UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ROKU, INC.,

Petitioner,

v.

VIDEOLABS, INC.,

Patent Owner.

Case No. IPR2025-00071

Patent No. 7,440,559

DECLARATION OF BRUCE MCNAIR IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 7,440,559

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1004	CV of Bruce McNair
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I.   INTRODUCTION AND SUMMARY OF TESTIMONY

1.   My name is Bruce McNair. I am currently a professor in the Electrical and Computer Engineering Department at Stevens Institute of Technology.

2.   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. 7,440,559 (the "'559 patent").

3.   I understand that the '559 patent is assigned to VideoLabs, Inc. ("Patent Owner" or "VideoLabs").

4.   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.

5.   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.

6.   In connection with my work as an expert in this matter, I am being compensated at $650 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.

7. I reside in Holmdel, New Jersey, and I am a citizen of the United States of America.

A. Qualifications

8. 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 wireless and networking technologies. I have been an expert in this field since before October of 2003. In formulating my opinions, I have relied upon my training, knowledge, and experience in the relevant art. A copy of my curriculum vitae is provided as Exhibit 1004 and includes 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.

9. I have over 60 years of experience in the areas of electronic circuits and wireless communications systems and equipment, starting as an amateur radio operator in 1963 and including seven years as a GS-0855 Electronic Engineer working for the US Army Electronics Command, one year at ITT Defense Communications Division, 24 years as a Member of Technical Staff at AT&T/Bell

Laboratories, 15 years as a full-time faculty member of the Electrical and Computer Engineering Department at Stevens Institute of Technology and seven years as an adjunct on-line faculty member at Stevens.

10.   While I was working for the US Army Electronics Command at Fort Monmouth, NJ, I was responsible for research and development for the data transmission, electronic counter-counter measures (ECCM), and cryptographic aspects of SINCGARS, the Single Channel Ground/Airborne Radio System. As part of this work, I built speech compression hardware and software, microprocessor-based systems, digital hardware and analog circuits to accomplish my research. In addition, as part of this work, I studied speech compression techniques to allow high-quality secure voice transmission at low data rates.

11.   While I was at ITT Defense Communications Division, I designed digital hardware for a satellite communications system used by the White House. I also designed hardware and software to realize the first hardware implementation of a Linear Predictive Coder, a technology used extensively to this day for speech communications and speech recognition in virtually all communication today.

12.   At AT&T Bell Labs, I worked on several projects involving public data networks, encryption, analog modems, network security and wireless systems. This included internal protocols and security for an X.25 pre-Internet public data network (Advanced Communications Service/Net-1000) which anticipated much of the

structure and features of today's Internet. I designed digital hardware and microprocessor-based systems to improve the operation of analog modems. I also initiated and led an IR&D (independent research and development) project to investigate and prototype a secure voice terminal based on newly evolving AT&T high-speed digital services. This involved analog and digital hardware design, microprocessor programming, and controlling systems through a signaling and control network. Part of this work involved interfacing with the analog telephone network, interfacing with audio input and output devices and digital speech and signal processing. I then led a group developing encryption add-ons for analog modems. I supervised a Bell Labs group investigating speech recognition and speaker verification. I led the Bell Labs Security Architecture Group, setting security and encryption standards for all AT&T products and services. This work led to several US patents and involved prototyping microprocessor-based systems to realize some of the technology. In the late 1980s through early 1990s timeframe when I led the Security Architecture Group, many of the systems I dealt with were using the newly evolving multimedia systems. In particular, one involved alternative techniques for video distribution with high quality audio, much as today's multimedia systems provide.

13.   From 1994 to 2002, my work at AT&T Bell Labs and AT&T Labs involved research into future wireless systems. I performed research into future

wireless systems, including modulation techniques and voice coding to maximize performance. This involved the design of digital and analog hardware, programming embedded systems, writing real-time digital signal processing (DSP) software and extensive testing of the system performance. In this role I studied, designed, and prototyped an OFDM communications system for application to wide-area cellular communications. This work led to several US Patents and IEEE publications which describe the prototype hardware I designed and tested. While investigating next generation wireless systems based on OFDM, I had occasion to become very familiar with the Digital Video Broadcast-Terrestrial (DVB-T) systems described in the '559 patent since they were among the first wide-area OFDM system extensively fielded by the late 1990s and served to inform me about their applications and limitations as I investigated the technology for application to multimedia, high-speed, high-mobility cellular systems.

14.   Upon retirement from AT&T Labs in 2002, I founded a technology consulting company, Novidesic Communications, LLC. As part of this work, I have evaluated prototype MIMO appliques for Wi-Fi systems, have consulted with the US Government on signaling in cellular systems, and have consulted on intellectual property issues involving wireless, OFDM systems, and digital subscriber loop (DSL) systems, which use a technology called discrete multi-tone (DMT), a form of OFDM. I also supported a US Army Small Business Innovative Research (SBIR)

Phase I and Phase II program investigating the use of RFID to track US Army materiel. This involved prototyping a microprocessor-based simulation of an RFID system using embedded Linux devices.

15. At Stevens Institute of Technology, I have taught undergraduate courses, including Electronic Circuits (EE359) dealing with analog and digital circuits. I was also responsible for the Capstone Senior Design Project in the Electrical and Computer Engineering Department. This project, a two-semester course required of all engineering seniors, requires the investigation, design, and prototyping of a complex electrical or computer system. Besides conducting the course, I was also responsible for directly advising a significant fraction of the projects.

16. Among the Senior Design projects I have supervised, most have included student projects using digital logic and microprocessor-based systems to prototype their projects.

17. I have taught graduate courses at Stevens (EE584 – Wireless System Security and CpE691 – Information Systems Security) which have heavy emphasis on the application of cryptography, including challenge-response systems and public-key cryptography. I also taught Physical Design of Wireless Systems (EE585) which deals with the detailed design of wireless systems such as cellular phones and other wireless communications equipment. I also have taught a graduate

course, EE517, Digital and Computer Systems Architecture and undergraduate courses, CpE450, Architecture, Design and Implementation of Embedded Systems for Real-Time Applications and CpE-359 Switching Theory and Logical Design, involving microprocessor design and interfacing.

18.   I am a named inventor on twenty-six U.S. Patents and various international patents in areas such as data transmission, cryptographic techniques, speech processing, video processing, security systems, user authentication, fraud control, synchronization, dynamic channel assignment, localization techniques, hazardous voltage detection, RFID, biomedical applications, vibration energy harvesting, and solar energy harvesting for portable devices.

19.   As part of the amateur radio hobby I have practiced since 1963, I have designed, implemented tested and operated various electronic devices involving analog, digital, RF and system control circuitry. I have also investigated the use of OFDM and other techniques used in modern commercial wireless systems for digital communications over amateur radio high-frequency (HF) dispersive channels. Because of my background, training, and experience, I am qualified as an expert to explain the background of the technology encompassed by the '559 patent, as well as the meaning that the claim terms of the '559 patent discussed herein would have had to a person of ordinary skill in the art ("POSITA") in 2003 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 identified in the Exhibit List above, including the '559 patent and its file history, and the prior art references 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 '559 patent, I should do so based on the perspective of a POSITA as of the relevant priority date. The '559 patent was filed on October 22, 2003 and claims no earlier priority date. If Patent Owner offers arguments or evidence asserting that the asserted prior art is not prior art to the '559 patent, I reserve the right to offer additional opinions in rebuttal.

25. For purposes of this proceeding, a POSITA as of October 2003 would have had a bachelor's degree in computer science, computer engineering, or electrical engineering, or a similar field and two years of experience digital multimedia content distribution and management and associated system infrastructures. I believe that additional graduate education could substitute for work experience, just

as significant work experience could substitute for formal education. Prior to the earliest priority date of the '559 patent, I possessed the education and experience of a POSITA and in addition, had recruited, taught and supervised individuals with this level of understanding of the relevant technology. In addition, in the relevant timeframe, I owned, designed, and routinely used devices similar to those used in the '559 patent.

E.   Summary of opinions

26.   I understand that Roku is asking the Board to institute IPR of Claims 1-24 (the "challenged claims") of the '559 patent. I understand that Roku alleges that claim 1, 7, 13, and 19 are obvious over U.S. Patent No. 6,341,316 ("Kloba") (Ex. 1005), and that claims 2-6, 8-12, 14-18, and 20-24 are obvious over Kloba in view of U.S. Patent Application Publication No. 2003/0079038 ("Robbin") (Ex. 1006).

27.   It is my opinion that the teachings of Kloba, alone and in view of the teachings of Robbin, renders the challenged claims obvious.

II.   OVERVIEW OF THE TECHNOLOGY

A.   Overview of the '559 patent

28.   The '559 patent is purportedly directed to an improved system and associated terminal, method and computer program product for controlling the flow of content. '559, 2:57-62. As the '559 patent acknowledges, "[d]igital broadband data broadcast networks [were] known," including the goal to achieve "efficient

delivery of digital services." '559, 1:58-67, 2:8-11. The specification of the '559

patent admits that the concept of downloading content to client devices was well-

known in the art, including when to deliver new pieces of content to the client device

and what new pieces of content to deliver. '559, 2:25-39. The '559 patent alleges

that "current techniques for downloading content can suffer from inefficient content

flow control between the mobile terminal and the server or content provider." '559,

2:47-49.

29.   The '559 patent purports to solve this alleged problem using "a terminal

capable of sending a content status including terminal status information" to a

content flow manager, which can control the flow of content to the terminal. Id.,

3:10-20. The "content status" includes status information regarding the terminal. Id.,

10:60-67. The "terminal status information" includes information that accounts for

user preferences, capabilities of the terminal and/or previous content stored by the

terminal. *See* '559, 3:1-4, 12:18-30.

30.   In addition, the '559 patent discloses that "the control flow manager

can be capable of controlling the terminal to download one or more pieces of content

from the source of content based upon server status information including a listing

of available piece(s) of content from the source." '559, 3:31-36. For example, the

source of content (such as origin server 24 or digital broadcast receiver 28) is

associated with the network entity operating the content flow manager. '559, 12:37-

43.

31.   Based upon the terminal status information and/or the server status information, the content flow manager can control the flow of content to the terminal, such as by instructing the terminal to delete at least one piece of content from the memory of the terminal and/or download at least one piece of content from the source of content. '559, 3:18-36.

A.   The Challenged Claims

32.   The '559 patent has four independent claims and twenty dependent claims. Representative independent claim 1 is shown below.

33.   Claim 1 recites limitations a-d listed below:

> 1[pre]   An apparatus comprising:
>
> 1[a]   a processor configured to
>
> 1[b.i]   receive, from a terminal located remote from the apparatus, a content status including terminal status information, and
>
> 1[b.ii]   configured to receive server status information regarding a source of content, wherein the server status information comprises a listing of at least one piece of content available from the source,
>
> 1[c]   wherein the processor is configured to send, to the terminal, a response to the content status that instructs the terminal to perform one or more actions to thereby control the flow of content to the terminal based upon the terminal status information and the server status information, and
>
> 1[d]   wherein the at least one piece of content available from the source, and the content for which the processor is

configured to control the flow, comprise multimedia content.

34.   I understand that Roku is challenging claims 1-24 (the "challenged claims") of the '559 patent.

B.   Prosecution of the '559 patent

35.   I have reviewed the prosecution history of the '559 patent.   The applicant filed Application No. 10/600,746 on June 19th, 2003.

36.   The '559 patent issued from U.S. Patent Appl. No. 10/690,692 ("the '692 application"), which was filed on October 22, 2003. '559, Face.

37.   During prosecution of the '692 application, the Examiner rejected claims 1- 24 as being anticipated by U.S. Patent No. 5,450,482 to Chen et al. ("Chen") in a Non-final Office Action. '559FH, 90. In response, the applicant amended independent claim 1, adding the limitation "wherein the at least one piece of content available from the source, and the content for which the processor is configured to control the flow, comprise <u>multimedia content</u> consumable by the terminal." '559FH, 71.[1] Similarly, the applicant amended independent claims 7, 13, and 19 to recite "wherein the at least one piece of content stored in the memory, and the content for which the network entity is configured to control the flow, comprise

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[1] All emphasis added unless indicated otherwise.

multimedia content consumable by the terminal." '559FH, 72-75.

38.   The applicant asserted that "Chen discloses a network automatic call distribution system (ACD) for a network including a number of switches interconnecting a number of telephones and operator switches." '559FH, 78. In distinguishing the prior art, the applicant contended that "Chen discloses switch status including a listing of switches and services available from those switches[,]" not "a server status including a listing of content available from the source, similar to the claimed invention." '559FH, 79-80 (emphasis in original). Therefore, the applicant contended, Chen purportedly did not "teach or suggest a network entity controlling the flow of content to a terminal based on terminal status information, as well as server status information for a source of content, the server status information including a listing of one or more pieces of content available from the source" as recited in claim 1. '559FH, 78. The applicant also argued that Chen purportedly did not disclose a terminal status including a listing of content stored in memory of the terminal as recited in claims 7, 13 and 19. '559FH, 79-80.

39.   In a Final Office Action, the Examiner maintained the rejection that claims 1-24 are anticipated by Chen. '559FH, 64-65. To overcome the prior art rejection, the applicant amended claims 1, 7, 13 and 19 to recite a terminal that is remote, and argued that the cited prior art purportedly did not disclose "multimedia content." '559FH, 42-47, 51-53. In response to the prior art rejection in the second

Non-final Official Action, the applicant argued, without any amendment, that the cited reference, Aubault (U.S. Patent Application Publication No. 2005/0086318), did not qualify as prior art. '559FH, 22-23.

40.   The Examiner subsequently allowed the '690 application, and the '559 patent issued on October 21, 2008. '559, Face.

C.   Prior Inter Partes Review of the '559 patent

41.   I understand that another IPR of the '559 (hereinafter the "Netflix IPR"), based on a petition filed by Netflix, Inc. on 2023-02-22 (s*ee* EX1008 (Petition), EX1009 (Institution Decision)) reached a final written decision on 2024-10-02 (*see* EX1013 (Final Written Decision)). I also understand that the grounds of the Netflix IPR are based on the "Cassin" (U.S. Pub. No. 2003/0023427) and "Huston" (U.S. Patent No. 7,243,136) references.

42.   I understand that the Cassin and Huston are unrelated to the Kloba and Robbin references, applied herein. Further, it is my opinion that Cassin and Huston disclose or render obvious the '559 claims in different ways than the references applied herein, and thus the arguments in the Netflix IPR applying Cassin and Huston are different from those in the present IPR. For example, Cassini discloses a server providing a set of content items to a client one at a time, and waiting for a response from the client (*e.g.*, indicating that the client already has the provided content item) before providing the next content item in the set (*see* EX1008, pp. 10-

12 (Cassin overview)), while Kloba discloses a server providing instructions to a client to synchronize a set of multiple content items, rather than providing instructions for each content item separately (*see, e.g.,* Kloba, 19:64-20:3).

D. Claim Construction

43.   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.

44.   I have been informed that the '559 Patent is involved in three different district court litigation cases between the Patent Owner and (1) Roku, Inc., (2) Netflix Inc., and (3) Starz Entertainment, LLC. I have also been informed that in the Starz Entertainment case, the court issued a claim construction order (EX1007) with the following terms:

Term	Court's Construction
"download" [Claims 2, 4]	"copy and store in memory of the terminal for subsequent use"

45.   As I stated above, I do not believe constructions of the '559 Patent's terms are necessary, but to the extent that the Starz Entertainment Court's constructions are to be applied here, the prior art discloses the same features as I

discuss below.

III. UNPATENTABILITY OF THE '559 PATENT CLAIMS

A. Ground 1: Claims 1, 7, 13, 19 are obvious over Kloba

46.   For the reasons discussed below, in my opinion Kloba renders claims 1, 7, 13, and 19 of the '559 Patent obvious.

1. The Prior Art

a) Kloba (U.S. Patent No. 6,341,316)

47.   U.S. Patent No. 6,341,316 ("Kloba") (Ex. 1005) is titled "System, method, and computer program product for synchronizing content between a server and a client based on state information." Kloba, Face.

48.   Kloba describes a system and method for "synchronizing content between a server and a client based on state information," in which transfers of content (*e.g.*, music, movies, books, photos, etc.) are based on the current state of content stored on a client device. EX1005 ("Kloba"), Title, Abstract, 25:30-32. Kloba seeks to "enabl[e] web content … to be loaded on mobile devices, and for users of mobile devices to operate with Such web content on their mobile devices in an interactive manner while in an off-line mode." Kloba, 1:54-57. Kloba describes "synchronization processes that can collect information from the Internet to a server, and to the client." Kloba, 5:30-31.

49.   For example, Kloba discloses the synchronization process shown in FIG. 63B, annotated below:
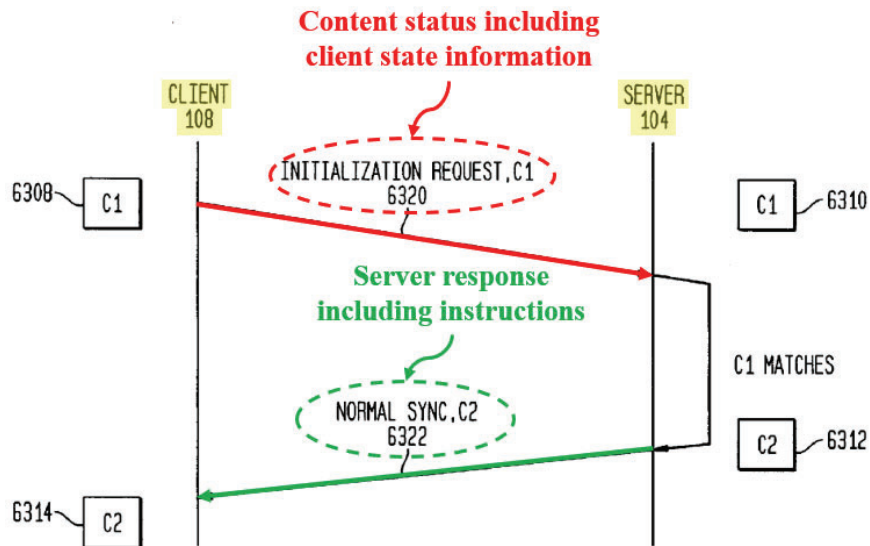
Kloba, Detail of FIG. 63B (annotated)

50.   As shown, the client 108 sends request 6320 to the server 104 to begin

the synchronization process (annotated in red above). Kloba, 21:19-20, 23:40-45.

The request 6320 contains "state information" regarding the state of the client 108,

including a "data marker" indicating the state of content stored by the client 108.

Kloba, 18:28-33, 19:18-21, 21:19-20, 23:40-45. The server 104 receives the request

6320 and determines a set of "differences" (or "deltas") between the version of

content stored by the server 104 and that stored by the client 108 by comparing the

received "data marker" to one representing the server's version of the content.

Kloba, 19:1-15, 19:37-45. In some cases, the server 104 determines the differences

between content stored by an external provider 128 and the client 108, rather than

between content stored by the server 104 itself. Kloba, 19:64-20:3.

51.   Based on the determined differences, the server 104 determines a set of

instructions for the client 108 to execute in order to bring its stored version of content up-to-date with that stored by the server 104 or provider 128. Kloba, 19:1-15, 19:64-20:3. The server 104 then transmits a response to the client 108 including the determined instructions, which are then executed by the client 108. Kloba, 19:1-24, 19:64-20:11.

52. Kloba discloses that the status message received by the server 104 includes state information about the client 108, including a data marker that provides information about the state of content stored on the client 108. Kloba, 18:28-33, 19:18-21. In my opinion, a POSITA would have recognized that Kloba discloses that the data marker identifies at least one piece of content stored on the client 108, because Kloba discloses that the data marker is used to identify differences between pieces of content stored on the client 108 and pieces of content stored on the server 104 or provider 128. *See, e.g.*, Kloba, 19:1-15, 19:37-45, 19:66-20:3. The data marker must identify a piece of content stored on the client 108 in order for the server 104 to compare it to the corresponding piece of content stored on the server 104 or provider 128, and identify the differences between the pieces of content. *See, e.g.*, Kloba, 19:1-15, 19:37-45, 19:66-20:3. From at least these disclosures, it is my opinion that a POSITA would have recognized that Kloba discloses a content status (e.g., the status message from the client 108 to the server 104) including terminal status information (e.g., the data marker identifying content stored on the client 108).

53.   Kloba further discloses that the server 104 receives status information (*i.e.,* server status information) from a provider 128 (*i.e.,* a source of content) specifying pieces of content available from the provider 128. Kloba, 7:66-8:7, 12:35-40, 21:10-11, FIG. 1A. From at least these disclosures, in my opinion a POSITA would have recognized that Kloba discloses receiving server status information regarding a source of content (*e.g.,* server 104 receiving status information from provider 128) including a listing of at least one piece of content available from the source (*e.g.,* the information specifying pieces of content available from the provider 128).

54.   Kloba discloses that the server 104 responds to the content status from the client 108 with a set of instructions to synchronize the client 108 with the provider 128. Kloba, 19:64-20:3; *see also* 19:1-24. The server 104 compiles the set of instructions based on the client state information (*i.e.,* the terminal status information) received from the client 108, and based on the information regarding content available from the provider (*i.e.,* the server status information). Kloba, 19:64-20:3; *see also* 19:1-24. Kloba discloses that the server 104 sends a response to the content status message including the compiled instructions to the client 108. Kloba, 20:1-2, 7-11. From at least these disclosures, it is my opinion that a POSITA would have recognized that Kloba discloses the server 104 sending, to the terminal (*e.g.,* client 108), a response to the content status (*e.g.,* the response including the

compiled instructions) that instructs the terminal to perform one or more actions to thereby control the flow of content to the terminal (*e.g.,* the instructions included in the response instruct the client 108 to perform actions on the stored content) based upon the terminal status information and the server status information (*e.g.*, the server 104 compiles the instructions based on the information from the provider 128 and the client state information). Kloba further discloses that the client 108, server 104 and provider 128 store various types of multimedia content, including music, images, and movies. Kloba, 4:1-20, 7:13-17, 21:38-44, 25:31-35, 25:38-49, FIG. 1M; *see also* 4:1-20.

55.   In my opinion, because Kloba discloses a system and method for controlling a flow of content by synchronizing versions of content between clients and remote servers, Kloba discloses the systems and methods for controlling a flow of content in the '559. To the extent PO would argue that Kloba's disclosure does not explicitly describe certain aspects of its system in an anticipatory manner, it is my opinion that such variations would have been obvious to POSITAs, as discussed in detail below.

56.   And, to the extent PO argues that various relied-on features of Kloba are from distinct and unrelated embodiments—and would allegedly preclude a finding of anticipation—Kloba teaches that its disclosed features are combinable, and in my opinion a POSITA would have thus found the claims obvious as well.

57. For example, Kloba explicitly states that its "synchronization embodiments <u>can be used individually or in combination</u>, as will be appreciated by persons skilled in the relevant art(s)." Kloba, 20:57-60.[2] Indeed, the portions of Kloba generally referenced herein are directly related to each other, and each describe and cross-reference functions and configurations of the same server 104, client 108, and provider 128. *See, e.g.*, Kloba, 19:1-24, 19:64-20:11. Accordingly, even without Kloba's explicitly disclosing the use of the synchronization embodiments in combination, in my opinion a POSITA would have exercised routine experimentation in implementing a system based on Kloba's disclosure and combined features from related "examples" or "embodiments" to result in a desired system or functionality.

58. Accordingly, it is my opinion that claims 1, 7, 13, and 19 are obvious over Kloba.

2. Claim 1

a) 1[pre]. An apparatus comprising:

59. In my opinion Kloba discloses this limitation.

60. Kloba discloses an apparatus (*e.g.,* server 104). As discussed in greater detail below, Kloba discloses that "the server 104 maintains a collection of

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[2] All emphasis added unless otherwise indicated.

channels," each including "a collection of objects…that can be transferred to a client

108." Kloba, 7:13-16. The objects may include multimedia such as "images,

movies, [and] music." Kloba, 7:16-17.

> b)   1[a]. a processor configured to

61.   In my opinion, Kloba discloses that the apparatus (*e.g.*, server 104)

comprises a processor. Kloba discloses that the "server 104" can be implemented

as a "data processing unit" including a "processor." Kloba, 13:4-21, 7:6-12, FIGS.

1A, 1B1.

62.   See, for example, the following portions of Kloba:

- 13:18-21 ("Data processing unit 103A includes <u>one or more processor(s) 103C</u>, and a main memory 103D. Main memory 103D may be RAM, ROM, or any other memory type, or combinations thereof.")
- FIG. 1B1 (showing the data processing unit 103A including processor 103C):
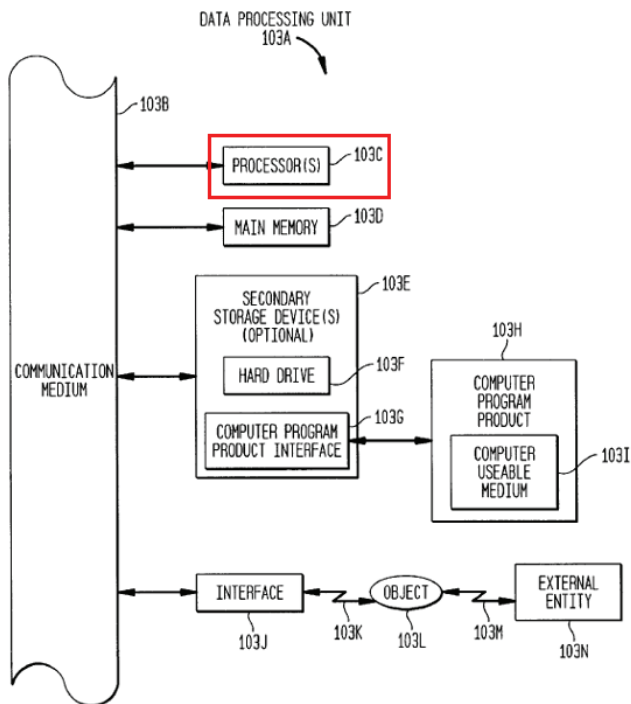
Kloba, Detail of FIG. 1B1 (annotated)

- 13:4-6 ("FIG. 1B1 illustrates a block diagram of <u>a data processing unit 103A that can be used to implement the entities shown in FIGS. 1A and 1B</u>")

- 7:6-12 ("<u>FIG. 1A</u> is a block diagram of a data processing environment 102" that "<u>includes a server 104[.]</u>")

  c) 1[b.i]. receive, from a terminal located remote from the apparatus, a content status including terminal status information, and

63. In my opinion Kloba discloses this limitation.

64. Kloba discloses that the processor of server 104 is configured to receive, from a terminal located remote from the apparatus, a content status including terminal status information (*e.g.*, the server 104 receives state information from the client 108 that includes information regarding content stored by the client

108 including a data marker or "content status including terminal status information.").

65.   Kloba discloses that the client 108[3] initializes a content synchronization session with the server 104 by transmitting a status message to the server 104. Kloba, 18:28-33, 21:19-31, 22:15-26, 23:40-45, FIG. 63B. The client 108 transmits the status message to the server 104 via a wireless or wired network. Kloba, 12:6-13, FIGS. 1A, 1V. The client 108 encodes and transmits the status message over the network using Hypertext Transfer Protocol (HTTP) and Transmission Control Protocol (TCP) / Internet Protocol (IP). Kloba, 12:6-13, 22:15-21. Kloba discloses that the server 104 receives the status message from the network. Kloba, 23:40-45. From at least these disclosures, a POSITA would have recognized that Kloba discloses that the client 108 is located remote from the server 104.

66.   In addition, Kloba teaches that the state information in the content

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[3] Kloba uses the terms "client" and "device" interchangeably. *See, e.g.,* Kloba, 10:42-48 ("[T]he devices 106 include software, hardware, and/or combinations thereof related to client functionality (such client functionality is described herein). When a device 106 includes such software, hardware, and/or combinations thereof, the device 106 is referred to herein as a client 108.").

status message can include user preferences, such as particular channels to which

the user of the client devices is subscribed. Kloba, 34:23-27. The '559 patent

explains that "terminal status information" can include information that accounts for

user preferences, capabilities of the terminal and/or previous content stored by the

terminal. *See* '559, 3:1-4, 12:18-30.

67.   As discussed above (*see* §III.A.1), Kloba discloses a content status

(*e.g.*, the status message from the client 108 to the server 104) including terminal

status information (*e.g.*, the data marker identifying content stored on the client 108,

and the user preferences associated with a user of the client device).

68.   Regarding the server 104 receiving the status message from the remote

client including the client state information:

- FIG. 1A (showing the server 104 in communication with the remote client 108 via communication medium 102B)
- FIG. 63B (showing the content status transmitted from the client 108 to the server 104):
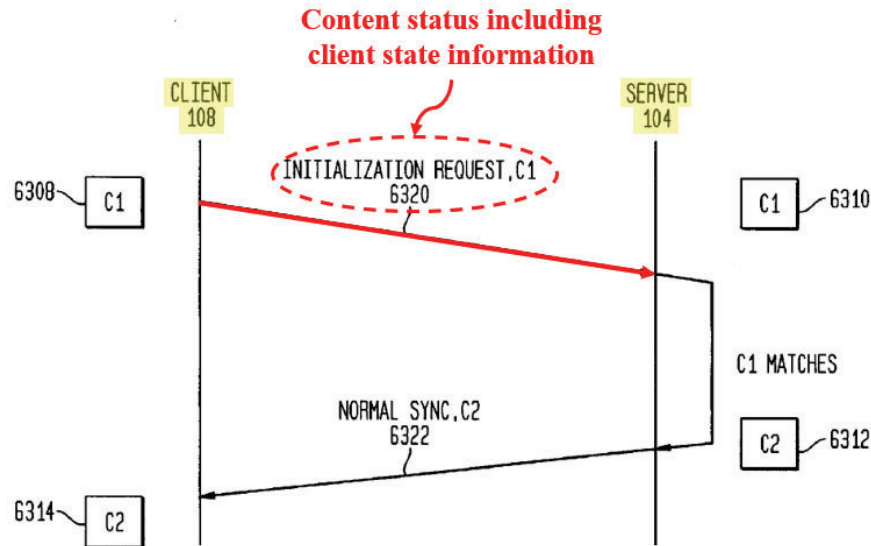
Kloba, Detail of FIG. 63B (annotated)

- 21:19-20 ("[C]lient 108 provides state information regarding the nature of its resources.")

- 23:40-45 ("[C]lient 108 sends state information to server 104 via client communications module 110…. In step 176B, server communications module 114 receives client's state information[.]")

- 12:6-13 ("Client communications module 110 enables the client 108 to interact with external entities, such as server 104. In embodiments, the client communications module 110 enables TCP/IP traffic, although the invention is not limited to this example. More generally, the client communications module 110 enables communication over any type of communication medium 120, such as wireless, wired, etc[.]")

- FIG. 63B (showing client 108 sending an initialization request including a data marker C1 to server 104)

- FIG. 3C (showing example synchronization process between client 108 and server 104)

69.   Regarding the client state information:

- 18:28-33 ("[C]lient communication module 110 of client 108 initializes a synchronization session (step 170A). Client control module 110 of client 108 sends a current data marker C1 to web synchronization module 124 on server 104 (step 170B).")

28

- 19:18-21 ("In one embodiment, <u>a data marker</u> is a synchronization token which <u>is specifically constructed **to provide information about the state of information on a client**</u>.")

- 19:1-15 ("In step 170F, <u>the server 104 compares the latest data marker received from the client 108</u> (C2 in the example of 63B) <u>with ones stored in the server 104 for the client 108</u>. Essentially, the server 104 attempts in step 170F to "roll back" to a previous known state of client 108…. [T]he server 104 determines what instructions are needed to cause the client 108 to roll back to the known state associated with data marker C2 identified in step 170F, and what instructions are needed to cause the client 108 to move forward from the previous state associated with data marker C2 to the current state associated with data marker C3.")

- 19:37-45: ("<u>Control module 142 identifies the deltas in the client databases identified by server 104</u> during initialization in step 168B (step 172A). In one embodiment of the present invention, <u>a delta is a set of differences between versions of content</u> or, more generally, objects (*i.e.*, different versions of the same pages, documents, links, images, applications, services, etc.). In other words, <u>deltas are sets of differences in the state of the objects currently being offered and the state of the objects in client 108</u>.")

- 34:23-27 ("When in the off-line mode, a user of the client 108 can elect to subscribe to channels listed in the channel subscription page. In an embodiment, <u>the selected channels are loaded on the client 108 during the next synchronization operation</u>.")

    d)   1[b.ii]. configured to receive server status information regarding a source of content, wherein the server status information comprises a listing of at least one piece of content available from the source,

70.   In my opinion Kloba discloses this limitation.

71.   Kloba discloses that the processor of the server 104 is **configured to receive server status information regarding a source of content comprises a listing of at least one piece of content available from the source** (*e.g.*, the server

104 receives information regarding the content available from a provider 128).

72.   Kloba discloses that the server 104 receives information from a provider 128 specifying pieces of content available from the provider 128. Kloba, 7:66-8:7, 12:35-40, 21:10-11.

73.   See, for example, the following portions of Kloba:

- 12:35-40 ("Providers 128 are sources of various types of objects, such as … content (content providers 128A)… Providers 128 may also include servers 104 (similar to server 104), which may provide objects such as but not limited to content, applications, services, etc.")

- FIG. 1A (showing provider 128, including content provider 128A, in communication with server 104 via communication medium 120D):
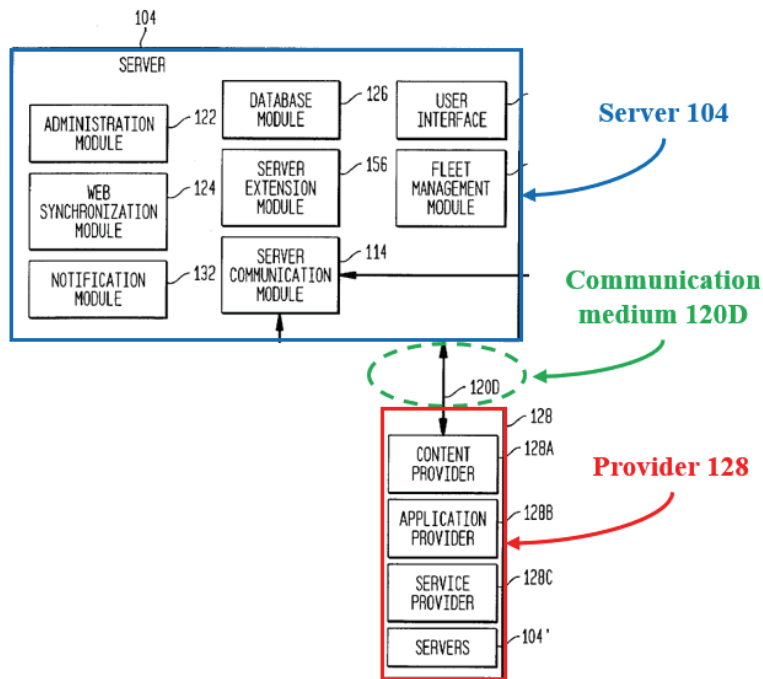
Kloba, Detail of FIG. 1A (annotated)

- 21:10-11 ("In step 314, server 104 receives information regarding the sets of content available from provider(s) 128.")

- 7:66-8:7 ("During a synchronization process, the server 104 loads a device 108 with the channels associated with the client 108. Generally, the server 104 does this by obtaining from providers 128 the objects defined by the channels, and causing those objects to be stored on the client 108. Thus, during the synchronization process, the server 104 will load the client 108 with the selected channels. More particularly, the server 104 will load the client 108 with the objects associated with the channels.")

74. *See also:*

- 4:1-20 (Table 1 listing examples of "Internet content" that can be synchronized using Kloba's techniques, including "<u>Multimedia:</u> Images (e.g., JPEG, GIF, PNG, vector graphics, etc.)," "Audio Files (e.g. MP3)," "<u>Video</u> (e.g. AVI)," and "<u>Streaming Content:</u> <u>Voice/Data/Video</u>")

    e) 1[c]. wherein the processor is configured to send, to the terminal, a response to the content status that instructs the terminal to perform one or more actions to thereby control the flow of content to the terminal based upon the terminal status information and the server status information, and

75. In my opinion Kloba discloses this limitation.

76. Kloba discloses that the processor (*e.g.*, the processor in server 104) is configured to send, to the terminal (*e.g.*, the client 108), a response to the content status that instructs the terminal to perform one or more actions to thereby control the flow of content to the terminal (*e.g.*, the message from server 104 to client 108 including instructions to synchronize the client 108) based upon the terminal status information and the server status information (*e.g.*, the instructions compiled based on the state information received from the client 108 and the information regarding the available content received from the provider 128).

77.   As discussed at 1[b.i], Kloba discloses that the server 104 receives the content status from the client 108 (*i.e.,* the terminal) including the client state information (*i.e.,* the terminal status information). As discussed at 1[b.ii], Kloba discloses that the server 104 also receives, from provider 128 (*i.e.,* the source of content), information regarding content available from the provider (*i.e.,* the server status information).

78.   Kloba discloses that the server 104 responds to the content status from the client 108 with a set of instructions to synchronize the client 108 with the provider 128. Kloba, 19:64-20:3; *see also* 19:1-24. Kloba further discloses that the server 104 compiles the set of instructions based on the client state information (*i.e.,* the terminal status information) received from the client 108, and based on the information regarding content available from the provider (*i.e.,* the server status information). Kloba, 19:64-20:3; *see also* 19:1-24. Kloba discloses that the server 104 sends a response to the content status message including the compiled instructions to the client 108. Kloba, 20:1-2, 7-11. Kloba further discloses that the instructions can direct the client to load new content not previously stored on the client. Kloba, 7:14-17 ("a channel comprises a collection of objects" which are "any entity that can be transferred to a client 108, such as but not limited to content, applications, services, images, movies, music, links, etc."), 25:31-37, 34:25-27 ("the selected channels are loaded on the client 108 during the next synchronization

operation"); *see also* 7:66-8:7.

79.   Regarding the synchronization instructions:

- 19:37-45 ("Control module 142 identifies the deltas in the client databases identified by server 104 during initialization in step 168B (step 172A). In one embodiment of the present invention, a delta is a set of differences between versions of content or, more generally, objects (i.e., different versions of the same pages, documents, links, images, applications, Services, etc.). In other words, deltas are sets of differences in the state of the objects currently being offered and the state of the objects in client 108.")

- 19:64-20:3 ("Synchronization modules 155 synchronize the deltas from client 108 with providers 128 (step 172C). Based on the information from provider(s) 128, synchronization modules 155 compile instructions to synchronize the client 108 with providers 128 (step 172D). Synchronization module 155 sends such instructions to client 108, plus updated data marker (step 172E).")

- 25:31-37 ("3.3.4. Syncing Music, Movies, Books, Photo Albums, and Other Collections of Objects… The invention supports channels which comprise web sites having collections of objects, such as collections of music, images, books**, movies,** applications, services, etc. By selecting such a channel, the client 108 can be populated with such collections of objects.")

- 34:23-27 ("When in the off-line mode, a user of the client 108 can elect to subscribe to channels listed in the channel subscription page. In an embodiment, the selected channels are loaded on the client 108 during the next synchronization operation.")

80.   Regarding the server 104 transmitting the response including the

synchronization instructions to the client 108:

- FIG. 63B (showing the server 104 transmitting the response to the client 108):
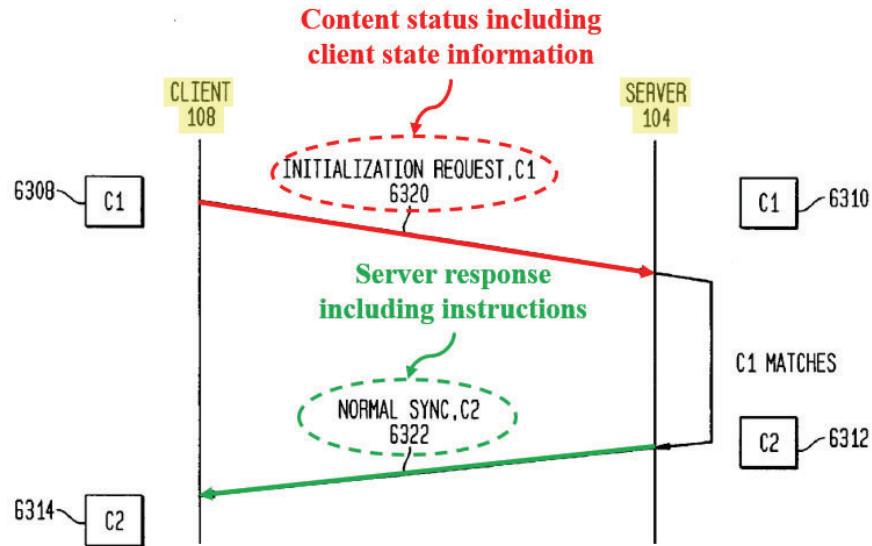
Kloba, Detail of FIG. 63B (annotated)

- 20:7-11 ("The instructions are transmitted via any reliable transport medium. For example, in one embodiment, HTTP is used. Control module 142 on the client 108 then executes the instructions (step 172F).")

- 12:6-10 ("Client communications module 110 enables the client 108 to interact with external entities, such as server 104. In embodiments, the client communications module 110 enables TCP/IP traffic, although the invention is not limited to this example.")

81.   *See also:*

- 19:1-24 (describing the process of comparing pieces content stored on the client 108 with pieces of content stored on the server 104 or the provider 128)

- FIG. 63B (showing the above process)

   f)   1[d]. wherein the at least one piece of content available from the source, and the content for which the processor is configured to control the flow, comprise multimedia content.

82.   In my opinion Kloba discloses this limitation.

83.   Kloba discloses that the at least one piece of content available from the source (*e.g.,* the content specified in the information on content available from provider 128), and the content for which the processor is configured to control the flow (*e.g.,* the content stored on client 108), comprise multimedia content (*e.g.,* the content stored on the client 108 and the content available from the provider include music, images, and movies).

84.   Kloba discloses that both the client 108 and the provider 128 store various types of content, including music, images, and movies. Kloba, 7:13-17, 21:38-44, 25:31-35, 25:38-49, FIG. 1M; *see also* 4:1-20.

85.   See, for example, the following portions of Kloba:

- 4:1-20 (Table 1 listing examples of "Internet content" that can be synchronized using Kloba's techniques):

TABLE 1.

Internet Content

Internet content includes but is not limited to:

HTML
JavaScript ™
Channels
Java ™
ActiveX
Multimedia: Images (e.g., JPEG, GIF, PNG, vector graphics, etc.)
Audio Files (e.g. MP3)
Video (e.g. AVI)
Streaming Content: Voice/Data/Video
Binary files
XML
Applications
Data Objects
Documents
Anything that can be delivered via a "browser"

Kloba, 4:1-10 (Table 1) (annotated)

- 25:31-37 ("3.3.4. <u>Syncing Music, Movies, Books, Photo Albums, and Other Collections of Objects</u>… The invention supports channels which comprise web sites having collections of objects, <u>such as collections of music, images, books</u>**, movies,** <u>applications, services, etc.</u> By selecting such a channel, the client 108 can be populated with such collections of objects.")

   3.   Claim 7

      a)   7[pre]. An apparatus comprising:

86.   *See* 1[pre].

      b)   7[a]. a controller operable with a terminal including a memory configured to store at least one piece of content

87.   In my opinion Kloba discloses this limitation.

88.   Kloba discloses a controller operable with a terminal (*e.g.*, the processor 103C in the client 108) including a memory configured to store at least one piece of content (*e.g.*, the memory 103D and secondary storage devices 103E in the client 108).

89.   Kloba discloses that the client 108 (*i.e.,* a terminal, *see* 1[b.i]) includes a processor 103C (*i.e.,* a controller), a memory 103D, and secondary storage devices 103E. Kloba, 13:4-33, FIG. 1B1. Kloba further discloses that the client 108 stores pieces of content. Kloba, 8:1-3, 25:31-37, 25:28-49. From these disclosures, a POSITA would have recognized that the client 108 stores these pieces of content in the memory 103D and/or the secondary storage devices 103E.

90.   Regarding the processor and memory included in the client 108:

- FIG. 1B1 (showing a data processing unit 103A including a processor 103C, a memory 103D, and secondary storage devices 103E):
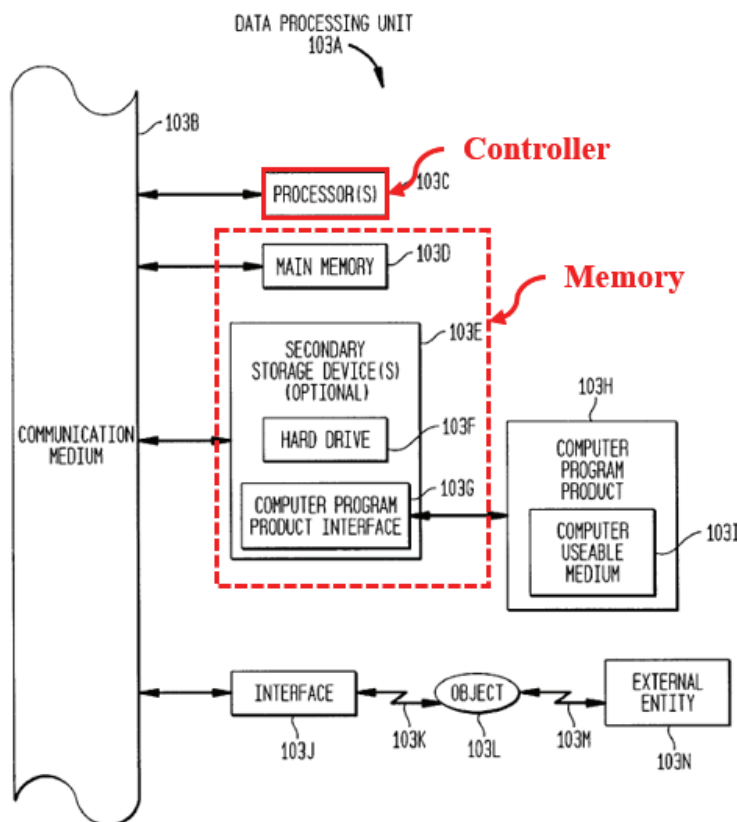
Kloba, Detail of FIG. 1B1 (annotated)

- 13:4-6 ("FIG. 1B1 illustrates a block diagram of a data processing unit 103A that can be used to implement the entities shown in FIGS. 1A and 1B.")

- 7:6-12 ("FIG. 1A is a block diagram of a data processing environ ment 102 according to an embodiment of the invention. The data processing environment 102 includes a server 104 (although only one server 104 is shown, in practice the data processing environment 102 may include a plurality of servers), one or more devices 106, one or more adapters 118, and one or more providers 128.")

91.   Regarding content stored in the memory of client 108:

- 8:1-3 ("Generally, the server 104 does this by obtaining from providers 128 the objects defined by the channels, and <u>causing those objects to be stored on the client 108</u>.")

- 25:31-37 ("3.3.4. <u>Syncing Music, Movies, Books, Photo Albums, and Other Collections of Objects</u>… The invention supports channels which comprise web sites having collections of objects, <u>such as collections of music, images, books, movies, applications, services, etc.</u> By selecting such a channel, <u>the client 108 can be populated with such collections of objects</u>.")

- 25:38-49 ("For example, if a channel having a collection of music is selected, then it is possible to <u>turn the client 108 into a "jukebox' once the music collection is stored on the client 108 during the synchronization process</u>. Similarly, <u>a client 108 can become a photo album, a book library, a movie theater, an application library, etc., by selecting appropriate channels</u>. This process is represented by FIG.1M. It is noted that this process is applied to collections of music, but it is also applicable to collections of any types of objects. It is also noted that a given channel may have combinations of different types of objects, such as combinations of <u>music, movies, applications, images, services, etc.</u>")

    c)   7[b]. wherein the controller is configured to send a content status including terminal status information comprising a listing of at least one piece of content stored in the memory,

92.   *See* 1[b.i] (the client 108 sends the content status including a data marker specifying at least one piece of content for synchronization to the server 104).

    d)   7[c]. wherein the controller is configured to send the content status to a remote network entity, and

93.   *See* 1[b.ii] (the client 108 sends the content status to the remote server 104 over a network).

e) 7[d]. receive a response to the content status from the network entity that instructs the controller to perform one or more actions to thereby control a flow of content to the terminal based upon the terminal status information, and

94. *See* 1[c] (the client 108 receives the response to the content status sent by the server 104).

f) 7[e]. wherein the at least one piece of content stored in the memory, and the content for which the network entity is configured to control the flow, comprise multimedia content.

95. *See* 1[d].

4. Claim 13

a) 13[pre]. A method for controlling a flow of content, the method comprising:

96. In my opinion Kloba discloses this limitation.

97. Kloba discloses a method for controlling a flow of content (*e.g.*, a method for synchronizing content stored on a client 108 with content stored by remote entities including server 104 and provider 128).

98. As previously discussed with respect the Claim 1, Kloba describes techniques for synchronizing content between client 108 and remote network entities, such as server 104 and provider 128. Kloba, Abstract. Content objects are organized into channels, which a client 108 may select to cause the content objects therein to be stored on the client 108 and synchronized with versions of the channels stored on remote network entities (*e.g.*, server 104 and provider 128). Kloba, 7:13-

17.

- Abstract ("Described herein are systems, <u>methods</u>, computer program products, and combinations and sub-combinations thereof, for enabling web content (as well as other objects) <u>to be loaded on mobile devices</u> (as well as other types of devices), and for users of mobile devices to <u>operate with such web content</u> on their mobile devices in an interactive manner <u>while in an off-line mode</u>.")

- 7:13-17 ("Generally, <u>the server 104 maintains a collection of channels</u>. In an embodiment, a channel comprises a collection of objects. <u>An object is any entity that can be transferred to a client 108</u>, such as but not limited to content, <u>applications, services, images, movies, music, links, etc</u>.")

    b)   13[a]. receiving, at a network entity from a terminal located remote therefrom, a content status including terminal status information comprising a listing of at least one piece of content stored in a memory of the terminal; and

99.   *See* 1[b.i].

    c)   13[b]. sending, from the network entity to the terminal, a response to the content status that instructs the terminal to perform one or more actions to thereby control the flow of content to the terminal based upon the terminal status information,

100. *See* 1[c].

    d)   13[c]. wherein the at least one piece of content stored in the memory of the terminal, and the content for which the flow is controlled, comprise multimedia content.

101. *See* 1[d].

5. **Claim 19**

    a)   19[pre]. A computer-readable storage medium having computer-readable program code portions stored therein, the computer-readable program code portions comprising:

102. In my opinion Kloba discloses this limitation.

103. Kloba discloses a computer-readable storage medium having computer-readable program code portions stored therein configured to implement the techniques described above with respect to Claims 1, 7, and 13.

104. Kloba discloses that server 104 includes "computer usable mediums [sic]" that store control logic (software) to implement the techniques described with respect to the claims above. Kloba, 13:22-47.

- 13:34-39 ("The computer program products 103H include <u>computer useable mediums</u> in which objects may be stored, such as but not limited to <u>optical mediums, magnetic mediums, etc. Control logic or software may be stored in main memory 103D, secondary storage device(s) 103E, and/or computer program products 103H</u>.")

- 13:40-48 ("[T]he term "<u>computer program product' refers to any device in which control logic (software) is stored</u>, so in this context a computer program product could be any memory device having control logic stored therein. <u>The invention is directed to computer program products having stored therein software that enables a computer/ processor to perform functions of the invention as described herein</u>.")

    b)   19[a]. a first executable portion configured to receive, at a network entity from a terminal located remote therefrom, a content status including terminal status information comprising a listing of at least one piece of content stored in a memory of the terminal; and

105. *See* 1[b.i]

c) 19[b]. a second executable portion configured to send, from the network entity to the terminal, a response to the content status that instructs the terminal to perform one or more actions to thereby control the flow of content to the terminal based upon the terminal status information,

106. *See* 1[c].

d) 19[c]. wherein the at least one piece of content stored in the memory of the terminal, and the content for which the flow is controlled, comprise multimedia content.

107. *See* 1[d].

B. Ground 2: Claims 2-6, 8-12, 14-18, 20-24 are obvious over Kloba in view of Robbin

1. The Prior Art

a) Robbin (U.S. Patent No. 6,341,316)

108. U.S. Patent Application Publication No. 2003/0079038 ("Robbin") (Ex. 1006) is titled "Intelligent interaction between media player and host computer." Robbin, Face.

109. Robbin describes techniques for "interaction between a host computer and a media player, such as automatic synchronization of media contents stored on a media player with media contents stored on a host computer[.]" Robbin, Abstract. Robbin discloses that "management of media items residing on a media player can be performed at and by a host computer for the media player." Robbin, Abstract. For example, if "a particular media item is resident on the media player … but is not resident on the" host computer, "the particular media item can be … removed

(deleted) from the media player" at the instruction of the host computer. Robbin, [0036], [0057].

110. Robbin describes that the media player "has limited or no capability to manage media items on the media player[.]" Robbin, [0066]. Thus, a "management module … within the host computer … can indirectly manage the media items residing on the media player[.]" Robbin, [0066]. For example, "to 'delete' a media item from the media player 704, the management module 706 serves to identify the media item to be deleted from the media store 708 and then causes the identified media item to be deleted from the media player 704." Robbin, [0066].

111. Robbin further teaches that the synchronization process "is performed by a media device that interacts with a host computer over a network." Robbin, [0045].

112. Robbin further describes that the synchronized "media items" can include multimedia content, such as "audio items (e.g., audio files or songs)," "videos (e.g., movies) or images (e.g., photos)[.]" Robbin, [0090].

2. Motivation: Kloba in view of Robbin

113. In my opinion a POSITA would have been motivated to combine Kloba and Robbin in the manner described below.

114. Kloba and Robbin are in the same field as the '559—*e.g.*, digital content distribution and management—and reasonably pertinent to the problem alleged

therein—*e.g.*, controlling the transfer of content between networked devices (*e.g.*, between Robbin's "host computer" and "media player"). '559, 1:8-13, 2:40-53; *see* Kloba, Abstract, 1:53-57, 19:1-45 (describing techniques to synchronize content between a client and a remote server or content provider); Robbin, Abstract, [0036], [0057] (describing techniques to synchronize content between a host computer and a media player); *see also* [0045] (describing that during the synchronization process the "media device…interacts with [the] host computer ***over a network***");

115. As explained in §III.A.1, Kloba discloses a system in which a server 104 synchronizes a set of "channels" each containing a collection of content items— *e.g.*, "music, images, books, movies, applications, services, etc."—to a client 108. *See*, *e.g.*, Kloba, 25:31-37. Kloba discloses that the client 108 provides the server 104 with information describing the state of its locally stored content, which the server 104 compares with content stored by the server 104 itself or by a provider 128. *See, e.g.*, Kloba, 18:28-33, 21:19-31, 22:15-26, 23:40-45, 19:37-45, FIG. 63B. If the content stored by the client 108 is out of sync—*e.g.*, because the content at the server 104/provider 128 has been modified, new content has been added, or pieces of content deleted—the server 104 compiles a set of instructions for execution by the client 108 to synchronize the content. *See, e.g.*, Kloba, 19:1-20:3. To the extent Kloba generally discloses the server 104 instructing the client to perform actions on its stored content to control content flow, (*see*, *e.g.*, Kloba, 19:1-20:3, claim 1) but

leaves to the POSITA implementation details for situations where content is deleted

from the server 104 / provider 128 (as claimed in claims 2-6, 8-12, 14-18, and 20-

24 of the '559), a POSITA would have been motivated to modify Kloba to include

those implementation details, taught by Robbin, for the reasons below.

116.   It is my opinion that a POSITA would have been motivated to

implement a content deletion mechanism for Kloba's content synchronization

process based on the known techniques described in Robbin. As discussed above,

Robbin describes that "management of media items residing on a media player can

be performed at and by a host computer for the media player." Robbin, Abstract.

For example, if "a particular media item is resident on the media player … but is not

resident on the" host computer, "the particular media item can be … removed

(deleted) from the media player" at the instruction of the host computer. Robbin,

[0036], [0057]. Robbin, like Kloba, discloses that the host computer performs a

comparison between content stored on the media player and that stored on the host

computer to determine differences between the sets of stored content as part of the

synchronization process. Robbin, [0059].

117.   In my opinion, a POSITA would have been motivated to modify Kloba

to implement a content deletion instruction based on Robbin's teachings in order to

accommodate scenarios where content items that are stored by a client 108 have

been deleted from the server 104 / provider 128. That is, where Kloba discloses a

general content synchronization scheme based on identifying differences or "deltas"

between two versions of a content item, a POSITA would have additionally

recognized a need to incorporate a mechanism for handling situations where the

server 104 / provider 128 version of the content item has been deleted, such as that

taught by Robbin. *See* Robbin, Abstract, [0057]-[0059]. In my opinion a POSITA

would have been motivated to incorporate such a deletion mechanism to ensure that

the content items stored by the client 108 are the most up to date by removing

outdated objects from a client to ensure users are accessing the most current content,

or in the case of media subscription models, is still within a license (i.e., rental) term.

Kloba teaches a broad applicability to movie, book, and audio content, which is well

known to benefit from more granular DRM controls to ensure copyright protections.

See, e.g., Ginter, [0191], [2234]-[2238], [2472] (describing multimedia content

rental and deleting content after expiration of DRM license defining the rental

period); Van Wie, 12:28-36 (describing multimedia content rental and preventing

playback after expiration of DRM license defining the rental period). Thus, in my

opinion, a POSITA would have recognized the well-known benefits of incorporating

such a deletion mechanism given the broad content applicability of Kloba, and been

motivated to perform the proposed modification to obtain those benefits.

118. Furthermore, it is my opinion that the implementation of the deletion

mechanism above would have been, at least, the application of known techniques

(*e.g.*, Robbin's deletion mechanism for content items) to a known system ready for improvement (*e.g.*, Kloba content synchronization system) to yield predictable results (*e.g.*, deleting content items from clients in a content delivery system, a result taught by Robbin itself). *See* MPEP §2143 (citing *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 415-421 (2007)).

119.   In my opinion, a POSITA would have had a reasonable expectation of success in implementing a deletion mechanism in Kloba's content synchronization process because Robbin teaches a system operating in the proposed manner. *See, e.g.*, Robbin, Abstract, [0036], [0045], [0057]-[0059], [0066].

3.   Claim 2

a)   2[pre]. An apparatus according to claim 1,

120.   *See* Ground 1, Claim 1.

b)   2[a]. wherein the terminal comprises a memory, and

121.   *See* Ground 1, 7[a].

c)   2[b]. wherein the processor is configured to send, to the terminal, a response to the content status that instructs the terminal to at least one of delete at least one piece of content from the memory of the terminal, or

122.   In my opinion Kloba in view of Robbin renders this limitation obvious.

123.   As previously discussed at Ground 1, 1[c], Kloba discloses that the processor (*e.g.*, the processor in server 104) is configured to send, to the terminal (*e.g.*, the client 108), a response to the content status that instructs the terminal to

perform one or more actions (*e.g.,* the message from server 104 to client 108 including instructions to synchronize the client 108).

124. Robbin discloses a response that instructs the terminal to delete at least one piece of content from the memory of the terminal (*e.g.,* response from the host computer instructing the media player to delete media items).

125. As discussed in at least §III.B.2, in my opinion a POSITA would have been motivated to modify the instructions in Kloba's synchronization process to include content deletion functionality based on the teachings of Robbin, for example, to ensure that the content items stored by the client 108 are the most up to date by removing outdated items, or, in the case of media subscription models, to ensure that content items are removed at the end of a license (i.e., rental) term.

126. As discussed above, Robbin discloses that a host computer identifies pieces of content (*e.g.,* "media items") that are stored on a media device (*i.e.,* a terminal) but not on the host computer. Robbin, [0057]. Robbin discloses that the host computer then instructs the media device to delete those identified media items from its memory. Robbin, [0057], [0066].

- Robbin, Abstract ("Improved techniques for interaction between a host computer (e.g., personal computer) and a media player are disclosed. According to one aspect, interaction between a host computer and a media player, such as <u>automatic synchronization of media contents stored on a media player with media contents stored on a host computer</u>, can be restricted. According to another aspect, management of media items residing on a media player <u>can be performed at and by a host computer for the media player</u>.")

- Robbin, [0045] ("The media device synchronization processing 500 is performed by <u>a media device that interacts with a host computer over a network</u>.")

- Robbin, [0057] ("Additionally, although not illustrated in FIGS. 6A and 6B, according to another embodiment, <u>the host computer synchronization processing 600 at operation 614 can also identify those of the media items on the media device that are not on the host computer</u>. Then, <u>the host computer can operate to interact with the media device to remove (e.g., **delete**) those media items</u> stored on the media device that are not stored at the host computer.")

- Robbin, [0066] ("[I]n one embodiment, <u>the media player 704 has limited or no capability to manage media items</u> on the media player 704. However, the management module 706 within the host computer 702 can indirectly manage the media items residing on the media player 704. For example, … <u>to "delete" a media item from the media player 704, the management module 706</u> serves to identify the media item to be deleted from the media store 708 and then <u>causes the identified media item to be deleted from the media player 704</u>.")

127. *See* also:

- Robbin, [0058]-[0059] (describing comparing content stored at host computer and media device to determine differences)

  d) 2[c]. download at least one piece of content from the source.

128. In my opinion Kloba in view of Robbin renders this limitation obvious.

129. As previously discussed at Ground 1, 1[c], Kloba discloses that the processor (*e.g.*, the processor in server 104) is configured to send, to the terminal (*e.g.*, the client 108), a response to the content status that instructs the terminal to perform one or more actions (*e.g.*, the message from server 104 to client 108 including instructions to synchronize the client 108).

130. Kloba further discloses that the instructions included in the response

include an instruction to download at least one piece of content from the source (*e.g.*,

the server 104 instructs the client 108 to synchronize its content with provider 128).

131. Kloba describes that server 104 compiles instructions to synchronize

the client 108 with a provider 128 (a content source). Kloba, 19:63-20:3. In my

opinion a POSITA would have understood that such instructions would include an

instruction for the client to download the content to be synchronized from the

provider 128. *See, e.g.*, Kloba, 19:1-20:3.

- Kloba, 19:63-20:3 ("Based on the information from provider(s) 128, synchronization modules 155 compile <u>instructions to synchronize the client 108 with providers 128</u> (step 172D). Synchronization module 155 sends such instructions to client 108, plus updated data marker (step 172E).

4. Claim 3

a) 3[pre]. An apparatus according to claim 2,

132. *See* Claim 1.

b) 3[a]. wherein the terminal status information comprises a listing of at least one piece of content stored in the memory of the terminal, and

133. *See* 1[b.i].

c) 3[b]. wherein the processor is configured to send, to the terminal, a response to the content status that instructs the terminal to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal.

134. *See* 2[b].

5. **Claim 4**

a) 4[pre]. An apparatus according to claim 2,

135. *See* Claim 2.

b) 4[a]. wherein the server status information comprises a listing of at least one piece of available content from the source, and

136. *See* Ground 1, 1[b.ii].

c) 4[b]. wherein the processor is configured to send, to the terminal, a response to the content status that instructs the terminal to download at least one piece of content from the source based upon the listing of at least one available piece of content from the source.

137. *See* 1[b.ii], 2[c].

138. *See, e.g.*, Kloba, 14:64-15:2 ("In step 208, the objects retrieved in the preceding steps are compared with the objects already cached on device 106. ***Server 104 determines the set of changes that have occurred*** between the retrieved objects and the objects already cached on device 106 in step 210. Only the set of changes determined in step 210 are transmitted to device 106.")

6. **Claim 5**

a) 5[pre]. An apparatus according to claim 2,

139. *See* Claim 2.

b) 5[a]. wherein the processor is configured to determine if the memory of the terminal includes at least one piece of content to delete, and

140. *See* 2[b].

c) 5[b]. wherein the processor is configured to send, to the terminal, a response to the content status that instructs the terminal to delete at least one piece of content when the processor determines that the memory of the terminal includes at least one piece of content to delete.

141. *See* 3[b].

7. Claim 6

a) 6[pre]. An apparatus according to claim 5,

142. *See* Claim 5.

b) 6[a]. wherein the processor is further configured to determine if source includes at least one available piece of content for the terminal to download, and

143. *See* 4[b].

c) 6[b]. wherein the processor is configured to send, to the terminal, a response to the content status that instructs the terminal to download at least one available piece of content when the processor determines that the source includes at least one available piece of content for the terminal to download.

144. *See* 2[c].

8. Claim 8

a) 8[pre]. An apparatus according to claim 7,

145. *See* Claim 7.

b)   8[a]. wherein the controller is configured to receive a response that instructs the controller to at least one of delete at least one piece of content from the memory of the terminal, or

146. *See* 2[b].

c)   8[b]. download at least one piece of content from a source of content.

147. *See* 2[c].

9.   Claim 9

a)   9[pre]. An apparatus according to claim 8,

148. *See* Claim 8.

b)   9[a]. and wherein the controller is configured to receive a response that instructs the controller to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal.

149. *See* 3[b].

10.   Claim 10

a)   10[pre]. An apparatus according to claim 8,

150. *See* Claim 8.

b)   10[a]. wherein the controller is configured to receive a response that instructs the controller to download at least one piece of content from the source based upon server status information comprising a listing of at least one available piece of content from the source.

151. *See* 6[b].

11. Claim 11

a) 11[pre]. An apparatus according to claim 8

152. *See* Claim 8.

b) 11[a]. wherein the controller is configured to send the content status such that the network entity determines if the memory of the terminal includes at least one piece of content to delete, and

153. *See* 5[a].

c) 11[b]. wherein the controller is configured to receive a response that instructs the controller to delete at least one piece of content when the network entity determines that the memory of the terminal includes at least one piece of content to delete.

154. *See* 5[b].

12. Claim 12

a) 12[pre]. An apparatus according to claim 11,

155. *See* Claim 11.

b) 12[a]. wherein the controller is configured to send the content status such that the network entity further determines if the source includes at least one available piece of content for the terminal to download,

156. *See* 6[a].

   c)   12[b]. wherein the controller is configured to receive a response that further indicates if the source includes at least one available piece of content, and

157. *See* 6[b].

   d)   12[c]. wherein the controller is further configured to download the at least one available piece of content when the network entity determines that the source includes at least one available piece of content.

158. *See* 6[b].

13.   Claim 14

   a)   14[pre]. A method according to claim 13

159. *See* Ground 1, Claim 13.

   b)   14[a]. wherein sending a response comprises sending a response that instructs the terminal to at least one of delete at least one piece of content from the memory of the terminal, or

160. *See* 2[b].

   c)   14[b]. download at least one piece of content from a source of content.

161. *See* 2[c].

14.   Claim 15

   a)   15[pre]. A method according to claim 14, and

162. *See* Claim 14.

b)   15[a]. wherein sending a response comprises sending a response that instructs the terminal to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal.

163. *See* 3[b].

15.   Claim 16

a)   16[pre]. A method according to claim 14,

164. *See* Claim 14.

b)   16[a]. wherein sending a response comprises sending a response that instructs the terminal to download at least one piece of content from the source based upon server status information comprising a listing of at least one available piece of content from the source.

165. *See* 4[a], 4[b].

16.   Claim 17

a)   17[pre]. A method according to claim 14 further comprising:

166. *See* Claim 14.

b)   17[a]. determining if the memory of the terminal includes at least one piece of content to delete,

167. *See* 5[a].

    c)   17[b]. wherein sending a response comprises sending a response that instructs the terminal to delete at least one piece of content when the memory of the terminal is determined to include at least one piece of content to delete.

168. *See* 5[b].

17.   Claim 18

    a)   18[pre]. A method according to claim 17 further comprising:

169. *See* Claim 17.

    b)   18[a]. determining if the source includes at least one available piece of content for the terminal to download,

170. *See* 6[a].

    c)   18[b]. wherein sending a response comprises sending a response that further instructs the terminal to download at least one available piece of content when the source is determined to include at least one available piece of content.

171. *See* 6[b].

18.   Claim 20

    a)   20[pre]. A computer-readable storage medium according to claim 19,

172. *See* Claim 19.

b) 20[a]. wherein the second executable portion is configured to send a response that instructs the terminal to at least one of delete at least one piece of content from the memory of the terminal, or

173. *See* 2[b].

c) 20[b]. download at least one piece of content from a source of content.

174. *See* 2[c].

19. Claim 21

a) 21[pre]. A computer-readable storage medium according to claim 20,

175. *See* Claim 20.

b) 21[a]. wherein the second executable portion is configured to send a response that instructs the terminal to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal.

176. *See* 3[a], 3[b].

20. Claim 22

a) 22[pre]. A computer-readable storage medium according to claim 20,

177. *See* Claim 20.

b) 22[a]. wherein the second executable portion is configured to send a response that instructs the terminal to download at least one piece of content from the source based upon server status information comprising a listing of at least one available piece of content from the source.

178. *See* 4[b].

21.   Claim 23

a)   23[pre]. A computer-readable storage medium according to claim 20 further comprising:

179.   *See* Claim 20.

b)   23[a]. a third executable portion configured to determine if the memory of the terminal includes at least one piece of content to delete,

180.   *See* 5[a].

c)   23[b]. wherein the second executable portion is configured send a response that instructs the terminal to delete at least one piece of content when the second executable portion determines the memory of the terminal includes at least one piece of content to delete.

181.   *See* 5[b].

22.   Claim 24

a)   24[pre]. A computer-readable storage medium according to claim 23,

182.   *See* Claim 23.

b)   24[a]. wherein the third executable portion is further configured to determine if the source includes at least one available piece of content for the terminal to download, and

183.   *See* 6[a].

c)   24[b]. wherein the second executable portion is configured to send a response that further instructs the terminal to download at least one available piece of content when the second executable portion determines the source includes at least one available piece of content.

184.   *See* 6[b].

IV.   CONCLUSION

185.   For the reasons put forth above, in my opinion Kloba alone and in view of Robbin renders claims 1-24 of the '559 patent obvious.

I declare under penalty of perjury under the laws of the United States that

the foregoing is true and correct.

Executed at Holmdel, New Jersey on <u>November 8, 2024</u>.

By: _____

Bruce McNair