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(54) **SYSTEMS AND METHODS FOR ENABLING CONSUMPTION OF COPY-PROTECTED CONTENT ACROSS MULTIPLE DEVICES**

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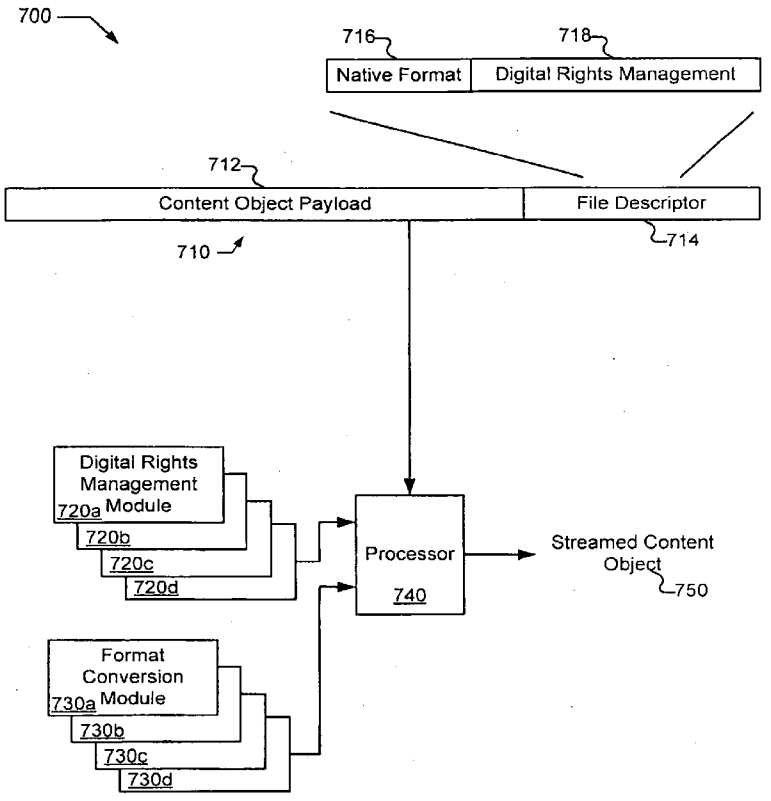
(52) **U.S. Cl.** **380/200**

(57) **ABSTRACT**

Various systems and methods for distributing rights managed content objects are disclosed. For example, some embodiments of the present invention provide methods for distribution that include providing a mobile storage device that includes a wireless interface and a storage component maintaining a rights managed content object. A first request to provide the rights managed content object to a first mobile application device via the wireless interface is received, and a second request to provide the rights managed content object to a second mobile application device via the wireless interface is received. The rights managed content object is accessed from the storage component, and a digital rights management tool associated with the accessed content object is accessed. The rights managed content object is decrypted using the digital rights management tool, and streamed to both the first mobile application device and the second mobile application device via the wireless interface.



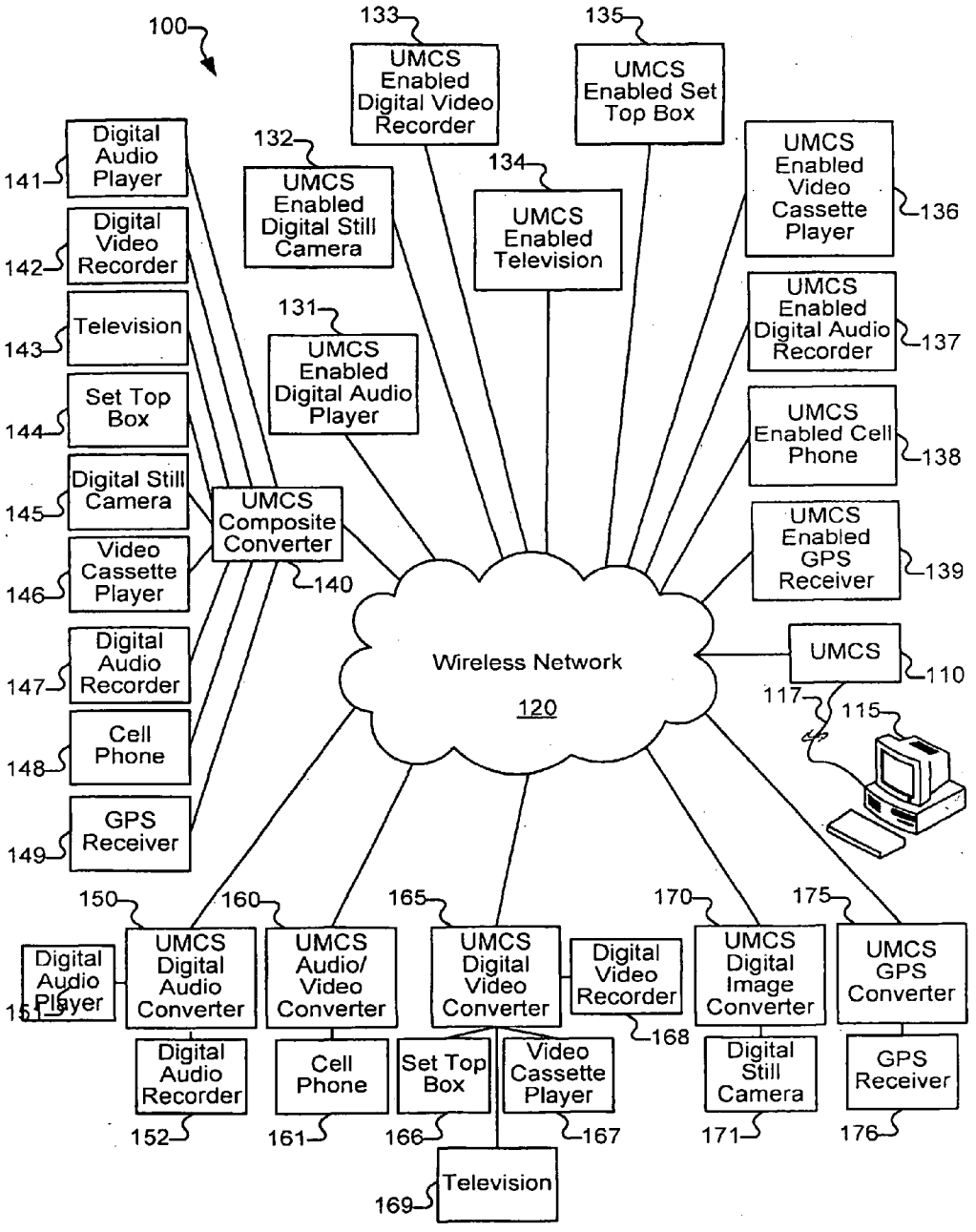

100
133
UMCS Enabled Digital Video Recorder
135
UMCS Enabled Set Top Box
132
UMCS Enabled Digital Still Camera
134
UMCS Enabled Television
UMCS Enabled Video Cassette Player
136
131
UMCS Enabled Digital Audio Player
UMCS Enabled Digital Audio Recorder
137
UMCS Enabled Cell Phone
138
UMCS Enabled GPS Receiver
139
141 Digital Audio Player
142 Digital Video Recorder
143 Television
144 Set Top Box
145 Digital Still Camera
146 Video Cassette Player
147 Digital Audio Recorder
148 Cell Phone
149 GPS Receiver
UMCS Composite Converter
140
Wireless Network
120
UMCS
110
117
115
150
160
165
170
175
UMCS Digital Audio Converter
UMCS Audio/ Video Converter
UMCS Digital Video Converter
Digital Video Recorder
168
UMCS Digital Image Converter
UMCS GPS Converter
151 Digital Audio Player
Digital Audio Recorder
152
Cell Phone
161
Set Top Box
166
Video Cassette Player
167
Digital Still Camera
171
GPS Receiver
176
Television
169

Figure 1

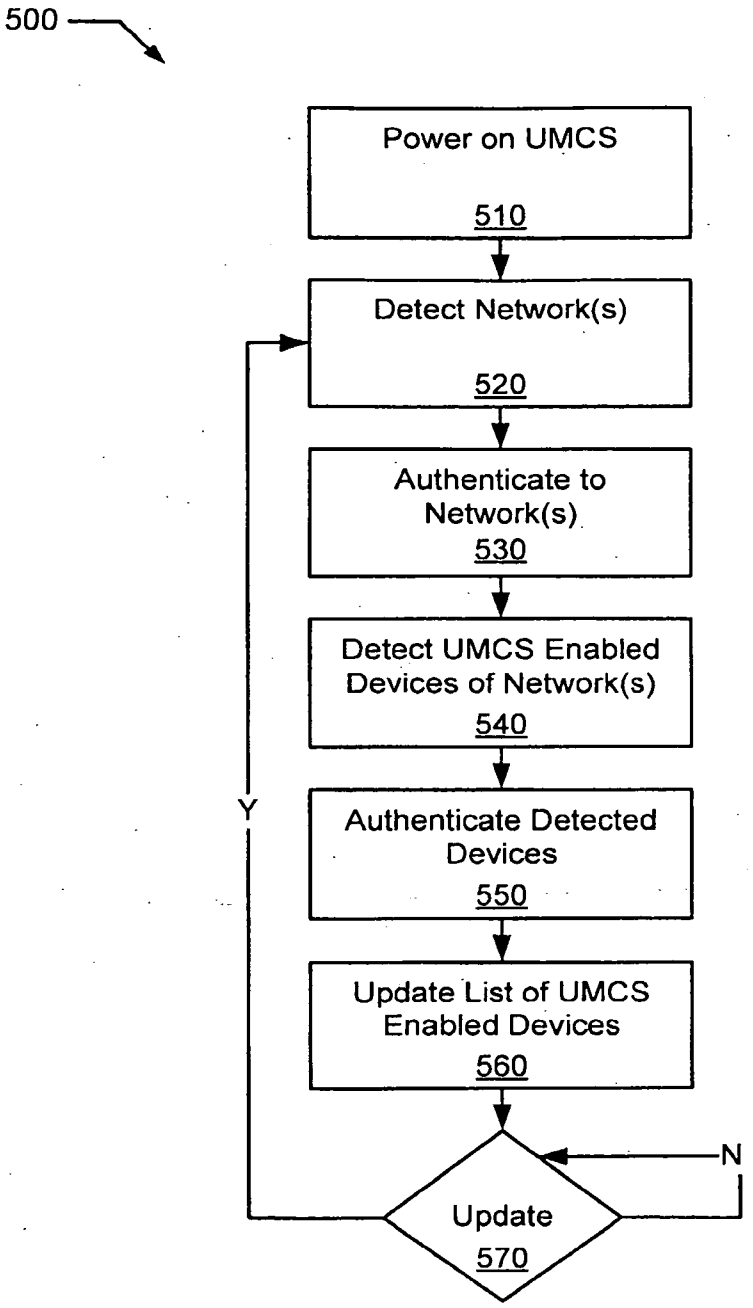

500
Power on UMCS
510
Detect Network(s)
520
Authenticate to Network(s)
530
Detect UMCS Enabled Devices of Network(s)
540
Authenticate Detected Devices
550
Update List of UMCS Enabled Devices
560
Update
570
Y
N

Figure 2

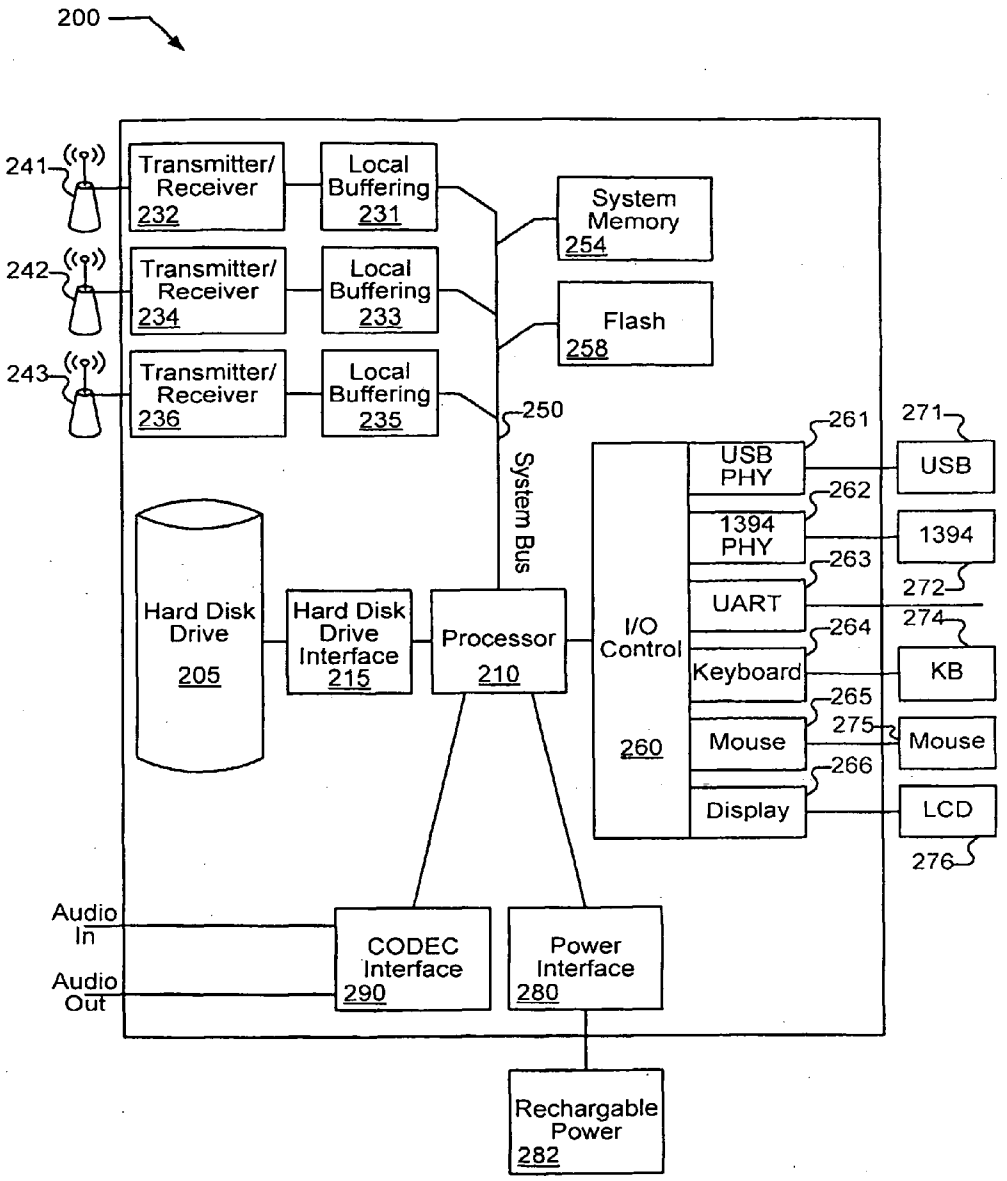

200
241
242
243
Transmitter/ Receiver 232
Transmitter/ Receiver 234
Transmitter/ Receiver 236
Local Buffering 231
Local Buffering 233
Local Buffering 235
System Memory 254
Flash 258
250
System Bus
Hard Disk Drive 205
Hard Disk Drive Interface 215
Processor 210
I/O Control 260
USB PHY
1394 PHY
UART
Keyboard
Mouse
Display
261
262
263
264
265
266
271
272
274
275
276
USB
1394
KB
Mouse
LCD
Audio In
Audio Out
CODEC Interface 290
Power Interface 280
Rechargable Power 282

Figure 3

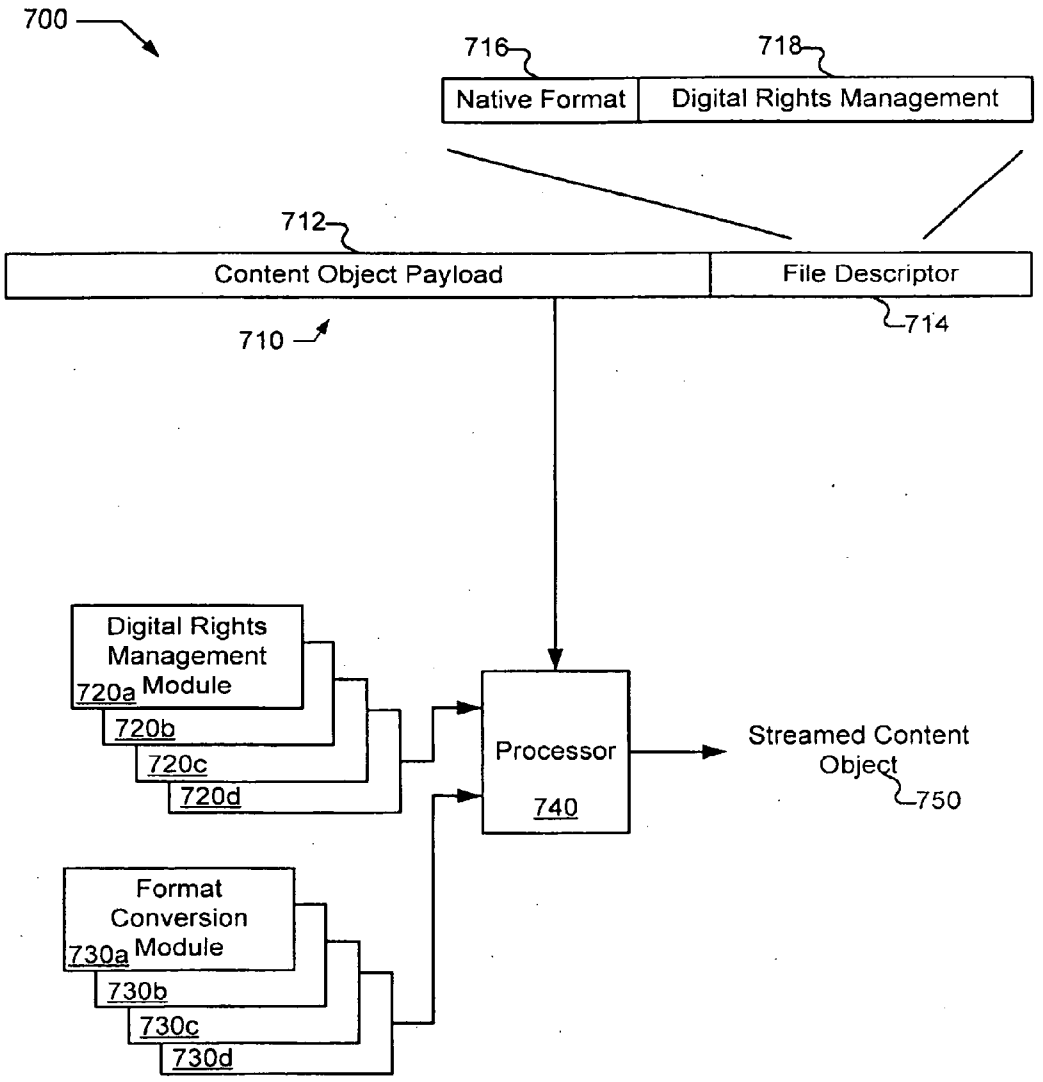

700
716
718
Native Format
Digital Rights Management
712
Content Object Payload
File Descriptor
714
710
Digital Rights Management Module
720a
720b
720c
720d
Processor
740
Streamed Content Object
750
Format Conversion Module
730a
730b
730c
730d

Figure 4

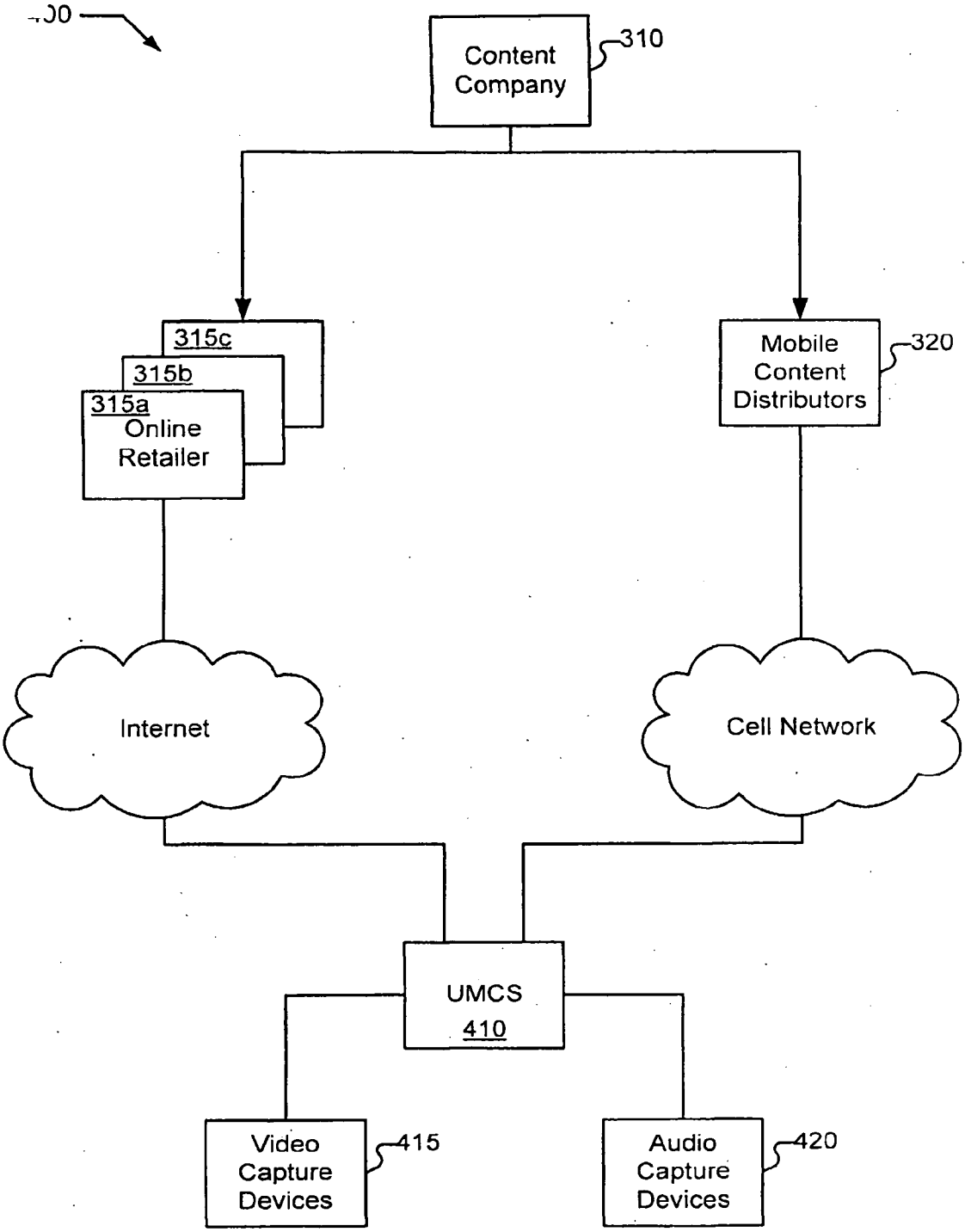

300
Content Company
310
315c
315b
315a
Online Retailer
Mobile Content Distributors
320
Internet
Cell Network
UMCS
410
Video Capture Devices
415
Audio Capture Devices
420

Figure 5

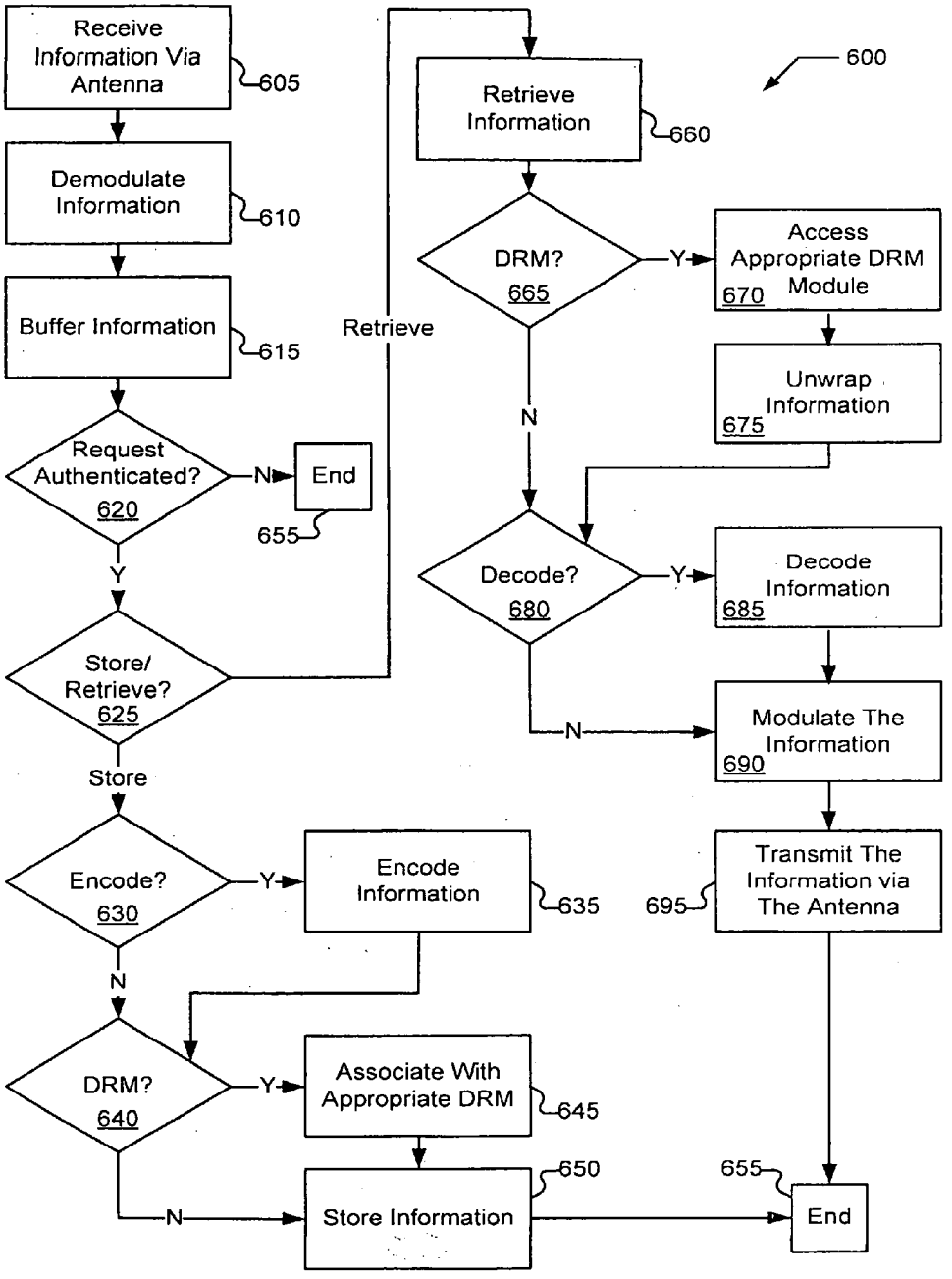

Receive Information Via Antenna
605
Demodulate Information
610
Buffer Information
615
Request Authenticated?
620
N
End
655
Y
Store/ Retrieve?
625
Retrieve
Store
Encode?
630
Y
Encode Information
635
N
DRM?
640
Y
Associate With Appropriate DRM
645
N
Store Information
650
Retrieve Information
660
600
DRM?
665
Y
Access Appropriate DRM Module
670
Unwrap Information
675
N
Decode?
680
Y
Decode Information
685
N
Modulate The Information
690
Transmit The Information via The Antenna
695
655
End

Figure 6

SYSTEMS AND METHODS FOR ENABLING CONSUMPTION OF COPY-PROTECTED CONTENT ACROSS MULTIPLE DEVICES

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims priority to (is a non-provisional filing of) U.S. Provisional Patent Application No. 60/806,610, entitled "SYSTEMS AND METHODS FOR MOBILE DATA STORAGE AND ACQUISITION" and filed Jul. 5, 2006 by Al-Refaee et al.; U.S. Provisional Patent Application No. 60/829,007, entitled "SYSTEMS AND METHODS FOR MOBILE DATA STORAGE AND ACQUISITION" and filed Oct. 11, 2006 by Al-Refaee et al.; and U.S. Provisional Patent Application No. 60/869,453, entitled "SYSTEMS AND METHODS FOR MOBILE DATA STORAGE AND ACQUISITION" and filed Dec. 11, 2006 by Al-Refaee et al. Each of the aforementioned applications is assigned to an entity common hereto and is incorporated herein by reference for all purposes.

[0002] Further, the present application is related to the following patent applications filed on a date even herewith: PCT application Ser. No. _____ (Attorney Reference No. AGERE-001210PCT), entitled "Systems and Methods for Implementing Hands Free Operational Environments" and filed by Bahram et al.; PCT application Ser. No. _____ (Attorney Reference No. AGERE-001220PCT), entitled "Systems and Methods for Multiport Communication Distribution" and filed by Haddad et al.; PCT Application No. _____ (Attorney Reference No. AGERE-001230PCT), entitled "Systems and Methods for Power Management in Relation to a Wireless Storage Device" and filed by Warren et al.; PCT application Ser. No. _____ (Attorney Reference No. AGERE-001260PCT), entitled "Systems and Methods for Mobile Data Storage and Acquisition" and filed by Al-Refaee et al.; and PCT application Ser. No. _____ (Attorney Reference No. AGERE-001270PCT), entitled "Systems and Methods for Mobile Data Storage and Acquisition" and filed by Warren et al. All of the aforementioned related applications are assigned to an entity common hereto and are incorporated herein by reference for all purposes.

BACKGROUND OF THE INVENTION

[0003] The present invention is generally related to data distribution, and in particular to systems and methods for performing digital rights management in relation to data distribution.

[0004] The computer architecture with a central processor governing a local, centralized memory has been a standard in computing for decades. The architecture utilizes a central repository that is perceived as a slave to an associated processor. A myriad of devices utilizing the familiar processor and memory structure have been developed. For example, a number of consumer devices including audio recorders, audio players, cell phones, video players, video game devices, video recorders and the like have been developed that include a central memory local to the particular device and operating as a slave to a governing processor within the device. Such devices have proliferated in the market and have satisfied a continuing consumer demand.

[0005] The growth of digital rights management has exposed various limitations of a data repository governed by a local processor. In particular, digital content providers are willing to sell content to consumers and allow the consumers to maintain and use the content for as long as the consumer desires. This promise, however, has proven to be somewhat illusory due to the incompatibility of content rights and other issues. Because of these incompatibilities, digital rights management often limits the use of purchased content to a device on which the content was originally deployed. Thus, for example, a consumer may purchase a particular ring tone from a content provider and download the purchased ring tone to a cell phone. The consumer may then use the ring tone as long as the consumer continues to use the cell phone. Once the cell phone is replaced, the consumer is forced to re-purchase the ring tone. Alternatively, the consumer is forced to download the purchased ring tone from a service supporting the digital rights management scheme used in relation to the ring tone. Each time the user accesses such a service, they are charged. Thus, from a consumer's perspective, such services are not fundamentally different from simply repurchasing the content at issue for use on the new device.

[0006] Hence, for at least the aforementioned reasons, there exists a need in the art for advanced systems and methods for allowing appropriate use of digital information while at the same time assuring the security of the information.

BRIEF SUMMARY OF THE INVENTION

[0007] The present invention is generally related to data distribution, and in particular to systems and methods for performing digital rights management in relation to data distribution.

[0008] Various embodiments of the present invention provide systems for distributing rights managed content objects. Such systems include a mobile application device and a mobile storage device. The mobile storage device includes a processor, a wireless interface, and a storage component including a non-volatile memory component. The mobile storage device is communicably coupled to the mobile application device via the wireless interface, and a graphical user interface of the mobile application device is used to control access to the mobile storage device. The storage component includes at least one content object and instructions executable by the processor to provide an information set to the mobile application device via the wireless interface. The information set is used to drive the graphical user interface of the mobile application device, whereby the graphical user interface operates as a remote graphical user interface for the mobile storage device. The instructions are further executable by the processor to receive the content object and to store the content object in a native format. The instructions are further executable by the processor to: receive a request for the content object that indicates a selected format, access the content object from the storage component, access a digital rights management tool associated with the content object, decrypt the content object using the digital rights management tool, convert the format of the decrypted content object from the native format to the selected format, and stream the decrypted and format converted content object via the wireless interface to the mobile application device.

[0009] Other embodiments of the present invention provide methods for distributing rights managed content objects. Such methods include providing a mobile storage device that includes a wireless interface and a storage component maintaining a rights managed content object. A first request to provide the rights managed content object to a first mobile application device via the wireless interface is received, and a

second request to provide the rights managed content object to a second mobile application device via the wireless interface is received. The rights managed content object is accessed from the storage component, and a digital rights management tool associated with the accessed content object is accessed. The rights managed content object is decrypted using the digital rights management tool, and streamed to both the first mobile application device and the second mobile application device via the wireless interface.

[0010] In some instances of the aforementioned embodiments, the methods further include receiving the rights managed content object, and storing the rights managed content object to the storage component in a native format. In some cases, the first request and the second request indicate different formats in which the rights managed content object is to be delivered. In such cases, a format conversion of the rights managed content object from the native format to a selected format may be performed before delivering the rights managed content object to the recipient.

[0011] In some instances of the aforementioned embodiments, the digital rights management tool is a decryption key, while in other instances of the aforementioned embodiments, the digital rights management tool includes a set of instructions executable by the processor to decrypt the accessed content object. Based on the disclosure provided herein, one of ordinary skill in the art will recognize a variety of digital rights management tools that may be used in relation to one or more embodiments of the present invention. In some cases, the storage component includes both a hard disk drive and a flash memory, while in other cases, the storage component includes one or the other of a hard disk drive and a flash memory. The wireless interface may be, but is not limited to, a Bluetooth interface and/or a WiFi interface.

[0012] Yet other embodiments of the present invention provide systems for distributing rights managed content objects. Such systems include a mobile storage device with a processor, a wireless interface, and a storage component. The storage component maintains at least a first content object and a second content object. In addition, the storage component includes instructions executable by the processor to access one of the first content object or the second content object from the storage component, and to access a digital rights management tool associated with the accessed content object. The instructions are further executable to decrypt the accessed content object using the digital rights management tool, and to distribute the decrypted content object via the wireless interface to a mobile application device. In some instances of the aforementioned embodiments, the systems further include a graphical user interface that is incorporated into the mobile application device. The graphical user interface operates as a remote graphical user interface for the mobile storage device.

[0013] This summary provides only a general outline of some embodiments according to the present invention. Many other objects, features, advantages and other embodiments of the present invention will become more fully apparent from the following detailed description, the appended claims and the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] A further understanding of the various embodiments of the present invention may be realized by reference to the figures which are described in remaining portions of the specification. In the figures, like reference numerals are used throughout several to refer to similar components. In some instances, a sub-label consisting of a lower case letter is associated with a reference numeral to denote one of multiple similar components. When reference is made to a reference numeral without specification to an existing sub-label, it is intended to refer to all such multiple similar components.

[0015] FIG. **1** depicts various UMCS devices in accordance with some embodiments of the present invention;

[0016] FIG. **2** is a flow diagram illustrating a method in accordance with one or more embodiments of the present invention for binding a UMCS device with other local devices in accordance with one or more embodiments of the present invention;

[0017] FIG. **3** depicts an exemplary UMCS device in accordance with some embodiments of the present invention;

[0018] FIG. **4** is a block diagram of a digital rights management system in accordance with various embodiments of the present invention;

[0019] FIG. **5** depicts a method for distributing content objects in accordance with some embodiments of the present invention; and

[0020] FIG. **6** is a flow diagram depicting a method in accordance with one or more embodiments of the present invention for performing digital rights management on data stored local to an application device.

DETAILED DESCRIPTION OF THE INVENTION

[0021] The present invention is generally related to data distribution, and in particular to systems and methods for performing digital rights management in relation to data distribution.

[0022] Some embodiments of the present invention utilize a mobile storage device such as a Universal Mobile Content Storage (UMCS) device that is, among other things, capable of storing one or more content objects and performing desired digital rights management in relation to the stored content objects. As used herein, the phrases "rights managed" and "digital rights management" are used in their broadest sense to mean any of several technologies or approaches known in the art and developing in the art that may be used to limit access to the information to those who have been provided with a key to decrypt or decode the information. Thus, for example, a rights managed content object is any data that is encrypted or wrapped in such a way that its use and distribution is intended to be limited to those having a digital rights management tool capable of decrypting or otherwise unwrapping the rights managed content object. It should be noted that as used herein, rights managed content objects may be, but arc not limited to, consumer content objects such as, for example, audio, video and/or software objects; and enterprise content such as, for example, documents and the like. Also, as used herein, the phrase "content object" is used in its broadest sense to mean any set of information that can be used by an application device. Thus, for example, a content object may be a digital audio file, a digital video file, a computer software program, a document, or the like. In some cases, a variety of digital rights management schemes are supported such that the mobile storage device may support storage and distribution of content objects using different approaches to digital rights management. In such embodiments, digital rights managed content may be carried with a user, and thus is local to devices in use by the user. Further, the content may be accessed and utilized using one or more devices that are

capable of connecting to the mobile storage device using either a wired or wireless connection.

[0023] In operation, a content object may be requested by a device communicably coupled to the mobile storage device. Upon receiving the request, the mobile storage device determines if a digital rights management scheme is employed, and if so, which one. The appropriate digital rights management module is then selected to unwrap the selected content object(s). Once unwrapped, the content object(s) are then streamed to the requesting device in a way that provides some level of assurance that the content object(s) is/are protected from illicit copying.

[0024] Turning to FIG. **1**, a diagram depicts an exemplary content usage network **100** that may be utilized in accordance with various embodiments of the present invention. Content usage network **100** may be utilized to distribute one or more rights managed content objects from a UMCS device to one or more recipient devices. Exemplary content usage network **100** includes a UMCS **110** at the core thereof. UMCS **110** is able to receive content objects from one or more online and wireless content providers as well as from various self maintained application devices such as, for example, audio recorders and video recorders. In some cases, UMCS **110** may be intermittently wired to a personal computer **115** via a cable **117**. In such cases, UMCS **110** may be configured via personal computer **115** using the standard I/O interfaces associated with personal computer **115**.

[0025] Wireless network **120** may be any wireless network known in the art. Thus, for example, wireless network **120** may be, but is not limited to, a Bluetooth™ network or WiFi network as are known in the art. As indicated above, the word "Bluetooth" is a trademark of Bluetooth SIG, Inc. For clarity, later use of the word Bluetooth is done without the customary trademark designation. It should be noted that while UMCS **110** may be configured across wireless network **120** using the user interface of another application device, and it may also be configured using other approaches. Thus, for example, UMCS **110** may be self configuring. In such a case, UMCS **110** is implemented with enough intelligence to auto detect an available wireless network as well as devices attached via the wireless network. As a particular example, UMCS **110** may be implemented such that when power is applied to the device it automatically scans for Bluetooth devices that are within range of UMCS **110**. Based on the detected Bluetooth devices, UMCS **110** may form a service offering as is more fully discussed below.

[0026] UMCS **110** is capable of interacting with various devices and classes of devices via wireless network **120**. For example, in some cases, UMCS **110** is operable to interact directly with UMCS enabled application devices via wireless network **120**. Such UMCS enabled application devices include capability to authenticate to UMCS **110** and to accept and transfer information from/to UMCS **110**, and to provide digital rights management whereby content is secured not only in the transfer between UMCS **110** and the UMCS enabled application device, but is also maintained secure within the UMCS enabled application device. In the situation where wireless network **120** is a Bluetooth network, the aforementioned UMCS enabled application devices would include Bluetooth capability. Alternatively, or in addition, in the situation where wireless network **120** is a WiFi network, the aforementioned UMCS enabled applications devices would include WiFi capability.

[0027] In various cases, UMCS **110** is operable to interact directly with non-UMCS enabled application devices via wireless network **120**. In such cases, either UMCS **110** includes capability to tailor output and receive input from the non-UMCS enabled application device, or the non-UMCS enabled application devices may interact with UMCS **110** via a specialized UMCS converter that is tailored for operation with a class of devices. Thus, for example, where wireless network **120** is a Bluetooth network, the UMCS converter may be enabled to receive from and provided information to a non-UMCS enabled application device via any one of a number of communication approaches, and to communicate the information to/from UMCS **110** using a Bluetooth protocol. As an example, UMCS **110** may interact with digital audio devices (e.g., a digital audio player **151** and a digital audio recorder **152**) via a UMCS digital audio converter **150**. As another example, a cellular telephone **161** or personal digital assistant (not shown) may interact with UMCS **110** either directly or via a UMCS audio/video converter **160**. As yet another example, UMCS **110** may interact with video devices (e.g., a set top box **166**, a video cassette player **167**, a digital video recorder **168** and a television **169**) via a UMCS digital video converter **165**. As yet a further example, UMCS **110** may interact with still image devices such as a digital still camera **171** or a printer (not shown) via a UMCS digital image converter **170**. As yet another example, UMCS **110** may interact with a GPS receiver/display **176** via a UMCS GPS converter **175**.

[0028] In various cases, UMCS **110** is operable to interact directly with non-UMCS enabled application devices via a UMCS composite converter **140**. UMCS composite converter **140** is operable to provide for UMCS interaction with multiple classes of recipient devices. Thus, for example, where wireless network **120** is a Bluetooth network, UMCS composite converter **140** may be enabled to receive from and provided information to different classes of non-UMCS enabled application devices via any one of a number of communication approaches, and to communicate the information to/from UMCS **110** using a Bluetooth protocol. As an example, UMCS composite converter **140** may couple UMCS **110** to, for example, a digital audio player **141**, a digital video recorder **142**, a television **143**, a set top box **144**, a digital still camera **145**, a video cassette player **146**, a digital audio recorder **147**, a cellular telephone **148**, and a GPS receiver **149**, or some combination of the aforementioned device classes. In such cases, decoding of content accessed from a storage medium included in UMCS **110** is done using a decoder provided in UMCS composite converter **140**. Thus, the content is unwrapped by UMCS **110** and the unwrapped content is provided to the UMCS composite converter **140** via wireless network **120**. UMCS composite converter **140** decodes the content and provides it to the appropriate recipient device while at the same time assuring that any demanded digital rights management is maintained. In some cases, UMCS composite converter **140** may be implemented as a dongle associated with one or more recipient devices.

[0029] Further discussion of content usage networks including UMCS devices is provided in the patent application entitled "Systems and Methods for Mobile Data Storage and Acquisition" that was previously incorporated herein by reference for all purposes.

[0030] Turning to FIG. **2**, a flow diagram **500** illustrates a method in accordance with one or more embodiments of the present invention for binding a UMCS device with other local

devices in accordance with one or more embodiments of the present invention. Following flow diagram **500**, a UMCS device is powered on or otherwise enabled (block **510**). Once enabled, the UMCS device detects any available networks (block **520**) and attempts to authenticate itself to such networks (block **530**). The aforementioned detection and authentication may include awaiting authentication by a particular network, identifying whether the network is a known network, and/or the like. Thus, where the network is a Bluetooth network, the UMCS device transmits and/or receives signals in accordance with a Bluetooth network protocol. Alternatively, or in addition, where the network is a WiFi network, the UMCS device transmits and/or receives signals in accordance with a WiFi network protocol. Next, for each authenticated network, the UMCS device identifies other UMCS enabled or UMCS accessible devices communicably coupled to the network (block **540**). This may be done using any method for identifying connected devices that are known in the art. For one or more of the detected devices, an authentication process is performed to bind a particular device to the UMCS (block **550**). Such authentication processes may involve accessing a unique identifier associated with the device to be authenticated and checking the unique identifier with a list of know devices maintained on the UMCS. Alternatively, or in addition, a user name and password may be requested from the device to be authenticated and where the user name and password match, the device is authenticated. Based on the disclosure provided herein, one of ordinary skill in the art will appreciate other authentication approaches that may be used in relation to one or more embodiments of the present invention.

[0031] Once the various devices have been authenticated (block **550**), they are bound to the UMCS by including the authenticated devices in a list of known devices and maintaining communication with the bound devices (block **560**). Further, the detection/authentication processes (blocks **520-560**) are periodically repeated or repeated upon command. Thus, it is periodically determined whether an update to the list of known of devices is to be performed (block **570**). An update to the list of known devices may be called for whenever a previously unidentified device is detected via the network or whenever one of the devices on the known devices becomes unavailable. Where an update to the list of known devices is to be performed, the aforementioned steps are repeated resulting in an updated list of known devices (blocks **520-560**).

[0032] Turning to FIG. **3**, a UMCS **200** in accordance with one or more embodiments of the present invention is depicted. UMCS **200** includes a hard disk drive **205** that is accessible to a processor **210** via a hard disk drive interface **215**. Hard disk drive interface **215** may be any interface known in the art that allows for transferring data to and from hard disk drive **205**. Further, hard disk drive **205** may be any hard disk drive known in the art. In one particular case, hard disk drive interface **215** is a standard ATA interface and hard disk drive **205** is an ATA hard disk drive.

[0033] In addition, UMCS **200** includes multiple transmission paths **230** each coupled to processor **210** via a system bus **250**. As depicted, UMCS **200** includes three distinct transmission paths each including a transmitter/receiver **232**, **234**, **236** electrically coupled to a respective antenna **241**, **242**, **243** and a local buffering memory **231**, **233**, **235**. It should be noted that UMCS **200** may include more or fewer transmission paths depending upon the intended use and/or design of UMCS **200**.

[0034] UMCS **200** also includes a memory system comprising a flash memory **258** and a system memory **254** electrically coupled to processor **210** via system bus **210**. Some embodiments of the present invention utilize the combination of hard disk drive **205** and flash memory **258** to limit the power consumption of UMCS **200**. As considerable power is expended spinning up hard disk drive **205**, larger less frequent accesses to hard disk drive offers considerable power savings for UMCS **200**. Based in part on this, some embodiments of the present invention carefully tailor the size and allocation of flash memory **258** such that the access to hard disk drive **205** is limited. When such accesses to hard disk drive **205** are performed, large amounts of properly selected data are moved from hard disk drive **205** to flash memory **258**. In contrast to other approaches where large contiguous blocks of data are pulled from a hard disk drive to a cache memory, the data pulled from hard disk drive **205** to flash memory **258** is not necessarily contiguous. Further, in some cases, the data copied from hard disk drive **205** to flash memory **258** is dictated by the particular memory type and/or a media assemblage of a number of content objects.

[0035] Further discussion of UMCS devices that may be utilized in relation to one or more embodiments of the present invention is provided in the patent application entitled "Systems and Methods for Mobile Data Storage and Acquisition" that was previously incorporated herein by reference for all purposes. It will be noted that one or more of the mobile storage devices disclosed in the aforementioned patent application do not include a graphical user interface, or include only a very limited graphical user interface. In such cases, the graphical user interface of a communicably coupled mobile application device may be used to control the mobile storage device. As previously suggested, such mobile application devices may include, but are not limited to, MP3 players, portable video players, personal digital assistants, and the like. Further, it should be noted that while three antennae are shown as part of UMCS **200**, single antenna implementations that are able to support multiple wireless channels are possible in accordance with one or more embodiments of the present invention. One example of such a single antenna approach supporting multiple wireless channels is provided in the patent application entitled "Systems and Methods for Multiport Communication Distribution" that was previously incorporated herein by reference for all purposes.

[0036] Turning to FIG. **4**, a block diagram of a digital rights management system **700** in accordance with one or more embodiments of the present invention is depicted. Digital rights management system **700** includes one or more content objects **710**, a number of digital rights management modules **720**, a number of format conversion modules **730** and a processor. Each content object **710** includes a content object payload **712** and a file descriptor **714**. Content object payload **712** includes the data that either without modification or after decryption includes the content of content object **710**. Thus, as just some of many examples, content object payload **712** may be a digitized music selection, a digitized video selection, a software program or the like. File descriptor **714** includes one or more fields of information describing content object **710**. As shown, file descriptor **714** includes a field **716** that identifies the native format of content object payload **712** and a field **718** that identifies any digital rights management

that is applied to content object payload **712**. Based on the disclosure provided herein, one of ordinary skill in the art will recognize a variety of content objects, content object payloads and file descriptors that may be used in relation to one or more embodiments of the present invention. In one particular embodiment of the present invention, digital rights management system **700** is implemented as part of a UMCS device.

[0037] In operation, content object **710** is selected for distribution. The selection may be received from another device that is communicably coupled to digital rights management system **700**, and may include an indication of a final format in which the selected content object is to be provided. Where no indication of a final format is received, it is assumed that delivery of the selected content object in its native format is acceptable. As used herein, the phrase "native format" is used in its broadest sense to mean any format in which a particular content object is maintained on a storage component that is accessible to processor **740**. Thus, for example, where the selected content object is an audio file, the native format may be MP3 or high definition audio. Based on the disclosure provided herein, one of ordinary skill in the art will recognize a number of native formats in which a particular content object may be maintained.

[0038] In response to the selection of content object **710**, processor **740** accesses content object **710** from a storage element accessible to processor **740**. Processor **740** utilizes the information in file descriptor **714** to determine which, if any, digital rights management module **720** that will be used to decrypt or otherwise unwrap content object payload **712**. The selected digital rights management module **720** is executed by processor **740** to decrypt or otherwise unwrap content object payload **712**. Where a digital rights management approach is not identified in file descriptor **714**, it is assumed that digital rights management is not implemented. In such a case, digital rights management module **720** is not selected, and the aforementioned decryption/unwrapping process is skipped.

[0039] Further, where the original selection of content object **710** indicates a final format that is different from the native format indicated by file descriptor **714**, processor **740** selects an appropriate one of format conversion modules **730** to convert object payload **712** from the native format indicated by file descriptor **714** to the indicated file format. Once the aforementioned decryption and format conversion is complete, content object payload **712** is provided to an indicated recipient device as a streamed content object **750**.

[0040] Providing streamed content object **750** may include, but is not limited to, transmitting decrypted and format converted portions of content object payload **712** piece-meal. Once the portions are received by a receiving device the content object payload is decoded and consumed in an audio, visual or other fashion appropriate to the particular content object. Once consumed, the portions of content object payload **712** are deleted from the recipient device in accordance with digital rights management associated with the content object. In some cases, the information is provided via a wireless link between the receiving device and the device in which digital rights management system **700** is implemented.

[0041] As will be appreciated from reading the foregoing, various embodiments of the present invention provide systems and methods for distributing content objects incorporating one or more digital rights management schemes. In some cases, such systems and methods may provide for distribution of rights managed content to one or more devices that are communicably coupled to the device in which digital rights management system **700** is implemented. Further, such distribution may be accomplished without an incremental fee to the user distributing the content to another device. It should also be noted that rights managed content may be distributed without the aid of a personal computer, or without access to the Internet as the content is maintained on a device local to the distribution. Further, because the distributed content may be maintained on a mobile storage medium that is wirelessly accessible, the content may be accessed and consumed immediately without having the need to go back to a specific location (e.g., a home where a personal computer is located) to retrieve or re-encode the desired content in a form accessible to a consuming device (e.g., a consumer electronic device).

[0042] Turning to FIG. **5**, a diagram **400** illustrates a method for content object delivery in accordance with one or more embodiments of the present invention. A content company **310** represents many content owners in licensing digital content distribution by both online retailers **315** and wireless retailers **320**. Wireless retailers **320** and online retailers **315** in turn distribute the licensed content objects to consumers (e.g., to UMCS device **410** maintained by the user) under license from content company **310**. UMCS **410** is able to receive content from any of online retailers **315**, wireless retailers **320** and/or self maintained content equipment such as, for example, an audio capture device **420** or a video capture device **415**. UMCS **410** is enabled to output content to one or more consumer devices via a common interface. In some cases, the common interface is a wireless interface. Such a wireless interface may be, but is not limited to an 802.11 wireless interface. In one particular case, the wireless interface is an 802.11(i) interface.

[0043] In various cases, the content objects are received in a particular format and stored on UMCS **410** in the received format. In other cases, UMCS **410** performs a format conversion on the received content object before it is stored. The format in which the content objects are stored on UMCS **410** is referred to herein as a "native format". Further, the received content object may require some form of digital rights management. In such cases, the particular form of digital rights management is associated with the received content object. In some cases, the received content object may be decrypted before being stored to the memory of UMCS **410**. In such cases, any access to the content object from the memory requires satisfaction of the digital rights management requirements. In other cases, the content object is stored in its encrypted or encoded condition, and only when the content object is accessed from the memory is digital rights management applied. In such cases, a tag may be stored with the content object that indicates both the native format of the content object and a particular digital rights management scheme/key that may be used to decrypt the particular content object.

[0044] Turning now to FIG. **6**, a flow diagram **600** depicts a method in accordance with one or more embodiments of the present invention for performing digital rights management on data stored local to an application device. Following flow diagram **600**, information is received via an antenna associated with the UMCS device (block **605**). The information received via the antenna is demodulated and buffered (blocks **610-615**). It is next determined if the device with which the UMCS is communicating has been authenticated (block **620**).

Where no authentication is complete (block **620**), an authentication can be performed immediately to satisfy the authentication requirement, or the process may simply end (block **655**). Such authentication may be performed using any authentication approach known in the art. In other embodiments of the present invention, only information from a previously authenticated and/or bound device may be received. In such cases, block **620** and block **655** may not be necessary.

[0045] Where the authentication requirement is satisfied (block **620**), it is determined whether the received information is to be the subject of a storage or retrieval from the storage component associated with the UMCS device (block **625**). Where the received information is to be stored to the storage component (block **625**), it is determined whether the information is to be encoded (block **630**). Where the information is to be encoded (block **630**), the appropriate encoding is performed (block **635**). In some cases, the encoding provides for a format conversion from a received format to a native format. As previously discussed, in some embodiments of the present invention content objects are stored in the format in which they are received. In such cases, the aforementioned encoding is not performed. In other embodiments of the present invention, content objects are first encoded to change the native format in which the content object are stored. It is then determined whether some form of digital rights management is to be applied to the information (block **640**). Where digital rights management is to be applied (block **640**), the appropriate digital rights management is indicated in relation to the content object (block **645**). Finally, the information is stored to the storage component of the UMCS device (block **850**) and the process ends (block **655**).

[0046] Otherwise, where information is to be retrieved from the storage component of the UMCS device (block **625**), the indicated information is retrieved from the storage component (block **660**). In addition, it is determined if a digital rights management is to be performed in relation to the retrieved information (block **665**). Where digital rights management is to be performed in relation to the retrieved information (block **665**), the appropriate digital rights management module is accessed (block **670**) and the retrieved information is unwrapped or otherwise decrypted (block **675**). It is next determined whether the information is to be furnished to the requestor in a format other than the native format (block **680**). Where the information is to be provided in other than the native format (block **880**), the appropriate decoding (i.e., format conversion) is performed (block **685**). Finally, the information is modulated (block **890**) and transmitted via the antenna (block **695**).

[0047] In conclusion, the present invention provides novel systems, devices, methods and arrangements for implementing hands free operational environments. It should be noted that while a number of different data sharing approaches have been discussed herein, that one of ordinary skill in the art upon reading this disclosure would appreciate other approaches that may be implemented in accordance with various embodiments of the present invention. In particular, while detailed descriptions of one or more embodiments of the invention have been given above, various alternatives, modifications, and equivalents will be apparent to those skilled in the art without varying from the spirit of the invention. Therefore, the above description should not be taken as limiting the scope of the invention, which is defined by the appended claims.

What is claimed is:

1. A method for distributing rights managed content objects, the method comprising:

providing a mobile storage device, wherein the mobile storage device includes a wireless interface and a storage component, and wherein the storage component includes a rights managed content object;

receiving a first request to provide the rights managed content object to a first mobile application device via the wireless interface;

receiving a second request to provide the rights managed content object to a second mobile application device via the wireless interface;

accessing the rights managed content object from the storage component;

accessing a digital rights management tool associated with the accessed content object;

decrypting the accessed content object using the digital rights management tool;

streaming the decrypted content object via the wireless interface to the first mobile application device; and

streaming the decrypted content object via the wireless interface to the second mobile application device.

2. The method of claim **1**, wherein the method further comprises:

receiving the rights managed content object; and

storing the rights managed content object to the storage component in a native format.

3. The method of claim **2**, wherein receiving the first request to provide the rights managed content object to the first mobile application device via the wireless interface indicates the native format, wherein receiving the second request to provide the rights managed content object to the second mobile application device via the wireless interface indicates a selected format, and wherein the method further comprises:

converting the rights content object from the native format to the selected format.

4. The method of claim **3**, wherein the decrypted content object is streamed to the first mobile application device in the native format, and wherein the decrypted content object is streamed to the second mobile application device in the selected format.

5. The method of claim **4**, wherein the mobile application device includes a graphical user interface, and wherein the method further comprises:

providing information to drive the graphical user interface via the wireless interface, wherein the graphical user interface operates as a remote graphical user interface for the mobile storage device.

6. The method of claim **1**, wherein the digital rights management tool is a decryption key.

7. The method of claim **1**, wherein the digital rights management tool includes a set of instructions executable by the processor to decrypt the accessed content object.

8. The method of claim **1**, wherein the storage component includes both a hard disk drive and a flash memory.

9. The method of claim **1**, wherein the wireless interface is selected from a group consisting of: a Bluetooth interface and a WiFi interface.

10. A system for distributing rights managed content objects, the system comprising:

a mobile storage device, wherein the mobile storage device includes a processor, a wireless interface, and a storage component;

wherein the storage component includes a first content object and a second content object, and wherein the storage component further includes instructions executable by the processor to:

access one of the first content object and the second content object from the storage component;

access a digital rights management tool associated with the accessed content object;

decrypt the accessed content object using the digital rights management tool; and

distribute the decrypted content object via the wireless interface to a mobile application device.

11. The system of claim **10**, wherein the mobile application device is local to the mobile storage device.

12. The system of claim **11**, wherein the system further comprises:

a graphical user interface, wherein the graphical user interface is incorporated into the mobile application device, and wherein the graphical user interface operates as a remote graphical user interface for the mobile storage device.

13. The system of claim **10**, wherein the storage component includes at least one of a hard disk drive and a flash memory.

14. The system of claim **10**, wherein the wireless interface is selected from a group consisting of: a Bluetooth interface and a WiFi interface.

15. The system of claim **10**, wherein the storage component further includes instructions executable by the processor to:

receive the first content object; and

store the first content object to the storage medium in a native format.

16. The system of claim **15**, wherein the storage component further includes instructions executable by the processor to:

convert the first content object from the native format to a selected format, and wherein the decrypted content object is distributed in the selected format.

17. The system of claim **16**, wherein the storage component further includes instructions executable by the processor to:

receive an indication of the selected format from the mobile application device via the wireless interface.

18. The system of claim **10**, wherein the storage component further includes instructions executable by the processor to:

receive the first content object;

convert the first content object to a native format; and

store the first content object to the storage medium in the native format.

19. The system of claim **10**, wherein the digital rights management tool is a decryption key.

20. The system of claim **10**, wherein the digital rights management tool includes a set of instructions executable by the processor to decrypt the accessed content object.

21. A system for distributing rights managed content objects, the system comprising:

a mobile application device, wherein the mobile application device includes a graphical user interface;

a mobile storage device, wherein the mobile storage device includes a processor, a wireless interface, and a storage component; wherein the storage component includes a non-volatile memory component, wherein the mobile storage device is communicably coupled to the mobile application device via the wireless interface, wherein the storage component includes a content object, and wherein the storage component further includes instructions executable by the processor to:

provide an information set to the mobile application device via the wireless interface, wherein the information set is used to drive the graphical user interface, and wherein the graphical user interface operates as a remote graphical user interface for the mobile storage device;

receive the content object;

store the content object in a native format;

receive a request for the content object from the mobile application device via the wireless interface, wherein the request for the content object indicates a selected format;

access the content object from the storage component;

access a digital rights management tool associated with the content object;

decrypt the content object using the digital rights management tool;

convert the format of the decrypted content object from the native format to the selected format; and

stream the decrypted and format converted content object via the wireless interface to the mobile application device.

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