pewresearch.org/internet/fact-sheet/internet-broadband/#who-has-home-broadband> (interactive graph); *see also* EX1022 at 4. Pew Research Center is a nonpartisan think tank based in Washington D.C. Moreover, based on my experience in the industry, I can independently confirm there was a dramatic rise in broadband availability from 2000 to 2007.

Home broadband use

% of U.S. adults who say they subscribe to home broadband



60. This rendered transmitting video programming over the Internet commercially desirable, leading to a rapid rise in Internet-based media companies. For example, YouTube was founded in 2005, Amazon Prime debuted in 2006, and Netflix launched its streaming service in January 2007.

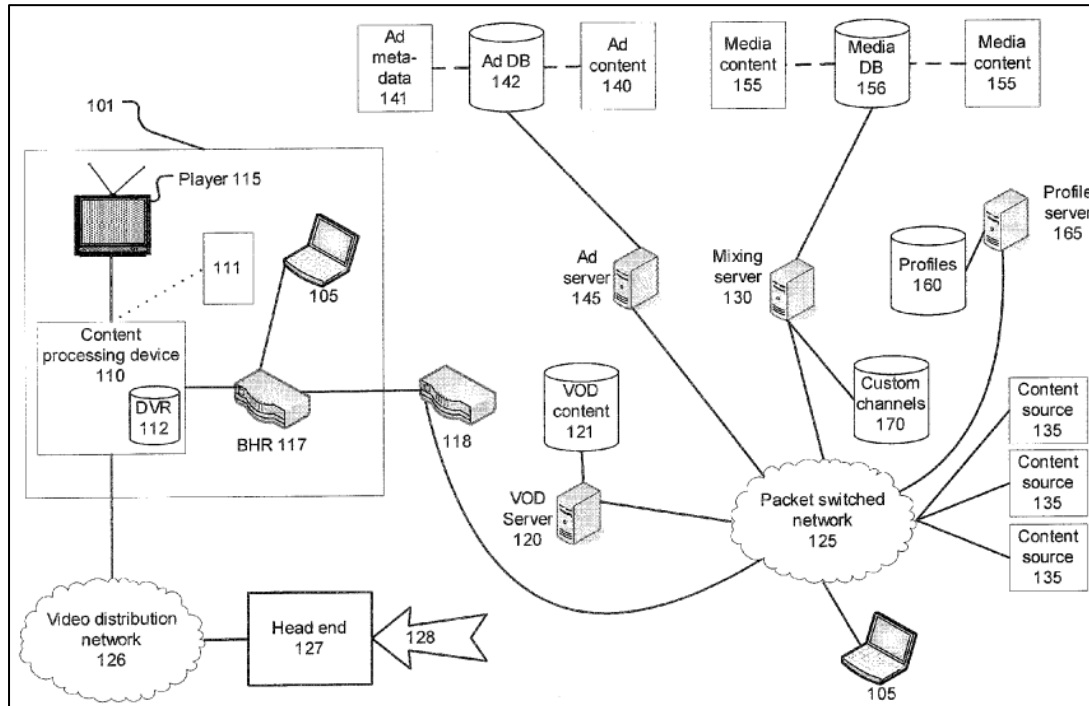
61. With this rise in commercial interest in transmitting media programming over the Internet there was corresponding influx of patent applications on techniques for generating and updating custom media programs based on user selections and user information.

B. Whitehead (EX1003)

62. In 2005-2006, Verizon was expanding its fiber-based broadband Internet and video services, allowing its customers to stream videos at speeds of up to 30 Mbps. EX1015. As part of this effort, Verizon also introduced its “FiOS TV

service.” EX1015. Verizon filed the application for Whitehead, which related to Verizon’s broadband expansion, on Dec. 6, 2006. Whitehead issued as U.S. Pat. No. 8,555,318 on October 8, 2013 and is prior art under 35 U.S.C. § 102(e).

63. Whitehead describes “creat[ing] a custom media channel based on [a user] profile” and “provid[ing] the custom media channel upon a request from a user, wherein the custom media channel includes more than one item of multimedia content.” EX1003 at Abstract. Whitehead’s system is shown in its Figure 1:



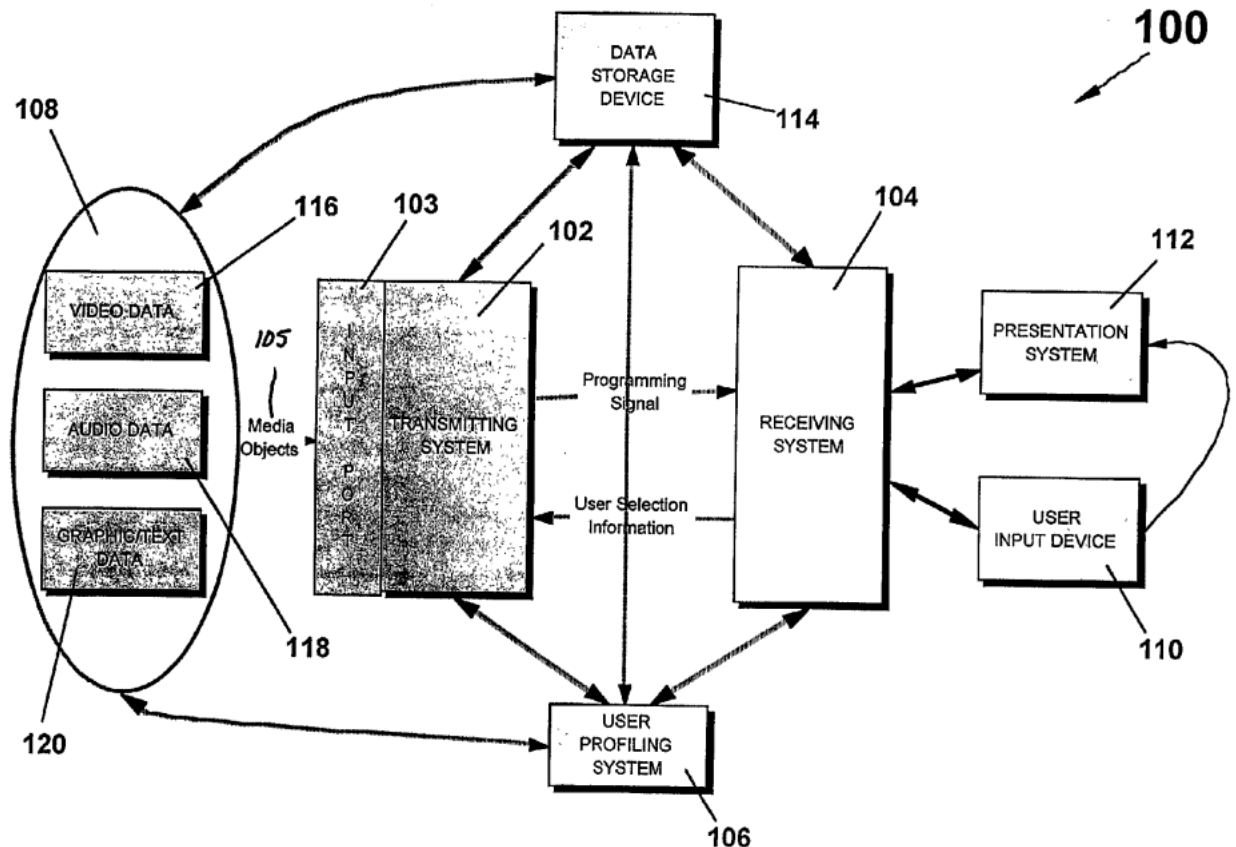
64. A mixing server 130 creates custom media channel 170 based on a profile 160 for that channel and metadata about multimedia content available from different content sources 135. The mixing server 130 also includes advertisements

140 in custom media channel 170. The custom media channel 170 is then transmitted to content processing device 110 for playback on player 115.

C. Cristofalo (EX1004)

65. ACTV developed technology for targeting advertisements to specific users by “trigger[ing] a set-top box to switch to the appropriate commercial.” EX1010. This functionality was deployed in early 2001 in partnership with AT&T. EX1010. ACTV also filed an application on this technology on April 12, 2001, which was published as U.S. Pat. Apl. Pub. No. 2002/0152117 (“Cristofalo”) on October 17, 2002. Cristofalo is prior art under 35 U.S.C. §102(b).

66. Cristofalo describes “[a] system and process for targeting programming (including, but not limited to, advertising) to users by utilizing media objects to provide specific content to a user, or groups of users, based upon profiling information.” EX1004 at Abstract. Cristofalo’s system is shown in its Figure 1:



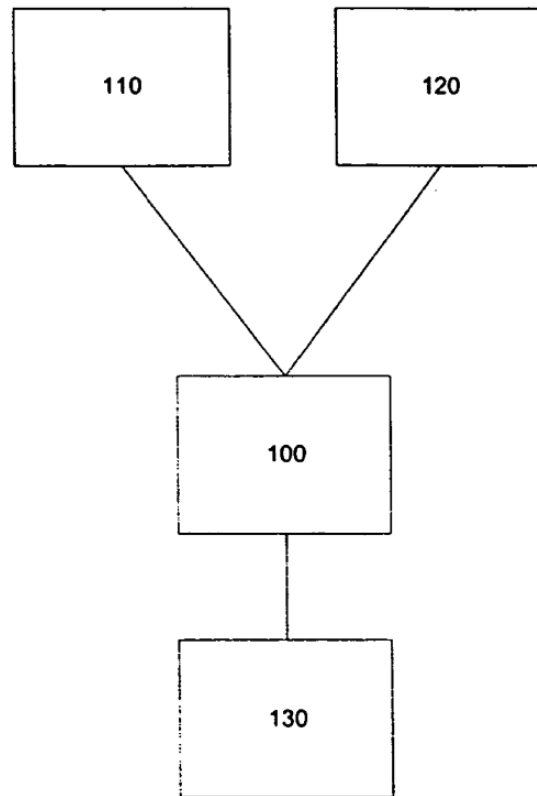
67. Cristofalo teaches that media objects can be targeted to specific users at transmitting system 102, receiving system 104, or a combination of the two. EX1004 ¶ 49. For example, transmitting system 102 may modify a commercial for specific markets or groups of users. EX1004 ¶¶ 35, 47. Alternatively, receiving system 104 may receive multiple, multiplexed media objects and select the appropriate media object for inclusion in the programming. EX1004 ¶ 36.

D. Marcus '904 (EX1005)

68. Marcus '904 was published on January 19, 2006. Marcus '904 is prior art under 35 U.S.C. §102(b). Marcus '904 has the same named inventor and assignee as the challenged '947 patent.

69. Marcus '904 describes a custom program assembled from content obtained from “a first media source 110 and a second media source 120.” EX1005 ¶

31. Marcus '904's system is shown in its Figure 1:



E. Marcus '156 (EX1008)

70. U.S. Pat. No. 6,032,156 (“Marcus '156”) is incorporated by reference in both Marcus '904 and the '947 patent. Marcus '156 was issued on February 29, 2000.

71. Marcus '156 describes delivering a custom media program to a user. EX1008 at Abstract. The system selects “[m]edia elements” in response to a user request for media programming, and those elements are then assembled into a

temporal sequence. EX1008 at Abstract. Marcus '156 relies on “tags” to implement this process, including “content tags” containing “information identifying the content of the clip” and “control tags” defining how clips are assembled. EX1008 at 3:2-13, 5:3-39. These tags are used in conjunction with a database of “viewer information” to select clips for the media programming and create “customized programming.” EX1008 at 10:9-20. This “customized programming” is then delivered to the user over the Internet as a “concatenated stream.” EX1008 at 3:44-46, 11:1-10.

V. Grounds

A. Ground 1: Whitehead

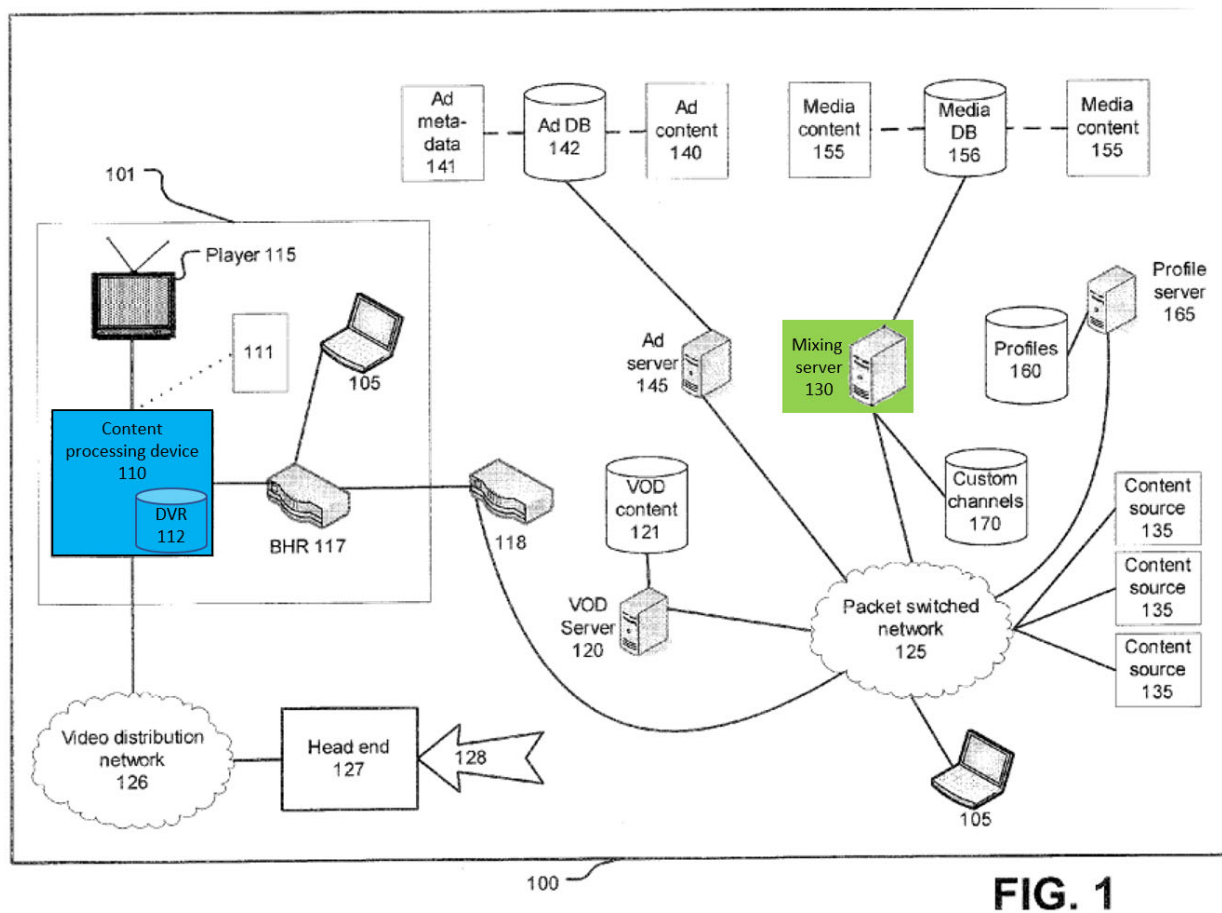
1. Claim 1

(a) 1[pre]: *A method of generating customized media programming, comprising:*

72. In my opinion, Whitehead discloses this element. Whitehead discloses system 100 for “receiving a video signal from a network and providing programming such as video to media player 115.” EX1003 at 2:4-16. Accordingly, Whitehead discloses this element.

- (b) 1[a][i]: *providing by an aggregator, to a client device associated with a user, a list of media feeds available from at least one publisher*

73. In my opinion, Whitehead discloses this element. Whitehead discloses **content processing device 110**, which is the claimed “**aggregator**,” and **mixing server 130**, which is the claimed “**publisher**.”³



³ References to the '947 patent claim language are bold and italicized. Emphasis is bolded but not italicized. Emphasis is added unless otherwise indicated.

74. I note that the '947 patent specification describes an “*aggregator*” as “provid[ing] a presentation element”—i.e., a user interface—to user 1 120 and 2 130” for different media feeds. EX1001 at 2:53-56, 3:16-29. Whitehead similarly discloses that its **content processing device 110** presents a menu of media programming available from different sources. For example, Whitehead discloses that its **content processing device 110** “performs operations relating to generating a user interface, e.g., that is displayed in media player 115.” EX1003 at 2:60-3:7; *see also* EX1003 at 15:16-22. A user may then “browse a menu of video-on-demand-options displayed on media player 115.” *Id.* at 3:59-4:9, 6:47-7:2. The user may also use **content processing device 110** to “select a channel ... associated with a custom media channel 170.” *Id.* 15:23-41; *see also id.* 18:47-62. Each of these custom media channels 170 includes content from one or more different content sources 135, and a collection of custom media channels thus covers multiple different content sources 135. *Id.* at 3:14-28, 5:56-6:9, 7:3-18.

75. The '947 patent describes the claimed “*publisher*” as a “source[] of media content.” EX1001 at 6:18-30. The same is true for Whitehead’s **mixing server 130**: “A basic purpose of [Whitehead’s] **mixing server 130** is to assemble and deliver to **content processing device 110** one or more custom media channels.” EX1003 at 4:10-26. In addition, Whitehead’s **mixing server 130** may be “combined” with VOD server 120. *Id.* Thus, in my opinion a POSITA would

understand that Whitehead's **mixing server 130** is a source of media content (custom media channels 170 and content from VOD server 120) for **content processing device 110** and accordingly the claimed "***publisher***."

76. Whitehead also discloses media player 115 that is either a stand-alone device or software running on computer 105 ("***client device***") and that a user is interfacing with ("***associated with a user***"). EX1003 at 2:4-16, 2:31-39, 2:52-3:7, 3:59-4:9, 15:16-22.

77. Finally, in my opinion Whitehead's **content processing device 110** provides to media player 115 ("***client device***") for display a menu "indicat[ing] a plurality of custom media channels 170" ("***list of media feeds***") that are available from **mixing server 130**. EX1003 at 2:60-3:7, 3:59-4:9, 4:45-52, 6:20-34, 10:46-67, 11:9-16, 11:40-58, 15:16-16:53, 18:47-62. In my opinion, Whitehead discloses or renders obvious this limitation under two mappings: the "***media feeds***" are either (1) custom media channels 170 made available by **mixing server 130** to **content processing device 110** (**Media Feed Mapping 1**); or (2) media content transmitted by content sources 135 to **mixing server 130** (**Media Feed Mapping 2**).

(i) **Media Feed Mapping 1: custom media channels 170 are claimed “media feeds”**

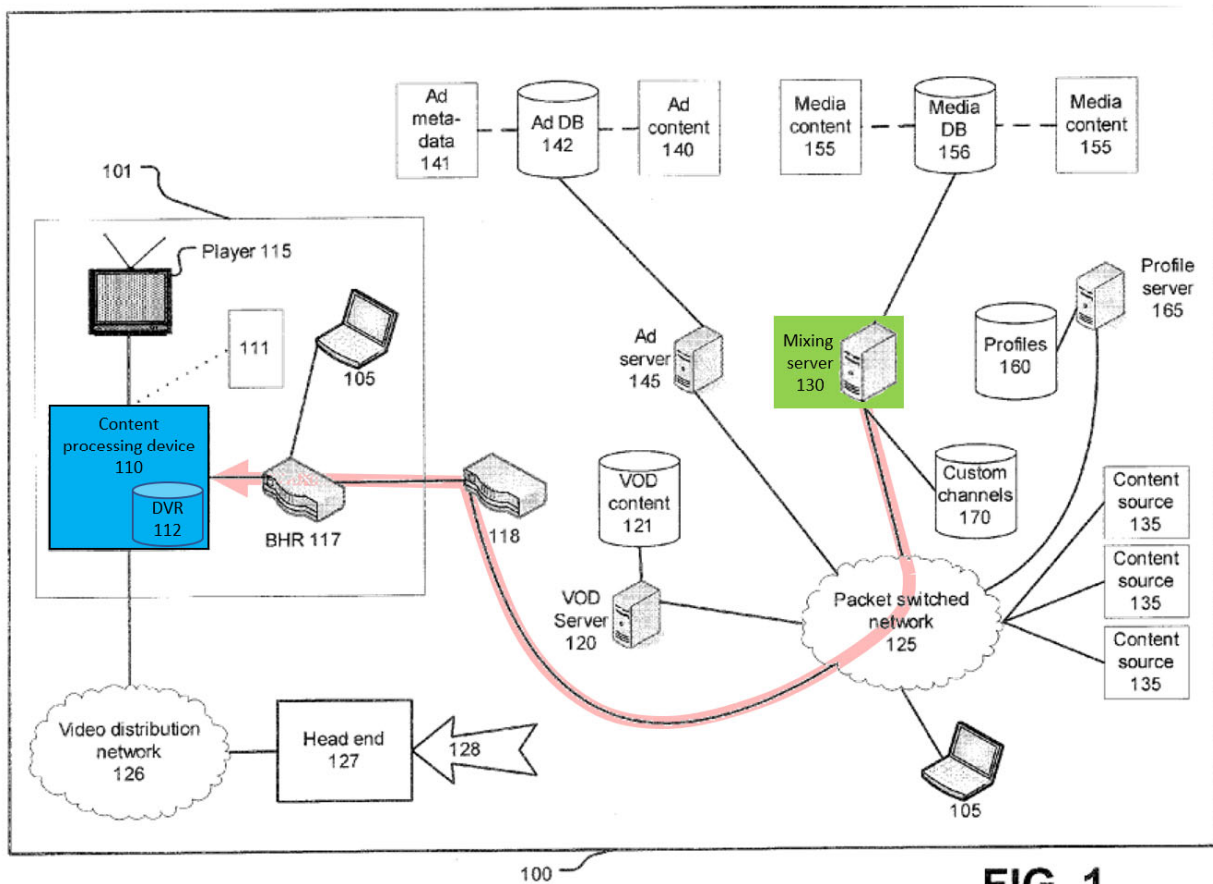


FIG. 1

78. Whitehead’s menu of available custom media channels “*provid[es] ... a list of media feeds*” available from **mixing server 130** because each custom media channel 170, if selected, is “**streamed ... to content processing device 110.**” EX1003at 8:42-64. Thus, a POSITA would understand that custom media channels 170 are themselves the claimed “*media feeds.*” Accordingly, Whitehead discloses this element under Media Feed Mapping 1.

(ii) **Media Feed Mapping 2: content sources 135 provide claimed “media feeds”**

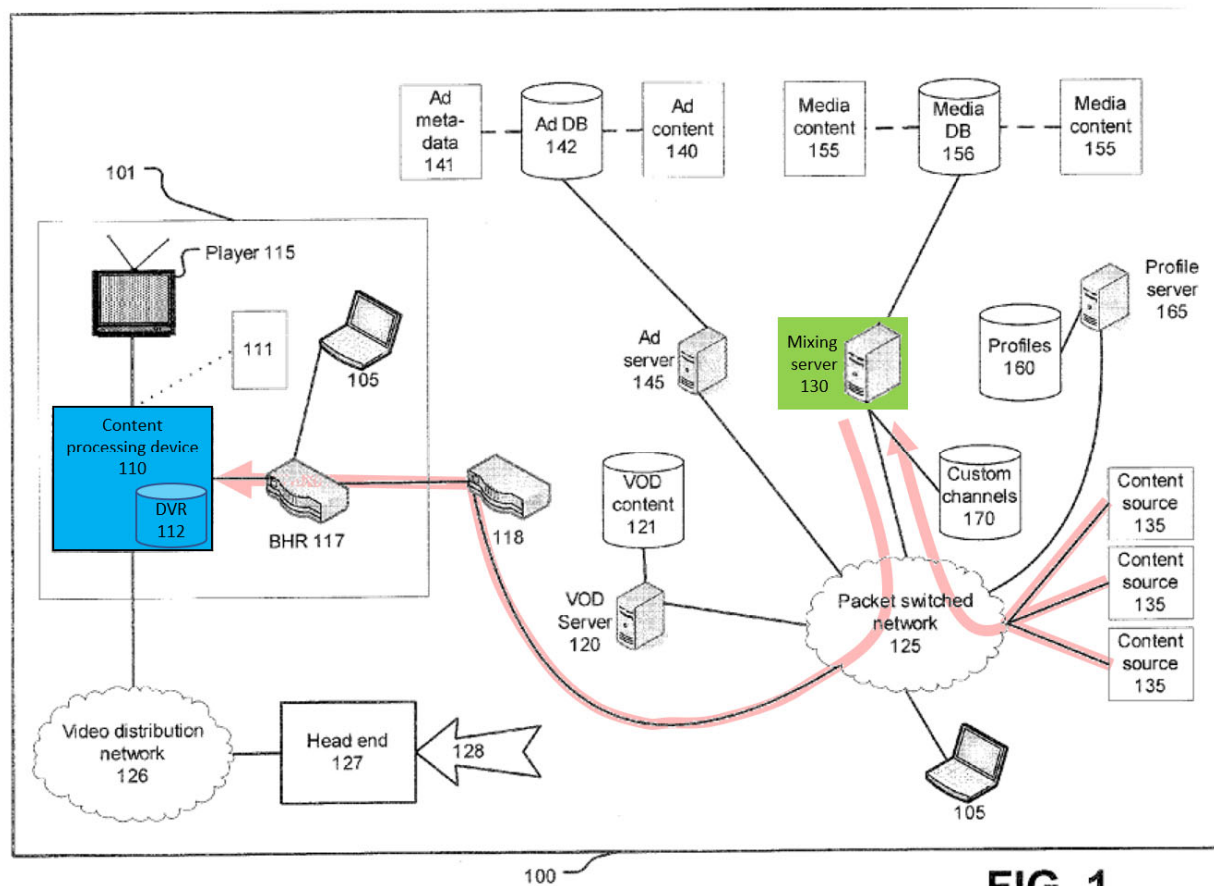


FIG. 1

79. In my opinion Whitehead’s menu of available custom media channels “*provid[es] ... a list of media feeds*” available from **mixing server 130** because each custom media channel 170 generated by **mixing server 130** corresponds to a “*media stream*” from a different content source 135.

80. First, Whitehead discloses that mixing server 130 creates each custom media channel 170 based on a different profile 160, and each profile 160 “identit[ies] ... **one** or more content sources 135 of interest.” EX1003 at 5:56-6:9, 7:3-18, 18:47-

62. A POSITA would understand that each of Whitehead's plurality of custom media channels 170 can thus correspond to a different content source 135.

81. Second, Whitehead discloses that each content source 135 provides a "*media feed*." Whitehead discloses that "[c]ontent sources 135 may include a wide variety of sources," including sources that "broadcast" content "on a particular data at a particular time," *i.e.*, television channels. EX1003 at 5:9-23, 10:46-67; *see also* EX1003 at 2:52-59, 5:24-42. A POSITA would know that television channels provide content as continuous feeds ("*media feeds*").

82. To the extent PO argues that Whitehead's content sources 135 do not provide "*media feeds*," it is my opinion that Whitehead renders this obvious. Even before the '947 patent's priority date, it was well-known that television channels were a source of media content. Moreover, in my opinion a POSITA would be motivated to use television channels as content sources 135. For example, a POSITA would have found it desirable to maximize the number and variety of content sources, since having more sources and variety improves the likelihood of having the best media content in custom media channel 170. As another example, a POSITA would have known that television channels are one of the most popular and abundant sources of media content, and many subscribers expect to have access to such content sources. In my opinion, there would also be a reasonable expectation of success of using television channels as content sources 135. Whitehead already

discloses that media content 155 “provided by content sources 135” is “stored in a media database 156.” EX1003 at 5:9-23. Thus, a POSITA would understand that **mixing server 130** could store media content 155 from television channels in database 156 for subsequent inclusion in a custom media channel 170. Alternatively, a POSITA would understand that Whitehead’s **mixing server 130** could switch to the appropriate channels in real time as the media content 155 is being broadcast to generate custom media channel 170. *See* EX1006 at 32:61-33:8, EX1007 at 5-6. Accordingly, Whitehead discloses this element under Media Feed Mapping 2.

(c) **1[a][ii]: wherein each said media feed comprises a plurality of media elements selected from audio media elements, visual media elements, and combinations thereof**

83. In my opinion, Whitehead discloses this element. Whitehead’s **mixing server 130** receives multiple media content 155 (“*plurality of media elements*”) from each content source 135 (“*media feed*” under **Media Feed Mapping 2**) and then combines advertising content 140 and media content 155 (“*plurality of media elements*”) to create each custom media channel 170 (“*media feed*” under **Media Feed Mapping 1**). EX1003 at 4:27-44, 5:9-23, 8:65-9:29, 12:18-37. Whitehead further discloses that its media content 155 and advertising content 140 can be “video,” “audio,” or “multimedia” content (“*audio media elements, visual media elements, and combinations thereof*”). EX1003 at 4:27-44, 4:53-5:3, 5:9-42, 7:3-18. Accordingly, Whitehead discloses this element.

- (d) 1[b]: *receiving by the aggregator from the client device a selection identifying at least one of the media feeds*

84. In my opinion, Whitehead discloses this element. Whitehead's **content processing device 100** receives a user selection of one of these custom media channels 170 ("*a selection identifying at least one of the media feeds*") from media player 115 ("*client device*"). EX1003 at 4:45-52, 11:9-16, 11:40-58, 15:16-16:53, 18:47-62. In my opinion, this selection corresponds to selection of both the content source 135 corresponding to that custom media channel 170 ("*one of the media feeds*" under **Media Feed Theory 1**) and the custom media channel 170 itself ("*one of the media feeds*" under **Media Feed Theory 2**). Accordingly, Whitehead discloses this element under both Media Feed Theories.

- (e) 1[c]: *providing, to a publisher from the aggregator, the media feed selection received from the client device*

- (f) 1[d]: *analyzing, by the publisher, user information included in the media feed selection*

85. In my opinion, Whitehead discloses or renders obvious both of these elements. Whitehead discloses or renders obvious that content processing device 110 provides "the media feed selection,"⁴ including "user information," to mixing

⁴ This selection corresponds to selection of both the custom media channel 170 itself ("*media feed*" under **Media Feed Mapping 1**) and the content source 135

server 130. A POSITA would understand that this “media feed selection” could be (1) a request sent from content processing device 110 directly to mixing server 130 (Feed Selection Mapping 1), or (2) data sent by content processing device 110 to profile server 165, and then from profile server 165 to mixing server 130 (Feed Selection Mapping 2).

corresponding to that custom media channel 170 (“*media feed*” under **Media Feed Mapping 2**).

(i) **Feed Selection Mapping 1: request from content processing device 110 to mixing server 130**

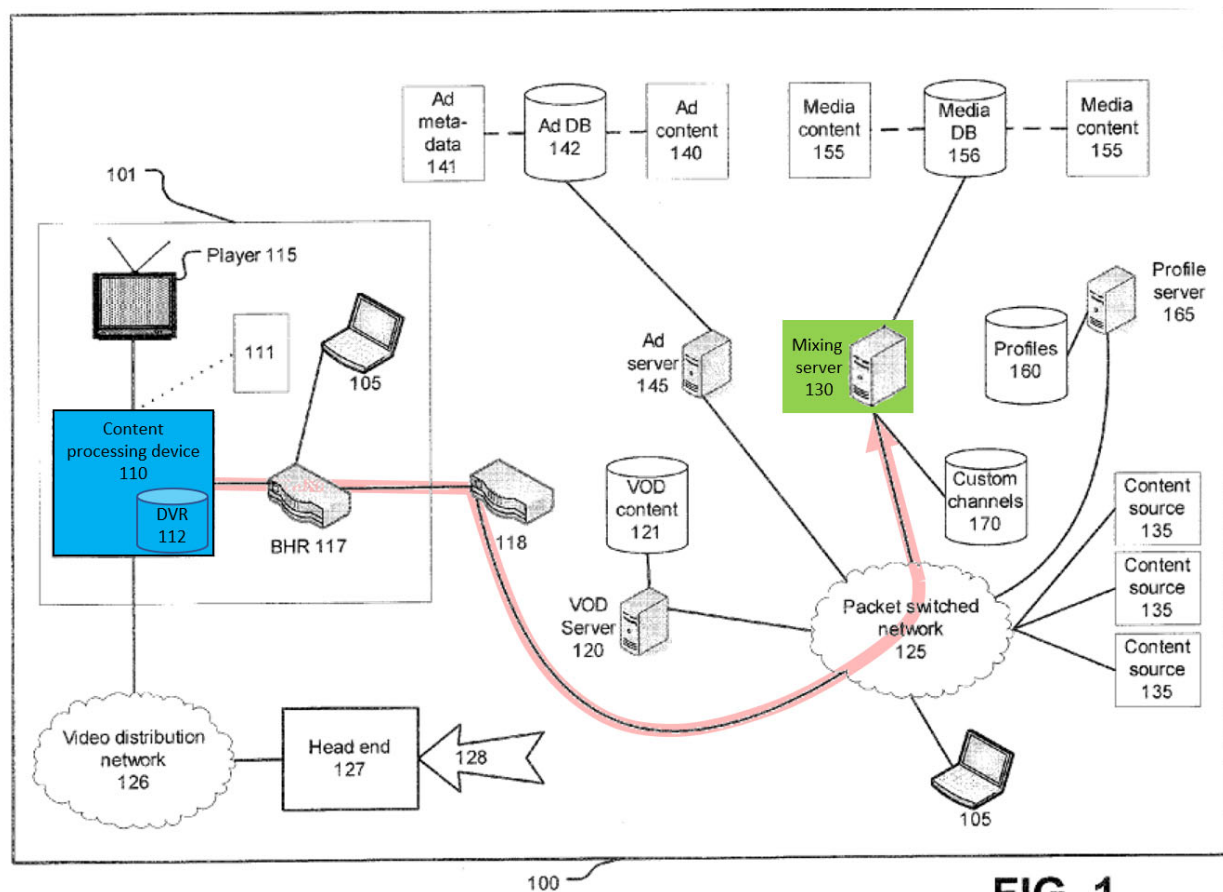


FIG. 1

86. Whitehead discloses that “[c]ontent processing device 110 may ... make requests to ... [mixing server] 130, etc. via network 125.” EX1003 at 3:40-51; *see also* EX1003 at 9:30-58. This request “trigger[s]” mixing server 130 “to create one or more custom media channels 170 based on one or more custom channel profiles 160” in “real-time or near real-time.” EX1003 at 11:40-12:17. A POSITA would understand that where the user has multiple custom media channels 170 to choose from (EX1003 at 11:9-16), this request necessarily identifies the selected

custom media channel 170 (“*media feed selection*”). Otherwise, a POSITA would understand that the **mixing server 130** would not know which custom media channel was selected by the user and thus should be created.

87. To the extent PO argues Whitehead does not disclose that its custom channel request from **content processing device 110** to **mixing server 130** includes data indicative of the selected custom media channel 170 (“*media feed selection*”) in its request to **mixing server 130**, it is my opinion that Whitehead renders this obvious. As the POSITA would know, **mixing server 130** must know which custom media channel 170 the user selected to create that channel. EX1003 at 3:40-51, 11:40-58. It would have been an obvious implementation for a POSITA to have the **content processing device 110** include an identifier or other data corresponding to the selected custom media channel 170 (“*media feed selection*”) in its request. In my opinion, a POSITA would have understood that simply including this identifier in the request (rather than conveying it in some other manner) would allow **mixing server 130** to locate the corresponding profile 160 faster and thereby facilitates creating the selected custom media channel 170 in real time or near-real-time. EX1003 at 11:40-58.

88. In addition, it is my opinion Whitehead renders obvious that the request from **content processing device 110** to **mixing server 130** (“*media feed selection*”) also includes “*user information*” that is then analyzed by **mixing server 130**.

EX1003 at 11:40-12:17; *see also* EX1003 at 12:18-37 (“**mixing server 130** analyzes the custom channel profile 160”). **Mixing server 130** creates the custom media channel 170 in real time or near-real-time. EX1003 at 11:40-58. A POSITA would have known that processing efficiency is an important consideration in achieving that goal – too much delay retrieving user data would result in a custom media channel 170 that is no longer created in real time or near real time. Accordingly, a POSITA would have understood that including at least some “*user information*,” such as “subject matter categories of interest to the user” (EX1003 at 7:3-18), in the request itself speeds up processing because **mixing server 130** would be able to start creating custom media channel 170 even before receiving the remainder of profile 160. Plus, some “*user information*,” such as username (EX1003 at 7:3-18), is helpful to quickly retrieving profile 160 in the first instance by, for example, using the username to identify a specific user, and then using other data to identify a specific profile 160 of that user (instead of having to search all profiles 160). A POSITA would have also known that other “*user information*,” such as the user’s geographic location used for targeting advertisements and/or as the “geographic location of interest to the user” for content targeting is subject to change since computer 105 with media player 115 may be a mobile device (e.g., “notebook, laptop, or handheld computer”). EX1003 at 2:52-59, 7:3-18, 7:19-43, 12:38-55. Rather than requiring the user to update profile 160 every time the user goes to

different geographic location, a POSITA would have understood that the **content processing device 110** could automatically include the user's geographic location (e.g., by looking up the geolocation of an IP address) in the request, thereby improving convenience and accuracy.

89. In my opinion, another obvious design option would be to implement profile server 165 as part of **content processing device 110** and include the complete profile 160 ("*user information*") in any request for custom media channel 170 ("*media feed selection*"). Whitehead already recognizes that various functionalities in Figure 1 can be combined or shifted between system components. EX1003 at 2:52-59, 4:10-26, 6:35-46, 15:16-22, 19:44-63. A POSITA would have understood that maintaining profiles 160 on **content processing device 110** would simplify processing and communications, since it would eliminate the need for a separate profile server 165 or looking up specific sets of profiles a user of **content processing device 110** is permitted to update.

90. In my opinion, there would also be a reasonable expectation of success for including "*user information*" in Whitehead's request from **content processing device 110** directly to **mixing server 130** ("*user information*"). Whitehead discloses using common communication protocols, such as TCP/IP, for communications between **content processing device 110** and **mixing server 130**, and these protocols allow for the inclusion of a fair amount of data in each request

(the maximum size of a single TCP packet is 64 KB, and 1.5 KB is a common MTU size), which would permit inclusion of “*user information*.” A POSITA would have known that a 1.5 KB request could easily include data indicating a custom media channel selection, username, current geographic location, content source, and subject matter of interest. A POSITA would have further known there is no practical reason why the request would need to be limited to a single TCP packet, either. Indeed, Whitehead already discloses that an entire “profile 160 [is] provided in [a] message” (EX1003 at 12:8-17), such that a POSITA would have found it obvious to provide some or all of profile 160 (“*user information*”) in addition to data identifying the selected custom media channel 170 in a request message from **content processing device 110** to **mixing server 130** (“*media feed selection*”).

91. Accordingly, Whitehead discloses this element under Feed Selection Mapping 1.

(ii) **Feed Selection Mapping 2:** data from **content processing device 110**, via profile server 165, to **mixing server 130**

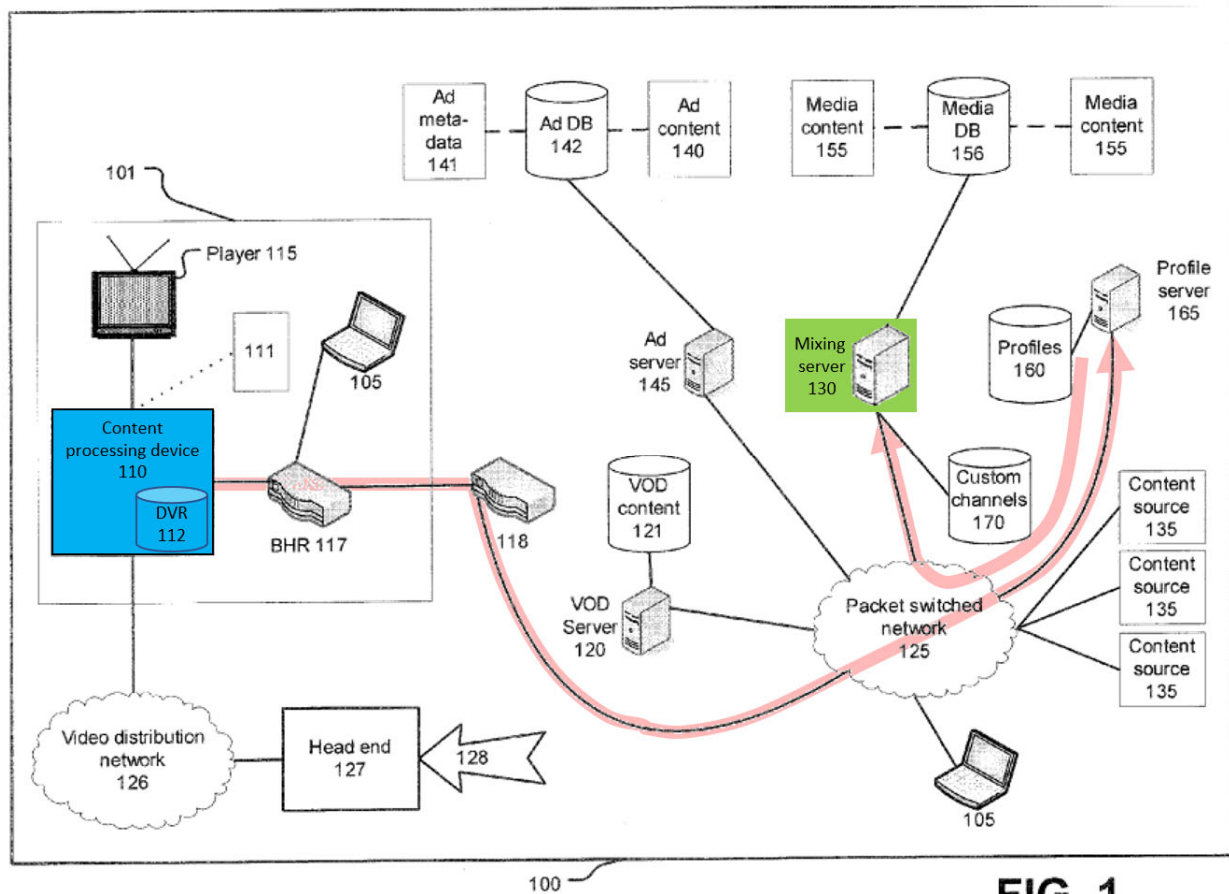


FIG. 1

92. Whitehead's **content processing device 110** can be "used to create, modify, and/or delete profiles 160." EX1003 at 6:35-46, 10:6-32, 15:16-22, 15:65-16:21, 19:16-38. The user may have multiple profiles 160 corresponding to different custom media channels 170. EX1003 at 11:9-16. In my opinion, a POSITA would have understood that selection of one of those profiles 160 is thus a "*media feed selection*" because selects both the content source 135 corresponding to that custom media channel 170 ("*one of the media feeds*" under **Media Feed Theory 1**) and the

custom media channel 170 itself (“*one of the media feeds*” under **Media Feed Theory 2**). Moreover, updating the selected profile 160 also includes provision of “*user information*” included in that profile, such as a username, user interests, and playback capabilities to profile server 165. EX1003 at 5:56-6:9, 7:3-18. Whitehead’s profile server 165 then transmits a message to **mixing server 130** containing that profile 160 (“*user information*”), which analyzes profile 160 (“*user information*”) as part of creating custom media channel 170. EX1003 at 11:40-12:17; *see also* EX1003 at 12:18-37 (“**mixing server 130** analyzes the custom channel profile 160”). Thus, a POSITA would have understood that Whitehead’s **content processing device 110** transmits the “*media feed selection*,” including “*user information*,” in connection with creating or modifying a profile 160, and Whitehead’s **mixing server 130** receives and analyzes that same “*media feed selection*,” including “*user information*.” Accordingly, Whitehead discloses this element under **Feed Selection Mapping 2**.

- (g) **1[e]: inserting into media programming based on a *publisher-initiated feed responsive to the media feed selection, based on the user information, an element based on at least one of positioning, frequency, type, demographic targeting, geo-targeting and psychographic targeting***

93. In my opinion, Whitehead discloses this element. Responsive to the user selection of a custom media channel (“*the media feed selection*”) and based on profile 160 (“*user information*”), Whitehead’s **mixing server 130** triggers “process

400” for creating a custom media channel 170 (“*media programming*”). EX1003 at 11:38-39, 11:40-58, 12:8-17. As part of this process, **mixing server 130** first “instantiate[es]” (and thus “*initiate[s]*”) the custom media channel 170 consisting of media content 155 (“*publisher-initiated feed*”). EX1003 at 4:53-5:3, 11:38-39, 12:38-55, 12:56-63. Media content 155 is selected based on “a wide variety of attributes,” including profile 160 (“*user information*”), “identity of a content source 135” (“*positioning*”), “the type of media content 155” (“*type*”), “a geographic location associated with media content 155” (“*geo-targeting*”), or other factors including “a subject matter associated with media content 155, e.g. sports, news, weather, entertainment, etc., [and] one or more keywords associated with the multimedia content 155.” EX1003 at 5:9-23, 12:18-37.

94. **Mixing server 130** then inserts advertising content 140 (“*an element*”). EX1003 at 4:53-5:3, 12:38-55. Advertising content 140 is selected and inserted based on its association with “advertising metadata 141 sufficient to identify particular items of advertising content 140,” including according to “advertisers, ... rate paid for the advertisement, subject matter of the advertisement” (“*positioning*”), “categories of advertisement” (“*type*”), and “geographic association of the advertisement” (“*geo-targeting*”). Also, the advertising content 140 is “selected based on user data external to profile 160, such as a separate user profile maintained specifically for identifying and associating with users advertising content 160”

(“***user information***”), where “such a profile might contain demographic information such as a user’s location, services subscribed to, etc.” (“***demographic targeting, geo-targeting and psychographic targeting***”). EX1003 at 12:38-55.

95. Furthermore, “policy control information may ... specify how and when to dynamically mix media and advertising content,” such as defining “a frequency-based rule (e.g., every 3rd item)” (“***element based on frequency***”). EX1003 at 8:65-9:29. Accordingly, Whitehead discloses this element.

(h) 1[f]: ***providing, to the client device, the media programming***

96. In my opinion, Whitehead discloses this element. Whitehead’s **mixing server 130** “stream[s]” the assembled custom media channel 170 (“***media programming***”) to media player 115 (“***client device***”) via **content processing device 110**. EX1003 at 2:7-16, 8:42-64, 13:35-46, 15:16-22. Accordingly, Whitehead discloses this element.

(i) 1[g]: ***dynamically updating the element in the media programming responsive to additional user information provided by the aggregator***.

97. In my opinion, Whitehead discloses this element. Whitehead discloses that, “while an item of media content 155 is being played, a portion of a GUI in playback device 115 that is used to display media channel 170 may provide a user with the opportunity to **provide feedback** concerning the item of media content 155 being played” (“***additional user information provided by the aggregator***”). EX1003

at 18:63-19:15. Provision of this user feedback “results in a modification to custom media channels 170 provided to the user following the provision of user feedback” (*“dynamically updating the element in the media programming responsive to additional user information”*). EX1003 at 19:16-38; *see also* EX1003 at FIGS. 5-7.

98. To the extent PO argues that Whitehead does not disclose this limitation, it is my opinion that Whitehead renders this limitation obvious. Whitehead has the technical building blocks in place, including updating profile 160 and custom media channel 170 (EX1003 at 10:40-45, 15:52-64) and incrementally transmitting files corresponding to a media channel (EX1003 at 8:42-64, 9:30-58), that allow the system to dynamically modify custom media channel 170 and advertising content 140 included therein (Fig. 2) based on real-time user feedback. In my opinion, a POSITA would appreciate that dynamic updating allows the system to better target advertising to a user’s preferences as the system learns more about those preferences or those preferences evolve, which in turn allows the system to charge advertisers more for better-targeted advertisements. For example, a POSITA would understand that if a user has historically been interested in “baseball,” the system may include advertising content 140 directed to baseball tickets in the third slot in custom media channel 170, but if the user then provides feedback illustrating a lack of interest in media content in the first slot directed to baseball highlights and a high level of interest in media content in the second slot directed to basketball

highlights, a POSITA would be motivated to update the advertising content 140 in the third slot to instead advertising basketball tickets. And since Whitehead discloses receiving that feedback in real time and sending each media content and advertising content 140 as individual files, there would be no technological challenge for a POSITA to implement this dynamic updating. Accordingly, Whitehead discloses this element.

2. ***Claim 2: The method according to claim 1, wherein the element comprises at least one of media clips, sidebars, overlays, audio elements, animation elements, and graphical elements residing/displaying within or outside of a player region of the client device.***

99. In my opinion, Whitehead discloses this claim. Whitehead's **mixing server 130** selects and combines "advertising content 140 [and] media content 155" ("*the element*") to create custom media channels 170. EX1003 at 4:27-44. The media content 155 and advertising content 140 include "video clips" ("*media clips*") and "known formats for audio content" ("*audio elements*"). EX1003 at 4:27-44.

100. Further, Whitehead's playback application provides to content processing device 110 "instructions for displaying and/or rendering on media player 115 what is referred to as an 'overlay menu'" where "the menu is overlaid on top of the playback of custom media channel 170 in the display of media player 115" also based on profile 160 ("*sidebars, overlays ... and graphical elements residing/displaying within or outside of a player region of the client device*").

EX1003 at 4:27-44. Moreover, Whitehead's profile 160 ("*user information*") includes "policy control information related to the retrieval and playback of channel 170." EX1003 at 5:56-6:9.

101. Finally, Whitehead renders obvious including "*animation elements*" in the custom media channel 170, since "[c]ontent sources 135 may include a wide variety of sources of multimedia content 155" (EX1003 at 5:9-23), which includes children's television channels that broadcast many animated shows. A POSITA would have known that it would be desirable to include such children's content to increase capture a larger potential user market.

102. Accordingly, Whitehead discloses this element.

B. Ground 2: Whitehead and Marcus '904⁵

1. Motivation to Combine & Reasonable Expectation of Success

103. In my opinion, a POSITA would have been motivated to enhance Whitehead's mixing server 130 to incorporate Marcus '904's algorithm that runs on Marcus '904's receiver for receiving, selecting, ordering, and assembling different media streams including both content and advertising.

⁵ All limitations of the challenged claims not expressly addressed in Ground 2 are disclosed or rendered obvious by Whitehead for the reasons in Ground 1.

104. ***Incorporating Marcus '904's content and advertising sources would provide more choices to the users:*** Offering a broader range of content sources for custom media programming would have been desirable because would have increased the chances that the system identifies the content that is most appropriate for a specific user. In general, people prefer to have more options for video programming. Additionally, more advertising options would have allowed for more precise targeting and the potential for greater revenue generation. If people view advertising for products that they are already interested in, the chance for a conversion from an advertising view to a purchase is higher. Indeed, there has been a historic market trend towards more content sources: a few broadcast television channels have turned to hundreds of cable channels, and those have since been supplemented by additional content sources accessible over the Internet. Marcus '905 discloses one solution for incorporating content and advertisement from media streams. To the extent PO argues Whitehead does not disclose including media content or advertising content from such sources, enhancing Whitehead's system to incorporate the content and advertising sources described in Marcus '904 would have therefore enhanced Whitehead's ability to target content and advertising effectively for individual users.

105. ***Incorporating Marcus '904's content and advertising sources would unlock new revenue sources for Whitehead:*** By integrating the content and

advertising sources, such as those disclosed in Marcus '904, Whitehead's system could have accessed new avenues for revenue generation. Marcus '904 states that it facilitates generating income by delivering content from niche content and advertising sources. EX1005 ¶¶ 5-13. In my opinion, a POSITA would have been motivated to leverage Marcus '904's content and advertising sources to open up additional revenue streams for Whitehead's system. As one example, customers could pay more for premium or niche content.

106. *Incorporating aspects of Marcus '904's content selection and concatenation algorithm improves Whitehead's efficiency:* Incorporating Marcus '904's content selection and concatenation algorithm could have improved Whitehead's system efficiency. Marcus '904 discloses how to create custom media programming by inserting targeted content or advertising into a "primary" stream. EX1005 ¶¶ 48, 82-87, 148, 237, 251, 594. By utilizing or defaulting to Marcus '904's "primary" stream rather than selecting each piece of media content individually, Whitehead's system would have needed to make fewer selections for its custom media channels and requires less resources. In turn, this would have allowed Whitehead's system to run on less expensive hardware, and would have allowed it to consume less electricity.

107. *Whitehead and Marcus '904 are directed towards similar field of art:* Both Whitehead and Marcus '904 are related to generating custom media

programming based on a user profile. EX1003 at Abstract; EX1005 ¶¶ 82-87. A POSITA starting with Whitehead would have naturally turned to the teachings of the Marcus '904 in order to improve Whitehead's system.

108. *Implementing software modification requires no architecture re-designing*: Whitehead already discloses different content sources, including broadcast sources, and discloses focusing a custom media channel on a specific content source. As addressed above in Section V.A.1.b, Whitehead discloses various content sources, including broadcast television content sources, and further discloses that a particular user profile can identify a specific content source. Thus, incorporating Marcus '904's teachings would not have required redesigning Whitehead's architecture, and instead would have involved adding functionality improvements to Whitehead's system.

109. *Implementing software modification would be predictable*: The proposed modifications could all have been done entirely in software, with no need for hardware alterations. Whitehead even notes that such software changes are feasible. EX1003 at 19:64-20:6, 22:26-40.

2. Analysis

110. In my opinion, Whitehead and Marcus '904 disclose and/or render obvious Claim 1.

111. Claim 1 require “*media feeds*.” As addressed in Ground 1, **Media Feed Mapping 2**⁶ maps the claimed “*media feeds*” onto Whitehead’s content sources 135. Marcus ’904 further renders obvious that Whitehead’s content providers 135 are “*media feeds*.” Marcus ’904 expressly discloses a “receiver” that receives “a plurality of tagged media streams” and “assembles” those “media streams” into “programming.” EX1005 ¶¶ 34, 37-42, 48.

112. In addition, claim 1 requires “*analyzing, by the publisher, user information included in the media feed selection*” and “*inserting into media programming based on a publisher-initiated feed responsive to the media feed selection, based on the user information, an element based on at least one of positioning, frequency, type, demographic targeting, geo-targeting and psychographic targeting*.” As addressed in Ground 3, in my opinion, Marcus ’904 discloses all aspects of the challenged claims pertaining to selecting, ordering, and assembling media programming by a “*publisher*.” See Section V.C. To the extent any of those elements are missing from Whitehead, it is my opinion that they are rendered obvious by Marcus ’904.

⁶ For **Media Feed Mapping 1**, there should be no dispute that Whitehead’s custom media channels are “media streams.” Whitehead expressly teaches “stream[ing]” these channels. EX1003 at 8:42-64.

C. Ground 3: Cristofalo and Marcus '904

1. Motivation to Combine & Reasonable Expectation of Success

113. In my opinion, a POSITA would have enhanced Cristofalo's transmitting system 102 to incorporate Marcus '904's algorithm that runs on Marcus '904's receiver for receiving, selecting, ordering, and assembling different media streams including both content and advertising.

114. *Cristofalo's transmitting system 102 benefits from gaining ability to target content to specific users based on the teachings in Marcus '904:* In my opinion, Cristofalo's transmitting system 102 would benefit from targeting content to specific users by incorporating the teachings of Marcus '904. Cristofalo explains that rather than creating a unique media object for each user profile, the transmitting system 102 "preferably pushes media objects to specific users based upon user identifiers." EX1004 ¶ 48. However, Cristofalo also acknowledges that "as bi-directional data link throughput capacity increases, various other routing techniques may be utilized to push media object based targeted advertising and programming to users." EX1004 ¶ 48. Further, Cristofalo expressly discloses that its system is designed for use in a unicast environment, "where the content/media objects are transmitted to a single user." EX1004 ¶¶ 9, 19. As addressed in Section IV.A, given that transmission capacity has increased since Cristofalo's filing in 2001, it is unsurprising that Marcus '904 offers additional insights into targeting media

programming to specific users, thereby improving the customization capabilities of Cristofalo's transmitting system 102 to target individual users rather than groups of users, while retaining the ability of Cristofalo's receiving system 104 to insert media objects as overlays. See EX1004 ¶ 41.

115. ***Cristofalo's targeting system benefits from additional implementation details by incorporating Marcus '904's content selection, ordering, and assembly algorithm:*** In my opinion, for all claims, incorporating Marcus '904's algorithm for content selection, ordering, and assembly would have resulted in valuable implementation-based improvements to Cristofalo's targeting system. Cristofalo discloses that targeted content may be selected at either the transmitting system 102, receiving system 104, or a combination of the two. EX1004 ¶¶ 35-36, 44, 49. While Cristofalo describes the general process of creating custom programming, it does not provide specific details on how media objects are selected or how the final media programming is produced and formatted for display. The additional details provided by Marcus '904, and Marcus '156 which is referenced within, would have supplied these specifics, enabling a more comprehensive implementation within Cristofalo's transmitting system 102 or receiving system 104.

116. ***Cristofalo benefits from additional revenue sources by incorporating Marcus '904's content and advertising:*** In my opinion, for all claims, incorporating Marcus '904's content and advertising sources would have unlocked new revenue

sources for Cristofalo. Marcus '904 discloses the potential for generating income through the transmission of content from niche content and advertising sources. EX1005 ¶¶ 5-13. A POSITA would have seen the value in using and would have been motivated to employ Marcus '904's content and advertising sources to enhance Cristofalo's system, thereby unlocking additional streams of revenue. For example, users could pay more for premium or niche content.

117. *Cristofalo and Marcus '904 are directed towards similar field of art:*

Cristofalo and Marcus '904 share a common focus on the creation of custom media programming. EX1004 at Abstract; EX1005 ¶¶ 82-87. This shared objective highlights the compatibility of incorporating Marcus '904's methods into Cristofalo's systems.

118. *Implementing software modification requires no architecture re-designing:* In my opinion, Cristofalo's systems are already equipped with the foundational structure needed to implement Marcus '904's selection, ordering, and assembly algorithm. Both the transmitting system 102 and receiving system 104 in Cristofalo's design are capable of accessing user profile data and customizing media programming accordingly. EX1004 ¶¶ 35-36, 44, 49. Thus, integrating Marcus '904's teachings would have enhanced Cristofalo's existing system without requiring a complete architectural overhaul.

119. *Software modification would be predictable*: The proposed modifications are entirely achievable through software updates, with no need for hardware alterations. Cristofalo acknowledges the practicality of implementing such software modifications (EX1004 ¶ 57), making the integration of Marcus '904's approaches both feasible and predictable.

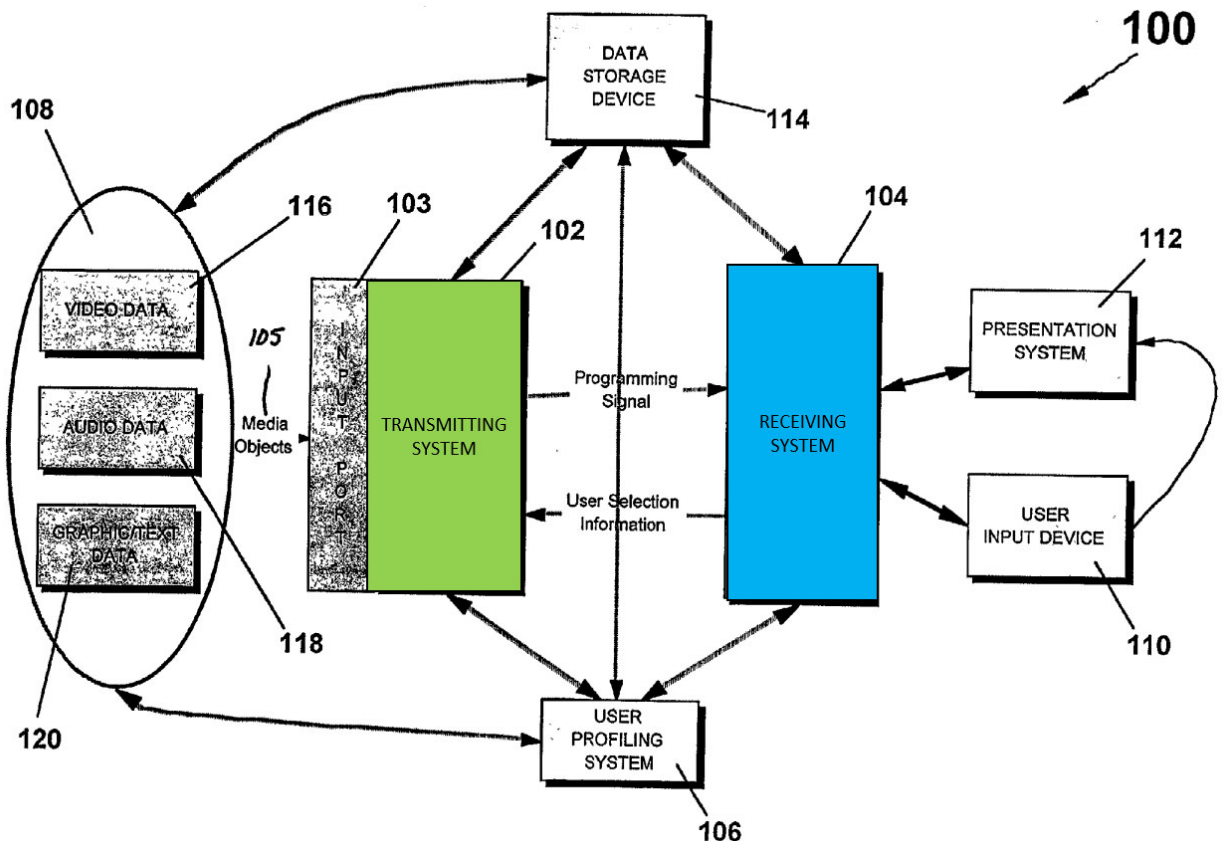
2. Claim 1

(a) *1[pre] A method of generating customized media programming, comprising:*

120. In my opinion, Cristofalo discloses this element. Cristofalo discloses a “process for targeting programming (including, but not limited to, advertising) to users.” EX1004 at Abstract, ¶ 46. Accordingly, Cristofalo discloses this element.

(b) *1[a][i]: providing by an aggregator, to a client device associated with a user, a list of media feeds available from at least one publisher*

121. In my opinion, Cristofalo discloses or renders obvious this element. Cristofalo discloses receiving system 104, which is an “aggregator,” and transmitting system 102, which is the claimed “publisher.”



122. I note that the '947 patent specification describes an “*aggregator*” as “provid[ing] a presentation element to user 1 120 and 2 130” for different media feeds. EX1001 at 2:53-56, 3:16-29. Cristofalo similarly discloses that its *receiving system 104* allows a user to “select[] the described programming ... to be received and presented” from among “numerous programming options.” EX1004 ¶ 46. Cristofalo further discloses that those “programming options” can be from different “media object creators 108, broadcasters, local affiliates, and others,” such as “a cable signal ... contain[ing] numerous programming signals (i.e., ABC, CBS, FOX, etc.).” EX1004 ¶¶ 29, 37, 52.

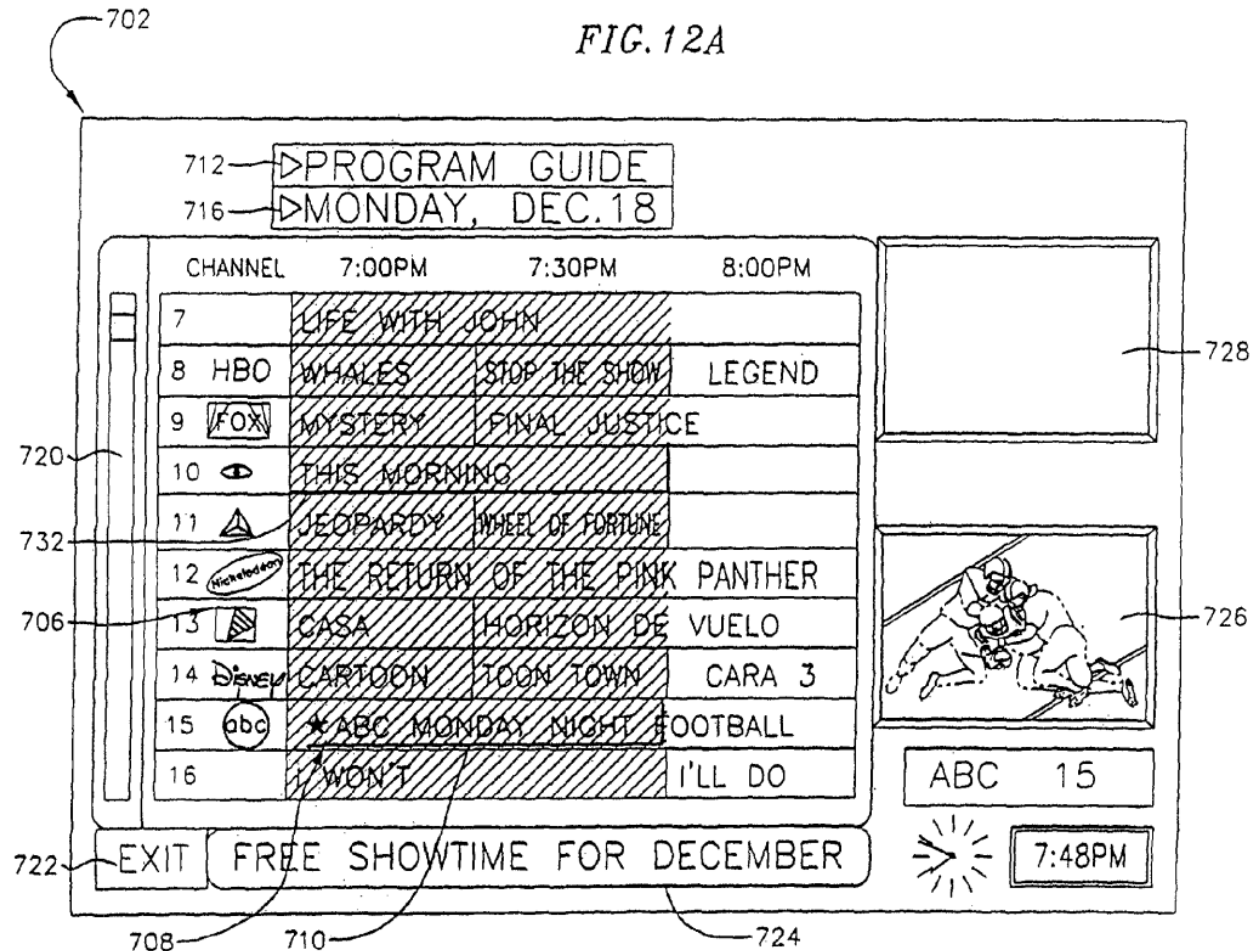
123. The '947 patent describes the claimed “*publisher*” as a “source[] of media content.” EX1001 at 6:18-30. The same is true for Cristofalo’s **transmitting system 102**: it is the source of programming (e.g., media objects) for the **receiving system 104** and ultimately for the user. EX1004 ¶¶ 9, 19, 22, 34, 38, 47-48, 54; *see also* EX1004 at Fig. 1 (**transmitting system 102** sending “Programming Signal” to **receiving system 104**).

124. Cristofalo further discloses a presentation system 112 and user input device 110 (“*client device*”) and that a user is interfacing with (“*associated with a user*”). EX1004 ¶¶ 20, 24, 25, 32.

125. For Cristofalo’s user to be able to “select[] the desired programming” from “numerous programming options” (EX1004 ¶ 46), a POSITA would have understood that Cristofalo’s **receiving system 104** necessarily presented the user with the programming options (e.g., different broadcast channels) (“*a list of media feeds*”) via presentation system 112 and user input device 110 (“*client*”). *See also* EX1004 ¶¶ 20, 25, 29, 32, 49.

126. Moreover, it would have been obvious for a POSITA to implement Cristofalo’s **receiving system 104** as a program guide for presenting programming options from different channels (“*a list of media feeds*”) via presentation system 112 and user input device 110 (“*client*”). In my opinion, a program guide was a well-known UI for interacting with television sources even before the '947 patent’s

at Fig. 12A:



127. In my opinion, a POSITA implementing Cristofalo would be motivated to present users with a UI they were already familiar with and would thus find it obvious to use a program guide. In my opinion, using such a well-known system would also ensure there is a reasonable expectation the implementation would be successful. Accordingly, Cristofalo discloses this element.

- (c) **1[a][ii]: wherein each said media feed comprises a plurality of media elements selected from audio media elements, visual media elements, and combinations thereof**

128. In my opinion, Cristofalo discloses this element. Cristofalo's media programming is generated and provided to the user "in the form of media objects," where the media objects are "provided in any medium desired including, for example, **audio, video, graphical, and textual**," as well as "**audio-visual content**." EX1004 ¶¶ 2, 16-17. Accordingly, Cristofalo discloses this element.

- (d) **1[b]: receiving by the *aggregator* from the client device a selection identifying at least one of the media feeds**

129. In my opinion, Cristofalo discloses this element. Cristofalo discloses that its **receiving system 104** allows a user to "select[] the described programming ... to be received and presented" from among "numerous programming options" ("**a selection identifying at least one of the media feeds**"). EX1004 ¶¶ 46, 49. This selection is received from presentation system 112 and user input device 110 ("**client device**"). EX1004 ¶¶ 20, 24, 25, 32. Accordingly, Cristofalo discloses this element.

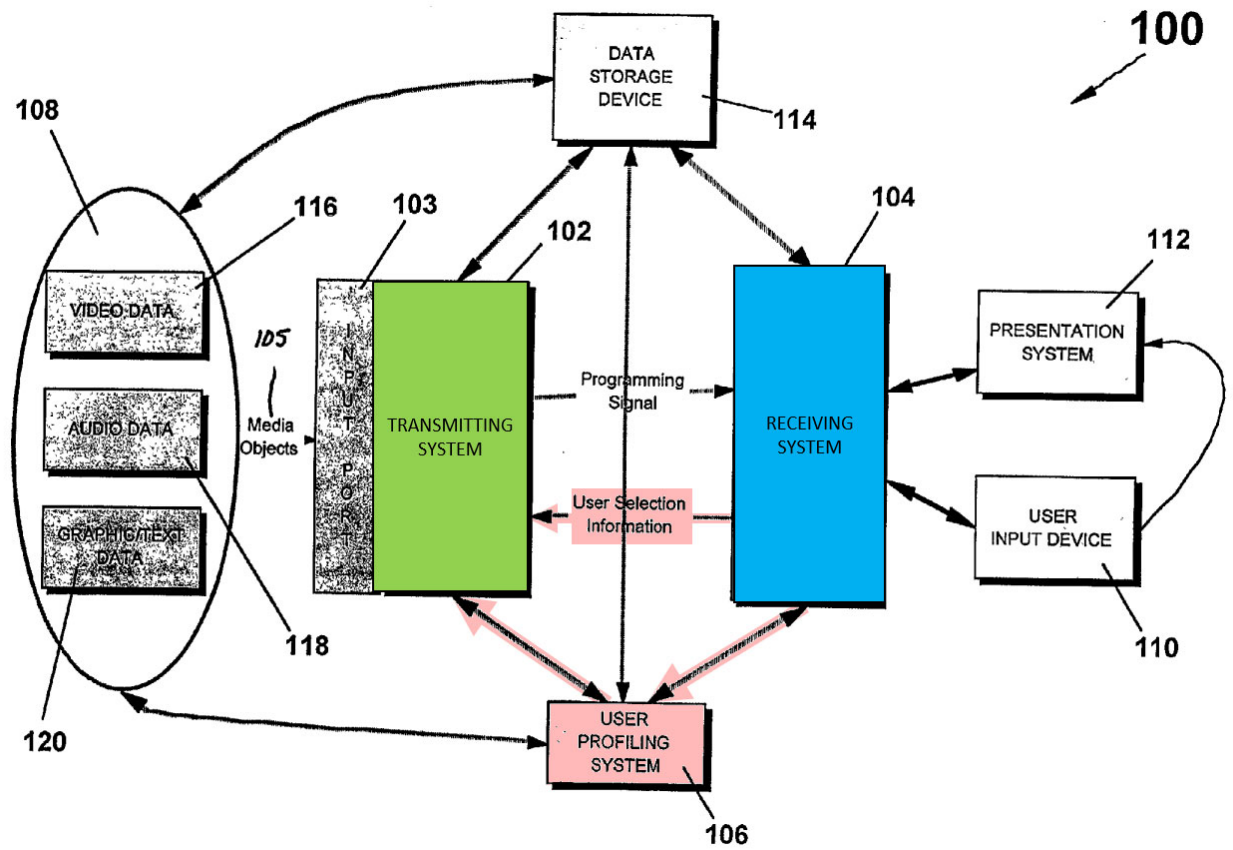
- (e) **1[c]: providing, to a *publisher* from the *aggregator*, the media feed selection received from the client device**
- (f) **1[d]: analyzing, by the *publisher*, user information included in the media feed selection**

130. In my opinion, Cristofalo discloses or renders obvious these elements. Cristofalo discloses that "the user's choice of programming" ("**media feed selection**") is provided by Cristofalos' **receiving system 104** to Cristofalo's

transmitting system 102 from the **receiving system 104**. EX1004 ¶ 46; *see also* EX1004 at Fig. 1 (**receiving system 104** sending “User Selection Information” to **transmitting system 102**).

131. In addition, Cristofalo discloses that its **receiving system 104** provides information on programs selected by the user and content to receive (“*user information*”) to Cristofalo’s **transmitting system 102**. Specifically, Cristofalo’s **receiving system 104** provides this user profile information (“*user information*”) to user profiling system 106, which in turn is co-located with **transmitting system 102**. EX1004 ¶¶ 37, 39. Ultimately, the user profile information (“*user information*”) is received and analyzed by the **transmitting system 102**. EX1004 ¶¶ 28, 37-39, 47, 53; *see also* Section V.C.2.g (Marcus ’904 also disclosing analyzing user profile information).

132. Cristofalo’s provision of “user selection information” (“*media feed selection*”) and user profile information (“*user information*”) from **receiving system 104** to **transmitting system 102** is shown in Cristofalo’s Figure 1:



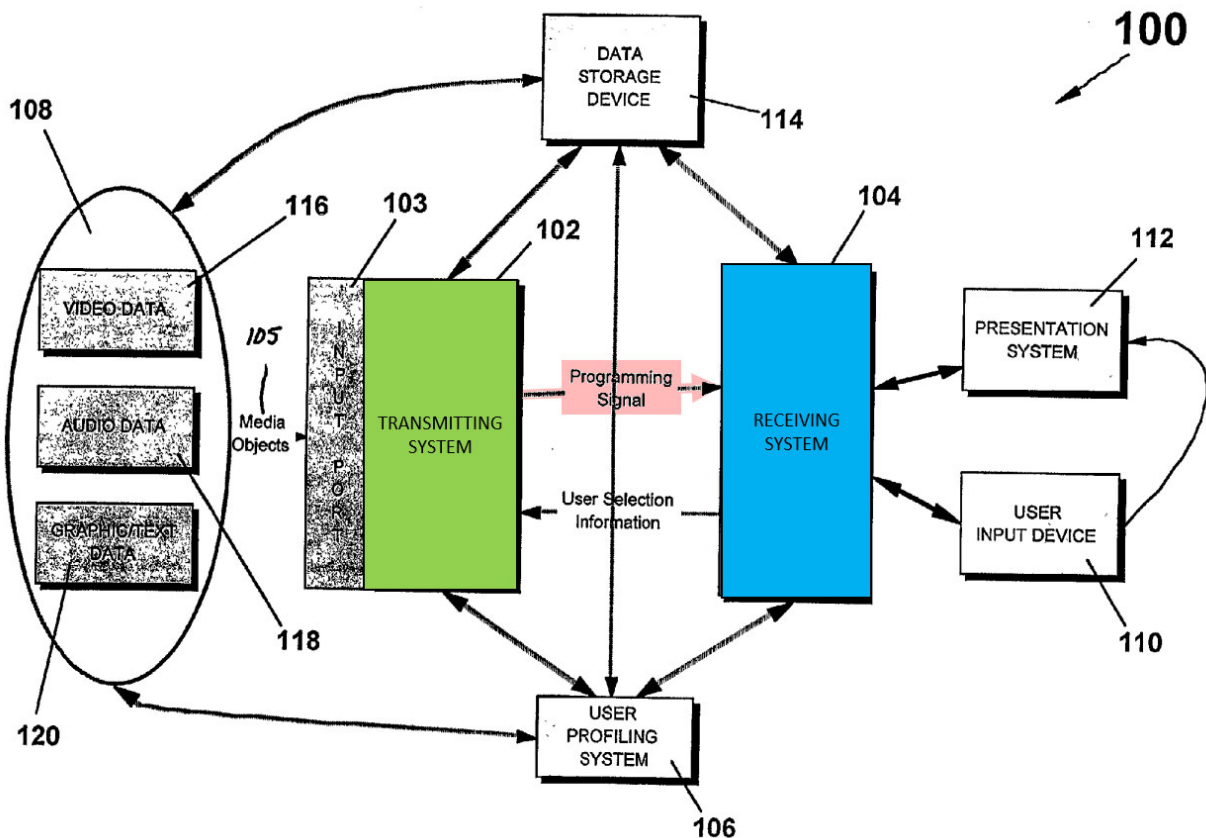
133. In addition, in my opinion Cristofalo renders obvious that its user profile information (“*user information*”) could be included in its “user selection information” (“*media feed selection*”). A POSITA would have been motivated to combine the user selection and any user profile information necessary for customizing the programming in a single message such that Cristofalo’s **transmitting system 102** receives some or all relevant information at the same time. For example, a POSITA would have understood that the message could contain both the user’s choice and the user’s geographic information to facilitate targeting content based on location (see EX1004 ¶ 35), which would be especially desirable for

presentation systems 112 that are a mobile device (*see* EX1004 ¶ 24) and the user's location may thus be different each time the user chooses programming to watch. As another example, a POSITA would have understood that receiving all relevant user profile information together with the user's choice eliminates the need for further processing and delay associated with retrieving or correlating profile information. Moreover, in my opinion there would be a reasonable expectation of success given the amount of data that can be transmitted in a single message. *See* Section V.A.1.f.

134. Accordingly, Cristofalo discloses or renders obvious these elements.

- (g) 1[e]: *inserting into media programming based on a **publisher**-initiated feed responsive to the media feed selection, based on the user information, an element based on at least one of positioning, frequency, type, demographic targeting, geo-targeting and psychographic targeting*
- (h) 1[f]: *providing, to the client device, the media programming*

135. In my opinion, Cristofalo discloses or renders obvious these elements. Cristofalo's **transmitting system 102** generates *media programming* consisting of media objects based on the user's choice ("*responsive to the media feed selection*") and user profile information ("*based on the user information*") and provides that media programming to presentation system 112 and user input device 110 ("*client device*"). EX1004 ¶¶ 9, 19, 20, 22, 24-25, 32, 34, 38, 47-48, 54; *see also* EX1004 at FIG. 1 ("programming signal").



136. Moreover, in my opinion Marcus '904 addresses the lack of detail in Cristofalo regarding targeting by **transmitting system 102** by describing a receiver 100 that “collects media” from different “media source[s]” and “assembles a program from the collected media.” EX1005 ¶ 30. Specifically, Marcus '904’s receiver “selects media elements from the media streams for inclusion in the programming based upon the user data” and then “arranges the selected data elements into an order based upon the user data.” EX1005 ¶ 40. The media elements include both a “primary” stream assembled by the receiver (“***publisher-initiated feed***”) and additional media elements, such as advertising or other programming

(“*an element*”). EX1005 ¶ 37-42, 252, 275; *see also* EX1005 ¶¶ 48, 148. Marcus ’904 then assembles these media elements in the arranged order and streams the resultant media programming to the user. EX1005 ¶¶ 40, 48, 148-49.

137. Marcus ’904 further incorporates by reference Marcus ’156, which provides additional details regarding the selection, ordering, and assembly of media elements into media programming for a particular user. EX1005 ¶ 30; EX1008 at 8:1-9:21 (describing “Editor Program” that “selects and orders” clips), 9:22-10:8 (describing “Assembly Program”). The ’947 patent relies on incorporating by reference that same Marcus ’156 prior art reference for the exact same disclosure. EX1001 at 1:26-31, 5:54-61, 9:39-49, 9:65-10:2, 10:36-38. Thus, Marcus ’904, at least via its incorporation of Marcus ’156, discloses the very same “*inserting*” described and claimed in the ’947 patent.

138. Finally, Marcus ’904 (and Marcus ’156 incorporated therein) discloses that the “*inserting*” is done based on “*positioning, frequency, type, demographic targeting, geo-targeting and psychographic targeting.*” EX1004 ¶¶ 48, 96, 104, 171, 174, 237, 318-319, 413, 450, 460, 476-77, 494-495, 531, 539-542. Accordingly, Cristofalo discloses or renders obvious these elements.

- (i) 1[g]: *dynamically updating the element in the media programming responsive to additional user information provided by the aggregator.*

139. In my opinion, Cristofalo in combination with Marcus '904 discloses this element. Marcus '904 discloses that the “[t]he content of the ads” (“*element[s]*”) inserted into the *media programming* can “be updated.” EX1005 ¶¶ 130-32. Marcus '904 also discloses continuously monitoring user consumption of media programming through “sensing and reporting of viewed-channel, power-state (on/off/standby), mute-state, screen-on, volume, headset presence, mouse-motions or keystrokes.” EX1005 ¶ 60. Cristofalo’s *receiving system 104* similarly discloses continuously monitors user interactions to generate user profile information (“*additional user information*”). EX1004 ¶ 39.

140. In my opinion, it would be obvious for Cristofalo’s system as modified by Marcus' 904 to dynamically update Marcus '904’s inserted advertising (“*element[s]*”) based on continued monitoring of the user’s interactions with the system (“*additional user information*”). A POSITA would understand that Cristofalo and Marcus '904 teach the relevant technical building blocks, including continuously monitoring user interactions with the system to generate “*additional user information*” and dynamically updating advertisements without further user interactions. In my opinion, a POSITA would further appreciate that dynamic updating allows the system to better target advertising to a user’s preferences as the

system learns more about those preferences or those preferences evolve, which in turn allows the system to charge advertisers more for better-targeted advertisements. See Section V.A.1.i. Accordingly, Cristofalo discloses or renders obvious this element.

3. ***Claim 2: The method according to claim 1, wherein the element comprises at least one of media clips, sidebars, overlays, audio elements, animation elements, and graphical elements residing/displaying within or outside of a player region of the client device.***

141. In my opinion, Marcus '904 discloses this element. Marcus '904 discloses that the advertisements can “stick themselves to browsers, to applications” as well as “into a stream of time-based programming” (“*the element*”). Marcus '904 further discloses that such an “ad contains, for example, 4 clips” (“*media clips*”). EX1005 ¶ 376. An advertisement can be “a tiny screen corner motif like a bug,” where “bugs are small logos or other identifying marks generally overlayed on the lower corner of a video to mark its source or sponsor” (“*overlays, graphical elements residing/displaying within or outside of a player region of the client device*”). EX1005 ¶¶ 377, 656. As yet another example, the advertisement can be “short interstitial” or “spots” that are “deployed for viewing/listening/reading multiple times and in various patterns” (“*media clips, audio elements*”). EX1005 ¶ 377. Marcus '904 also discloses a special type of advertisement called “sponsored cursor” that, “dependent upon the levels of sponsorship selected,” a cursor can

“become a strong decision-making voice for the user.” EX1005 ¶¶ 430-434. With such advertisements, “the user momentarily loose[s] control of his/her cursor as the cursor is dragged ... with *visible animations* of a tiny-person/endorser/celebrity/host doing the dragging ... to a specific location or task and, for example, even auto-clicked to open.” (“*animation elements*”). EX1005 ¶ 433. Accordingly, Cristofalo discloses this element.

D. Secondary Considerations

142. I understand that so-called “secondary considerations” are legally relevant to an obviousness analysis. It is my opinion that the secondary considerations I considered here further weigh in favor of obviousness. In any event, secondary considerations cannot overcome the strong showing of obviousness. First, as addressed above in Section IV, market trends incentivized development work into generating custom media programming for specific users and resulted in simultaneous development by multiple entities. Second, PO alleges in its complaint that its product, “StimTV” was launched in 2005 and won an award in 2007 but without alleging that such product practiced the ’947 patent. EX1011 ¶ 12. Given that StimTV was allegedly released more than a year before the ’947 patent’s effective filing date, PO seemingly never deemed the ’947 patent sufficiently valuable or innovative to practice the claims. And even if PO did release any product

practicing the '947 patent, I understand that PO ceased operations at some point in time, evidencing a lack of success for any product practicing the '947 patent.

VI. Conclusion

143. In signing this declaration, I recognize that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

* * *

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on the information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Respectfully submitted,

Date: August 23, 2024



Kevin C. Almeroth, Ph.D.