

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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ROKU, INC.,

Petitioner,

v.

FLEXIWORLD TECHNOLOGIES, INC.,

Patent Owner.

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PTAB Case No. IPR2022-01114

Patent No. 9,965,233

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**DECLARATION OF JAMES OLIVIER, PH.D. IN SUPPORT OF  
PETITION FOR *INTER PARTES* REVIEW OF  
U.S. PATENT NO. 9,965,233**

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## EXHIBIT LIST

- Ex. 1001 U.S. Patent No. 9,965,233, Chang et al. (“’233 Patent”)
- Ex. 1002 Declaration of Dr. James Olivier
- Ex. 1003 Curriculum Vitae of Dr. James Olivier
- Ex. 1004 File History of ’233 Patent
- Ex. 1005 U.S. Patent No. 7,644,018 B1 (“Yukie”)
- Ex. 1006 U.S. Patent No. 6,317,462 (“Boyce”)
- Ex. 1007 U.S. Patent No. 7,055,027 B1 (“Gunter”)
- Ex. 1008 Shiroshita et al., “A Large-scale Contents Distribution Architecture Based on Reliable Multicast,” SIGDOC ’97: Proceedings of the 15th annual international conference on Computer documentation, October 1997
- Ex. 1009 RFC 1825, Security Architecture for the Internet Protocol (“IPSec”), August 1995
- Ex. 1010 RFC 2401, Security Architecture for the Internet Protocol (“IPSec”), November 1998
- Ex. 1011 Wireless Transport Layer Security Specification, February 2000
- Ex. 1012 Flexiworld Techs., Inc. v. Roku, Inc., Case No. 6:21-cv-00680-ADA, Case Readiness Status Report (ECF No. 29) (Oct. 25, 2021)
- Ex. 1013 Flexiworld Techs., Inc. v. Roku, Inc., Case No. 6:21-cv-00680-ADA, PACER Docket Report (accessed June 29, 2022)
- Ex. 1014 Standing Order Governing Proceedings (OGP) 4.1- Patent Cases (W.D. Tex. Apr. 14, 2022)
- Ex. 1015 “Digital Broadcast Technologies,” Cisco Press Aug. 20, 2001

## **I. INTRODUCTION AND SUMMARY OF TESTIMONY**

1. My name is James Olivier. I am currently Program Lead for Transformational Technology at the Hunt Institute for Engineering and Humanity, which is part of the Lyle School of Engineering at Southern Methodist University (“SMU”) in Dallas, Texas. SMU’s Hunt Institute’s mission is to “partner with leaders in business, academia, NGOs and government, in order to develop and scale sustainable and affordable technologies and solutions to the challenges facing people locally and globally.” See <https://www.smu.edu/Lyle/Institutes/HuntInstitute> (last visited March 5, 2021).

2. I am also currently an Adjunct Professor in the Telecommunications and Network Engineering Program at Southern Methodist University’s Graduate School of Electrical Engineering, where I teach Multiprotocol Labelled Switching (“MPLS”) networked enabled applications. I am also the owner of Olivier Consulting, where I provide consulting services for advanced network/product design along with intellectual property consulting.

3. I have been engaged by Roku, Inc. (“Roku”) as a consultant in connection with Roku’s Petition for *Inter Partes* Review (“IPR”) of U.S. Patent No. 9,965,233 (the “‘233 patent”).

4. I understand that the ‘233 patent is assigned to Flexiworld Technologies, Inc. (“Patent Owner” or “Flexiworld”).

5. This Declaration is based on the information currently available to me. To the extent that additional information becomes available, I reserve the right to continue my investigation and analysis, which may include a review of documents and information that have not yet been produced, as well as testimony from depositions that have not yet been taken.

6. All of the opinions set forth in this Declaration are based on my own personal knowledge, professional experience, education and judgment, in consideration of the documents, materials and information that I reference.

7. In connection with my work as an expert in this matter, I am being compensated at \$625.00 per hour for consulting services, including time spent testifying at any hearing that may be held. I am also being reimbursed for reasonable and customary expenses associated with my work in this case. I receive no other forms of compensation related to this case. No portion of my compensation is dependent or otherwise contingent upon the results of this proceeding or the specifics of my testimony.

8. I reside in Dallas, Texas, and I am a citizen of the United States of America.

**A. Qualifications**

9. I possess the knowledge, skills, experience, training, and education to form an expert opinion and testimony in this case. I am an expert in the field of

networking technologies. I have been an expert in this field since before November of 2000. In formulating my opinions, I have relied upon my training, knowledge, and experience in the relevant art. A copy of my curriculum vitae is attached to this Declaration as Exhibit 1003 and provides a description of my relevant experience, including my academic and employment history, publications, U.S. patents and patent applications, committee participation, and cases I have participated in over the past four years.

10. I have a Ph.D. from The Ohio State University in Electrical Engineering with minors in Discrete Mathematics, Computer Science, and Microelectronics. My Ph.D dissertation was based on coding theory and was titled “Concurrent Error Detection in Arithmetic Processors using GAN Codes”, in which I developed new codes for use in Arithmetic Processors such as microprocessors. In order to pursue this research, I took a number of advanced classes in both coding theory and in the advanced mathematics used in coding theory which is known as Discrete Mathematics. I eventually received a minor in Discrete Mathematics along with my Ph.D studies. I have published papers on coding theory and continued my work in coding theory for arithmetic processors while at General Motor Research Laboratory.

11. I have extensive experience in network systems design and development and have specialized in cellular communications product development.

I have developed and designed equipment for networks since my time at AT&T Bell Laboratories in 1990's, where I worked on AT&T 5ESS, Network Control Point, and Autoplex Series base stations as a Member of the Technical Staff. It was there where I first began my work with telecommunication standards bodies as a contributing member of the Asynchronous Transfer Mode ("ATM") Forum. Later at DSC, I was the Senior Manager of the ATM systems engineering group developing ATM packet switches for a new generation base station for Motorola's use in their Centralized Base Station Controller. While at DSC, I was also their corporate representative to the ATM Forum, participating in bi-monthly standards body development. I was one of the first contributors to the wireless standards at the ATM Forum.

12. At Samsung, I was a Principal Engineer for wireless broadband services over Universal Mobile Telecommunications System ("UMTS"). UMTS is a third-generation ("3G") broadband standard developed by the 3rd Generation Partnership Project ("3GPP"). At Samsung Telecommunications America, I worked on designing their next-generation cellular switch, a UMTS mobile switching center ("MSC"). While at Samsung, I was also their corporate representative to the International Telecommunication Union ("ITU"), the United Nations agency responsible for standardizing information and communication technologies. The ITU, under its International Mobile Telecommunications-2000 effort, was part of

the 3GPP standards body. It was there that I participated in the development of standards for advanced wireless networks. While at Samsung, I was responsible for the “services portion” of the UMTS switch. This subsystem provided Internet service, email, and the like to the subscribers. It was here where I was first introduced to Wireless Application Protocol (“WAP”).

13. At Marconi, I worked on several systems for the access market, such as Digital Subscriber Line (“DSL”) modems and Digital Subscriber Line Access Multiplexers (“DSLAMs”), along with the design of point-to-point wireless systems. At Navini Networks, I was responsible for layer 2 and layer 3 network protocols for their Wideband Code Division Multiplexed Access (“WCDMA”) wireless base stations and broadband modems. These layers were responsible for packet transmissions for various services over the WCDMA air interface. Here I was also responsible for the development of a Single Sign On (“SSO”) system which allowed users to gain information relating to their wireless subscription and delete or add services.

14. From 2003 to the present, I have worked as a consultant for various companies to develop networking systems and provide technical consulting on intellectual property.

15. I am currently an Adjunct Executive in Residence in the Hunt Institute for Engineering and Humanity, which is part of the Lyle School of Engineering at

SMU. Here I also serve as the Program Lead for Transformational Technology. Among the transformational technologies I investigate at the Hunt Institute is the Internet of Things (“IoT”), which makes extensive use of Fourth-Generation and Fifth-Generation networks.

16. I am also an Adjunct Professor in the Telecommunications and Network Engineering Program at Southern Methodist University’s Graduate School of Electrical Engineering, where I teach MPLS networked enabled applications. Among the MPLS applications I teach is the use of MPLS in advanced network design, including content delivery networks, (“CDNs”) and service provider network designs.

17. I am a co-inventor of U.S. Patent No. 8,334,775 issued on December 18, 2012 and entitled “RFID-Based Asset Security and Tracking System, Apparatus and Method.” This invention relates to a Radio-Frequency Identification (“RFID”)-based Global Positioning System (“GPS”) tracking system to provide control and security of assets. This system integrates an RFID-based detection system with a conventional GPS tracking system. The GPS tracking system includes GPS receivers connected over a network to a centrally-based GPS monitoring system.

18. I have opined on the meaning of claim terms to one of ordinary skill in the art on numerous occasions. *See* Ex. 1003. For example, I provided opinions on the meanings of claim terms in *QPSX Developments 5 Pty Ltd. v. Nortel Networks*,

*Inc. and In the Matter of Certain Wireless Devices, Including Mobile Phone and Tablets II*, USITC Inv. No. 337-TA-905.

19. Because of my background, training, and experience, I am qualified as an expert to explain the background of the technology encompassed by the ‘233 patent, as well as the meaning that the claim terms of the ‘233 patent discussed herein would have had to a person of ordinary skill in the art (“POSITA”) in 2000 reading the claims in light of the specification and file history.

**B. Materials Reviewed**

20. I have reviewed all of the materials cited herein and attached to this Declaration, including the ‘233 patent and its file history, and the prior art references relied on by Roku in its Petition and discussed in detail below.

**C. Legal Principles**

21. I am not a patent lawyer, but I have consulted on patent-related issues. I understand that the claims of a patent define the invention or inventions covered by the patent. I further understand that the language of the claims should be interpreted as it would be understood by a POSITA at the time of the invention (which I understand is presumed to be the date the patent application was filed absent other evidence), in light of the specification and prosecution history. I have applied this ordinary meaning in my analysis below, unless otherwise indicated.

22. I understand that a patent claim is anticipated under 35 U.S.C. § 102 if

every element or limitation of the claim is disclosed either expressly or inherently in a single prior art reference.

23. I understand that a patent claim is obvious under 35 U.S.C. §103 if the claimed subject matter as a whole would have been rendered obvious to a POSITA at the time of the invention. More specifically, I understand that a patent claim is obvious if any differences between it and what is disclosed in the prior art would have been obvious to a POSITA at the time of the invention. I also understand that the obviousness analysis considers the level of ordinary skill in the art at the time of the invention. I understand also that certain criteria, such as copying, commercial success, and long but unresolved need are also factors that should be considered. I am not aware of any evidence of secondary considerations of non-obviousness of the challenged claims. As discussed below, I have determined that the challenged claims are clearly obvious. If Patent Owner argues that any so-called secondary considerations of non-obviousness apply to the challenged claims, I reserve the right to offer opinions in response to such arguments.

**D. Level of ordinary skill in the art**

24. As discussed above, I understand that when interpreting the claims of the '233 patent, I should do so based on the perspective of a POSITA as of the relevant priority date. I understand that Patent Owner has not yet taken a position with regard to the priority date of the challenged claims in related litigation.

However, on its face, the '233 Patent claims priority to Provisional Application No. 60/252,682, filed on November 20, 2000. I do not take a position in this declaration whether the challenged claims are in fact entitled to this priority date because all of the asserted prior art is prior art to the '233 Patent even in view of this priority date. However, if Patent Owner offers arguments or evidence asserting that the asserted prior art is not prior art to the '233 Patent, I reserve the right to offer additional opinions in rebuttal.

25. For purposes of this proceeding, a POSITA as of November 2000 would have had a bachelor's degree in computer science, computer engineering, or electrical engineering, or a similar field and two years of experience developing software. The POSITA would be familiar with well-known networking technologies. I believe that additional graduate education could substitute for work experience, just as significant work experience could substitute for formal education. My opinion about the level of ordinary skill would not change if the claims were only entitled to the November 18, 2001 actual filing date of the '233 Patent.

#### **E. Summary of opinions**

26. I understand that Roku is asking the Board to institute IPR of Claims 1 and 37-49 (the "challenged claims") of the '233 patent. I understand that Roku alleges that the challenged claims are obvious over U.S. Patent No. 7,644,018 ("Yukie") (Ex. 1005) in view of U.S. Patent 6,317,462 ("Boyce") (Ex. 1006) and

U.S. Patent 7,055,027 (“Gunter”) (Ex. 1007).

27. It is my opinion that the teachings of Yukie in view of the teachings of Boyce and Gunter render the challenged claims obvious.

## **II. OVERVIEW OF THE TECHNOLOGY**

### **A. Relevant State of the Art**

28. By the time of the alleged invention, digital content services were known as audio and video content was widely available on the Internet. MPEG-2 was a well-known standard for encoding video at the time of the invention. (See Boyce Col 5:2-5) MPEG-2 video compression was the de facto standard for entertainment video around August 2001.<sup>1</sup> Due to bandwidth constraints, virtually all of the audio and video content available online was compressed and utilized encoding and decoding algorithms at the source and at the destination. In addition to downloading, streaming of audio and video was also popular. In order to make money by offering audio and video online, content providers also sought to limit access to content to paying subscribers by encrypting content and providing the keys only to paying subscribers. A Large-scale Contents Distribution Architecture Based on Reliable Multicast, by Teruji Shiroshita, Osamu Takahashi, and Yasuhiko

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<sup>1</sup> “Digital Broadcast Technologies,” Cisco Press Aug. 20, 2001 (<https://www.ciscopress.com/articles/article.asp?p=106971&seqNum=3>) (Ex. 1015)

Kokubun published in 1997 by the ACM<sup>2</sup>, describes such a system. It describes on-line distribution of digital content over the Internet where the digital information is encoded in structured documents<sup>3</sup>. The architecture is based on a three-layer model, an application layer for subscription and charging, a delivery layer for error-free delivery of the content and a network layer which makes use of IP datagrams to deliver packets between the server and the receiver<sup>4</sup>. Fig. 5 shown below depicts the Distribution model<sup>5</sup>.

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<sup>2</sup> <https://dl.acm.org/doi/10.1145/263367.263398> (Ex. 1008)

<sup>3</sup> Ex. 1008 Page 244

<sup>4</sup> Ex. 1008 Page 244

<sup>5</sup> Ex. 1008 Page 246

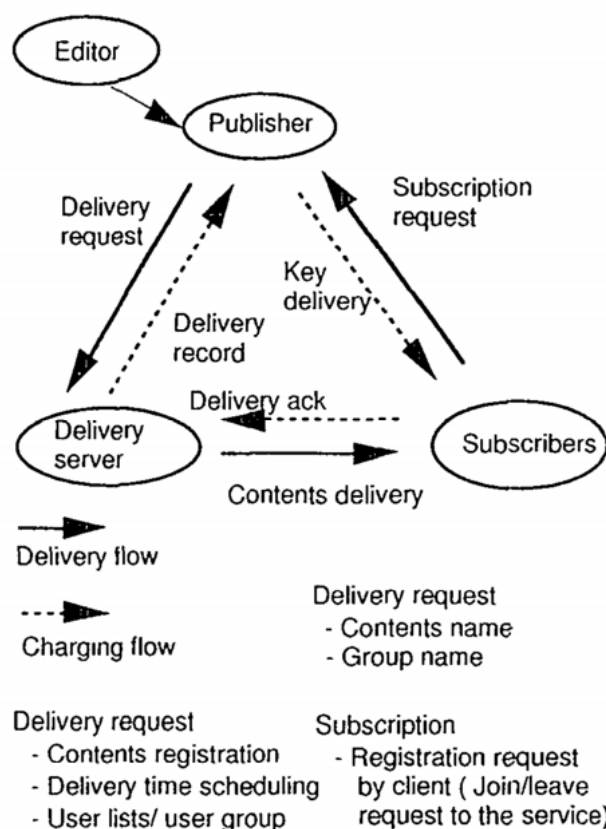


Figure 5: Publishing Model

29. Encryption techniques for use between devices such as hand-held computers, personal digital assistants and smartphones and information servers were also well-known prior to November 2000. The Internet Engineering Task Force (“IETF”) released its first version of Security Architecture for the Internet Protocol (“IPSec”) RFC 1825 in January 1995 for use between devices and servers connected over the Internet. The WAP Forum released a Wireless Transport Layer Security Specification in February of 2000 for use between devices and information servers connected over a wireless Internet. Both of these standards provided privacy and

data integrity between two communicating applications typically one client and one server through the use of encryption. RFC 2201 which obsoleted RFC 1825 when it was published in states

“This memo specifies the base architecture for IPsec compliant systems. The goal of the architecture is to provide various security services for traffic at the IP layer, in both the IPv4 and IPv6 environments.” Section 1.1

“The set of security services that IPsec can provide includes access control, connectionless integrity, data origin authentication, rejection of replayed packets (a form of partial sequence integrity), confidentiality (encryption), and limited traffic flow confidentiality. Because these services are provided at the IP layer, they can be used by any higher layer protocol, e.g., TCP, UDP, ICMP, BGP, etc.” Section 3.1

30. WAP-199-WTLS Version 18-Feb-2000 Wireless Application

Protocol Wireless Transport Layer Security Specification shown below, states

“The primary goal of the WTLS layer is to provide privacy, data integrity and authentication between two communicating applications. WTLS provides functionality similar to TLS 1.0 and incorporates new features such as datagram support, optimised handshake and dynamic key refreshing. The WTLS protocol is optimised for low-bandwidth bearer networks with relatively long latency.” [page 5]

31. Therefore, encryption techniques for use between devices such as hand-held computers, personal digital assistants and smartphones and information servers were well-known prior to November 2000.

**B. Overview of the ‘233 patent**

32. The ‘233 patent (Ex. 1001) is based on Application No. 09/992,413 filed on November 18, 2001 with two listed inventors, William Ho Chang and

Christina Ying Liu. The Abstract explains that the patent is directed to streaming protected digital content to client or output devices:

Digital content services provided over the Internet for transmitting or streaming protected digital content to information apparatus or output devices are herein disclosed and enabled. The protected digital content is encrypted and device dependent or specific for rendering at a limited number of devices including smart phones, information pads, audio players, media controllers, televisions, printers etc. To illustrate, an information apparatus may include an application for accessing selected digital content from a subscribed content service or store over the Internet. To access digital content, a client application may send, to the content service or store, authentication information, payment or subscription information, and/or a reference to selected digital content. The service then generates encrypted device dependent output data associated with a device or identification previously registered with the service for transmitting or streaming, to the information apparatus or output devices (e.g., televisions, speakers, media controllers), the digital content for rendering.

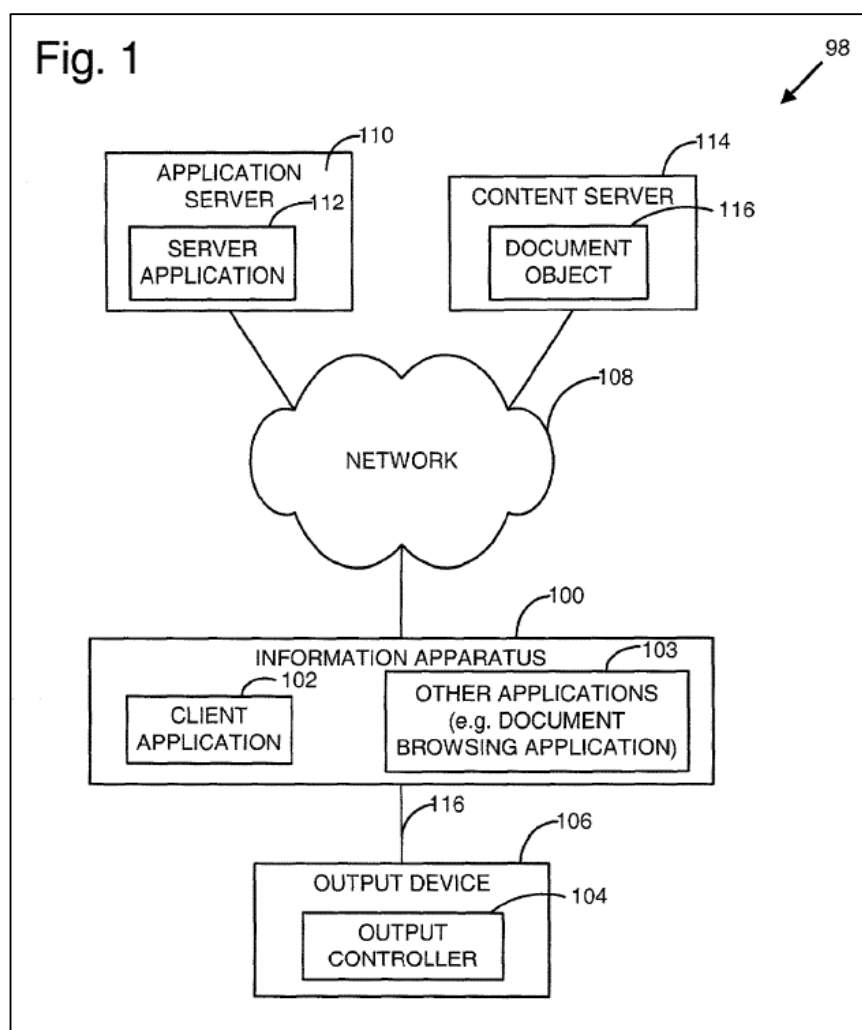
33. The applicants of the ‘233 patent recognized that information apparatuses, particularly mobile information apparatuses (e.g., PDAs or smartphones) can present limitations in outputting digital data pervasively, because of reduced processing power, small screen size, and limited memory space. ‘233 patent at 1:11-16. The ‘233 Patent describes in the Background and Summary of the Invention that output devices can be video monitors, printers or audio devices. ‘233 31-35.

“any one or more of fax machines, printers, copiers, image and/or video display devices (e.g., televisions, monitors and projectors), and audio output devices.”

34. To overcome these and other limitations of the information apparatus, the alleged invention of the '233 patent allows the information apparatus to output data to an output device so that the user can enjoy the "full richness" of the original document content. *Id.* at 4:4-7.

35. As shown in Figure 1 (reproduced below), the alleged invention consists of one or more servers that communicate with an information apparatus via a network. *See id.* at 8:7-15. The information apparatus also communicates with an output device to output data that represents an original document or file. *Id.* at 8:44-47. In the '233 teachings, application server includes software to implement the functionalities of the server and provide services to the client applications on the information apparatus. *See id.* at 16:62-66.

36. Server applications may receive authentication information, such as a password, user name, id number, biometric information, digital certificate or security key, when necessary. In the '233 teachings therefore, passwords and user names are types of authentication information. *See id.* at 26:1-14.



37. As disclosed in the Abstract, a user operating a client device (i.e., information apparatus) may desire to access protected digital content that is output at an output device. To access the protected digital content, the client device may send to a content service implemented by one or more servers, authentication information, subscription information, and/or a reference or pointer to the digital content selected by the user. The client device may also send a one or more device objects that contain information about the output device, such as an IP address. The

digital content service generates encrypted device-dependent output data related to the content selected by the user, which is transmitted to the client device that sends the output data to an output device (either with or without any additional processing).

38. To illustrate the alleged invention encompassed by the '233 patent, the specification gives examples of the claimed information apparatus and system in the printing context. *Id.* at 1:35-44. For example, a user could access a news article published on the Internet on their information apparatus (e.g., a smart phone), but the small display screen, limited processing power, or lack of needed software or communication protocols could render the information apparatus unable to view the entire article. *Id.* at 32:38-50. The user could access the documents through a document browsing application by indicating to the client application a pointer or reference to the output content. For example, the user could select the output content through a GUI provided by the documents browsing application. Therefore, in the teachings of the '233 patent, examples of pointers or references include the user selecting content through a GUI. *Id.* at 25:44-56.

39. But, the information apparatus may have a printing function available so that the user can print the full article. The user may invoke a print function on the information apparatus, which launches a client application. *Id.* at 32:51-33:11. The client application will search for available printers via a discovery process or allow the user to select a known printer. *Id.* at 33:11-26. If a printer is found or

specified, the user may select that printer as the desired output device. *Id.* at 33:26-37. In order to print the news article, the information apparatus may need to provide a reference to the document for output, the selected output device, and authentication and/or subscription information. An output device object may contain one or more attributes which describe the capabilities of a particular device, such as a printer or monitor and define the service provided by the output device. *Id.* at 5:62-67, 6:6-10.

40. A user profile may save payment information or if the service is a subscription collect authorization information. *Id.* at 33:26-34:3. After this information is provided and a job object is submitted, the information apparatus communicates with one or more servers via a composite message which may include a document object, a printer or device object and a job object. The server fetches output content based on the document object provided by the information apparatus. *Id.* at 34:3-32. The server may process or encode the output content, for example raster image processing operations, before sending the output data to the printer via the information apparatus, which may or may not perform additional data processing. *Id.* at 34:32-60.

41. The '233 patent does not teach any particular encoding techniques nor does it teach any particular encryption techniques done by a server.

### **C. The Challenged Claims**

42. The '233 patent has seven independent claims and sixty two dependent

claims. Independent claim 1 is shown below.

43. Claim 1 recites limitations a-m listed below:

[1pre] A method of operating a digital content service for providing digital content over a network that includes the Internet to an information apparatus or a device for rendering, the digital content service including:

[1a] one or more servers for providing the digital content to the information apparatus or to the device, the one or more servers being distinct and separate from the information apparatus or the device, and;

[1b] one or more server applications executable at the one or more servers for managing at least part of the digital content service, the digital content service method comprising::

1[c] receiving, from the information apparatus or the device and by the one or more servers, security or authentication information associated with a user operating the information apparatus or the device for authentication of the user, and in dependence of successful authentication of the user, enabling the user access to the digital content service;

1[d] receiving, from the information apparatus or the device and by the one or more servers, payment or subscription information associated with the user for accessing one or more digital content that are available at the one or more servers operated, at least in part, by the digital content service;

1[e] receiving, at the one or more servers, a device object from the information apparatus or the device over the network that includes the Internet, the device object including device information related to one or more devices, and the device information corresponding to at least one of device identification information, device address information, device capability information, model information, brand information, or registration information, individually or in any combination, and the one or more devices include the information apparatus or the device;

1[f] providing, to the information apparatus or the device and by the one or more servers, one or more pointers or references to at least part of the one or more digital content available at the one or more servers for selection by the user at the information apparatus or the device;

1[g] receiving, at the one or more servers and from the information apparatus or the device, at least a pointer or reference to selected digital content from among the one or more pointers or references provided, by the one or more servers, to the information apparatus or the device;

1[h] retrieving, by the one or more server applications, at least part of the selected digital content from the one or more servers employing, at least in part, the pointer or reference to the selected digital content received from the information apparatus or the device;

- 1[i] generating output data, at the one or more servers using the one or more server applications, the output data being related to at least part of the selected digital content, and the generating of the output data including:
- 1[j] applying, by the one or more server applications, an encoding operation on at least part of the selected digital content, and
- 1[k] applying, by the one or more server applications, an encryption scheme on at least part of the selected digital content for ensuring security of at least part of the selected digital content, and wherein, subsequent to applying the encoding operation and the encryption scheme on at least part of the selected digital content, the selected digital content is, at least in part, device dependent for rendering at the one or more devices; and
- 1[l] transmitting, by the one or more servers, at least part of the generated output data to the information apparatus or the device for rendering at least part of the selected digital content at the one or more devices; and
- 1[m] wherein the generated output data is, at least in part, device dependent to the one or more devices, and the generated output data having a relationship, at least in part, to the device information included in the device object and received by the one or more servers from the information apparatus or the device over the network that includes the Internet, and wherein the transmitting of at least part of the generated output data by the

one or more servers to the information apparatus or the device is subsequent to having received the security or authentication information associated with the user operating the information apparatus or the device, and the transmitting of at least part of the generated output data is based, at least in part, on having received, from the information apparatus or the device, the payment or subscription information.

44. I understand that Roku is challenging claims 1 and 37-49 (the “challenged claims”) of the ‘233 patent.

**D. Prosecution of the ‘233 Patent**

45. I have reviewed the prosecution history of the ‘233 patent. The applicant filed Application No. 09/992,413 (“the 413’ application”) on Nov. 18<sup>th</sup>, 2001.

46. The prosecution of the ‘233 Patent was lengthy. The Applicant repeatedly amended the claims after allowance. After a restriction requirement and several sets of claim rejections based primarily on references directed to either printer servers or camera phones, the Examiner finally issued a Notice of Allowance on June 19, 2014. The Notice (at 24-25) identified the primary reason for allowance as the lack of teaching in the prior art of a “content object including information associated with a pointer or reference to a selected digital content... associated with a selection by the user... from at among the at least one or more pointers or

references.” After the Notice of Allowance, Applicants filed amendments after allowance at least another ten times, each time resulting in another Notice of Allowance, before the ’233 Patent finally issued. At no time did the Examiner substantively discuss any reference substantially similar to the combination of references discussed in this Petition.

**E. Claim Construction**

47. I understand that Roku is not proposing constructions for any claim terms in the challenged claims beyond the plain and ordinary meaning, which I am applying to the claim terms. I understand that the parties have not yet proposed constructions for any claim terms in the challenged claims in the related district court litigation.

**III. UNPATENTABILITY OF THE ’233 PATENT CLAIMS**

**A. Ground 1: Claims 1 and 37-49 are obvious in view of Yukie in combination with Boyce and Gunter**

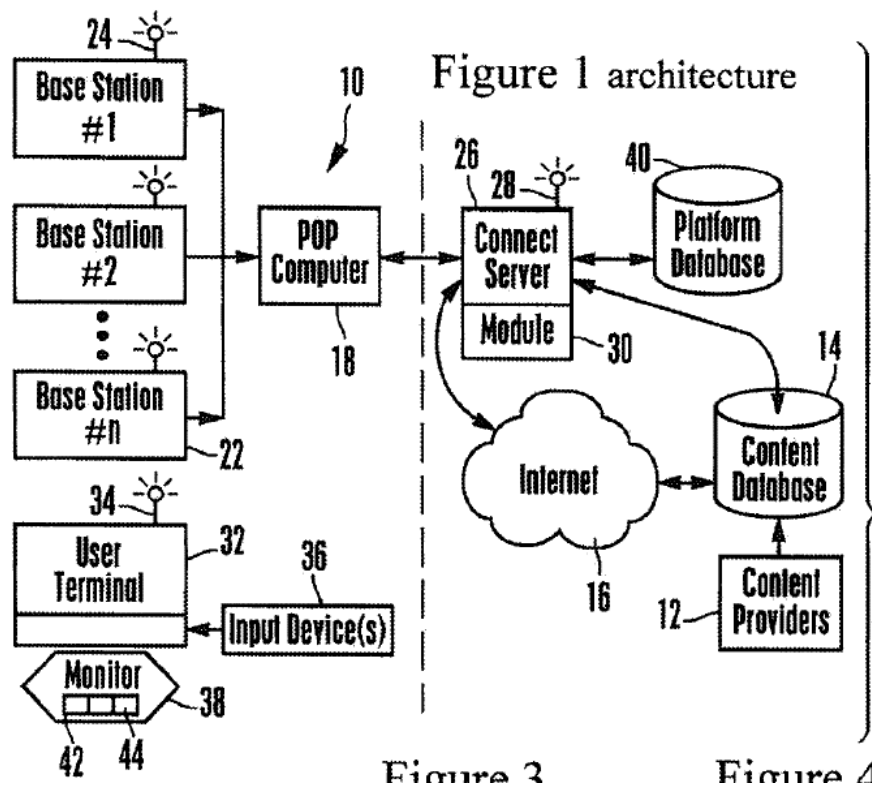
48. For the reasons discussed below, in my opinion Yukie in view of the Gunter and further in view of Boyce renders obvious each limitation of the challenged claims of the ’233 patent.

**1. The Prior Art**

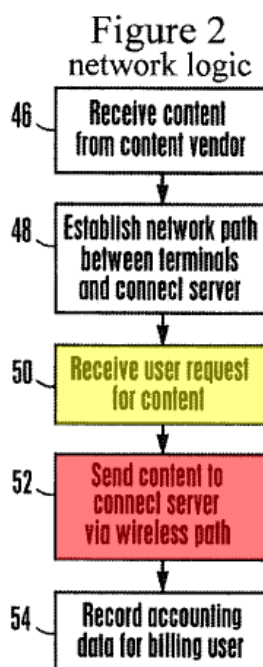
**a. Yukie (U.S. Patent No. 7,644,018)**

49. U.S. Patent No. 7,644,018 (“Yukie”) (Ex. 1005) is titled “System and Method for Providing Publicly Vended Content via a Wireless Network”. Yukie

issued on January 5, 2010 from an application filed on April 4, 2000, and claims priority to several provisional applications filed on February 8, 2000. I therefore understand that this qualifies as prior art to the '233 Patent under pre-AIA 35 U.S.C. § 102(e). Yukie describes a system for delivering digitized content using Internet Protocols. This digitalized content is delivered in response to user requests or embodied in user defined profiles. The user can be billed in various ways, such as by content piece, length of time or by a subscription. Yukie at Abstract. The method of vending content taught by Yukie includes rendering the content, thereby making it available on a computer network. Yukie at 2:38-41. Fig. 1 of Yukie illustrates an embodiment of the system:

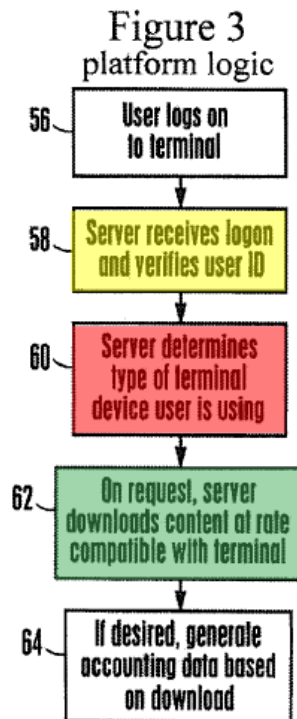


50. A user terminal 32, which may be a mobile wireless device such as a personal digital assistant (Yukie at 4:36-44, 4:60-67), which communicates over a network path to a connect server 26. The connect server may obtain content from a content database 14 or content providers 12, or the connect server itself may provide content. *Id.* at 3:54-57, 4:4-15. The user of the terminal 32 may select content to view and download using a personalized toolbar 42, which is sent from the server to the terminal and shows icons (or other GUI elements such as menus or text) representing content. *Id.* at 5:42-61, 6:21-28, 6:65-7:5. The server sends content to the terminal in response to receiving a user request for content, as shown in Fig. 2, steps 50 and 52:



51. Yukie further teaches that the server receives and verifies login

information including the user's ID and password, determines the type of terminal device the user is using, and provides content at a rate compatible with the terminal, as depicted in Fig. 3 steps 58, 60, and 62. *Id.* at 6:19-37.



52. Yukie further teaches that such content may be provided to users via a subscription service. Yukie at 1:23-26, 2:29-32, 6:30-36, 6:40-45, Fig. 4. Communications between the content server and the terminal preferably take place over a “private, secure tunnel channel.” *Id.* at 6:10-12.

**b. Gunter U.S. Patent No. 7,055,027**

53. U.S. Patent No. 7,055,027 B1 (“Gunter”) (Ex. 1007) is entitled “System and Method for Trusted Inspection of a Data Stream”. Gunter issued on May 30,

2006 from an application filed on March 22, 1999. I understand that therefore, Gunter qualifies as prior art to the '233 Patent under pre-AIA 35 U.S.C. § 102(e). Gunter teaches that by its filing date, many protocols were in use for securely sending information over the Internet. Gunter teaches that Virtual Private Networks (VPNs) commonly used “tunneling” protocols to provide secure communication between endpoints. The VPN establishes an encrypted data flow between two endpoints. This data flow can be thought of as a tunnel through the Internet, since the data conceptually enters the tunnel at one end and emerges, secure and unchanged at the other end. Gunter at 1:29-37. Gunter teaches that various protocols existed to provide security for VPNs, Point to Point Tunneling Protocol and the Internet Engineering Task Force IPSEC being the two most common, Gunter at 1:46-52. IP Security, “IPSEC”, was designed by the Internet Engineering Task Force, for use on the Internet and provides data integrity and encryption. Encryption is done via a shared secret key. With IP security, only the sender and recipient know the security key. Gunter at 2:1- 15. Fig. 1 illustrates encrypting a data packet for transmitting over a VPN using IPSEC.

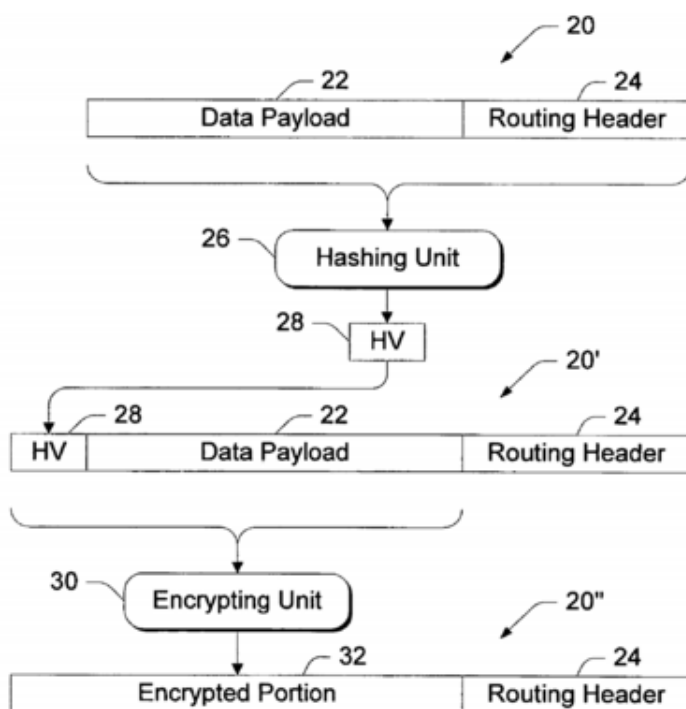


*Fig. 1*  
*Prior Art*

**c. Boyce U.S. Patent No. 6,317,462**

54. U.S. Patent No. 7,055,027 (“Boyce”) (Ex. 1006) is entitled “Method and Apparatus for Transmitting MPEG Video over the Internet”. Boyce issued on November 13, 2001 from an application filed on October 22, 1998 and I understand that this then qualifies as prior art to the ’233 Patent under pre-AIA 35 U.S.C. § 102(e). Boyce generally describes coding methods for popular, widely used

methods for transmitting digital video over the Internet. Boyce at 1:15-20, 1:24-28, 1:59-64. In particular, Boyce relates to encoding methods for compression-efficient video formats such as the popular MPEG, MPEG-2, H.261, and H.263 standards. These standards are used to transmit video over the Internet using packets. Boyce at 1:15-20, 1:24-31, 1:59-64.

**d. Motivation to Combine**

55. In my opinion, a POSA would have been motivated to combine the teachings of Yukie, Gunter, and Boyce. All three references are in substantially similar fields because they relate to systems for providing content or services over the public Internet, and a POSA would accordingly look to all three references to understand various design elements of a system to provide content over the public Internet. All three references make use of standard Internet Protocols and all make use of standard IP packets to provide the content or services over the public Internet. Therefore, in my opinion, a POSA would accordingly look to all three references to understand design elements of a system to provide multimedia content over a network, such as the Internet.

56. Yukie describes a system and method for transmitting digitized content such as audio, video or printer files to a user over the public Internet, making use of standard Internet Protocols and standard IP packets. See, e.g. Yukie at 3:58-62,

“In the architecture shown, public content from the content providers 12 is

made available in a content database 14 for provision of the data in Internet Protocol (IP) packets, with the database 14 preferably being accessible via the Internet.”

Yukie 16:4-18,

“The connect server 26 can connect one user terminal to another across various connections including wireline network such as the Internet.”

57. Yukie further teaches that the content server provides content to the terminal via IP (internet protocol) packets, which are processed according to principles known in the art. See Yukie 4:36-43,

“... such that the user terminal 32 can be mobile and portable while nonetheless communicating with the system 10 to receive digitized content, packetized in accordance with Internet Protocol (IP) principles, from the content database 14.” See also Yukie 7:60-8:3, claims 5, 15.

58. Yukie teaches that the content must be rendered in a digital format so that it may be sent over a computer network such as the Internet. See Yukie 2:38-41.

“In another aspect, a method for vending content includes rendering the content in a digitized format, and making the content available on a computer network.” See also Claims 10, 15.

59. In my opinion, a POSA would therefore know that Yukie’s system

would require an encoding scheme for multimedia content to render this content in a digitized format so that it can be sent over the public Internet. However, Yukie does not describe the details of such an encoding scheme for multimedia content, relying instead on the assumption that a POSA would know those details.

60. Boyce describes MPEG encoding, a common standard format for video transmitted over the internet via IP packets. See, e.g. Boyce at Abstract, Boyce 1:15-21. A POSA would therefore combine Yukie and Boyce because Boyce teaches a common coding format for rendering the multimedia content of Yukie in a digitized format, and Boyce fills in the gaps in the disclosure of Yukie about how such content would be sent over a packetized network. Moreover, a POSA would be motivated to use the efficient inter-frame encoding standards such as MPEG or MPEG-2 so that the user terminal could make use of standardized video players for MPEG or MPEG-2 video.

61. Yukie further teaches that this content is provided over channels that can be simultaneously sent the user by means of multi-threaded tunnel channels. Yukie 7:16-18

“Accordingly, content over plural channels might be sent simultaneously to the user, by means of e.g., the above-described multi-threaded tunnel channel.”

62. Yukie teaches that these above-described tunnel channels are

preferably private, secure tunnels. Yukie 6:10-12.

“Preferably, the path includes a private, secure tunnel channel having plural threads, one for each content channel defined by the user.”

63. Gunter describes in detail how such “private, secure tunnels” can be created according to existing Internet protocols known to those of skill in the art. Gunter teaches that to communicate securely over a public network such as the Internet, data is commonly encrypted in a Virtual Private Network ‘VPN’. Gunter 1:13-19, 1:22-28.

“To enable this communication over an otherwise public network, data is commonly encrypted into a protected form. This affords essentially the same protection and security as a private network, while benefiting from the flexibility and lower costs offered by the Internet. To this end, the concept of a virtual private network (VPN) has been developed.”

64. The VPN establishes an encrypted data flow between two endpoints. This data flow can be thought of as a tunnel through the Internet, since the data conceptually enters the tunnel at one end and emerges, secure and unchanged at the other end. Gunter at 1:29-37. Gunter teaches that various protocols existed to provide security for VPNs, Point to Point Tunneling Protocol and the Internet Engineering Task Force IPSEC being the two most common, Gunter at 1:46-52. IP Security, “IPSEC”, was designed by the Internet Engineering Task Force, for use on

the Internet and provides data integrity and encryption. Encryption is done via a shared secret key. With IP security, only the sender and recipient know the security key. Gunter at 2:1- 15.

65. Therefore, a POSA would look to Gunter's teachings for specific methods to implement Yukie's explicit teaching or suggestion to provide a private, secure, tunnel channel. Gunter's teachings of methods for encrypting and "tunneling" data further meet the need suggested by Yukie for ways to send data securely over public channels such as the Internet. A POSA would be motivated to use the Gunter's teachings of methods for encrypting such as IPSec, or PPTP because they were developed by Internet Engineering Task Force, "IETF" as an proposed standard. See Exhibit RFC2401 page 1 "Category: Standards Track". A POSA would know that be using proposed standards form the IETF would ensure interoperability of the different components on the Internet.

66. Moreover, a POSA would be motivated to encrypt the content of Yukie because it teaches sending this content over public Internet. Therefore, to protect this content from being easily copied, a POSA would be motivated to encrypt it.

67. A POSA would have a reasonable expectation of success combining Yukie, Gunter, and Boyce because all three references teach compatible methods for transmitting data in packets over the Internet. All three references make use of standard Internet Protocols and all make use of standard IP packets. A POSA would

understand that Gunter's methods to send data packets in encrypted form over a secure "tunnel" channel (as suggested by Yukie) can be used to encrypt and send any type of data that can be sent over the Internet, and therefore could be used to send the coded video signals taught by Boyce. Yukie itself suggests combining coded audio or video signals with encrypted data packets because it teaches sending content including audio or video content over a secure "tunnel" channel. Indeed, the combination of Gunter and Boyce with Yukie would not necessarily require any "modification" of Yukie; rather, Gunter and Boyce merely explain in more detail methods that were known in the art to implement aspects of the system of Yukie.

## 2. Claim 1

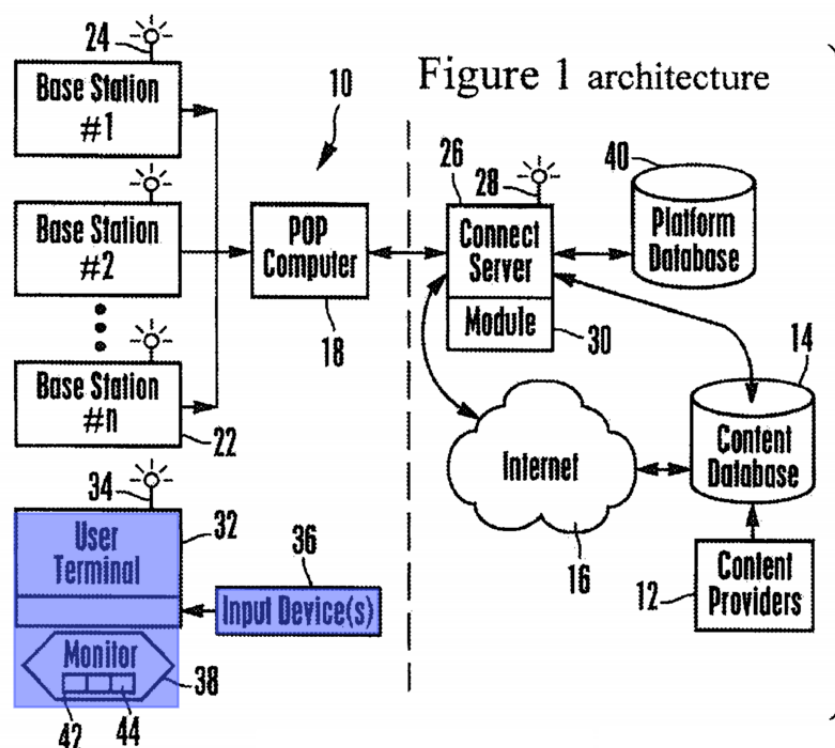
- a. **1[pre]A method of operating a digital content service for providing digital content over a network that includes the Internet to an information apparatus or a device for rendering, the digital content service including:"**

68. In my opinion Yukie discloses the preamble of claim 1 as it discloses a digital content service for providing digital content over a network that includes the Internet to an information apparatus or a device for rendering, the digital content service. Yukie disclose element 10, which is a system for vending content. Yukie 3:6-9.

"Referring initially to FIG. 1, a system is shown, generally designated 10, for vending publicly available commercial content from multiple content

providers 12, in addition to also providing customized data mentioned further below.”

69. Element 10 is depicted in Figure 1, and shows discloses a user terminal 34, input device(s) 36 and monitor 38 (i.e., the claimed information apparatus) that obtains digital content from servers 26, and databases 40 and 14 over a packet network, such as the Internet.



70. Yukie also discloses that its invention “relates generally to vending digitized content via wireless networks” (Yukie at 1:16-18), including “rendering the content in a digitized format, and making the content available on a computer network” (*id.* at 2:38-40). Yukie further teaches that the method is intended to

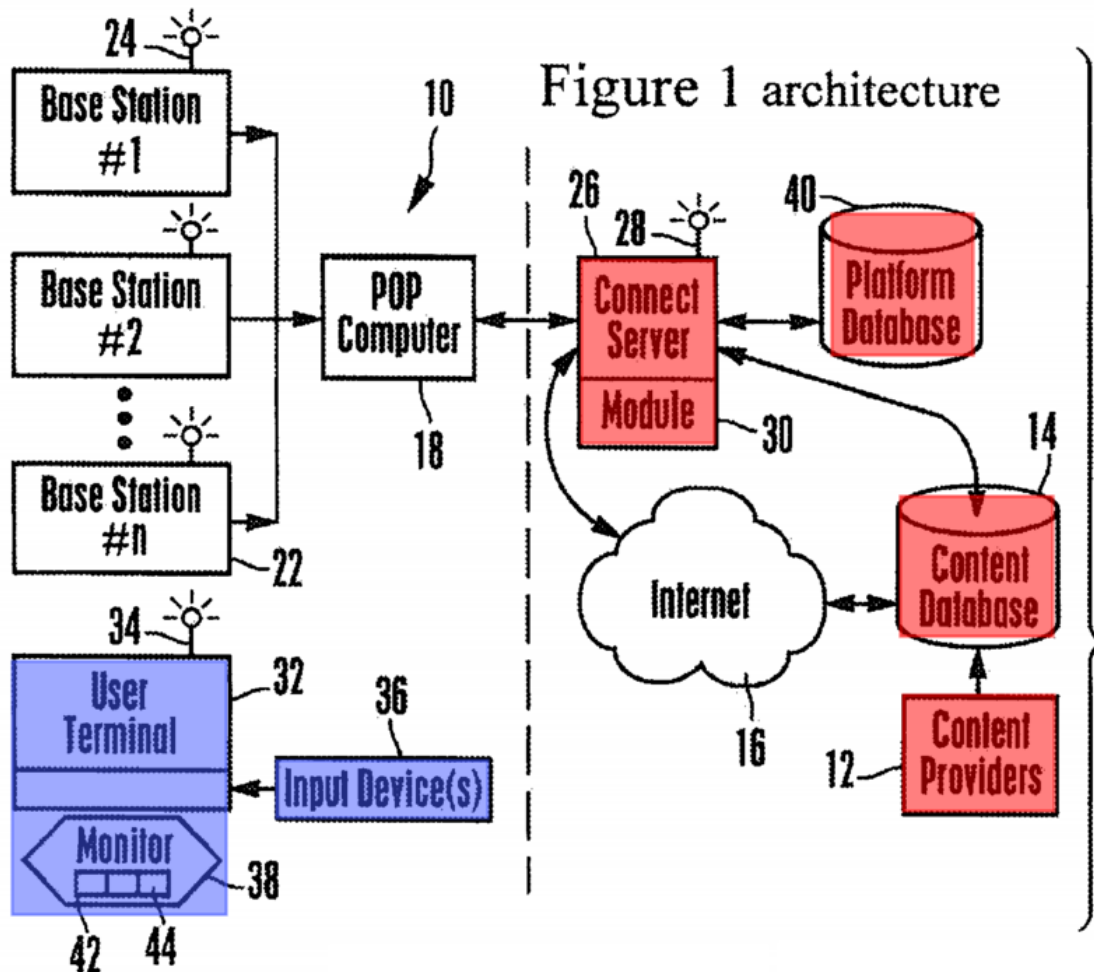
provide content to “personal computing devices such as personal digital assistants (PDAs) and the like,” via the Internet. *Id.* at 1:39-49. Therefore, in my opinion, Yukie discloses this limitation.

**b. 1[a] one or more servers for providing the digital content to the information apparatus or to the device, the one or more servers being distinct and separate from the information apparatus or the device, and;**

71. In my opinion Yukie discloses this limitation because it discloses that the digital content is provided by one or more servers. These servers include a connect server 26, a content database 14 and content providers 12. Yukie 3:52-57

“Customized data can be provided through a network connection to the connect server 26, such as across the Internet or from another user terminal. Content can also be provided from a database within or otherwise accessible to the content server 26, where the content server is also the content provider.”

72. These servers (annotated in red below) are distinct and separate from the information apparatus (e.g. user terminal 32), input device(s) 36, and an output device such as monitor 38 (annotated in blue below) because these devices are remote from and receive content over a network from the connect server. Yukie, Fig. 1.



- c. 1[b] one or more server applications executable at the one or more servers for managing at least part of the digital content service, the digital content service method comprising;

73. In my opinion Yukie discloses this limitation because it discloses that the present invention can be embodied in a computer program software, and that the flow charts illustrate computer program code elements. Yukie 5:20-30

“The flow charts herein illustrate the structure of the modules of the present invention as embodied in computer program software or in hardware. Those

skilled in the art will appreciate that the flow charts illustrate the structures of logic elements, such as computer program code elements or electronic logic circuits, that function according to this invention.”

74. Furthermore, A POSA would understand that the servers described in element 1(a) would require programming in order to perform the specified functions described in Yukie. In addition, Yukie states (at 4:13-15) that “[t]he connect server 26 executes a software-implemented or hardware-implemented module 30”. Therefore, in my opinion, Yukie discloses this limitation.

- d. 1[c] receiving, from the information apparatus or the device and by the one or more servers, security or authentication information associated with a user operating the information apparatus or the device for authentication of the user, and in dependence of successful authentication of the user, enabling the user access to the digital content service**

75. In my opinion Yukie discloses this limitation because it discloses that the server receives logon information and subsequently the server verifies the user’s ID. Yukie discloses the user logs on to the terminal 32 to access the digital content service. Yukie discloses that the servers receive the user logon information which includes a user identification and a password, which are security or authentication information associated with a user operating the information apparatus. Other security or authentication information associated with a user the server receives in Yukie include biometric information such as a fingerprint or Voice analysis. Yukie

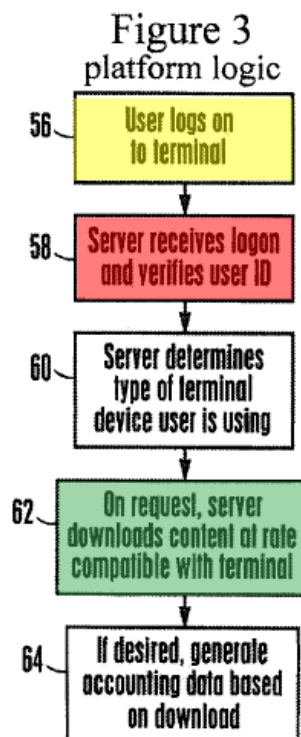
6:19- 20.

“At block 58, the connect server 26 receives the logon and verifies the user's identification and password if provided.”

See Yukie at 6:12-18

“Logon can be accomplished using a handshaking protocol or a registration protocol, with a user ID being input by the user by means of the input device 36 or automatically by means of a removable card such as a PCM CIA card or Memory. StickTM. Or, the user ID can be generated or confirmed through a biometric such as a fingerprint or by Voice analysis.”

76. Yukie teaches (at Fig. 3) that after the user logs on to the terminal (step 56), the server then receives the logon and verifies the user ID, i.e. “security or authentication information associated with a user” (step 58) and may only then subsequently send content to the terminal (step 62).



77. In addition, Yukie describes that the user is to be billed, either based on their subscription, or the amount of time the user is logged on, or the content downloaded. Yukie 6:40- 45

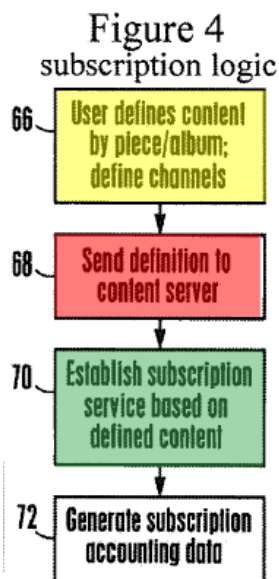
“For instance, billing for the above-described service can be accomplished by gathering accounting data either during the entire time a user is logged on, or on a monthly subscription basis, or on a piece basis as content is downloaded, i.e., the user can be billed for each song or video downloaded.”

78. A POSA would understand that the server would only enable access to the vended content service depending on successful authentication of the user, if not, the system would be trying to bill unauthenticated users and could essentially be

giving the content away for free. Therefore, in my opinion, Yukie discloses this limitation.

- e. **1[d] receiving, from the information apparatus or the device and by the one or more servers, payment or subscription information associated with the user for accessing one or more digital content that are available at the one or more servers operated, at least in part, by the digital content service**

79. In my opinion, Yukie discloses this limitation because, for example, it repeatedly references subscription services (e.g. at Abstract, 1:23-26, 2:29-32, 3:16-18, 6:29-50). For example, Yukie's Fig. 4 explains "subscription logic" under which a user can define a subscription or request content (step 66), send that subscription or content request to the server (step 68), and the server can establish a subscription service based on that content (step 70):



80. In addition, Yukie describes that the servers gather information form

the user and generate billing information for that user. Yukie 6:40- 45

“For instance, billing for the above-described service can be accomplished by gathering accounting data either during the entire time a user is logged on, or on a monthly subscription basis, or on a piece basis as content is downloaded, i.e., the user can be billed for each song or video downloaded.”.

See also Yukie 6:51-60.

81. Yukie further teaches (at 6:30-36) that the content server may retrieve content “on request... and/or according to a subscription.” Therefore, Yukie discloses that the one or more servers receive subscription information from the information apparatus (user terminal) or other user device.

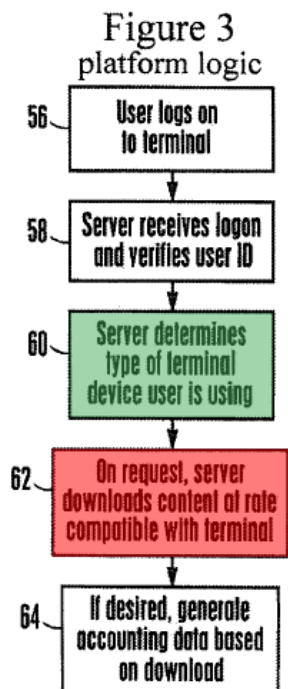
82. In addition to subscription information, Yukie further teaches or suggests receiving payment information from the user apparatus. For example, Yukie includes within its scope content that is available only by subscription (Yukie at 3:16-18), which suggests to a POSA that the server would need to receive information verifying that the user has paid for a subscription. As an example of such a system consistent with Yukie’s teachings, a premium content channel would require a subscription or at least payment information (e.g. providing credit card or bank information to be billed) before providing the content. To that end, Yukie explicitly refers to billing or subscription accounting several times. Yukie at

Abstract, Fig. 2 (block 54), Fig. 4 (block 72), 2:22-24, 2:28-37, 2:51-55, 6:1-3, 6:39-50, 7:54-57. Yukie suggests content that is not available to the public, but available for purchase, such as “commercial video such as movies.” Yukie at 3:13-15. Yukie also explicitly teaches (at 3:21-26) providing content “for download on a single-use basis, time-basis, purchase basis, and so on,” which explicitly teaches purchasing content, i.e. that a user pays for the content and then receives it. Because Yukie relates to a user selecting content over a network through a user terminal, this suggests that a user would purchase content by sending payment information and then downloading the content. Therefore, Yukie discloses that the one or more servers receive payment information from the information apparatus (user terminal) or other user device.

- f. **1[e] receiving, at the one or more servers, a device object from the information apparatus or the device over the network that includes the Internet, the device object including device information related to one or more devices, and the device information corresponding to at least one of device identification information, device address information, device capability information, model information, brand information, or registration information, individually or in any combination, and the one or more devices include the information apparatus or the device;**

83. In my opinion, Yukie discloses this limitation. To begin, Yukie discloses that the embodiments of the invention may be compiled C++ code. Yukie

5:39-41. A POSA would understand that C++ is an object-oriented computer language. Next, as shown in Fig. 3 (explained at 6:29-36), the server determines the type of terminal device the user is using (step 60):



84. Yukie discloses that the server determines the type of device the user is using as a terminal, where the terminal 32 is part of the claimed information device. Yukie 6:29-30, 5:12-16, Claim 22.

“Moving to block 60, the connect server 26 determines the type of device the user is using as the terminal 32.”

“In accordance with the below discussion, the connect server 26 accesses a platform database 40 that contains information on the user, including the below-described user profile, as well as information on

the type of device that establishes the user terminal 32.”

“22. The computer program device of claim 19, further comprising computer readable code means for determining a user terminal device type, the device type dictating the content provided to the user terminal.

85. The type of content the device is capable of making use of is therefore part of the device information.

86. The identified one or more servers, the connect server, platform database, and content database, receive the device information when a profile is created. Yukie 6: 55- 57, 5:12-16,

“To store the profile in the database 40, at block 68 two-way communication can be established between the server 26 and terminal 32 and the profile transmitted to the server 26.”

“In accordance with the below discussion, the connect server 26 accesses a platform database 40 that contains information on the user, including the below-described user profile, as well as information on the type of device that establishes the user terminal 32.”

87. The servers are located remotely and is distinct and separate from the information apparatus, the identified terminal device, See 1[a] above. Therefore, it would be obvious to a POSA that the server would need to determine the type of

terminal device by receiving information indicating the device type.

88. The received device type includes at least device identification and device capability information. Yukie teaches that the output device can be a monitor, or audio speakers or a printer. Yukie therefore teaches that the server must be able to identify the content appropriate for these different output devices, the device identification. Yukie at 5:4-12 teaches that the user of the system may

“purchase content from the content database 14 for display on, e.g., an output device such as a monitor 38. Other output devices such as other computers, computer networks, audio speakers, printers, and so on can be used.

89. Yukie also discloses that the received device information includes device compatibility information because it teaches sending content at a rate at which the terminal is compatible of being used as the terminal 32. Yukie 6:35-36.

“... the connect server 26 accesses the requested content and sends the content to the terminal 32 at a rate compatible with the type of device being used as the terminal 32.”

90. Finally, a POSA would understand that, “device address information” is suggested by the use of the Internet Protocol (IP) to send information between the server and user terminal (Yukie at 3:58-62, 4:36-43), because IP packets must include the destination IP address of the receiving device in the header. For example,

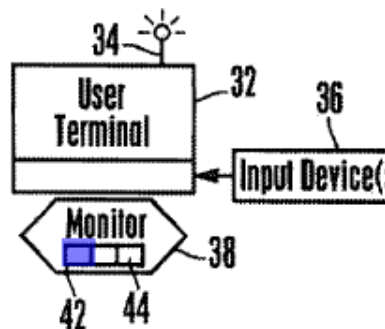
RFC 2401 (Ex. 1010) explains:

“The outer IP header Source Address and Destination Address identify the “endpoints” of the tunnel (the encapsulator and decapsulator). The inner IP header Source Address and Destination Addresses identify the original sender and recipient of the datagram, (from the perspective of this tunnel), respectively.

91. Therefore, in my opinion, Yukie discloses this limitation.

- g. **1[f] providing, to the information apparatus or the device and by the one or more servers, one or more pointers or references to at least part of the one or more digital content available at the one or more servers for selection by the user at the information apparatus or the device;**

92. In my opinion, Yukie discloses this limitation because, for example, it teaches that a “selector element” 42 is provided, shown on the monitor in Fig. 1



93. Yukie teaches that the selector element 42 is a toolbar with at least one and preferably plural source icons (although other interfaces such as drop down-menus, text, or audio prompts), each associated with a respective data channel so

that the user can select that feed. Yukie at 5:42-61. The server sends or provides, to the information apparatus, the terminal, the toolbar on login. Yukie at 6:21-28. The source icons or other interface elements on the selector element are the claimed “pointers or references” to content available at the server, as Yukie teaches that these icons are associated with data channels, which are defined to be a particular type of content, such as video, audio, live broadcasts, or games. Yukie 5:49-54.

“As shown, the selector element 42 includes at least one and preferably plural source icons 44, with each icon 44 being associated with a respective data channel. Each channel can be defined by the user to receive a particular type of public content, such as video, audio, live broadcasts, games, and the above-mentioned customized data.”

94. An icon can be static, or it can be a text display reference to the content that can be clicked on. Yukie 5:58-60.

“In any case, the selector element 42 is presented on the monitor 38 so that a user can view the feeds as presented in the icons 44 and/or click on one or more of the icons 44 to enlarge or otherwise enhance the feed from the associated channel. An icon 44 can be established by a real-time feed of data from its associated source, or it can be static, or it can be established by a text display or audio display of data.

95. Therefore, in my opinion, Yukie discloses this limitation.

- h. 1[g] receiving, at the one or more servers and from the information apparatus or the device, at least a pointer or reference to selected digital content from among the one or more pointers or references provided, by the one or more servers, to the information apparatus or the device;**

96. In my opinion, Yukie discloses this limitation because, for example, it teaches that the “selector element” or toolbar 42 discussed above regarding claim element 1(f) (i.e., toolbar icons or equivalent used as “pointers or references”) is used to “select one or more... channels... for immediate display” (Yukie at 7:52-54), or to “enlarge or enhance the feed from the associated channel (id. at 5:42-61). Yukie teaches that each of these icons are associated with data channels, which are defined to be a particular type of content, such as video, audio, live broadcasts, or games that the user is to receive. Yukie 5:49-54.

“As shown, the selector element 42 includes at least one and preferably plural source icons 44, with each icon 44 being associated with a respective data channel. Each channel can be defined by the user to receive a particular type of public content, such as video, audio, live broadcasts, games, and the above-mentioned customized data. In any case, the selector element 42 is presented on the monitor 38 so that a user can view the feeds as presented in the icons 44 and/or click on one or more of the icons 44 to enlarge or otherwise enhance the feed from the associated channel”

97. Therefore, a POSA would understand that when a user selects or clicks on an icon, for example a static icon, the server receives a user request to receive that content referenced by the static icon (see Fig. 2, step 50 and 6:63-6:3), the server receives a request for content for specified content from the “pointer or reference” on the toolbar. If the server did not receive a message, then there would be no way for the server to know what content the user requested.

98. Therefore, in my opinion, Yukie discloses this limitation.

- i. **1[h] retrieving, by the one or more server applications, at least part of the selected digital content from the one or more servers employing, at least in part, the pointer or reference to the selected digital content received from the information apparatus or the device**

99. In my opinion, Yukie discloses this limitation because, for example, it discloses that the software on the one or more servers retrieves at least part of the content selected by the user. Yukie discloses this limitation because it discloses that the present invention can be embodied in a computer program software, and that the flow charts illustrate computer program code elements. Yukie 5:20-30

“The flow charts herein illustrate the structure of the modules of the present invention as embodied in computer program software or in hardware. Those skilled in the art will appreciate that the flow charts illustrate the structures of logic elements, such as computer program code elements or electronic logic circuits, that function according to

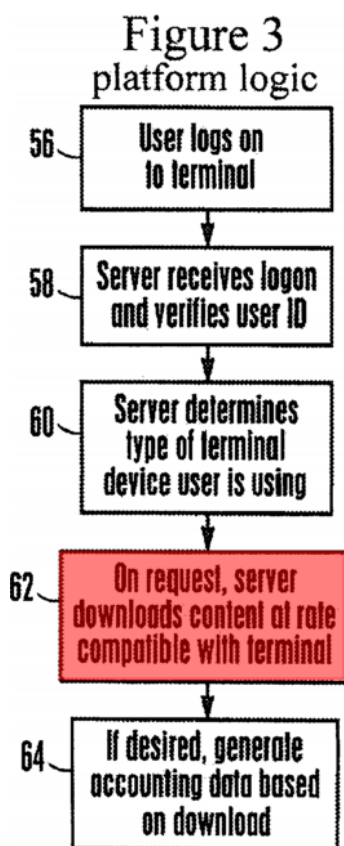
this invention.”

100. In addition, Yukie states (at 4:13-15) that “[t]he connect server 26 executes a software-implemented or hardware-implemented module 30”. A POSA would understand that Yukie teaches that the user request for content (see Fig. 2, step 50 and 6:63-6:3) would be based on a user selecting a toolbar icon or equivalent for the reasons discussed regarding element 1[g]; therefore, when the server provides that content (Fig. 2, block 52 and 5:63-6:3- “[t]he content is sent to the user terminal”) it retrieves the content using the pointer or reference (e.g. toolbar icon) to the selected content.

101. Therefore, in my opinion, Yukie discloses this limitation.

- j. **1[i] generating output data, at the one or more servers using the one or more server applications, the output data being related to at least part of the selected digital content, and the generating of the output data including;”**

102. In my opinion, Yukie discloses this limitation because, for example, it teaches generating output data at the one or more servers relating to the user-selected content so that this content can be downloaded to a user. Yukie teaches a method for “rendering the content in a digitized format, and making the content available on a computer network” (at 2:38-45), and that the connect server sends the content to the user terminal 32. Yukie at 5:63-6:3, 6:29-38, Fig. 2, block 52, Fig. 3, block 62;



103. By teaching that the server renders content in a digitized format Yukie is teaching that the server is generating output data. Even if there was only “static” content (i.e. content that is stored on a server and not generated in real-time) stored on the server, it would be obvious to a POSA that Yukie’s server would still need to “generate” output data because Yukie teaches that the content server provides content to the terminal via IP (internet protocol) packets (Yukie at 4:36-43, 7:60-8:3, claims 4, 15), which are part of the output data that would need to be generated by the server before being sent.

104. Additionally, Yukie teaches that the content to be provided by the

system includes “live events such as sporting events, music concerts, political speeches, and so on” (3:18-21), as well as “customized data sources” such as home security cameras (3:29-37). In order to transmit such data in real-time, the data would need to be generated in real-time by a server such as content provider 12, which is included in the “one or more servers” (although Yukie also teaches that the functions of the various servers such as the connect server 26, platform and content databases 14 and 40, and content providers 12 can be consolidated within the connect server).

105. Therefore, in my opinion, Yukie discloses this limitation.

**k. 1[j] applying, by the one or more server applications, an encoding operation on at least part of the selected digital content, and**

106. In my opinion, applying an encoding operation to selected digital content would have been obvious over Yukie in view of Boyce. Yukie describes a system and method for transmitting digitized content such as audio and video to a user over the public Internet, making use of standard Internet Protocols and standard IP packets. See, e.g. Yukie at 3:58-62,

“In the architecture shown, public content from the content providers 12 is made available in a content database 14 for provision of the data in Internet Protocol (IP) packets, with the database 14 preferably being accessible via the Internet.”

107. Yukie also teaches that the content server provides content to the terminal via IP (internet protocol) packets, which are processed according to principles known in the art. Yukie at 7:60-8:3, claims 4, 15. Yukie teaches that the content must be rendered in a digital format so that it may be sent over a computer network such as the Internet. See Yukie 2:38-41.

“In another aspect, a method for vending content includes rendering the content in a digitized format, and making the content available on a computer network.” See also Claims 10, 15

108. Therefore, a POSA would understand that Yukie’s rendering the content in a digitized format and subsequent transmission via data packets would entail an encoding scheme in order for the user terminal to be able to display the content in a format comprehensible to the user terminal and monitor. Without encoding, the bandwidth required to send a single video would be enormous. MPEG-2 for example can achieve compression ratios of up to 124:1<sup>6</sup>. While Yukie does not discuss a specific scheme, Boyce teaches coding methods for popular, widely used formats for transmitting digital video over the internet, including compression-efficient, packetized formats such as MPEG, MPEG-2, H.261, and

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<sup>6</sup> “Digital Broadcast Technologies,” Cisco Press Aug. 20, 2001  
(<https://www.ciscopress.com/articles/article.asp?p=106971&seqNum=3>) (Ex. 1015)

H.263. Boyce at 1:15-20, 1:24-31, 1:59-64.

109. A POSA would therefore know that Yukie's system would require an encoding scheme for such multimedia content to render this content in a digitized format so that it can be sent over the public Internet. Boyce describes MPEG coding, a common format for video transmitted over the internet via IP packets. See, e.g. Boyce at Abstract. A POSA would therefore combine Yukie and Boyce because Boyce teaches a common coding format for rendering the content of Yukie in a digitized format, and Boyce fills in the gaps in the disclosure of Yukie about how such content would be sent over a packetized network.

110. For example, it would have been obvious for a POSA to use interframe coding techniques such as MPEG-2 to render the content in a digitized format and make it available on a computer network using standard MPEG encoders which existed at the time and were disclosed by Boyce. Boyce at Fig. 4, box 401 ("standard MPEG encoder"), 10:30-33. See Relevant State of the Art" above.

111. It would therefore be obvious to a POSA to send digital content from the servers as taught by Yukie using the popular, efficient encoding methods taught by Boyce since both systems operate using IP packets and IP protocols.

112. Therefore, in my opinion, applying an encoding operation to selected digital content would have been obvious over Yukie in view of Boyce.

**I. 1[k]: applying, by the one or more server applications, an encryption scheme on at least part of**

**the selected digital content for ensuring security of at least part of the selected digital content, and wherein, subsequent to applying the encoding operation and the encryption scheme on at least part of the selected digital content, the selected digital content is, at least in part, device dependent for rendering at the one or more devices; and**

113. In my opinion, applying an encryption scheme to selected digital content would have been obvious over Yukie in view of Gunter. Yukie teaches that the content is provided over channels that can be simultaneously sent the user by means of multi-threaded tunnel channels. Yukie 7:16-18

“Accordingly, content over plural channels might be sent simultaneously to the user, by means of e.g., the above-described multi-threaded tunnel channel.”

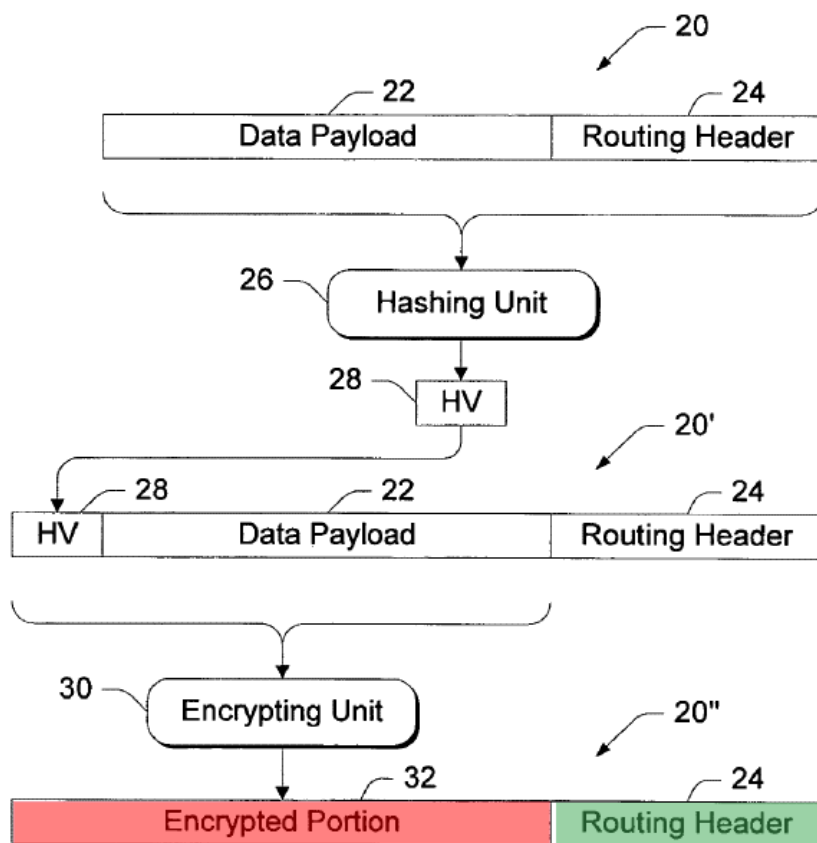
114. Yukie teaches that these above-described tunnel content channels are preferably private, secure tunnels. Yukie 6:10-12.

“Preferably, the path includes a private, secure tunnel channel having plural threads, one for each content channel defined by the user.”

115. Gunter explains in detail how such “private, secure tunnels” can be created according to existing Internet protocols known to those of skill in the art. Gunter first teaches that to communicate securely over a public network such as the Internet, data is commonly encrypted in a Virtual Private Network ‘VPN’. Gunter 1:13-19, 1:22-28.

“To enable this communication over an otherwise public network, data is commonly encrypted into a protected form. This affords essentially the same protection and security as a private network, while benefiting from the flexibility and lower costs offered by the Internet. To this end, the concept of a virtual private network (VPN) has been developed.”

116. The VPN establishes an encrypted data flow between two endpoints using security keys. This data flow can be thought of as a tunnel through the Internet, since the data conceptually enters the tunnel at one end and emerges, secure and unchanged at the other end. Gunter at 1:29-37. Gunter teaches that various protocols existed to provide security for VPNs, Point to Point Tunneling Protocol and the Internet Engineering Task Force IPSEC being the two most common, Gunter at 1:46-52. IP Security, “IPSEC”, was designed by the Internet Engineering Task Force, for use on the Internet and provides data integrity and encryption. Encryption is done via a shared secret key. With IP security, only the sender and recipient know the security key. Gunter at 2:1- 15. Gunter further explains that such “tunnels,” as known to a POSA, would encrypt the data “payload” of IP packets, while using an unencrypted header containing routing information. Gunter at 1:30-37, 2:1-22, Fig. 1.



117. Therefore, a POSA would look to Gunter’s teachings for specific methods to implement Yukie’s explicit teaching or suggestion to provide a private, secure, tunnel channel. Gunter’s teachings of methods for encrypting and “tunneling” data further meet the need suggested by Yukie for ways to send data securely over public channels such as the Internet. Yukie teaches that its content distribution system may be used to provide content on a paid, subscription basis, or that is personalized to the user. Yukie at Abstract, Fig. 4, 1:23-26, 2:29-32, 3:16-18, 3:27-53, 6:30-36, 6:51-64, 7:54-57. Because Yukie teaches sending content over publicly accessible networks such as the Internet, Yukie therefore suggests a need

to transmit such content securely, either to ensure that it is only available to those who have paid for it or to protect the security of personal private information.

118. A POSA would understand that the encryption operation would take place after the encoding operation as the encoding operation creates data payload that would subsequently be encrypted as shown in Fig. 1 of Gunter.

119. The selected digital content is, at least in part, device dependent for rendering at the one or more devices because as described in Claim 1[e] above, the server sends the content at a rate compatible with the terminal, based on the server having previously determined the device type. Fig. 3, steps 60, 62; 6:30-36. Claim 22 of Yukie further recites that “the device type dictat[es] the content provided to the user terminal,” i.e. that the content is dependent on the type of device. The encrypted data is device dependent subsequent to encryption as sending occurs after encryption.

120. A POSA would understand that Yukie in view of Gunter also suggests that the digital content is “device dependent” because the encryption process relies on a shared secret key, which is known only by the sender and the recipient. Gunter at 2:4-12. Therefore, the encrypted data sent from the server to the client (such as the user terminal) is “device dependent” subsequent to encryption because it is encrypted using a key known only to the server and the client, and is therefore specific to the client.

121. A POSA would understand that the use of encryption specific to the receiving device would be particularly advantageous in the scenarios described by Yukie where the server transmits customized information specific to a user. Yukie at 3:27-38. For example, where the content is a video camera in the user's home, using a session key as taught by Gunter would ensure that only the user terminal 32 (corresponding to the "internal client" in Gunter) and other devices specifically involved in the transaction (e.g. firewall intermediaries) could decrypt and read the traffic. However, other devices on the network that might intercept the data cannot decrypt the encrypted data.

122. Moreover, after encryption, the generated output data is still device dependent as the IP header will contain the destination IP address for the device, designated in the routing headers, element 24 in Gunter, shown above in Gunter Fig. 1.

123. Yukie teaches that the output device can be a monitor, or audio speakers or a printer. Yukie therefore teaches that the server must be able to identify the content appropriate for these different output devices, the device identification. Yukie at 5:4-12 teaches that the user of the system may

“purchase content from the content database 14 for display on, e.g., an output device such as a monitor 38. Other output devices such as other computers, computer networks, audio speakers, printers, and so on can

be used.

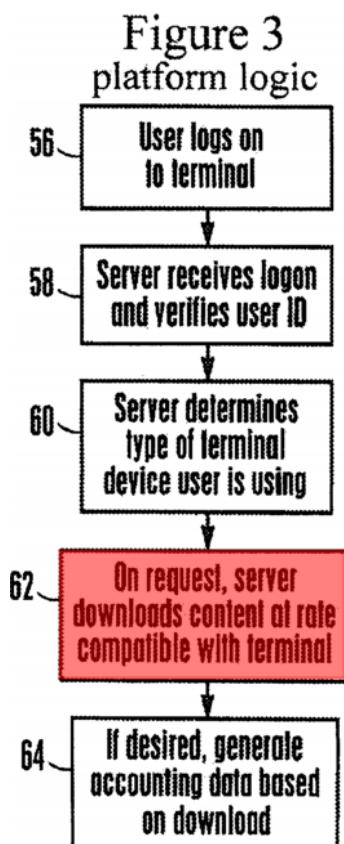
124. Therefore, in my opinion, and in view of Yukie's claim 22, it would be obvious to a POSA that Yukie's delivery system would send content from the connect server appropriate for the type of output device. For example, video content would be appropriate to send to a monitor but not to speakers or a printer. Such content is "device dependent" because it is appropriate for rendering by the device receiving such content.

125. Therefore, in my opinion, applying, by the one or more server applications, an encryption scheme on at least part of the selected digital content for ensuring security of at least part of the selected digital content, and wherein, subsequent to applying the encoding operation and the encryption scheme on at least part of the selected digital content, the selected digital content is, at least in part, device dependent for rendering at the one or more device would have been obvious over Yukie in view of Gunter.

**m. 1[l]: transmitting, by the one or more servers, at least part of the generated output data to the information apparatus or the device for rendering at least part of the selected digital content at the one or more devices;**

126. In my opinion, Yukie discloses this limitation because, for example, it teaches that the one or more servers transmit the generated output data to the information apparatus for rendering. Yukie discloses that the generated output content can be downloaded to a user. Yukie also teaches a method for "rendering

the content in a digitized format and making the content available on a computer network” (at 2:38-45), and that the connect server sends the content to the user terminal 32. Yukie at 5:63-6:3, 6:29-38, Fig. 2, block 52, Fig. 3, block 62;



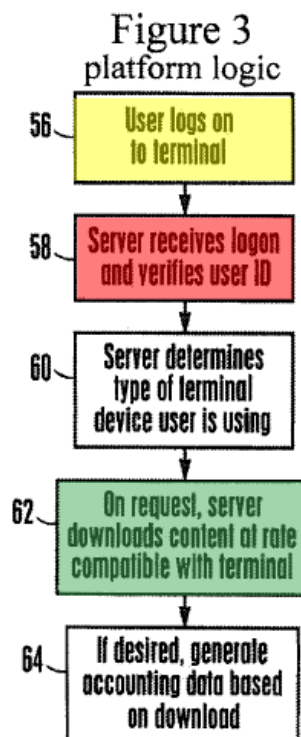
127. Therefore, in my opinion, Yukie discloses this limitation.

- n. 1[m] wherein the generated output data is, at least in part, device dependent to the one or more devices, and the generated output data having a relationship, at least in part, to the device information included in the device object and received by the one or more servers from the information apparatus or the device over the network that includes the Internet, and wherein the transmitting of at least part of the generated output data by the one or more servers to

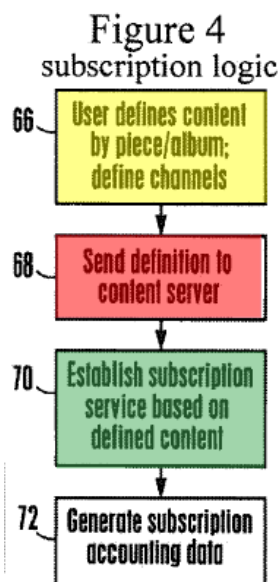
**the information apparatus or the device is subsequent to having received the security or authentication information associated with the user operating the information apparatus or the device, and the transmitting of at least part of the generated output data is based, at least in part, on having received, from the information apparatus or the device, the payment or subscription information.”**

128. In my opinion, Yukie discloses this limitation. As discussed regarding element 1(e) above, Yukie teaches that the generated output data provided by the server is device dependent and has a relationship to the device information included in the device object received by the servers from the user terminal (information apparatus) because, for example, the server provides content at a rate compatible with the terminal (Fig. 3, step 62) after determining the type of terminal device the user is using (Fig. 2, step 60). Yukie at 6:29-36.

129. The server transmits output data subsequent to having received security or authentication information (discussed regarding element 1(c) above), because Fig. 3 shows the connect server sending content to the terminal (6:30-36) at step 62 after receiving the logon and verifying the user ID (step 58) (6:19-20).



130. Finally, it would be obvious to a POSA to transmit at least part of the generated output data based at least in part on having received payment or subscription information from the information apparatus or device. As discussed regarding element 1(d) above, Yukie repeatedly references subscription services and providing content based on those subscription services, as shown in Fig. 4:



131. For example, Yukie teaches at 6:30-36 that the content server may retrieve content “on request... and/or according to a subscription.” Therefore, the transmitting of the generated output data from the content server can be based on having received the subscription information from the information apparatus (user terminal).

132. It would also be obvious to a person of ordinary skill in the art in view of Yukie to transmit output data based on having received payment information. Yukie teaches (at 1:23-26) that content may be on channels that are subscribed to, with payment based on a subscription service. Therefore, since Yukie teaches checking subscription information at login before providing content, it would be obvious to a POSA in order to monetize Yukie’s content distribution system to only provide content for which a paid subscription is required after payment (or a means

of payment such as a credit card, which is payment information) is provided. To do otherwise would not ensure that the content provider would be paid for providing the content. Therefore, for the reasons discussed above, in my opinion Yukie discloses this limitation.

**3. Claim 37: A system for accessing a digital content service over a network and for receiving output data from one or more servers over the network for rendering, the one or more servers being distinct and separate devices from the system, and the one or more servers operated, at least partly, by the digital content service, the received output data corresponding to at least part of digital content that is acceptable for rendering at the system, the system comprising:**

133. Claim 37 recites a similar set of features in the same system as claim 1, except that claim 37 is written to focus on the client system (e.g. the “information apparatus”) rather than the servers. For example, elements of claim 1 that recite receiving information (e.g. security or authentication information) at the servers from the client device correspond to elements of claim 37 that recite sending information from the client device to the servers, and are therefore taught by the same elements of the prior art of Yukie, Boyce, and Gunter.

- a. **37[pre] A system for accessing a digital content service over a network and for receiving output data from one or more servers over the network for rendering, the one or more servers being distinct and separate devices from the system, and the one or more servers operated, at least partly, by the digital content service, the received output data corresponding to at least part of digital content that is acceptable for**

**rendering at the system, the system comprising:**

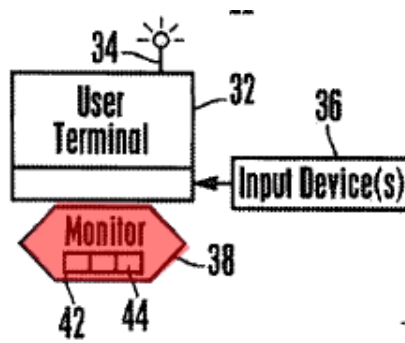
134. In my opinion, for the reasons set forth in Claim 1[pre] above, Yukie discloses this limitation.

**b. 37[a] a processor**

135. Yukie teaches that the terminal device 32 can be “any computer,” including a personal digital assistant, personal computer, laptop computer, palmtop computer etc. Yukie at 4:60-67. Yukie further teaches (at 5:31-41) that the logic described therein may be executed by a processor within, e.g. the user terminal 32. Therefore, in my opinion, Yukie teaches a processor.

**c. 37[b] a device that is at least one of a display device, or a projection device, or an audio output device, for rendering or outputting at least part of the output data;**

136. Yukie teaches (at 5:4-12) that the user terminal device includes a monitor 38 (as shown in Fig. 1, annotated below) which is used to display content retrieved from the server.



137. Yukie also teaches that the user terminal can be an audio-video system

for a school, Yukie 7:26-30, which a POSA would understand to have a display.  
Therefore in my opinion, Yukie discloses this limitation.

**d. 37[c] an operating system**

138. Yukie discloses this limitation as it teaches that the user terminal can be a personal computer made by IBM or Apple Computer. Yukie 4:60-67.

“The terminal device 32 is a digital processing apparatus, such as a personal digital assistant made by Sony. Or, the terminal device 32 can be a personal computer made by International Business Machines Corporation (IBM) or Apple Computer, or the terminal device 32 may be any computer, including a laptop computer, a palmtop computer, a digital audio device, or any other appropriate digital appliance.”

139. A POSA would understand that personal computers made by IBM or Apple Computer would contain an operating system. Therefore in my opinion, Yukie discloses this limitation.

**e. 37[d] a client application having an interface for interacting with a user of the system, the client application executable by the processor and facilitated, at least partly, by the operating system included in the system,”**

140. Yukie teaches that the modules described therein may be implemented as “computer program software” or “computer program code elements” such as “a computer program that is executed by a processor with, e.g., the user terminal 32...”

Yukie at 5:20-30.

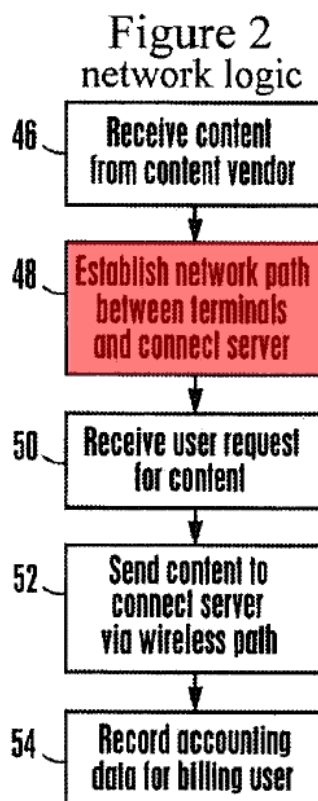
“The flow charts herein illustrate the structure of the modules of the present invention as embodied in computer program software or in hardware. Those skilled in the art will appreciate that the flow charts illustrate the structures of logic elements, such as computer program code elements or electronic logic circuits, that function according to this invention.”

141. Furthermore, A POSA would understand that the processors described in element 37(a) would require programming in order to perform the specified functions described in Yukie.

142. The client program on the user terminal 32 includes a selector element 42 or other graphical user interface elements. Yukie at 5:42-62, Fig. 1. A POSA would recognize that Yukie therefore teaches or suggests a client program operating on the user terminal 32 such as a personal computer, which would be executed by the processor and facilitated by the operating system. Therefore, in my opinion, Yukie discloses this limitation.

**f. 37[e]-[f]: wherein the system is configured for:  
establishing a communication channel between the  
system and the one or more servers over the network  
for accessing the digital content service**

143. Yukie teaches establishing a network path (communication channel) between the user terminal 32 and the connect server 26. Yukie at 6:64-66, 6:10-12, Fig. 2 (step 48):



144. This communication channel is used to send content to the user terminal step 52. Yukie, therefore discloses these limitations.

- g. **37[g] receiving, by the client application and from the one or more servers over the network, one or more pointers or references to one or more digital content that are stored in a content server, the content server operated, at least partly, by the digital content service**

145. See element 1[f] above. The “selector element” (e.g. toolbar with icons) 42 sent by the content server is received by the user terminal 32. It would be obvious to a POSA to operate the connect server 26 by the digital content service, because the connect server performs the functions of authenticating the user, verifying subscription information, and billing (Figs. 2-4, 6:19-22, 4:37-64), indicating that

the digital content service provider operates the connect server. A POSA would understand that there must be some party responsible for the billing and they would in part be responsible for the content server's operation. In addition, the connect server itself may further provide content. *Id.* at 3:54-57;

146. Therefore, in my opinion, Yukie discloses this limitation.

- h. 37[h] providing, by the client application and via the interface, the one or more pointers or references to the one or more digital content for selection by the user**

147. See element 1[f] above. As described above, the “selector element” (e.g. toolbar with icons) 42 is displayed on the monitor 38 of the user terminal 32. Yukie at 5:42-61, Fig. 1. A POSA would therefore understand that Yukie's user terminal 32 includes a client application (logic executing a computer program) to display the selector element by a GUI. See Yukie 5:31-33.

“In other words, the present logic may be established by a computer program that is executed by a processor within, e.g., the user terminal 32...”

148. Therefore, in my opinion, Yukie discloses this limitation.

- i. 37[i] receiving, at the system via the interface, selected digital content from among the one or more pointers or references to the one or more digital content provided for selection, the selected digital content includes at least one of video digital content or audio digital content, individually or in any combination;**

149. See element 1[l] above. The content provided by the connect server is

based on a user selection from toolbar icons or equivalents (“pointers or references”) for the reasons discussed regarding element 1[h] above, and is received by the user terminal 32 (information apparatus) after being send by the connect server 26.

150. Therefore, in my opinion, Yukie discloses this limitation.

- j. 37[j] delivering, from the system, at least part of a content object to the one or more servers over the network, the content object including at least a pointer or reference to the selected digital content;**

151. See element 1[g] above. As described above, the “content object” taught by Yukie (data indicating the user’s selection from the “selector element”) is sent from the user terminal 32 and received by the server

152. Therefore, in my opinion, Yukie discloses this limitation.

- k. 37[k] delivering, by the system, at least part of an object to the one or more servers over the network, the object including information related to at least part of the system;**

153. In my opinion, Yukie discloses this limitation for the reasons discussed above for element 1[e].

- l. 37[l] sending, from the system to the one or more servers over the network, security or authentication information associated with the user of the system for authentication of the user for accessing the digital content service;**

154. In my opinion, Yukie discloses this limitation for the reasons discussed above for element 1[c].

- m. 37[m] sending, from the system to the one or more**

**servers, payment or subscription information for  
accessing the digital content service;**

155. In my opinion, Yukie discloses this limitation for the reasons discussed above for See element 1[d].

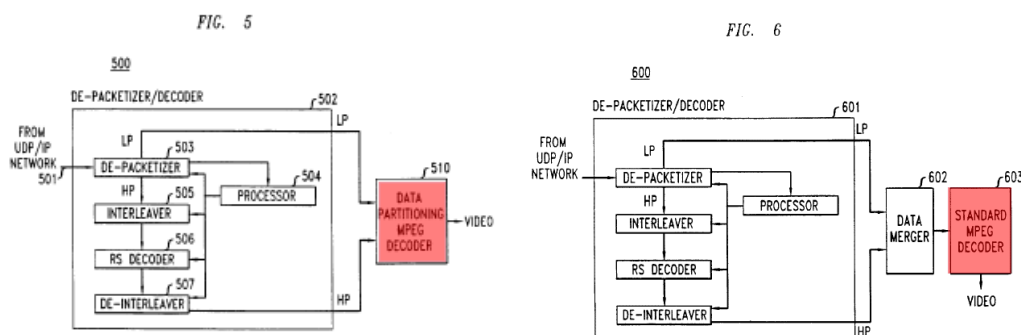
- n. **37[n] receiving, at the system, the output data from the one or more servers, the output data corresponding to at least part of the selected digital content, and the output data corresponding, at least in part, to the content object delivered from the system to the one or more servers, and the output data having a relationship, at least in part, to the information included in the object delivered from the system to the one or more servers over the network, and the output data further including an encryption scheme for ensuring security of the selected digital content that is at least in part device dependent to the system and is acceptable for rendering by the system, and at least part of the output data is device dependent for rendering by the system;**

156. As discussed regarding element 1[m] above, Yukie teaches sending output data from a server to the user terminal, which is based on the selected “content object” for the reasons discussed regarding element 1[h] above, and relates to the “object” about the type and capabilities of the user terminal (and is therefore “device dependent”) as discussed in element 1[e] above. It would be obvious to a POSA to encrypt such data based on Yukie in view of Gunter for the reasons discussed regarding element 1[k] above.

- o. **37[o] decoding at least part of the received output data, at the system, for rendering at least part of the**

**selected digital content by the system; and**

157. In my opinion Yukie discloses this limitation, see element 1[j] regarding encoding operation above. It would be obvious to a POSA that MPEG-coded content needs to be decoded in order to render it after receiving it over a network, and Boyce further explicitly and repeatedly teaches decoding by a decoder to produce a video output. Boyce at Abstract, 3:43-47, 4:21-39, 4:58-67, 11:28-31, 13:64-14:4, Fig. 5 (block 510), Fig. 6 (Block 603):

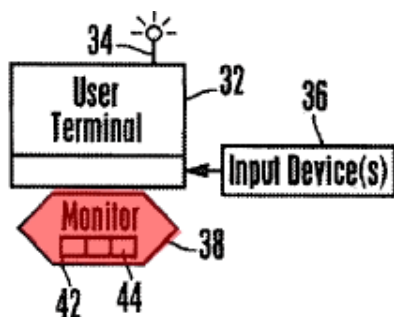


158. It would be obvious to a POSA to decode at least part of the received output data based on Yukie in view of Boyce for the reasons discussed regarding element 1[j] above.

- p. **37[p]-[q] subsequent to having decoded at least part of the output data, the system is further configured for: rendering or outputting, using the device that includes at least one of a display device, or a projection device, or an audio output device, at least part of the decoded output data corresponding to at least part of the selected digital content**

159. In my opinion Yukie discloses this limitation. Yukie teaches that

content from the servers (including content database 14) may be displayed on an output device such as a monitor 38 (display device), or on other output devices including audio speakers (audio output device). Yukie at 5:4-12, Fig. 1 (showing monitor 38).



160. It would be obvious to a POSA that when used with MPEG-encoded video data as taught by Boyce, the rendering or outputting of such data would necessarily occur after the data is decoded since MPEG video cannot be rendered without being decoded.

#### 4. Claim 38

- a. **38[a] The system of claim 37 in which the object includes at least one of a device identification information, or a registration information, or an address information, individually or in any combination, related to the system, and**

161. In my opinion, Yukie discloses this limitation. As discussed above regarding element 1[e], Yukie teaches or suggests that the user terminal 32 sends its device type to the connect server, which is an object which includes device information. As further discussed regarding element 1[e], the IP packets sent from

the user terminal to the server include the IP address of the user terminal (address information).

- b. **38[b] the system is further configured for obtaining the object for delivering to the one or more servers, the obtaining of the object includes obtaining information from at least one of the following: (1) user input, (2) processing a device identification information at the system, (3) obtaining information from one or more devices that are distinct and separate devices from the system, (4) retrieving a parameter stored in the system, or (5) a default parameter or preference associated with the system, individually or in any combination.**

162. In my opinion, Yukie discloses this limitation. Yukie teaches or suggests this limitation because it would be obvious to a POSA that the user terminal of Yukie would need to retrieve its device type and IP address (“a parameter stored in the system”) from memory in order to include that information in IP packets sent to the server. See my analysis for claim 1[e] above.

## **5. Claim 39**

- a. **39: The system of claim 37 wherein the system is embodied to be at least one of a television system, a laptop computer, a wireless output controller box wire connected to a television, a smart phone, an Internet pad, an Internet appliance, a speaker, an audio output device, a display device, or a digital camera, individually or in any combination.**

163. In my opinion, Yukie discloses this limitation. Yukie teaches that the terminal 32 may be one of several of the devices listed by this claim, which only requires at least one of them. For example, the terminal of Yukie may be a personal

digital assistant, laptop computer, palmtop computer, or digital audio device. Yukie at 4:60-67. The terminal may output data to a monitor (display device) or speakers. *Id.* at 5:4-12.

**6. Claim 40**

**a. 40[a]: The system of claim 37 in which the system is embodied, at least in part, as an information apparatus,.**

164. In my opinion, Yukie discloses this limitation. The term “Information apparatus” is defined broadly in the ’233 Patent to “refer generally to computing devices, which include both stationary computers and mobile computing devices,” such as “desktop computers, laptop computers... palmtop computers” and “personal digital assistants (PDAs).” ’233 Patent at 1:21-31. Yukie likewise teaches (at 4:60-67) that its user terminal 32 may be a personal computer, laptop computer, palmtop computer, or personal digital assistant.

**b. 40[b]: the device is at least a speaker included in the information apparatus, and**

165. In my opinion, Yukie discloses this limitation. Yukie teaches (at 4:60-67) that the user terminal may be a “digital audio device,” and further teaches (at 5:10-12) that the output device may be “audio speakers.”

**c. 40[c] the device and the information apparatus are wire connected, and**

166. In my opinion, Yukie discloses this limitation. This element would be obvious to a POSA in view of Yukie. Yukie teaches that the user terminal 32 may

output content to a variety of output devices, including a monitor, audio speakers, printers, etc. Yukie at 5:4-12. A POSA would recognize that there are a limited number of ways to connect the terminal and output device, *i.e.* they could be integrated into a single device or connected wired or wirelessly. A POSA would know that wired connections between computers and display devices were widespread, and would therefore infer that connecting Yukie's user terminal and output device with a wire would be reasonable, especially when the output device is a monitor.

**d. 40[d] wherein the interface of the system includes a voice activated command interface for interacting with the user.**

167. In my opinion, Yukie discloses this limitation. Yukie teaches this element at 5:4-10, which explains that the input device 36 may be a voice recognition device. Yukie 5:4-7.

“As shown in FIG. 1, the **terminal device 32 is electrically connected to one or more input devices 36**, e.g., a mouse and/or a keyboard and/or **voice recognition device** and/or Jog Dial™, which can be manipulated by a user of the system 10...”

**7. Claim 41**

**a. 41[a]: The system of claim 40 wherein the encryption scheme for ensuring security of the selected digital content includes security keys, and**

168. As I discussed regarding element 1[k] above, Gunter teaches the use of

security keys, and it would be obvious to use such security keys in connection with Yukie's teaching of a "private, secure tunnel channel." Yukie at 6:10-12.

1. **41[b]: the system further enables operations for processing, at the system, the output data into a form, format, or language more suitable for rendering at the device, the processing including one or more of a decoding operation, a decompression operation, or an encoding operation, individually or in any combination.**

169. In my opinion, Yukie discloses this limitation, see element 37[o] above.

## 8. Claim 42

170. Claim 42 is similar to claim 1, except that claim 42 is written as a system claim rather than as a method claim. Where similar claim elements have been discussed for previous claims, I will therefore reference my previous analysis rather than repeating it.

- a. **42[pre] A digital content service system for transmitting to an output system, over a network that includes the Internet, digital content that is acceptable for rendering at the output system, the output system including one or more devices, the digital content service system comprising:**

171. See my analysis for claim 1[pre] above.

- b. **42[a] one or more servers that are distinct and separate from the output system;**

172. See my analysis for claim 1[a] above.

- c. **42[b] one or more processors included in the one or**

**more servers;**

173. In my opinion Yukie discloses this limitation. Yukie teaches (at 4:67-5:3) that the connect server 26 can be established by various computing devices including personal computers or “larger computers, such as mainframe computers,” and (at 5:31-34) that the “In other words, the present logic may be established by a computer program that is executed by a processor within, e.g., the user terminal 32 or connect server 26 or POP computer 18 as a series of computer-executable instructions.” Therefore in my opinion, Yukie teaches this element.

- d. 42[c] one or more server applications executable, at least partly, by the one or more processors at the one or more servers to facilitate operations of the one or more servers;**

174. See my analysis for element 1[b] above.

- e. 42[d] memory or one or more storage devices at the one or more servers configured to store at least part of the one or more server applications; wherein execution of the one or more server applications by the one or more processors causes the one or more servers to:**

175. In my opinion Yukie discloses this limitation. Yukie teaches (at 5:39-41) that the server software may be compiled C++ code. Yukie also teaches that the computer executable instructions may be stored in memory such as hard disk drives, RAM, or other “appropriate data storage device.” Yukie at 5:34-39.

“In addition to residing on hard disk drives, these instructions may reside, for example, in RAM of the appropriate computer, or the instructions may be

stored on a DASD array, magnetic tape, electronic read-only memory, or other appropriate data storage device. In an illustrative embodiment of the invention, the computer-executable instructions may be lines of compiled C++ compatible code.”

- f. 42[e] receive, by the one or more servers and from the output system, security or authentication information associated with a user for authenticating the user to access the digital content service system, and, in dependence of a successful authentication, the one or more servers is further operable to:**

176. See my analysis for element 1[c] above.

- g. 42[f] receive, by the one or more servers and from the output system, device information relating to at least part of the output system that includes the one or more devices;**

177. See my analysis for element 1[e] above.

- h. 42[g] receive, by the one or more servers and from the output system, a content object, the content object including at least a pointer or reference to selected digital content, the selected digital content being related to a selection by the user from among one or more pointers or references to available digital content from the digital content service system, the one or more pointers or references provided, at least in part, to the output system by the one or more servers;**

178. See my analysis for elements 1[f] (server provides toolbar with icons, i.e. “pointers or references, to user terminal, i.e. “output system”) and 1[g] (server receives user selection based on toolbar) above.

- i. **42[h] receive, by the one or more servers and from the output system, payment or subscription information to enable transmitting at least part of the selected digital content to the output system;**

179. See my analysis for element 1[d] above.

- j. **42[i] generating, by the one or more server applications, output data related, at least partly, to the selected digital content, the generating of the output data being after the one or more servers received the content object from the output system, and the generating of the output data being after the one or more servers received at least part of the payment or subscription information from the output system, and at least part of the generated output data has a relationship, at least in part, to the device information relating to the output system received by the one or more servers, and at least part of the generated output data includes (1) an encoding operation applied on at least part of the selected digital content, and (2) an encryption scheme associated with one or more security keys applied on at least part of the selected digital content for ensuring security of the selected digital content; and**

180. In my opinion Yukie discloses this limitation. As discussed regarding element 1[i], Yukie teaches generating output data at the content server relating to the user-selected content. The generation occurs after receiving the content object because the server provides the content after receiving the user's selection. Yukie Fig. 2, blocks 50, 52. It would be obvious to a POSA to transmit the output data after having received payment or subscription information for the reasons discussed regarding element 1[m]. For example, Yukie teaches at 6:30-36 that the content

server may send content based on a subscription established by a user-defined profile, implying that the server has previously received the subscription profile specified in Yukie's Fig. 4. The output data has a relationship to the previously received device information for the reasons discussed regarding element 1[m]. The encoding operation is discussed regarding element 1[j], while encryption is discussed regarding element 1[k]. Gunter further teaches that the data is encrypted using a key such as a session key. Gunter at Abstract, 2:1-15 (explaining shared key according to IPSec protocol).

- k. 42[j] wherein the generated output data related, at least partly, to the selected digital content, is device dependent for rendering at the output system that includes the one or more devices, and at least part of the output data is for transmitting to the output system, and**

181. In my opinion Yukie discloses this limitation. The generated output data is "device dependent" for the reasons explained above regarding element 1[k]. Yukie teaches that the output data is displayed on the monitor 38 of the user terminal 32 (or another display device), as discussed regarding element 37[b], and the data is therefore for transmitting to the output system. See also Claim 22 of Yukie.

- l. 42[k] wherein the generated output data, related, at least partly, to the selected digital content, is acceptable for rendering at least part of the selected digital content at the output system that includes the one or more devices, and the selected digital content includes at least one of audio digital content or video**

**digital content, individually or in any combination.**

182. In my opinion Yukie discloses this limitation. This claim element is obvious over Yukie since Yukie teaches that the user can view content on a display device such as monitor 38. Yukie at 5:54-61. Therefore, it would be obvious to send data that is “acceptable for rendering” so that the user can see the content that they selected; conversely, Yukie’s system would be nonsensical if it sent selected data that was *unacceptable* for rendering. Yukie further teaches that the selected digital content includes at least one of audio or video for the reasons discussed regarding element 37[i].

183. Yukie teaches that multiple types of output devices such as a monitor, other computers, audio speakers, printers, and so on can be used (5:4-12) and that the connect server access a database that contains “information on the type of device the establishes the user terminal” (5:12-16). Additionally, Yukie’s claim 22 recites “the device type dictating the content provided to the user terminal.” Therefore, it would be obvious for a POSA that Yukie’s delivery system would send content from the connect server appropriate for the type of output device. For example, video content would be appropriate to send to (and acceptable for rendering on) a monitor, but not to speakers or a printer. Therefore, it would be obvious to a POSA for the output data sent from Yukie’s connect server to the output device to be acceptable for rendering for the device to which it is sent

**9. Claim 43**

- a. 43[a] The system of claim 42 wherein the output system includes a client application, and the client application communicates with the one or more servers over a network that includes the Internet for receiving at least part of the output data that is at least in part device dependent for rendering at the output system, and**

184. In my opinion Yukie discloses this limitation. See element 37[d] regarding the “client application.” See claim 1[pre] regarding “one or more servers.” See element 37[n] regarding “receiving... output data that is at least in part device dependent for rendering.

- b. 43[b] the client application is further operable for decoding at least part of the output data received from the one or more servers for rendering at least part of the selected digital content at the output system that includes the one or more devices**

185. In my opinion Yukie discloses this limitation. See element 37[o].

**10. Claim 44**

- a. 44: The system of claim 42 in which the output system is an audio system or a sound output system, and the output system includes an audio output device or speaker and the output data includes audio data.**

186. In my opinion Yukie discloses this limitation. Yukie teaches that the user terminal may be a digital audio device (4:61-67), that the output device may include audio speakers (5:10-12), and that the content provided over the network includes audio data such as music. Yukie at 1:20-23, 3:9-13, 3:18-21, 7:34-39.

**11. Claim 45**

- a. **45: The system of claim 42 in which the output system includes one or more devices for rendering at least part of the selected digital content, and the one or more devices includes at least one of a television, an output controller connectable to a television, a display device, a speaker, or an audio output device, individually or in any combination.**

187. In my opinion Yukie discloses this limitation. Yukie teaches that the output system may be at least a monitor (display device) or audio speakers (speaker). Yukie at 5:4-12;

**12. Claim 46**

- a. **46[a]: The system of claim 42 in which the content object received from the output system includes a pointer or reference to the selected digital content, and**

188. In my opinion Yukie discloses this limitation. See element 1[g].

- b. **46[b]: the one or more server applications further retrieve, using the pointer or reference to the selected digital content, at least part of the selected digital content from a content server for transmitting at least part of the selected digital content to the output system.**

189. In my opinion Yukie discloses this limitation. See element 1[h].

**13. Claim 47**

190. Claim 47 is similar to claim 1, except that claim 47 is written as a system claim rather than as a method claim. Where similar claim elements have been discussed for previous claims, I will reference my previous analysis rather than

repeating it.

- a. **47[pre] In a computer memory or storage device at a server system, containing one or more server applications executable by one or more processors at one or more servers in the server system for transmitting device dependent output data acceptable for rendering at an output system, the output system including one or more devices, and the server system including one or more servers that are accessible by the one or more devices over a network that includes the Internet, the server system being distinct and separate from the one or more devices of the output system, the one or more server applications in the computer memory or storage device, when executed by the one or more processors at the one or more servers, configures the server system to:**

191. In my opinion Yukie discloses this limitation, see claim 1[pre] above.

See also element 42[d] regarding a “computer memory or storage device at a server system. See also element 1[b] regarding “server applications,” and claim 42[b] regarding “one or more processors.” See also elements 37[n] and 42[k] regarding “acceptable for rendering.” See also element 1[a] regarding “one or more servers... distinct and separate from the... output system.”

- b. **47[a] receive, by the server system from the output system, one or more content objects, the one or more content objects including one or more pointers or references to digital content corresponding to one or more selection by a user at the output system, the one or more pointers or references to digital content are related to available digital content at the server system, and the available digital content are provided, at least in part, to the output system by the server**

**system;**

192. In my opinion Yukie discloses this limitation, see element 1[f] regarding providing available digit content from the server to the output system. See also element 1[g] regarding the server receiving “pointers or references... corresponding to... selection by a user.”

- c. **47[b] receive, by the server system from the output system, one or more objects, the one or more objects having information related to the output system that includes the one or more devices;**

193. In my opinion Yukie discloses this limitation, see element 1[e].

- d. **47[c] receive, by the server system and from the output system, security or authentication information associated with a user operating the output system for authentication of the user;**

194. In my opinion Yukie discloses this limitation, see element 1[c].

- e. **47[d] receive, by the server system and from the output system, security or authentication information associated with a user operating the output system for authentication of the user;**

195. In my opinion Yukie discloses this limitation, see element 1[h].

- f. **47[e] generate, by the server system, output data associated with at least part of the digital content, the output data having a relationship, at least in part, to the information included in the one or more objects received by the server system;**

196. In my opinion Yukie discloses this limitation, see element 1[i].

- g. **47[f] apply, by the server system, an encoding operation on at least part of the digital content for**

**transmitting the output data that is associated with at least part of the digital content;**

197. In my opinion Yukie discloses this limitation, see element 1[j].

- h. 47[g] apply, by the server system, an encryption scheme on at least part of the digital content for ensuring security of at least part of the digital content for rendering at the output system; and**

198. In my opinion Yukie discloses this limitation, see element 1[k].

- i. 47[h] transmit, by the server system to the output system over the network that includes the Internet, at least part of the output data that is associated with at least part of the digital content, and the at least part of the output data includes the encryption scheme applied to at least part of the digital content, and wherein the transmitting of at least part of the output data is after the server system receives, from the output system, at least (i) the security or authentication information, (ii) the one or more content objects, and (iii) the one or more objects from the output system; and**

199. In my opinion Yukie discloses this limitation, see element 1[l] regarding “transmitting” output data and element 1[k] regarding the encryption scheme. Yukie teaches that transmitting data occurs after the server receives the user’s logon and verifies the user ID (“security or authentication information”). Fig. 3, blocks 58 and 62. Yukie teaches that transmitting data occurs after the server receives a user request for content (“one or more content objects”). Fig. 2, blocks 50 and 52. Although it is not entirely clear whether the antecedent basis for “one or more objects from the output system” refers to the “object” in element 47[a] or 47[b],

Yukie teaches that transmitting data occurs after the server receives (in addition to the “content object” discussed above) the identification of the user terminal device discussed regarding element 1[e] and 47[b]. See Fig. 3, blocks 60 and 62. Yukie also discloses that the embodiments of the invention may be compiled C++ code. Yukie 5:39-41. A POSA would understand that C++ is an object-oriented computer language.

**14. Claim 48**

- a. 48: The memory or storage device of claim 47 in which the encryption scheme includes security keys for ensuring security of the digital content.**

200. In my opinion Yukie discloses this limitation, see element 1[k].

**15. Claim 49**

- a. 49: The memory or storage device of claim 48 in which the information apparatus included in the output system includes a display screen or a speaker for rendering digital content, and the information apparatus further renders at least part of the output data at the display screen or at the speaker of the information apparatus.**

201. In my opinion Yukie discloses this limitation. Yukie teaches that content obtained from the content database (output data) may be displayed on an output device such as monitor 38, and that the output device may also be an audio speaker. Yukie at 5:4-12.

**IV. CONCLUSION**

202. For the reasons put forth above, in my opinion Yukie in view of

Boyce and Gunter renders claims 1 and 37 – 49 of the ‘233 patent obvious.

203. I declare under penalty of perjury under the laws of the United States  
that the foregoing is true and correct.

Executed at Dallas, Texas on June 30<sup>th</sup>, 2022.

By: /James Olivier, Ph.D./

James Olivier, Ph.D.