

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Racz et al
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Appl. Serial No.: 13/012,541
Filing Date: January 24, 2011
Title: DATA STORAGE AND ACCESS SYSTEMS

DECLARATION OF DR. JEFFREY A. BLOOM

1. My name is Dr. Jeffrey A. Bloom. I understand that I am submitting a declaration in connection with the above-referenced Covered Business Method (“CBM”) review proceeding pending in the United States Patent and Trademark Office for U.S. Patent No. 8,061,598 (“the ‘598 Patent”).
2. I have been retained on behalf of Samsung Electronics America, Inc. to offer technical opinions with respect to the ‘598 patent and the prior art references cited in this CBM review. My compensation is not based on the outcome of my opinions.
3. I am not a lawyer. However, counsel has advised me of legal concepts that are relevant to CBM review proceedings and to the opinions that I offer in this declaration. I understand that, during CBM review, claims of the subject patent are given a broadest reasonable interpretation. Counsel has advised me that the broadest reasonable interpretation must be consistent with the specification, and that claim language should be read in light of the specification and teachings in the underlying patent.
4. I have reviewed the '598 patent, including the claims of the patent in view of the specification, and I have reviewed the '598 patent's prosecution history. In addition, In addition, I have reviewed the following documents: U.S. Patent No. 5,915,019 (“Ginter”), U.S. Patent Application No. 10/111,716 (“the ‘716 application”), PCT Application No. PCT/GB00/04110 (“the ‘110 application”), and United Kingdom Patent Application GB9925227.2.
5. I am currently Director of System Engineering and Software Development for Conditional Access and Identity Management Systems for SiriusXM radio. In my current position at SiriusXM, I manage systems that employ many of the industry standard techniques for

calculating one-way hash functions, encrypting content with both symmetric and asymmetric encryption, key management, key generation, zero-knowledge proof, authentication via digital signature, and other industry standard security techniques. I lead a team of systems engineers, requirement analysts, and software developers responsible for all conditional access (CA) security systems. This includes CA systems to control delivery of satellite radio services to automobiles and other satellite signal receivers, CA systems to control the delivery of streaming audio services over the Internet, and CA systems to control delivery of telematics services to automobiles. The systems that I manage rely on cryptographic methods and systems for protecting content and managing keys, and include identity management infrastructure such as SAML and Auth solutions for sign-on.

6. From 1997 to 2000, I worked for Signafy (acquired by NEC) where I developed digital watermarking technology for use in rights management systems, and participated in the Data Hiding Subgroup of the Copy Protection Technical Working Group. In this role, I became very familiar with the field of Digital Rights Management and underlying cryptographic component technologies including digital signatures, digital certificates, and public key encryption.
7. From 2000 to 2005, I worked with the National Institute of Standards and Technology to develop robust tracking technology allowing content owners to identify sources of digital piracy of motion picture content.
8. In 2012, I worked as a Video and Streaming Consultant for VideoTechResearch LLC of Princeton Jct, NJ. VideoTechResearch provides consulting services that include on-site systems engineering for multimedia security and streaming, pre-sales business development, project management, and strategy and roadmap development. While at VideoTechResearch, I supported SiriusXM Satellite Radio, where I worked with the Streaming Services and Products group on the architecture of an IP streaming solution based on HLS with associated metadata. I also wrote the primary API documentation for the back-end systems and provided support to partner client developers implementing clients based on that API. I also supported DAX Technologies, where I worked with DAX executives to create a video quality monitoring solution proposal for external customers.

9. Since 2012, I also have been an Adjunct Professor of Electrical and Computer Engineering at the New Jersey Institute of Technology Newark, NJ. In this role, I have taught graduate-level courses in Digital Image Processing
10. From 2009 – 2012, I also worked at Dialogic, Inc. in Eatontown, NJ as the Director Video Technologies. At Dialogic, I developed the technology and software components for a new QoE video quality monitoring and tracking business, enabling monitoring and tracking of video quality across VOD and live streaming.
11. From 2008 – 2009, I was a research center director at Thomson, Inc. (Technicolor) in Burbank, CA, where I managed a research center of 2 administrators and 15 researchers working in the areas of content security, signal processing, and content production and management.
12. From 2005–2009, I was a content security lab manager at Thomson, Inc. (Technicolor) in Princeton, NJ, where I managed an international group of 10 researchers in the US, France, and Germany. I led content security R&D efforts including conditional access systems, digital rights management systems, and watermarking systems. I also provided content security expertise and technical support for all Thomson business units.
13. From 2000–2005, I was a technology leader at Sarnoff Corporation in Princeton, NJ. At Sarnoff, I lead Sarnoff's digital watermarking research efforts in tracking watermarks for motion picture content, digital cinema watermarking, video database watermarking, and removable visible attribution watermarks; authentication watermarks. I also Developed Sarnoff's audio fingerprinting technology for audience monitoring and automatic audit log creation.
14. From 1998–2000, I was a research scientist at the NEC Research Institute / Signafy, Inc. in Princeton, NJ. There, I developed a number of still image watermarking products, and I developed two video watermarking technologies designed for broadcast monitoring and copy protection, respectively. I also designed, implemented, and executed testing and evaluation procedures for video watermarking technologies.
15. From 1995-1999, I earned my Ph.D. Electrical and Computer Engineering from University of California Davis, CA. My thesis was titled, "The Derivative of Gaussian Transform," and my

advisor was Todd Reed. I was a U.S. Department of Education GAANN Fellow under a TRW Fellowship. My research represented a study of models of the human visual system and the use of one such model to design and build 2D and 3D spatial and spatio-temporal transforms for images and image sequences. This transform was then used to build image and image sequence compression algorithms that are competitive with JPEG and H.261, respectively.

16. In 1990, I earned my M.S. Electrical and Computer Engineering from the Worcester Polytechnic Institute Worcester, MA. My thesis was entitled, "Feature Extraction and Surface Recognition of Arbitrary Surfaces from Range Data." This research focused on the modeling of surface data clouds, as might be obtained from contemporary lidar systems. An adaptive optimization method is applied to a standard triangular mesh to align mesh nodes with 3D feature points.
17. In 1987, I earned my in B.S. Electrical Engineering from the Worcester Polytechnic Institute in Worcester, MA.
18. I was an Associate Editor, EURASIP Journal on Information Security, 2006 – 2014, and an Associate Editor, Springer LNCS Transactions on Data Hiding and Multimedia Security, 2006 – 2014. I was involved with the Technical Program Committee, IEEE International Conference on Images Processing 2014; the Technical Program Committee, International Workshop on Quality of Multimedia Experience (QoMEX), 2010 – 2013; the Technical Program Committee, SPIE Security and Watermarking of Multimedia Contents, 2003 – 2014; the IEEE Multimedia Signal Processing Technical Committee, 2008-2012.
19. I worked as an editor for Transactions on Evolutionary Computation, 2011; European Signal Processing Conference (EUSIPCO), 2008-2011; Journal of Digital Forensics, Security and Law, 2009; and International Journal of Computer Mathematics, 2008.
20. I am an author of two books, including a leading textbook in digital watermarking – an image processing technology used for DRM, "Digital Watermarking" by Ingemar J. Cox, Matthew L. Miller, and Jeffrey A. Bloom, Morgan Kaufmann Publishers, Inc., San Francisco, 2002, and also "Digital Watermarking and Steganography, 2nd Edition" by Ingemar J. Cox, Matthew L. Miller, Jeffrey A. Bloom, Jessica Fridrich, and Ton Kalker, Morgan Kaufmann Publishers, Inc., San Francisco, 2008.

21. I have also published chapters in two books: Digital Rights Management–Concepts and Applications by Kambhammettu (2005) and Multimedia Security by Zeng, Yu and Lin (2006)
22. My findings explained below are based on my study, experience, and background in the digital rights management industry, and are further informed by my education in electrical and computer engineering. This declaration is organized as follows:
- I. Overview
 - II. Terminology
 - III. Discussion of the Ginter Reference
 - IV. Legal Principles

I. Overview

23. The ‘598 Patent claims and describes systems and methods relating to financial activity; specifically, for processing payments for data downloads. See ‘598 at Abstract, 1:19-21, claim 7. In the words of the Patent Owner, the claims are directed toward “storing and paying for data” and toward a “portable data carrier” that includes “payment data memory to store payment data and code to provide the payment data to a payment validation system.” See ‘598 at 1:21-23, claim 7. In more detail, the subject matter of claim 7 covers the abstract idea of enabling limited use of paid-for/licensed content (which was done with pen and paper for decades prior to the invention of modern computers), and fails to meaningfully limit the scope of that coverage. See ‘598 at 2:5-15, 5:29-33, claim 7. Claim 7 is not tied, for example, to a specific machine, and it fails to transform an article into a different state or thing. Id. The independent claims of the ‘598 Patent do recite computer-related terms such as “data carrier”, “payment data memory”, and “processor”, but these are generic computer terms referring to concepts that were well understood by the ‘598 Patent’s effective filing date. Indeed, as described in more detail below, several prior art references show that the claims of the ‘598 Patent altogether fail to recite a novel and unobvious technological feature, just as they fail to recite a technical problem solved by a technical solution.
24. The specification of the ‘598 Patent confirms that the computer-related terms recited in the ‘598 Patent’s claims do in fact relate to technology that is merely, in the words of the patentee, “conventional”: the specification states, for example, that “The data access terminal may be a conventional computer or, alternatively, it may be a mobile phone” that terminal memory “can comprise any conventional storage device,” and that a “data access device . . . such as a portable audio/video player . . . comprises a conventional dedicated computer system including a processor . . . program memory . . . and timing and control logic . . . coupled by a data and communications bus.” 4:4-5, 16:46-53, 18:7-11. That the ‘598 Patent is concerned with financial-related data processing rather than with technological innovation is further confirmed by other statements in the specification, explaining that payment data forwarded to a payment validation system may be “data relating to an actual payment made to the data supplier, or . . . a record of a payment made to an e-payment system” that can be “coupled to banks.” See ‘598 at 6:60-64, 13:35-55. In short, the ‘598 Patent applies generic computer technology toward the solution of a financial problem: enabling limited use of paid-for/licensed content. See ‘598 at 2:5-15, 5:29-33.

25. This subject matter was, at the ‘598 Patent’s effective filing date, already well known in the prior art. Indeed, the reference discussed in this declaration, Ginter, provides robust description of the very subject matter that the ‘598 Patent claims.
26. Ginter describes digital rights management (“DRM”) achieved through a “virtual distribution environment” (“VDE”) that controls, using payment and other information, use of electronically disseminated and stored content objects. Ginter at Abstract. Ginter’s objects may be delivered to end users in “containers” that contain both digital content (which may include, for example, textual, audio, video, and/or software elements) and associated control information. See Ginter at 13:50-67, 43:24-30, 58:57-65, FIG. 5B. The control information, which may include both use status data and use rules, is used in conjunction with budgeting, metering, and/or other DRM methods. Ginter at 14:49-15:9. End users interface with Ginter’s VDE through “electronic appliances,” which implement these methods to ensure that content is accessed and used only in authorized ways. In Ginter, an electronic appliance “may be practically any kind of electrical or electronic device,” including, for example, a personal computer or a computerized portable device like a smart card or media player. Ginter at Abstract, 60:19-30, FIGS. 8, 71. In great detail, Ginter explains that these electronic appliances may be used together to facilitate access and authorization; a user may, for example, browse, select, and pay for digital content using a terminal that is connected to a portable media player, with digital content being ultimately downloaded to, and accessed through, the media player. See Ginter at 230:20-42, 40:64-41:16.

II. Terminology

28. A POSITA¹ would understand that the term “payment data,” as described by, and used in the claims of the ‘598 Patent, retains its ordinary meaning, and that it encompasses data that relates to previous, present, and/or prospective payment. See ‘598 at Abstract, 2:5-15, claims 7, 11, 12, and 17. A POSITA would understand, for example, that payment data includes information that

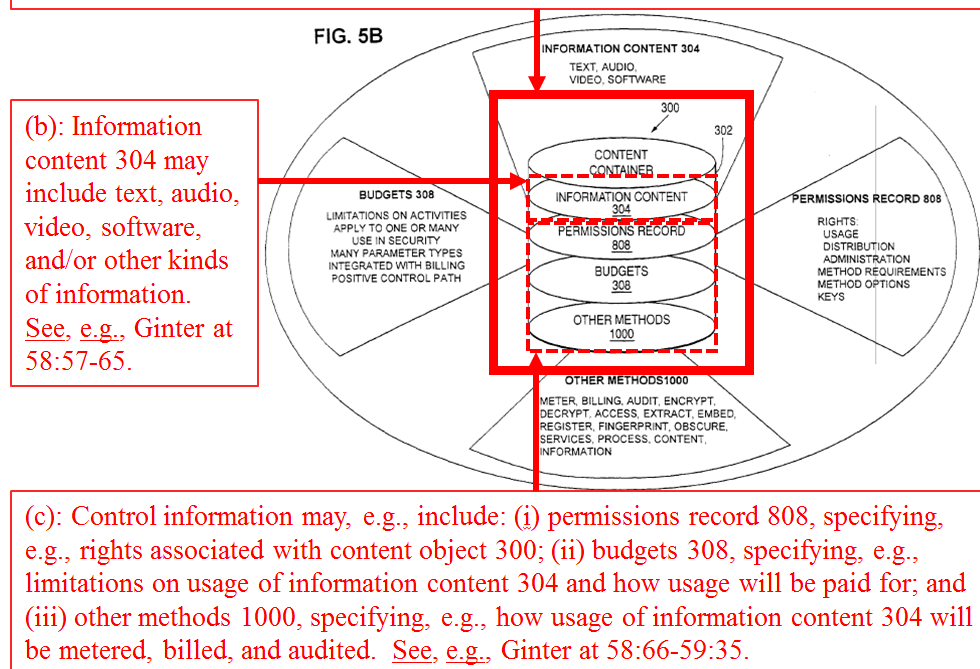
¹ The term “POSITA”, as used in this declaration, refers to a Person of Ordinary Skill In the Art at the ‘598 Patent’s effective filing date.

can be used to make payment, and/or to check and validate that payment was made. See ‘598 at Abstract, 2:5-15, 4:67-5:8, 5:4-11, 5:17-20.

III. Discussion of the Ginter Reference

29. Ginter describes DRM achieved through a “virtual distribution environment” that controls, using payment and other information, use of electronically disseminated and stored content objects. Ginter at Abstract. In some implementations, Ginter’s content objects are delivered to end users in “containers,” which, as depicted by Ginter’s FIG. 5B, contain both information content (which may include, for example, textual, audio, video, and/or software elements) and associated control information; in other implementations, Ginter’s control information is delivered separately from the content with which it is associated. Ginter at 13:50-67, 43:24-30, 58:57-65, FIG. 5B.

(a): As FIG. 5B depicts, a content object (e.g., content object 300) may include both content (e.g., information content 304) and control information (e.g., budgets 308, permissions record 808, and other methods 1000) with which the content is associated; in some embodiments, control information may be delivered separately from the content with which it is associated. See, e.g., Ginter at 13:50-67.



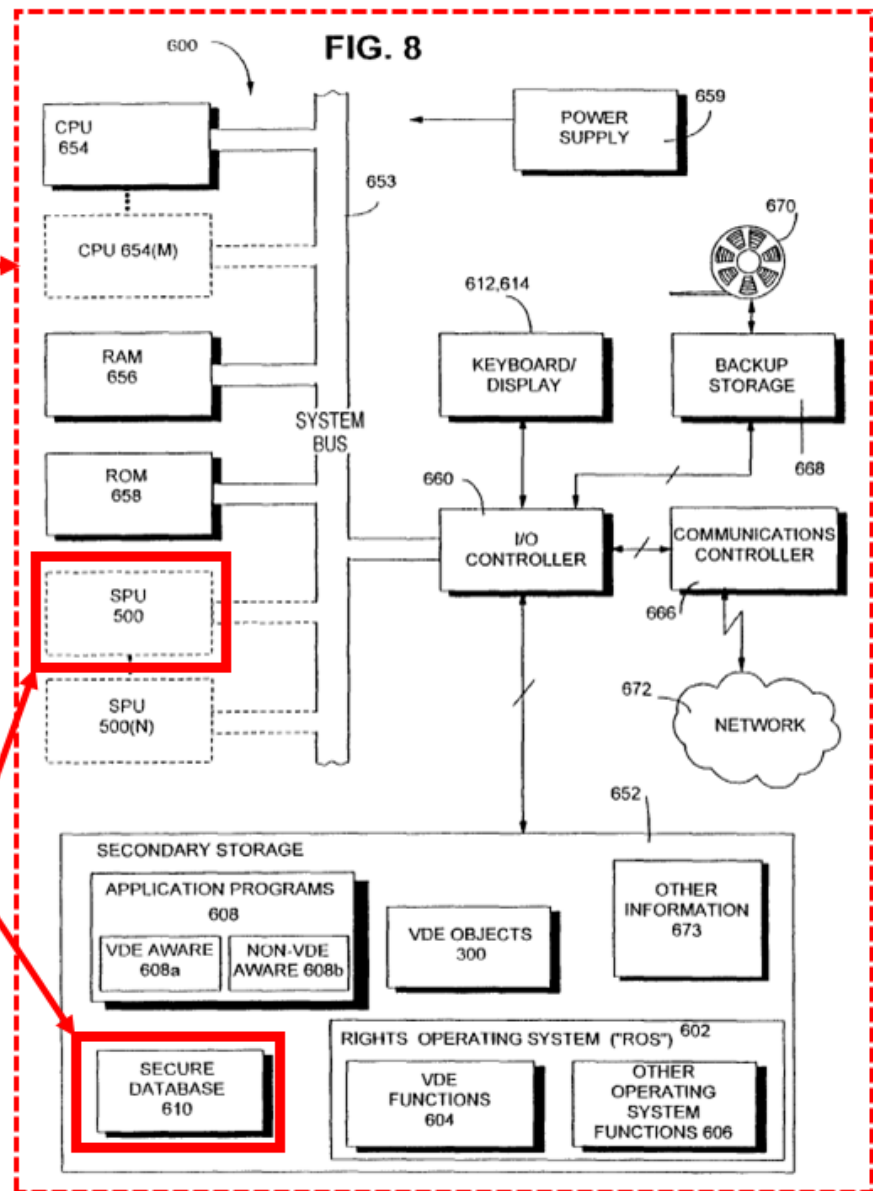
30. In either case, controls on access to and/or the use of information content may be enforced through budgeting, metering, and/or other methods that involve use status data and use rules. Ginter at 14:49-15:9. Control information that is associated with one or more of these methods may, for example, include: (i) information specifying rights associated with content; (ii)

information specifying limitations on usage of content and how usage will be paid for; and (iii) information specifying how usage of content will be metered, billed, and audited. See Ginter at 58:66-59:35, FIG. 5B.

31. End users interface with Ginter's VDE through electronic appliances, which implement these methods to ensure that content is accessed and used only in authorized ways; an electronic appliance "may be practically any kind of electrical or electronic device," including, for example, a personal computer or smart card. Ginter at Abstract, 60:19-30, FIGS. 8, 71.
32. Ginter describes several variations of its electronic appliances. The electronic appliance 600 features a Secure Processing Unit ("SPU") 500 that performs secure data management processes including "governing usage of, auditing of, and where appropriate, payment for VDE objects 300." Ginter at 63:27-41. Performance of these processes involves the use of control information (for example, use status data and use rules) that is maintained in a secure database 610, which may be stored in non-volatile memory of the SPU itself. See Ginter at 63:27-41, 65:61-67. The control information may alternatively be stored in a secondary storage 652 that stores content objects 300 to which the control information pertains. See Ginter at FIG. 8.

(a): Electronic Appliance 600, which “may be practically any kind of electrical or electronic device,” may be used to ensure that content is accessed and used only in authorized ways. See, e.g., Ginter at Abstract, 60:19-30.

(b): As FIG.8 depicts, Secure Database 610 (and its control information, including, e.g., use status data and use rules) may be maintained in secondary storage 652; in other embodiments, Secure Database 610 may be maintained in non-volatile memory of SPU 500. See, e.g., Ginter at 63:27-41,65:61-67.



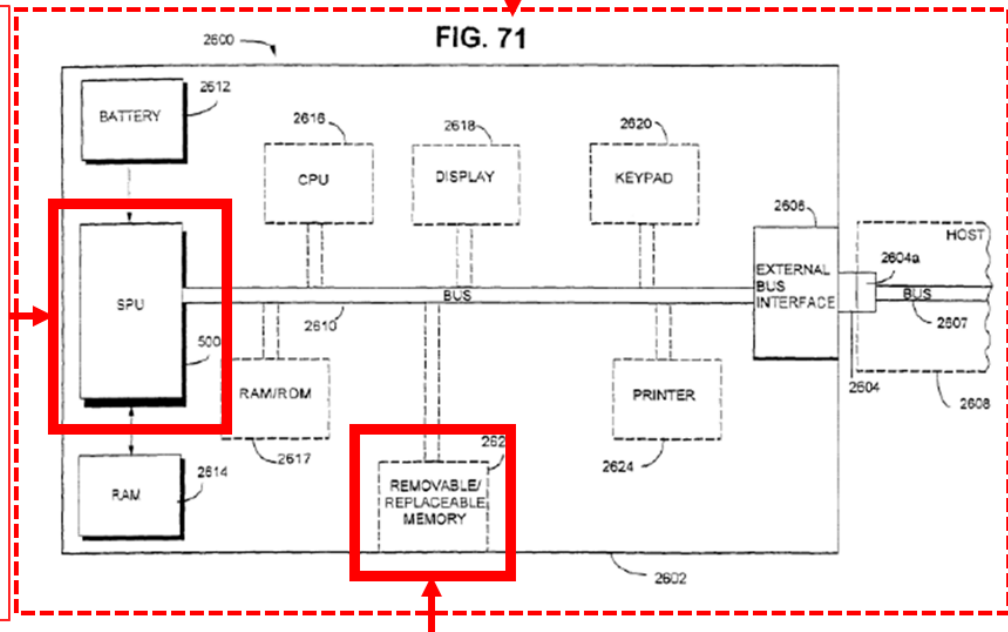
33. Ginter recognizes that its electronic appliances may be portable. Ginter at 228:37-38. Indeed, Ginter contemplates smart card implementations in the form of portable electronic appliances that can dock with other electronic appliances, such as personal computers and merchant terminals. Ginter at 40:64-41:7, 41:13-16. When connected, a portable smart card electronic appliance and a terminal “can securely exchange information related to a transaction, with credit and/or electronic currency being transferred to a merchant and/or clearinghouse and transaction information flowing back to the card.” Ginter at 41:7-12.

34. With reference to FIG. 71, Ginter describes a specific example of a Portable Electronic Appliance (“PEA”) 2600 that stores control information in a non-volatile memory of the PEA’s

SPU 500, in addition to content objects that are separately stored in another non-volatile memory, removable/replaceable memory 2622. See Ginter at 228:36-231:65.

(a): Portable Electronic Appliance 2600 may, in some implementations, be used in combination with electronic appliance 600. See, e.g., Ginter at 230:20-42.

(b): SPU 500 includes a non-volatile memory that may store control information, including use status data and use rules, in a secure database 610. See, e.g., Ginter at 65:61-67.

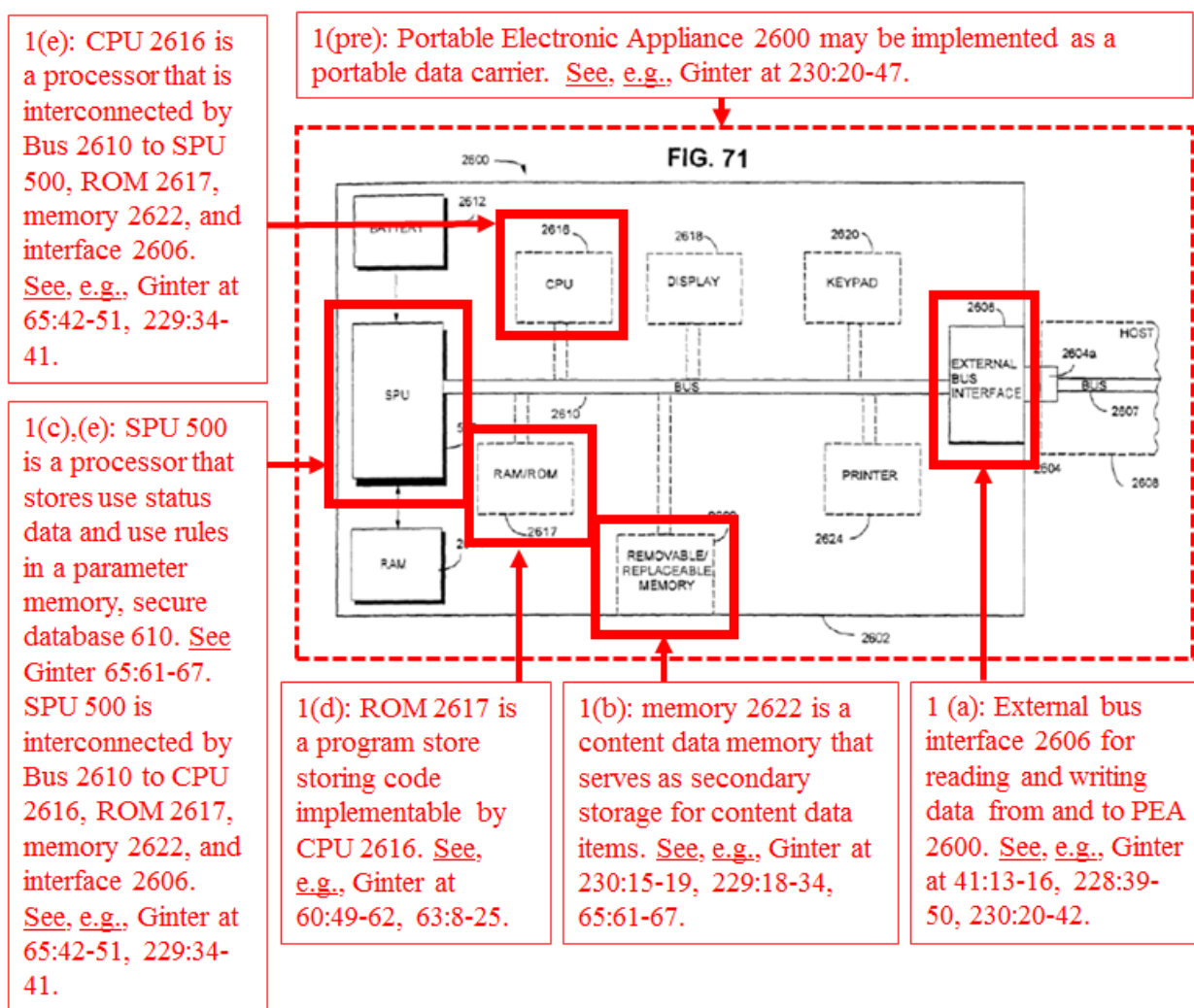


(c): Removable/replaceable memory 2622 is yet another separate non-volatile memory that may serve as secondary storage for content objects that include content and, in some implementations but not in others, control information that is associated with content. See, e.g., Ginter at 13:50-67, 14:49-15:9, 65:61-67, 230:15-19, 229:18-34.

35. SPU 500 includes a non-volatile memory that may store control information, including use status data and use rules, in a secure database 610. See Ginter at 65:61-67. SPU 500 may, for example, store audit information indicating user payments for VDE content objects, in addition to control information used to determine whether a user is authorized to access content objects. See, e.g., Ginter at 65:61-67.
36. Removable/replaceable memory 2622 is yet another separate non-volatile memory that may serve as secondary storage for content objects that include content and, in some implementations but not in others, control information that is associated with content. See Ginter at 13:50-67, 14:49-15:9, 230:15-19, 65:61-67.

37. In some embodiments, the PEA is a device that is used by Ginter in combination with another electronic appliance 600 (for example, a personal computer or other data terminal). See, e.g., Ginter at 230:20-42, 40:64-41:16.
38. A user of the PEA or the user of another electronic appliance to which the PEA is coupled can browse a catalog of content objects stored locally or at a remote object repository and select a particular content object for purchase and/or downloading. Ginter at 289:27-35. Payment for a selected content object, and the auditing of such a payment, may be made “through the use of prepayments, credits, real-time electronic debits from bank accounts and/or VDE node currency token deposit account.” Ginter at 63:34-41.
39. Upon selection of a particular content object, the PEA or a coupled electronic appliance can transmit to a clearinghouse audit information reflecting a payment made for the selected object. See, e.g., Ginter at 41:7-12, 161:42-64.
40. After validating the audit information, the clearinghouse transmits an administrative response back to the PEA or electronic appliance. Ginter at 161:65-162:8. Subsequently, the selected VDE content object and accompanying control information is downloaded from the object repository and stored in memory of the PEA. See Ginter at 289:67-290:2, 161:42-162:6 .
41. Once downloaded to the PEA responsive to the validated user purchase, a content object stored in the PEA’s removable/replaceable memory may be accessed responsive to a user request. Ginter at 230:48-59, 183:24-30. Providing access may involve updating audit information stored in the PEA’s SPU. See Ginter at 48:65-49:14, 136:7-19, 142:43-143:22. This may involve, for example, updating a meter method User Data Element (“meter method UDE”) that indicates usage of the content object, calculating a cost based on a cost per access of the content object stored in a billing Method Data Element (“billing MDE”) and then comparing the calculated cost with an aliased budget value stored in a budget method UDE to determine whether an access limit has been exceeded. See Ginter at 172:32-35, 185:57-59, 186:15-24, 264:62-265:16.
42. If access is permitted, the content object may be played or otherwise accessed for the user. See Ginter at 58:33-34.

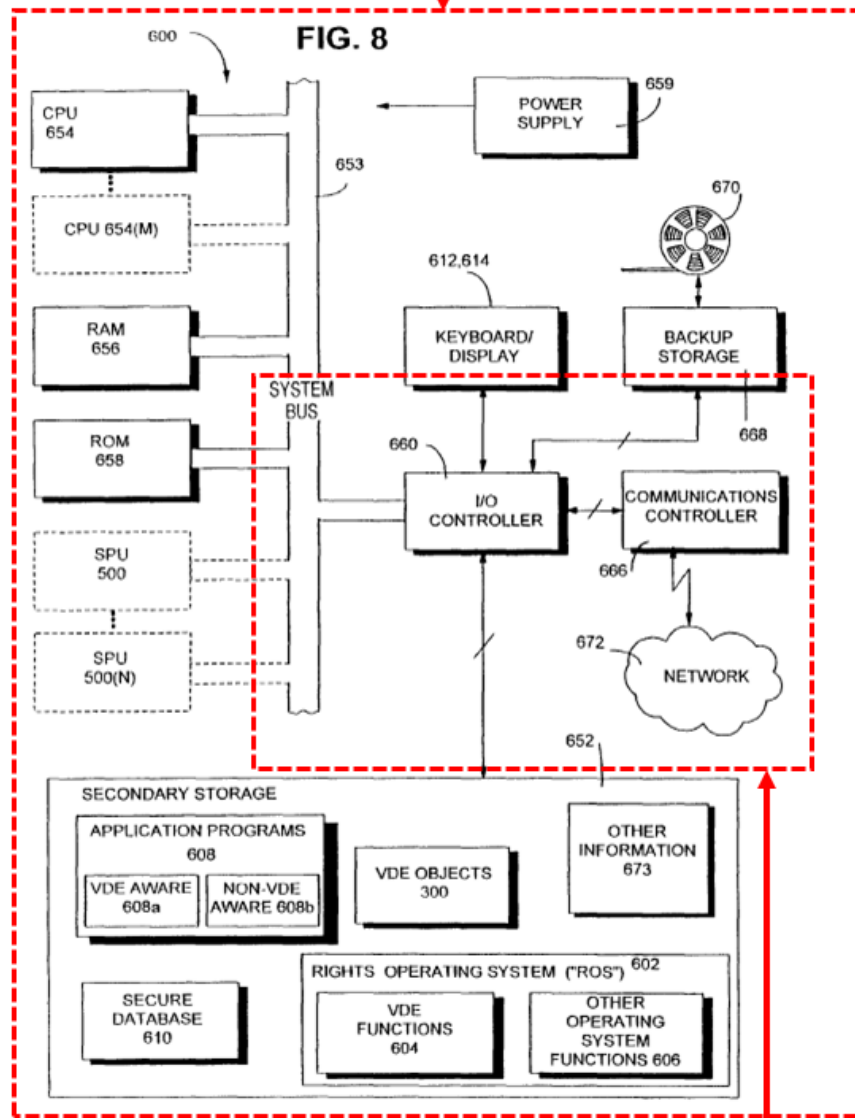
43. Ginter recognizes that its electronic appliances, which may function as multimedia terminals, may be portable. See Ginter at 34:1-6, 228:37-38, FIGS 8 and 71. Indeed, Ginter contemplates smart card implementations in the form of portable electronic appliances that can dock with other electronic appliances, such as personal computers and merchant terminals. Ginter at 40:64-41:7. With reference to FIG. 71, Ginter describes an example of a handheld PEA 2600 that stores content objects (which may contain multimedia content data), in addition to use rules that control user access to stored content. See 228:36-231:65, 229:18-34, 230:20-42, FIG. 71; see also Ginter at 34:1-6, 40:64-41:7, 100:50-55, 109:2-4, 228:36-231:65, 229:18-20, 230:7-47.



44. As FIG. 71 depicts, PEA 2600 includes an external bus interface 2606, an interface for reading and writing data from and to PEA 2600. See Ginter at 228:39-50, 41:13-16, 230:20-42, FIGS. 8

and 71; see also Ginter at 62:30-33, 224:61-225:6, 282:64-283:2. External bus interface 2606 may interface with a host system, for example, electronic appliance 600, that includes a data carrier interface (for example, a mating connector, electronic connector bus interface, and/or system bus). See Ginter at 41:13-16, 230:20-42, 228:39-50, FIGS. 8 and 71.

1(a): Electronic appliance 600 may be implemented as a host system that, when connected to PEA 2600's external bus 2606, can read and write data to and from PEA 2600. See, e.g., Ginter at 41:13-16, 230:20-42



1(a): Electronic appliance 600 may interface with data carriers (e.g., with PEA 2600) through components that may include I/O controller 660 and communications controller 666. See, e.g., Ginter at 41:13-16, 62:25-40, 230:20-42.

45. PEA 2600 may further include a wireless interface (for example, a communications controller 666) configured to interface with a wireless network for accessing a remote computer system, for example, another electronic appliance 600 functioning as an external object repository, a data supplier. See Ginter at 62:30-33, 226:55-227:1, 224:61-225:6, 229:18-34, FIGS. 8, 70; see also Ginter at 34:1-6, 100:50-55, 109:2-4, 161:5-11, 233:53-57, 224:14-16, 224:61-225:6, 226:63-227:2, 280:63-281:2.
46. PEA 2600 includes removable/replaceable memory 2622, a non-volatile content data memory that is configured to store content objects and that is coupled to external bus interface 2606 and/or communications controller 666 by bus 2610. See Ginter at 230:15-19, 229:18-34, 65:61-67; see also Ginter at 62:41-45; 62:64-65, FIG. 8. Content objects stored in PEA 2600's removable/replaceable memory 2622 may contain multimedia content data, for example, music data and video data. See Ginter at 230:47-58, 58:57-62.
47. PEA 2600 also includes a content access PIN memory (for example, RAM 534) to store a PIN number (for example, unique identifier, key, and/or password) for controlling access to removable/replaceable memory 2622. See Ginter at 229:13-18, 237:34-48, 229:18-34; see also Ginter at 62:64-65, 229:18-20, 235:3-29.
48. PEA 2600 further includes, in non-volatile memory of SPU 500, a secure database portion 610 that contains use rules (for example, billing method MDE and/or budget method UDE) and use status data (for example, meter method UDE) for controlling user access to multimedia content contained in content objects. See Ginter at 65:61-67, 59:17-23, 289:57-290:2, 58:33-34, 136:28-34, 190:45-57, 264:62-265:16, 128:23-36, 169:4-6, 229:18-20, 230:7-19, 126:36-44, 181:7-12, 186:56-62, 187:52-57, 62:64-67. Secure database 610 may also function as a payment data memory that stores payment data (for example, audit information) that can be provided to a payment validation system (for example, a clearinghouse and/or external object repository). See Ginter at 169:4-6, 184:65-185:2, 231:64-232:1, 232:19-24, FIG. 71; see also Ginter at 9:24-32, 62:64-67, 63:34-41, 126:36-44, 161:42-161:6, 163:38-61, 175:3-22, 175:47-176:1, 229:18-20, 230:7-19, 184:65-185:2, FIG. 8. Like removable/replaceable memory 2622, PEA 2600's SPU 500 is coupled by bus 2610 to external bus interface 2606 and/or communications controller 666. See Ginter at FIG. 71, 48:65-49:14, 63:34-41, 169:4-6.

49. When PEA 2600 and electronic appliance 600 are electronically coupled (for example, wirelessly, or through PEA 2600's external bus interface 2606 and electronic appliance 600's data carrier interface) electronic appliance 600 may read data from PEA 2600's secure database 610 and may write data to PEA 2600's removable/replaceable memory 2622. See Ginter at 41:7-16, 48:65-49:14, 65:61-67.
50. PEA 2600 includes a program store, ROM 2617, storing processor control code (for example, software instructions). See Ginter at 229:34-60, 229:41-67, 63:8-15, 65:42-51, FIGS. 8, 9, 71; see also Ginter at 60:49-62; 63:8-25; 65:42-66:2.
51. PEA 2600 also includes processors, SPU 500 and CPU 2616, that implement code in ROM 2617 and that are coupled to ROM 2617, removable/replaceable memory 2622, secure database 610, and to external bus interface 2606 and/or communications controller 666. See Ginter at 65:42-66:2, 229:34-67, FIGS. 8, 71; see also Ginter at 60:31-35, 62:13-17, 62:25-28, 62:56-58, 63:8-15, 75:35-37, 79:60-67.
52. PEA 2600 further includes a user interface made up of multiple components, which may include a keypad, user input buttons, printer 2624, and one or more display devices 2618. See Ginter at 229:61-230:19; see also Ginter at 60:31-35. PEA 2600's user interface enables users to, for example, browse, select, retrieve, and access item(s) of multimedia content data that are available for retrieving and/or that are stored locally in removable/replaceable memory 2622. See Ginter at 169:51-55, 183:24-30. Indeed, PEA 2600's user interface is operable to enable a user to make multiple selections of multimedia content items, the items potentially being available from more than one source. See Ginter at 169:51-55, 183:24-30, 177:10-18; see also Ginter at 60:31-35, 82:32-41, 169:51-55, 177:10-18, 183:24-30, 237:49-237:2, 238:50-64, 289:41-64, FIG. 72D. PEA 2600's user interface is also operable to enable a user to access selected items of multimedia content, responsive to control code permitting access to the items. See Ginter at 57:51-58:62; see also Ginter at 81:46 51, 99:43-58.
53. The user interface may, for example, be operable to play multimedia content items selected by a user. See Ginter at 60:31-35, 230:48-59. PEA 2600's display, which may include printer 2624 and one or more display devices 2618, may be used, for example, to present selected items of multimedia content to a user, in addition to data relating to the multimedia content (for example,

a name, access unit size, cost per access unit, and/or text description of the content). See Ginter at 229:61-230:19, 230:48-59, 81:46-51; see also Ginter at 57:67-58:34, 58:33-34, 60:31-35, 99:43-58, 286:57-287:4, 229:61-230:19, FIGS. 72A-D.

54. Ginter discloses that a user of an electronic appliance, for example, PEA 2600, may use the electronic appliance to access identifier data (for example, a catalog) identifying locally and/or remotely stored content objects that are available for purchase, the catalog providing content information pertaining to the content objects that it identifies (for example, content titles, text descriptions, abstracts, cost data including pricing, and other information). See Ginter at 237:49-60, 287:59-288:2, 289:27-35, FIGS. 72B, 72D; see also Ginter at 102:59-67, 238:50-64, 287:59-288:2, 289:27-35. An example catalog is depicted in Ginter's FIG. 72D, which is reproduced below.
55. In more detail, PEA 2600's SPU 500 and/or CPU 2616 implement code to request a catalog identifying items of multimedia content that are stored in removable/replaceable memory 2622 and/or that are available for retrieving from an external source via a wireless interface (for example, via communications controller 666). See Ginter at 238:50-64, FIG. 72D; see also Ginter at 65:61-67, 102:17-22, 282:34-57, 288:20-29. A catalog may, for example, be wirelessly requested and received from a data supplier and/or clearinghouse. See Ginter at 237:49-60, 238:50-64, 287:59-288:2, FIGS. 72B, 72D; see also Ginter at 65:61-67, 102:17-22, 102:59-67, 238:50-64, 282:34-57, 287:59-288:29, 289:27-35.
56. SPU 500 and/or CPU 2616 implement code to display identified items of multimedia content that are available for retrieving and/or that are available from removable/replaceable memory 2622. See Ginter at 81:46-51, 229:18-34, 229:61-230:19, 238:50-64, FIGS. 72A-D; see also Ginter at 65:61-67, 81:46-51, 102:17-22, 237:49-60, 238:50-64, 282:34-57, 287:59-288:29, 289:27-35. A received catalog of available content objects may, for example, be displayed to a user through PEA 2600's display device 2618. See Ginter at 230:10-13, 81:46-51, 229:18-34, FIG. 72D.
57. SPU 500 and/or CPU 2616 implement code to receive user selections of stored items of multimedia content that are available for retrieving from an external source and/or that are available from removable/replaceable memory 2622. See Ginter at 177:10-18, 183:24-30, 287:59-288:2; see also Ginter at 82:32-41, 237:49-237:2, 238:50-64, 289:41-64, FIG. 72D. SPU

500 and/or CPU 2616 further implement code to, responsive to one or more user selections of multimedia content items, transmit, via a wireless interface (for example, communications controller 666) audit information relating to payment for the selected items for validation by a payment validation system (for example, a clearinghouse). See Ginter at 63:34-41, 161:42-162:6, 163:38-61, 175:3-22, 175:47-176:1.

58. In more detail, and as explained above, Ginter provides that payment for a selected content object, and the auditing of such a payment, may be made “through the use of prepayments, credits, real-time electronic debits from bank accounts and/or VDE node currency token deposit account.” Ginter at 63:34-41. After receiving a user selection of a particular content object, PEA 2600 transmits to a clearinghouse, for purposes of validation, audit information reflecting a payment made for the selected object. See Ginter at 161:42-64; see also Ginter at 41:7-12, 48:65-49:14, 126:8-35, 169:4-6, 172:32-35, 185:57-59, 186:15-24, 264:62-265:16.
59. SPU 500 and/or CPU 2616 implement code to receive, via a wireless interface, payment validation data defining if the payment validation system has validated payment for the selected item(s) of multimedia content. See Ginter at 163:38-61; 175:3-22; 176:13-33. In more detail, following receipt of forwarded audit information, the payment validation system processes the audit information to determine its validity. Ginter at 161:42-162:6, 175:3-22, 175:47-176:1. The payment validation system then replies with an administrative response object containing payment validation data resulting from the analysis, which is received by PEA 2600. Ginter at 161:42-162:6, 162:5-6, 162:38-64.
60. SPU 500 and/or CPU 2616 implement code to, responsive to the payment validation data (for example, the administrative response object received from the clearinghouse), retrieve, via the wireless interface, selected item(s) of multimedia content from a data supplier and to write the retrieved item(s) into removable/replaceable memory 2622. See Ginter at 224:61-225:6; see also Ginter at 20:23-29, 62:64-65, 63:34-41, 161:42-162:6, 163:38-61, 175:3-176:1, 184:34-40, 209:64-66; 224:66-225:8, 281:7-19, 289:67-290:2, 312:6-9. In more detail, when selected item(s) of multimedia content are remotely available, PEA 2600 may, in response to an administrative object received from the clearinghouse, retrieve the selected items from an object repository. See Ginter at 289:67-290:2. The retrieved items are then written into PEA 2600’s

secondary storage, removable/replaceable memory 2622. See Ginter at 229:18-34, 65:61-67, 230:15-19.

61. SPU 500 and/or CPU 2616 further implement code, responsive to payment validation data, to control access to the selected multimedia content items on PEA 2600. See Ginter at Abstract, 20:23-29, 57:18-22, 58:25-30, 62:64-65, 63:34-41, 161:42-162:6, 163:38-61, 175:3-22, 175:47-176:1, 184:34-40, 209:64-66, 224:66-225:8, 281:7-19, 289:67-290:2, 229:18-20, 312:6-9. In more detail, responsive to the administrative response object received from the clearinghouse, PEA 2600 may retrieve access rule(s) (for example, a billing method MDE and/or budget method UDE) from a data supplier (for example, external object repository) and write the retrieved access rule(s) into PEA 2600's secure database 610. See Ginter at 169:4-6, 63:34-41, 186:56-62, 187:52-57, 190:45-57, 289:67-290:2, 229:18-34, 161:42-162:6; see also Ginter at 62:64-67, 126:36-44, 181:7-12, 229:18-20, 230:7-19. The retrieved access rule(s) may specify at least one condition for accessing selected multimedia content item(s), depending upon the amount of payment associated with the payment data forwarded to the payment validation system; for example, a per unit cost of accessing a retrieved content object and/or an access limit. See Ginter at 190:45-57, 59:17-23.
62. SPU 500 and/or CPU 2616 may, for example, implement code to read, from secure database 610, use status data (for example, meter method UDE) and use rules (for example, billing method MDE and/or budget method UDE) that pertain to one or more user selections of retrieved multimedia content items. See Ginter at 65:61-67, 289:57-290:2, 58:33-34, 136:28-34, 190:45-57, 264:62-265:16, 128:23-36, 169:4-6, 229:18-20, 230:7-19, 126:36-44, 181:7-12, 186:56-62, 187:52-57, 62:64-67. SPU 500 and/or CPU 2616 may further implement code to evaluate the use status data (for example, meter method UDE) and use rules (for example, billing method map MDE and/or budget method UDE) to determine whether access to the selected item(s) is permitted. See Ginter at 106:59-61, 183:31-38, 143:40-48, 186:15-19; see also Ginter at 62:64-65, 183:65-184:4, 186:15-24, 190:54-59. SPU 500 and/or CPU 2616 may, for example, evaluate the use status data and use rules in order to determine whether a cost of accessing the selected item(s) is less than an access limit set forth in the use rules (for example, budget method UDE). See Ginter at 59:17-23, 62:64-65, 128:23-36, 172:32-35, 186:56-62, 264:62-265:16. In this way, for example, SPU 500 and/or CPU 2616 provide access to content items in accordance with use

rules. See Ginter at 58:33-34, 59:17-23, 172:32-35, 190:45-59; see also Ginter at 128:23-36, 183:65-184:14, 186:15-62, 237:49-60, 264:62-265:16.

63. SPU 500 and/or CPU 2616 may further implement code to retrieve, via the wireless interface, supplementary data pertaining to multimedia content item(s) (for example, identification and promotional material and/or pricing information). To illustrate, PEA 2600 may, for example, output retrieved supplementary data to the user using display 2618. See, e.g., Ginter at 237:49-60 (describing generation of a pop-up interface to alert a user of retrieved information regarding an object and, separately, retrieved information regarding the “cost to use” the object); see also Ginter at 58:33-34, 81:46-51, 99:43-58, 190:14-33, 237:49-60, 238:50-64, FIGS. 72A-D. Ginter discloses that the supplementary information may be retrieved by PEA 2600 from the clearinghouse. See Ginter at 190:45-57; see also Ginter at 81:46-51, 84:10-13, 186:42-52, 190:14-33 237:49-60, 286:57-287:4, FIG. 72B.
64. With reference to FIG. 8, Ginter describes an electronic appliance 600 that may be used, for example, as a data access terminal for retrieving data (for example, content objects) from a data supplier (for example, an external object repository) and providing the retrieved content objects to a data carrier (for example, to PEA 2600), for controlling access to data on the data carrier, and for retrieving data from the data carrier. See Ginter at 41:13-16, 62:41-65, 169:51-55, 229:17-28, 224:66-225:8, 230:7-47, FIGS. 8, 71; see also Ginter at Abstract, 57:18-22, 58:25-30, 62:64-65, 209:64-66, 224:66 –225:8, 229:18-20, 281:7-19, 312:6-9. Ginter discloses, for example, that electronic appliance 600 may be a personal computer, and that a retrieved content object may, for example, be stored by electronic appliance 600 in a removable PEA 2600 that is coupled to the electronic appliance 600 at the time that the content object is stored. Ginter at 230:20-42, 229:17-28; see also Ginter at 61:52-55, 62:41-65, 229:18-20; 230:7-47, FIGS. 8, 71.
65. Electronic appliance 600 includes a communication interface (for example, communications controller 666) for communicating with a data supplier (for example, external object repository), a data requester (for example, PEA 2600), and with other computer systems. Ginter at 41:13-16, 62:25-40, 88:36-38, 230:20-42, FIG. 8; see also Ginter at 34:1-6, 62:30-33, 88:32-38, 100:50-55, 109:2-4, 161:5-11, 226:63-227:2, 233:53-57, 224:14-225:6, 280:63-281:2, 289:67-290:2. Communications controller 666 may, for example, permit the electronic appliance 600 to provide data to a requesting electronic appliance over a shared network 672. See Ginter at 62:30- 33,

224:61-225:6, 226:17-37, FIGS. 8, 70. Ginter discloses, for example, that electronic appliance 600 may, when networked with or otherwise electronically coupled to PEA 2600, provide to PEA 2600 a requested content object that is maintained at a networked object repository. See Ginter at 41:13-16, 60:31-35, 62:41-65, 169:51-55, 224:61-225:6, 230:20-47; see also Ginter at 102:6-10, 289:67-290:2.

66. As Ginter explains with reference to FIG. 7, electronic appliance 600 may also maintain connections with a variety of additional devices including, but not limited to, “a ‘modem’ 618 or other telecommunications link; a CD ROM disk 620 or other storage medium or device; a printer 622; broadcast reception 624; a document scanner 626; and a ‘cable’ 628 connecting the appliance with a ‘network.’” Ginter at 60:40-46; see also Ginter at 61:60-62:11.
67. Electronic appliance 600 also includes a data carrier interface (for example, a mating connector, electronic connector bus interface, system bus 653, I/O controller 660, and/or communications controller 666) for interfacing with PEA 2600 and/or other data carriers. See Ginter 40:64-41:16, 41:13-16, 62:12-40, 228:39-50, 230:20-42, FIGS. 8, 71; see also Ginter at 62:12-28, 62:37-40. The data carrier interface may, for example, facilitate insertion of PEA 2600 into electronic appliance 600. See Ginter at 230:20-42, Ginter 41:13-16, 228:39-50, 40:64-41:16, FIGS. 8 and 71. The data carrier interface of electronic appliance 600 may also, for example, permit the electronic appliance 600 to wirelessly interface with a data carrying electronic appliance, such as PEA 2600, over a shared network. See Ginter at 226:17-37, FIG. 70.
68. Electronic appliance 600 also includes a user interface (for example, keyboard 612, voice recognizer 613, and/or display 614) through which a user can input commands and receive information. See Ginter at 60:31-35, FIG. 8; see also Ginter at 60:31-35; 169:51-55. A user may, for example, use electronic appliance 600’s user interface to request access to content objects stored in data carrier that is electronically coupled to electronic appliance 600 (for example, stored in PEA 2600’s removable/replaceable memory 2622). Ginter at 60:31-35, 169:51-55, 183:24-30, 230:48-59; see also Ginter at 60:31-35, 169:51-55. The requested content object may be provided (for example, displayed) to the user through the user interface of electronic appliance 600, or through the user interface of another electronic appliance (for example, PEA 2600). See Ginter at 60:31-35.

69. Electronic appliance 600 further includes ROM 658, a program store storing code (for example, software instructions) that is implementable by a processor. See Ginter at 60:49-62, 63:8-25, 65:42-51, FIG. 8; see also Ginter at 60:49-62; 63:8-25.
70. Electronic appliance 600 includes a processor (for example, CPU 654 and/or SPU 500) that is coupled to components of electronic appliance 600 that include ROM 658, the communications controller 666, the user interface, and the data carrier interface. See Ginter at FIG. 8; see also Ginter at 62:13-58, 63:8-15, 75:35-37. CPU 654 and/or SPU 500 implement code (for example, software instructions) stored in ROM 658. See Ginter at 62:13-58, 75:35-37, 79:60-67, FIG. 8; see also Ginter at 63:8-15.
71. CPU 654 and/or SPU 500 may implement code to request identifier data (for example, a catalog of content objects) identifying one or more content data items (for example, content objects) that are available for retrieving via the wireless interface (for example, communications controller 666). See Ginter at 238:50-64, FIG. 72D; see also Ginter at 65:61-67, 102:17-22, 282:34-57, 287:59-288:29, 289:27-35, 288:61-66. In more detail, Ginter discloses that a user of an electronic appliance, such as electronic appliance 600, may use the electronic appliance to access a catalog of remotely-stored content objects that are available for purchase, the catalog providing content titles, abstracts, and other information. See Ginter at 287:59-288:2, 289:27-35, FIG. 72D. The catalog may, for example, be requested from a data supplier and/or clearinghouse. See Ginter at 238:50-64, 287:59-288:2.
72. CPU 654 and/or SPU 500 may implement code to receive identifier data via the communication interface (for example, communications controller 666); the catalog may, for example, be received from a data supplier and/or clearinghouse. See Ginter at 238:50-64, FIG. 72D; see also Ginter at 65:61-67, 102:17-22, 282:34-57, 287:59-288:29, 289:27-35. The identifier data may identify one or more content data items that are available for retrieving via the communication interface. See Ginter at 238:50-64, 287:59-288:2.
73. CPU 654 and/or SPU 500 may implement code to request, via the communication interface, content information (for example, pricing information, content title, and/or text pertaining to at least one of one or more content data items identified by the identifier data. See Ginter at 237:49-60, FIGS. 72B, 72D; see also Ginter at 102:59-67, 238:50-64, 287:59-288:2, 289:27-35.

74. CPU 654 and/or SPU 500 may implement code to receive, via the wireless interface (for example, communications controller 666), the content information (for example, content title, text description, and/or pricing information pertaining to content objects). See Ginter at 237:49-60, FIGS. 72B, 72D; see also Ginter at 102:59-67, 238:50-64, 287:59- 288:2, 289:27-35.
75. CPU 654 and/or SPU 500 may implement code to present the content information pertaining to the identified content data items that are available for retrieving to a user via the user interface. See Ginter at 238:50-64, FIG. 72D; see also Ginter at 65:61-67, 81:46-51, 102:17-22, 282:34-57, 287:59-288:29, 289:27-35. Content information may, for example, be displayed to a user through electronic appliance 600's display 614. See Ginter at 81:46-51, FIG. 72D.
76. CPU 654 and/or SPU 500 may implement code to receive one or more user selections of one or more data items that are available for retrieving. See Ginter at 177:10-18, 183:24-30, 287:59-288:2, see also Ginter at 82:32-41, 237:49-237:2, 238:50-64, 289:41- 64, FIG. 72D. Electronic appliance 600 may receive, for example, from the communications interface or the data carrier interface, a request from a requester (for example, a networked electronic appliance or coupled PEA) for an identified data item that is available for retrieving. See Ginter at 224:61-225:6, 289:41-64, 62:63-64; see also Ginter at 183:24-30, 238:50-64, 312:6-9.
77. CPU 654 and/or SPU 500 may implement code to receive, from the communications interface or the data carrier interface, payment data (for example, audit information) that includes data relating to payment for the requested data item (for example, content object). See Ginter at 281:29-39, 161:42-64, 41:7-12; see also Ginter at 63:34-41, 161:42-162:6; 163:38- 61; 175:3-22; 175:47-176:1, 283:11-13. Audit information may, for example, be received by electronic appliance 600 from a secure database 610 that is located in non-volatile memory of SPU 500 of a PEA 2600 to which electronic appliance 600 is coupled. See Ginter at 161:42-64, 41:13-16, 41:7-12, 126:36-52, 161:42-162:6, 169:4-6, 184:65-185:2, 231:64-232:1.
78. In more detail, the electronic appliance 600 may receive audit information from a requester (for example, a networked electronic appliance or coupled PEA) that includes both use status data (for example, meter method UDE) and use rules (for example, billing method MDE and/or budget method UDE) for the requested content object. See Ginter at 48:65-49:14; see also Ginter at 126:8-35. Together, the use status data and use rules included in the received audit

information indicate usage of a content object as well as cost per access of the content object and, as such, reflect payments made for the content object by the requester. See Ginter at 172:32-35, 185:57-59, 186:15-24, 264:62-265:16. Ginter provides that payment for a content object, and the auditing of such a payment, may be made “through the use of prepayments, credits, real-time electronic debits from bank accounts and/or VDE node currency token deposit account.” Ginter at 63:34-41.

79. Electronic appliance 600 may also read payment distribution information (for example, financial relationship control structures) from a data store (for example, an object container and/or a secure database 610). See Ginter at 286:13-33; see also Ginter at 286:13-33, 290:32-49, 292:17-27.

80. CPU 654 and/or SPU 500 may implement code to, responsive to the request and to the received payment data (for example, audit information), forward the received payment data and/or payment distribution information to a payment validation system (for example, a clearinghouse). See Ginter at 161:42-64, 41:7-12. As explained above, the forwarded audit information reflects payment(s) made for data item(s). See Ginter at 172:32-35, 185:57-59, 186:15-24, 264:62-265:16. The payment validation system may process the forwarded payment data to determine its validity and may, as a result of the analysis, formulate payment validation data (creating, for example, an administrative response object) that is retrieved by electronic appliance 600. See Ginter at 40:64-41:7, 41:7-12, 290:32-49; see also Ginter at 286:13-33, 290:32-49, 292:17-27.

81. The clearinghouse may also function as an electronic payment system (for example, clearinghouse) making payments according to payment data and/or payment distribution information (for example, audit information and/or financial relationship control structures), for example, when the requested data is provided to the requester. See Ginter at 286:13-33, 290:32-49, 292:17-27.

82. CPU 654 and/or SPU 500 may implement code to, responsive to the payment validation data retrieved from the payment validation system, retrieve data (for example, the requested data item) from a data supplier (for example, external object repository). See Ginter at 289:67-290:2, 65:61-67, 224:66-225:8, 20:23-29; see also Ginter at 63:34-41, 161:42-162:6, 163:38-61, 175:3-22, 175:47-176:1, 184:34-40, 281:29-39, 289:41-290:2, 312:6-9. Electronic appliance 600

may, for example, retrieve the selected data item via communications controller 666. See Ginter at 224:61-225:6.

83. CPU 654 and/or SPU 500 may implement code to transmit, over the communications interface or the data carrier interface, the retrieved data (for example, the requested data item) to the requester (for example, a networked electronic appliance and/or electronically coupled PEA). See Ginter at 289:67-290:2; see also Ginter at 312:6-9. Electronic appliance 600 may, for example, in response to payment validation data received from the payment validation system, write the retrieved data item into a coupled PEA 2600's removable/replaceable memory 2622. See Ginter at 41:7-12, 65:61-67, 162:38-64, 190:45-57, 224:61-225:6, 229:17-28, 230:20-42; see also Ginter at 20:23-29, 62:64-65, 63:34-41, 65:61-67, 161:42-162:6, 163:38-61, 175:3-176:1, 184:34-40, 209:64-66; 224:66-225:8, 229:18-20, 230:15-19, 281:7-19, 289:67-290:2, 312:6-9.
84. CPU 654 and/or SPU 500 may also implement code to, responsive to the payment validation data received from the payment validation system, retrieve an access rule (for example, a billing method MDE and/or budget method UDE) from the data supplier (for example, external object repository) and write the retrieved access rule into PEA 2600's SPU 500. See Ginter at 289:67-290:2, 41:7-12, 229:18-34, 161:42-162:6; see also Ginter at 28:21-42, 59:17-23, 62:64-63:2, 126:36-44, 128:23-36, 128:38-41, 136:28-34, 148:60-149:5, 169:4-6, 190:45-57, 246:21-30, 264:62-265:16, 288:20-29, 289:57-290:2.
85. The retrieved access rule (for example, a billing method MDE and/or budget method UDE) may specify at least one condition for accessing the retrieved content object, where the at least one access rule depends upon the amount of payment associated with the payment data forwarded to the payment validation system; specifying, for example, a per unit cost of accessing the retrieved content object and/or an access limit. See Ginter at 190:45-57, 59:17-23; see also Ginter at 59:17-23, 62:64-63:2, 126:36-52, 128:23-41, 136:28-34, 148:60-149:5, 169:4-6, 190:45-57, 264:62-265:16, 289:57-290:2, 85:47-53, 43:24-30, 128:23-36, 246:21-30, 288:20-29, 289:57-290:2, FIGS. 71, 72D.
86. CPU 654 and/or SPU 500 may further implement code to transmit at least a portion of the payment validation data received from the clearinghouse to the data supplier (for example, external object repository) or to a destination received from the data supplier. See Ginter at

41:7-12, 56:1-6, 63:34-41. Electronic appliance 600 may, for example, transmit a portion of the payment validation data to the external object repository for purposes of updating control information stored by the external object repository. See Ginter at 224:66 –225:8, 63:34-41, FIG. 5B.

87. Ginter also explains that electronic appliance 600 may be used to control user access to content data items that are stored on a data carrier (for example, PEA 2600). See Ginter at 41:13-16, 62:41-65, 169:51-55, 229:17-28, 224:66-225:8, 230:7-47, FIGS. 8, 71. In more detail, Ginter describes using an electronic appliance 600 to control access to data items that are stored on PEA 2600, which, as explained above, may include both non-volatile data memory for storing content items (for example, removable/replaceable memory 2622 of PEA 2600) and non-volatile parameter memory for storing use data and use rules (for example, secure database portion 610 of non-volatile memory of SPU 500 of PEA). See e.g., Ginter at 57:18-22, FIG. 71 (depicting PEA 2600); see also Ginter at Abstract, 58:25-30, 62:41-45, 62:64-65, 229:18-20, 230:7-47, FIG. 71.
88. In more detail, secure database portion 610 of the non-volatile memory of SPU 500 of PEA 2600 stores use status data (for example, meter method UDE) and use rules (for example, billing method MDE and/or budget method UDE). See, e.g., FIG. 71; 169:4-6, 48:65-49:14, 63:34-41. Removable/replaceable memory 2622 is a secondary storage external to SPU 500 that stores information that is not contained in the memory of SPU 500, including content data. See Ginter at 230:15-19, 229:18-34, 65:61-67.
89. CPU 654 and/or SPU 500 may implement code to request and receive identifier data (for example, a catalog of content objects) identifying one or more content data items (for example, content objects) that are stored on the data carrier. See Ginter at 238:50-64, FIG. 72D; see also Ginter at 65:61-67, 102:17-22, 282:34-57, 288:20-29. In more detail, Ginter discloses that a user of an electronic appliance, such as electronic appliance 600, may access a catalog of content objects that are stored on a PEA 2600 and that are available for purchase, the catalog providing content titles, abstracts, and other information. See Ginter at 287:59-288:2, 289:27-35, FIG. 72D. The catalog may, for example, be requested and received from a data supplier and/or clearinghouse. See Ginter at 238:50-64, 287:59-288:2.

90. CPU 654 and/or SPU 500 may implement code to present to a user, via a user interface of electronic appliance 600, identified content data items (for example, content objects) that are available from PEA 2600. See Ginter at 238:50-64, FIG. 72D; see also Ginter at 65:61-67, 81:46-51, 102:17-22, 282:34-57, 287:59-288:29, 289:27-35. A received catalog of available content objects may, for example, be displayed to a user through electronic appliance 600's display device 614. See Ginter at 81:46-51, FIG. 72D.
91. CPU 654 and/or SPU 500 may implement code to receive a user selection selecting one or more stored data items. See Ginter at 177:10-18, 183:24-30; see also Ginter at 82:32-41; 238:50-64, FIG. 72D. In more detail, A user of electronic appliance 600 may request access to one or more data items (for example, content objects) that are identified by the catalog and that are stored in removable/replaceable memory 2622. See, e.g., Ginter at 224:61-225:6, 183:24-30; see also Ginter at 82:32-41, 177:10-18, 183:24-30.
92. CPU 654 and/or SPU 500 may implement code to read, from PEA 2600's secure database 610, use status data (for example, meter method UDE) and use rules (for example, billing method map MDE and/or budget method UDE) that pertain to the use of the at least one requested data item (for example, content object). See Ginter at 106:59-61, 65:61-67, 183:31-38, 143:40-48, 186:15-19, 186:56-62, FIG. 49; see also Ginter at 59:17-23, 128:23-36, 183:66-184:3, 190:45-57, 264:62-265:16.
93. CPU 654 and/or SPU 500 may implement code to evaluate use status data that indicates use of the content object (for example, meter method UDE) using the use rules (for example, billing method MDE) to calculate a cost of accessing the at least one requested data item (for example, content object). See Ginter at 186:15-61; see also Ginter at 58:33-34, 60:31-36, 81:46-51, 96:27-58, 183:65-184:4, 190:54-59, 184:9-14, 237:49-60. The cost of accessing the requested content item may then be compared to an access limit set forth in the use rules (for example, budget method UDE) to determine whether access to the requested content item is permitted. Ginter at 172:32-35. Whether access to a requested content item stored in the non-volatile data memory (for example, removable/replaceable memory 2622 device of PEA 2600) is permitted may then be displayed to the user by electronic appliance 600. See, Ginter at 58:33-34 , 183:24-30, 81:46-51, 229:18-34, 230:61-231:6, 230:48-59; see also Ginter at 184:9-14.

94. CPU 654 and/or SPU 500 may further implement code to, responsive to user selection of a content data item that is available from PEA 2600, transmit payment data (for example, audit information) relating to payment for the selected content item for validation by a payment validation system (for example, clearinghouse). See also Ginter at 63:34-41, 161:42-162:6, 163:38-61, 175:3-22, 175:47-176:1. In more detail, and as explained above, Ginter provides that payment for a selected content object, and the auditing of such a payment, may be made “through the use of prepayments, credits, real-time electronic debits from bank accounts and/or VDE node currency token deposit account.” Ginter at 63:34-41. After receiving a user selection of a data item, electronic appliance 600 may transmit to a clearinghouse, for purposes of validation, audit information reflecting a payment made for the selected object. See Ginter at 161:42-64; see also Ginter at 41:7-12, 48:65-49:14, 126:8-35, 169:4-6, 172:32-35, 185:57-59, 186:15-24, 264:62-265:16.
95. CPU 654 and/or SPU 500 may implement code to receive payment validation data defining if the payment validation system (for example, clearinghouse) has validated payment for the content data item (for example, content object). See Ginter at 163:38-61; 175:3-22; 176:13-33. In more detail, following receipt of forwarded audit information, the payment validation system (for example, clearinghouse) processes the audit information to determine its validity. Ginter at 161:42-162:6, 175:3-22, 175:47-176:1. The payment validation system then replies with an administrative response object containing payment validation data resulting from the analysis, which is received by electronic appliance 600. Ginter at 161:42-162:6, 162:5-6, 162:38-64.
96. CPU 654 and/or SPU 500 may implement code to, responsive to the payment validation data, control access to the selected content data item (for example, content object). See Ginter at Abstract, 20:23-29, 57:18-22, 58:25 30, 62:64-65, 63:34-41, 161:42-162:6, 163:38-61, 175:3-22, 175:47 176:1, 184:34-40, 209:64-66, 224:66 –225:8, 281:7-19, 289:67-290:2, 229:18-20, 312:6-9. In more detail, responsive to the administrative response object received from the clearinghouse, electronic appliance 600 may retrieve an access rule (for example, a billing method MDE and/or budget method UDE) from a data supplier (for example, external object repository) and write the retrieved access rule into PEA 2600’s SPU 500. See Ginter at 289:67-290:2, 161:42-162:6. The access rule (for example, a billing method MDE and/or budget method UDE) retrieved by electronic appliance 600 may specify at least one condition for accessing the selected content object, depending upon the amount of payment associated with the

payment data forwarded to the payment validation system (for example, clearinghouse); for example, a per unit cost of accessing the retrieved content object and/or an access limit. See Ginter at 190:45-57, 59:17-23.

97. Ginter also explains that electronic appliance 600 may be used to retrieve data stored on a data carrier (for example, PEA 2600); for example, from a removable PEA 2600 that is coupled to the electronic appliance 600. See Ginter at 62:41-65 230:20-47, 41:13-16, 229:17-28, 230:7-19, FIGS. 8, 71; see also Ginter at Abstract, 57:18-22, 58:25-30, 62:64-65, 229:18-20.
98. CPU 654 and/or SPU 500 may implement code to retrieve use status data indicating a use status of data stored on the carrier (for example, meter method UDE indicating usage of a content object), the use status data being stored, for example, in secure database portion 610 of PEA 2600's SPU 500, and use rules data indicating permissible use of data (for example, billing method MDE indicating a cost per access of a content object and/or budget method UDE indicating an access limit for a content object), the use rules data also being stored, for example, in PEA 2600's SPU 500. See Ginter at 57:18-22, FIGS. 49, 71; see also Ginter at Abstract, 59:17-23, 128:23-36, 172:32-35, 183:66-184:3, 186:56-62, 190:45-57, 264:62-265:16.
99. In more detail, a user may request access to ("open") at least one content data item (for example, content object) stored in removable/replaceable memory device 2622 of PEA 2600. See Ginter at 224:61-225:6, 229:18-34. In response, CPU 654 and/or SPU 500 may implement code to read use status data (for example, meter method UDE) and use rules (for example, billing method map MDE and/or budget method UDE) that pertain to the use of the at least one requested data item from secure database 610 of PEA 2600's SPU 500. See Ginter at 106:59-61, 65:61-67, 183:31-38, 143:40-48, 186:15-19.
100. CPU 654 and/or SPU 500 may implement code to evaluate use status data that indicates use of the content object (for example, meter method UDE) using the use rules (for example, billing method MDE) to calculate a cost of accessing the stored data item. See Ginter at 186:15-61; see also Ginter at 59:17-23, 128:23-36, 172:32-35, 183:65-184:4, 186:15-62, 190:54-59, 264:62-265:16.

101. CPU 654 and/or SPU 500 may further implement code to compare the cost of accessing the requested data item to an access limit set forth in the use rules (for example, budget method UDE) to determine whether access to the requested content item is permitted. Ginter at 172:32-35. Stored data to which access is permitted may then be accessed for the user (for example, accessed from removable/replaceable memory 2622 of PEA 2600). See Ginter at 58:33-34, 183:24-30, 81:46-51, 229:18-34, 230:61-231:6; see also Ginter at 58:33-34, 184:9-14.
102. CPU 654 and/or SPU 500 may further implement user access control code to perform a “Log-on” operation, the operation starting with the receipt, through user interface 686, of user access data (including, for example, a user ID, user account profile, and/or user password). See Ginter at 237:34-48, FIG. 72A; see also Ginter at 58:33-34, 82:32-41, 183:24-30. The user access data may be transmitted by electronic appliance 600 to a data carrier (for example, PEA 2600), and the data carrier may respond to the transmission with user access permission data (for example, an indication that access to the stored content object is permitted) that is received by electronic appliance 600. See Ginter at 235:3-36, 81:46-51, 229:12-17.
103. Ginter discloses that use rules (for example, billing method MDE and/or budget method UDE) may permit partial use of a data item (for example, content object) stored on a data carrier (stored, for example, in PEA 2600’s removable/replaceable memory 2622). See Ginter at 103:33-38, 144:52-64; see also Ginter at 145:25-47, 183:48-56, 187:52-57, 198:36-39. Ginter further discloses CPU 654 and/or SPU 500 may implement code to perform functions including writing partial use status data (for example, meter method UDE updated based on partial use of a content object) to the data carrier (for example, PEA 2600) when only part of a stored data item (for example, content object) has been accessed. See Ginter at 198:36-39, 187:52-57.

IV. Legal Principles

104. I am not a lawyer. However, counsel has advised me of legal concepts that are relevant to CBM review proceedings and to the opinions that I offer in this declaration. My understanding of these concepts and of their application to this CBM review is indicated below:
105. Claim Construction - I understand that, during CBM review, claims of the subject patent are given a broadest reasonable interpretation. Counsel has advised me that the broadest

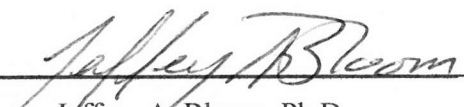
reasonable interpretation must be consistent with the specification, and that claim language should be read in light of the specification and teachings in the underlying patent.

106. Level of Ordinary Skill in the Art - it is my understanding that my analysis of the interpretation and validity must be undertaken from the perspective of what would have been known or understood by someone of ordinary skill in the art at least as of October 25, 2000, the earliest effective filing date of the '598 Patent. It is my opinion that the claims are directed to a person with at least a Bachelor's degree in a relevant software field, for example, cryptographic processing, software engineering, electrical engineering, and two or more years of experience in the content management field dealing digital rights management.
107. Anticipation - I understand that to anticipate a patent claim, a single prior art reference must disclose every element of the claim, either explicitly or inherently to a person of ordinary skill in the art. I understand that an element of a claim is "inherent" in the disclosure of a prior art reference when the missing element is the inevitable outcome of the process and/or thing that is described in the prior art reference.
108. Obviousness - I understand that a prior art reference can render a patent claim obvious to one of ordinary skill in the art if the differences between the subject matter set forth in the patent claim and the prior art are such that the subject matter of the claim would have been obvious at the time the claimed invention was made. In analyzing obviousness, I understand that it is important to consider the scope of the claims, the level of skill in the relevant art, the scope and content of the prior art, the differences between the prior art and the claims, and any secondary considerations.
109. I understand that when the claimed subject matter involves combining preexisting elements to yield no more than what one would expect from such an arrangement, the combination is obvious. I also understand that in assessing whether a claim is obvious one must consider whether the claimed improvement is more than the predictable use of prior art elements according to their established functions. I understand that there need not be a precise teaching in the prior art directed to the specific subject matter of a claim because one can take account of the inferences and creative steps that a person of skill in the art would employ. I further understand that a person of ordinary skill is a person of ordinary creativity, not an automaton.

However, I understand that obviousness cannot be based on the hindsight combination of components selectively culled from the prior art.

110. I understand that in an obviousness analysis, neither the motivation nor the avowed purpose of the inventor(s) controls the inquiry. Any need or problem known in the field at the time of the invention and addressed by the patent can provide a reason for combining elements. For example, I understand that it is important to consider whether there existed at the time of the invention a known problem for which there was an obvious solution encompassed by the patent's claims. I understand that known techniques can have obvious uses beyond their primary purposes, and that in many cases a person of ordinary skill can fit the teachings of multiple pieces of prior art together like pieces of a puzzle.
111. I understand that, when there is a reason to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp.
112. I understand that secondary indicia of obviousness can include, for example, evidence of commercial success of the invention, evidence of a long-felt need that was solved by an invention, evidence that others copied an invention, or evidence that an invention achieved a surprising result. I further understand that such evidence must have a nexus, or causal relationship to the elements of a claim, in order to be relevant.
113. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Signature: _____


Jeffrey A. Bloom. Ph.D.

Date: _____

