address of the online provider to be retrieved and transmitted. User input interface 56 can also be constructed to detect when a special sequence of keys has been pressed on a conventional user control (e.g., a sequence such as "ENTER," "ENTER," "+VOLUME") and to enable interactive communication with the online information provider. Alternatively, user input interface 56 can be implemented by any appropriate microcomputer type user interface, e.g., mouse, 10 touchpad, touchscreen, trackball, joystick, pushbutton, eraser head, or other such device. Preferably, user interface 56 is constructed to provide and receive transmission of digital information signals through modem 54 to the online information provider, thereby . 15 enabling interactive user access with the online provider for conducting detailed information searches, conducting transactions, and sending or posting messages to the accessed provider.

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Access controller 10 is provided with a modem 20.54 for transmitting and receiving digital information signals between access controller 10 and public switching network 30 through an information signal carrier line 32. Modem 54 demodulates incoming information signals and outputs them to processor 58 which extracts a video and/or an audio signal 38. Preferably, access controller 10 includes a signal converter 62 for adjusting or converting an incompatible signal for display upon conventional reproducing system 22, such as a television set, either in place of the 30 television signal, superimposed over the television signal, or in picture-in-picture format, as controlled by the user. Alternatively, processor 58 provides the video signal on line 38 to a high resolution reproducing system 40, such as a computer monitor. Indicator signal 35 generator 46 may also incorporate a switch (not shown) which automatically switches off the primary output signal 36 whenever a signal appears at the output of

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signal converter 62. In this manner, information signals received from online information providers will be automatically displayed on conventional reproducing system 22 in place of the ordinarily displayed video 5 signal 36. Processor 58 can also receive the input video or audio electronic program signal through a line 55 output from address extractor 42 (although direct connection of the electronic signal line 12 is In this manner, processor 58 may possible). be 10 constructed to operate upon the video or audio signal in conjunction with information signals received from an online information provider to generate a "picture within picture" signal for display upon conventional reproducing system 22.

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15 The operation of the system will now be described. An electronic signal 12, such as a signal from a video or audio program from channel selector 16 or playback system 18, e.g., prerecorded videotape, or an analog or digital video disc, containing an embedded 20 signal representing the electronic address of an online information provider in the blanking interval or other non-displayed portion of the electronic signal 12 is received by address extractor 42. From the electronic signal 12, address extractor 42 detects, decodes and stores a digital address of the online services provider, if any such address is embedded therein. If an address is successfully decoded and stored, address through signal line extractor 42 activates, 44, generator 46. indicator signal Indicator signal 30 generator 46 then produces an indicator signal and overlays or encodes it onto a conventional program signal 36 to be displayed or transduced by conventional reproducing system 22. Alternatively, indicator signal generator 46 produces a signal on line 50 which activates a special purpose indicator, e.g., illuminating a light 24 or producing a sound on a speaker 28 of access controller 10.

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If the user wants to access the online information provider, the user gives such command to access controller 10 by, for example, pushing a special button on his or her remote control device. The remote 5 control device transmits a command signal to user interface 56 which receives the command signal. User interface 56 in turn, produces a signal which is applied to address extractor 42 to retrieve the stored address of the online information provider. Under appropriate 10 software or hardware control, the address is transmitted via modem 54 over network 30 to an online information provider, e.g., 34c.

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Once access to the online information provider has been established, access controller 10 can 15 automatically receive digital information signals through modem 54 from the online information provider. Received information signals are operated upon by 58 for displaying upon conventional TV processor reproducing system 22 or high resolution reproducing 20 system 40, e.g., a computer monitor or other display Preferably, received device. signals which are incapable of being directly displayed upon conventional reproducing system 22, e.g., a conventional television set, are converted by a signal converter 62 for display Information signals received from an online 25 thereon. information provider may be displayed as still or moving images in place of the ordinarily displayed video signal on the conventional reproducing system 22, or may be displayed as part of a "picture within picture" display in conjunction with the ordinarily displayed video 30 signal on conventional reproducing system 22 or on the computer monitor 40 or other display device.

After access has been established, user commands received through user interface 56 are 35 transmitted as information signals through modem 54 to the online information provider, thereby providing interactive user access with the online provider and

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enabling searching for detailed information, conducting transactions, sending or posting messages to the accessed provider and any other actions that can ordinarily be conducted through an online connection.

5 Another embodiment of the invention is illustrated in FIG. 3. FIG. 3 shows an embodiment which operates in conjunction with an available computer 164. In this embodiment, access controller 110 does not require an internal processor or modem because such 10 functions are provided by a computer 164 attached thereto. In addition, computer 164 also provides a monitor and audio reproducing components which function as high resolution reproducing system 40. Address extractor 142, indicator signal generator 146, and user 15 input interface 156 of access controller 110 are connected through an output interface 166 for providing decoded address output, indicator signals, and user commands, respectively, to computer 164. In other respects, access controller 110 is connected to receive . an electronic signal 12 and provide a conventional 20 program signal 122 and a signal 150 to indicator 124 or indicator 128, in like manner as in the self-contained embodiment of access controller 10 described in the foregoing (FIG. 2). It will be appreciated that the computer supported embodiment of the invention (FIG. 3) provides the same function and operates in essentially the same manner as the self-contained embodiment (FIGS. 1-2) and need not be described in any further detail.

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In still another embodiment of the invention, 30 with reference to FIGS. 1-3, a connection to network 30 is maintained continuously by access controller 10 through modem 54 or the modem provided in computer 164. This embodiment will be described with reference to the access controller 10 shown in FIG. 2, although the 35 skilled person in the art will readily understand the structural modifications required for operation in accordance with the access controller shown in FIG. 3.

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In this embodiment, address extractor 42 detects and decodes an online information provider address embedded in the video or audio program signal, but does not store the address.

5 As described in the foregoing embodiments of the invention, address extractor 42 provides a signal to indicator signal generator 46 when it successfully detects an online information provider address in the electronic signal. Address extractor 42 detects and 10 decodes the embedded address and passes it to modem 54. Modem 54, in turn, only uses the extracted address if it has first received a user command to initiate access to the online information provider. It will be appreciated that this embodiment of the invention can be used with a 15 video or an' audio program signal wherein the online information provider address is frequently or continuously transmitted. Modem 54 is provided with hardware and/or software to automatically establish, upon receiving a user command to initiate online access, 20 a direct digital communication link with the online information provider associated with the next received online information provider address.

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As an example of the operation of this non-address storing embodiment of the invention, a video 25 audio program signal having a frequently or an transmitted embedded signal containing an online information provider address is received through line 12 by address extractor 42. Address extractor 42 detects and decodes the online information provider address, but 30 does not store it before passing it to modem 54. Modem 54 does nothing with the online information provider address unless a user command to initiate access has first been received from user interface 56. If such user command has been received, modem 54 transmits a 35 signal over network 30 using the next received address to establish a digital communication link with the online information provider. The function and operation

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