UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TWITTER, INC.
Petitioner

v.

YOUTOO TECHNOLOGIES, LLC
Patent Owner

U.S. Patent No. 8,464,304
Issued: June 11, 2013
Application No.: 13/185,471
Filed: July 18, 2011
Title: Content Creation and Distribution System

DECLARATION OF HENRY HOUH

TWITTER, INC.
EXHIBIT 1003

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I, Henry Houh, do hereby declare as follows:

I. INTRODUCTION AND ENGAGEMENT

1. I have been retained as an independent expert on behalf of Twitter, Inc. in connection with the above-captioned Petition for *Inter Partes* Review ("IPR") to provide my analyses and opinions on certain technical issues related to U.S. Patent No. 8,464,304 (hereinafter "the '304 Patent").

2. I am being compensated at my usual and customary rate for the time I spent in connection with this IPR. My compensation is not affected by the outcome of this IPR.

3. Specifically, I have been asked to provide my opinions regarding whether claims 1, 4, 5, 8, 9, 11-17, 19-26, 28, 29 and 30 (each a "Challenged Claim" and collectively the "Challenged Claims") of the '304 Patent would have been obvious to a person having ordinary skill in the art ("POSITA") as of January 25, 2011. It is my opinion that each Challenged Claim would have been obvious to a POSITA after reviewing the prior art discussed herein.

II. BACKGROUND AND QUALIFICATIONS

4. I am an expert in the fields of distributed multimedia systems, network architecture, networking, web site architecture, and Internet applications. In formulating my opinions, I have relied upon my training, knowledge, and experience in the relevant art. A copy of my curriculum vitae is appended to this

declaration as Appendix A and provides a description of my professional experience, including my academic and employment history, publications, conference participation, awards and honors, and more. The following is a brief summary of my relevant qualifications and professional experience.

5. I received a Ph.D. in Electrical Engineering and Computer Science from the Massachusetts Institute of Technology in 1998. I also received a Master of Science degree in Electrical Engineering and Computer Science in 1991, a Bachelor of Science Degree in Electrical Engineering and Computer Science in 1989, and a Bachelor of Science Degree in Physics in 1990.

6. I am currently self-employed as an independent technical consultant. I am also president of a company that provides supplemental science, technology, engineering, and science education to children of all ages.

7. I first worked in the area of digital and streaming media, including real-time streamed audio and video, as part of my doctoral research at MIT from 1991-1998. During that time, I was a research assistant in the Telemedia Network Systems (TNS) group at the Laboratory for Computer Science. The TNS group built a high-speed gigabit network and created applications that ran over the network. Example applications included ones for remote video capture, processing, and display of video on computer terminals. In addition to working on the design of core network components, designing and building the high speed

links, and designing and writing the device drivers for the interface cards, I also set up the group's web server.

8. The TNS group was the first group to initiate a remote video display over the web. Vice-President Al Gore visited our group in 1996 and received a demonstration of – and remotely drove – a radio controlled toy car with a wireless video camera mounted on it; the video was encoded by TNS-designed hardware, streamed over the TNS-designed network and displayed using TNS-designed software.

9. I submitted and defended my Ph.D. thesis titled, "Designing Networks for Tomorrow's Traffic," in January 1998. As part of my thesis research, I analyzed local-area and wide-area flows to show a more efficient method for routing packets in a network, based on traffic patterns at the time. My thesis also addressed real-time streamed audio and video.

10. I authored or co-authored twelve papers and conference presentations on our group's research. I also co-edited the final report of the gigabit networking research effort with the Professor (David Tennenhouse) and Senior Research Scientist of the group (David Clark), who is generally considered to be one of the fathers of the Internet Protocol.

11. I started building web servers in 1993, having set up the web server for the MIT Telemedia, Networks, and Systems Group, to which I belonged. It

was one of the first several hundred web servers in existence, and went on to provide what was likely one of the first live Internet video sessions initiated from a web site. I co-authored papers on our web server video system and on database-backed web sites for which I attended the first World Wide Web conference to present.

12. From 1997 to 1999, I was a Senior Scientist and Engineer at NBX Corporation, a start-up that made business telephone systems that streamed packetized audio over data networks instead of using traditional phone lines. NBX was later acquired by 3Com Corporation, and the phone system is still available and being used at tens of thousands of businesses or more. As part of my work at NBX, I designed the core audio reconstruction algorithms for the telephones, as well as the packet transmission algorithms. I also designed and validated the core packet transport protocol used by the phone system. The protocol is used millions of times daily currently. Two of the company founders and I received US Patent No. 6,967,963 titled "Telecommunication method for ensuring on-time delivery of packets containing time sensitive data," as a result of part of this work.

13. Starting in 2001, I was the architect for the next generation of web testing product by Empirix known as e-Test Suite. e-Test Suite is now owned by Oracle Corporation. e-Test provided functional and load testing for web sites. e-Test emulated a user's interaction with a web site and provided web developers

with a method of creating various scripts and providing both functional testing (e.g., did the web site provide the correct response) and load testing (e.g., could the web site handle 5000 users on its web site simultaneously). Among Empirix's customers was H&R Block, who used e-Test Suite to test the tax filing functionality of their web site as whether the web site could handle a large expected load prior to the filing deadline.

14. At Empirix, I also conceived, secured internal funding for, and managed the engineering for a new data platform test product known as the PacketSphere. The first capability the PacketSphere provided was to emulate a network so that lab testing could be done under conditions that mimicked the Internet, including configurable latency and packet loss. Later, PacketSphere provided the capability to generate large numbers of Voice-over-IP streams as well as measure the quality of the connection of VoIP streams. As part of my work, I continued to study the development of the Voice-over-IP market and worked with a number of Empirix customers to understand their market and product testing needs. Sonus Networks, a leading manufacturer of Voice-over-IP equipment, was a long-time customer of Empirix and one of the first customers of the PacketSphere product.

15. Around 2006, at BBN, I helped create a search engine for audio and video which could be searched based on spoken word content. Our system used

speech recognition and natural language processing to create a search index of audio and video files posted publicly on the Internet. During the search process, audio and video with matching spoken words could be streamed to users through our web site. As the Vice President of Operations and Technology, I architected and helped build-out the back end of the system, which supported speech recognition, search indexing, and providing the capability for hosted audio and video streaming in search results. Today, at RAMP Inc., the project has grown to a product that is used by media outlets such as ABC, CBS, NBC, Fox, and Reuters. In addition, during this time at BBN, I continued to be engaged with Voice-over-IP related projects through the time I left BBN.

16. Around 2008-2009, I was Chief Technology Officer at Eons, a venture backed company founded by Jeff Taylor, who also founded the hiring web site Monster.com. Eons built a social networking site.

17. I have also continued to develop web sites for various business projects, as well as setting up web sites on a volunteer basis for various groups that I am associated with.

18. I am the author of several publications devoted to a wide variety of technologies in the fields of electrical engineering and computer science. These publications are listed on my CV.

19. In summary, I have extensive familiarity with systems, networks, architectures, and methods related to traditional circuit-switched telecommunications, packet-based telecommunications, and systems that merged the two technologies, and I am familiar with what the states of these technologies were at the relevant time of the '304 Patent invention and before.

III. MATERIALS CONSIDERED AND INFORMATION RELIED UPON REGARDING '304 PATENT

20. In preparing this declaration, I have reviewed the following materials bearing Exhibit Nos. that I understand are being referenced in the IPR to which my declaration accompanies:

No.	Description
1001	U.S. Patent No. 8,464,304 ("the '304 Patent")
1002	File History of U.S. Patent No. 8,464,304
1004	C.V. of Henry Houh
1006	"A Mobile Phone-based Context-aware Video Management Application," Janne Lahti, et al., MULTIMEDIA ON MOBILE DEVICES II, PROC. OF SPIE-IS&T ELECTRONIC IMAGING, SPIE VOL. 6074, 60740O, 2006 ("Lahti")
1007	U.S. Patent Application Publication No. US 2008/0235200 to Washington ("Washington")
1008	U.S. Patent Application Publication No. 2009/0012965 to Franken ("Franken")
1009	Current TV "create & upload: mobile" webpage
1010	Current TV "Submission Guidelines" webpage
1011	Current TV "FAQ" webpage
1014	Excerpts of Dictionary of Computing and Digital Media
1015	Excerpts from Patent Owner's Infringement Contentions

1017	U.S. Patent No. 8,819,719 to Chen et al. ("Chen")

21. I understand that the '304 Patent issued on June 11, 2013 from U.S. Patent Appl. No. 13/185,471, filed on July 18, 2011, which is a continuation-in-part of Appl. No. 13/013,775, filed on January 25, 2011.

22. In forming the opinions expressed herein, I relied upon my education and experience in the relevant field of art, and have considered the viewpoint of a POSITA, as of January 25, 2011. I have also considered:

a) the documents listed above,

b) any additional documents and references cited in the analysis below,

c) the relevant legal standards, including the standard for obviousness, and

d) my knowledge and experience based upon my work in this area as described below.

23. I understand that patent claims in an IPR are given their broadest reasonable interpretation in view of the patent specification and the understandings of a POSITA. I further understand that this is not the same claim construction standard as one would use in a District Court proceeding.

IV. UNDERSTANDING OF PATENT LAW

24. I am not an attorney. For the purposes of this declaration, I have been informed about certain aspects of the law that are relevant to my opinions. My understanding of the law was provided to me by Petitioner's attorneys.

25. I understand that prior art to the '304 Patent includes patents and printed publications in the relevant art that predate the priority date of the '304 Patent. For purposes of this Declaration, I have applied the date of January 25, 2011, the filing date of a parent application of which the application leading to the '304 Patent was a continuation-in-part, as the priority date.

26. I understand that a claim is invalid if it would have been obvious. Obviousness of a claim requires that the claim would have been obvious from the perspective of a POSITA at the time the alleged invention was made. I understand that a claim could have been obvious from a single prior art reference or from a combination of two or more prior art references.

27. I understand that an obviousness analysis requires an understanding of the scope and content of the prior art, any differences between the alleged invention and the prior art, and the level of ordinary skill in evaluating the pertinent art.

28. I further understand that a claim would have been obvious if it unites old elements with no change to their respective functions, or alters prior art by

mere substitution of one element for another known in the field and that combination yields predictable results. While it may be helpful to identify a reason for this combination, I understand that there is no rigid requirement of finding an express teaching, suggestion, or motivation to combine within the references. When a product is available, design incentives and other market forces can prompt variations of it, either in the same field or different one. If a POSITA can implement a predictable variation, obviousness likely bars its patentability. For the same reason, if a technique has been used to improve one device and a POSITA would recognize that it would improve similar devices in the same way, using the technique would have been obvious. I understand that a claim would have been obvious if common sense directs one to combine multiple prior art references or add missing features to reproduce the alleged invention recited in the claims.

29. I further understand that certain factors may support or rebut the obviousness of a claim. I understand that such secondary considerations include, among other things, commercial success of the patented invention, skepticism of those having ordinary skill in the art at the time of invention, unexpected results of the invention, any long-felt but unsolved need in the art that was satisfied by the alleged invention, the failure of others to make the alleged invention, praise of the alleged invention by those having ordinary skill in the art, and copying of the alleged invention by others in the field. I understand that there must be a nexus—a

connection—between any such secondary considerations and the alleged invention. I also understand that contemporaneous and independent invention by others is a secondary consideration tending to show obviousness.

30. I am not aware of any allegations by the named inventors of the '304 Patent or any assignee of the '304 Patent that any secondary considerations tend to rebut the obviousness of any Challenged Claim of the '304 Patent.

31. I understand that in considering obviousness, it is important not to determine obviousness using the benefit of hindsight derived from the patent being considered.

32. I understand that other challenges to the validity of a patent, including patent ineligibility, enablement, written description, and definiteness, cannot be raised in *inter partes* review proceedings before the Board to challenge the validity of the '304 Patent. Accordingly, I did not consider those other challenges.

33. I understand that Petitioner has the burden of proving unpatentability by a preponderance of evidence, which means that the claims are more likely than not invalid.

34. The analysis in this declaration is in accordance with the above-stated legal principles.

V. OVERVIEW OF THE '304 PATENT

35. The '304 Patent, titled "Content Creation And Distribution System," issued on June 11, 2013. The '304 Patent issued from U.S. Patent Application No. 13/185,471 (the "'471 Application"), filed on July 18, 2011, which is a continuation-in-part of Application No. 13/013,775, filed on January 25, 2011.

36. The '304 Patent is directed at creating and sharing web content. For example, the patent admits that by the time the application was filed, it had "become relatively easy for individuals and groups of individuals to take digital photographs and to record video, and to distribute this content to others over the Internet or other data networks." (Ex. 1001, 1:17-20[1].) "Still and video cameras, which are now common features on mobile phones, can be used to take photographs and to record videos that are immediately available for sharing with others through a multi-media messaging service or email, video file sharing sites, social network and similar services on the Internet that publish (to selected individuals or groups, or to everyone) or otherwise make available the photographs and video over the Internet." (*Id.*, 1:21-28.)

37. Individuals "distribute their photos and videos by uploading them to web-based services that publish them for friends, family, social or business contacts or anyone with access to the Internet to view. When user-generated

[1] Citations herein to X:Y are to column:line number(s).

content is uploaded or shared for a specific purpose, such as for example, in response to a widely disseminated request for a certain type of content, it may be referred to as crowd-sourced content." (*Id.*, 1:31-38.)

38. The patent goes on to explain that "[i]nexpensive computer application programs allow individuals to edit photographs, videos and other graphics into a single work with nearly professional results, and to render the resulting work or 'content' in standard formats for playback on a wide range of devices. Services for sharing user-generated video, photographs, and music abound on the Internet. For example, a number of video sharing sites allow people to upload, encode and share videos on the web." (*Id.*, 1:40-48.)

VI. LEVEL OF ORDINARY SKILL IN THE PERTINENT ART FOR THE '304 PATENT

39. I understand that the level of ordinary skill may be reflected by the prior art of record, and that a POSITA to which the claimed subject matter pertains would have the capability of understanding the scientific and engineering principles applicable to the pertinent art.

40. I understand that one of ordinary skill in the art has ordinary creativity, and is not a robot.

41. I understand there are multiple factors relevant to determining the level of ordinary skill in the pertinent art, including (1) the levels of education and experience of persons working in the field at the time of the invention; (2) the

sophistication of the technology; (3) the types of problems encountered in the field; and (4) the prior art solutions to those problems. There are likely a wide range of educational backgrounds in the technology fields pertinent to the '304 Patent. The concepts disclosed in the '304 Patent are relatively simple and would have been covered by an undergraduate-level course on network architecture, website design, and/or Internet application design.

42. I am very familiar with the knowledge and capabilities that a person of ordinary skill in the art of content creation and distribution, such as capturing and transcoding video data, and distributing the content to others via the Internet.

43. Specifically, my experience prior to the relevant timeframe allowed me to become personally familiar with the knowledge and capabilities of a person of ordinary skill in the area of Internet applications involving various aspects of creating and sharing multimedia, such as video data. Unless otherwise stated, my testimony below refers to the knowledge of one of ordinary skill in this art as of January 2011.

44. In my opinion, a person of ordinary skill in the art needed to have the capability of understanding the creation of various types of multimedia applications, network architecture, and associated distribution methods disclosed in the '304 Patent, and would possess (i) a Bachelor's degree in Computer Science, Electrical and/or Computer Engineering, or equivalent training, and (ii)

approximately two years of experience in network architecture and multimedia systems, including creating and distributing multimedia. Lack of work experience can be remedied by additional education, and vice versa. Such academic and industry experience would be necessary to appreciate what was obvious and/or anticipated in the industry and what a person of ordinary skill in the art would have thought and understood at the time.

45. For purposes of this Declaration, in general, and unless otherwise noted, my testimony below refers to the knowledge of one of ordinary skill in the art during the time period around the earliest claimed priority date of the '304 Patent. I would have been a person with at least ordinary skill in the art at that time.

VII. CLAIM CONSTRUCTION: BROADEST REASONABLE INTERPRETATION OF TERMS IN THE '304 PATENT

46. For purposes of this review, the claim language is "given its broadest reasonable construction in light of the specification of the patent in which it appears." 37 C.F.R. §42.100(b); *Cuozzo Speed Techs. v. Lee*, 579 U.S. (Jun 20, 2017) (slip. op., at 16-17). Terms not specifically construed below are given their plain and ordinary meaning under the broadest reasonable interpretation. *See id.*

47. Because the standard for claim construction at the USPTO is different than that used in other forums, Petitioner reserves the right to argue in other

forums, a different construction for any term, as appropriate to that proceeding. *See In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364, 1369 (Fed. Cir. 2004)

48. Petitioner proposes the following broadest reasonable interpretations:

A. <u>"Predetermined constraints"</u>

49. The '304 Patent specification does not provide an explicit definition for "predetermined constraints." However, the specification does provide several examples of "predetermined constraints," as well as discussing their purpose. For example, the specification provides:

> "Video content is captured on a user device and formatted according to predetermined constraints using a web application or an installed application. The video content, for example, can be requested for inclusion in a television program. By formatting the video content according to predetermined constraints, the video content can be transcoded into a format appropriate for inclusion in a linear television programming schedule using an automated transcoding workflow corresponding to the predetermined format to ensure that the transcoded video file complies with requirements of a particular television broadcaster or television uplink facility. (Ex. 1001, 9:12-23.)
>
> "When the content creation sub-system is implemented as a thin client application or a specialized application installed on a user device, the application can enforce predetermined constraints on the captured video. Such constraints can help ensure that the video is in condition to be rapidly transcoded for insertion into a linear programming time slot.
> …

The client application (i.e., either thin client application or installed application) can also enforce restrictions on the length of a video that is captured for submission. For example, if a video is generated in response to a specific request for video or other content submissions, users may be directed to a particular web page associated with the request. By accessing the thin client through that web page and/or by delivering parameters to a locally installed application on the user device, a video length restriction can be enforced (i.e., the user can be prevented from capturing or submitting videos that do not comply with the length restrictions). In some implementations, the content creation sub-system can allow recordings of various durations suitable for including in time slots of linear programming (e.g., 15 seconds, 30 seconds, etc.). For example, an affinity group may not have its own television program affiliated with its own private-label social media website. In such an instance, members of the affinity group may not have the option to record a 15-second "famespot" for inclusion in that affinity group's television program. They may, however, be given rights to record and submit a 30-second "peoplemercial" that may be viewed on various programs within a television programming lineup. Other predetermined lengths may also be used. By enforcing length restrictions, the need to edit the video can be avoided, which can also expedite the process of inserting video into a linear programming sequence. Users may also be allowed to submit a video file of unspecified length for inclusion on an Internet video blog or as part of a linear program, otherwise known as a "social

clip."

(*Id*., 10:56-11:48.)

50. Thus, the broadest reasonable interpretation in view of the specification of "predetermined constraints" is "**parameters, rules, or restrictions provided to ensure compliance and compatibility with system requirements or goals, including but not limited to video length, video format type, video image resolution, video transmission bit rate, etc**."

B. "Transcoding"

51. The '304 Patent uses "transcoding" in its ordinarily understood sense. For example, THE DICTIONARY OF COMPUTING & DIGITAL MEDIA defines "transcoding" as "[t]o convert from one video format to another, as opposed to encoding, which refers to the original capture or digitization of images." (Ex. 1014, p. 4.) This definition is consistent with how the '304 Patent uses the term. For example, the '304 Patent provides:

> The content distribution sub-system **116** can include encoders (e.g., for encoding raw data or other uncompressed video format data into a compressed video format) and/or transcoders (e.g., for transcoding one compressed video format into another compressed video format) **118**, storage servers **114** (e.g., computer-readable memory) and a review and authorization interface **134**. (Ex. 1001, 10:14-20.)

52. Thus, the broadest reasonable interpretation of "transcoding" is "**converting** from **one video format to another**."

C. "Buffered on the client computing device using scripts" (cl. 5)

53. The '304 Patent specification uses the phrase "buffered on the client computing device using scripts" in its ordinary sense. Although it does not define "buffered," the specification does expressly explain what it means by scripts: "A computer program (also known as a program, software, software application, script, or code) can be written in any form of programming language, including compiled or interpreted languages, and it can be deployed in any form, including as a stand-alone program or as a module, component, subroutine, or other unit suitable for use in a computing environment." (Ex. 1001, 26:5-12.) That a "script" is understood to mean a computer program is consistent with the understanding of a POSITA.

54. Regarding "buffered," a POSITA would understand it to mean using memory space to temporarily store data.

55. Thus, the broadest reasonable interpretation of "buffered on the client computing device using scripts" is "**temporarily storing data in memory of the client computing device using a computer program, software application, or other unit of computer code**."

VIII. DETAILED ANALYSIS AND OPINION

56. As noted above, I have been asked to provide my opinion as to whether the Challenged Claims would have been obvious to a POSITA in view of prior art. The discussion below provides a detailed analysis of how the prior art references I reviewed teach the limitations of the Challenged Claims.

57. As part of my analysis and described below, I have considered the scope and content of the prior art and any potential differences between the claimed subject matter and the prior art. I conducted my analysis from a time frame of before January 25, 2011. I have also considered the level of ordinary skill in the pertinent art as of that date. This analysis supports my opinion that the differences between the Challenged Claims and the prior art discussed herein are such that the subject matter as a whole would have been obvious to a POSITA.

58. I describe in detail below the scope and content of the prior art, as well as any differences between the claimed subject matter and the prior art, on an element-by-element basis for each Challenged Claim of the ’304 Patent. This analysis supports my finding that the differences between the claims of the ’304 Patent and the prior art discussed herein are such that the subject matter as a whole would have been obvious at the time of the filing of the ’304 Patent to a person having ordinary skill in the art to which the subject matter pertains.

59. As described in detail below, the claimed subject matter of the Challenged Claims would have been obvious in view of the teachings of the identified prior art references as well as the knowledge of a POSITA.

60. I will now describe, in the grounds below, on an element-by-element basis how the prior art teaches all elements of claims 1, 4, 5, 8, 9, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 28, 29 and 30. Unless otherwise noted, all *italics*, ***bold italics*** and ***bold italics underline*** emphasis in any quoted material has been added.

A. Ground 1: Lahti Combined with the Current TV References

61. Claims 1, 4, 5, 8, 9, 14-16, 26, and 28 are unpatentable as obvious to a POSITA in view of Lahti in view of the Current TV References.

1. The Prior Art References

a) Background on Lahti

62. "A Mobile Phone-based Context-aware Video Management Application," authored by Janne Lahti, Marko Palola, Jari Korva, Utz Westermann, Kostas Pentikousis and Paavo Pietarila ("Lahti"), is a paper that was presented at the 2006 IS&T/SPIE Annual Symposium on Electronic Imaging Science and Technology. I am also informed that Lahti was published as part of the conference proceedings and made available by the SPIE organization in 2006.

63. Lahti generally describes the MobiCon video production tool, which allows users to record video clips with their camera phones and share them with

others. (Ex. 1006, pp. 1, 3.) The user-generated video clips are uploaded to a server system, through which videos may be shared with others. Lahti at Abstract. Lahti teaches that the "MobiCon" client application is downloaded over the air to a mobile camera-phone. (Ex. 1006, p. 5.)

64. The user-created video clip is uploaded to a video Upload Gateway over a network whose capacities "vary greatly" such as GPRS/EDGE/WCDMA. Ex. 1006, pp. 1, 3. The Upload Gateway then "transcodes the video clip into different formats and bit rates in order to provide a scalable service quality for different devices and network connections." Ex. 1006, p. 7. Video clips are transcoded into Real Video, H.264, H.263, and MPEG-4 formats. Ex. 1006, p. 7. Figures within Lahti illustrate receiving "video data" from a "mobile phone" at an "Upload Gateway" within the "server." "The UploadGateway serves multiple MobiCon users and provides access to the Candela system. Figure 3 presents an architectural overview of the UploadGateway." Ex. 1006, p. 6.

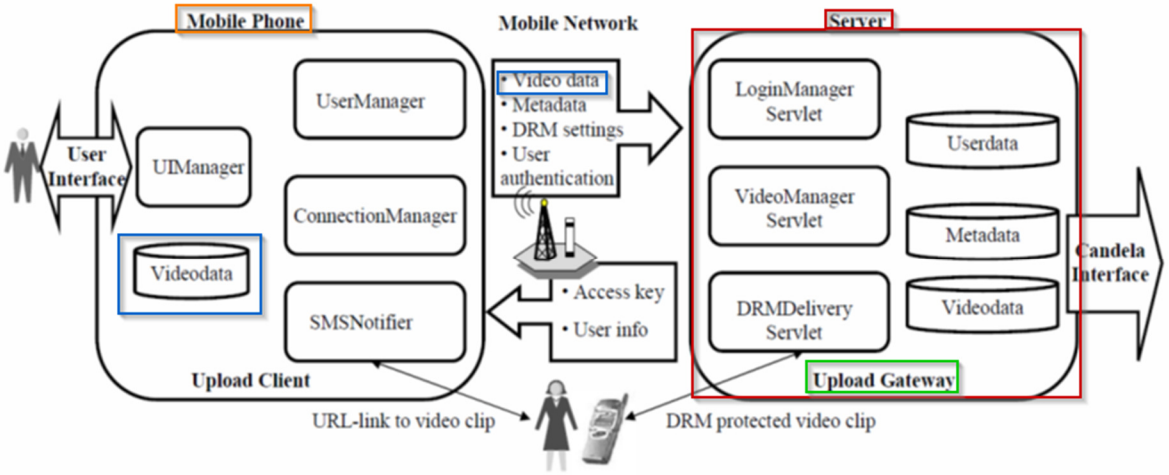

Figure 3: High-level description of MobiCon.

Ex. 1006, Fig. 3, p. 5.[2]

65. The various transcoded video clips are transferred to, and streamed to users via, a separate streaming server, also called the Helix streaming server. Ex. 1006, Fig. 2, p. 4, pp. 4, 5. Users may use a web browser to view or search their videos. *Id.*, Abstract, p. 1, p. 6. *Id.*, Fig. 2, p. 4, pp. 4, 5, and 6.

66. In the figures depicting Lahti's system for transcoding and distributing the user-uploaded videos, the system shows that the streaming server is a separate entity from the video manager that performs the transcoding operations:

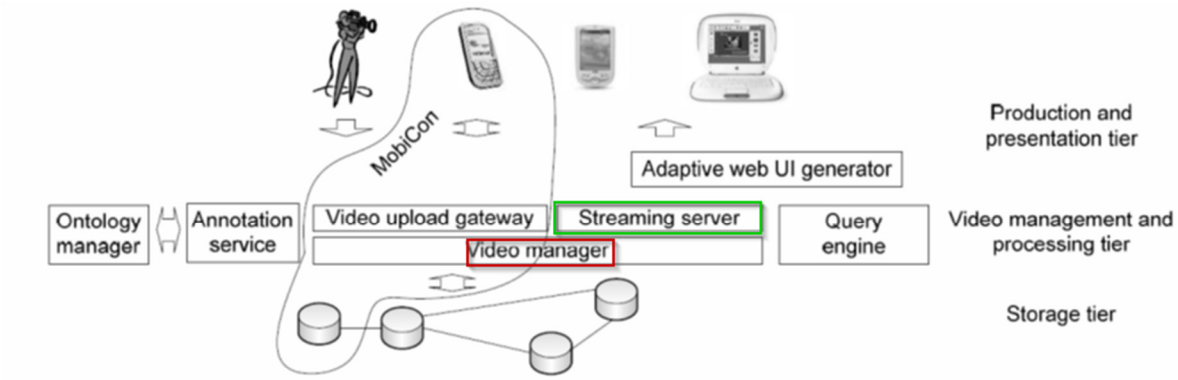

Figure 2: Candela and MobiCon system architecture.

Ex. 1006, Fig. 2, p. 4

b) <u>The Current TV References</u>

67. Current TV was a network broadcast television channel that launched in the United States on August 1, 2005. By at least 2007, Current TV was an

[2] Figure 3 from Lahti displayed above includes annotations in color. Other figures from various references within this declaration also bear annotations. In all instances, the annotations are in color. These annotations are included to assist the Board in identifying the features disclosed by the prior art references.

interactive television channel that permitted viewers to submit video content to be included in the television programming.

68. The television channel had an associated website, www.currenttv.com, which described the channel's programming, scheduling, promotions, as well as how viewers could participate in the programming by submitting their own content. I am informed that Exhibits 1009-1011 are excerpts from the website that were publicly available by December 31, 2007—Exhibit 1009 is titled "create & upload: mobile" ("Current TV mobile"); Exhibit 1010 is titled "Submission Guidelines;" and Exhibit 1011 is titled "FAQ" ("Current TV FAQ"). Exhibit 1009 includes hyperlinks to both "submission guidelines" and "faq." (Ex. 1009, p. 2.)

2. Rationale and Motivation to Combine Lahti and Current TV

69. As discussed above, Lahti discloses a system for creating and annotating video content using a mobile phone and the associated MobiCon application. Current TV discloses a practical application of using the teachings of Lahti, namely to take the video content created using the MobiCon application and submit it to be included in the Current TV programming. Indeed, Current TV provided a monetary reason for Lahti users to create and submit such video content for inclusion in a linear television programming broadcast, and a POSITA would

have sought to combine the teachings to provide an added incentive for users to use the MobiCon application.

70. It is my opinion that a POSITA would have found it obvious to look to and combine the teachings of Lahti with Current TV.

71. First, Lahti and Current TV are in the same field of endeavor. Lahti describes using a client device to capture video in accordance with certain constraints and uploading the captured video to the server for distribution to a broad audience comprised of either the general public, or a list of friends and family members. Current TV describes uploading user-created videos for distribution through a broadcast television network. Current TV further provides certain constraints on the videos uploaded, including restrictions on the length of videos that users can upload for inclusion into the TV programming schedule, and the formats of videos that will be accepted. Lahti similarly provides restrictions of the nature of the videos uploaded, including defining formats and video quality that will be accepted. The Lahti MobiCon application would already thus have been ready to incorporate the further constraint of including a maximum length of recorded video, and including such a constraint would have yielded a predictable result. Current TV and Lahti further disclose capturing user-created clips via cameras connected to client computing devices. "The UIManager coordinates the video capture using the mobile phone's camera, the saving of the video data to the

Java Record Store system." Ex. 1006, p. 5. "Check out the call outs below, watch a sample, shoot some footage with your video phone and find out how the content you capture with your mobile can pay those overage charges. Oh, and make sure what you send to Current is something you and your friends would want to watch on TV!" Ex. 1009, p. 2, "Current TV mobile".

72. Lahti and Current TV further both teach converting video data uploaded by users into an appropriate format for further distribution. Ex. 1006, p. 6 ("The received video and metadata descriptions are stored temporarily, the video clip is transcoded, a key frame picture is extracted from the video, and metadata is finally formatted to the MPEG-7 XML format. All data including video clips, keyframes, and MPEG-7 are added to the database via Candela Interface."); Ex. 1010, p. 2, Current TV at "Submission Guidelines" ("The Video Egg Publisher can capture directly from hundreds of types of devices and reads dozens of formats. This means you don't have to compress your video, as Video Egg does it for you upon upload. Please upload the highest resolution version of your video to get the best compression possible.").

73. Second, Lahti and Current TV teach complementary approaches to imposing limits on the user-created clips uploaded for further distribution. Thus, Lahti defines a number of constraints regarding the quality of clips created and uploaded, including limits on resolution and frame rate, among others. Ex. 1006,

p. 6 (“A new video clip is captured in Capture Screen using Mobile Media API and it is recorded according to 3GPP specification using AMR coding for audio and H.263 at 176x144 pixels size at 15 frames per second for video.”). Current TV imposes time length limits on the length of videos that may be submitted for inclusion in a broadcast. Ex. 1011, p. 3, “Current TV FAQ.” (“A Pod is a short video that tells a story, profiles a character and/or shares an idea. Current TV Pods are nonfiction videos that are anywhere from one minute to seven or eight minutes”); *id.*, pp. 6-7. (“The longest Pod ever aired on Current TV was 18 minutes, but anything over 10 minutes is really rare. Most Pods clock in between one and seven minutes. If you feel like you just can't tell your story in under 10, try breaking it into episodes.”); *id.* p. 7. (“Can I submit my documentary film? Of course! Documentary shorts are perfect. If you have a longer doc that you've finished shooting and editing, do a cut down into a Pod appropriate length and submit.”). Current TV, like Lahti, further teaches that certain formats of video will be accepted for upload. *See* Ex. 1010, p. 1, Current TV at “submission formats”.

74. Third, Lahti and Current TV disclose complementary approaches to distribution of user-uploaded video clips. Lahti discloses uploading video clips to a streaming server where they can be viewed by users of the Candela system. Current TV discloses broadcasting user-uploaded videos to a large television audience, which would have been known to a POSITA. Incorporating the teaching

of using broadcast television for distribution of videos into Lahti would have required only the skills typical of a POSITA, no more than what would have been required of a POSITA to implement Lahti alone. In particular, the use of broadcast television to distribute recorded videos according to a schedule has been known since at least the early 1950's. Like Lahti, Current TV also discloses a system for uploading user-created videos, and Lahti's disclosure of an HTTP server system with a database for storage of user-related and video-related information could be readily combined with Current TV's existing system. Lahti's system of setting parameters on minimum video quality and restricting formats to be uploaded would also simplify Current TV's processing of videos, facilitating broadcast of the videos uploaded to Current TV. Thus, the proposed modification to Lahti to incorporate the teachings of the Current TV references would be a simple, straightforward step of distributing the uploaded, transcoded videos via well-known broadcast television techniques. This would not require undue experimentation and would produce predictable results, particularly where Current TV was already utilizing uploaded videos for its own scheduled television broadcasts.

75. A POSITA would have recognized that by combining Current TV's teachings of broadcasting user-created videos over a television network and Lahti's system for capturing and uploading videos to a server in compliance with other

server-defined constraints, a broader audience could be reached. Lahti discloses that users of the MobiCon system for uploading videos can choose to make the videos available to only a private list of users or to all users of the Candela system. "If the user chooses Candela delivery channel the video clip is uploaded to Candela server over mobile phone network and added to the Candela video database, from where the user can later search and access the video clip. A user must also choose whether the video clip is only for personal use or whether other Candela users can also find the clip via search." Ex. 1006, p. 7. Because users would desire that some captured videos uploaded to the system should reach the broadest audience possible, a POSITA would have used Current TV's teaching of television broadcast of user-uploaded video in Lahti because it would allow for the effective distribution of user-uploaded videos to a far larger audience, including to viewers who lack computer equipment but possess televisions. Substituting one method of distribution for another would therefore produce predictable results. Moreover, because Current TV discloses internet distribution of user-uploaded videos and broadcast television distribution of user-uploaded videos, a POSITA would be led to modify Lahti to include the broadcast method of distribution in addition to its current disclosure of internet distribution.

76. A POSITA would therefore have been motivated to look to and combine the known teachings of Lahti and the Current TV references to arrive at

the claimed inventions of the '304 Patent discussed below. Combining these teachings would have yielded predictable results as a POSITA would use the concepts and disclosures from the references for their intended purposes, and in ways in which a POSITA would have a reasonable expectation of success.

3. Analysis

1. [a] A method performed by data processing apparatus, the method comprising: receiving video data from a client computing device at a server system,

77. Lahti teaches limitation 1[a] of claim 1.

78. First, Lahti discloses "a method performed by data processing apparatus."

79. The '304 patent states that "[t]he term 'data processing apparatus' encompasses all apparatus, devices, and machines for processing data, including by way of example a programmable processor, a computer, or multiple processors or computers." In my opinion, a system comprised of one or more servers that perform processing functions, such as transcoding data received by those servers, fall within this language describing "machines for data processing data." The claims of the '304 patent, including claim 1, expressly describe the steps of the method as being performed by a "***server system***." Lahti teaches utilizing servers to perform data processing functions to process videos uploaded by users who have

captured those videos. "Architecture is based on the need to provide wireless access over a mobile phone network to enable ***storing video clips on the server where it is also possible to run more computation-intensive operations such as video transcoding***." Ex. 1006, p.5. See Fig. 3 below:

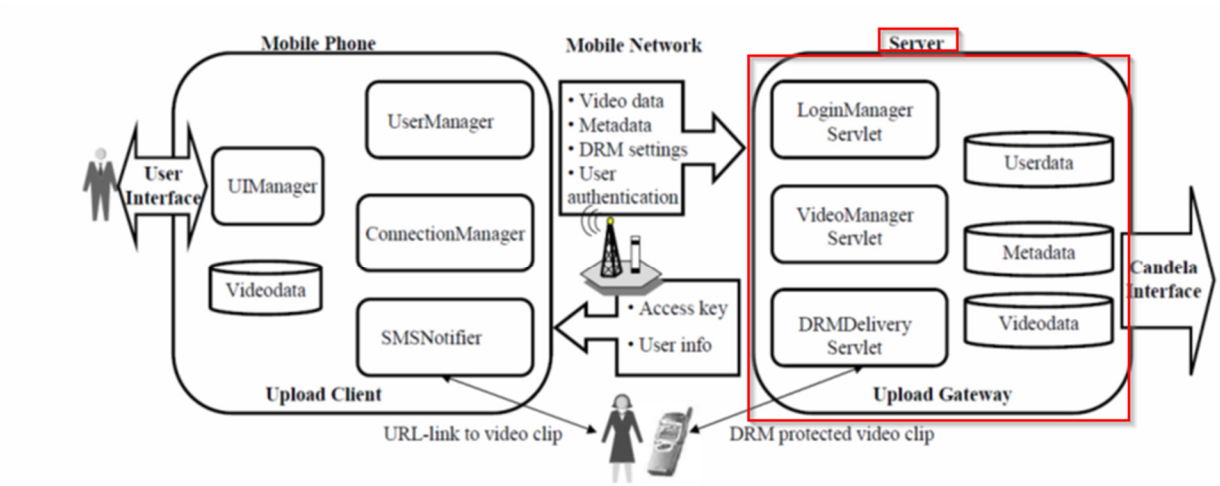

Figure 3: High-level description of MobiCon.

Ex. 1006, Fig. 3, p. 5.

80. Therefore, Lahti's teaching of methods for video capturing and processing those videos at a server discloses "a method performed by a data processing apparatus."

81. Second, Lahti teaches receiving video data at a server system. In particular, Lahti teaches receiving "video data" from a "mobile phone" at an "Upload Gateway" within the "server." "The UploadGateway serves multiple MobiCon users and provides access to the Candela system. Figure 3 presents an architectural overview of the UploadGateway." Ex. 1006, p. 6.

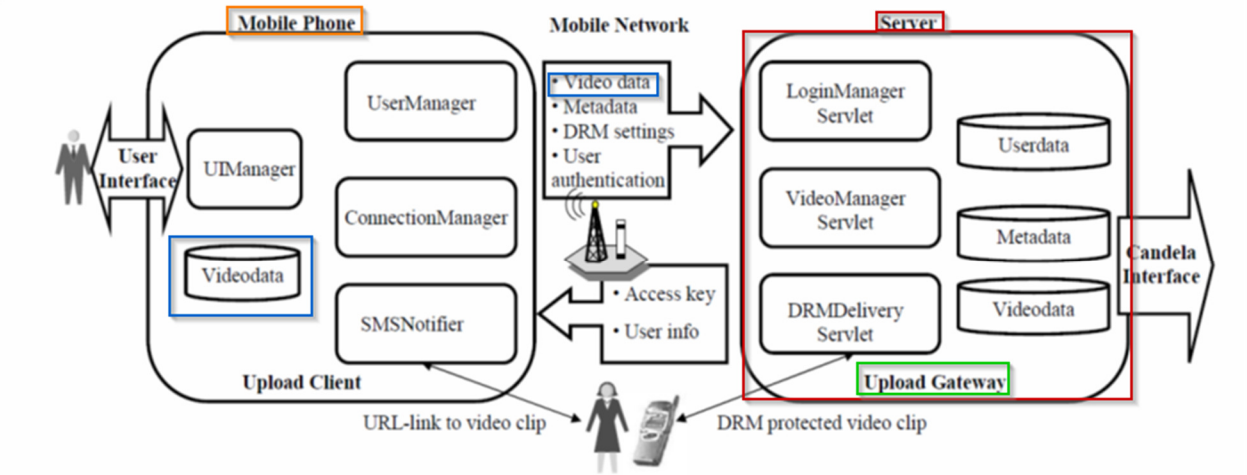

Figure 3: High-level description of MobiCon.

Ex. 1006, Fig. 3, p. 5.

82. Within the server depicted in Figure 3, a VideoManager Servlet receives video uploaded by users. "The VideoManager servlet takes care of all the functionalities ***receiving video data*** from the UploadClient to the UploadGateway. The received video and metadata descriptions are stored temporarily, the video clip is transcoded, a key frame picture is extracted from the video, and metadata is finally formatted to the MPEG-7 XML format." Ex. 1006, p. 6.

83. Third, Lahti teaches that the received video data is "from a client computing device." Lahti describes using an application called MobiCon executed on mobile phones equipped with video cameras to upload videos from those mobile devices. "We present a video management system comprising a video server and a mobile camera-phone application called MobiCon, which allows users to capture videos…, ***upload the videos over the cellular network***, and share them with others. ***Once stored in the video server***, users can then search their personal

video collection via a web interface, and watch the video clips using a wide range of terminals." Ex. 1006, Abstract, p. 1.

Figure 1: Alice records a video of the Oulu cathedral (left), annotates it with the term "Object > Buildings" (center), and later is able to search for it using the web interface of the Candela video management server (right).

84. Ex. 1006, Fig. 1, p. 2. As depicted in Figure 1 above, users capture video with a mobile phone and use the device to upload the video a video server. "With MobiCon, this is a simple process: Alice selects the video clip using a menu, chooses Bob from her contact list, and grants him the rights to watch the clip. She can subsequently upload the clip to the video server…." Ex. 1006, p. 2.

85. A POSITA would recognize that a mobile phone, which interacts with a remote server, is a client computing device. The '304 Patent defines "computing device" to include a mobile phone. '304 Patent at 11:65-12:5 ("Example computing devices 120 can include any type of computing device such as…a smart phone, an enhanced general packet radio service (EGPRS) mobile phone, or a combination of any two or more of these data processing devices or other data processing devices.").

86. Thus, Lahti receiving at the video manager servlet within the Server video clips uploaded by mobile phones teaches "*A method performed by data processing apparatus, the method comprising: receiving video data from a client computing device at a server system.*"

[b] wherein the video data is captured using a camera connected to the client computing device in accordance with instructions executed on the client computing device,

87. Lahti teaches limitation 1[b] of claim 1.

88. First, Lahti describes a mobile phone having an integrated camera capturing video data. "Mobile phone manufacturers are increasingly adding new models with multimedia support and most modern ***medium- to high-end cell phones come with an integrated audio/video player, a camera to capture still and moving pictures***, and some media editing software. The 'coolness factor' fuels the popularity of mobile camera phones (MCP) and increases the volume of user-created media content. ***MCPs can record videos of up to several minutes, depending on the amount of memory available***." Ex. 1006, p. 1.

89. As described above with reference to limitation 1[a], Lahti's mobile phone discloses a "computing device." A POSITA would have understood that the fact that the mobile phone has an integrated camera indicates that the mobile phone computing device and the video camera are "communicably coupled" together.

Furthermore, the '304 Patent states that "a mobile device with a built-in camera" is included in its definition of a "camera [that] is communicably coupled to the computer or other user device." Ex. 1001, 17:55-59.

90. Second, Lahti teaches that the video captured on the computing device is in accordance with a software application called MobiCon. MobiCon includes various functionalities, including a UIManager, which provides the ability to capture video utilizing the mobile device's video camera. "The UIManager is a controller component which is loaded first when the application is started. ***The UIManager coordinates the video capture using the mobile phone's camera, the saving of the video data to the Java Record Store system***, and the sending of video sharing SMS messages to the other users." Ex. 1006, p. 5.

91. Third, Lahti teaches that MobiCon's instructions for capturing the video are executed on the mobile device. "MobiCon consists of two different software components: the UploadClient, ***which is a mobile Java (J2ME) application running on a mobile phone*** and UploadGateway, which is implemented as a Java servlet in the Candela server." Ex. 1006, p. 5. A component of MobiCon called the "UIManager" controls video capture on the mobile phone. "The UIManager is a controller component which is loaded first when the application is started. The UIManager ***coordinates the video capture using the mobile phone's camera***, the saving of the video data to the Java Record

Store system, and the sending of video sharing SMS messages to the other users. UIManager also provides user interfaces that are presented in the next Section." *Id*., p. 5. The user interface Lahti depicts for the UIManager interface includes a screen for controlling video capture. "Then, MobiCon's main screen is displayed (Screenshot 3), where the user can choose to view and edit personal information, to load video clips, ***or to capture a new clip*** (Screenshot 4)." *Id*., p. 6.

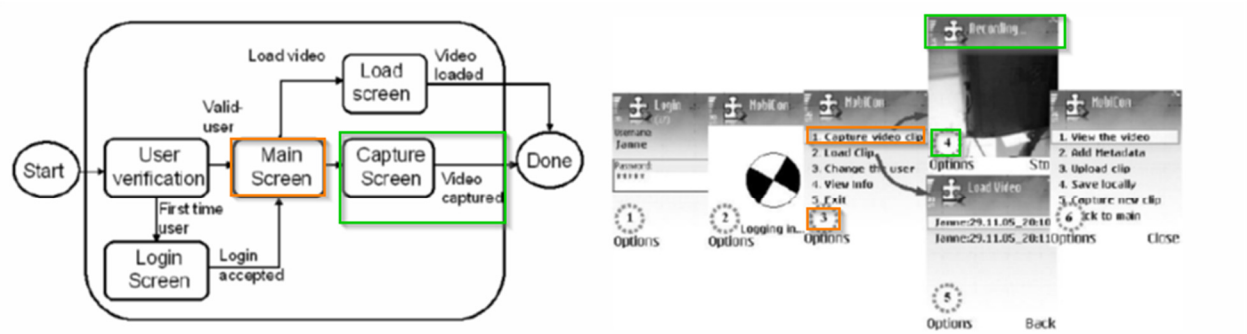

Figure 4: User authentication and video capturing: UI Flow Diagram (left) and UI screenshots (right).

Ex. 1006, Fig. 4, p. 6.

92. Figure 3 in Lahti further depicts that the UIManager application is executed on the Mobile Phone.

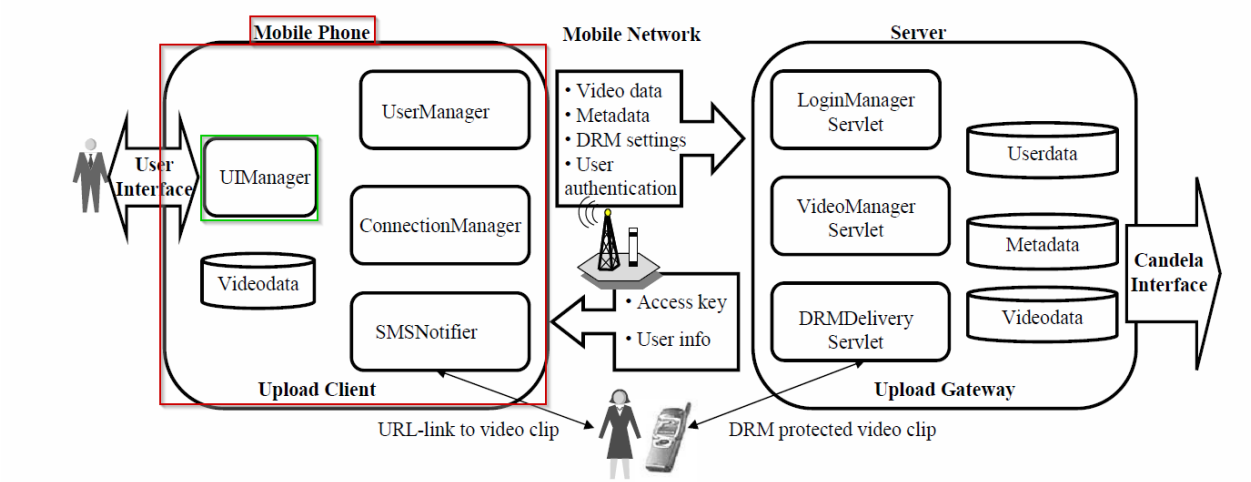

Figure 3: High-level description of MobiCon.

Ex. 1006, Fig. 3, p. 5

93. Thus, Lahti's MobiCon client application executed on a user's mobile phone for capturing new videos using the mobile phone's integrated camera teaches "*the video data is captured using a camera communicably coupled to the client computing device in accordance with instructions executed on the client computing device*."

[c] wherein the instructions are provided to the client computing device by the server system and cause the video data to be captured in accordance with predetermined constraints and the predetermined constraints include a frame rate defined by the instructions;

94. Lahti discloses element 1[c] of claim 1.

95. First, Lahti teaches that the server provides the MobiCon app to client mobile telephone devices. "***The server allows distribution of MobiCon application*** *easily to mobile phone users by using Over-The-Air (OTA)*

specification from the Open Mobile Alliance, which enables ***mobile applications to be downloaded and installed*** *over the cellular network*." Ex. 1006, p. 5. A POSITA would understand that a mobile application constitutes software code that controls the operation of a device when executed on that device, and that software code constitute instructions that control the operation of a device when executed by a processor. Moreover, the '304 Patent explains that, in some embodiments, "[t]he instructions executed on the client computing device are included in ***an application installed on the client computing device***." Ex. 1001, 4:26-28.

96. Because Lahti teaches that the server provides the MobiCon app to the client mobile phones, Lahti teaches "*wherein the instructions are provided to the client computing device by the server system*".

97. Second, Lahti teaches that the MobiCon app provides parameters by which the mobile device on which the application is executing captures video data, and those parameters expressly include a ***frame rate***. The MobiCon app disclosed in Lahti describes capturing video using a user interface capture screen and describes the parameters provided by the app that control the format and frame rate for the captured video. "Then, MobiCon's main screen is displayed (Screenshot 3), where the user can choose to view and edit personal information, to load video clips, or to ***capture a new clip*** (Screenshot 4). ***A new video clip is captured in Capture Screen using Mobile Media API and it is recorded according to 3GPP***

specification using AMR coding for audio and H.263 at 176x144 pixels size at 15 frames per second for video." Ex. 1006, p. 6.

98. Finally, Patent Owner's infringement contentions provide that an app downloaded from a server and installed on a mobile phone meets this claim element. Ex. 1015, Ex. A, pp. 10-11.

99. Thus, Lahti's MobiCon application executed on a user's mobile phone for capturing new videos using the mobile phone's integrated camera teaches "*wherein the instructions are provided to the client computing device by the server system and cause the video data to be captured in accordance with predetermined constraints and the predetermined constraints include a frame rate defined by the instructions*."

> [d] automatically transcoding the video data, using a server included in the server system, into at least one different format based on at least one of user credentials associated with a user of the client computing device or attributes associated with the video data,

100. Lahti teaches limitation 1[d] of claim 1.

101. Lahti is concerned with the problems relating to "how to automate permanent video clip storage, and how to do so in a way that is user-friendly, allows for easy clip lookups, and enables the user to share videos with others." Ex. 1006 at 1. Lahti defines an automated workflow for transcoding received video at

the server, using a "videomanager servlet" within the server, without any human intervention: "The VideoManager servlet takes care of all the functionalities receiving video data from the UploadClient to the UploadGateway. The received video and metadata descriptions are stored temporarily, ***the video clip is transcoded***, a key frame picture is extracted from the video, and metadata is finally formatted to the MPEG-7 XML format. All data including video clips, keyframes, and MPEG-7 are added to the database via Candela Interface." Ex. 1006, p. 6. Because Lahti discloses a defined process for transcoding videos using an automated VideoManger servlet within the server, Lahti discloses predetermined automated workflow for transcoding the received video data.

102. As noted previously, Lahti further specifies certain parameters for the recording of videos: "A new video clip is captured in Capture Screen using Mobile Media API and it is ***recorded according to 3GPP specification using AMR coding for audio and H.263 at 176x144 pixels size at 15 frames per second for video***." Ex. 1006, p. 6. These parameters are attributes of, and are therefore "associated with," the uploaded and captured video data.

103. The server necessarily transcodes the video captured according to these constraints into new formats. "In the server the video clip is handed over to the Video Manager Servlet, which ***transcodes the video clip into different formats and bit rates*** in order to provide a scalable service quality for different devices and

network connections. Currently, ***the Video Manager Servlet prepares Real Video, H.264, and H.263 encodings*** for delivering the captured video content to mobile devices and ***MPEG-4 file format*** for desktop computers." This process defines a workflow that is based on the video data attributes that are specified in Lahti.

104. The data resulting from Lahti's teaching of an automated transcoding workflow is transcoded video data. Lahti notes that the result of transcoding is the creation of various "file formats": "In the server the video clip is handed over to the Video Manager Servlet, which ***transcodes the video clip into different formats and bit rates*** in order to provide a scalable service quality for different devices and network connections. Currently, the Video Manager Servlet prepares ***Real Video, H.264, and H.263 encodings*** for delivering the captured video content to mobile devices and ***MPEG-4 file format*** for desktop computers." Ex. 1006, p. 7.

105. Finally, Patent Owner's infringement contentions provide that transcoding into a new format necessarily is based on the format of the data uploaded to the server. Ex. 1015, p. 12 ("The encoding to different bit rates must be based on the bit rate of the initial video and this, thus, is based on at least one of credentials associated with a user of the client computing device or attributes associated with the video data.").

106. Thus, Lahti's teaching of specifying an encoding, frame size, frame and rate for the uploaded video, after which it is automatically transcoded into

multiple formats, discloses "*automatically transcoding the video data, using a server included in the server system, into at least one different format based on at least one of user credentials associated with a user of the client computing device or attributes associated with the video data.*"

[e] wherein at least one format of the transcoded video data defines a video file in a format appropriate for inclusion in a linear television programming broadcast; and

107. Lahti in combination with "Current TV mobile" and "Current TV FAQ" teaches limitation 1[e] of claim 1.

108. Lahti teaches transcoding video data into multiple formats, including "***H.264***." Ex. 1006, p. 7. A POSITA would recognize that the H.264 video format constitutes a format appropriate for inclusion in linear television programming broadcasts.

109. First, a POSITA would recognize that the H.264 format actually is employed routinely in linear television programming broadcasts. For example, H.264 is the format commonly associated with HDTV broadcasts transmitted using over the air signals, or by cable or satellite television services. The Digital Video Broadcast project (DVB) approved the use of H.264 for broadcast television in late 2004. The Advanced Television Systems Committee (ATSC) approved H.264 for broadcast television in 2008.

110. Second, as noted above, I have reviewed the infringement allegations that I understand Patent Owner has served on Twitter in connection with its patent infringement lawsuit in which the'304 patent is asserted against Twitter. The infringement contentions expressly provide that Patent Owner considers that "H.264 is one of the formats appropriate for inclusion in a linear television programming broadcast." Ex. 1015, p. 12.

111. Third, Lahti expressly discloses that the result of transcoding are various "file formats": "In the server the video clip is handed over to the Video Manager Servlet, which ***transcodes the video clip into different formats*** and bit rates in order to provide a scalable service quality for different devices and network connections. Currently, the Video Manager Servlet prepares Real Video, H.264, and H.263 encodings for delivering the captured video content to mobile devices and MPEG-4 file format for desktop computers." Ex. 1006, p. 7.

112. Fourth, "Current TV mobile" and "Current TV FAQ" each discloses a linear television broadcasting channel that received and broadcast short videos submitted by the channel's viewers. For example, "Current TV mobile" encouraged viewers to capture videos using their mobile phones, like those disclosed by Lahti, and submit them for inclusion in the Current TV programming:

> Don't just watch content on your mobile phone, ***make content and let the world see it – on Current's national TV network --***

> ***now available in 28 million homes. Current is the first and only TV network to showcase your mobile videos***.
>
> Check out the call outs below, ***watch*** a sample, shoot some footage with your video phone and find out how the content you capture with your mobile can pay those overage charges. Oh, and ***make sure what you send to Current is something you and your friends would want to watch on TV***! (Ex. 1009, p. 2, "Current TV mobile")

113. A POSITA would have been motivated to use the MobiCon application disclosed in Lahti to capture and annotate short videos, and submit them to Current TV.

114. Thus, Lahti's disclosure of transcoding user-uploaded video into the H.264 format combined with Current TV's disclosure of accepting uploaded user-videos for broadcast on the Current TV network discloses "*at least one format of the transcoded video data defines a video file in a format appropriate for inclusion in a linear television programming broadcast*."

[f] uploading the transcoded video data to a distribution server for distribution.

115. Lahti teaches element 1[f] of claim 1.

116. First, Lahti discloses storing uploaded video at the server. After the video is transcoded, the transcoded video is saved in the database: "[a]ll data

including video clips, keyframes, and MPEG-7 are added to the database via Candela Interface." Ex. 1006, p. 6.

117. Second, Lahti teaches that after transcoding the videos are eventually uploaded to a streaming server for distribution: "Thus the solution was, at the expense of storage, to transcode the material to a representative set of formats and bitrates and develop a content negotiation plug-in for Helix streaming server in order to choose from those." Ex. 1006, p. 5. In the figures depicting Lahti's system for transcoding and distributing the user-uploaded videos, the system shows that the streaming server is a separate entity from the video manager that performs the transcoding operations described above with regard to elements 1[d] and 1[e]:

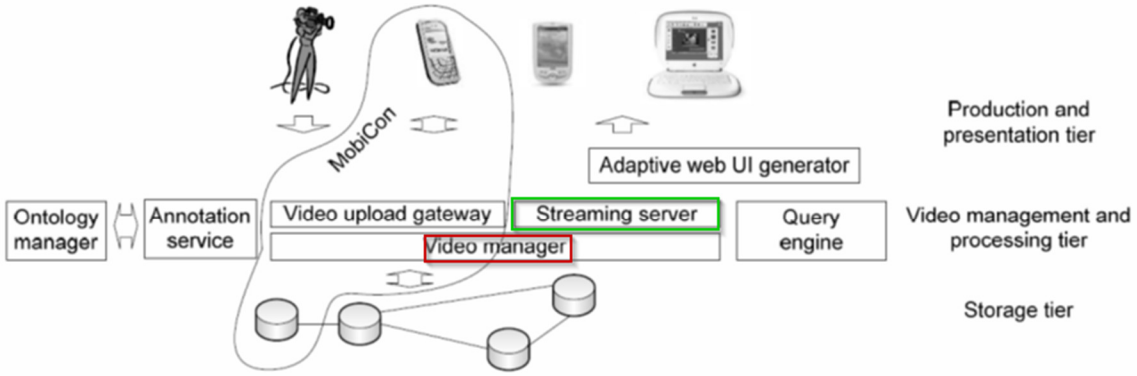

Figure 2: Candela and MobiCon system architecture.

Ex. 1006, Fig. 2, p. 4

118. Thus, Lahti's disclosure of transferring videos after they are transcoded by a video manager to a streaming server for distribution discloses "*uploading the transcoded video data to a distribution server for distribution*."

4. The method of claim 1 wherein the instructions executed on the client computing device are included in an application installed on the client computing device.

119. Lahti discloses claim 4.

120. Lahti teaches that MobiCon's instructions for capturing the video are included in an application executed on the mobile device. "MobiCon consists of two different software components: the UploadClient, ***which is a mobile Java (J2ME) application running on a mobile phone*** and UploadGateway, which is implemented as a Java servlet in the Candela server." Ex. 1006, p. 5. A component of MobiCon called the "UIManager" controls video capture on the mobile phone. "The UIManager is a controller component which is loaded first when the application is started. The UIManager ***coordinates the video capture using the mobile phone's camera***, the saving of the video data to the Java Record Store system, and the sending of video sharing SMS messages to the other users. UIManager also provides user interfaces that are presented in the next Section." *Id*.

121. Lahti teaches that the server provides the MobiCon application to client mobile telephone devices where it is installed. "The server allows distribution of MobiCon application easily to mobile phone users by using Over-The-Air (OTA) specification from the Open Mobile Alliance, which enables

mobile applications to be downloaded and installed over the cellular network." Ex. 1006, p. 5.

122. Lahti's disclosure of the MobiCon application installed and running on a user's mobile phone discloses "*the instructions executed on the client computing device are included in an application installed on the client computing device.*"

> 5. The method of claim 1 wherein at least a portion of the video data is buffered on the client computing device using scripts included in the instructions executed on the client computing device based on bandwidth constraints for transmitting the video data from the client computing device.

123. Lahti teaches claim 5.

124. First, Lahti teachers that the MobiCon application "consists of two different software components: the UploadClient, which is a mobile Java (J2ME) application running on a mobile phone and UploadGateway, which is implemented as a Java servlet in the Candela server." Ex. 1006, p. 5. Consequently, the instructions for uploading video data from a mobile phone to the server are included in the UploadClient and are executed on the mobile device.

125. Second, Lahti discloses that "[v]ideos cannot be reasonably stored permanently on the mobile device due to the limited memory capacity available." Ex. 1006, p. 1. The MobiCon client application captures and temporarily stores

(buffers) the video on the device prior to utilizing the network to "store the clip to a remote video management server." Ex. 1006, p. 3; *see also id.*, p. 2 ("Alice uses MobiCon, an MCP application, which allows her not only to capture the video, but also to upload it to a server").

126. Lahti discloses that mobile networks such as GPRS/EDGE/WCDMA are used for video upload. Ex. 1006, p. 5. Lahti states that part of the MobiCon Upload Client application executed on the mobile phone is called a "ConnectionManager." Thus, Lahti discloses that the ConnectionManager component is a "script" that is included in the overall MobiCom client, which is executed on the mobile camera-phone:

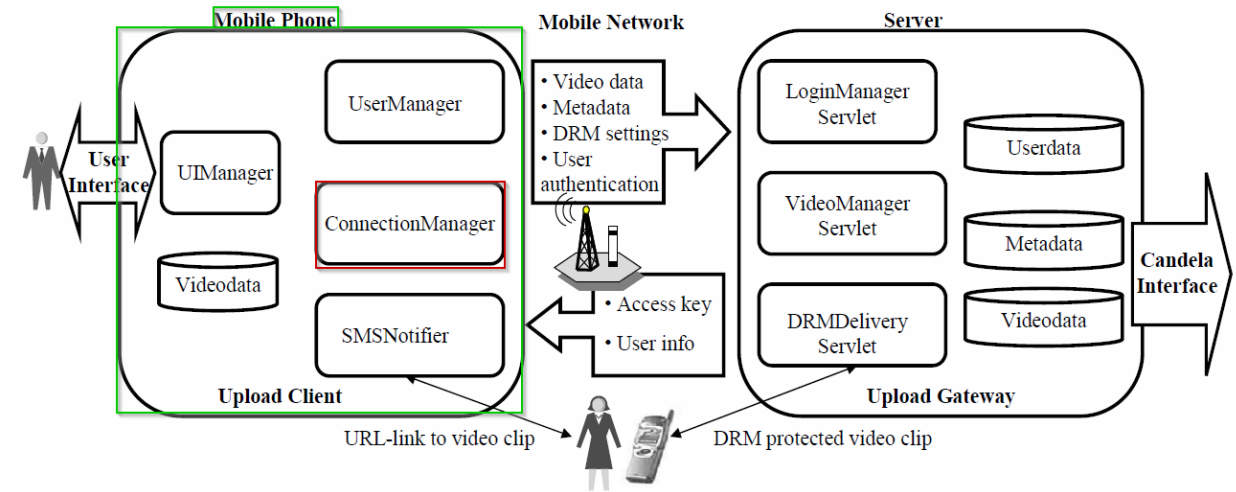

Figure 3: High-level description of MobiCon.

Ex. 1006, Fig. 3, p. 5

127. Lahti describes how the ConnectionManager can upload the video data using various packet-switched cellular networks: "The ConnectionManager

handles the connection between the UploadClient and UploadGateway providing data transfer using HTTP-protocol over the packet networks such as GPRS/EDGE/WCDMA." Ex. 1006, p. 5. GPRS is an abbreviation of General Packet Radio Service, a well-known data transfer service for cellular communications, that forms data into packets and transfers them serially over the network. A POSITA would recognize that packet-switched cellular networks, including GPRS and the others expressly referenced in Lahti, rely on buffering for the exchange of data because data must be packetized and queued prior to transfer over the network. Lahti's discussion of the ConnectionManager "handling" this data upload over networks such as GPRS means that the software application, comprised of scripts (i.e. computer code), executes instructions on the mobile phone for transferring the video data in a series of packets, which are buffered on the mobile phone prior to transfer.

128. Lahti further discloses that some of these networks may be perceived as "slow" (Ex. 1006, p. 10) and that the bandwidth of available networks "device capabilities and the capacity of the access networks vary greatly." *Id.*, p. 3. Lahti teaches that "users could connect to fixed networks by using network technologies like Bluetooth and WLAN, which can already be found on new mobile devices." *Id.*, p. 10. A POSITA would recognize that the MobiCon application's teaching of

storing the video temporarily until upload to the network is completed discloses buffering the video locally during the upload process.

129. Finally, Patent Owner's infringement contentions provide that a mobile device's internal storage used for buffering meets this claim element. "***It is a very common implementation to use buffering while transmitting data computing device based on between a client and host***. Typically, apps use the resources offered by the bandwidth constraints for device's 10 subsystem to execute the transmission of data (including buffering)." Ex. 1015, p. 56.

130. Thus, Lahti's disclosure of storing video data locally temporarily on a user's mobile telephone prior to transferring the data over packet-switched networks, which may vary in bandwidth, teaches that "*at least a portion of the video data is buffered on the client computing device using scripts included in the instructions executed on the client computing device based on bandwidth constraints for transmitting the video data from the client computing device*."

> 8. The method of claim 1 wherein the predetermined constraints include a bit rate and an image resolution sufficient to enable transcoding of the video data into the format appropriate for inclusion in the linear television programing broadcast.

131. Lahti teaches claim 8.

132. First, Lahti teaches that the server provides the MobiCon app to client mobile telephone devices. "The server allows distribution of MobiCon application easily to mobile phone users by using Over-The-Air (OTA) specification from the Open Mobile Alliance, which enables mobile applications to be downloaded and installed over the cellular network." Ex. 1006, p. 5. A POSITA would understand that a mobile application constitutes software code that controls the operation of a device when executed on that device, and that software code constitute instructions that control the operation of a device when executed by a processor. Moreover, the '304 Patent explains that, in some embodiments, "[t]he instructions executed on the client computing device are included in an application installed on the client computing device." Ex. 1001, 4:26-28.

133. Because Lahti teaches that the server provides the MobiCon app to the client mobile phones, Lahti teaches "wherein the instructions are provided to the client computing device by the server system".

134. Second, Lahti teaches that the MobiCon app provides parameters by which the mobile device on which the application is executing captures video data. The MobiCon app disclosed in Lahti describes capturing video using a user interface capture screen and describes the parameters provided by the app that control the format and frame rate for the captured video. These constraints include image resolution parameters. "A new video clip is captured in Capture Screen

using Mobile Media API and ***it is recorded according to 3GPP specification using AMR coding for audio and H.263 at 176x144 pixels size*** at 15 frames per second for video." Ex. 1006, p. 6.

135. A POSITA would know that video streaming requires that a network connection provide enough bandwidth so that the data arriving at a client is sufficient to render the video in real time; if the bandwidth was not sufficient, the video playback would constantly pause and stutter. Because the server system of Lahti transcodes video to certain formats for streaming, which implies specific bit rates, there is no need for the mobile phone-camera to generate and upload video which exceeds the maximum provided by the Lahti streaming server, as doing so would waste the upload bandwidth of the mobile camera-phone, cause the video to take longer to upload than necessary, and cause the transcoding to take longer than necessary since it will have to transcode a larger file. Thus, a POSITA would have included a bit rate with the predetermined constrains in order to not waste upload bandwidth, upload time, and transcoding time.

136. Furthermore, Lahti expressly discloses that bit rate information is considered when the video formats are transcoded into various "file formats": "In the server the video clip is handed over to the Video Manager Servlet, which transcodes the video clip into different formats and ***bit rates*** in order to provide a scalable service quality for different devices and network connections. Currently,

the Video Manager Servlet prepares Real Video, H.264, and H.263 encodings for delivering the captured video content to mobile devices and MPEG-4 file format for desktop computers." Ex. 1006, p. 7.

137. Finally, Patent Owner's infringement contentions state that transcoding the uploaded video into H.264 format necessarily meets this claim element without more. "Vine encodes the video file to H.264 format (MPEG-4 part 10, a block-oriented motion-compensation-based video compression standard that is currently one of the most commonly used formats for the recording, compression and distribution of video content.) H.264 is one of the formats appropriate for inclusion in a linear television programming broadcast." Ex. 1015, p. 16.

138. Thus, Lahti's disclosure of image resolution parameters combined with its teachings concerning bit rate considerations during transcoding into various formats, including the H.264 format, teaches "*predetermined constraints include a bit rate and an image resolution sufficient to enable transcoding of the video data into the format appropriate for inclusion in the linear television programing broadcast*."

9. The method of claim 1 wherein transcoding the video data includes using a predetermined automated transcoding workflow corresponding to the predetermined constraints to transcode the video data into the transcoded video

data.

139. Lahti teaches claim 9.

140. Lahti is concerned with the problems relating to "how to automate permanent video clip storage, and how to do so in a way that is user-friendly, allows for easy clip lookups, and enables the user to share videos with others." Ex. 1006, p. 1. Lahti defines an automated workflow for transcoding received video at the server, using a "videomanager servlet" within the server, without any human intervention: "***The VideoManager servlet takes care of all the functionalities*** *receiving video data from the UploadClient to the UploadGateway. The received video and metadata descriptions are stored temporarily, the video clip is transcoded, a key frame picture is extracted from the video, and metadata is finally formatted to the MPEG-7 XML format*. All data including video clips, keyframes, and MPEG-7 are added to the database via Candela Interface." Ex. 1006, p. 6. Because Lahti discloses a defined process for transcoding videos using an automated VideoManger servlet within the server, Lahti discloses predetermined automated workflow for transcoding the received video data.

141. As noted previously, Lahti further specifies certain parameters for the recording of videos: "A new video clip is captured in Capture Screen using Mobile Media API and it is recorded according to 3GPP specification using AMR

coding for audio and H.263 at 176x144 pixels size at 15 frames per second for video." Ex. 1006, p. 6.

142. The server necessarily transcodes the video captured according to these constraints into new formats. "In the server ***the video clip is handed over to the Video Manager Servlet, which transcodes the video clip into different formats and bit rates*** in order to provide a scalable service quality for different devices and network connections. Currently, the Video Manager Servlet prepares Real Video, H.264, and H.263 encodings for delivering the captured video content to mobile devices and MPEG-4 file format for desktop computers." This process defines a workflow that is based on the constraints specified in Lahti.

143. The data resulting from Lahti's teaching of an automated transcoding workflow is transcoded video data. Lahti notes that the result of transcoding is the creation of various "file formats": "In the server the video clip is handed over to the Video Manager Servlet, which transcodes the video clip into different formats and bit rates in order to provide a scalable service quality for different devices and network connections. Currently, the ***Video Manager Servlet prepares Real Video, H.264, and H.263 encodings*** for delivering the captured video content to mobile devices ***and MPEG-4 file format*** for desktop computers." Ex. 1006, p. 7. Finally, Patent Owner's infringement contentions state that transcoding the uploaded video

into H.264 format and varying bit rates necessarily meets this claim element without more. Ex. 1015, p. 17.

144. Thus, Lahti's disclosure of a defined automated workflow for transcoding videos uploaded by users who captured the videos according to predetermined parameters discloses "*transcoding the video data includes using a predetermined automated transcoding workflow corresponding to the predetermined constraints to transcode the video data into the transcoded video data*."

> 14. The method of claim 1 wherein the video data is received in response to a request to submit content for potential inclusion in a linear television programming broadcast.

145. "Current TV mobile" and "Current TV FAQ" in combination with Lahti disclose claim 14.

146. First, "Current TV mobile" and "Current TV FAQ" each discloses a linear television broadcasting channel that received and broadcast short videos submitted by the channel's viewers. For example, "Current TV mobile" encouraged viewers to capture videos using their mobile phones, like those disclosed by Lahti, and submit them for inclusion in the Current TV programming. "Don't just watch content on your mobile phone, ***make content and let the world see it – on Current's national TV network*** -- now available in 28 million homes.

Current is the first and only ***TV network*** to showcase your mobile videos. Check out the call outs below, watch a sample, ***shoot some footage with your video phone and find out how the content you capture with your mobile can pay those overage charges. Oh, and make sure what you send to Current is something you and your friends would want to watch on TV***!" Ex. 1009, p. 2, "Current TV mobile."

147. Furthermore, Current TV comprised a standard TV network providing broadcasts via cable and satellite. "***Current is an independent cable and satellite TV network***. We launched in August of 2005 in the US, and in the UK and Ireland on March 12, 2007. … Check our schedule to see what's on Current TV right now and what's coming up. You can also check out our video preview for a sampling of our best on-air programming." Ex. 1011, p. 3, "Current TV FAQ."

148. Second, and as noted above, a POSITA would have been motivated to use the MobiCon application disclosed in Lahti to capture and annotate short videos, and submit them to Current TV.

149. Thus, Current TV's disclosure of requesting that users submit home videos to the network for inclusion on Current TV's broadcasts in combination with Lahti's system for uploading data discloses "*video data is received in response to a request to submit content for potential inclusion in a linear television programming broadcast*."

15. The method of claim 1 wherein automatically transcoding the video data includes transcoding the video data into at least one format appropriate for Internet distribution, the method further comprising storing the transcoded video data in the at least one format appropriate for Internet distribution on a web server adapted to allow retrieval through a web page.

150. Lahti discloses claim 15.

151. First, the data resulting from Lahti's teaching of an automated transcoding workflow is transcoded video data. Lahti notes that the result of transcoding is the creation of multiple different "file formats." "In the server the video clip is handed over to the Video Manager Servlet, which transcodes the video clip into different formats and bit rates in order to provide a scalable service quality for ***different devices and network connections***. Currently, the Video Manager Servlet prepares ***Real Video, H.264, and H.263 encodings for delivering the captured video content to mobile devices and MPEG-4 file format for desktop computers***." Ex. 1006, p. 7. A POSITA would know that the formats defined, including Real Video, H.264, and MPEG-4 formats, are routinely used, and therefore appropriate, for distribution of videos over the internet.

152. Second, Lahti further describes that viewers can access the uploaded, transcoded video from the streaming server by clicking on URL links that are provided to them. "MobiCon will automatically send a text message using the Short Message Service (SMS) to Bob with information on how to access the video.

After receiving the text message, ***Bob can watch the video by opening its URL straight from his mobile phone.***" Ex. 1006, p. 2. A POSITA would know that a "URL" refers to a Uniform Resource Locator, and that clicking on a URL is a method of calling a particular web page. On a mobile phone, clicking on a URL provided in a text message would take a user to the mobile phone's internet web browser, which would then display the video hosted at the particular URL by the streaming server.

153. Lahti additionally discloses other methods of viewing distributed videos by accessing them by clicking on a URL link and viewing them in a web browser. "The receiver of the shared video file needs only to ***open the URL link*** and to connect to DRMDelivery servlet ***using web browser in mobile phone*** and access the video clip if the DRM system in the mobile phone allows the access." Ex. 1006, p. 6.

154. Thus, Lahti's disclosure of transcoding the video captured and uploaded by a mobile phone into various new formats that are suited and utilized for distribution over the internet, and its disclosure of clicking on a URL to access a video hosted at a web page discloses "*transcoding the video data into at least one format appropriate for Internet distribution, the method further comprising storing the transcoded video data in the at least one format appropriate for Internet distribution on a web server adapted to allow retrieval through a web page*."

16. The method of claim **15** further comprising distributing the transcoded video data to a plurality of social networking web sites.

155. Lahti in combination with "Current TV mobile" and "Current TV FAQ" teaches claim 16.

156. First, Lahti discloses distributing transcoded video data. Lahti states that after the Candela server's video manager transcodes the video data into multiple formats, the resulting videos can be distributed to other users. Lahti discloses utilizing a separate streaming server for distribution of user-uploaded video clips: "Thus the solution was, at the expense of storage, to transcode the material to a representative set of formats and bitrates and ***develop a content negotiation plug-in for Helix streaming server in order to choose from those***." (Ex. 1006, p. 5) In the figures depicting Lahti's system for transcoding and distributing the user-uploaded videos, the system shows that the streaming server is a separate entity from the video manager that performs the transcoding operations described above with regard to elements 1[d] and 1[e]:

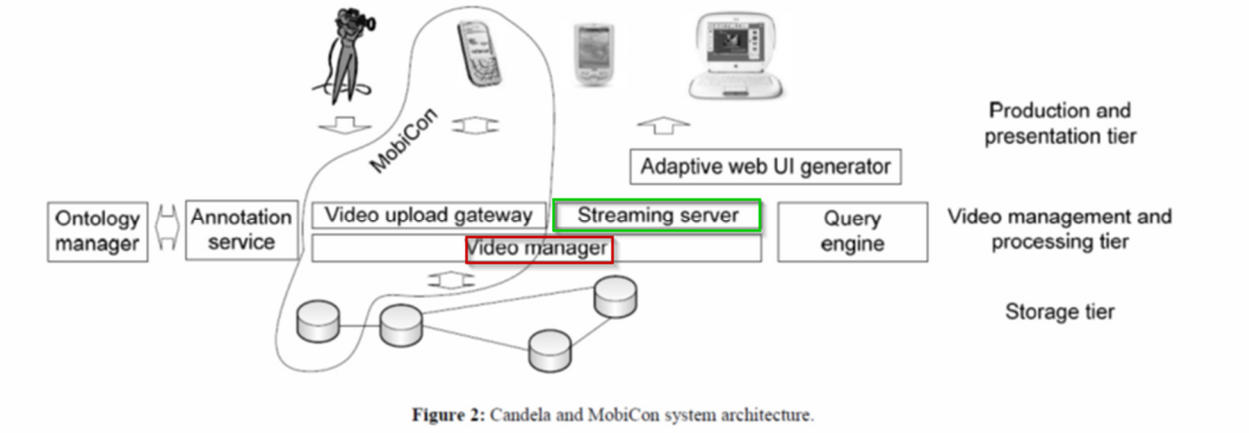

Figure 2: Candela and MobiCon system architecture.

Ex. 1006, Fig. 2, p. 4

157. Second, "Current TV FAQ" discloses posting video data submitted by users to a social networking web site, the Current TV site. "How does VC² (viewer created content) work on the Current website? The Current website hosts a virtual production studio ***where people upload video***, and ***community members help us decide what to put on TV***. It's where VC² content comes from." Ex. 1011, p. 9. Additionally, "Current TV FAQ" permits posting the video to other social network websites, namely MySpace.

Can I post my video to other sites, too?

Yes, definitely! Share your piece as widely as you¿d like. To make it easier on yourself, click on the "post this video" link underneath any video player:

It will give you a short snippet of code that you can cut and paste anywhere on the web -- your blog, MySpace page, whatever. It's also a great way to get your friends and fans to greenlight your Pod for TV.

Ex. 1011, p. 9.

158. A POSITA would recognize that distributing to additional social network websites would be an obvious variant of "Current TV FAQ's" disclosure of posting videos on its own community-based website and the MySpace website, or on user's blogs, as taught in caption above.

159. Furthermore, the Patent Owner's infringement contentions for this claim element contend that sharing a video on a single alleged social network (Twitter) meets the claim element. Ex. 1015, p. 26.

160. Thus, Lahti's disclosure of distributing transcoded videos to viewers combined with "Current TV FAQ's) disclosure of distributing uploaded videos to social networking websites discloses "*distributing the transcoded video data to a plurality of social networking web sites*."

26. [a] A system comprising: a user device; and

161. Lahti teaches element 26[a] of claim 26.

162. Lahti discloses "a user device." Lahti discloses a mobile phone with storage on which a downloaded application is installed and subsequently executed. Lahti describes using an application called MobiCon executed on mobile phones equipped with video cameras to upload videos from those mobile devices. "We present a video management system comprising a video server and ***a mobile camera-phone*** application called MobiCon, ***which allows users to capture videos***…, upload the videos over the cellular network, and share them with others.

Once stored in the video server, users can then search their personal video collection via a web interface, and watch the video clips using a wide range of terminals." Ex. 1006, Abstract, p. 1.

Figure 1: Alice records a video of the Oulu cathedral (left), annotates it with the term "Object > Buildings" (center), and later is able to search for it using the web interface of the Candela video management server (right).

Ex. 1006, Fig. 1, p. 2. As depicted in Figure 1 above, users capture video with a mobile phone and use the device to upload the video a video server. "With MobiCon, this is a simple process: Alice selects the video clip using a menu, chooses Bob from her contact list, and grants him the rights to watch the clip. She can subsequently upload the clip to the video server…. " Ex. 1006, p. 2.

163. Thus, Lahti's disclosure of a mobile telephone on which the MobiCon app is installed and can be loaded and executed by the mobile phone discloses "*a user device*."

[b] one or more servers operable to interact with the user device and to:

164. Lahti teaches element 26[b] of claim 26.

165. Lahti describes various interactions between servers and a user's mobile telephone.

166. First, Lahti teaches that the server interacts with the mobile camera phones to provide the MobiCon app. "***The server allows distribution of MobiCon application*** *easily to mobile phone users by using Over-The-Air (OTA) specification from the Open Mobile Alliance, which enables* ***mobile applications to be downloaded and installed*** *over the cellular network*." Ex. 1006, p. 5.

167. Second, Lahti teaches a server system interacting with a mobile camera phone to receiving video data. In particular, Lahti teaches receiving "video data" from a "mobile phone" at an "Upload Gateway" within the "server." "The UploadGateway serves multiple MobiCon users and provides access to the Candela system. Figure 3 presents an architectural overview of the UploadGateway." Ex. 1006, p. 6.

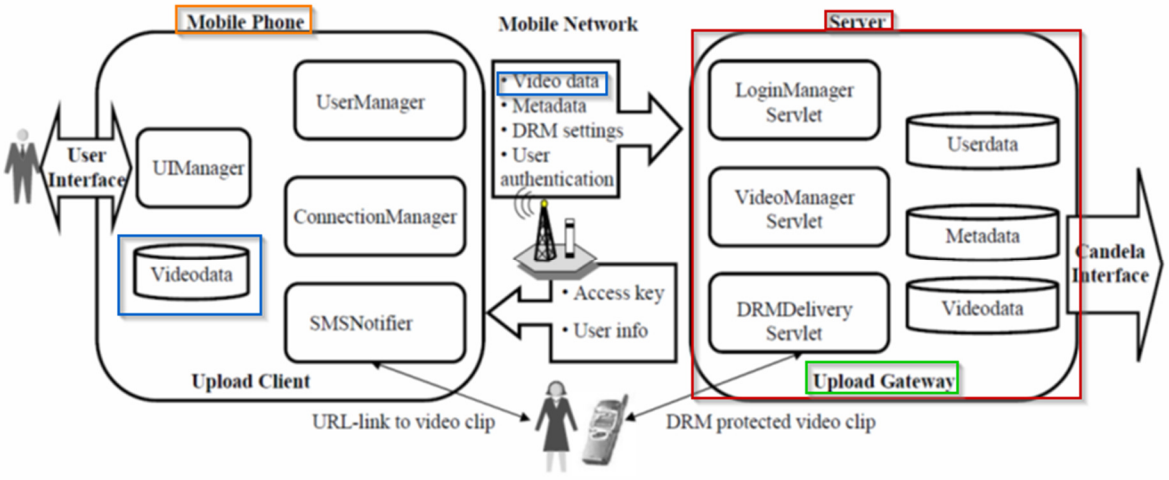

Figure 3: High-level description of MobiCon.

Ex. 1006, Fig. 3, p. 5.

168. Within the server depicted in Figure 3, a VideoManager Servlet receives video uploaded by users. "The VideoManager servlet takes care of all the functionalities ***receiving video data*** from the UploadClient to the UploadGateway. The received video and metadata descriptions are stored temporarily, the video clip is transcoded, a key frame picture is extracted from the video, and metadata is finally formatted to the MPEG-7 XML format." Ex. 1006, p. 6.

169. Because Lahti teaches that the server provides the MobiCon app to the client mobile phones, and the server receives video data from the client mobile phones, Lahti teaches interactions between one or more servers with a user's device.

170. Thus, Lahti's disclosure of servers providing the MobiCon client app to a user device discloses "*one or more servers operable to interact with the user device*."

[c] provide instructions for use by the user device for capturing video data in accordance with predetermined constraints, wherein the predetermined constraints include a frame rate defined by the instructions;

171. Lahti teaches element 26[c] of claim 26.

172. First, Lahti describes a mobile phone having an integrated camera capturing video data. "Mobile phone manufacturers are increasingly adding new models with multimedia support and most modern ***medium- to high-end cell***

phones come with an integrated audio/video player, a camera to capture still and moving pictures, and some media editing software. The 'coolness factor' fuels the popularity of mobile camera phones (MCP) and increases the volume of user-created media content. ***MCPs can record videos of up to several minutes, depending on the amount of memory available***." Ex. 1006, p. 1.

173. Second, Lahti teaches that the video captured on the computing device is in accordance with a software application called MobiCon. MobiCon includes various functionalities, including a UIManager, which provides the ability to capture video utilizing the mobile device's video camera. "The UIManager is a controller component which is loaded first when the application is started. ***The UIManager coordinates the video capture using the mobile phone's camera, the saving of the video data to the Java Record Store system***, and the sending of video sharing SMS messages to the other users." Ex. 1006, p. 5.

174. Third, Lahti teaches that MobiCon's instructions for capturing the video are executed on the mobile device. "MobiCon consists of two different software components: the UploadClient, ***which is a mobile Java (J2ME) application running on a mobile phone*** and UploadGateway, which is implemented as a Java servlet in the Candela server." Ex. 1006, p. 5. A component of MobiCon called the "UIManager" controls video capture on the mobile phone. "The UIManager is a controller component which is loaded first

when the application is started. The UIManager ***coordinates the video capture using the mobile phone's camera***, the saving of the video data to the Java Record Store system, and the sending of video sharing SMS messages to the other users. UIManager also provides user interfaces that are presented in the next Section." *Id*., p. 5. The user interface Lahti depicts for the UIManager interface includes a screen for controlling video capture. "Then, MobiCon's main screen is displayed (Screenshot 3), where the user can choose to view and edit personal information, to load video clips, ***or to capture a new clip*** (Screenshot 4)." *Id*., p. 6.

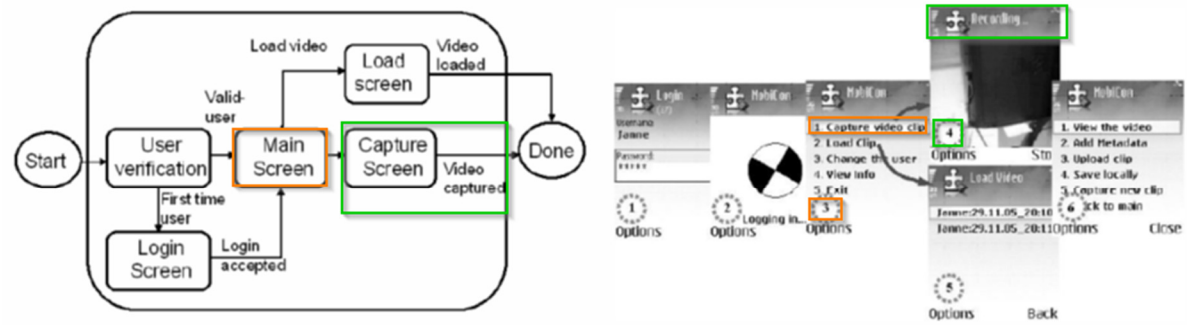

Figure 4: User authentication and video capturing: UI Flow Diagram (left) and UI screenshots (right).

Ex. 1006, Fig 4, p. 6.

175. Fourth, Lahti teaches that the MobiCon app provides parameters by which the mobile device on which the application is executing captures video data. The MobiCon app disclosed in Lahti describes capturing video using a user interface capture screen and describes the parameters provided by the app that control the format and frame rate for the captured video. "Then, MobiCon's main screen is displayed (Screenshot 3), where the user can choose to view and edit

personal information, to load video clips, or ***to capture a new clip*** (Screenshot 4). ***A new video clip is captured in Capture Screen using Mobile Media API and it is recorded according to 3GPP specification using AMR coding for audio and H.263 at 176x144 pixels size at 15 frames per second for video***." Ex. 1006, p. 6.

176. Fifth, Lahti teaches that the server provides the MobiCon app to client mobile telephone devices. "***The server allows distribution of MobiCon application*** *easily to mobile phone users by using Over-The-Air (OTA) specification from the Open Mobile Alliance, which enables* ***mobile applications to be downloaded and installed*** *over the cellular network*." Ex. 1006, p. 5. A POSITA would understand that a mobile application constitutes software code that controls the operation of a device when executed on that device, and that software code constitutes instructions that control the operation of a device when executed by a processor. Moreover, the '304 Patent explains that, in some embodiments, "[t]he instructions executed on the client computing device are included in ***an application installed on the client computing device***." Ex. 1001, 4:26-28.

177. Thus, Lahti's disclosure of a server providing an application for installation and execution on a mobile telephone that includes parameters for capturing video, including a specified frame rate, discloses "*provide instructions for use by the user device for capturing video data in accordance with*

predetermined constraints, wherein the predetermined constraints include a frame rate defined by the instructions."

[d] receive video data in a predetermined format from the user device, wherein the video data is captured using the instructions;

178. Lahti teaches element 26[d] of claim 26.

179. First, Lahti teaches that the MobiCon app provides parameters by which the mobile device on which the application is executing captures video data. The MobiCon app disclosed in Lahti describes capturing video using a user interface capture screen and describes the parameters provided by the app that control the format and frame rate for the captured video. "Then, MobiCon's main screen is displayed (Screenshot 3), where the user can choose to view and edit personal information, to load video clips, or ***to capture a new clip*** (Screenshot 4). ***A new video clip is captured in Capture Screen using Mobile Media API and it is recorded according to 3GPP specification using AMR coding for audio and H.263 at 176x144 pixels size at 15 frames per second for video***." Ex. 1006, p. 6.

180. Thus, because the MobiCon app provides parameters to the mobile device that control the characteristics of the video data captured by the device, Lahti teaches "wherein the video data is capture using the instructions."

181. Second, Lahti describes receiving video captured by users at the server, using a "videomanager servlet" within the server: "The received video and

metadata descriptions are stored temporarily, the video clip is transcoded, a key frame picture is extracted from the video, and metadata is finally formatted to the MPEG-7 XML format. All data including video clips, keyframes, and MPEG-7 are added to the database via Candela Interface." Ex. 1006, p. 6.

182. Thus, Lahti's teaching of providing parameters for users to capture videos, including a specific video format, and then receiving the users' videos captured according to those parameters discloses "*receive video data in a predetermined format from the user device, wherein the video data is captured using the instructions*."

[e] transcode the video data into one or more video formats that differ from the predetermined format using an automated transcoding workflow corresponding to the predetermined format;

183. Lahti teaches element 26[e] of claim 26.

184. As discussed above in connection with claim 1, Lahti discloses that the transcoding could be a predetermined automated transcoding workflow corresponding to the predetermined constraints to transcode the video data into the transcoded video data. *See* Element 1[d], *supra*.

185. Lahti is concerned with the problems relating to "how to ***automate*** permanent video clip storage, and how to do so in a way that is user-friendly, allows for easy clip lookups, and enables the user to share videos with others." Ex.

1006, p. 1. Lahti defines an automated workflow for transcoding received video at the server, using a "videomanager servlet" within the server, without any human intervention: "The VideoManager ***servlet*** takes care of all the functionalities receiving video data from the UploadClient to the UploadGateway. The received video and metadata descriptions are stored temporarily, the video clip is transcoded, a key frame picture is extracted from the video, and metadata is finally formatted to the MPEG-7 XML format. All data including video clips, keyframes, and MPEG-7 are added to the database via Candela Interface." Ex. 1006, p. 6. Because Lahti discloses a defined process for transcoding videos using an automated VideoManger servlet within the server, Lahti discloses predetermined automated workflow for transcoding the received video data.

186. As noted previously, Lahti further specifies certain parameters for the recording of videos: "A new video clip is captured in Capture Screen using Mobile Media API and it ***is recorded according to 3GPP specification using AMR coding for audio and H.263 at 176x144 pixels size at 15 frames per second for video***." Ex. 1006, p. 6.

187. The server necessarily transcodes the video captured according to these constraints into new formats. "In the server the video clip is handed over to the Video Manager Servlet, which transcodes the video clip into different formats and bit rates in order to provide a scalable service quality for different devices and

network connections. Currently, ***the Video Manager Servlet prepares Real Video, H.264, and H.263*** encodings for delivering the captured video content to mobile devices and ***MPEG-4 file format*** for desktop computers." This process defines a workflow that is based on the constraints specified in Lahti.

188. The data resulting from Lahti's teaching of an automated transcoding workflow is transcoded video data, which differs from the format of the video recorded by users. Lahti notes that the result of transcoding is the creation of various "file formats": "In the server the video clip is handed over to the Video Manager Servlet, which transcodes the video clip into different ***formats*** and bit rates in order to provide a scalable service quality for different devices and network connections. Currently, the Video Manager Servlet prepares Real Video, H.264, and H.263 encodings for delivering the captured video content to mobile devices and MPEG-4 ***file format*** for desktop computers." Ex. 1006, p. 7.

189. Thus, Lahti's disclosure of capturing video according to certain specified parameters and using an automated transcoding workflow to transform the video captured using those parameters into various new formats discloses "*transcode the video data into one or more video formats that differ from the predetermined format using an automated transcoding workflow corresponding to the predetermined format*."

[f] store the transcoded video data; and

190. Lahti teaches element 26[f] of claim 26.

191. First, Lahti is concerned with the problems relating to "how to automate permanent video clip storage, and how to do so in a way that is user-friendly, allows for easy clip lookups, and enables the user to share videos with others." Ex. 1006, p. 1. Lahti defines an automated workflow for transcoding received video at the server, after which the video data is stored in a database, using a "videomanager servlet" within the server, without any human intervention: "The received video and metadata descriptions are stored temporarily, ***the video clip is transcoded***, a key frame picture is extracted from the video, and metadata is finally formatted to the MPEG-7 XML format. ***All data including video clips, keyframes, and MPEG-7 are added to the database*** via Candela Interface." Ex. 1006, p. 6.

192. Second, Lahti states that after the Candela server's video manager transcodes the video data into multiple formats, the resulting videos are stored so that they can be distributed to other users. Lahti discloses utilizing a separate streaming server for distribution of user-uploaded video clips: "Thus the solution was, ***at the expense of storage***, to transcode the material to a representative set of formats and bitrates and develop a content negotiation plug-in for Helix streaming server in order to choose from those." (Ex. 1006, p. 5)

193. Lahti discloses that after processing, the transcoded videos are stored on a video server where they can be viewed: "We present a video management system comprising a video server and a mobile camera-phone application called MobiCon, which allows users to capture videos…, upload the videos over the cellular network, and share them with others. ***Once stored in the video server***, users can then search their personal video collection via a web interface, and watch the video clips using a wide range of terminals." Ex. 1006, Abstract, p. 1.

194. Thus, Lahti's teaching of transcoding user uploaded videos into various formats and storing them on a video server discloses "*store the transcoded video data*."

[g] distribute the transcoded video data for inclusion in a linear television programming broadcast.

195. Lahti in combination with "Current TV mobile" and "Current TV FAQ" teaches element 26[g] of claim 26.

196. First, Lahti states that after the Candela server's video manager transcodes the video data into multiple formats, the resulting videos can be distributed to other users. Lahti discloses utilizing a separate streaming server for distribution of user-uploaded video clips: "Thus the solution was, at the expense of storage, to transcode the material to a representative set of formats and bitrates and develop a content negotiation plug-in for Helix streaming server in order to

choose from those." (Ex. 1006, p. 5) In the figures depicting Lahti's system for transcoding and distributing the user-uploaded videos, the system shows that the streaming server is a separate entity from the video manager that performs the transcoding operations described above with regard to elements 1[d] and 1[e]:

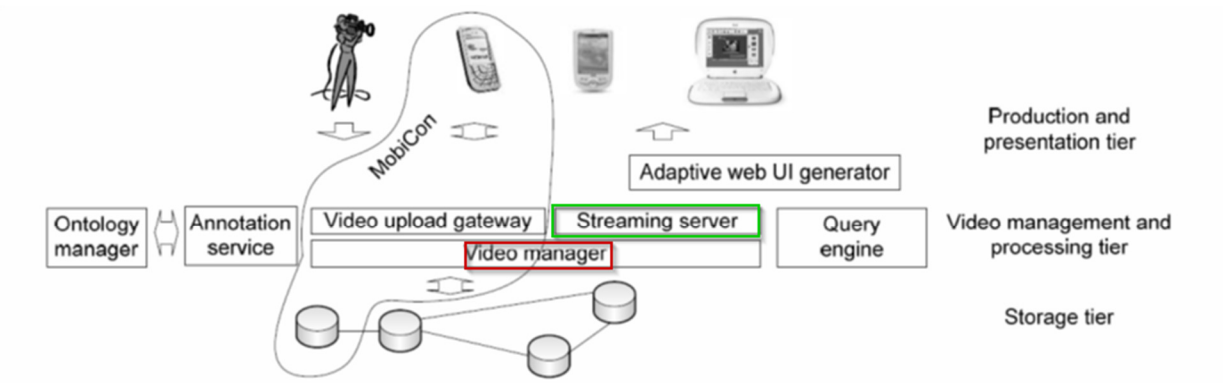

Figure 2: Candela and MobiCon system architecture.

Ex. 1006, Fig. 2, p. 4.

197. A POSITA would have understood from the figures depicted above and the accompanying description that Lahti requires transferring the videos transcoded by the video manager to the streaming server before the videos could be distributed to viewers by that streaming server.

198. Lahti further describes that viewers can access the uploaded, transcoded video from the streaming server by clicking on URL links that are provided to them. "MobiCon will automatically send a text message using the Short Message Service (SMS) to Bob with information on how to access the video.

After receiving the text message, Bob can watch the video by opening its URL straight from his mobile phone." Ex. 1006, p. 2.

199. Distributing video via a streaming server is consistent with the '304 patent's disclosure with respect to transferring the transcoded video data to a distribution server for distribution, which recites: "[t]he content can be aired or distributed by various media outlets 102, including, for example, on television broadcasts 104, Internet television 106, video blogs 108, video on demand (VOD), within various computer-based social networks, and/or within other online media (e.g., video file sharing services) and applications." Ex. 1001, 9:56-62. The '304 Patent states that the "transmission of such on-demand programming usually originates from the carrier, such as at the head end of a cable network, or from a server that streams the video over the Internet to the user requesting it." *Id*., 17:5-9.

200. Second, "Current TV mobile" and "Current TV FAQ" each discloses a linear television broadcasting channel that received and broadcast short videos submitted by the channel's viewers. For example, "Current TV mobile" encouraged viewers to capture videos using their mobile phones, like those disclosed by Lahti, and submit them for inclusion in the Current TV programming. "Don't just watch content on your mobile phone, ***make content and let the world see it – on Current's national TV network*** -- now available in 28 million homes.

Current is the first and only ***TV network*** to showcase your mobile videos. Check out the call outs below, watch a sample, ***shoot some footage with your video phone and find out how the content you capture with your mobile can pay those overage charges. Oh, and make sure what you send to Current is something you and your friends would want to watch on TV***!" Ex. 1009, p. 2, "Current TV mobile."

201. As noted previously, a POSITA would have been motivated to use the MobiCon application disclosed in Lahti to capture and annotate short videos, and submit them to Current TV.

202. Thus, the Current TV references' disclosure of requesting that users submit home videos to the network for inclusion on Current TV's broadcasts in combination with Lahti's disclosure of transcoding and storing user-submitted videos on a server for future distribution discloses to "*distribute the transcoded video data for inclusion in a linear television programming broadcast*."

> 28. The system of claim 26 wherein the one or more servers are further adapted to transcode the video data into a format appropriate for inclusion in a linear television programming transmission.

203. Lahti teaches claim 28.

204. Lahti teaches transcoding video data into multiple formats, including "H.264." Ex. 1006, p. 7. A POSITA would recognize that the H.264 video format

constitutes a format appropriate for inclusion in linear television programming broadcasts.

205. First, a POSITA would recognize that the H.264 format **actually is** employed routinely in linear television programming broadcasts. For example, H.264 is the format commonly associated with HDTV broadcasts transmitted using over the air signals, or by cable or satellite television services. The Digital Video Broadcast project (DVB) approved the use of H.264 for broadcast television in late 2004. The Advanced Television Systems Committee (ATSC) approved H.264 for broadcast television in 2008.

206. Second, as noted above, I have reviewed the infringement allegations that I understand Patent Owner has served on Twitter in connection with its patent infringement lawsuit in which the '304 patent is asserted against Twitter. The infringement contentions expressly provide that Patent Owner considers that "H.264…is one of the formats appropriate for inclusion in a linear television programming broadcast." Ex. 1015, p. 42.

207. Third, Lahti expressly discloses that the result of transcoding are various "file formats": "In the server the video clip is handed over to the Video Manager Servlet, which transcodes the video clip into different formats and bit rates in order to provide a scalable service quality for different devices and network connections. Currently, the Video Manager Servlet prepares Real Video,

H.264, and H.263 encodings for delivering the captured video content to mobile devices and MPEG-4 file format for desktop computers." Ex. 1006, p. 7.

208. Thus, Lahti's teaching of transcoding videos at the server into the H.264 format, transcoding the videos into various formats, and storing them in a database teaches "*the one or more servers are further adapted to transcode the video data into a format appropriate for inclusion in a linear television programming transmission*."

B. Ground 2: Lahti Combined with Current TV and Washington

1. Overview of the Prior Art

a) Lahti

209. An overview of Lahti is discussed above in Section VIII.A.1(a).

b) Current TV

210. An overview of Current TV is discussed above in Section VIII.A.1(b).

c) Washington

211. U.S. Patent Application Publication No. 2008/0235200 ("Washington"). Washington published on September 25, 2008.

212. Washington discloses a system for the automatic review of user-submitted content to ensure that inappropriate content and other protected content not be published to viewers. Washington notes that that prohibiting inappropriate content is a general concern of distribution networks: "***Similarly, many such***

Websites and networks prohibit the distribution of ***pornographic, explicit, or inflammatory content***." (Ex. 1007, ¶0003 p. 7).

213. Washington discloses a system for transcoding submitted videos and identifying "protected content" within them by comparing existing signatures of inappropriate content or other "protected content" with the videos uploaded to the system by users. Washington's use of the term "protected content" includes inappropriate content. "Meanwhile, at any appropriate time while system 10 is operational, system 10 may receive protected content files 32 containing protected content. *As used in this description and the claims that follow, "protected content" may include any form of copyrighted, restricted-use, or licensed content, or any content users of system and/or the general public are not authorized to use. In particular embodiments,* ***"protected content" may also include pornographic, explicit, and/or offensive content****, or content that users may be prohibited from using or disseminating on system 10 for any other reason*." (Ex. 1007, ¶0033 p. 10)

214. Washington's discloses a system that includes for "transcoders" for transcoding uploaded videos, and a "signature server" for scanning the transcoded videos for inappropriate content and flagging videos that contain inappropriate content. The system performs these automatic transcoding and scanning operations without human intervention, but subsequently can send flagged content to human users who conduct a manual review. "Similarly, transcoders 18*e-g* are

also coupled to signature server 20 and transmit content signatures for protected content files 32 to signature server 20. Based on a comparison of these content signatures, ***signature server 20 determines whether submitted content files 30 include protected content*** and, if so, initiates an appropriate remedial action, such as refusing to upload submitted content files 30 ***or notifying a human operator 42***." (Ex. 1007, ¶0015 pp. 7-8).

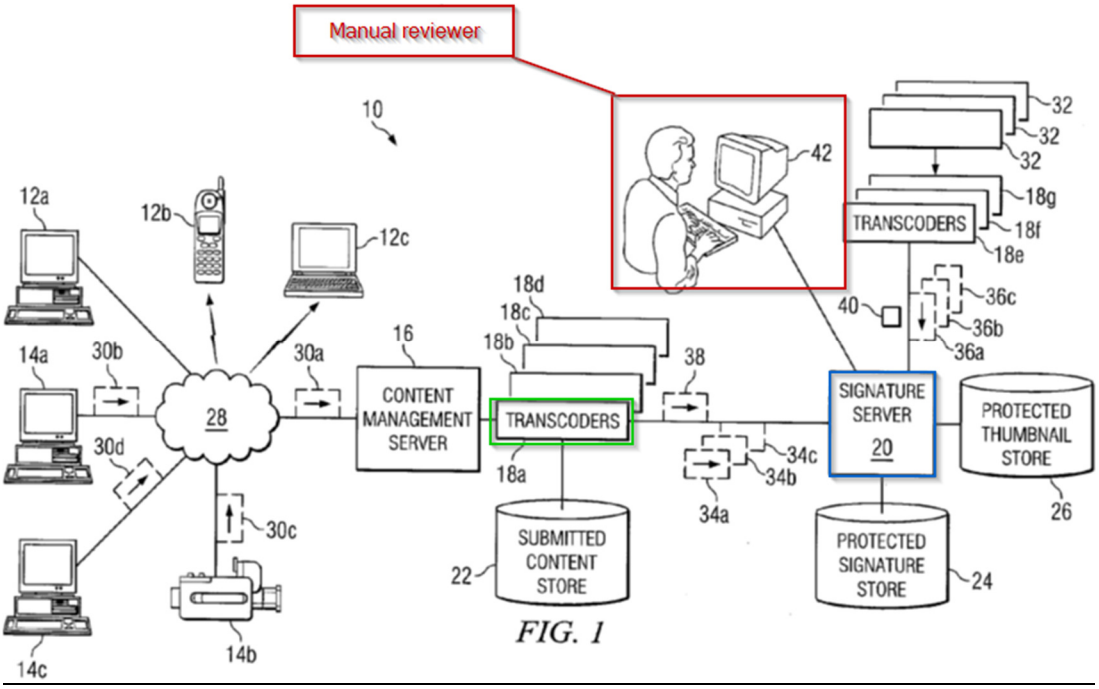

FIG. 1

215. Washington discloses that the potentially inappropriate content is sent to the human reviewer for manual review in any number of ways. "*As yet another example, in particular embodiments, signature server 20 may submit submitted content file 30 for human review*. For example, in particular embodiments, signature server 20 may transmit submitted content file 30 to a human operator 42 of system 10 for review. In particular embodiments, signature server 20 may

additionally transmit a protected content file 32 matching submitted content file 30 to human operator 42. The relevant information may be communicated to human operator 42 in any appropriate manner based on the configuration and capabilities of system 10. For example, in particular embodiments, signature server 20 may generate an email message that includes submitted content file 30 and all or a portion of protected content files 32 and transmit this email message to human operator 42 for review." (Ex. 1007, ¶0042 p. 11)

2. Rationale and Motivation to Combine Lahti, Current TV, and Washington

216. The general rationale and motivation for combining Lahti and Current TV are discussed above in Section VIII.A.2.

217. It would further be obvious to combine Washington with Lahti.

218. Washington and Lahti involve the same field of endeavor. Both references relate to users uploading video content to a server. Both references specify transcoding the videos at the server for further distribution.

219. Washington discloses automatically processing the videos to ensure that inappropriate content is not shown to the ultimate viewers of the videos. It would be obvious to combine Washington and Lahti's teachings of processing the uploaded videos into a format appropriate for viewing by the ultimate viewers with the additional step taught by Washington of automatically processing the uploaded videos to check for inappropriate content at the server.

220. Lahti and Washington teach complementary approaches to processing videos uploaded to a server. Lahti's disclosure of transcoding and then transferring uploaded videos to a streaming server for further distribution fulfills Washington's goals of ultimately ensuring viewers are able to receive uploaded videos.

221. Washington's disclosure of inserting an automatic review for inappropriate content into the workflow for processing videos at a server system is an obvious improvement on Lahti's system. Lahti provides the Candela system for the distribution of videos to a broad set of users. Washington notes that that prohibiting inappropriate content is a general concern of distribution networks: "***Similarly, many such Websites and networks*** prohibit the distribution of ***pornographic, explicit, or inflammatory content***." (Ex. 1007, ¶0003 p. 7). Some form of preventing inappropriate content from being distributed through Lahti's system is a desirable improvement on that system. Lahti's disclosure of uploading videos from mobile phones to a server for streaming could obviously be subject to abuse absent checks imposed in the system for preventing the disclosure of protected content, whether that content is a video recording of a copyrighted movie shot with a mobile telephone's camera, or pornographic or other potentially offensive materials. A POSITA would recognize that combining Washington's teachings of an automated system for flagging such content and Lahti's system for capturing and uploading videos would prevent this unwanted distribution of

inappropriate content to viewers. The proposed modification to Lahti to incorporate the teachings of Washington would be a simple, straightforward reprogramming of the existing Lahti server system and back-end software. Lahti already discloses a processing system incorporating transcoders and other data manipulations at the VideoManager prior to the time videos are uploaded to the streaming server. Incorporating Washington's disclosure of performing the signature comparison at a server of Lahti therefore would not require undue experimentation and would produce predictable results.

222. Therefore, a POSITA would have been motivated to look to and combine the known teachings of Lahti and Washington to arrive at the claimed inventions of the '304 Patent discussed below. Combining these teachings would have yielded predictable results as a POSITA would use the concepts and disclosures from the references for their intended purposes, and in ways in which a POSITA would have a reasonable expectation of success.

223. Similarly, it would be obvious to combine Washington's disclosure of a workflow for automatically reviewing submitted videos for inappropriate content before flagging some videos for further manual review by a human with Current TV's system for soliciting user-submitted content for distribution through a broadcast television network. The references are in the same field of endeavor:

namely, submitting user-created videos to a central server for distribution of the videos to a broader audience.

224. Moreover, the Current TV references and Washington provide complementary disclosures of systems for reviewing user-submitted content prior to publication. "Current TV FAQ" notes the need to screen videos prior to publication: "We screen every video that is uploaded to Current TV to make sure it is in our format and ***does not violate our community standards***. We try to do this within a 24-hour period with the exception of weekends and holidays." Ex. 1011, p. 5, "Current TV FAQ." Washington similarly notes that prohibiting inappropriate content is a general concern of distribution networks: "***Similarly, many such Websites and networks*** prohibit the distribution of ***pornographic, explicit, or inflammatory content***." (Ex. 1007, ¶0003 p. 7). Both references also disclose screening for potential copyright issues. "If you put popular music in your Pod, then it will not be posted online -- and it will certainly not make it to air." Ex. 1011, p. 11, "Current TV FAQ." "As used in this description and the claims that follow, "protected content" may include any form of copyrighted, restricted-use, or licensed content, or any content users of system and/or the general public are not authorized to use. In particular embodiments, "protected content" may also include pornographic, explicit, and/or offensive content, or content that users may be

prohibited from using or disseminating on system for any other reason." Ex. 1007, ¶0033 p. 10.

225. Washington's disclosure of inserting an automatic review for inappropriate content into the workflow for processing videos at a server system is an obvious improvement on Current TV's methods of reviewing user-submitted videos. Screening user-submitted content automatically as part of the upload process would result in improvements to Current TV's workflow of manually reviewing videos prior to the time they are available on the Current TV website or distributed through the network's broad television schedule. And ultimately distributing the videos reviewed by the system disclosed in Washington via a broadcast television network would require no special skills or programming. As noted above, incorporating the teaching of using broadcast television for distribution of videos would have required only the skills typical of a POSITA. In particular, the use of broadcast television to distribute recorded videos according to a schedule has been known since at least the early 1950's. Like Washington, Current TV also discloses a system for uploading user-created videos, and Washington's disclosure of a server system with a database for storage of user-related and video-related information could be readily combined with Current TV's existing system.

226. Therefore, a POSITA would have been motivated to look to and combine the known teachings of Lahti, Washington, and the Current TV references to arrive at the claimed invention of the '304 Patent discussed below. Combining these teachings would have yielded predictable results as a POSITA would use the concepts and disclosures from the references for their intended purposes, and in ways in which a POSITA would have a reasonable expectation of success.

3. Analysis

11. The method of claim 1 further comprising performing an automated review of at least one of the video data or the transcoded video data to identify potentially inappropriate content.

227. Washington discloses claim 11.

228. Washington discloses that distribution networks are concerned regarding potentially inappropriate content. "***Similarly, many such Websites and networks prohibit the distribution of pornographic, explicit, or inflammatory content***." (Ex. 1007, ¶0003 p. 7). Washington discloses a system for transcoding submitted video and identifying inappropriate content. The system performs these operations without human intervention. "Similarly, transcoders 18*e-g* are also coupled to signature server 20 and transmit content signatures for protected content files 32 to signature server 20. Based on a comparison of these content signatures, ***signature server 20 determines whether submitted content files 30 include***

protected content and, if so, initiates an appropriate remedial action, such as refusing to upload submitted content files 30 or notifying a human operator 42." (Ex. 1007, ¶0015 pp. 7-8.) Washington use of the term "protected content" includes inappropriate content. "Meanwhile, at any appropriate time while system 10 is operational, system 10 may receive protected content files 32 containing protected content. *As used in this description and the claims that follow, "protected content" may include any form of copyrighted, restricted-use, or licensed content, or any content users of system and/or the general public are not authorized to use. In particular embodiments,* ***"protected content" may also include pornographic, explicit, and/or offensive content****, or content that users may be prohibited from using or disseminating on system 10 for any other reason*." (Ex. 1007, ¶0033 p. 10.)

229. Thus, Washington's disclosure of the system automatically comparing transcoded videos that have been uploaded by users to inappropriate content to determine whether the uploaded video contains inappropriate content discloses "*performing an automated review of at least one of the video data or the transcoded video data to identify potentially inappropriate content*."

C. Ground 3: Lahti Combined with Current TV, Washington, and Franken

1. Overview of the Prior Art

a) Lahti

230. An overview of Lahti is discussed above in Section VIII.A. 1(a).

b) Current TV

231. An overview of Current TV is discussed above in Section VIII.A. 1(b).

c) Washington

232. An overview of Washington is discussed above in Section VIII. B.1(c).

d) Franken

233. U.S. Patent Application Publication No. 2009/0012965 ("Franken") discloses a user interface adapted for manual review:

234. Franken describes a system whereby users can upload video content for distribution via the internet. "A system and method for distribution of one or more content items to one or more users over a network, such as the Internet." Franken at Abstract. Franken also discloses a system whereby videos that have been flagged by users as inappropriate are assessed automatically, and that some are receive secondary manual review of content either prior to distribution or prior to re-distribution after being removed from distribution over the internet, including

internet advertising sites and television broadcast sites. Ex. 1008, ¶0046 pp. 20-21 (discussing standards for review given various types of "content distribution site (e.g., a site of a television broadcaster; an online classified site, such as CRAIGSLIST.ORG), and any combinations thereof).

235. Like Washington, Franken discloses a system for manual review of videos submitted by users that have been identified as potentially inappropriate. "A content item that has been automatically removed from distribution but not deleted can be handled in a variety of ways. *In one example, a content item that has been automatically removed from distribution may be* ***flagged for manual review*** *to determine if the removal from distribution is appropriate (e.g., whether the content item violates one or more policies of the administrator of the access interface and/or the provider of the content item).*" (Ex. 1008, ¶0045 p. 20)

236. Franken further discloses providing a user interface for manual review of flagged videos. "An administrative user 450 may access system 400 via a network *455* and a computing device 460 (exemplified as a general computing device) to provide manual review of one or more content items 425 that have been flagged for manual review. ***Interface generator 435 is configured to provide administrative user 450 with an interface (e.g., an interactive displayable image that may be displayed via computing device 460) for accessing the one or more flagged content items 425***. Although the same interface generator 435 is shown as

being responsible for both the 405 user interface and the 450 administrative user interface, it is contemplated that a given implementation might utilize separate interface generators for each of a one or more user interfaces of system 400." (Ex. 1008, ¶[0054 p. 22) Franken's figure 8 discloses one example of such an interface. "FIG. 8 shows one example of an administrative interface 800 including an exemplary manual review queue 805 that may be utilized with one or more manual reviews as discussed above." *Id.*

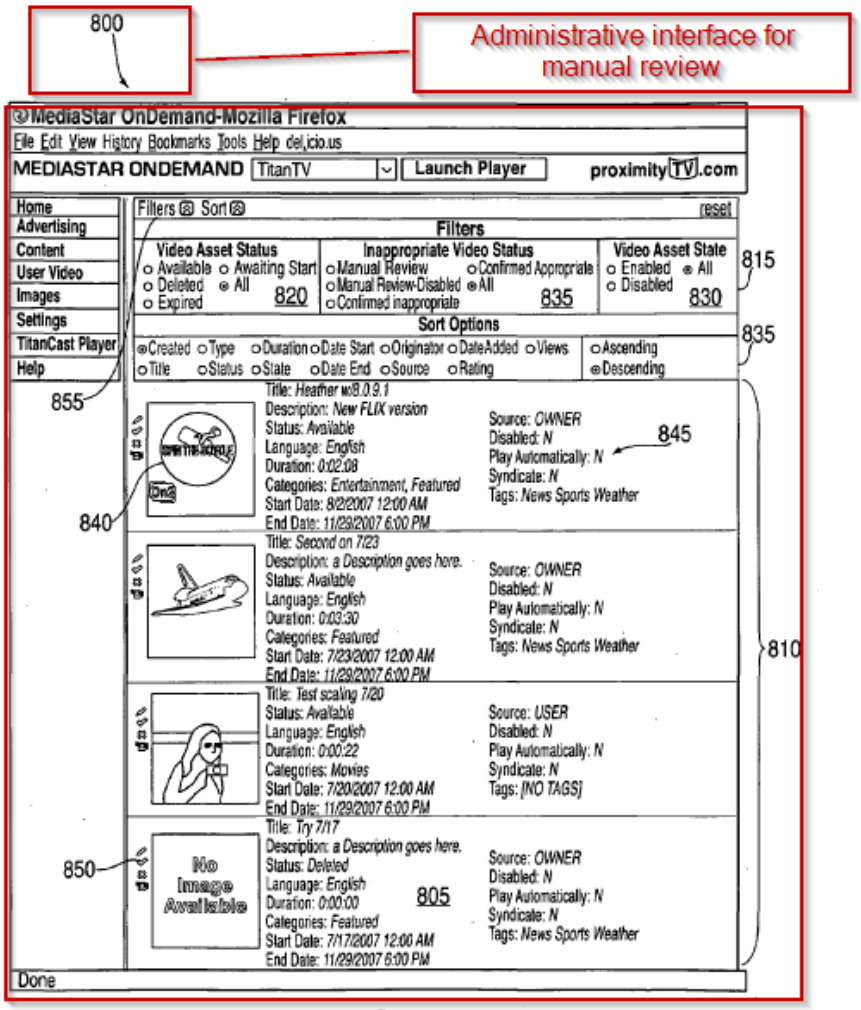

FIG. 8

Ex. 1008, Fig. 8, p. 9.

237. The interface disclosed in Franken provides either an entire video for manual review, or only the portion of the video containing inappropriate content. Franken identifies a "content item" to include "an audio/visual item," or "portion thereof". (Ex. 1008, ¶0028 p. 17) As noted above, the reviewing administrator is provided with an "interface (e.g., an interactive displayable image that may be displayed via computing device 460) for accessing the ***one or more flagged content items 425***." (*Id*., ¶0045 p. 20.)

238. Thus, Franken provides an interface for the review of all of a video, or only the portion of a video containing inappropriate content. Franken discloses that a "content item" (defined to include a "portion" of "an audio/visual" item) may be flagged for manual review. "In one example, a ***content item*** that has been automatically removed from distribution may be ***flagged for manual review*** to determine if the removal from distribution is appropriate (e.g., whether the content item violates one or more policies of the administrator of the access interface and/or the provider of the content item)." (Ex. 1008, ¶0045 p. 20)

239. The user interface disclosed in Franken thereafter displays the flagged content item to a manual reviewer. "Interface generator 435 is configured to provide administrative user 450 with an interface (e.g., an interactive displayable

image that may be displayed via computing device 460) for accessing ***the one or more flagged content items*** 425." (Ex. 1008, ¶0054 p. 22)

2. Rationale and Motivation to Combine Lahti with Current TV, Washington, and Franken

240. The general rationale and motivation for combining Lahti, Current TV and Washington are discussed above in Section VIII. B.2.

241. It would further be obvious to combine Franken with Lahti.

242. Franken and Lahti involve the same field of endeavor. Both references relate to users uploading video content for distribution via the internet. Lahti's disclosure of this system is set forth above. Franken shares the same general objective. "A system and method for distribution of one or more content items to one or more users over a network, such as the Internet." Ex. 1008, Abstract, p. 1.

243. Franken discloses processing user-uploaded videos to ensure that inappropriate content is not shown to the ultimate viewers of the videos once the submitted videos receive a threshold number of objections. It would be obvious to combine Lahti's teachings of processing the uploaded videos into a format appropriate for viewing by the ultimate viewers with the additional step taught by Franken of processing the uploaded videos to remove any inappropriate content at the server.

244. Franken's disclosure of providing for review of inappropriate content as an additional step into the workflow for processing videos at a server system is an obvious improvement on Lahti's system. Lahti provides the Candela system for the distribution of videos to a broad set of users. Franken notes that prohibiting inappropriate content is a general concern of distribution networks: "Computing device users are increasingly accessing more content items over one or more networks, such as the Internet. For example, on the Internet, websites abound for downloading and/or streaming video and song content items to computing devices, both mobile and fixed. Additionally, with the massive amount of content items posted for access on the Internet, it has become very difficult to control the qualitative aspects of the content. Oftentimes a website operator may allow third-party business entities and individuals to upload and/or link their own content to the website of the operator." (Ex. 1008, ¶0003 p. 16). Consequently, Franken discloses a system for removing inappropriate content after a manual review: "In one embodiment, a computer-implemented method for removing a potentially objectionable content item from distribution over a network is provided." *Id*., ¶4 p. 16. Some form of preventing inappropriate content from being distributed through Lahti's system is a desirable improvement on that system. Lahti's disclosure of uploading videos from mobile phones to a server for streaming could obviously be subject to abuse absent checks imposed in the system for preventing the disclosure

of protected content, whether that content is a video recording of a copyrighted movie shot with a mobile telephone's camera, or pornographic or other potentially offensive materials. A POSITA would recognize that combining Franken's teachings of a system for flagging such content and Lahti's system for capturing and uploading videos would prevent this unwanted distribution of inappropriate content to viewers. The proposed modification to Lahti to incorporate the teachings of Franken would be a simple, straightforward reprogramming of the server system and back-end software. Lahti already discloses data manipulations at the VideoManager prior to the time videos are uploaded to the streaming server. Lahti stores all videos and associated data in a database, which is easily extensible by a POSITA to incorporate additional fields such as user-generated flags for inappropriate content. Incorporating Franken's disclosure of providing for review of flagged content via a user-interface provided by the server therefore would not require undue experimentation and would produce predictable results.

245. For these reasons, a POSITA would have been motivated to look to and combine the known teachings of Lahti and Franken to arrive at the claimed inventions of the '304 Patent discussed below. Combining these teachings would have yielded predictable results as a POSITA would use the concepts and disclosures from the references for their intended purposes, and in ways in which a POSITA would have a reasonable expectation of success.

246. Similarly, it would be obvious to combine Franken's disclosure of a workflow for reviewing submitted videos for inappropriate content before flagging some videos for further manual review by a human with Current TV's system for soliciting user-submitted content for distribution through a broadcast television network. The references are in the same field of endeavor: namely, submitting user-created videos to a central server for distribution of the videos to a broader audience.

247. Moreover, the Current TV references and Franken provide complementary disclosures of systems for reviewing user-submitted content prior to publication. "Current TV FAQ" notes the need to screen videos prior to publication: "We screen every video that is uploaded to Current TV to make sure it is in our format and ***does not violate our community standards***. We try to do this within a 24-hour period with the exception of weekends and holidays." "Current TV FAQ." Franken similarly notes that prohibiting inappropriate content is a general concern of distribution networks: "Computing device users are increasingly accessing more content items over one or more networks, such as the Internet. For example, on the Internet, websites abound for downloading and/or streaming video and song content items to computing devices, both mobile and fixed. Additionally, with the massive amount of content items posted for access on the Internet, it has become very difficult to control the qualitative aspects of the

content. Oftentimes a website operator may allow third-party business entities and individuals to upload and/or link their own content to the website of the operator." (Ex. 1008, ¶0003 p. 16). Both references also disclose screening for potential copyright issues. "If you put popular music in your Pod, then it will not be posted online -- and it will certainly not make it to air." "Current TV FAQ." "Exemplary categories for an objection include, but are not limited to, a sexually explicit category, a violent content category, a mature content category, a hate speech category, an inappropriate content category, an "other" category, a copyright violating content category, and any combinations thereof." Ex. 1008, ¶0030 p. 18.

248. Franken's specific disclosure of manual review for inappropriate content could be inserted into the workflow for processing videos at a server system as an obvious improvement on Current TV's methods of reviewing user-submitted videos. As noted above, Current TV's workflow already discloses manual review of videos prior to the time they are available on the Current TV website or distributed through the network's broad television schedule. The specific user-interface Franken discloses would provide for the efficient review and administration of user-submitted videos, and the efficient prevention of airing inappropriate content on Current TV.

249. Ultimately distributing the videos reviewed by the system disclosed in Franken via a broadcast television network would require no special skills or

programming. As noted above, incorporating the teaching of using broadcast television for distribution of videos would have required only the skills typical of a POSITA. In particular, the use of broadcast television to distribute recorded videos according to a schedule has been known since at least the early 1950's. And Franken anticipates that the system it discloses would be useable for uploading videos to the website of a TV broadcaster. "The value of a first threshold percentage may depend on a variety of factors. Examples of such factors include, but are not limited to, an audience for the content, a rating of the content item, the amount of traffic to the site, a geographic location of a user, a geographic location of a content distribution site owner, a type of content distribution site (***e.g., a site of a television broadcaster***; an online classified site, such as CRAIGSLIST.ORG), and any combination thereof." Ex. 1008, ¶0033 p. 18.

250. A POSITA would be easily able to modify the Lahti system with the teachings of Franken to yield predictable results. The Lahti system comprises a server system with a processing system for transcoding data, a database to store videos and associated data, and web server delivery mechanism. Franken incorporates user feedback via a web interface for flagging videos with inappropriate content for later review. The Lahti system is ready for improvement to store the user generated flags indicating inappropriate content in the database of Lahti, and to supplement the web-based user interface of Lahti with the

administrative review interface of Franken. Doing so would not require undue experimentation and would yield predictable results.

251. A POSITA would have been motivated to look to and combine the known teachings of Lahti, Current TV and Franken to arrive at the claimed inventions of the '304 Patent discussed below. Combining these teachings would have yielded predictable results as a POSITA would use the concepts and disclosures from the references for their intended purposes, and in ways in which a POSITA would have a reasonable expectation of success.

252. Finally, it would also be obvious to combine Franken with Washington. The references both relate to the review of uploaded user video content for distribution to others and describe systems that provide for manual review of content flagged as potentially inappropriate. Like Washington, Franken discloses processing the videos for review to ensure that inappropriate content is not shown to the ultimate viewers of the videos.

253. Washington describes an sending an email containing the flagged content file or portions thereof to a human operator for review: "signature server 20 may generate an email message that includes submitted content file 30 and all or a portion of protected content files 32 and transmit this email message to human operator 42 for review." Ex. 1007, ¶0042 p. 11. Washington further describes that an administrator manually reviewing videos flagged as inappropriate would make

certain remedial actions: "After receiving submitted content file 30, human operator 42 ***may review submitted content file*** 30 and, if appropriate, the corresponding protected content files 32 to determine whether submitted content file 30, in fact, represents or includes protected content. Human operator 42 may ***then initiate additional remedial actions*** to prevent use or misuse of the relevant protected content. For example, human operator 42 may deny the request to upload submitted content file 30 and notify the user attempting to upload submitted content file 30 that the request has been denied." Ex. 1007, ¶0043 p. 11. The human operator in Washington would make take these actions (viewing the video, denying upload of the video) via a user interface through which the actions are taken. It would be obvious to combine this general disclosure with Franken's disclosure of a specific user-interface through which the manual reviewer performs the same actions (viewing a flagged video, preventing the video from being distributed), which is an obvious improvement over being sent emails with the flagged content or portions thereof.

254. The proposed modification to Washington to incorporate the teachings of Franken would be a simple, straightforward reprogramming of the server system and back-end software. Washington already discloses a human "manual reviewer" reviewing and taking remedial actions regarding submitted video content that has been flagged by a "signature server" as potentially inappropriate.

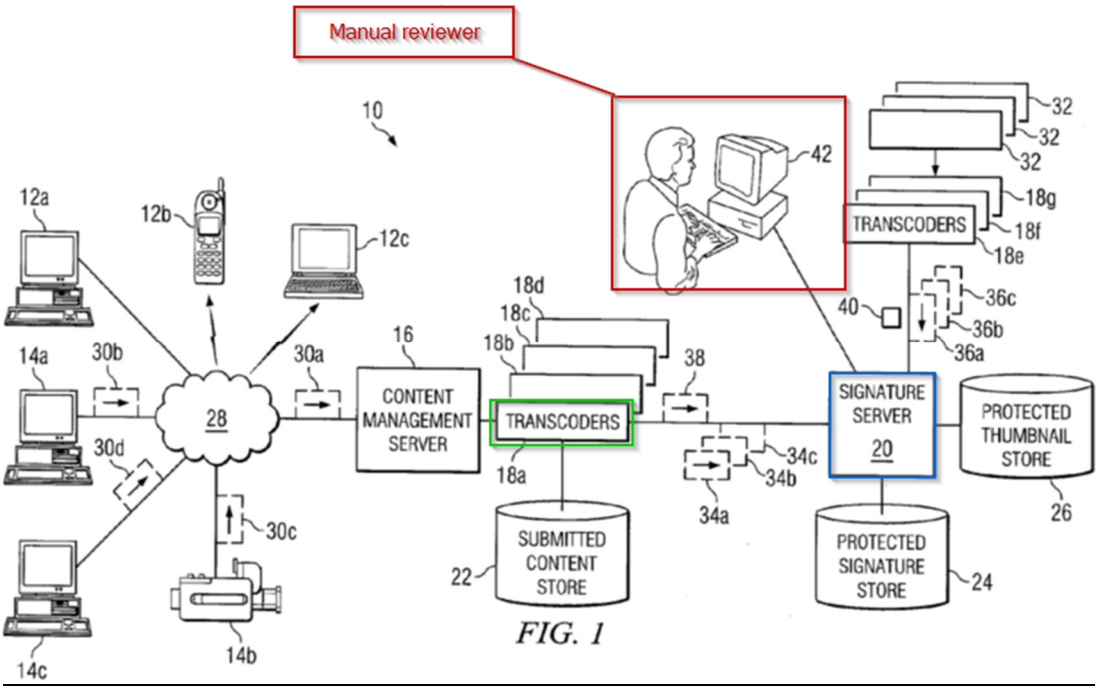

FIG. 1

Ex. 1007, Fig. 1, p. 2.

255. Incorporating Franken's disclosure of providing for review of flagged content via a user-interface provided by the system over a network therefore would not require undue experimentation and would produce predictable results. "Administrator interface generator 580 is configured to provide an interactive interface to an administrative user 585 that utilizes a computing device 590 and a network 595 to access the interface. Network 595 may include any one or more network components of various types." Ex. 1008, ¶0060 p. 23.

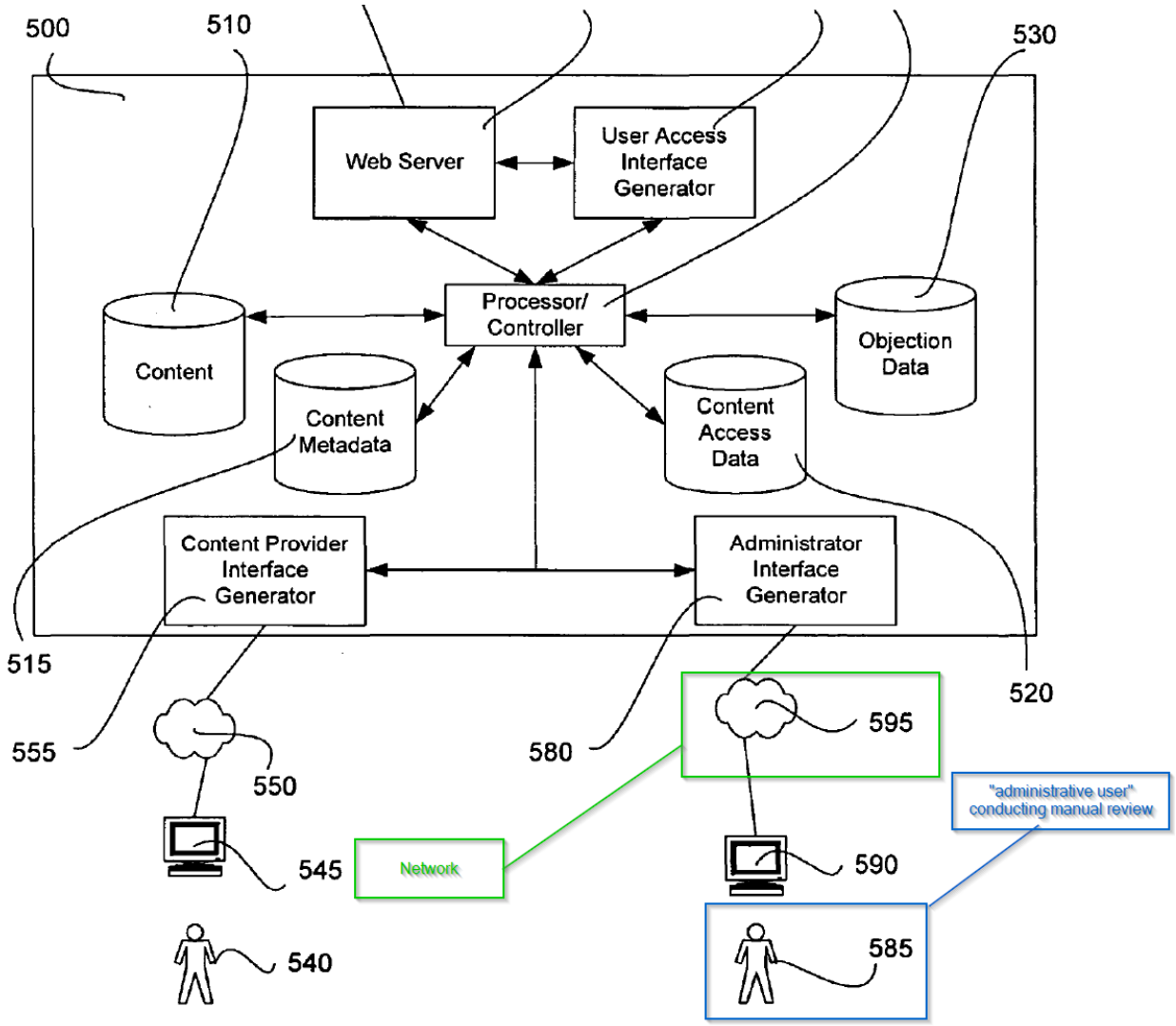

FIG. 5

Ex. 1008, Fig. 5, p. 6

256. The user-interface disclosed in Franken permits the review and remedial actions disclosed in Washington.

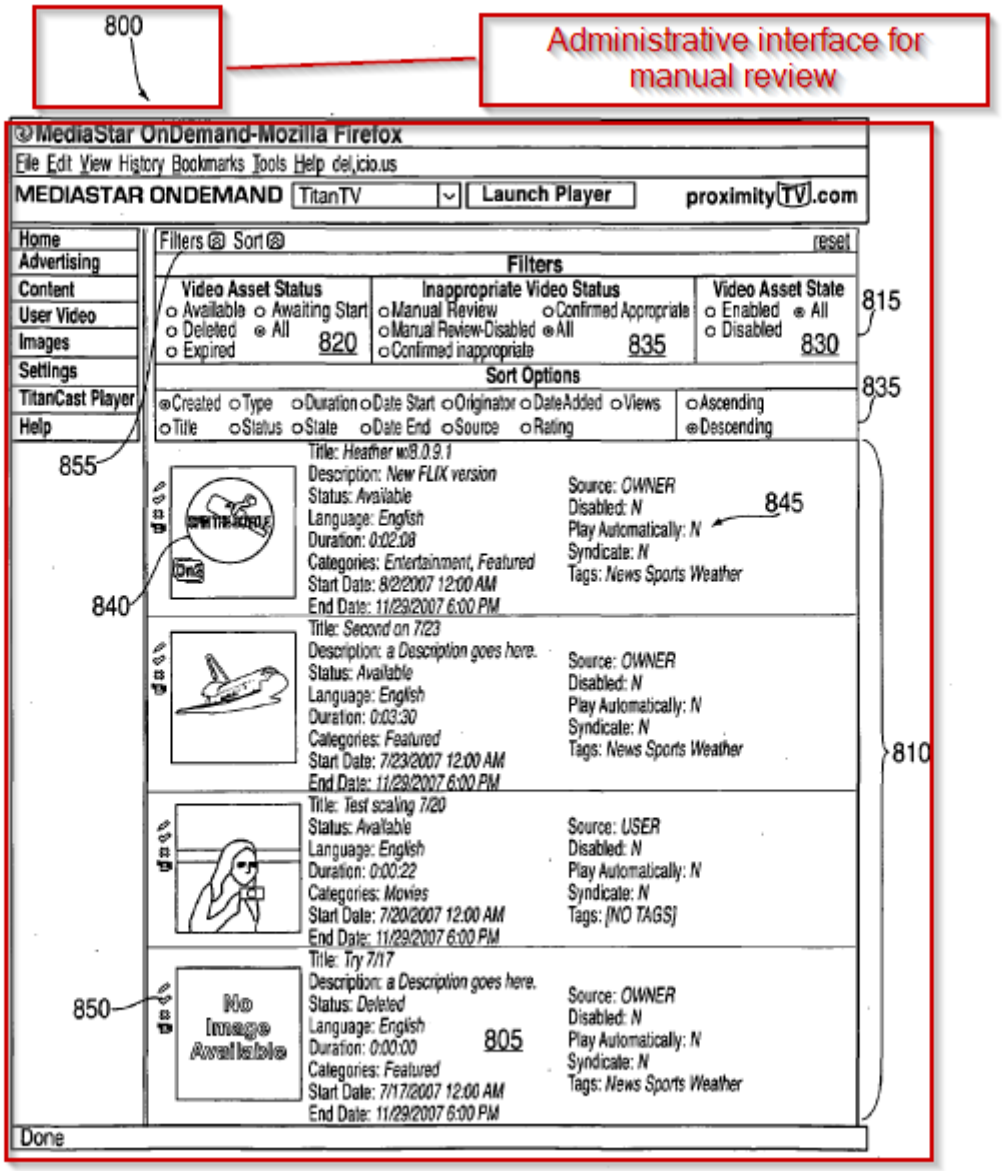

FIG. 8

Ex. 1008, Fig. 8, p. 9.

257. For example, the user-interface permits the manual reviewer to disable videos by marking them as confirmed inappropriate: "***Selection of the 'X' icon***

allows an administrative user to confirm the inappropriate status, giving the video a status of 'Confirmed Inappropriate'. Videos with this status will not be shown in the player." Ex. 1008, ¶0095 p. 28. Similarly, the manual reviewer can play the video by clicking on the movie projector icon: "Controls 850 to the left of each thumbnail 840 allow a user to manipulate the video status and metadata. Controls 850 include a pencil icon, a check mark icon, a movie projector icon, and an "X" icon for each content item 810 in queue 805. ….***Selection of the movie projector icon allows the user to view the corresponding content item/video in a separate window***." (Ex. 1008, ¶0093 pp. 27-28)

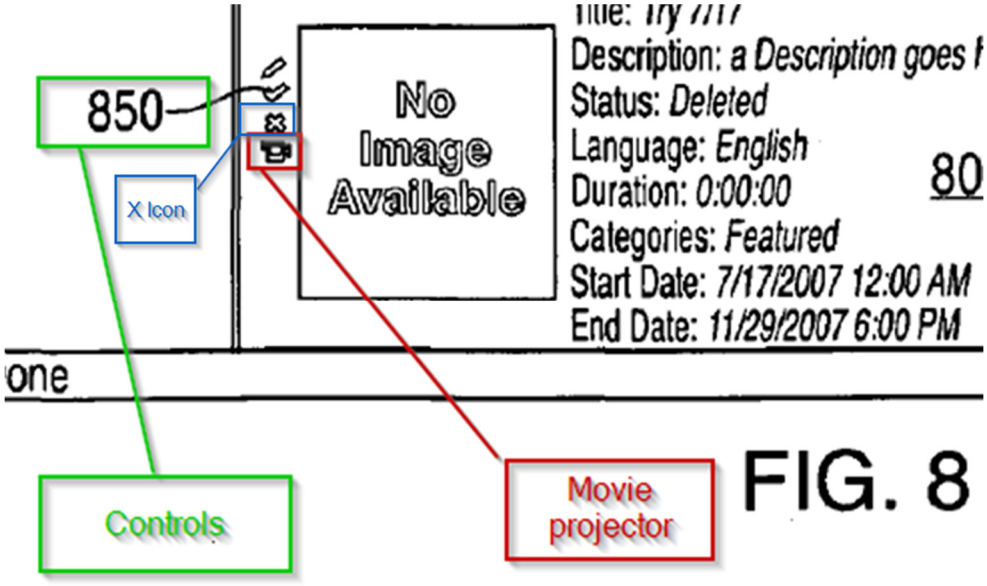

FIG. 8

Ex. 1008, Fig. 8, p. 9.

258. It would be obvious to implement Washington's manual review system using the interface disclosed in Franken.

259. Therefore, a POSITA would have been motivated to look to and combine the known teachings of Lahti, Current TV, Washington and Franken to arrive at the claimed inventions of the '304 Patent discussed below. Combining these teachings would have yielded predictable results as a POSITA would use the concepts and disclosures from the references for their intended purposes, and in ways in which a POSITA would have a reasonable expectation of success.

3. Analysis

12 [a] The method of claim 11 further comprising: retrieving the transcoded video data for manual review; and

260. Washington teaches element 12[a] of claim 12.

261. Washington discloses retrieving transcoded video data for manual review. "Additionally, content management server 16 ***connects to transcoders*** 18a-d and forwards submitted content files 30 to transcoders 18a-d ***for transcoding***. Transcoders 18a-d are coupled to signature server 20 and transmit content signatures for submitted content files 30 to signature server 20 for analysis. Similarly, transcoders 18e-g are also coupled to signature server 20 and transmit content signatures for protected content files 32 to signature server 20. ***Based on a comparison of these content signatures, signature server 20 determines whether submitted content files 30 include protected content and, if so, initiates an***

appropriate remedial action, such as refusing to upload submitted content files 30 or ***notifying a human operator*** 42." (Ex. 1007, ¶0015 pp. 7-8)

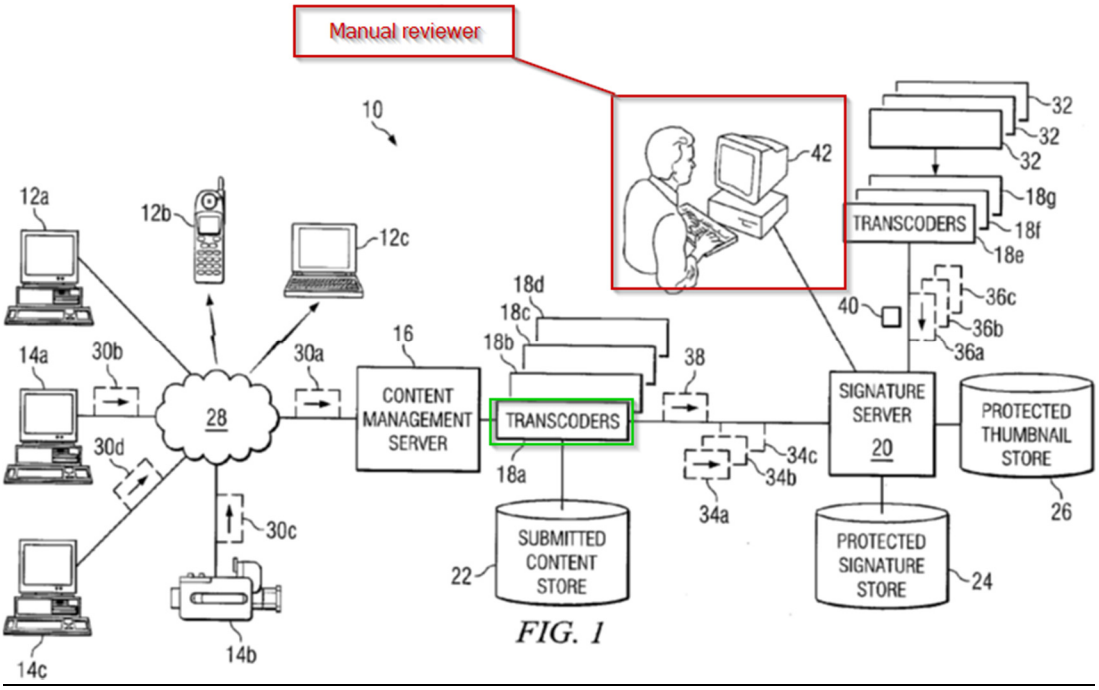

FIG. 1

Ex. 1007, Fig. 1, p. 2.

262. Washington discloses that the potentially inappropriate content is sent to the human reviewer for manual review in any number of ways. "*As yet another example, in particular embodiments, signature server 20 may submit* submitted *content file 30 for human review*. For example, in particular embodiments, signature server 20 may transmit submitted content file 30 to a human operator 42 of system 10 for review. In particular embodiments, signature server 20 may additionally transmit a protected content file 32 matching submitted content file 30 to human operator 42. ***The relevant information may be communicated to human operator 42 in any appropriate manner*** based on the configuration and

capabilities of system 10. For example, in particular embodiments, signature server 20 may generate an email message that includes submitted content file 30 and all or a portion of protected content files 32 and transmit this email message to human operator 42 for review." (Ex. 1007, ¶0042 p. 11)

263. Thus, Washington's disclosure of transcoding videos before they are analyzed by the signature server and then retrieved and transmitted to a human reviewer for manual review discloses "*retrieving the transcoded video data for manual review*."

[b] presenting a review interface adapted to:

264. Franken teaches element 12[b] of claim 12.

265. Franken discloses the need for manual review of videos submitted by users identified as potentially inappropriate. "A content item that has been automatically removed from distribution but not deleted can be handled in a variety of ways. *In one example, a content item that has been automatically removed from distribution may be* ***flagged for manual review*** *to determine if the removal from distribution is appropriate (e.g., whether the content item violates one or more policies of the administrator of the access interface and/or the provider of the content item).*" (Ex. 1008, ¶0045 p. 20)

266. Franken further discloses providing a user interface for manual review of flagged videos. "An administrative user 450 may access system 400 via

a network 455 and a computing device 460 (exemplified as a general computing device) to provide manual review of one or more content items 425 that have been flagged for manual review. ***Interface generator 435 is configured to provide administrative user 450 with an interface (e.g., an interactive displayable image that may be displayed via computing device 460) for accessing the one or more flagged content items 425***. Although the same interface generator 435 is shown as being responsible for both the 405 user interface and the 450 administrative user interface, it is contemplated that a given implementation might utilize separate interface generators for each of a one or more user interfaces of system 400." (Ex. 1008, ¶0054 p. 22) Franken's figure 8 discloses one example of such an interface. "FIG. 8 shows one example of an administrative interface 800 including an exemplary manual review queue 805 that may be utilized with one or more manual reviews as discussed above." *Id.*

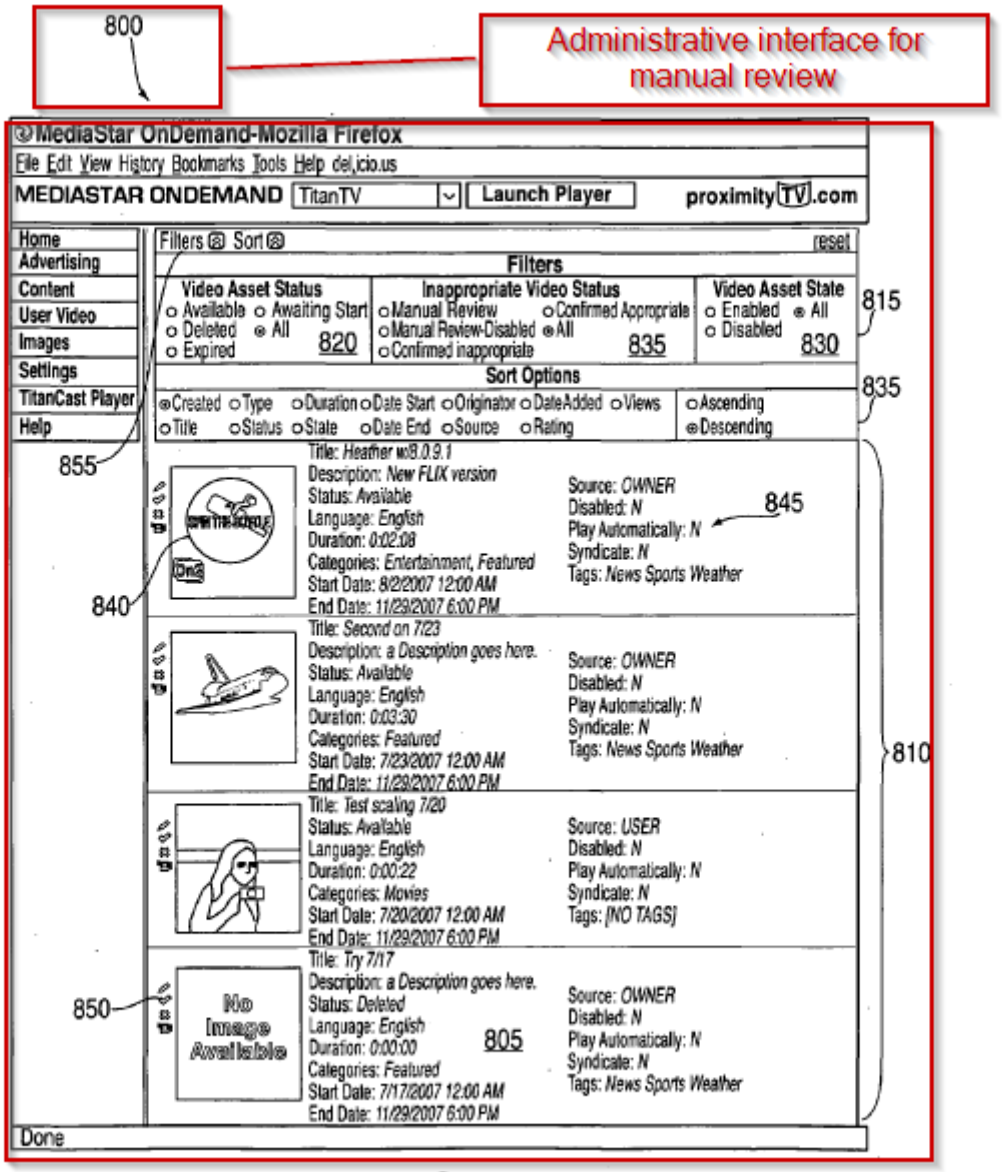

FIG. 8

Ex. 1008, Fig. 8, p. 9.

267. Thus, Franken's display of a user interface to human reviewers for manual review of videos for inappropriate content discloses "*presenting a review interface adapted to*."

[c] provide an indication of at least one frame within the transcoded video file including content identified as potentially inappropriate content; and

268. Franken in combination with Washington teaches element 12[c] of claim 12.

269. First, the interface disclosed in Franken provides either an entire video for manual review, or only the portion of the video containing inappropriate content. Franken identifies a "content item" to include "an audio/visual item," or "portion thereof". (Ex. 1008, ¶0028 p. 17) Franken discloses that a "content item" (defined to include a "portion" of "an audio/visual" item) may be flagged for manual review. "In one example, a ***content item*** that has been automatically removed from distribution may be ***flagged for manual review*** to determine if the removal from distribution is appropriate (e.g., whether the content item violates one or more policies of the administrator of the access interface and/or the provider of the content item)." (Ex. 1008, ¶0045 p. 20)

270. The user interface disclosed in Franken displays the flagged content item to a manual reviewer. "Interface generator 435 is configured to provide administrative user 450 with an interface (e.g., an interactive displayable image that may be displayed via computing device 460) for accessing ***the one or more flagged content items*** 425. (Ex. 1008, ¶0054 p. 22)

271. Second, Washington discloses providing a user with an indication of at least one frame within the transcoded video file including content identified as potentially inappropriate content. "For example, in particular embodiments, signature server 20 may generate an email message ***that includes submitted content file 30 and all or a portion of protected content files 32 and transmit this email message to human operator 42 for review***." (Ex. 1007, ¶0042 p. 11)

272. Washington compares user-submitted materials to preexisting content to determine whether the submitted materials are inappropriate or otherwise protected. If a match is found, all or the portion of the submitted content containing the inappropriate or otherwise protected material is provided to a human for manual review. "Additionally or alternatively, response module 310 may transmit the email message to human operator 42 and request that human operator 42 verify that submitted content file 30 does not, in fact, represent or include protected content. In addition, in particular embodiments, ***response module 310 may include all or a portion of submitted content file 30 and/or any matched protected content files 32 to facilitate review by operator 42***." (Ex. 1007, ¶0108 pp. 18) Providing only a portion of a submitted video to a human for review indicates that that portion of the video contains inappropriate content. A POSITA would understand that providing a portion of a video for manual review would

mean that at the very least one frame of the subject video is provided for review by the human operator.

273. Thus, Franken's disclosure of a user-interface for manual review of flagged content combined with Washington's disclosure of providing a portion of the video to a human reviewer because that portion has been flagged as containing potentially inappropriate content discloses "*provide an indication of at least one frame within the transcoded video file including content identified as potentially inappropriate content*."

[d] allow an administrator to select the transcoded video file for manual review.

274. Washington in combination with Franken teaches element 12[d] of claim 12.

275. First, as noted above, Washington discloses providing transcoded videos to humans for manual review.

276. Second, as also noted above, Franken discloses providing a user interface for allowing an administrator to review videos that have been flagged for manual review. The interface allows the administrator to select the video file for manual review: "An administrative user 450 may access system 400 via a network 455 and a computing device 460 (exemplified as a general computing device) *to provide manual review of one or more content items 425* ***that have***

been flagged for manual review. *Interface generator 435 is configured to provide administrative user 450 with an interface (e.g., an interactive displayable image that may be displayed via computing device 460)* ***for accessing the one or more flagged content items*** *425*." Ex. 1008, ¶0054 p. 22.

277. In Figure 8, Franken shows a list of content items (videos) that can be selected and manipulated in various ways. "Each listing of a content item 810 includes a corresponding thumbnail 840 and a synopsis 845 of one or more of the available metadata for the video. For example, the content item titled "Heather w/8.0.9.1" includes a square thumbnail to the left of the title and other synopsis information (e.g., description, status, language, duration, categories, start date, end date). Controls 850 to the left of each thumbnail 840 allow a user to manipulate the video status and metadata. Controls 850 include a pencil icon, a check mark icon, a movie projector icon, and an "X" icon for each content item 810 in queue 805. Selection of the pencil icon allows an administrative user to edit (e.g., via a video edit interface) the video metadata, including selection of a different thumbnail." Ex. 1008, ¶0093 pp. 27-28.

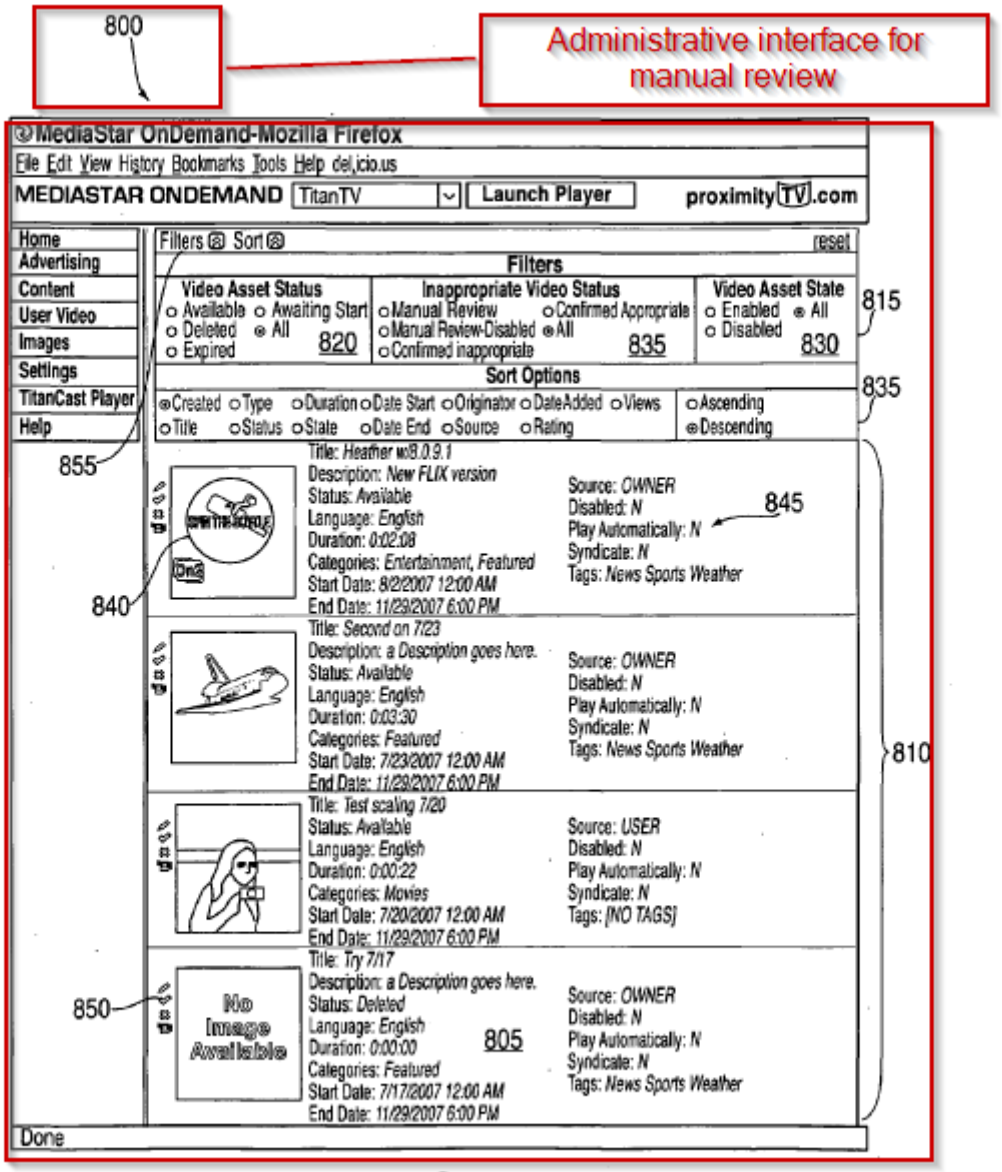

FIG. 8

Ex. 1008, Fig. 8, p. 9.

278. Franken ***further*** discloses that the user interface permits the administrator to watch all or a portion of the video flagged for manual review by selecting a movie projector icon from a set of controls. "Controls 850 to the left of each thumbnail 840 allow a user to manipulate the video status and metadata.

Controls 850 include a pencil icon, a check mark icon, a movie projector icon, and an "X" icon for each content item 810 in queue 805….***Selection of the movie projector icon allows the user to view the corresponding content item/video in a separate window***." (Ex. 1008, ¶0093 pp. 27-28)

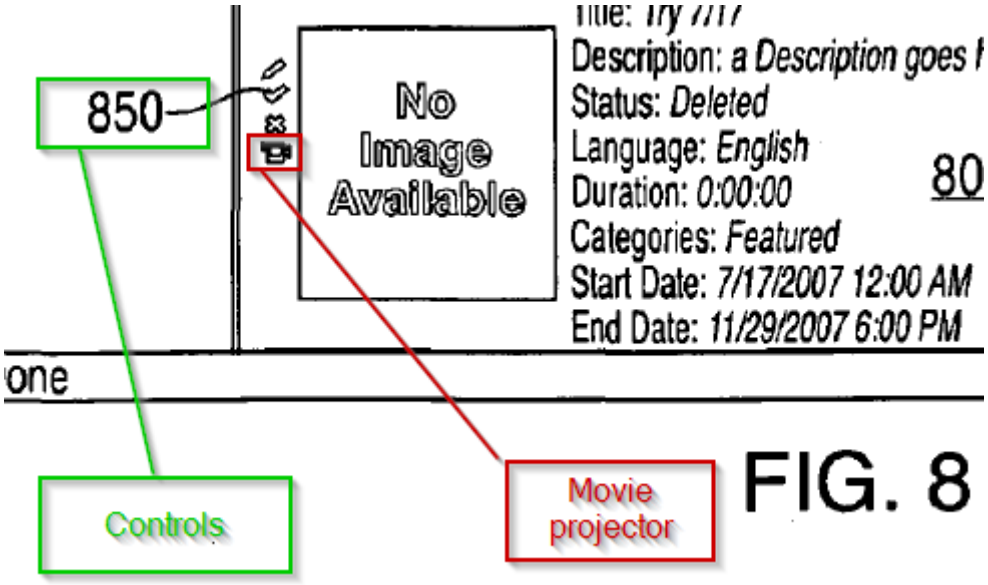

FIG. 8

Ex. 1008, Fig. 8, p. 9.

279. Thus, Washington's disclosure of providing transcoded video data to a human for manual review combined with Franken's disclosure of a user interface in which an administrator can select a particular video to manipulate or review discloses an interface to "*allow an administrator to select the transcoded video file for manual review*."

13. [a] The method of claim 1 further comprising: retrieving the transcoded video data for manual review;

280. Washington teaches element 13[a] of claim 13.

281. Washington discloses retrieving transcoded video data for manual review. "Additionally, content management server 16 ***connects to transcoders*** 18a-d and forwards submitted content files 30 to transcoders 18a-d ***for transcoding***. Transcoders 18a-d are coupled to signature server 20 and transmit content signatures for submitted content files 30 to signature server 20 for analysis. Similarly, transcoders 18e-g are also coupled to signature server 20 and transmit content signatures for protected content files 32 to signature server 20. ***Based on a comparison of these content signatures, signature server 20 determines whether submitted content files 30 include protected content and, if so, initiates an appropriate remedial action***, such as refusing to upload submitted content files 30 or ***notifying a human operator*** 42." (Ex. 1007, ¶0015 pp. 7-8)

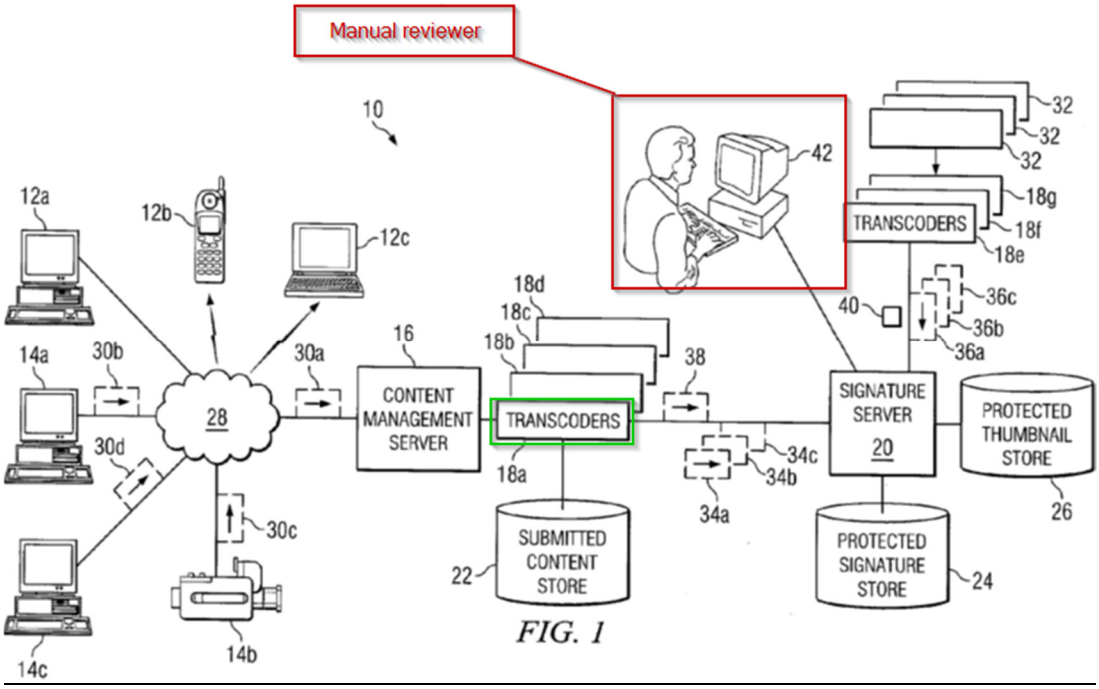

FIG. 1

Ex. 1007, Fig. 1, p 2.

282. Washington discloses that the potentially inappropriate content is sent to the human reviewer for manual review in any number of ways. "*As yet another example, in particular embodiments, signature server 20 may submit submitted content file 30 for human review*. For example, in particular embodiments, signature server 20 may transmit submitted content file 30 to a human operator 42 of system 10 for review. In particular embodiments, signature server 20 may additionally transmit a protected content file 32 matching submitted content file 30 to human operator 42. ***The relevant information may be communicated to human operator 42 in any appropriate manner*** based on the configuration and capabilities of system 10. For example, in particular embodiments, signature server 20 may generate an email message that includes submitted content file 30 and all or a portion of protected content files 32 and transmit this email message to human operator 42 for review." (Ex. 1007, ¶0042 p. 11)

283. Thus, Washington's disclosure of retrieving transcoded video data from the signature server and transmitting the video data to a human reviewer discloses "*retrieving the transcoded video data for manual review*."

[b] presenting a review interface adapted to allow an administrator to select among a plurality of transcoded video files for manual review;

284. Washington in combination with Franken teaches element 13[b] of claim 13.

285. First, as noted above, Washington transmits transcoded video data to a human for manual review.

286. Second, Franken discloses the need for manual review of videos submitted by users identified as potentially inappropriate. "A content item that has been automatically removed from distribution but not deleted can be handled in a variety of ways. *In one example, a content item that has been automatically removed from distribution may be* ***flagged for manual review*** *to determine if the removal from distribution is appropriate (e.g., whether the content item violates one or more policies of the administrator of the access interface and/or the provider of the content item).* (Ex. 1008, ¶0045 p. 20)

287. Franken further discloses providing a user interface for manual review of flagged videos. "An administrative user 450 may access system 400 via a network 455 and a computing device 460 (exemplified as a general computing device) to provide manual review of one or more content items 425 that have been flagged for manual review. ***Interface generator 435 is configured to provide administrative user 450 with an interface (e.g., an interactive displayable image that may be displayed via computing device 460) for accessing the one or more flagged content items 425***. Although the same interface generator 435 is shown as

being responsible for both the 405 user interface and the 450 administrative user interface, it is contemplated that a given implementation might utilize separate interface generators for each of a one or more user interfaces of system 400. (Ex. 1008, ¶[0054 p. 22) Franken's figure 8 discloses one example of such an interface. "FIG. 8 shows one example of an administrative interface 800 including an exemplary manual review queue 805 that may be utilized with one or more manual reviews as discussed above." *Id.*

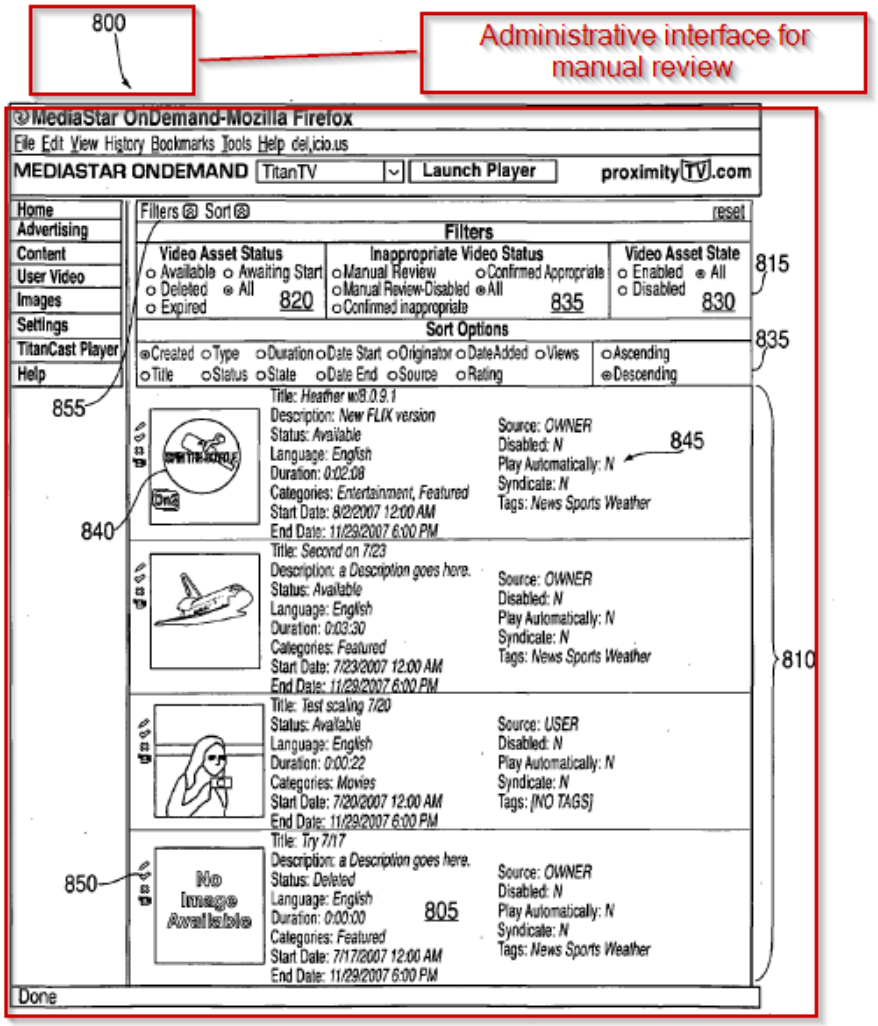

FIG. 8

Ex. 1008, Fig. 8, p 9.

288. In Figure 8, Franken shows a list of content items (videos) that can be selected and manipulated in various ways. "Each listing of a content item 810 includes a corresponding thumbnail 840 and a synopsis 845 of one or more of the available metadata ***for the video***. For example, the content item titled 'Heather w/8.0.9.1' includes a square thumbnail to the left of the title and other synopsis information (e.g., description, status, language, duration, categories, start date, end date). Controls 850 to the left of each thumbnail 840 allow a user to manipulate the video status and metadata. Controls 850 include a pencil icon, a check mark icon, a movie projector icon, and an 'X' icon for each content item 810 in queue 805. Selection of the pencil icon allows an administrative user to edit (e.g., via a video edit interface) the video metadata, including selection of a different thumbnail." Ex. 1008, ¶0093 pp. 27-28.

289. Thus, Washington's disclosure of transmitting transcoded videos to a human for manual review in combination with Franken's disclosure of displaying a user interface to a human for manual review and permitting selection of one of the videos for manual review discloses "*presenting a review interface adapted to allow an administrator to select among a plurality of transcoded video files for manual review*."

[c] receiving a selection of a particular transcoded video file for review through the review interface;

290. Washington in combination with Franken teaches element 13[c] of claim 13.

291. First, as noted above, Washington teaches transmitting transcoded video data to a human for manual review.

292. Second, as also noted above, Franken discloses providing a user interface for allowing an administrator to review videos that have been flagged for manual review. The interface allows the administrator to select the video file for manual review: "An administrative user 450 may access system 400 via a network 455 and a computing device 460 (exemplified as a general computing device) *to provide manual review of one or more content items 425* ***that have been flagged for manual review****. Interface generator 435 is configured to provide administrative user 450 with an interface (e.g., an interactive displayable image that may be displayed via computing device 460)* ***for accessing the one or more flagged content items*** *425*.

293. Franken *further* discloses that the user interface permits the administrator to watch all or a portion of the video flagged for manual review by selecting a movie projector icon from a set of controls. "Controls 850 to the left of each thumbnail 840 allow a user to manipulate the video status and metadata.

Controls 850 include a pencil icon, a check mark icon, a movie projector icon, and an "X" icon for each content item 810 in queue 805….***Selection of the movie projector icon allows the user to*** view ***the corresponding content item/video in a separate window***." (Ex. 1008, ¶0093 pp. 27-28)

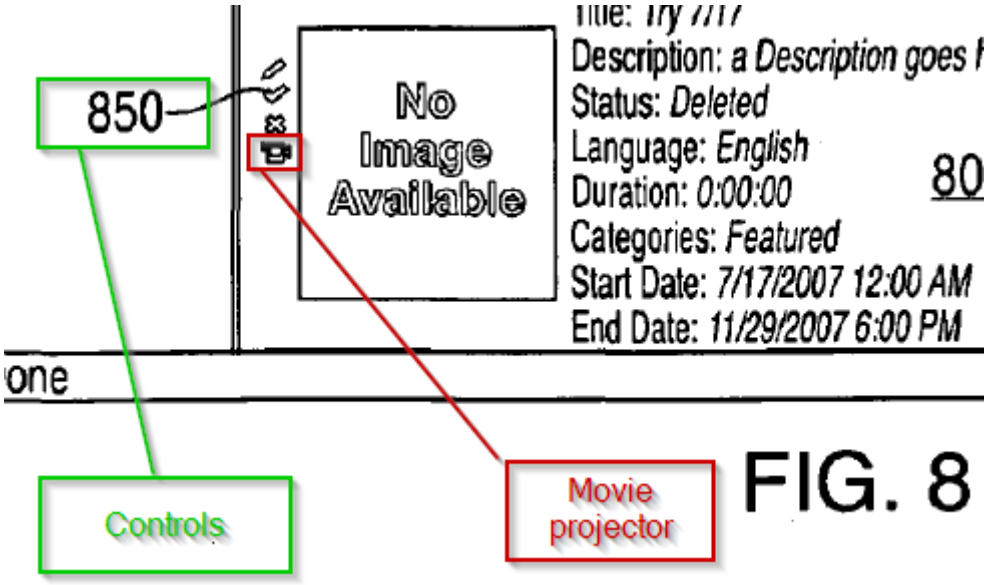

FIG. 8

Ex. 1008, Fig. 8, p. 9.

294. Thus, Washington's disclosure of transmitting transcoded videos to a human for manual review and Franken's disclosure of a user interface permitting the manual reviewer to select a particular video for review discloses "*receiving a selection of a particular transcoded video file for review through the review interface*."

[d] presenting video defined by the particular transcoded video file through the review interface in response to the selection; and

295. Washington in combination with Franken *teaches* element 13[d] of claim 13.

296. First, as noted above, Washington discloses transmitting transcoded videos to a human for manual review.

297. Second, as also noted above, Franken discloses providing a user interface for allowing an administrator to review videos that have been flagged for manual review. The interface allows the administrator to select the video file for manual review: "An administrative user 450 may access system 400 via a network 455 and a computing device 460 (exemplified as a general computing device) *to provide manual review of one or more content items 425* ***that have been flagged for manual review***. *Interface generator 435 is configured to provide administrative user 450 with an interface (e.g., an interactive displayable image that may be displayed via computing device 460)* ***for accessing the one or more flagged content items*** *425*.

298. Franken *further* discloses that the user interface permits the administrator to watch all or a portion of the video flagged for manual review by selecting a movie projector icon from a set of controls. "Controls 850 to the left of each thumbnail 840 allow a user to manipulate the video status and metadata. Controls 850 include a pencil icon, a check mark icon, a movie projector icon, and an "X" icon for each content item 810 in queue 805. ….***Selection of the movie***

projector icon allows the user to view ***the corresponding content item/video in a separate window***." (Ex. 1008, ¶0093 pp. 27-28)

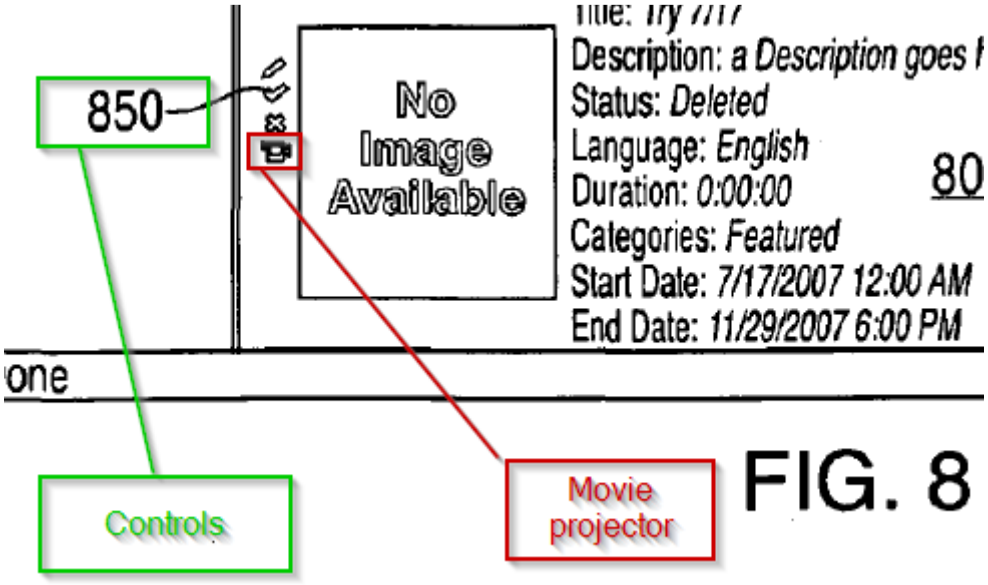

FIG. 8

Ex. 1008, Fig. 8, p. 9.

299. Thus, Washington's disclosure of providing transcoded videos to a human for manual review combined with Franken's disclosure of a user interface for manual review that plays a video when the movie projector icon is selected discloses "*presenting video defined by the particular transcoded video file through the review interface in response to the selection*."

[e] receiving a selection of the particular transcoded video file for publication through the review interface, wherein uploading the transcoded video data to a distribution server is performed in response to the selection of the particular transcoded video file for publication.

300. Franken and Lahti teach element 13[e] of claim 13.

301. First, Franken discloses a user interface that permits a user to make a particular video available for distribution over a network for a set period of time. "A middle section 1210 allows a user to set a Start and End date and time that the video should be available for distribution over a network (e.g., via a content display interface)." Ex. 1008, ¶0097 p. 28.

302. Franken further discloses that selection of a "check mark" icon would override an indication that the video was inappropriate, meaning that users could thereafter be able to view the video and could not flag it as containing inappropriate content: "Selection of the ***check mark icon*** allows the user to override a flag of objected to status (e.g., a flag for manual review, a flag indicating that the item was automatically removed from distribution), giving it a status of '***Confirmed Appropriate'***. In one exemplary implementation, videos with this status (e.g., with metadata flagged for this status) ***will be removed from the inappropriate flagging workflow***. Users of a content display interface for displaying the content item via a network will not be able to further provide an indication of objection (e.g., flag these videos as inappropriate)." Ex. 1008, ¶0094 p. 28.

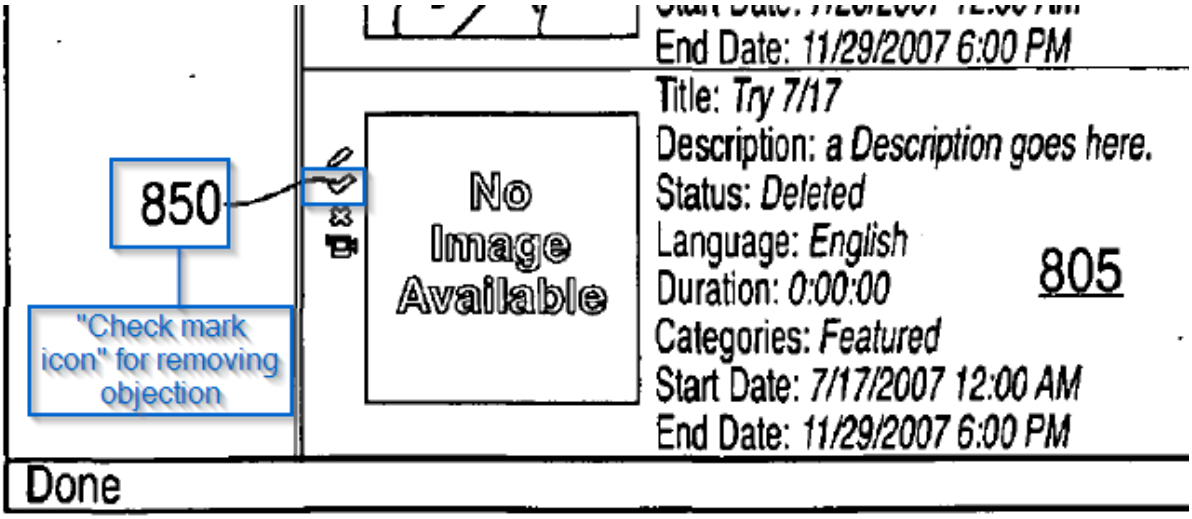

FIG. 8

Ex. 1008, Fig. 8, p. 9.

303. Second, Lahti states that after the Candela server's video manager transcodes the video data into multiple formats, the resulting videos are stored so that they can be distributed to other users. Lahti discloses utilizing a separate streaming server for distribution of user-uploaded video clips: "Thus the solution was, at the expense of storage, to transcode the material to a representative set of formats and bitrates and develop a content negotiation plug-in for Helix streaming server in order to choose from those." (Ex. 1006, p. 5)

304. Thus, Lahti discloses utilizing a streaming server for distribution of user-uploaded, server-transcoded video clips. In the figures depicting Lahti's system for transcoding and distributing the user-uploaded videos, the system shows

that the streaming server is a separate entity from the video manager that performs the transcoding operations described above with regard to elements 1[d] and 1[e]:

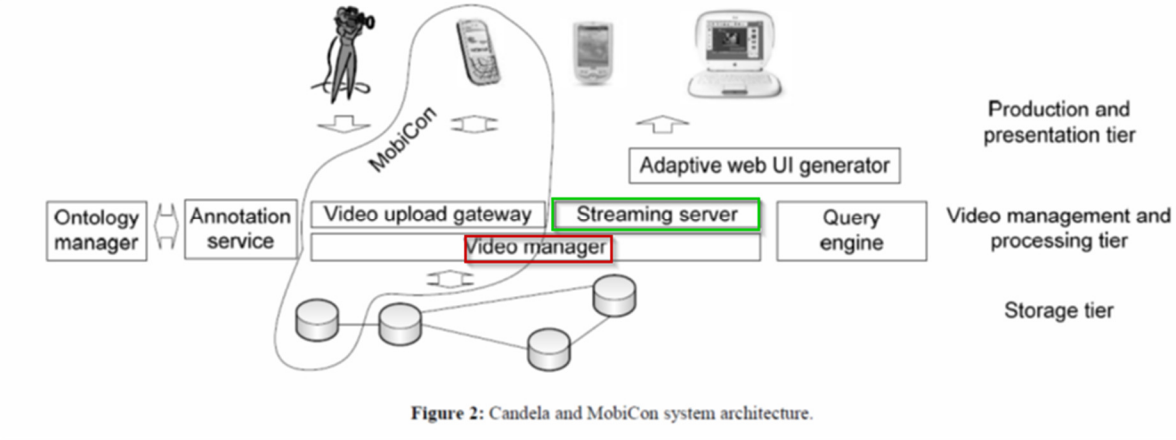

Figure 2: Candela and MobiCon system architecture.

Ex. 1006, Fig. 2, p. 4

305. A POSITA would have understood from the figures depicted above and the accompanying description that Lahti requires uploading the videos transcoded by the video manager to the streaming server before the videos could be distributed to viewers by that streaming server.

306. Lahti further describes that viewers can access the uploaded, transcoded video from the streaming server by clicking on URL links that are provided to them. "MobiCon will automatically send a text message using the Short Message Service (SMS) to Bob with information on how to access the video. After receiving the text message, ***Bob can watch the video by opening its URL straight from his mobile phone.***" Ex. 1006, p.2.

307. Furthermore, it would have been obvious to a POSITA that automatically flagged content would not be published until subject to administrator confirmation that a flagged video lacked inappropriate content. This is particularly the case in embodiments where Franken teaches automatically removing flagged videos from distribution to viewers until a manual review is conducted. Ex. 1008, ¶0041 p. 20. A POSITA would have known that only after an administrator "confirmed appropriate" the content would the transcoded video be uploaded to the distribution server where it would be available to selected users or the public.

308. Thus, Franken's disclosure of providing that a manually reviewed video file can be approved for publication within a set time range or otherwise "confirmed appropriate" combined with Lahti's disclosure of transferring transcoded video files to a streaming server for distribution discloses "*receiving a selection of the particular transcoded video file for publication through the review interface, wherein uploading the transcoded video data to a distribution server is performed in response to the selection of the particular transcoded video file for publication*."

29. [a] The system of claim 26 wherein the one or more servers are further adapted to: retrieve the transcoded video data for manual review; and

309. Washington teaches element 29[a] of claim 29.

310. Washington discloses retrieving transcoded video data for manual review. "Additionally, content management server 16 ***connects to transcoders*** 18a-d and forwards submitted content files 30 to transcoders 18a-d ***for transcoding***. Transcoders 18a-d are coupled to signature server 20 and transmit content signatures for submitted content files 30 to signature server 20 for analysis. Similarly, transcoders 18e-g are also coupled to signature server 20 and transmit content signatures for protected content files 32 to signature server 20. ***Based on a comparison of these content signatures, signature server 20 determines whether submitted content files 30 include protected content and, if so, initiates an appropriate remedial action***, such as refusing to upload submitted content files 30 or ***notifying a human operator*** 42." (Ex. 1007, ¶0015 pp. 7-8)

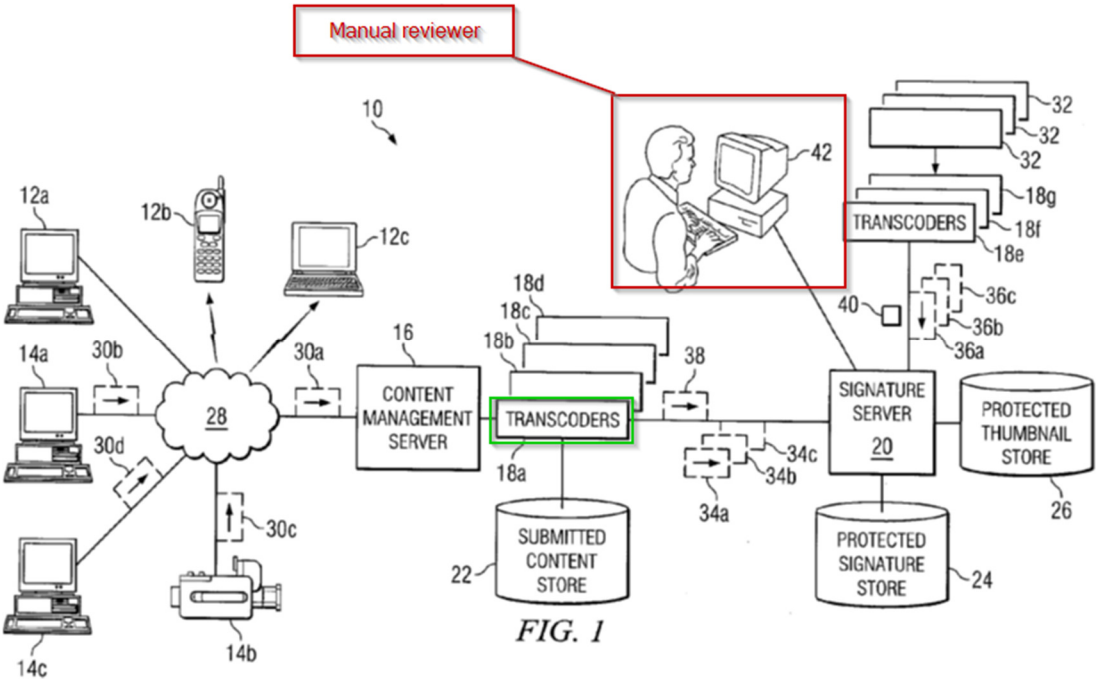

FIG. 1

311. Washington discloses that the potentially inappropriate content is sent to the human reviewer for manual review in any number of ways. "*As yet another example, in particular embodiments, signature server 20 may submit submitted content file 30 for human review*. For example, in particular embodiments, signature server 20 may transmit submitted content file 30 to a human operator 42 of system 10 for review. In particular embodiments, signature server 20 may additionally transmit a protected content file 32 matching submitted content file 30 to human operator 42. ***The relevant information may be communicated to human operator 42 in any appropriate manner*** based on the configuration and capabilities of system 10. For example, in particular embodiments, signature server 20 may generate an email message that includes submitted content file 30 and all or a portion of protected content files 32 and transmit this email message to human operator 42 for review." (Ex. 1007, ¶0042 p. 11)

312. Thus, Washington's disclosure of retrieving transcoded video data from the signature server and transmitting that data to a human reviewer for manual review discloses "*the one or more servers are further adapted to: retrieve the transcoded video data for manual review*."

[b] present a review interface adapted to:

313. Franken teaches element 29[b] of claim 29.

314. Franken discloses the need for manual review of videos submitted by users identified as potentially inappropriate. "A content item that has been automatically removed from distribution but not deleted can be handled in a variety of ways. *In one example, a content item that has been automatically removed from distribution may be* ***flagged for manual review*** *to determine if the removal from distribution is appropriate (e.g., whether the content item violates one or more policies of the administrator of the access interface and/or the provider of the content item).*" (Ex. 1008, ¶0045 p. 20)

315. Franken *further* discloses providing a user interface for manual review of flagged videos. "An administrative user 450 may access system 400 via a network 455 and a computing device 460 (exemplified as a general computing device) to provide manual review of one or more content items 425 that have been flagged for manual review. ***Interface generator 435 is configured to provide administrative user 450 with an interface (e.g., an interactive displayable image that may be displayed via computing device 460) for accessing the one or more flagged content items 425***. Although the same interface generator 435 is shown as being responsible for both the 405 user interface and the 450 administrative user interface, it is contemplated that a given implementation might utilize separate interface generators for each of a one or more user interfaces of system 400." (Ex. 1008, ¶0054 p. 22) Franken's figure 8 discloses one example of such an interface.

"FIG. 8 shows one example of an administrative interface 800 including an exemplary manual review queue 805 that may be utilized with one or more manual reviews as discussed above." *Id.*

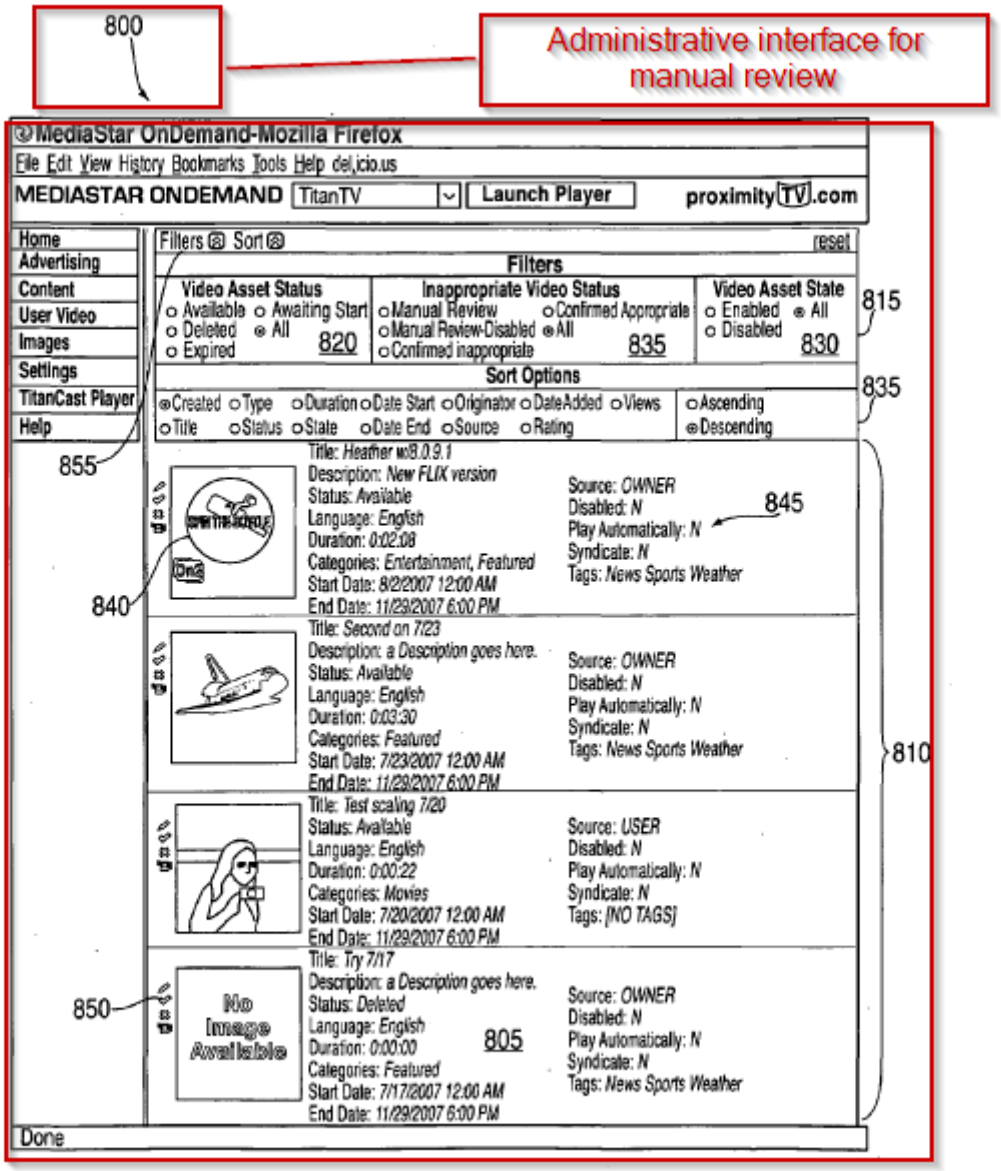

FIG. 8

Ex. 1008, Fig. 8, p. 9

316. Thus, Franken's disclosure of a user interface displayed to a human manual reviewer discloses "*present a review interface adapted to*."

[c] provide an indication of at least one frame within the transcoded video file including content identified as potentially inappropriate content; and

317. Washington combined with Franken teaches element 29[c] of claim 29.

318. First, the interface disclosed in Franken provides either an entire video for manual review, or only the portion of the video containing inappropriate content. Franken identifies a "content item" to include "an audio/visual item," or "portion thereof". (Ex. 1008, ¶0028 p. 17) Franken discloses that a "content item" (defined to include a "portion" of "an audio/visual" item) may be flagged for manual review. "In one example, a ***content item*** that has been automatically removed from distribution may be ***flagged for manual review*** to determine if the removal from distribution is appropriate (e.g., whether the content item violates one or more policies of the administrator of the access interface and/or the provider of the content item)." (Ex. 1008, ¶0045 p. 20)

319. The user interface disclosed in Franken displays the flagged content item to a manual reviewer. "Interface generator 435 is configured to provide administrative user 450 with an interface (e.g., an interactive displayable image

that may be displayed via computing device 460) for accessing ***the one or more flagged content items*** 425." (Ex. 1008, ¶0054 p. 22)

320. Second, Washington discloses providing a user with an indication of at least one frame within the transcoded video file including content identified as potentially inappropriate content. "For example, in particular embodiments, signature server 20 may generate an email message ***that includes submitted content file 30 and all or a portion of protected content files 32 and transmit this email message to human operator 42 for review***." (Ex. 1007, ¶0042 p. 11)

321. Washington compares user-submitted materials to preexisting content to determine whether the submitted materials are inappropriate or otherwise protected. If a match is found, all or the portion of the submitted content containing the inappropriate or otherwise protected material is provided to a human for manual review. "Additionally or alternatively, response module 310 may transmit the email message to human operator 42 and request that human operator 42 verify that submitted content file 30 does not, in fact, represent or include protected content. In addition, in particular embodiments, ***response module 310 may include all or a portion of submitted content file 30 and/or any matched protected content files 32 to facilitate review by operator 42***." (Ex. 1007, ¶0104 pp. 17-18) Providing only a portion of a submitted video to a human for review indicates that that portion of the video contains inappropriate content. A POSITA

would understand that providing a portion of a video for manual review would mean that at the very least one frame of the subject video is provided for review by the human operator.

322. Thus, Franken's disclosure of a user-interface for manual review of flagged content combined with Washington's disclosure of providing a portion of the video to a human reviewer for manual review because that portion has been flagged as containing protected content discloses "*provide an indication of at least one frame within the transcoded video file including content identified as potentially inappropriate content*."

[d] allow an administrator to select the transcoded video file for manual review.

323. Washington combined with Franken teaches element 29[d] of claim 29.

324. First, as noted above, Washington discloses providing transcoded videos to humans for manual review.

325. Second, as also noted above, Franken discloses providing a user interface for allowing an administrator to review videos that have been flagged for manual review. The interface allows the administrator to select the video file for manual review: "An administrative user 450 may access system 400 via a network 455 and a computing device 460 (exemplified as a general computing device) *to*

provide manual review of one or more content items 425 ***that have been flagged for manual review****. Interface generator 435 is configured to provide administrative user 450 with an interface (e.g., an interactive displayable image that may be displayed via computing device 460)* ***for accessing the one or more flagged content items*** *425*." Ex. 1008, ¶0054 p. 22.

326. Franken ***further*** discloses that the user interface permits the administrator to watch all or a portion of the video flagged for manual review by selecting a movie projector icon from a set of controls. "Controls 850 to the left of each thumbnail 840 allow a user to manipulate the video status and metadata. Controls 850 include a pencil icon, a check mark icon, a movie projector icon, and an "X" icon for each content item 810 in queue 805….***Selection of the movie projector icon allows the user to view the corresponding content item/video in a separate window***." (Ex. 1008, ¶0093 pp. 27-28)

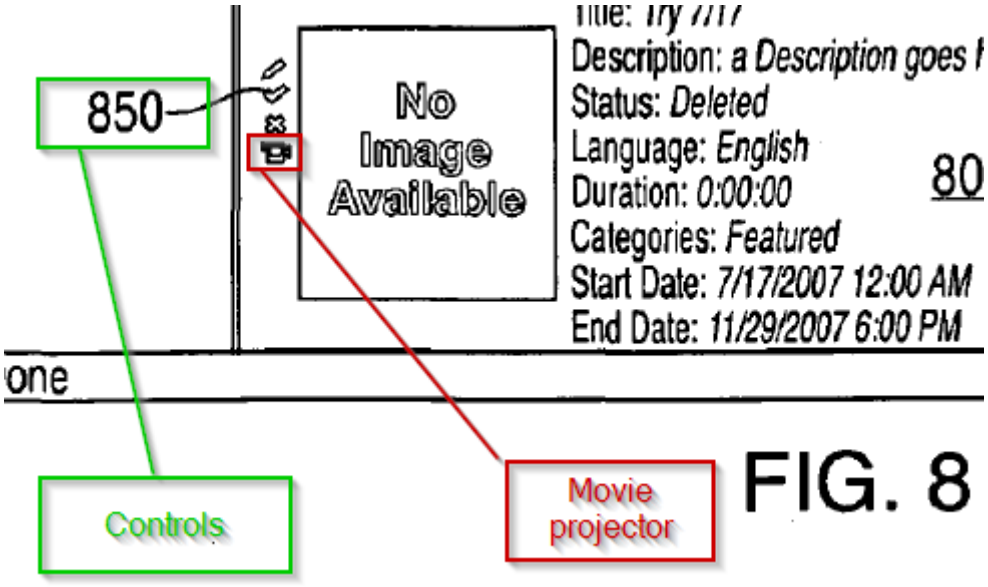

FIG. 8

Ex. 1008, Fig. 8, p. 9.

327. Thus, Washington's disclosure of providing transcoded videos to a human for manual review combined with Franken's disclosure of a user interface in which an administrator can select a particular video to review discloses an interface to "*allow an administrator to select the transcoded video file for manual review*."

30. [a] The system of claim 26 wherein the one or more servers are further adapted to: retrieve the transcoded video data for manual review;

328. Washington teaches element 30[a] of claim 30.

329. Washington discloses retrieving transcoded video data for manual review. "Additionally, content management server 16 ***connects to transcoders*** 18a-d and forwards submitted content files 30 to transcoders 18a-d ***for transcoding***. Transcoders 18a-d are coupled to signature server 20 and transmit content signatures for submitted content files 30 to signature server 20 for analysis. Similarly, transcoders 18e-g are also coupled to signature server 20 and transmit content signatures for protected content files 32 to signature server 20. ***Based on a comparison of these content signatures, signature server 20 determines whether submitted content files 30 include protected content and, if so, initiates an appropriate remedial action***, such as refusing to upload submitted content files 30 or ***notifying a human operator*** 42." (Ex. 1007, ¶0015 pp. 7-8)

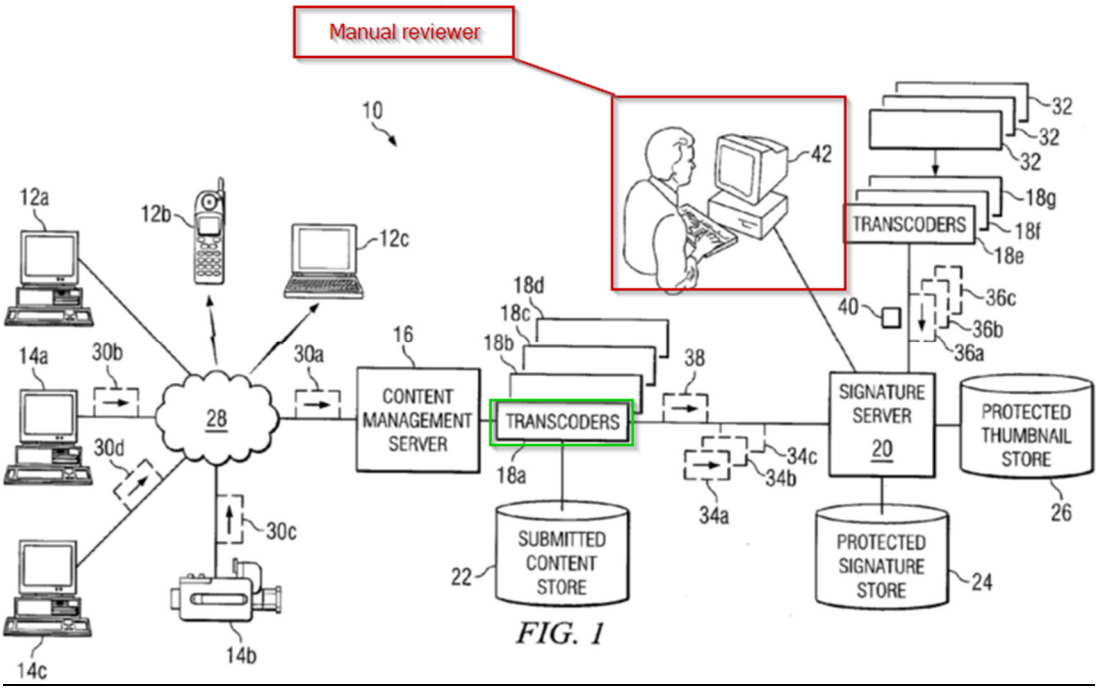

FIG. 1

Ex. 1007, Fig. 1, p. 2.

330. Washington discloses that the potentially inappropriate content is sent to the human reviewer for manual review in any number of ways. "*As yet another example, in particular embodiments, signature server 20 may submit submitted content file 30 for human review*. For example, in particular embodiments, signature server 20 may transmit submitted content file 30 to a human operator 42 of system 10 for review. In particular embodiments, signature server 20 may additionally transmit a protected content file 32 matching submitted content file 30 to human operator 42. ***The relevant information may be communicated to human operator 42 in any appropriate manner*** based on the configuration and capabilities of system 10. For example, in particular embodiments, signature server 20 may generate an email message that includes submitted content file 30 and all

or a portion of protected content files 32 and transmit this email message to human operator 42 for review." (Ex. 1007, ¶0042 p. 11)

331. Thus, Washington's disclosure of retrieving transcoded video data from the signature server and transmitting that data to a human reviewer for manual review discloses "*one or more servers are further adapted to: retrieve the transcoded video data for manual review*."

[b] present a review interface adapted to allow an administrator to select among a plurality of transcoded video files for manual review;

332. Washington in combination with Franken discloses element 30[b] of claim 30.

333. First, as noted above, Washington transmits transcoded video data to a human for manual review.

334. Second, Franken discloses the need for manual review of videos submitted by users identified as potentially inappropriate. "A content item that has been automatically removed from distribution but not deleted can be handled in a variety of ways. *In one example, a content item that has been automatically removed from distribution may be* ***flagged for manual review*** *to determine if the removal from distribution is appropriate (e.g., whether the content item violates one or more policies of the administrator of the access interface and/or the provider of the content item).*" (Ex. 1008, ¶0045 p. 20)

335. Franken further discloses providing a user interface for manual review of flagged videos. "An administrative user 450 may access system 400 via a network 455 and a computing device 460 (exemplified as a general computing device) to provide manual review of one or more content items 425 that have been flagged for manual review. ***Interface generator 435 is configured to provide administrative user 450 with an interface (e.g., an interactive displayable image that may be displayed via computing device 460) for accessing the one or more flagged content items 425***. Although the same interface generator 435 is shown as being responsible for both the 405 user interface and the 450 administrative user interface, it is contemplated that a given implementation might utilize separate interface generators for each of a one or more user interfaces of system 400." (Ex. 1008, ¶0054 p. 22) Franken's figure 8 discloses one example of such an interface, including ***multiple videos*** available for selection. "FIG. 8 shows one example of an administrative interface 800 including an exemplary manual review queue 805 that may be utilized with one or more manual reviews as discussed above." *Id.*

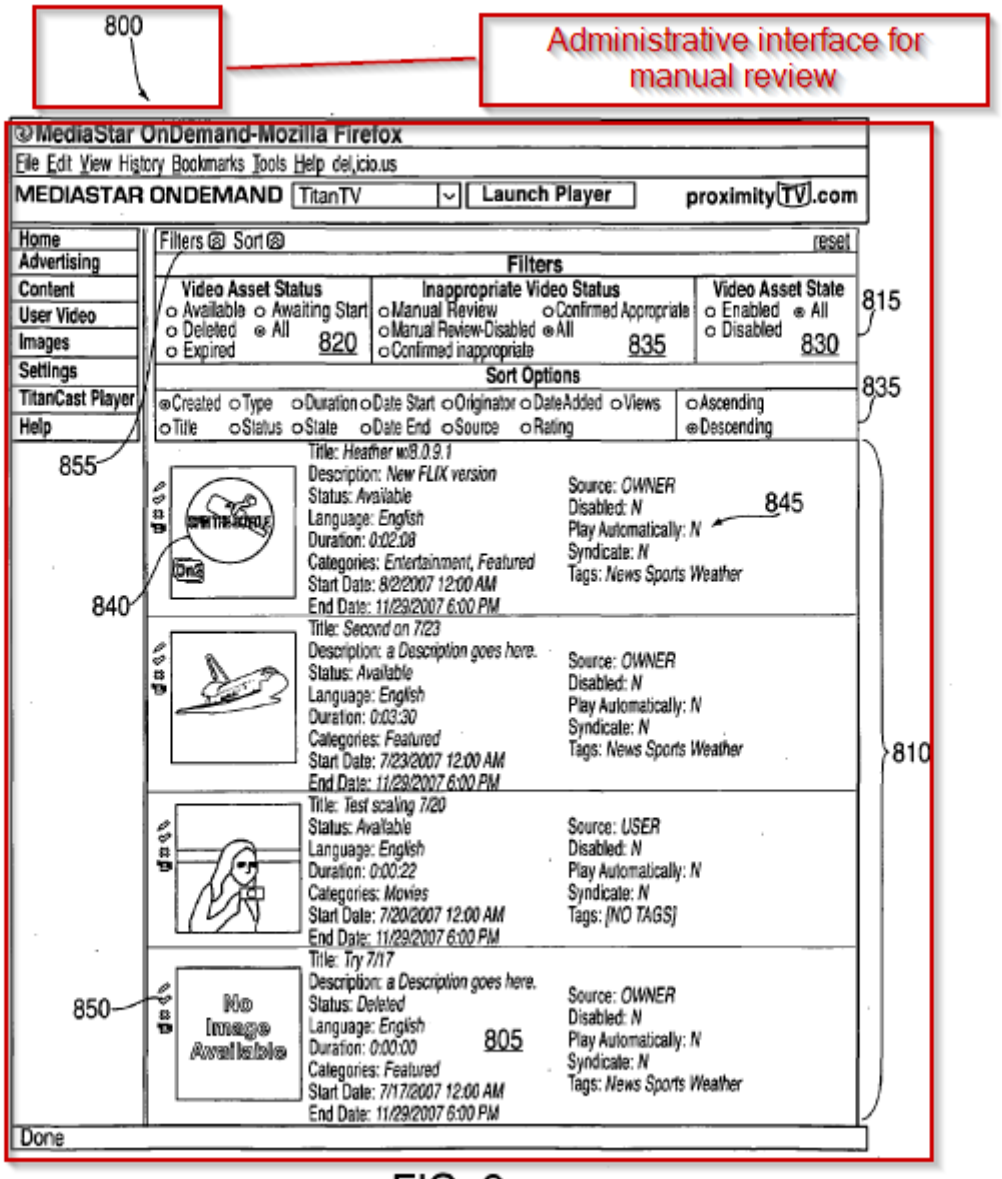

FIG. 8

Ex. 1008, Fig. 8, p. 9.

336. Thus, Washington's disclosure of transmitting transcoded videos to a human for manual review in combination with Franken's disclosure of displaying a user interface to a human for manual review and permitting selection of one of the videos for manual review discloses "*present a review interface adapted to allow an*

administrator to select among a plurality of transcoded video files for manual review."

[c] receive a selection of a particular transcoded video file for review through the review interface;

337. Washington in combination with Franken discloses claim element 30[c] of claim 30.

338. First, as noted above, Washington teaches transmitting transcoded video data to a human for manual review.

339. Second, as also noted above, Franken discloses providing a user interface for allowing an administrator to review videos that have been flagged for manual review. The interface allows the administrator to select the video file for manual review: "An administrative user 450 may access system 400 via a network 455 and a computing device 460 (exemplified as a general computing device) *to provide manual review of one or more content items 425* ***that have been flagged for manual review***. *Interface generator 435 is configured to provide administrative user 450 with an interface (e.g., an interactive displayable image that may be displayed via computing device 460)* ***for accessing the one or more flagged content items*** *425*.

340. Franken *further* discloses that the user interface permits the administrator to watch all or a portion of the video flagged for manual review by

selecting a movie projector icon from a set of controls. "Controls 850 to the left of each thumbnail 840 allow a user to manipulate the video status and metadata. Controls 850 include a pencil icon, a check mark icon, a movie projector icon, and an "X" icon for each content item 810 in queue 805.…***Selection of the movie projector icon allows the user to*** view ***the corresponding content item/video in a separate window***." (Ex. 1008, ¶0093 pp. 27-28)

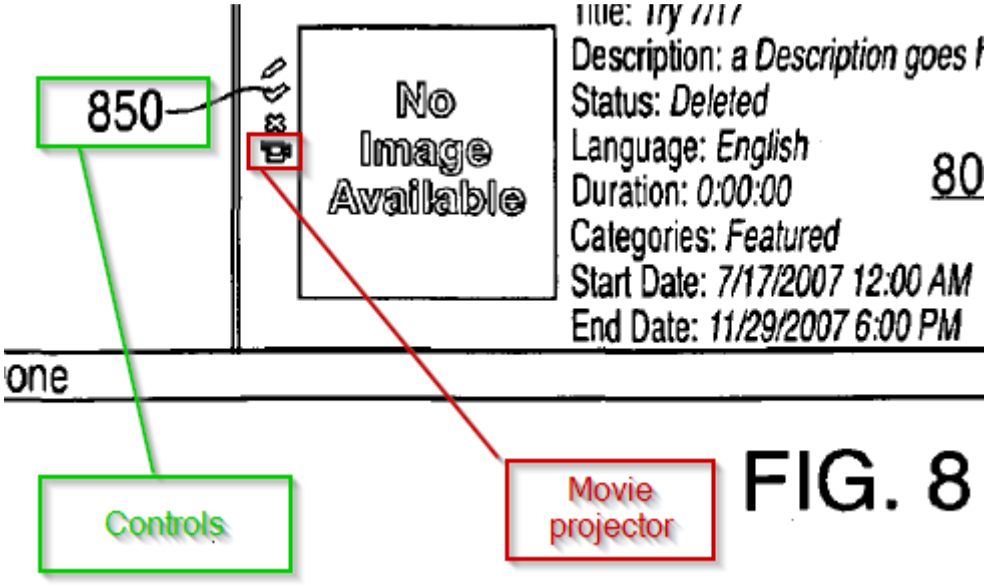

FIG. 8

Ex. 1008, Fig. 8, p. 9.

341. Thus, Washington's disclosure of transmitting transcoded videos to a human for manual review and Franken's disclosure of a user interface permitting the manual reviewer to select a particular video for review discloses "*receive a selection of a particular transcoded video file for review through the review interface*."

[d] present video defined by the particular transcoded video file through the review interface in response to the selection; and

342. Washington, in combination with Franken, teaches element 30[d] of claim 30.

343. First, as noted above, Washington discloses transmitting transcoded videos to a human for manual review.

344. Second, as also noted above, Franken discloses providing a user interface for allowing an administrator to review videos that have been flagged for manual review. The interface allows the administrator to select the video file for manual review: "An administrative user 450 may access system 400 via a network 455 and a computing device 460 (exemplified as a general computing device) *to provide manual review of one or more content items 425* ***that have been flagged for manual review***. *Interface generator 435 is configured to provide administrative user 450 with an interface (e.g., an interactive displayable image that may be displayed via computing device 460)* ***for accessing the one or more flagged content items*** *425*." Ex. 1008, ¶0054 p.22.

345. Franken *further* discloses that the user interface permits the administrator to watch all or a portion of the video flagged for manual review by selecting a movie projector icon from a set of controls. "Controls 850 to the left of each thumbnail 840 allow a user to manipulate the video status and metadata.

Controls 850 include a pencil icon, a check mark icon, a movie projector icon, and an "X" icon for each content item 810 in queue 805.….***Selection of the movie projector icon allows the user to*** view ***the corresponding content item/video in a separate window***." (Ex. 1008, ¶0093 pp. 27-28)

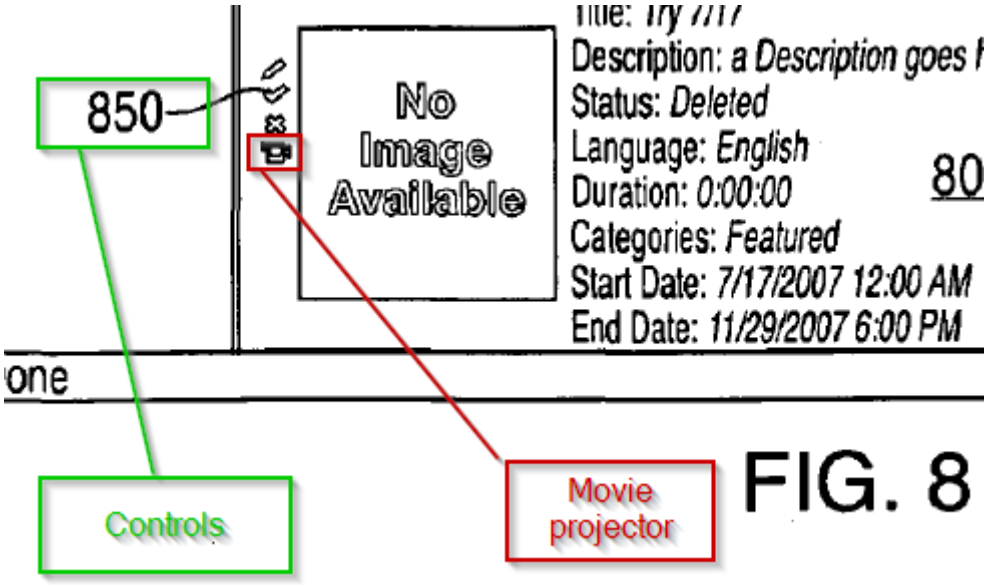

FIG. 8

Ex. 1008, Fig. 8, p. 9.

346. Thus, Washington's disclosure of providing transcoded videos to a human for manual review combined with Franken's disclosure of a user interface for manual review that plays a video when the movie projector icon is selected discloses an interface to "*present video defined by the particular transcoded video file through the review interface in response to the selection*."

[e] receive a selection of the particular transcoded video file for inclusion in the television broadcast, wherein the transcoded video data is distributed for

inclusion in a television broadcast in response to the selection of the particular transcoded video file for inclusion in the television broadcast.

347. Lahti, in combination with "Current TV mobile" and "Current TV FAQ" and Franken, teaches element 30[e] of claim 30.

348. First, Franken discloses a user interface that permits a user to make a particular video available for distribution over a network for a set period of time. "A middle section 1210 allows a user to set a Start and End date and time that the video should be available for distribution over a network (e.g., via a content display interface)." Ex. 1008, ¶0097 p. 28.

349. Franken further discloses that selection of a "check mark" icon would override an indication that the video was inappropriate, meaning that users could thereafter be able to view the video and could not flag it as containing inappropriate content: "Selection of the ***check mark icon*** allows the user to override a flag of objected to status (e.g., a flag for manual review, a flag indicating that the item was automatically removed from distribution), giving it a status of '***Confirmed Appropriate'***. In one exemplary implementation, videos with this status (e.g., with metadata flagged for this status) ***will be removed from the inappropriate flagging workflow***. Users of a content display interface for displaying the content item via a network will not be able to further provide an

indication of objection (e.g., flag these videos as inappropriate)." Ex. 1008, ¶0094 p. 28.

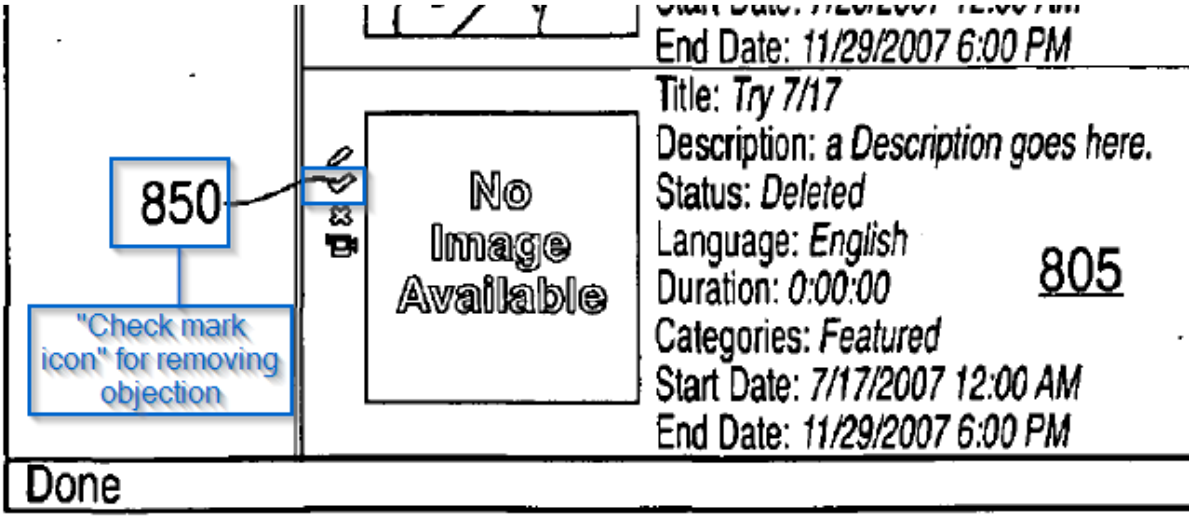

FIG. 8

Ex. 1008, Fig. 8, p. 9.

350. Second, Lahti states that after the Candela server's video manager transcodes the video data into multiple formats, the resulting videos are stored so that they can be distributed to other users. Lahti discloses utilizing a separate streaming server for distribution of user-uploaded video clips: "Thus the solution was, at the expense of storage, to transcode the material to a representative set of formats and bitrates and develop a content negotiation plug-in for Helix streaming server in order to choose from those." (Ex. 1006, p. 5)

351. Thus, Lahti discloses utilizing a streaming server for distribution of user-uploaded, server-transcoded video clips. In the figures depicting Lahti's system for transcoding and distributing the user-uploaded videos, the system shows that the streaming server is a separate entity from the video manager that performs the transcoding operations described above with regard to elements 1[d] and 1[e]:

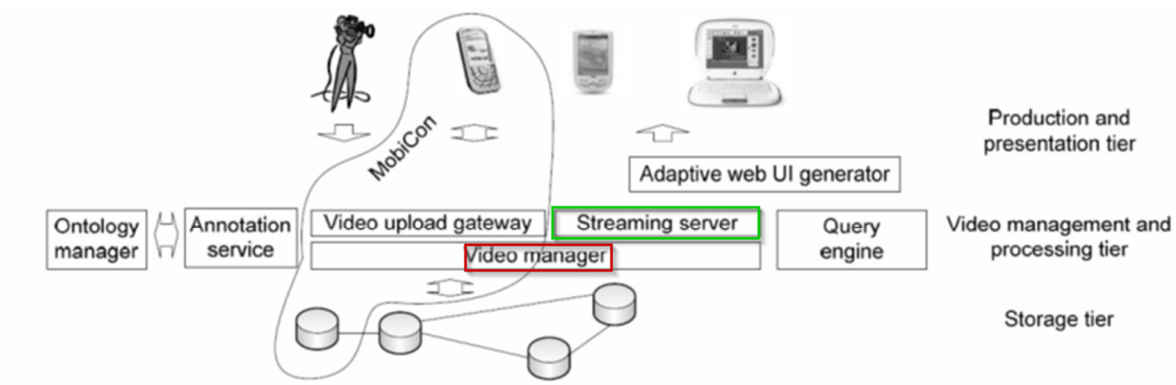

Figure 2: Candela and MobiCon system architecture.

Ex. 1006, Fig. 2, p. 4

352. A POSITA would have understood from the figures depicted above and the accompanying description that Lahti requires uploading the videos *transcoded* by the video manager to the streaming server before the videos could be distributed to viewers by that streaming server.

353. Lahti further describes that viewers can access the uploaded, transcoded video from the streaming server by clicking on URL links that are provided to them. "MobiCon will automatically send a text message using the Short Message Service (SMS) to Bob with information on how to access the video.

After receiving the text message, ***Bob can watch the video by opening its URL straight from his mobile phone.***" Ex. 1006, p.2.

354. Third, "Current TV mobile" and "Current TV FAQ" each discloses including selected videos for inclusion in a linear television broadcasting channel. The broadcast short videos were originally submitted by the channel's viewers. For example, "Current TV mobile" encouraged viewers to capture videos using their mobile phones, like those disclosed by Lahti, and submit them for inclusion in the Current TV programming. "Don't just watch content on your mobile phone, ***make content and let the world see it – on Current's national TV network*** -- now available in 28 million homes. Current is the first and only ***TV network*** to showcase your mobile videos. Check out the call outs below, watch a sample, ***shoot some footage with your video phone and find out how the content you capture with your mobile can pay those overage charges. Oh, and make sure what you send to Current is something you and your friends would want to watch on TV***!" Ex. 1009, p. 2, "Current TV mobile."

355. The Current TV references encouraged viewers to capture videos using their mobile *phones*, like those disclosed by Lahti, and submit them for inclusion in the Current TV programming. For example, "Current is an ***independent cable and satellite TV network***. ***Check our schedule to see what's on Current TV right now and what's coming up***. You can also check out our video

preview for a sampling of our best on-air programming." Ex. 1011, p. 3, "Current TV FAQ".

356. As noted previously, a POSITA would have been motivated to use the MobiCon application disclosed in Lahti to capture and annotate short videos, and submit them to Current TV.

357. Thus, Franken's disclosure of a user interface to select a video for publication during a given data range, or to provide that a video is "approved" for publication, in combination with Lahti's disclosure of distributing transcoded user-submitted videos to an audience and Current TV's disclosure of distributing user-submitted videos for inclusion on Current TV's broadcasts discloses "*receive a selection of the particular transcoded video file for inclusion in the television broadcast, wherein the transcoded video data is distributed for inclusion in a television broadcast in response to the selection of the particular transcoded video file for inclusion in the television broadcast*."

D. Ground 4: Lahti Combined with Chen and the Admitted Art

1. Overview of the Prior Art

a) Lahti

358. An overview of Lahti is discussed above in Section VIII.A.1(a).

b) Chen

359. U.S. Patent No. 8,819,719 to Chen et al. ("Chen") is titled "Real-Time Video Commenting." Chen issued on August 26, 2014 from U.S. Patent

Application No. 11/952,125 (the "'125 Application"), which was filed on December 6, 2007.

360. Chen describes a system for uploading user-created videos that provide comments to a central server, where they are associated with the existing media content on which they are commenting. Chen's system includes a user-interface for recording the user videos. "A content server causes a video input device at the content viewer's location to be activated" for recording the videos. Chen at Abstract. The client device recording the video and uploading it to the server can be a personal computer over the internet or "through a cellular network from a telephone or PDA, or by other means for transferring data over a network known to those of skill in the art." Ex. 1017, 2:47-49.

361. Chen also discusses the concept of transmitting the recorded video data in real-time while it is being captured: "As the viewer speaks and moves, the sound and images are captured by the video input device and transmitted to content server 104. In one embodiment, the video image is streamed to content server 104." (Ex. 1017, 3:65-4:1.) Chen alternatively discloses that the video may be cached locally on the client device prior to completing the upload process. "In an alternative embodiment, the video is cached locally and then transmitted to content server 104 once the comment is complete." *Id*., 4:1-3.

362. The system disclosed in Chen provides a user interface for recording the user-submitted videos. "Also illustrated in FIG. 4 is a "Record" button 404 that content viewer 106 can click to begin recording the images received by the video input device. A status indicator 406 also indicates to the viewer whether the video is currently being recorded. After the viewer clicks "Record", the button 404 is replaced by another (not shown) that the viewer can click to indicate that she has finished recording." Ex. 1017, 3:57-64.

363. Chen further describes various operations performed at an "upload server" to process videos so that they may be accessible to future viewers. "In one embodiment, upload server 1006 performs various processing functions such as ***transcoding***, fingerprinting, etc., ***prior to storing the content in database*** 1002. Media content server 1010 then publishes 1105 the received media content so that it can be consumed by content viewers 106." Ex. 1017, 5:2-7; *see id.*, 4:3-9 ("Content server 104 stores the received video and associates it with the original video being commented on. Content server 104 may also perform other housekeeping functions, e.g., updating the viewer's or the content provider's account, ***transcoding video content***, and the like, as appropriate to the particular implementation of the content server 104.").

c) Admitted Prior Art

364. Some claims of the '304 Patent discuss recording video in "high definition." However, the '304 Patent contains no disclosure regarding the implementation of recording high definition video and the like.

365. Instead, the '304 Patent acknowledges that recording high definition video was commonplace using every day devices. Specifically, the use of mobile devices, including mobile telephones with built-in digital cameras, to capture high definition video was functionality that the '304 Patent admits was prior art and standard features possessed by the majority of mobile devices prior to the patent's filing date. "***Most consumer equipment capable of capturing photos or video is now able to do so in high definition***." Ex. 1001, 1:39-40. A POSITA would understand that capturing video in high definition according to the native recording abilities of any mobile device is an obvious variant of capturing videos in any number of possible definitions and formats. It would therefore be obvious to combine Lahti's disclosure of capturing video in various formats with the admitted prior art's ability to capture video in high definition.

2. Rationale and Motivation to Combine Lahti with Chen and the Admitted Art

366. It is my opinion that a POSITA would have found it obvious to look to and combine the teachings of Lahti, Chen and the admitted prior art.

367. First, a POSITA would have found it obvious to look to and combine the teachings of Lahti and Chen. Lahti and Chen are in the same field of endeavor. Lahti describes using code provided by a server executed on a client device to capture video and upload the captured video to the server for distribution. Chen similarly describes providing code from a server executed in a user's browser for recording video using a client device and transmitting the video to the server for distribution to viewers. Both references describe and utilize cameras coupled to the client user devices for capturing the video clips. "The UIManager coordinates the ***video capture using the mobile phone's camera***, the saving of the video data to the Java Record Store system." Ex. 1006, p. 5. *See* Ex. 1017, 3: 48-53 ("Once the content viewer has entered information about her comment and, if necessary, dismissed the warning message, ***a video input device such as a camera attached to the content viewer's computer*** is activated.").

368. Like Lahti, Chen defines a system that allows users to record videos and annotate them with information regarding the video. "In the illustrated embodiment, the "Record a Video" tab 306 allows content viewer 106 to provide a ***title 308 for the comment, as well as a description 310, and tags 312 to be associated with the comment***." Ex. 1017, 3:35-39; Ex. 1006, p. 3 ("MobiCon should be able to capture video clips using the internal mobile phone camera, ***assist the user to annotate each clip with metadata***, store the clip to a remote video

management server, permit him to share video clips with others and, last but not least, enable him to search large collections of video clips using a mobile phone, PC, or any other device with web access.").

369. Also like Lahti, Chen discloses a user interface for recording the user-submitted videos. "Also illustrated in FIG. 4 is a "Record" button 404 that content viewer 106 can click to begin recording the images received by the video input device. A status indicator 406 also indicates to the viewer whether the video is currently being recorded. After the viewer clicks "Record", the button 404 is replaced by another (not shown) that the viewer can click to indicate that she has finished recording." Ex. 1017, 3:57-64.

370. Chen further provides that uploaded videos can be transcoded, stored in a database and subsequently published to users. "[U]pload server 1006 performs various processing functions such as ***transcoding***, fingerprinting, etc., ***prior to storing the content in database*** 1002. Media content server 1010 then publishes 1105 the received media content so that it can be consumed by content viewers 106." Ex. 1017, 5:2-7. As noted above, Lahti discloses a transcoding workflow that also includes storing the uploaded content in a database for distribution from a streaming server. *See* Section VIII.A.3's discussion of Cl. 1; Ex. 1006, p.6 ("The received video and metadata descriptions are stored temporarily, the video clip is transcoded, a key frame picture is extracted from the video, and metadata is finally

formatted to the MPEG-7 XML format. All data including video clips, keyframes, and MPEG-7 are added to the database via Candela Interface.").

371. Lahti and Chen teach complementary approaches to uploading video data to a server. A POSITA would have recognized that by combining Chen's teachings of either uploading video data in real time during recording or caching it to local storage and Lahti's system for capturing and uploading videos would provide added flexibility to Lahti's disclosed system of uploading video data. For example, Lahti discusses that network upload links are variable and may at times be "slow." Ex. 1006, p. 10. When upload links are fast, applying Chen's teaching of uploading videos as they are recorded would make sense. When upload links are slow, caching the video locally would likely be required.

372. Moreover, transmitting video in a live stream or using a cache or buffer are standard variations on the provision of data to a remote server. It would have been natural for a POSITA to apply any of these methods disclosed by Chen to Lahti's disclosure of uploading user-generated video clips to the remote server for distribution.

373. Second, a POSITA would have found it obvious to look to and combine the teachings of Lahti and Chen with the admitted prior art's disclosure of capturing high definition video. The use of mobile devices, including mobile telephones with built-in digital cameras, to capture high definition video was

functionality that the '304 Patent admits was prior art and standard features possessed by the majority of mobile devices prior to the patent's filing date. "***Most consumer equipment capable of capturing photos or video is now able to do so in high definition***." Ex. 1001, 1:39-40. Lahti describes using standard consumer equipment to capture video and upload it to a remote server. Chen, an application assigned to Google, owner of YouTube, provides a disclosure of a system suitable for providing user-content commenting on YouTube videos:

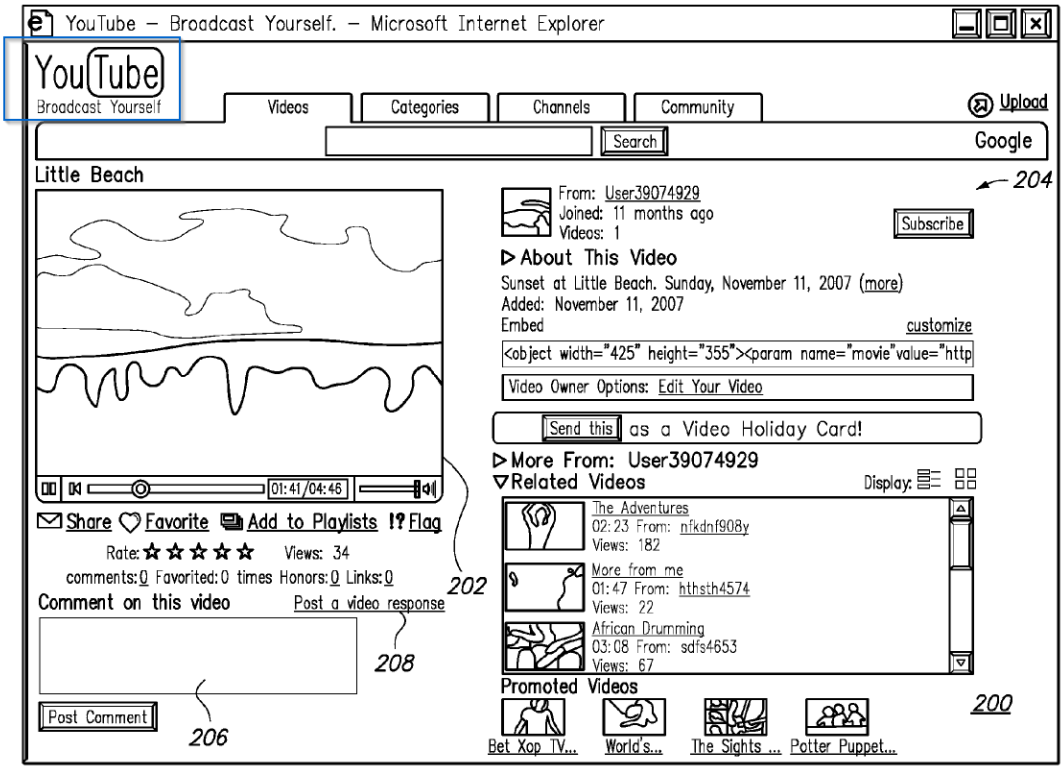

FIG. 2

374. YouTube permitted users to upload and view high definition videos by the end of 2008. A POSITA would understand that capturing video in high definition according to the native recording abilities of any mobile device is an

obvious variant of capturing videos in any number of possible definitions and formats. Doing so would merely involving applying a known technique of capturing video in a known format and distributing that video according to Chen and Lahti's disclosures. It would therefore be obvious to combine Chen and Lahti's disclosure of capturing video in various formats with the admitted prior art's ability to capture video in high definition.

3. Analysis

17. [a] A non-transitory computer storage medium encoded with a computer program, the program comprising instructions that when executed by data processing apparatus cause the data processing apparatus to perform operations comprising:

375. Lahti teaches element 17[a] of claim 17.

376. First, Lahti discloses "a data processing apparatus."

377. The '304 patent states that "[t]he term 'data processing apparatus' encompasses all *apparatus*, devices, and machines for processing data, including by way of example a programmable processor, a computer, or multiple processors or computers." The '304 Patent further discloses that software is executed on mobile computing devices: "The content creation sub-system 112 can include a 10 website 110 that is hosted using one or more computing devices (e.g., server systems), a client application 124 that is at least partially executable on a client computing device, ***and a mobile application 122 that is executable on a mobile***

computing device." Ex. 1001, 10:9-14. The '304 Patent states that a mobile phone is an example of a computing device: "Example ***computing devices 120 can include any 65 type of computing device such as*** a desktop computer, a laptop computer, a handheld computer, a tablet, a personal digital assistant (PDA), a cellular telephone, a network appliance, ***a camera, a smart phone, an enhanced general packet radio service (EGPRS) mobile phone,*** or a combination of any two or more of these data processing devices or other data processing devices." Ex. 1001, 11:65-12:5. A mobile telephone containing a processor would meet this definition.

378. Second, Lahti discloses a mobile phone with storage on which a downloaded application is installed and subsequently executed.

379. The '304 Patent makes clear that a mobile phone's internal storage constitutes a "non-transitory computer storage medium."

> "The essential elements of a computer are a processor for performing instructions and ***one or more memory devices for storing instructions and data***. Generally, a computer will also include, or be operatively coupled to receive data from or transfer data to, or both, one or more mass storage devices for storing data, e.g., magnetic, magneto optical disks, or optical disks. However, a computer 50 need not have such devices. Moreover, ***a computer can be embedded in another device, e.g., a mobile telephone***, a personal digital assistant (PDA), a

> mobile audio player, a Global Positioning System (GPS) receiver, to name just a few. ***Computer readable media suitable for storing computer program instructions and data include all forms of non-volatile memory, media and memory devices, including by way of example semiconductor memory devices, e.g., EPROM, EEPROM, and flash memory devices; magnetic disks, e.g., internal hard disks or removable disks; magneto optical disks; and CD ROM and DVD-ROM disks***." Ex. 1001, 26:36-53.

380. A POSITA would recognize that mobile telephone's internal permanent storage structures, such as those disclosed by the '304 Patent, are non-transitory storage *devices*.

381. Thus, Lahti's disclosure of the mobile telephone's internal storage on which the app is *installed* and from which it is loaded prior to execution is a "non-transitory computer storage medium encoded with a computer program."

382. Third, Lahti discloses "the program comprising instructions that when *executed* by data processing apparatus cause the data processing apparatus to perform operations."

383. Lahti describes using an application called MobiCon executed on mobile phones equipped with video cameras to upload videos from those mobile devices. "We present a video management system comprising a video server and a mobile camera-phone application called MobiCon, which allows users to capture

videos…, ***upload the videos over the cellular network***, and share them with others. ***Once stored in the video server***, users can then search their personal video collection via a web interface, and watch the video clips using a wide range of terminals." Ex. 1006, Abstract, p. 1.

Figure 1: Alice records a video of the Oulu cathedral (left), annotates it with the term "Object > Buildings" (center), and later is able to search for it using the web interface of the Candela video management server (right).

Ex. 1006, Fig. 1, p. 2.

384. As depicted in Figure 1 above, users capture video with a mobile phone and use the device to upload the video a video server. "With MobiCon, this is a simple process: Alice selects the video clip using a menu, chooses Bob from her contact list, and grants him the rights to watch the clip. ***She can subsequently upload the clip to the video server***…." Ex. 1006, p. 2.

385. Thus, Lahti's disclosure of permanent storage within a mobile telephone on which the MobiCon app is installed and can be loaded and executed by the mobile phone discloses "*a non-transitory computer storage medium encoded with a computer program, the program comprising instructions that when*

executed by data processing apparatus cause the data processing apparatus to perform operations comprising."

[b] displaying, on a client computing device, a user interface adapted to allow a user to selectively record content including high definition video content through a digital camera communicably coupled to the client computing device, wherein the user interface is provided in accordance with instructions received from a server system and the instructions cause the content to be captured in accordance with predetermined constraints that include a frame rate defined by the instructions;

386. Lahti in combination with the admitted prior art teaches element 17[b] of claim 17.

387. First, Lahti teaches that the server provides the MobiCon app to client mobile telephone devices. "The ***server allows distribution of MobiCon application*** *easily to mobile phone users by using Over-The-Air (OTA) specification from the Open Mobile Alliance, which enables* ***mobile applications to be downloaded and installed*** *over the cellular network*." Ex. 1006, p. 5. A POSITA would understand that a mobile application constitutes software code that controls the operation of a device when executed on that device, and that software code constitute instructions that control the operation of a device when executed by a processor. Moreover, the '304 Patent explains that, in some embodiments, "[t]he

instructions executed on the client computing device are included in ***an application installed on the client computing device***." Ex. 1001, 4:26-28.

388. Because Lahti teaches that the server provides the MobiCon app to the client mobile phones, Lahti teaches "*wherein the instructions are provided to the client computing device by the server system*".

389. Second, Lahti teaches that the MobiCon app provides parameters by which the mobile device on which the application is executing captures video data. The MobiCon app disclosed in Lahti describes capturing video using a user interface capture screen and describes the parameters provided by the app that control the format and frame rate for the captured video. "Then, MobiCon's main screen is displayed (Screenshot 3), where the user can choose to view and edit personal information, to load video clips, or ***to capture a new clip*** (Screenshot 4). ***A new video clip is captured in Capture Screen using Mobile Media API and it is recorded according to 3GPP specification using AMR coding for audio and H.263 at 176x144 pixels size at 15 frames per second for video***." Ex. 1006, p. 6. Further, as discussed above in the claim construction section, a POSITA would have understood "predetermined constraints" to include parameters such as video resolution and video frame rate. See §VII. The '304 Patent expressly includes these items in its examples of predetermined constraints. "The predetermined constraints include a bit rate and an image resolution sufficient to enable

transcoding of the video data into the format appropriate for inclusion in the linear television programming transmission." Ex. 1001, 4:36-40; *id.,* 10:61-11:1 ("For example, the application can encode the video and accompanying audio data at a sufficient ***bit rate and resolution***, among other things, to ensure that the video file can be transcoded to produce video of sufficient quality to be televised and/or to be distributed on the Internet (i.e., in accordance with minimum quality requirements of the television producer or other distributor).").

390. Because the MobiCon app provides parameters, including a specified frame rate, to the mobile device that control the characteristics of the video data captured by the device, Lahti teaches providing instructions that "*cause the video data to be captured in accordance with predetermined constraints that include a frame rate defined by the instructions*."

391. Third, Lahti describes a mobile phone having an integrated camera capturing video data. "Mobile phone manufacturers are increasingly adding new models with multimedia support and most modern ***medium- to high-end cell phones come with an integrated audio/video player, a camera to capture still and moving pictures***, and some media editing software. The 'coolness factor' fuels the popularity of mobile camera phones (MCP) and increases the volume of user-created media content. ***MCPs can record videos of up to several minutes, depending on the amount of memory available***." Ex. 1006, p. 1.

392. As described above with reference to limitation 1[a], Lahti's mobile phone discloses a "computing device." A POSITA would have understood that the fact that the mobile *phone* has an integrated camera indicates that the mobile phone computing device and the video camera are "communicably coupled" together. Furthermore, the '304 Patent states that "a mobile device with a built-in camera" is included in its definition of a "camera that is communicably coupled to the computer or other user device." '304 Patent at 17:52-59.

393. Fourth, Lahti teaches that the video captured on the computing device is in accordance with a software application called MobiCon. MobiCon includes various functionalities, including a user interface called the UIManager, which provides the ability to capture video utilizing the mobile device's video camera. "The UIManager is a controller component which is loaded first when the application is started. ***The UIManager coordinates the video capture using the mobile phone's camera, the saving of the video data to the Java Record Store system***, and the sending of video sharing SMS messages to the other users." Ex. 1006, p. 5.

394. Lahti discloses that MobiCon's "UIManager" user interface allows users to capture video that they desire to record. "The UIManager is a controller component which is loaded first when the application is started. The UIManager ***coordinates the video capture using the mobile phone's camera***, the saving of the

video data to the Java Record Store system, and the sending of video sharing SMS messages to the other users. UIManager also provides user interfaces that are presented in the next Section." Ex. 1006, p. 5. The user interface Lahti depicts for the UIManager interface includes a screen for controlling video capture. "Then, MobiCon's main screen is displayed (Screenshot 3), where the user can choose to view and edit personal information, to load video clips, ***or to capture a new clip*** (Screenshot 4)." Ex. 1006, p. 6.

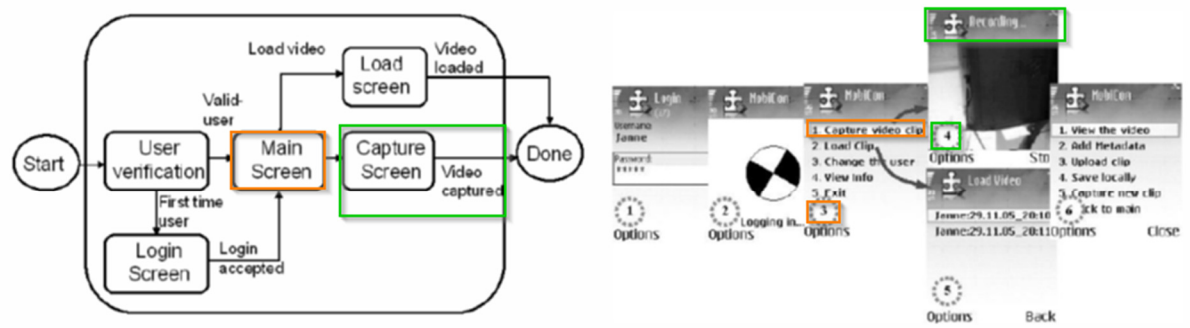

Figure 4: User authentication and video capturing: UI Flow Diagram (left) and UI screenshots (right).

Ex. 1006, Fig 4 at p. 6.

395. Lahti teaches that users can direct their mobile phone's camera to capture video of desired subject matter by choosing "capture video" in the user interface screenshot 3 in Fig. 4 above. After selected, the "Recording" screen is shown in screenshot 4 in Figure 4 above. Similarly, Lahti depicts a user recording video in the first photo in Figure 1 below.

Figure 1: Alice records a video of the Oulu cathedral (left), annotates it with the term "Object > Buildings" (center), and later is able to search for it using the web interface of the Candela video management server (right).

396. Thus, Lahti's teaching of using the UIManager with the MobiCon app loaded on a mobile phone to selectively capture video recordings using the mobile phone's camera discloses "

397. Fifth, the use of mobile devices, including mobile telephones with in-built cameras, to capture high definition video is functionality that the '304 Patent admits is prior art and standard functionality possessed by the majority of mobile devices prior to the patent's filing date. "***Most consumer equipment capable of capturing photos or video is now able to do so in high definition***." '304 Patent at 1:39-40. A POSITA would understand that capturing video in high definition according to the native recording abilities of any mobile device is an obvious variant of capturing videos in any number of possible definitions and formats. It would therefore be obvious to combine Lahti's disclosure of capturing video in various formats with the admitted prior art's ability to capture video in high definition.

398. Thus, Lahti's disclosure of displaying a user interface for recording video on a mobile telephone, where the application for displaying the user interface is distributed by a server system, and the app causes the video to be captured according to provided parameters including a frame rate, combined with the admitted prior art of capturing video in high definition, discloses "*displaying, on a client computing device, a user interface adapted to allow a user to selectively record content including high definition video content through a digital camera communicably coupled to the client computing device, wherein the user interface is provided in accordance with instructions received from a server system and the instructions cause the content to be captured in accordance with predetermined constraints that include a frame rate defined by the instructions*."

[c] receiving a user selection to record content;

399. Lahti teaches element 17[c] of claim 17.

400. Lahti teaches that MobiCon's "UIManager" user interface allows users to capture video that they desire to record. "The UIManager is a controller component which is loaded first when the application is started. The UIManager ***coordinates the video capture using the mobile phone's camera***, the saving of the video data to the Java Record Store system, and the sending of video sharing SMS messages to the other users. UIManager also provides user interfaces that are presented in the next Section." Ex. 1006, p. 5. The user interface Lahti depicts

for the UIManager interface includes a screen for controlling video capture. "Then, MobiCon's main screen is displayed (Screenshot 3), where the user can choose to view and edit personal information, to load video clips, ***or to capture a new clip*** (Screenshot 4)." Ex. 1006, p. 6.

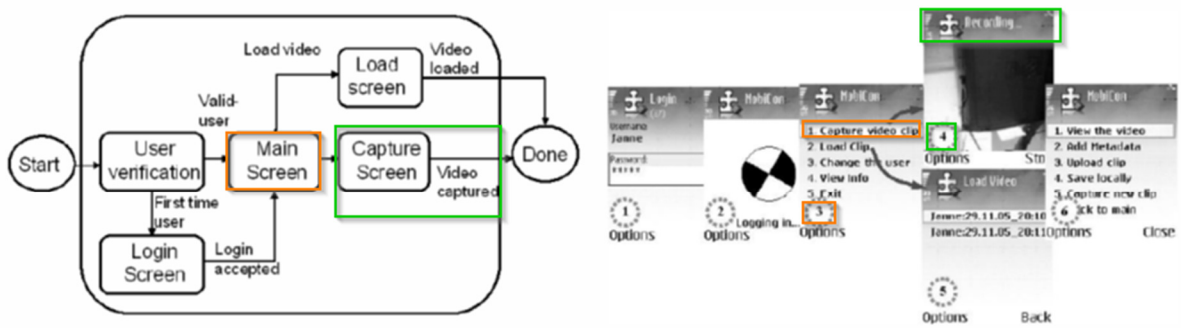

Figure 4: User authentication and video capturing: UI Flow Diagram (left) and UI screenshots (right).

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Figure 1: Alice records a video of the Oulu cathedral (left), annotates it with the term "Object > Buildings" (center), and later is able to search for it using the web interface of the Candela video management server (right).

402. Thus, Lahti's MobiCon application executed on a user's mobile phone for capturing new videos and allowing a user to choose when and what to record using the user interface to control the mobile phone's integrated camera teaches discloses "*receiving a user selection to record content*."

[d] capturing high definition video data using the digital camera during a continuous recording segment;

403. Lahti in combination with the admitted prior art teaches element 17[d] of claim 17.

404. First, Lahti describes a mobile phone having an integrated camera capturing video data. Lahti's disclosure also includes capturing video "of up to several minutes." "Mobile phone manufacturers are increasingly adding new models with multimedia support and most modern ***medium- to high-end cell phones come with an integrated audio/video player, a camera to capture still and moving pictures***, and some media editing software. The 'coolness factor' fuels the

popularity of mobile camera phones (MCP) and increases the volume of user-created media content. ***MCPs can record videos of up to several minutes, depending on the amount of memory available***." Ex. 1006, p. 1.

405. Second, the use of mobile devices, including mobile telephones with in-built cameras, to capture high definition video is functionality that the '304 Patent admits is prior art and standard functionality possessed by the majority of mobile devices prior to the patent's filing date. "***Most consumer equipment capable of capturing photos or video is now able to do so in high definition***." '304 Patent at 1:39-40. A POSITA would understand that capturing video in high definition according to the native recording abilities of any mobile device is an obvious variant of capturing videos in any number of possible definitions and formats. It would therefore be obvious to combine Lahti's disclosure of capturing video in various formats with the admitted prior art's ability to capture video in high definition.

406. Thus, Lahti's teaching of using the video camera on a mobile phone to record videos of up to several minutes, combined with the admitted prior art of capturing video in high definition, discloses "*capturing high definition video data using the digital camera during a continuous recording segment*."

[e] formatting the high definition video data in accordance with the predetermined constraints; and

407. Lahti in combination with the admitted prior art teaches element 17[e] of claim 17.

408. First, as discussed above, Lahti discloses the MobiCon app downloaded from the server, which contains code specifying parameters for the capture of videos by the mobile phone. *See* Elements 17[b] and 17[c], *supra*.

409. Lahti's specified parameters for the recording of videos include a predefined frame rate, coding specifications and resolution: "A new video clip is captured in Capture Screen using Mobile Media API and it is recorded according to 3GPP specification using AMR coding for audio and H.263 at 176x144 pixels size at ***15 frames per second for video***." Ex. 1006, 6. A POSITA would understand that applying the parameters defined by Lahti would result in formatting the video data using those parameters. Furthermore, Patent Owner's infringement contentions state that this claim element is necessarily met by transcoding video that includes an image size and frame rate into a new format. Ex. 1015, Ex. A at 23. A POSITA would understand that it would be an obvious improvement in quality to move to high definition video in the years between Lahti's publication in 2006 and the filing date of the '304 Patent, especially as network bandwidths increased due to advances in technology unrelated to the subject of the '304 Patent.

410. Second, the use of mobile devices, including mobile telephones with in-built cameras, to capture high definition video is functionality that the '304 Patent admits is prior art and standard functionality possessed by the majority of mobile devices prior to the patent's filing date. "***Most consumer equipment capable of capturing photos or video is now able to do so in high definition***." '304 Patent at 1:39-40. A POSITA would understand that capturing video in high definition according to the native recording abilities of any mobile device is an obvious variant of capturing videos in any number of possible definitions and formats. It would therefore be obvious to combine Lahti's disclosure of capturing video in various formats with the admitted prior art's ability to capture video in high definition.

411. Thus, Lahti's disclosure of applying parameters to control the formatting of recorded video, in combination with the admitted prior art's disclosure of recording in high definition, discloses "*formatting the high definition video data in accordance with the predetermined constraints*."

[f] transmitting at least a portion of the formatted high definition video data to a storage server of the server system during the continuous recording segment.

412. Lahti, Chen, and the admitted prior art teach element 17[f] of claim 17.

413. First, as noted above, Lahti discloses capturing "formatted" video according to specified parameters.

414. Second, Chen discloses the concept of transmitting video data in real-time while it is being captured: "***As the viewer speaks and moves, the sound and images are captured by the video input device and transmitted to content server 104***. In one embodiment, ***the video image is streamed to content server 104***." (Chen at 3:65-4:1.)

415. Third, Chen's disclosure of a content server discloses a "storage server". "The content viewer's video comment is captured by the video input device and transmitted to the content server, where it is stored and associated with the video being commented upon." Chen, at 1:46-49; *see also id.* at 4:3-9 ("Content server 104 stores the received video and associates it with the original video being commented on. Content server 104 may also perform other housekeeping functions, e.g., updating the viewer's or the content provider's account, transcoding video content, and the like, as appropriate to the particular implementation of the content server 104.").

416. Fourth, the use of mobile devices, including mobile telephones with in-built cameras, to capture high definition video is functionality that the '304 Patent admits is prior art and standard functionality possessed by the majority of mobile devices prior to the patent's filing date. "***Most consumer equipment***

capable of capturing photos or video is now able to do so in high definition."
'304 Patent at 1:39-40. A POSITA would understand that capturing video in high definition according to the native recording abilities of any mobile device is an obvious variant of capturing videos in any number of possible definitions and formats. It would therefore be obvious to combine Chen's disclosure of capturing video for uploading it to the content server during recording for storage with the admitted prior art's ability to capture video in high definition.

417. Thus, Lahti's disclosure of recording formatted video using specified parameters and Chen's disclosure of uploading video to the content server as the video is being recorded, in combination with the admitted prior art's disclosure of recording in high definition, discloses "*transmitting at least a portion of the formatted high definition video data to a storage server of the server system during the continuous recording segment*."

> 19. The computer storage medium of claim 17 wherein the predetermined constraints are adapted to enable a transcoding server to perform automated transcoding of the high definition video data into a plurality of video file formats.

418. Lahti in combination with the admitted prior art teaches claim 19.

419. First, Lahti describes that it is concerned with the problems relating to "how to ***automate*** permanent video clip storage, and how to do so in a way that is

user-friendly, allows for easy clip lookups, and enables the user to share videos with others." Ex. 1006, p. 1. Lahti defines an automated workflow for transcoding received video at the server, using a "videomanager servlet" within the server, without any human intervention: "The ***VideoManager servlet*** takes care of all the functionalities receiving video data from the UploadClient to the UploadGateway. The received video and metadata descriptions are stored temporarily, the video clip is transcoded, a key frame picture is extracted from the video, and metadata is finally formatted to the MPEG-7 XML format. All data including video clips, keyframes, and MPEG-7 are added to the database via Candela Interface." Ex. 1006, p. 6. Because Lahti discloses a defined process for transcoding videos using an automated VideoManger servlet within the server, Lahti discloses predetermined automated workflow for transcoding the received video data.

420. As noted previously, Lahti further specifies certain parameters for the recording of videos: "A new video clip is captured in Capture Screen using Mobile Media API and it is recorded according to 3GPP specification using AMR coding for audio and H.263 at 176x144 pixels size at 15 frames per second for video." Ex. 1006, p. 6.

421. The specification of these parameters facilitates transcoding at the server, which necessarily transcodes the video captured according to these constraints into new formats. "In the server the video clip is handed over to the

Video Manager Servlet, which transcodes the video clip into different formats and bit rates in order to provide a scalable service quality for different devices and network connections. Currently, the Video Manager Servlet prepares Real Video, H.264, and H.263 encodings for delivering the captured video content to mobile devices and MPEG-4 file format for desktop computers." This process defines a workflow that is based on the constraints specified in Lahti.

422. Second, the use of mobile devices, including mobile telephones with in-built cameras, to capture high definition video is functionality that the '304 Patent admits is prior art and standard functionality possessed by the majority of mobile devices prior to the patent's filing date. "***Most consumer equipment capable of capturing photos or video is now able to do so in high definition***." '304 Patent at 1:39-40. A POSITA would understand that capturing video in high definition according to the native recording abilities of any mobile device is an obvious variant of capturing videos in any number of possible definitions and formats.

423. Thus, Lahti's disclosure of capturing video according to certain specified parameters and using an automated transcoding workflow to transform the video captured using those parameters into various new formats, combined with the admitted prior art's disclosure of recording video in high definition, discloses "*the predetermined constraints are adapted to enable a transcoding*

server to perform automated transcoding of the high definition video data into a plurality of video file formats."

20. The computer storage medium of claim 17, the operations further comprising caching a portion of the high definition video data on the client computing device for transmission in accordance with bandwidth limitations on transmitting the formatted high definition video data.

424. Chen in combination with the admitted prior art teaches claim 20.

425. First, Chen discloses both the concept of transmitting video data in real-time while it is being captured and caching the video on a local device: "As the viewer speaks and moves, the sound and images are captured by the video input device and transmitted to content server 104. In one embodiment, the video image is streamed to content server 104. ***In an alternative embodiment, the video is cached locally*** and then transmitted to content server 104 once the comment is complete." (Chen at 3:65-4:3.) A POSITA would understand that a central purpose of caching video on a local device is to address bandwidth constraints. When data is transmitted from a client device to a server, some portion of the data must be cached or buffered unless bandwidth is sufficient to stream the data without ever saving any portion of it locally in a cache or buffer.

426. Second, the use of mobile devices, including mobile telephones with in-built cameras, to capture high definition video is functionality that the '304

Patent admits is prior art and standard functionality possessed by the majority of mobile devices prior to the patent's filing date. "***Most consumer equipment capable of capturing photos or video is now able to do so in high definition***." '304 Patent at 1:39-40. A POSITA would understand that capturing video in high definition according to the native recording abilities of any mobile device is an obvious variant of capturing videos in any number of possible definitions and formats. A POSITA would further understand that transmitting high definition video data is particularly likely to encounter bandwidth limitations, requiring use of a local cache or buffer during upload of the data.

427. Thus, Chen's disclosure of saving recorded video to a local cache prior to uploading it, in combination with the admitted prior art's disclosure of recording in high definition video discloses "*the operations further comprising caching a portion of the high definition video data on the client computing device for transmission in accordance with bandwidth limitations on transmitting the formatted high definition video data*."

21. The computer storage medium of claim 17, the operations further comprising associating one or more attributes with the formatted high definition video data, the one or more attributes associated with at least one of a request for submissions of content to be included in a television broadcast or a user credential.

428. Lahti, in combination with the admitted prior art, teaches claim 21.

429. First, as noted above, Lahti discloses recording video in a particular format pursuant to predefined parameters. Thus Lahti discloses recorded formatted video data.

430. Second, Lahti discloses that the video data created by users are uploaded to the VideoManager and then transferred to a database from where they can be shared with other users via the streaming server. The videos are associated with the user who created them, and the system sends text messages to the desired viewers. "She can subsequently upload the clip to the video server and MobiCon will automatically send a text message using the Short Message Service (SMS) to Bob with information on how to access the video. After receiving the text message, Bob can watch the video by opening its URL straight from his mobile phone." Ex. 1006, at p. 2.

431. Lahti expressly notes that a *user's login information* is associated with the recorded video data and stored by the system as metadata. "The username and password are transferred to the UploadGateway and as a reply to successful authentication user profile information is transferred back to the UploadClient where ***UserManager stores user information (name, address, etc.), which are also used as metadata of captured video clips***." Ex. 1006, at p. 5.

432. Third, the use of mobile devices, including mobile telephones with in-built cameras, to capture high definition video is functionality that the '304 Patent

admits is prior art and standard functionality possessed by the majority of mobile devices prior to the patent's filing date. "***Most consumer equipment capable of capturing photos or video is now able to do so in high definition***." '304 Patent at 1:39-40. A POSITA would understand that capturing video in high definition according to the native recording abilities of any mobile device is an obvious variant of capturing videos in any number of possible definitions and formats. A POSITA would further understand that transmitting high definition video data is particularly likely to encounter bandwidth limitations, requiring use of a local cache or buffer during upload of the

433. Thus, Lahti's storing on a server a user's login information as metadata with formatted videos that were captured on a mobile phone and uploaded to the server in combination with the admitted prior art's discussion of most consumer digital camera equipment being capable of capturing high definition video discloses "*the operations further comprising associating one or more attributes with the formatted high definition video data, the one or more attributes associated with at least one of a request for submissions of content to be included in a television broadcast or a user credential*."

E. Ground 5: Lahti Combined with the Current TV References and the Admitted Art

1. Overview of the Prior Art

a) Lahti

434. An overview of Lahti is discussed above in Section VIII.A.1(a).

b) Current TV

435. An overview of Current TV is discussed above in Section VIII.A.1(b).

c) Admitted Prior Art

436. An overview of the admitted prior art's acknowledgement that "most" consumer equipment capable of capturing photos or videos could capture high definition videos is set forth in Section VIII.D.1(c).

2. Rationale and Motivation to Combine Lahti with the Current TV References and the Admitted Art

437. The motivations to combine Lahti and Current TV are set forth in Section VIII.A.2.

438. The motivations to combine Lahti and the admitted prior art's discussion of capturing high definition video using standard consumer camera equipment is discussed in Section VIII.D.2.

439. It is my opinion that a POSITA would also have found it obvious to look to and combine the teachings of Current TV and the admitted prior art's disclosure of capturing high definition video. As noted above, the use of mobile devices, including mobile telephones with built-in digital cameras, to capture high

definition video was functionality that the '304 Patent admits was prior art and a standard feature possessed by the majority of mobile devices prior to the patent's filing date. "***Most consumer equipment capable of capturing photos or video is now able to do so in high definition***." '304 Patent at 1:39-40.

440. "Current TV mobile" discusses capturing videos with a user's mobile phone for uploading to the site and to be broadcast on the television channel.

> "Don't just watch content ***on your mobile phone***, make content and let the world see it – on Current's national TV network -- now available in 28 million homes. ***Current is the first and only TV network to showcase your mobile videos***. Check out the call outs below, watch a sample, ***shoot some footage with your video phone*** and find out how the content you capture with your mobile can pay those overage charges. Oh, and make sure what you send to Current is something ***you and your friends would want to watch on TV***!"

Ex. 1009, "Current TV mobile".

441. Current TV further provides that users could upload videos recorded in various formats: "You can upload the following formats using Video Egg: .3gp, .3gp2, avi, .dv, .mpg, .mpg4, .mov, .mqv, .wmv, .asf." Ex. 1010, p. 2, Current TV "Submission Guidelines."

442. A POSITA would understand that capturing video in high definition according to the native recording abilities of any mobile device is an obvious

variant of capturing videos in any number of possible definitions and formats for upload to Current TV or to the system disclosed in Lahti. It would therefore be obvious to combine Lahti and Current TV's disclosure of capturing video in various formats with the admitted prior art's ability to capture video in high definition.

443. As discussed above, a POSITA would have been motivated to look to and combine the known teachings of Lahti, Current TV, and the admitted prior art to arrive at the claimed inventions of the '304 Patent discussed below. Combining these teachings would have yielded predictable results as a POSITA would use the concepts and disclosures from the references for their intended purposes, and in ways in which a POSITA would have a reasonable expectation of success.

3. Analysis

22. [a] A non-transitory computer storage medium encoded with a computer program, the program comprising instructions that when executed by data processing apparatus cause the data processing apparatus to perform operations comprising:

444. Lahti teaches element 22[a] of claim 22.

445. First, Lahti discloses "a data processing apparatus."

446. The '304 patent states that "[t]he term 'data processing apparatus' encompasses all *apparatus*, devices, and machines for processing data, including by way of example a programmable processor, a computer, or multiple processors

or computers." The '304 Patent further discloses that software is executed on mobile computing devices: "The content creation sub-system 112 can include a 10 website 110 that is hosted using one or more computing devices (e.g., server systems), a client application 124 that is at least partially executable on a client computing device, ***and a mobile application 122 that is executable on a mobile computing device***." '304 Patent 10:9-24. The '304 Patent states that a mobile phone is an example of a computing device: "Example ***computing devices 120 can include any 65 type of computing device such as*** a desktop computer, a laptop computer, a handheld computer, a tablet, a personal digital assistant (PDA), a cellular telephone, a network appliance, ***a camera, a smart phone, an enhanced general packet radio service (EGPRS) mobile phone,*** or a combination of any two or more of these data processing devices or other data processing devices." '304 Patent at 11:65-12:5. A mobile telephone containing a processor would meet this definition.

447. Second, Lahti discloses a mobile phone with storage on which a downloaded application is installed and subsequently executed.

448. The '304 Patent makes clear that a mobile phone's internal storage constitutes a "non-transitory computer storage medium."

> "The essential elements of a computer are a processor for performing instructions and ***one or more memory devices for storing instructions and data***. Generally, a computer will also

include, or be operatively coupled to receive data from or transfer data to, or both, one or more mass storage devices for storing data, e.g., magnetic, magneto optical disks, or optical disks. However, a computer 50 need not have such devices. Moreover, ***a computer can be embedded in another device, e.g., a mobile telephone***, a personal digital assistant (PDA), a mobile audio player, a Global Positioning System (GPS) receiver, to name just a few. ***Computer readable media suitable for storing computer program instructions and data include all forms of non-volatile memory, media and memory devices, including by way of example semiconductor memory devices, e.g., EPROM, EEPROM, and flash memory devices; magnetic disks, e.g., internal hard disks or removable disks; magneto optical disks; and CD ROM and DVD-ROM disks***." '304 at 26:36-53.

449. A POSITA would recognize that mobile telephone's internal permanent storage structures, such as those disclosed by the '304 Patent, are non-transitory storage devices.

450. Thus, Lahti's disclosure of the mobile telephone's internal storage on which the app is installed and from which it is loaded prior to execution is a "non-transitory computer storage medium encoded with a computer program."

451. Third, Lahti discloses "the program comprising instructions that when *executed* by data processing apparatus cause the data processing apparatus to perform operations."

452. Lahti describes using an application called MobiCon executed on mobile phones equipped with video cameras to upload videos from those mobile devices. "We present a video management system comprising a video server and a mobile camera-phone application called MobiCon, which allows users to capture videos…, ***upload the videos over the cellular network***, and share them with others. ***Once stored in the video server***, users can then search their personal video collection via a web interface, and watch the video clips using a wide range of terminals." Ex. 1006, Abstract, p. 1.

Figure 1: Alice records a video of the Oulu cathedral (left), annotates it with the term "Object > Buildings" (center), and later is able to search for it using the web interface of the Candela video management server (right).

Ex. 1006, Fig. 1 at p.2.

453. As depicted in Figure 1 above, users capture video with a mobile phone and use the device to upload the video a video server. "With MobiCon, this is a simple process: Alice selects the video clip using a menu, chooses Bob from her contact list, and grants him the rights to watch the clip. ***She can subsequently upload the clip to the video server***…." Ex. 1006 at p. 2.

454. Thus, Lahti's disclosure of permanent storage within a mobile telephone on which the MobiCon app is installed, and can be loaded and executed by the mobile phone discloses "*[a] non-transitory computer storage medium encoded with a computer program, the program comprising instructions that when executed by data processing apparatus cause the data processing apparatus to perform operations comprising*."

> [b] displaying, on a client computing device, a user interface adapted to allow a user to selectively record content including high definition video content through a digital camera communicably coupled to the client computing device, wherein the user interface is provided in accordance with instructions received from a server system and the instructions cause the content to be captured in accordance with predetermined constraints that include a frame rate defined by the instructions;

455. Lahti, in combination with admitted prior art, teaches element 22[b] of claim 22.

456. First, Lahti teaches that the *server* provides the MobiCon app to client mobile telephone devices. "The ***server allows distribution of MobiCon application*** *easily to mobile phone users by using Over-The-Air (OTA) specification from the Open Mobile Alliance, which enables* ***mobile applications to be downloaded and installed*** *over the cellular network*." Ex. 1006 at p. 5. A POSITA would understand that a mobile application constitutes software code that

controls the operation of a device when executed on that device, and that software code constitute instructions that control the operation of a device when executed by a processor. Moreover, the '304 Patent explains that, in some embodiments, "[t]he instructions executed on the client computing device are included in ***an application installed on the client computing device***." '304 at 4:26-28.

457. Because Lahti teaches that the server provides the MobiCon app to the client mobile phones, Lahti teaches "*wherein the instructions are provided to the client computing device by the server system*".

458. Second, Lahti teaches that the MobiCon app provides parameters by which the mobile device on which the application is executing captures video data. The MobiCon app disclosed in Lahti describes capturing video using a user interface capture screen and describes the parameters provided by the app that control the format and frame rate for the captured video. "Then, MobiCon's main screen is displayed (Screenshot 3), where the user can choose to view and edit personal information, to load video clips, or ***to capture a new clip*** (Screenshot 4). ***A new video clip is captured in Capture Screen using Mobile Media API and it is recorded according to 3GPP specification using AMR coding for audio and H.263 at 176x144 pixels size at 15 frames per second for video***." Ex. 1006 at p. 6. Further, as discussed above in the claim construction section, a POSITA would have understood "predetermined constraints" to include parameters such as video

resolution and video frame rate. *See* §VII. The '304 Patent expressly includes these items in its examples of predetermined constraints. "The predetermined constraints include a bit rate and an image resolution sufficient to enable transcoding of the video data into the format appropriate for inclusion in the linear television programming transmission." Ex. 1001, 4:36-40; *id.,* 10:61-11:1 ("For example, the application can encode the video and accompanying audio data at a sufficient ***bit rate and resolution***, among other things, to ensure that the video file can be transcoded to produce video of sufficient quality to be televised and/or to be distributed on the Internet (i.e., in accordance with minimum quality requirements of the television producer or other distributor).").

459. Because the MobiCon app provides parameters, including a specified frame rate, to the mobile device that control the characteristics of the video data captured by the device, Lahti teaches providing instructions that "*cause the video data to be captured in accordance with predetermined constraints that include a frame rate defined by the instructions*."

460. Third, Lahti describes a mobile phone having an integrated camera capturing video data. "Mobile phone manufacturers are increasingly adding new models with multimedia support and most modern ***medium- to high-end cell phones come with an integrated audio/video player, a camera to capture still and moving pictures***, and some media editing software. The 'coolness factor' fuels the

popularity of mobile camera phones (MCP) and increases the volume of user-created media content. ***MCPs can record videos of up to several minutes, depending on the amount of memory available***." Ex. 1006, p. 1.

461. As described above with reference to limitation 1[a], Lahti's mobile phone discloses a "computing device." A POSITA would have understood that the fact that the mobile *phone* has an integrated camera indicates that the mobile phone computing device and the video camera are "communicably coupled" together. Furthermore, the '304 Patent states that "a mobile device with a built-in camera" is included in its definition of a "camera [that] is communicably coupled to the computer or other user device." Ex. 1001, 17:52-59.

462. Fourth, Lahti teaches that the video captured on the computing device is in accordance with a software application called MobiCon. MobiCon includes various functionalities, including a user interface called the UIManager, which provides the ability to capture video utilizing the mobile device's video camera. "The UIManager is a controller component which is loaded first when the application is started. ***The UIManager coordinates the video capture using the mobile phone's camera, the saving of the video data to the Java Record Store system***, and the sending of video sharing SMS messages to the other users." Ex. 1006, p. 5.

463. Lahti discloses that MobiCon's "UIManager" user interface allows users to capture video that they desire to record. "The UIManager is a controller component which is loaded first when the application is started. The UIManager ***coordinates the video capture using the mobile phone's camera***, the saving of the video data to the Java Record Store system, and the sending of video sharing SMS messages to the other users. UIManager also provides user interfaces that are presented in the next Section." Ex. 1006, p. 5. The user interface Lahti depicts for the UIManager interface includes a screen for controlling video capture. "Then, MobiCon's main screen is displayed (Screenshot 3), where the user can choose to view and edit personal information, to load video clips, ***or to capture a new clip*** (Screenshot 4)." Ex. 1006, p. 6.

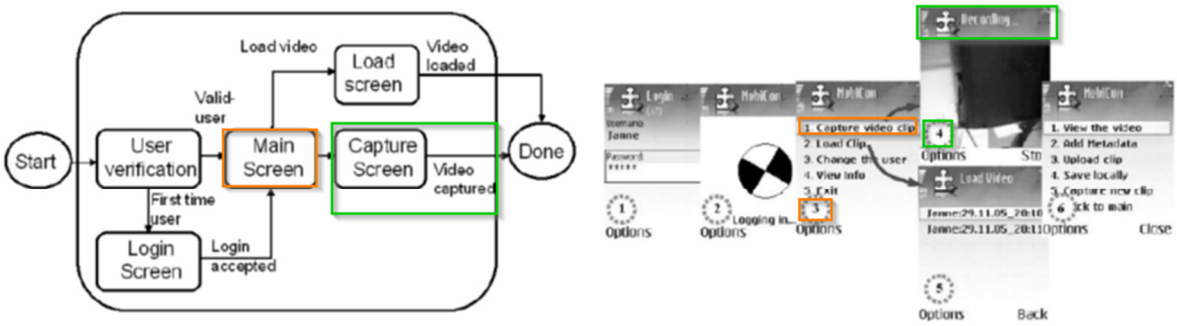

Figure 4: User authentication and video capturing: UI Flow Diagram (left) and UI screenshots (right).

Ex. 1006, Fig 4, p. 6.

464. Lahti teaches that users can direct their mobile phone's camera to capture video of desired subject matter by choosing "capture video" in the user interface screenshot 3 in Fig. 4 above. After selected, the "Recording" screen is

shown in screenshot 4 in Figure 4 above. Similarly, Lahti depicts a user recording video in the first photo in Figure 1 below.

Figure 1: Alice records a video of the Oulu cathedral (left), annotates it with the term "Object > Buildings" (center), and later is able to search for it using the web interface of the Candela video management server (right).

Ex. 1006, Fig. 1, p. 2.

465. Thus, Lahti's teaching of using the UIManager with the MobiCon app loaded on a mobile phone to selectively capture video recordings using the mobile phone's camera discloses "

466. Fifth, the use of mobile devices, including mobile telephones with in-built cameras, to capture high definition video is functionality that the '304 Patent admits is prior art and standard functionality possessed by the majority of mobile devices prior to the patent's filing date. "***Most consumer equipment capable of capturing photos or video is now able to do so in high definition***." Ex. 1001, 1:39-40. A POSITA would understand that capturing video in high definition according to the native recording abilities of any mobile device is an obvious variant of capturing videos in any number of possible definitions and formats. It

would therefore be obvious to combine Lahti's disclosure of capturing video in various formats with the admitted prior art's ability to capture video in high definition.

467. Thus, Lahti's disclosure of displaying a user interface for selectively recording video on a mobile telephone, where the application for displaying the user interface is distributed by a server system, and the app causes the video to be captured according to provided parameters including a frame rate, combined with the admitted prior art of capturing video in high definition, discloses "*displaying, on a client computing device, a user interface adapted to allow a user to selectively record content including high definition video content through a digital camera communicably coupled to the client computing device, wherein the user interface is provided in accordance with instructions received from a server system and the instructions cause the content to be captured in accordance with predetermined constraints that include a frame rate defined by the instructions*."

[c] receiving a user selection to record content;

468. Lahti teaches element 22[c] of claim 22.

469. Lahti teaches that MobiCon's "UIManager" user interface allows users to capture video that they desire to record. "The UIManager is a controller component which is loaded first when the application is started. The UIManager ***coordinates the video capture using the mobile phone's camera***, the saving of the

video data to the Java Record Store system, and the sending of video sharing SMS messages to the other users. UIManager also provides user interfaces that are presented in the next Section." Ex. 1006, p. 5. The user interface Lahti depicts for the UIManager interface includes a screen for controlling video capture. "Then, MobiCon's main screen is displayed (Screenshot 3), where the user can choose to view and edit personal information, to load video clips, ***or to capture a new clip*** (Screenshot 4)." Ex. 1006, p. 6.

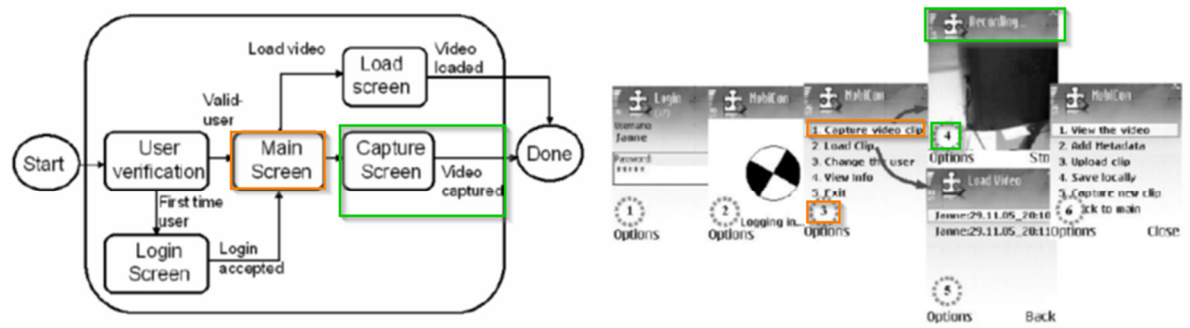

Figure 4: User authentication and video capturing: UI Flow Diagram (left) and UI screenshots (right).

Ex. 1006, Fig 4, p. 6.

470. Lahti teaches that users can direct their mobile phone's camera to capture video of desired subject matter by choosing "capture video" in the user interface screenshot 3 in Fig. 4 above. After selected, the "Recording" screen is shown in screenshot 4 in Figure 4 above. Similarly, Lahti depicts a user recording video in the first photo in Figure 1 below.

Figure 1: Alice records a video of the Oulu cathedral (left), annotates it with the term "Object > Buildings" (center), and later is able to search for it using the web interface of the Candela video management server (right).

Ex. 1006, Fig. 1, p. 2.

471. Thus, Lahti's MobiCon application executed on a user's mobile phone for capturing new videos and allowing a user to choose when and what to record using the mobile phone's integrated camera teaches discloses "*receiving a user selection to record content*."

[d] capturing high definition video data using the digital camera during a continuous recording segment;

472. Lahti, in combination with admitted prior art, teaches element 22[d] of claim 22.

473. First, Lahti describes a mobile phone having an integrated camera capturing video data. Lahti's disclosure also includes capturing video "of up to several minutes." "Mobile phone manufacturers are increasingly adding new models with multimedia support and most modern ***medium- to high-end cell phones come with an integrated audio/video player, a camera to capture still and***

moving pictures, and some media editing software. The 'coolness factor' fuels the popularity of mobile camera phones (MCP) and increases the volume of user-created media content. ***MCPs can record videos of up to several minutes, depending on the amount of memory available***." Ex. 1006, p. 1.

474. Second, the use of mobile devices, including mobile telephones with in-built cameras, to capture high definition video is functionality that the '304 Patent admits is prior art and standard functionality possessed by the majority of mobile devices prior to the patent's filing date. "***Most consumer equipment capable of capturing photos or video is now able to do so in high definition***." Ex. 1001, 1:39-40. A POSITA would understand that capturing video in high definition according to the native recording abilities of any mobile device is an obvious variant of capturing videos in any number of possible definitions and formats. It would therefore be obvious to combine Lahti's disclosure of capturing video in various formats with the admitted prior art's ability to capture video in high definition. A POSITA would understand that it would be an obvious improvement in quality to move to high definition video in the years between Lahti's publication in 2006 and the filing date of the '304 Patent, especially as network bandwidths increased due to advances in technology unrelated to the subject of the '304 Patent.

475. Thus, Lahti's teaching of using the video camera on a mobile phone to record videos of up to several minutes, combined with the admitted prior art's description of most standard consumer devices possessing the ability to capture video in high definition, discloses "*capturing high definition video data using the digital camera during a continuous recording segment*."

[e] formatting the high definition video data in accordance with the predetermined constraints;

476. Lahti, in combination with admitted prior art, teaches element 22[e] of claim 22.

477. First, as discussed above, Lahti discloses the MobiCon app downloaded from the server, which contains code specifying parameters for the capture of videos by the mobile phone. *See* Elements 17[b] and 17[c], *supra*.

478. Lahti's specified parameters for the recording of videos include a predefined frame rate, coding specifications and resolution: "A new video clip is captured in Capture Screen using Mobile Media API and it is recorded according to 3GPP specification using AMR coding for audio and H.263 at 176x144 pixels size at ***15 frames per second for video***." Ex. 1006, p. 6. A POSITA would understand that applying the parameters defined by Lahti would result in formatting the video data using those parameters.

479. Second, the use of mobile devices, including mobile telephones with in-built cameras, to capture high definition video is functionality that the '304 Patent admits is prior art and standard functionality possessed by the majority of mobile devices prior to the patent's filing date. "***Most consumer equipment capable of capturing photos or video is now able to do so in high definition***." Ex. 1001, 1:39-40. A POSITA would understand that capturing video in high definition according to the native recording abilities of any mobile device is an obvious variant of capturing videos in any number of possible definitions and formats. It would therefore be obvious to combine Lahti's disclosure of capturing video in various formats with the admitted prior art's ability to capture video in high definition. A POSITA would understand that it would be an obvious improvement in quality to move to high definition video in the years between Lahti's publication in 2006 and the filing date of the '304 Patent, especially as network bandwidths increased due to advances in technology unrelated to the subject of the '304 Patent.

480. Furthermore, Patent Owner's infringement contentions state that this claim element is necessarily met by transcoding video that includes an image size and frame rate into a new format. Ex. 1015, p. 31.

481. Thus, Lahti's disclosure of applying parameters to control the formatting of recorded video, in combination with the admitted prior art's

disclosure of recording in high definition, discloses "*formatting the high definition video data in accordance with the predetermined constraints*."

[f] establishing a connection with a content submission server in response to a user selection to upload the high definition video data; and

482. Lahti, in combination with admitted prior art, teaches element 22[f] of claim 22.

483. First, Lahti teaches uploading captured video data to a server system. In particular, Lahti teaches uploading "video data" from a "mobile phone" to an "Upload Gateway" within the "server." "The UploadGateway serves multiple MobiCon users and provides access to the Candela system. Figure 3 presents an architectural overview of the UploadGateway." Ex. 1006, p. 6.

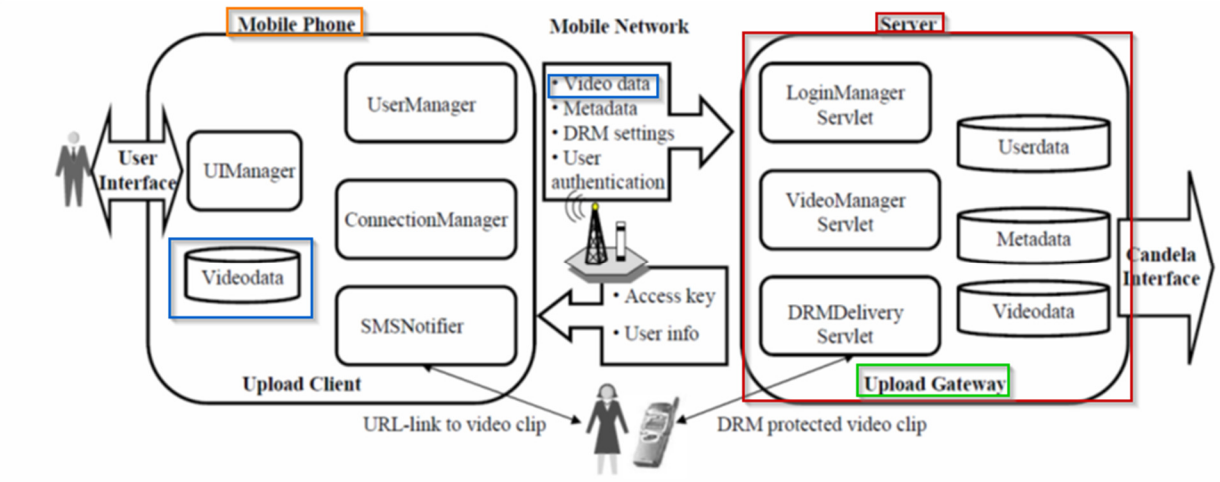

Figure 3: High-level description of MobiCon.

Ex. 1006, Fig. 3, p. 5.

484. Second, Lahti teaches the use of a ConnectionManager feature within the MobiCon client app that is used to establish a connection with the Upload

Gateway at the server. "The ConnectionManager ***handles the connection between the UploadClient and UploadGateway providing data transfer using HTTP-protocol over the packet networks such as GPRS/EDGE/WCDMA***. Ex. 1006, p. 5.

485. Thus, Lahti's disclosure of an "upload gateway" server, as depicted in Figure 3 above, discloses a content submission server.

486. Third, Lahti teaches a user interface that permits users to choose to upload the video data. Lahti describes using an application called MobiCon executed on mobile phones equipped with video cameras to upload videos from those mobile devices. "We present a video management system comprising a video server and a mobile camera-phone application called MobiCon, which allows users to capture videos…, ***upload the videos over the cellular network***, and share them with others." Ex. 1006, Abstract, p. 1.

Figure 1: Alice records a video of the Oulu cathedral (left), annotates it with the term "Object > Buildings" (center), and later is able to search for it using the web interface of the Candela video management server (right).

Ex. 1006. Fig. 1, p. 2.

487. As depicted in Figure 1 above, users capture video with a mobile phone and use the device to upload the video a video server. "With MobiCon, this is a simple process: Alice selects the video clip using a menu, chooses Bob from her contact list, and grants him the rights to watch the clip. ***She can subsequently upload the clip to the video server***…." Ex. 1006, p. 2.

488. Lahti discloses a specific user interface whereby users can select the "Upload clip" option from the user interface menu in order to transfer the video to the server for distribution.

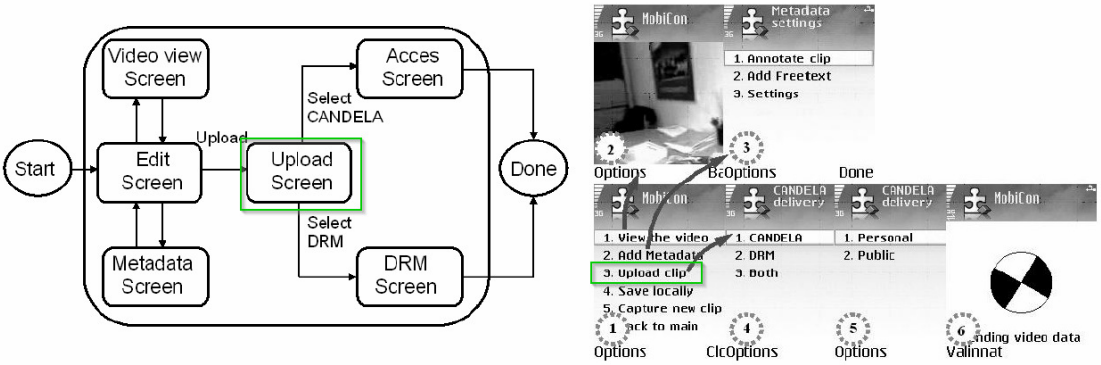

Figure 5: Editing and uploading the captured/loaded video clip: UI Flow Diagram (left) and UI screenshots (right).

Ex. 1006, Fig. 5, p. 7.

489. Fourth, the use of mobile devices, including mobile telephones with in-built cameras, to capture high definition video is functionality that the '304 Patent admits is prior art and standard functionality possessed by the majority of mobile devices prior to the patent's filing date. "***Most consumer equipment capable of capturing photos or video is now able to do so in high definition***." Ex.

1001, 1:39-40. A POSITA would understand that capturing video in high definition according to the native recording abilities of any mobile device is an obvious variant of capturing videos in any number of possible definitions and formats. It would therefore be obvious to combine Chen's disclosure of capturing video for uploading it to the content server during recording for storage with the admitted prior art's ability to capture video in high definition.

490. Thus, Lahti's disclosure of users' ability to choose to upload user-recorded video clips using a user interface, establishing a connection with the server using the Connection Manager feature of the client app, and submitting the clips to an upload gateway server, in combination with the admitted prior art of recording high definition video on mobile devices, discloses "*establishing a connection with a content submission server in response to a user selection to upload the high definition video data*."

[g] transmitting the formatted high definition video data to a storage server of the server system using the connection in response to the user selection, wherein the predetermined constraints are adapted to facilitate transcoding of the formatted high definition video data into a format appropriate for inclusion in a linear television programming broadcast.

491. Lahti, in combination with "Current TV mobile" and "Current TV FAQ" and the admitted prior art, discloses element 22[g] of claim 22.

492. First, Lahti teaches the use of a ConnectionManager feature that facilitates the transfer of data from a user's mobile phone to the UploadGateway at the server. "The ConnectionManager handles the connection between the UploadClient and UploadGateway ***providing data transfer using HTTP-protocol over the packet networks such as GPRS/EDGE/WCDMA***. Ex. 1006, p. 5.

493. Lahti thus teaches uploading videos from mobile devices to a server. "We present a video management system comprising a video server and a mobile camera-phone application called MobiCon, which allows users to capture videos…, ***upload the videos over the cellular network***, and share them with others." Ex. 1006, Abstract, p. 1; *see also id*., p. 2 ("With MobiCon, this is a simple process: Alice selects the video clip using a menu, chooses Bob from her contact list, and grants him the rights to watch the clip. ***She can subsequently upload the clip to the video server***….").

494. Lahti teaches uploading captured video data to a server system. In particular, Lahti teaches uploading "video data" from a "mobile phone" to an "Upload Gateway" within the "server." "The UploadGateway serves multiple MobiCon users and provides access to the Candela system. Figure 3 presents an architectural overview of the UploadGateway." Ex. 1006, p. 6.

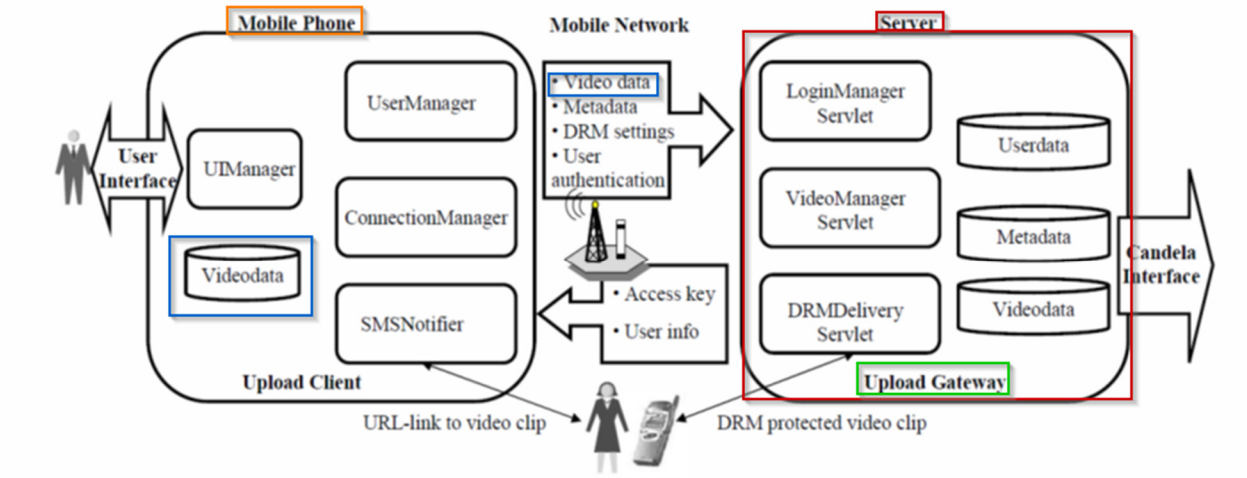

Figure 3: High-level description of MobiCon.

Ex. 1006, Fig. 3, p. 5.

495. Second, Lahti discloses storing uploaded video at the server. After the video is transcoded, the transcoded video is saved in the database: "[a]ll data ***including video clips***, keyframes, and MPEG-7 ***are added to the database*** via Candela Interface." Ex. 1006, p. 6.

496. Furthermore, as discussed in the Claim Construction section, the term "transcoding" includes converting from one video format to another. *See* §VII. Lahti describes that the videos should be transcoded into various formats at the time the videos are uploaded: "For video sharing, there are no universally supported media formats, and the device capabilities and the capacity of the access networks vary greatly. Because of this, the original video ought to be provided in several alternative formats using different encoding parameters. However, ***video transcoding is a computationally demanding process which cannot be performed in real time***. Thus, alternative versions should be generated before the video can

be retrieved, typically soon after a clip is uploaded." Ex. 1006, p. 3. After these various formats are created through the transcoding process, they are saved in the database. Lahti suggests that these transcoding and saving procedures involve significant storage requirements: "Thus the solution was, ***at the expense of storage***, to transcode the material to a representative set of formats and bitrates and develop a content negotiation plug-in for Helix streaming server in order to choose from those." Ex. 1006, p. 5.

497. Third, Lahti's predetermined parameters facilitate transcoding of video data into resulting formats suitable for broadcast television. Lahti discloses transcoding video data into multiple formats, including "***H.264***." Ex. 1006, p. 7. A POSITA would recognize that the H.264 video format constitutes a format appropriate for inclusion in linear television programming broadcasts. A POSITA would recognize that the H.264 format **actually is** employed routinely in linear television programming broadcasts. For example, H.264 is the format commonly associated with HDTV broadcasts transmitted using over the air signals, or by cable or satellite television services. The Digital Video Broadcast project (DVB) approved the use of H.264 for broadcast television in late 2004. The Advanced Television Systems Committee (ATSC) approved H.264 for broadcast television in 2008.

498. As noted above, I have reviewed the infringement allegations that I understand Patent Owner has served on Twitter in connection with its patent infringement lawsuit in which the'304 patent is asserted against Twitter.

499. The infringement contentions expressly provide that Patent Owner considers that "H.264…is one of the formats appropriate for inclusion in a linear television programming broadcast." Ex. 1015, p. 12.

500. Fourth, Lahti's disclosure of specific parameters for video capture would facilitate transcoding uploaded data into the formats (including H.264) Lahti specifies for distribution. The video constraints Lahti discloses include resolution, formatting restrictions, and frame rate, among others. "A new video clip is captured in Capture Screen using Mobile Media API and it is ***recorded according to 3GPP specification using AMR coding for audio and H.263 at 176x144 pixels size at 15 frames per second for video***." Ex. 1006, p. 6. These constraints ensure that a video file uploaded to the server would not be unduly large or consume unnecessary bandwidth. A POSITA would recognize that restricting video capture using these parameters would ensure that transcoding the video at the server would not be unduly computationally demanding.

501. Fifth, the use of mobile devices, including mobile telephones with in-built cameras, to capture high definition video is functionality that the '304 Patent admits is prior art and standard functionality possessed by the majority of mobile

devices prior to the patent's filing date. "***Most consumer equipment capable of capturing photos or video is now able to do so in high definition***." Ex. 1001, 1:39-40. A POSITA would understand that capturing video in high definition according to the native recording abilities of any mobile device is an obvious variant of capturing videos in any number of possible definitions and formats. It would therefore be obvious to combine Lahti's disclosure of capturing video in various formats with the admitted prior art's ability to capture video in high definition.

502. Sixth, "Current TV mobile" and "Current TV FAQ" each discloses a linear television broadcasting channel that received and broadcast short videos submitted by the channel's viewers. For example, "Current TV mobile" encouraged viewers to capture videos using their mobile phones, like those disclosed by Lahti, and submit them for inclusion in the Current TV programming:

> Don't just watch content on your mobile phone, ***make content and let the world see it – on Current's national TV network -- now available in 28 million homes. Current is the first and only TV network to showcase your mobile videos***.
>
> Check out the call outs below, ***watch*** a sample, shoot some footage with your video phone and find out how the content you capture with your mobile can pay those overage charges. Oh, and ***make sure what you send to Current is something you***

and your friends would want to watch on TV! (Ex. 1009, p. 2. "Current TV mobile")

503. A POSITA would have been motivated to use the MobiCon application disclosed in Lahti to capture and annotate short videos, and submit them to Current TV.

504. Thus, Lahti's teaching of uploading formatted video to a server at a user's request through the UIManager user interface, transcoding videos at the server into the H.264 format, storing them in a database for later distribution, and applying video capture parameters that would facilitate transcoding (and thus minimize computational demands at the video manager server), in combination with the admitted prior art's description of standard consumer equipment possessing the ability to record high definition video and Current TV's disclosure of including user-submitted videos in a television show broadcast, discloses "*transmitting the formatted high definition video data to a storage server of the server system using the connection in response to the user selection, wherein the predetermined constraints are adapted to facilitate transcoding of the formatted high definition video data into a format appropriate for inclusion in a linear television programming broadcast*."

23. The computer storage medium of claim 22 wherein formatting the high definition video data includes formatting the high definition video data in a native media container format for the client computing device.

505. Lahti in combination with the admitted prior art teaches claim 23.

506. First, Lahti discloses that the mobile camera phone "captures a video clip, associates it with metadata" (Ex. 1006, p. 2) and saves "the video data to the ***Java Record Store system***." (*Id*., p. 5.) A POSITA would have known that storing the captured video along with metadata in the Record Store system, which is part of J2ME, is a native media container for the video stored on the mobile camera phone.

507. In addition, a POSITA would know that the video data and metadata would be in a native media format container in order to be uploaded from the phone to the Lahti server system over HTTP, as disclosed: "providing data transfer using HTTP-protocol over the packet networks such as GPRS/EDGE/WCDMA. ConnectionManager delivers the captured video data, its metadata, user name, and DRM options to the Upload Gateway." (Ex. 1006, p. 5.)

508. Second, the use of mobile devices, including mobile telephones with in-built cameras, to capture high definition video is functionality that the '304 Patent admits is prior art and standard functionality possessed by the majority of mobile devices prior to the patent's filing date. "***Most consumer equipment***

capable of capturing photos or video is now able to do so in high definition." Ex. 1001, 1:39-40. A POSITA would understand that capturing video in high definition according to the native recording abilities of any mobile device is an obvious variant of capturing videos in any number of possible definitions and formats. It would therefore be obvious to combine Lahti's disclosure of capturing video in various formats with the admitted prior art's ability to capture video in high definition.

509. Thus, Lahti's disclosure of capturing video data and storing it with metadata in Java Record Store system, combined with the admitted prior art's disclosure of consumer camera equipment's ability to capture high definition video as a standard feature discloses "*formatting the high definition video data includes formatting the high definition video data in a native media container format for the client computing device*."

24. The computer storage medium of claim 22 wherein the operations are performed using instructions transmitted to the client computing device downloaded from a web server and installed on the client device, and capturing high definition video data using the digital camera includes interfacing with native device recording capabilities.

510. Lahti, in combination with admitted prior art, teaches claim 24.

511. First, Lahti describes a mobile phone having an integrated camera capturing video data. "Mobile phone manufacturers are increasingly adding new

models with multimedia support and most modern ***medium- to high-end cell phones come with an integrated audio/video player, a camera to capture still and moving pictures***, and some media editing software. The 'coolness factor' fuels the popularity of mobile camera phones (MCP) and increases the volume of user-created media content. ***MCPs can record videos of up to several minutes, depending on the amount of memory available***." Ex. 1006, p. 1.

512. As described above with reference to limitation 1[a], Lahti's mobile phone discloses a "computing device." A POSITA would have understood that the fact that the mobile phone has an integrated camera indicates that the mobile phone computing device and the video camera are "communicably coupled" together. Furthermore, the '304 Patent states that "a mobile device with a built-in camera" is included in its definition of a "camera [that] is communicably coupled to the computer or other user device." Ex. 1001, 17:52-59.

513. Second, Lahti teaches that the video captured on the computing device is in accordance with a software application called MobiCon. MobiCon includes various functionalities, including a UIManager, which provides the ability to capture video utilizing the mobile device's video camera. "The UIManager is a controller component which is loaded first when the application is started. ***The UIManager coordinates the video capture using the mobile phone's camera, the***

saving of the video data to the Java Record Store system, and the sending of video sharing SMS messages to the other users." Ex. 1006, p. 5.

514. Third, Lahti teaches that MobiCon's instructions for capturing the video are executed on the mobile device. "MobiCon consists of two different software components: the UploadClient, ***which is a mobile Java (J2ME) application running on a mobile phone*** and UploadGateway, which is implemented as a Java servlet in the Candela server." Ex. 1006, p. 5. A component of MobiCon called the "UIManager" controls video capture on the mobile phone. "The UIManager is a controller component which is loaded first when the application is started. The UIManager ***coordinates the video capture using the mobile phone's camera***, the saving of the video data to the Java Record Store system, and the sending of video sharing SMS messages to the other users. UIManager also provides user interfaces that are presented in the next Section." Ex. 1006 at p. 5. The user interface Lahti depicts for the UIManager interface includes a screen for controlling video capture. "Then, MobiCon's main screen is displayed (Screenshot 3), where the user can choose to view and edit personal information, to load video clips, ***or to capture a new clip*** (Screenshot 4)." *Id.*, p. 6.

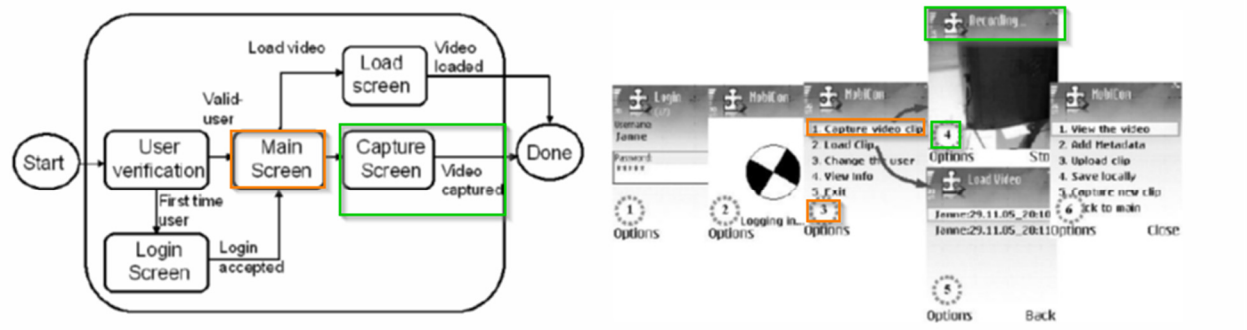

Figure 4: User authentication and video capturing: UI Flow Diagram (left) and UI screenshots (right).

Ex. 1006, Fig 4, p. 6.

515. Figure 3 in Lahti further depicts that the UIManager application is executed on the Mobile Phone.

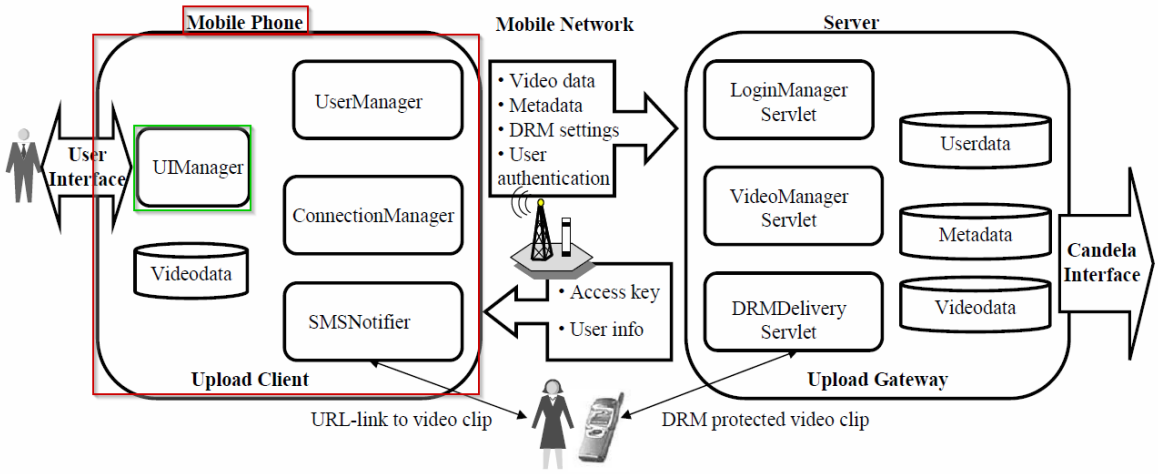

Figure 3: High-level description of MobiCon.

Ex. 1006, Fig. 3, p. 5.

516. Fourth, Lahti teaches that the *server* provides the MobiCon app to client mobile telephone devices. "***The server allows distribution of MobiCon*** application *easily to mobile phone users by using Over-The-Air (OTA) specification from the Open Mobile Alliance, which enables* ***mobile applications to***

be downloaded and installed *over the cellular network*." Ex. 1006, p. 5. A POSITA would understand that a mobile application constitutes software code that controls the operation of a device when executed on that device, and that software code constitute instructions that control the operation of a device when executed by a processor. Moreover, the '304 Patent explains that, in some embodiments, "[t]he instructions executed on the client computing device are included in ***an application installed on the client computing device***." Ex. 1001, 4:26-28.

517. Lahti's description of the server provides that it transfers data to and from remote mobile phones via HTTP-protocol. "The ConnectionManager handles the connection between the UploadClient and UploadGateway providing data transfer using HTTP-protocol over the packet networks such as GPRS/EDGE/WCDMA." Ex. 1006, p. 5. A POSITA would recognize that Lahti's description of a server facilitating data transfers via HTTP refers to a web server. Moreover, Lahti expressly refers to multiple applications within the MobiCon tool that use web services for their functionality. These include the ability of users to "search their personal video collection via a web interface" (*id*., Abstract, p. 1; *see also* Fig. 1, p. 2), the use of "web-based interface dialogs are generated dynamically by using open source Apache Cocoon framework for XML transformations" (*id.,* p. 4), accessing the URLs of shared videos "using web

browser in mobile phone" (*id*., p. 6) and utilizing the annotation web service for adding annotations to videos. *Id*., p. 9; *see* Fig. 8.

518. Fifth, the use of mobile devices, including mobile telephones with in-built cameras, to capture high definition video is functionality that the '304 Patent admits is prior art and standard functionality possessed by the majority of mobile devices prior to the patent's filing date. "***Most consumer equipment capable of capturing photos or video is now able to do so in high definition***." Ex. 1001, 1:39-40. A POSITA would understand that capturing video in high definition according to the native recording abilities of any mobile device is an obvious variant of capturing videos in any number of possible definitions and formats. It would therefore be obvious to combine Lahti's disclosure of capturing video in various formats with the admitted prior art's ability to capture video in high definition.

519. Thus, Lahti's teaching of distributing the MobiCon client app for installation on user mobile phones via a server providing web services and transferring data via HTTP, and the MobiCon client app's interacting with the mobile phone's camera to record videos, in combination with the admitted prior art's disclosure of recording high definition video using a mobile device, discloses "*the operations are performed using instructions transmitted to the client computing device downloaded from a web server and installed on the client device,*

and capturing high definition video data using the digital camera includes interfacing with native device recording capabilities."

25. The computer storage medium of claim 22, the operations further comprising associating one or more attributes with the formatted high definition video data, the one or more attributes associated with at least one of a request for submissions of content to be included in a television broadcast or a user credential.

520. Lahti, in combination with admitted prior art, discloses claim 25.

521. First, Lahti discloses that the video data created by users are uploaded to the VideoManager and then transferred to a database from where they can be shared with other users via the streaming server. The videos are associated with the user who created them, and the system sends text messages to the desired viewers. "She can subsequently upload the clip to the video server and MobiCon will automatically send a text message using the Short Message Service (SMS) to Bob with information on how to access the video. After receiving the text message, Bob can watch the video by opening its URL straight from his mobile phone." Ex. 1006, p. 2.

522. Lahti expressly notes that a user's login information is associated with the recorded video data and stored by the system as metadata. "The username and password are transferred to the UploadGateway and as a reply to successful authentication user profile information is transferred back to the UploadClient

where UserManager stores user information (name, address, etc.), which are also used as metadata of captured video clips."

523. Patent Owner's infringement contentions for this claim element further provide that, in addition to user credentials, saving other metadata in connection with a video also meets this limitation. "Vine provides features that allow the user to at least add hash tags, comments and to assign channels, all of which can be searched." Ex. 1015, p. 37. Lahti provides for annotating videos to include this same type of information. Ex. 1006, p. 2. ("Alice annotates it by selecting the prefedefined concepts 'Holiday' and 'Buildings' from the application metadata menu, and enters two keywords ('Church' and 'Oulu') to describe the video clip more accurately.").

524. Second, the use of mobile devices, including mobile telephones with in-built cameras, to capture high definition video is functionality that the '304 Patent admits is prior art and standard functionality possessed by the majority of mobile devices prior to the patent's filing date. "***Most consumer equipment capable of capturing photos or video is now able to do so in high definition***." Ex. 1001, 1:39-40. A POSITA would understand that capturing video in high definition according to the native recording abilities of any mobile device is an obvious variant of capturing videos in any number of possible definitions and formats. A POSITA would further understand that transmitting high definition

video data is particularly likely to encounter bandwidth limitations, requiring use of a local cache or buffer during upload of the data.

525. Thus, Lahti's storing a user's login information as metadata with videos captured on a mobile phone, where the videos are formatted according to predefined parameters, in combination with the admitted prior art's description that most consumer devices for capturing video have the ability to record in high definition discloses "*the operations further comprising associating one or more attributes with the formatted high definition video data, the one or more attributes associated with at least one of a request for submissions of content to be included in a television broadcast or a user credential*."

F. Ground 6: Claims 1, 4, and 9 are Unpatentable Under 35 U.S.C. § 102(b) Over Lahti.

1. Overview of the Prior Art

526. An overview of Lahti is discussed above in Section VIII.A.1(a).

2. Analysis

527. Claims 1, 4, and 9 are unpatentable as anticipated under 35 U.S.C. § 102(b) over Lahti. Ground 1, detailed above, relies on Lahti in view of "Current TV mobile" and "Current TV FAQ." The Current TV references disclose, among other things, submitting user-created video clips to the Current TV television channel for inclusion in a linear television programming broadcast. However, the phrase transcoding video data into a video file "in a format appropriate for

inclusion in a linear television programming broadcast," which is recited in claim 1, does not require that the video actually be included in a television broadcast.[3]

528. Claim 1 requires (limitation 1[e] above) "wherein at least one format of the transcoded video data defines a video file in a format appropriate for inclusion in a linear television programming broadcast." All this limitation means is that the format must be appropriate for a television programming broadcast; it does not require that the video actually be included in a television programming broadcast. Therefore, this limitation is satisfied so long as Lahti discloses transcoding video data into formats that would be appropriate for television programming. As discussed above, Lahti discloses transcoding the video data into a format appropriate for, and actually used for, inclusion in a linear television broadcast. Moreover, that format, H.264, is a format that Patent Owner alleges is appropriate for television programming. Ex. 1015, pp. 12-13.

529. No other reference is relied upon to satisfy any element of Claims 1, 4 and 9.

530. Thus, claims 1, 4, and 9 are anticipated by Lahti because all of the limitations are disclosed by Lahti, as shown above.

[3] Claims 4 and 9 each depends on claim 1.

I, Henry Houh, do hereby declare and state, that all statements made herein of my own knowledge are true and that all statements made on 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.

Dated: 3/24/17

Henry Houh
Signature