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(54) **ARCHITECTURE FOR SERVER-BASED CASINO GAMING MACHINE SYSTEM**

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G07F 17/32 (2006.01)

(52) **U.S. Cl.**
CPC ***G07F 17/3225*** (2013.01); ***G07F 17/32*** (2013.01); ***G07F 17/3223*** (2013.01)

(58) **Field of Classification Search**
CPC A63F 2300/51; A63F 2300/513; A63F 2300/531; A63F 2300/57; G07F 17/3225; G07F 17/3227
USPC 463/16, 20, 30, 31
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

7,850,528	B2 *	12/2010	Wells	463/42
8,012,015	B2	9/2011	Alderucci	
8,257,171	B2 *	9/2012	Gagner et al.	463/29
8,414,391	B2 *	4/2013	Williams	463/29
2003/0104865	A1 *	6/2003	Itkis et al.	463/39
2005/0221898	A1	10/2005	Gatto et al.	
2008/0274785	A1 *	11/2008	Byng et al.	463/20
2009/0036203	A1	2/2009	Anderson et al.	
2010/0105455	A1	4/2010	Izumi et al.	
2010/0124990	A1	5/2010	Crowder	
2010/0167822	A1 *	7/2010	Crumby	463/42
2011/0053672	A1 *	3/2011	Gagner	G07F 17/32 463/16
2011/0269529	A1	11/2011	Baerlocher	
2012/0021835	A1	1/2012	Keller et al.	

* cited by examiner

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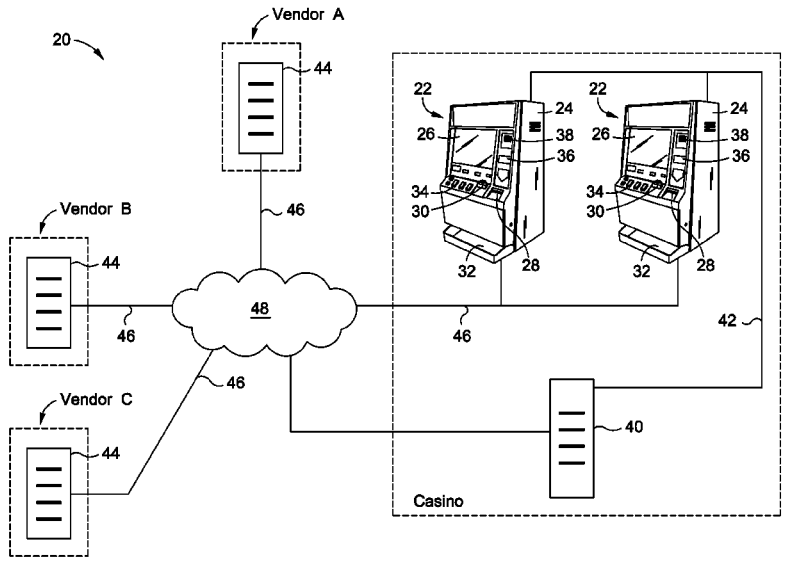
(57) **ABSTRACT**

A gaming terminal has a game process layer for executing different game application and a system process layer for executing machine functions, such as controlling peripherals of the gaming terminal, wherein the game applications and system processes may be implemented using different protocols. The gaming terminal also includes a game server and a control server which may communicate with one another via an integration or translation protocol. The gaming terminal can thus execute generic game code or game code configured in accordance with varying protocols from different vendors rather than a single, proprietary protocol, and can still use a single unique system protocol for controlling the machine functions.

11 Claims, 5 Drawing Sheets



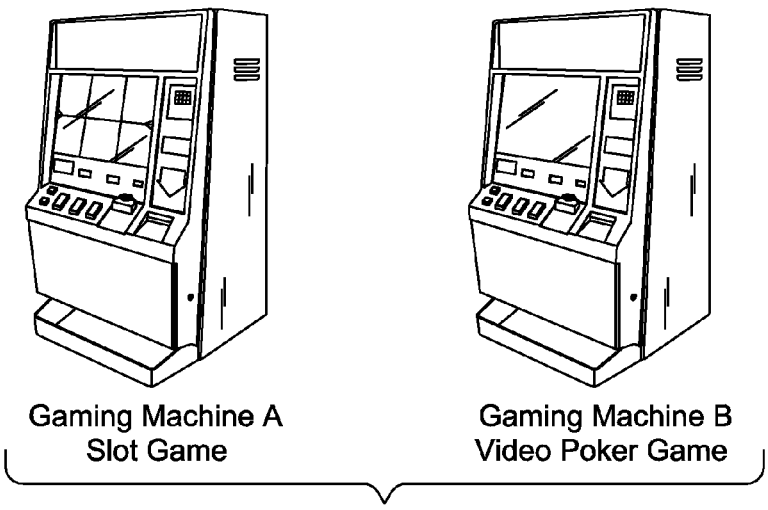

Gaming Machine A
Slot Game
Gaming Machine B
Video Poker Game

FIG. 1A

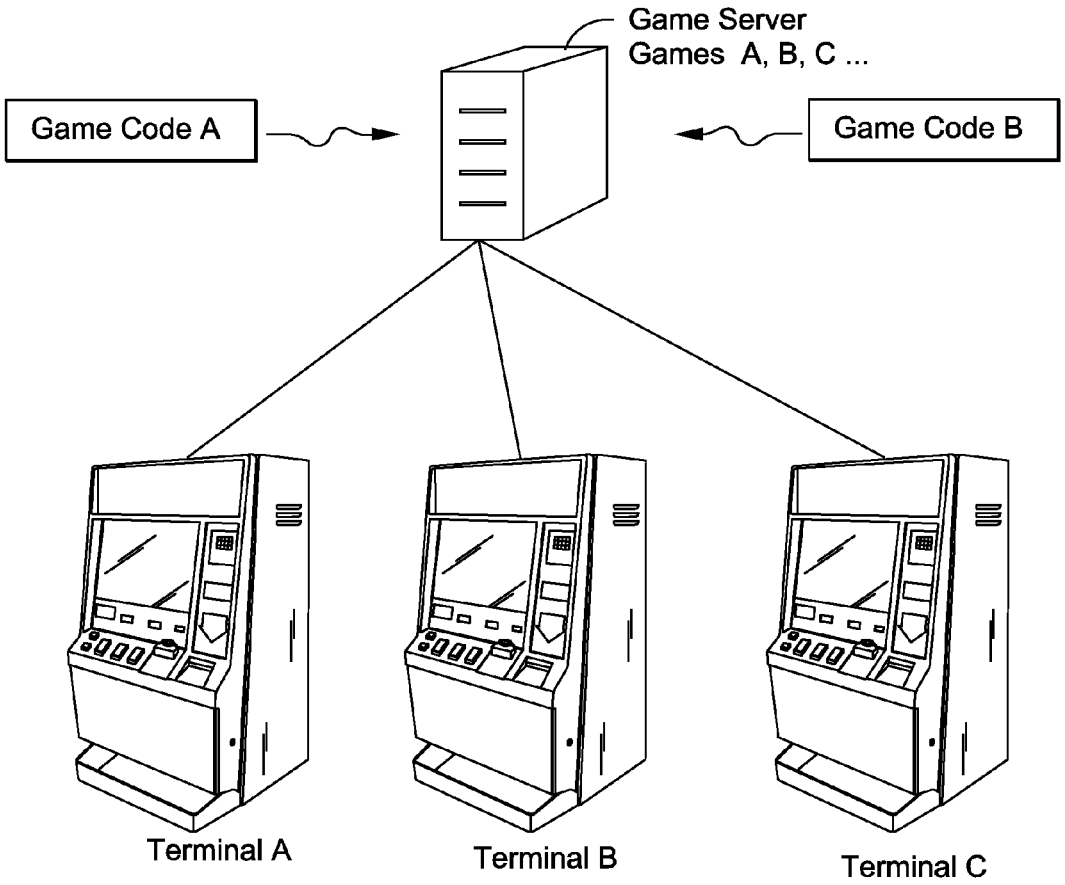

Game Server
Games A, B, C ...
Game Code A
Game Code B
Terminal A
Terminal B
Terminal C

FIG. 1B

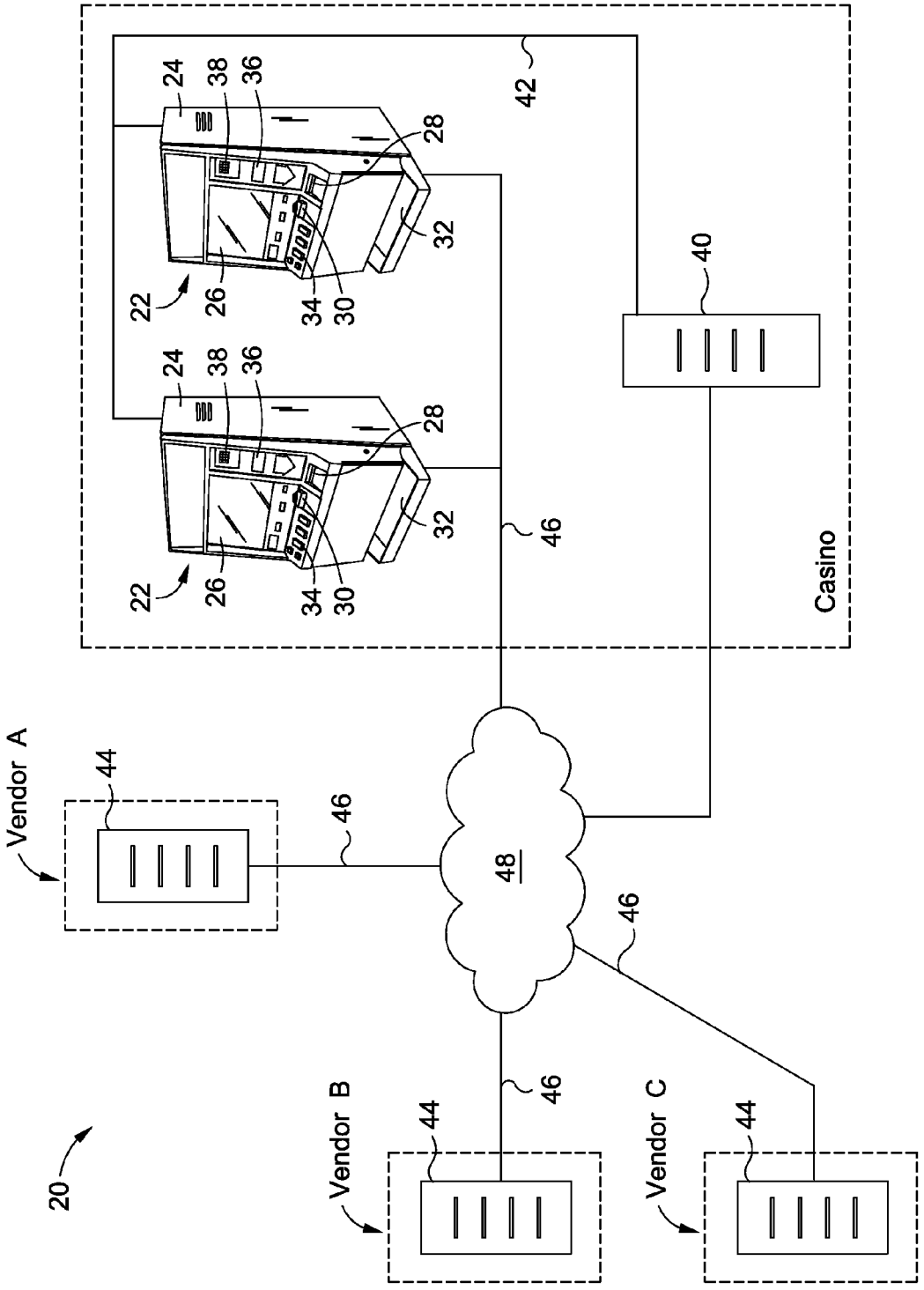

20
Casino
42
40
46
48
Vendor A
Vendor B
Vendor C
44
22
24
26
28
30
32
34
36
38

FIG. 2

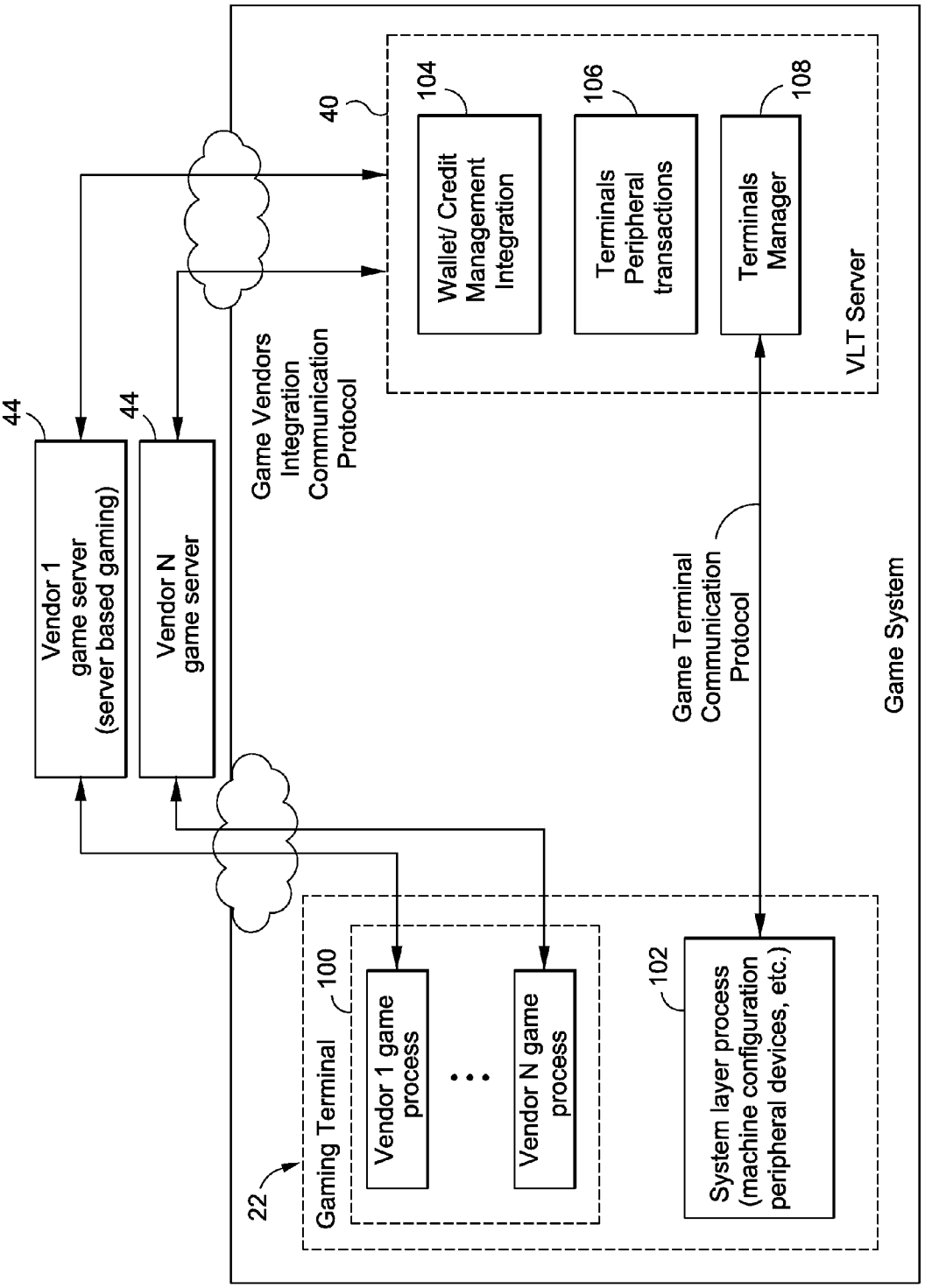

Vendor 1 game server (server based gaming)
Vendor N game server
44
44
Game Vendors Integration Communication Protocol
40
Wallet/ Credit Management Integration
104
Terminals Peripheral transactions
106
Terminals Manager
108
VLT Server
Game Terminal Communication Protocol
Game System
Gaming Terminal
100
Vendor 1 game process
Vendor N game process
22
System layer process (machine configuration peripheral devices, etc.)
102

FIG. 3

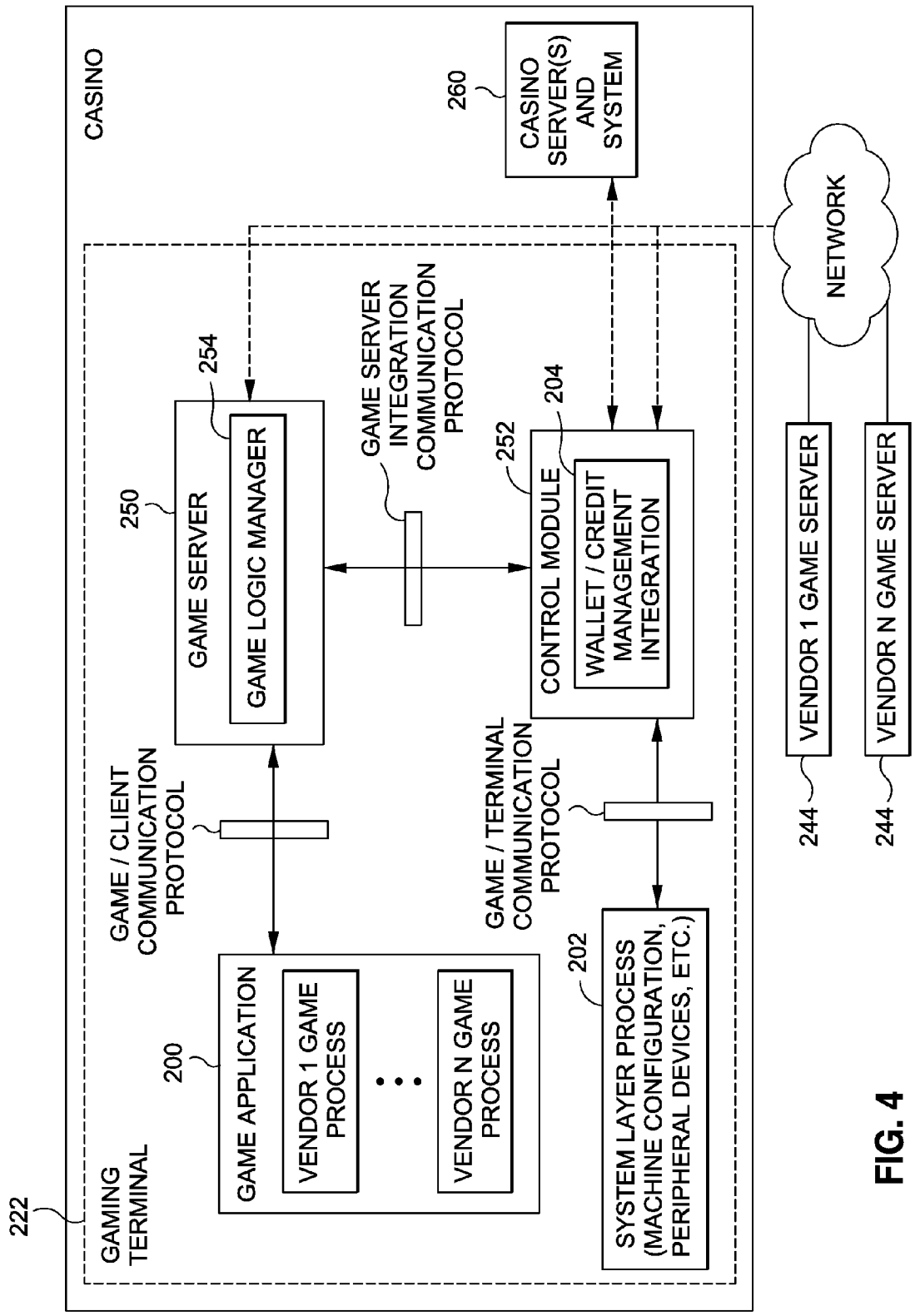

CASINO
260
CASINO SERVER(S) AND SYSTEM
NETWORK
GAME SERVER INTEGRATION COMMUNICATION PROTOCOL
254
250
GAME SERVER
GAME LOGIC MANAGER
252
204
CONTROL MODULE
WALLET / CREDIT MANAGEMENT INTEGRATION
GAME / CLIENT COMMUNICATION PROTOCOL
GAME / TERMINAL COMMUNICATION PROTOCOL
VENDOR 1 GAME SERVER
VENDOR N GAME SERVER
244
244
200
GAME APPLICATION
VENDOR 1 GAME PROCESS
VENDOR N GAME PROCESS
202
SYSTEM LAYER PROCESS (MACHINE CONFIGURATION, PERIPHERAL DEVICES, ETC.)
222
GAMING TERMINAL

FIG. 4

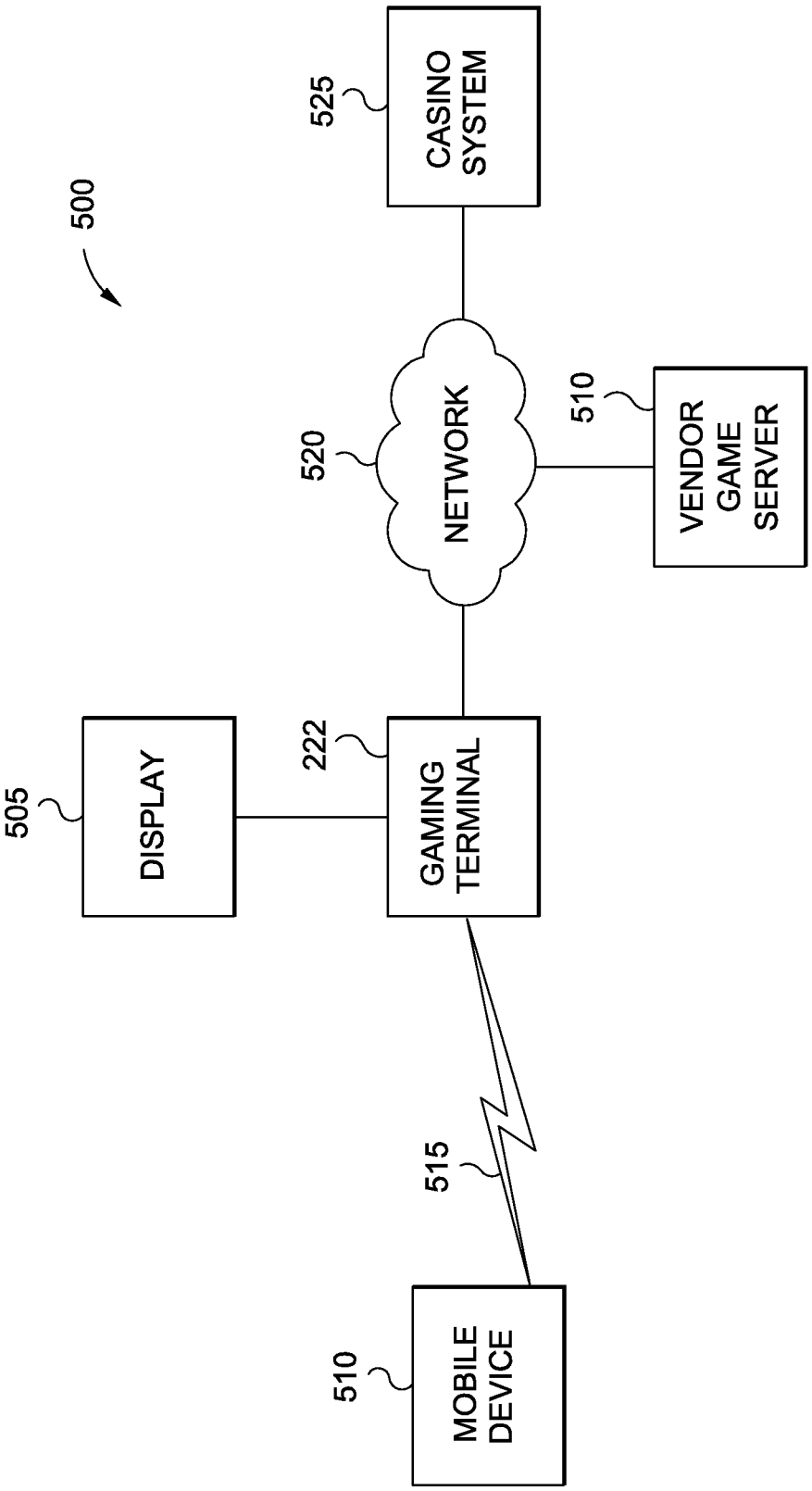

500
525
CASINO SYSTEM
520
NETWORK
510
VENDOR GAME SERVER
505
DISPLAY
222
GAMING TERMINAL
515
510
MOBILE DEVICE

FIG. 5

ARCHITECTURE FOR SERVER-BASED CASINO GAMING MACHINE SYSTEM

RELATED APPLICATION DATA

This application is a continuation-in-part of U.S. application Ser. No. 13/452,393, filed Apr. 20, 2012.

FIELD OF THE INVENTION

The present invention relates to server-based casino gaming machines and systems.

BACKGROUND OF THE INVENTION

Traditional casino-style slot machines, such as slot and video poker machines, were configured as independently-operable machines. For example, each slot machine was configured with a set of reels and a controller which determined an outcome or stopping position for the reels. Each video poker machine was configured with a controller which caused game information, such as images of cards, to be determined and displayed on a display of the machine. The controllers of these gaming machines were configured to be "stand-alone", meaning that they were capable of generating game outcomes by themselves (i.e. without input or control by an external device or system). For example, the gaming controller of a video poker machine might include a random number generator for randomly determining game outcomes and software for generating images of cards based upon each randomly determined outcome. FIG. **1**A illustrates such a configuration wherein a first stand-alone gaming machine is configured to present a slot game and a separate stand-alone gaming machine is configured to present a video poker game.

One advantage of the configuration of these traditional gaming machines is that they can easily be set up to operate anywhere. In particular, because they machines are free-standing, they do not need to be connected to other machines or systems. However, these machines have various disadvantages. For example, because the gaming machines are custom-created to present one or more games in a stand-alone fashion, the gaming machines can only present those one or more pre-defined games. Thus, if new and more exciting games are developed, the existing gaming machines cannot be configured to present those new games without entirely re-configuring or re-programming the machines. Also, because each gaming machine must include all of the components necessary to present games in a free-standing manner, each gaming machine is very complex and expensive.

In recent years, server-based gaming systems have been developed. FIG. **1**B illustrates one example of such a system. As illustrated, these systems include one or more main game servers and a plurality of gaming machines which are linked to the game server. Each gaming machine may be configured as a kiosk or terminal which communicates with the game server. This configuration has a number of advantages. First, each gaming machine may present various different games as determined by the game server (e.g. Games A, B, C . . . as illustrated in FIG. **1**B). For example, the game server may include a menu of games, which menu may change over time, wherein the gaming machines may present any of the games on the menu. In one embodiment, game code corresponding to the games which are supported by the game server may be downloaded to the gaming machines from the game server, which code may be varied from time to time to permit the gaming machines to present different games. In another configuration, the gaming machines or terminals may not even require all of the game code. For example, in one configuration, the game server may execute the game code and generate corresponding game outcomes and then transmit the outcomes to the gaming machines. The gaming machines may then simply present the game outcomes to the players of those machines.

The new server-based casino gaming system thus has the advantage that new games can be implemented more quickly. As indicated above, traditional gaming machines could only present new games by taking the machines out of service and then completely reconfiguring and/or reprogramming them to present a new game or games. In the server-based model, software for a new game may be associated with the game server so that it can be executed by the game server or so that it the game code is accessible to (such as for download to) each server-based gaming machine.

In addition, because traditional gaming machines were custom-configured by their manufacturer, it was difficult for third parties to get new casino games implemented, thus limiting the number of new casino-style games which made it into the market. In particular, to even get a new game into the market, a developer of a new game generally had to have a gaming machine manufacturer develop the game for implementation on its own machines. However, even if the gaming machine manufacturer was willing to introduce the new game, given that all development was performed by the gaming machine manufacturer, the development time of the game could be many years.

An oft-stated advantage of the server-based gaming system that was frequently touted was that third parties would be able to easily create new games for implementation by the system. However, this has not generally been true. In particular, currently, each gaming machine manufacturer has developed their own unique and proprietary server-based platform/architecture which integrates the game and machine/system functions. This proprietary platform ensures, for example, that game code which is run at the gaming machine allows the gaming machine to both present game information and integrate with the various associated peripheral devices, systems and functions of the gaming machine.

This requires, however, that all game software be specifically coded for a specific manufacturer's platform. For example, an outside game content developer is required to code their game software to certain specifications so that it will run on one gaming manufacturer's platform (such as for presentation of the game at gaming machines at one casino) and then must code the same game software an entirely different way so that can be implemented on a different gaming manufacturer's platform (such as for presentation of the game at gaming machines at a different casino). This is time consuming and costly. In addition, this generally requires that the game developer turn their game code over to the system operator so that it can be integrated onto the game server, as illustrated in FIG. **1**B. At that point, the game developer loses control of their game software. This makes it difficult for the game developer to know how and when their software is being used or to make changes to the software, such as to implement new and exciting game features.

SUMMARY OF THE INVENTION

Aspects of the invention comprise a server-based gaming system, gaming machines or terminals, an architecture for a

server-based gaming system, and methods of playing and presenting server-based games.

One embodiment of the invention includes a server-based gaming system which comprises a plurality of gaming machines or terminals, at least one gaming terminal control server or manager, and one or more game servers. In a preferred embodiment of the system, game processes and system/machine processes are separated. The gaming terminals have a separate game process layer and machine or system process layer.

In one embodiment of the invention, game information such as game outcome information, is generated by the game servers and transmitted to the gaming terminals. The game process layer utilizes the game information to present game information to the player, such as by displaying game information on a video display of the terminal. Importantly, the game process layer is configured to execute or utilize game information which may be provided in a plurality of different protocols or formats, including, but not limited to, one or more different non-proprietary or proprietary formats.

Machine or system processes at the gaming terminal are segregated from the game processes. In one embodiment, machine processes which are associated with the game are triggered by instructions which are transmitted from the game server to the terminal control server. The terminal control server preferably transmits control instructions (such as after a transaction) to the system process layer of the gaming terminal. The system process layer utilizes those instructions to control machine processes, such as to control peripherals at the gaming terminal.

At the same time, machine processes which are generated at the gaming machine and which relate to the game, such as a player input, may be routed from the system process layer of the gaming terminal to the terminal control server. The terminal control server then routes information regarding such input or processes to the game server which is generating the game information (such as after a translation of the system process layer input to an input usable by the game server).

In accordance with the invention, integration of game processes and system or machine processes is accomplished via the terminal control server, rather than by having the game code be compatible with machine or control instructions. Thus, game content can be provided from different game servers which are associated with different game vendors. Each game vendor can generate and provide their own game code in accordance with one or more well known, public and/or non-proprietary protocols or configurations. Different vendors may supply game code which utilizes different protocols or formats.

In accordance with another embodiment of the invention, a gaming terminal has an embedded game server and terminal control server, such as implemented via software executed at the gaming terminal. The control server implements the functionality of an external terminal control server, while the game server communicates with the game process layer of the gaming terminal and the associated various game applications. In this embodiment, the game server and the control server may communicate with one another via an integration or translation communication protocol, such as implemented via the terminal control server within the gaming terminal. In this configuration, the gaming terminal may be operated in a stand-alone configuration and yet still utilize game applications from many vendors and game applications which are not specifically coded to a particular system protocol of the gaming machine.

Further objects, features, and advantages of the present invention over the prior art will become apparent from the detailed description of the drawings which follows, when considered with the attached figures.

DESCRIPTION OF THE DRAWINGS

FIG. **1**A illustrates stand-alone gaming machines in accordance with the prior art;

FIG. **1**B illustrates one configuration of a server-based game system in accordance with the prior art;

FIG. **2** is a block diagram of a gaming system in accordance with the present invention;

FIG. **3** diagrammatically illustrates operation of a gaming system in accordance with the present invention;

FIG. **4** diagrammatically illustrates operation of another embodiment gaming system in accordance with the invention; and

FIG. **5** is a block diagram of a system for use with the gaming system of FIG. **4**.

DETAILED DESCRIPTION OF THE INVENTION

In the following description, numerous specific details are set forth in order to provide a more thorough description of the present invention. It will be apparent, however, to one skilled in the art, that the present invention may be practiced without these specific details. In other instances, well-known features have not been described in detail so as not to obscure the invention.

In general, the invention comprises a server-based gaming system, configurations of gaming machines or gaming terminals, an architecture for a server-based gaming system, and methods of playing and presenting server based games. In one configuration, the gaming system includes a plurality of gaming machines or terminals, at least one gaming terminal control server or manager and one or more game servers. In accordance with the architecture, game processes and system/machine processes are separated. This allows the gaming terminals to execute generic game code or game code configured in accordance with varying protocols, rather than a single, proprietary protocol.

In other words, the exemplary gaming terminals described herein are configured to create a layer of abstraction between physical hardware (i.e., the system process layer) and game software (i.e., the game process layer). The abstraction layer enables the development of hardware platform agnostic, or cross-platform, game software that can be executed with little or no modification on a variety of different hardware platforms. For example, game inputs (such as button presses) and wagering activities (such as inserting currency) may be provided to the game software via the abstraction layer. Wagering payouts and other outputs may similarly be provided by the game software to the gaming terminal via the abstraction layer.

The abstraction layer may be implemented at the gaming terminal and/or the terminal control server. The abstraction layer facilitates communication between the system process layer of the gaming terminal with the game process layer of the gaming terminal by providing communication endpoints and translation between the endpoints. More particularly, the terminal control server may provide one or more application programming interfaces (APIs) with which the system process layer and the game process layer may communicate. By using such interfaces, game designers can program a game

with reference to the API but without regard to the underlying hardware or infrastructure, thus achieving increased platform independence.

One embodiment of the present invention will be described with reference to FIG. **2**. As illustrated, a gaming system **20** includes at least one gaming machine or terminal **22**. In a preferred embodiment, the gaming terminals **22** are configured to present casino-style games, namely games which are played for a monetary wager (or monetary equivalent, such as credit) and which offer the potential to lose the wager (for a losing game outcome) or win winnings (for a winning outcome). As described below, such may comprise any of a variety of games now known or later developed, including slot-type games, video poker type games, and others.

The gaming terminal **22** may have a plurality of features. For example, the gaming terminal **22** may include a housing or cabinet **24** for enclosing/supporting various components of the terminal. The housing **24** may have a variety of configurations. In one embodiment, as illustrated, the housing **24** is configured so that the machine has an "upright" configuration. The casino gaming terminal **22** might also be configured as a "slant"-type, "bar-top" or have other forms.

In one embodiment, the gaming terminal **22** is preferably configured as a "video" type terminal, the terminal including at least one display **26** for displaying game information to a player. The gaming terminal **22** may include other means for providing information to a player. For example, speakers (not shown) or other devices may be provided for generating sound associated with the game. The gaming terminal **22** may also include lights, printed instructions and other displays/display devices.

As indicated above, the games presented by the gaming terminal are preferably wagering type games wherein a player must place a bet or wager in order to play the game for the opportunity to receive winnings. Preferably, if the player is a winner of the game, the player is provided an award, such as a monetary payout (such as coins), credits representing monetary value, points or tangible prizes. As illustrated, the gaming terminal **22** may thus include a bill validator/acceptor **28** for accepting paper currency and/or a coin acceptor **30** for accepting coins. Other means of payment, such as a credit card reader, may be provided. An award of winnings in the form of coins may be paid to the player via a coin tray **32**.

Preferably, the gaming terminal **22** includes means for a player to provide input. In one embodiment, this means comprises one or more buttons. For example, one or more wager buttons **34** may be provided for a player to select the amount to bet on a particular game or make other game inputs, such as selecting cards to hold/discard or the like. Other means of input may be provided, such as a touch-screen display and other devices now known or later developed.

A game controller (not shown) is provided for controlling the various devices of the gaming machine and for generating game information. For example, the game controller may be arranged to generate video and audio data for presentation by the display and speakers of the gaming terminal **22**. The game controller may be arranged to detect a signal from the coin acceptor indicating the receipt of coins or from the bill validator regarding accepted bills and for registering credits corresponding to those inputs, for subtracting credits for wagers placed by a player, and for causing a coin delivery mechanism to deliver coins from a coin hopper to the coin tray for payment of winnings and/or return to a player of unwagered credits. Preferably, the one or more player input devices provide an output to the gaming controller for use in play of the game. For example, in response to a "bet one" input by a player, the gaming controller is preferably transmitted a signal which causes the gaming controller to initiate presentation of the game.

The gaming terminal **22** may include one or more random number generators ("RNG") for generating random game events and results (such as cards used in a card game, slot symbol positions or the like). As described below, however, in other configurations the gaming terminal **22** need not contain a RNG, such as if a remote game server includes an RNG and generates the game results, or may have an RNG along with a remote server or other device.

As indicated, in one embodiment, game information is displayed by a video display **26** to a player. The display **26** may be of a variety of types, including CRT, LCD, plasma and others. The gaming terminal **22** may also include more than one video display.

The gaming terminal **22** may have other configurations, including other features. For example, the gaming terminal **22** may include a player tracking device, such as a card reader **36** and associated keypad **38**. Such player tracking devices are well known and may permit the game operator to track play of players of the gaming machine. The tracked play may be utilized to offer player bonuses or awards.

In one embodiment, the gaming terminal **22** may be configured to dispense media, such as printed paper tickets, magnetic stripe or RFID tagged-media which have associated value. For example, winnings or unused credits may be returned to the player via a printed ticket or card having value or associated value. In one embodiment, the gaming terminal **22** might also be configured to accept such media for providing credit for game play.

As indicated above, the gaming terminal **22** is preferably configured to present one or more casino-style games. Such games may comprise a variety of games which are currently known or which may be developed in the future. Such games include, but are not limited to, lottery, keno, bingo, poker, slot and other games.

In a preferred embodiment, as described in detail below, the gaming terminal **22** is configured to present one or more games based upon game information which is provided by at least one external device, such as an external game server. Depending upon the configuration of the system, the configuration of the gaming terminal **22** may vary. For example, if the external game server is configured to provide the gaming terminal **22** with executable game code or software, then the gaming terminal **22** preferably includes one or more data storage or memory elements for storing the code or software, a controller for executing the code and at least one random number generator for use in generating random game results. On the other hand, if the external game server were configured to generate game results and transmit those results to the gaming terminal **22** for presentation, the gaming terminal **22** might have another configuration (such as, for example, not including a random number generator).

It will be appreciated that the system **20** may include a plurality of gaming terminals **22**. For example, multiple gaming terminals **22** might be located on a casino floor. Of course, the gaming terminals **22** might be used in other environments, such as an airport, a bar or tavern or other locations.

As used herein, the term "gaming terminal" may also include other types of gaming machines or devices other than that described above. Such might comprise, for example, gaming tables. Such tables may be manually operated or be fully or partially automated. A variety of

games may be offered at such tables. Of course, the gaming machines may include other types of devices as well, including hand-held, portable or other types of devices such as tablets, laptops and other electronic devices now known or later developed.

In one embodiment, the system **20** includes at least one gaming terminal control, such as a gaming terminal control server **40** (which may be referred to herein as a server-based game (SBG) or video lottery terminal (VLT) server). Additional details regarding the terminal control server **40**, including its functionality, are provided herein. However, in one embodiment, the terminal control server **40** comprises a computing device which comprises at least one processor for receiving information, for processing information or executing code or software, and for generating an output, such as control instructions.

In one embodiment, the terminal control server **40** includes means for storing information or instructions. Such means may comprise one or more memory devices. Such might comprise RAM, ROM (including EPROM, EEPROM, PROM) or other devices now known or later developed. The terminal control server **40** might include one or more other memory devices, such as for storing game state information or the like, as detailed below. In one embodiment, the terminal control server **40** might comprise or be in communication with one or more mass data storage devices, such as one or more hard drives or the like.

The terminal control server **40** preferably also includes at least one communication interface, by which it may receive and transmit information. The communication interface(s) may permit communications in accordance with various protocols (TCP/IP, 802.11xx, etc.) and in various forms and over various types of links (wired and/or wireless).

The terminal control server **40** might actually comprise a system or network of a plurality of elements or devices. For example, the terminal control server **40** might comprise a network or system which includes multiple servers and related devices such as data storage devices, user interface features and the like. Such might comprise, for example, a user station which includes a video display and one or input devices (such as a keyboard, mouse or the like). Such a user station may permit an operator to interface with and manage or control the terminal control server **40**, such as to change operator settings and the like. The terminal control server **40** might also comprise a router and one or more separate computing devices. The functions of the various computing devices might be segregated.

In a preferred embodiment, the one or more gaming terminals **22** are in communication with the at least one terminal control server **40** at one or more times. For example, the gaming terminals **22** and the at least one terminal control server **40** may be linked via one or more communication links **42**. These communication links **42** may be wired and/or wireless and may be dedicated, shared, part of a LAN, WAN or other network, including the Internet.

In one embodiment, the system **20** also includes one or more game servers **44**. As with the terminal control server **40**, the game servers **44** preferably comprise computing devices which comprise at least one processor for receiving information, processing information or executing code or software, and generating an output, such as control instructions.

In one embodiment, each game server **44** includes means for storing information or instructions. Such means may comprise one or more memory devices. Such might comprise RAM, ROM (including EPROM, EEPROM, PROM) or other devices now known or later developed. In one embodiment, the game server **44** might comprise or be in communication with one or more mass data storage devices, such as one or more hard drives or the like.

The game server **44** preferably also includes at least one communication interface, by which it may receive and transmit information. The communication interface(s) may permit communications in accordance with various protocols (TCP/IP, 802.11xx, etc.) and in various forms and over various types of links (wired and/or wireless).

Each game server **44** might actually comprise a system or network of a plurality of elements or devices. For example, the game server **44** might comprise a network or system which includes multiple servers and related devices such as data storage devices, user interface features and the like. Such might comprise, for example, a user station which includes a video display and one or input devices (such as a keyboard, mouse or the like). Such a user station may permit an operator to interface with and manage or control the game server **44**, such as to change operator settings and the like. The game server **44** might also comprise a router and one or more separate computing devices. The functions of the various computing devices might be segregated.

Although additional details of the game servers **44** are described herein, in general, the game servers **44** are configured to provide the gaming terminals **22** with executable game code or software, game results and/or other game information for use by the gaming terminals **22** in presenting one or more games to one or more players.

In this regard, the one or more gaming terminals **22** are in communication with the one or more game servers **44** at one or more times. For example, the gaming terminals **22** and the one or more game servers **44** may be linked via one or more communication links **46**. These communication links **46** may be wired and/or wireless and may be dedicated, shared, part of a network **48**, such as a LAN, WAN or other network, including the Internet. As disclosed herein, in one embodiment of the invention, a vendor game server **44** can be intermediate the gaming terminal **22** and terminal control server **40**, or such might be integrated or the like as described below. It is contemplated that any network topology or infrastructure may be used to communicatively couple together the gaming terminals **22**, the game servers **44**, and/or the terminal control server **40**.

As described herein, a particular advantage of the invention is that it permits different game vendors to present games on gaming terminals **22** which belong to a third party. For example, relative to the system **20** illustrated in FIG. **2**, a plurality of gaming terminals **22** may be located on the floor of a casino. The gaming terminals **22** may be owned or leased by the casino. Likewise, those gaming terminals **22** may be linked to one or more terminal control servers **40** which are located at the casino, such as in a back room.

In one configuration, the gaming terminals **22** and at least one terminal control server **40** may be supplied by a particular gaming manufacturer and thus have particular operating characteristics. In accordance with the invention, one or more of the game servers **44** may be provided by the gaming manufacturer or casino or be operated by the gaming manufacturer or casino. Most importantly, however, one or more of the game servers **44** may be operated by one or more third party vendors (other than the casino or manufacturer/operator of the gaming terminals **22** and terminal control server **40**). For example, as illustrated in FIG. **2**, a Vendor A may operate a first game server, a Vendor B may operate a second game server and a Vendor C may operate a third game server. Each of these vendors may develop and supply

their own game code to the gaming terminals **22**, whereby each vendor's games may be presented on those terminals.

Additional aspects of the system will be described with reference to FIG. **3**. In accordance with a preferred embodiment of the invention, the system **20** is configured so that the game processes and system or machine processes associated with a gaming terminal **22** are segregated. In general, this permits the game processes to be independent from the system processes. As described herein, this has numerous advantages.

As illustrated in FIG. **3**, a gaming terminal **22** has a game process layer **100**. The game process layer **100** may be implemented as hardware or software, such as by software which is executed by the gaming controller of the gaming terminal **22**. In one embodiment, the game process layer **100** comprises a platform which permits the gaming terminal **22** to execute game code in a variety of formats, configurations or protocols, such as well-known generic formats or configurations such as Adobe FLASH, HTML, Java, Javascript, and others. Preferably, the game process layer **100** is configured to execute or implement game code for presenting a game, including generating game information for presentation to the player of the gaming terminal. Such information may comprise, for example, image information for display by the video display of the gaming terminal.

The game process layer **100** may be implemented as one or more virtual machines, such as the Java virtual machine, or any other run-time environment. The game code may be provided as executable code, bytecode, or code to be interpreted, compiled, or executed by the game process layer **100**. The game process layer **100** may be programmed to use game code in two or more formats.

The gaming terminal **22** also has a system process layer **102**. The system process layer **102** may be implemented as hardware or software, such as by software which is executed by the gaming controller of the gaming terminal **22**. In one embodiment, the system process layer **102** comprises a platform for controlling the gaming terminal **22** and executing game-supporting functionality. As described herein, such may comprise the control of the various peripheral devices of the gaming terminal **22** (such as the buttons **34**, card reader **36**, bill validator **28** such as illustrated in FIG. **2**), executing accounting, player tracking and other functions, such as tracking monetary credits at the gaming terminal **22**, executing "cash-out" and other functions which are associated with the operation of the gaming terminal **22**.

As illustrated, game code or game information may be provided to the gaming terminal **22** by a plurality of vendors. For example, a Vendor 1 may utilize a game server **44** for providing game code or game information corresponding to one or more Vendor 1 games. Likewise, other vendors may utilize one or more game servers **44** for providing game code or game information corresponding to their games.

In some embodiments, one or more game assets (such as graphics, videos), game updates, and/or game components may be made available separately from the game code. For example, if the game code is implemented in Flash, the game code may use references such as Uniform Resource Locators (URLs) to refer to graphics for use in the game. The graphics may be stored and retrievable at the game server **44**, e.g., via HTTP, etc., or at a different server, such as a web server (not shown).

In a preferred embodiment, the game information includes information regarding the outcomes of one or more games. In particular, game outcomes are preferably generated by the game servers **44** and are transmitted to the gaming terminals **22**. The gaming terminal **22** uses the outcome information to present the one or more games. As one example, a vendor may transmit base game information regarding a game from their game server **44** to a gaming terminal **22**. Such information might comprise the images of cards, slot symbols or other indicia, entire page displays, graphical user interface information or the like. The gaming terminal **22** may utilize such game information, along with game outcome information, to display or present a game to a player. For example, a game server **44** may transmit image files corresponding to a game interface and various cards. The game server **44** may also transmit a game outcome, such as data which represents the game outcome of a "Full House" win comprising the cards "A♦, A♥, K♣, K♥, K♠" to the gaming terminal **22**. The game process layer **100** of the gaming terminal **22** may utilize that game outcome information and the card image information to display those cards on the display of the game terminal to the player.

In a preferred embodiment of the invention, each vendor's game code corresponding to one or more games may be downloaded to the gaming terminal **22**, such as via the above-described communication link **46** (shown in FIG. **2**). That game code is preferably associated with the game process layer **100** of the gaming terminal **22**. As illustrated in FIG. **3**, a gaming terminal **22** may thus have the game code from multiple different vendors associated with, and executing synchronously or asynchronously within, its game process layer **100**.

Most importantly, the vendor's game code does not have to be coded in accordance with a proprietary gaming machine standard or a standard that makes the game code compatible with the system protocol or functionality of the gaming terminal **22**. Instead, the vendor's game code may merely be coded in accordance with one or more generic and/or widely recognized standards or formats. Further, the gaming terminal **22** may accept game code from different vendors, which sets of game code are not coded in accordance with the same standard or format. For example, Vendor A's game code may operate using Adobe FLASH while Vendor B's game code may operate using HTML standards, such as HTML **5**.

In some embodiments of the invention, the game process layer **100** and the system process layer **102** are not linked at the gaming terminal **22**. Instead, integration of the game and system functionality occurs at or via the terminal control server **40**.

As illustrated in FIG. **3**, the system process layer **102** of the gaming terminal **22** communicates with the terminal control server **40**. In a preferred embodiment, the system process layer **102** may implement or employ a proprietary protocol, such as a gaming terminal system control and communication protocol. This protocol is preferably compatible with the terminal control server **40**.

As also illustrated in FIG. **3**, the game process layer **100** of the gaming terminal **22** also communicates with the terminal control server **40**. As illustrated, such communications are preferably via the vendor's game server **44**. In one embodiment, the communications are according to an "integration" protocol or the communications are "translated" at the terminal control server **40**.

For example, in one embodiment, Vendor 1 may code their game code in accordance with an HTML standard. When a Vendor 1's game is presented at a gaming terminal **22**, the gaming terminal **22** may communicate game activities to Vendor 1's game server **44**. Vendor 1's game server may implement a translation engine which translates the game activity information into a standardized integration protocol. That translated information may then be transmit-

ted to the terminal control server **40** for use by the terminal control server **40** in controlling the gaming terminal via the system process layer **102** of the gaming terminal **22**.

Of course, each vendor may employ a different translation engine or more than one translation engine which permits their particular game code to integrate with the terminal control server **40**.

In another embodiment, direct communications could occur between the game process layer **100** of the gaming terminal **22** and the terminal control server **40**. In such a configuration, the terminal control server **40** could employ or implement one or more translation engines. For example, activity information relating to a game that is implemented via HTML might be translated with a first engine or translator at the terminal control server **40**, while that which is implemented using Adobe FLASH might be translated with a second engine or translator at the terminal control server **40**.

Thus, regardless of the format that the game code is in, communication between the game process layer **100** and the system layer process **102** becomes possible via translation and common communication protocols. The various games communicate with game servers **44** using protocols selected by the vendors. At the game server **44**, information from the games in the game process layer **100** is communicated in a pre-determined protocol to the terminal control server **40**. Accordingly, the game server **44** may provide translation from the vendor's protocol (used to communicate between the game and the game server) to the pre-determined protocol (used to communicate between the game server **44** and the terminal control server **40**). The terminal control server **40** communicates with the system layer process **102** using a protocol that may be unique to the gaming terminal **22** and/or the system process layer **102**. In other words, the gaming terminals **22** may be produced by different manufacturers or have different hardware configurations and may use a variety of communication protocols. The terminal control server **40** is configured to communicate with each of these gaming terminals **44** using an appropriate protocol, which may be determined using a database of gaming terminals as described herein. Thus, communication from the game process layer **100** to the system process layer **102** may be translated zero, one, two, or more times as data passes between the various components and such components provide translation services between disparate communication protocols.

Communication from the system process layer **102** to the game process layer **100** happens similarly as the process is reversed from game process layer **100** to the terminal control server **40** to the game server **44** to the game process layer **100**. Translation between protocols may happen as required.

A "protocol" as used herein may refer to any combination of standards, languages, etc. used at any level of a communication stack or communication model, such as the Open Systems Interconnection (OSI) model. More particularly, a protocol may include physical, data link, network, transport, session, presentation, and/or application layer standards. Translation from one protocol to another may include translation of one or more of such layers. For example, the game process layer **100** may communicate with the game server **44** using SOAP/HTTP via TCP/IP over 802.11. After translation, the game server **44** may communicate with the terminal control server **40** using remote procedure calls via TCP/IP over 802.3 (i.e., Ethernet). It should be appreciated that communications using compatible layers may still require translation. For example, translation may be required from one SOAP-based protocol to another, incompatible, SOAP-based protocol that uses different XML syntax.

In some embodiments, as indicated above, the game and system activities associated with the gaming terminal **22** are linked at the terminal control server **40**. A variety of examples will illustrate this aspect of the invention.

As one example, Game A belonging to Vendor 1 may be implemented by the game process layer **100** of the gaming terminal **22**. As a result of a game win of that game, the player may be awarded 500 monetary credits. As will be appreciated, the game code which is executed in the game process layer **100** may present the game win and winning award. The winning outcome and award may be determined by Vendor 1's game server **44**. Vendor 1's game server **44** may translate the 500 credit win and transmit that information to the terminal control server **40** (or such information might be transmitted to the terminal control server and then be translated). The terminal control server **40** may utilize this information to transmit a control instruction (using a gaming terminal communication protocol) to the system process layer **102** of the gaming terminal **22**, such as to cause the gaming terminal **22** to indicate a new credit balance on the video display of an additional 500 monetary credits.

As another example, a player may wish to play Game B belonging to Vendor 2. During the game the player may be required to provide input regarding a selection of one or more playing cards. The player may depress a button of the gaming terminal **22**. This input may be detected by the system process layer **102** of the gaming terminal **22** and then be transmitted to the terminal control server **40**. The terminal control server **40** may either translate the input or transmit that input to Vendor 2's game server **44**, at which point the input is translated to the appropriate game protocol and then transmitted to the game process layer **100** of the gaming terminal **22**. The game may thus accept the player's input and, in response to that input present the next portion of the game.

It will be appreciated that a wide variety of features and functions may be implemented in the above-described fashion and that the terminal control serer **40** may include various engines or managers for integrating the game and system functions. For example, as illustrated in FIG. **3**, the terminal control server **40** may include a wallet/credit management engine **104**, a peripheral management engine **106** and a terminals manager **108**. The wallet/credit management engine **104** may, for example, translate and manage monetary actions associated with the gaming terminal **22**, including acceptance of currency, coins, monetary value tickets, coded financial cards, or other financial instruments or devices, the wagering of credits by a player and the award of winnings as a result of game play or otherwise. The peripheral management engine **106** may manage or control the various peripheral devices of each gaming terminal **22**, including the displays, buttons, touch-screens, bill validators, card readers, scanners, currency issuing devices, keypads and other devices. Such engines may comprise combinations of hardware and/or software, such as a main processor which executes software modules corresponding to each of said engines. The terminals manager **108** may be configured to coordinate communication between gaming terminals **22** and the terminal control server **40**. The terminals manager **108** may manage the associations between gaming terminals **22** and the terminal control server **40** by adding and removing gaming terminals **22** from a database of gaming terminals. The database of gaming terminals (not shown) may store network addresses, hardware configurations, physical locations, etc. of each gaming terminal **22**

associated with the terminal control server **40**. Accordingly, the terminal control server **40** may adapt its communications with each gaming terminal **22** based on data in the database of gaming terminals.

It will be appreciated that the system **20** and the various elements thereof may have various configurations in accordance with the invention. For example, while the system **20** illustrated in FIGS. **2** and **3** have third party vendor servers **44**, it is possible for the casino or gaming terminal or system manufacturer to also operate one or more game servers for providing game content. For example, a casino might operate their own game server to enable the casino to directly associate their own games with their gaming terminals **22** (such as in addition to games which are offered by third party vendors).

The system **20** might also include a variety of additional features or elements or connect to other devices or systems. For example, a casino may operate a player tracking system which utilizes one or more player tracking servers to track player game play, as is well known in the art. The terminal control server **40** may communicate with a player tracking server or system, such as to report aspects of player game play at a gaming terminal **22**. As another example, a casino may operate an accounting system which includes one or more accounting servers to track monetary amounts which are provided to gaming terminals **22**, credits which are wagered, credits which are won and/or the movement of credits or monies between gaming terminals **22**. Once again, the terminal control server **40** may communicate with such a server or system, such as to report a player's wagering of credits at a gaming terminal **22** or the award of winnings to a player as a result of game play.

As indicated above, the invention has application to gaming terminals **22** other than casino-style gaming machines. For example, the system of the invention may be utilized to present one or more games to a player who is utilizing a mobile or portable electronic device. Such devices might include, but are not limited to, a laptop, PDA or tablet. In one configuration, a player may download game code which enables the mobile or portable electronic device to present games in similar fashion to that described above (in such a configuration, the mobile or portable electronic device may have one or more wireless communication links to other devices, such as to a game server and a terminal control server.

In one embodiment, a casino, hotel or other entity might provide such devices to players, such as by checking them out at a front desk or the like. Further, such entities might cause other information to be presented to players. For example, a hotel might operate its own game server **44**. A player using a hotel tablet might access games from multiple third party vendors. At the same time, the hotel may utilize their game server **44** to present music, hotel information or other media to the player.

As indicated above, the gaming terminal **22** may be linked to a player tracking server or system, such as through the terminal control server **40**. Of course, the same may be true if the gaming terminal **22** comprises such a handheld or mobile electronic device. For example, such a handheld or mobile electronic device could link to a player tracking system or server via a communication link with the terminal control server **40** or via another communication link and/or interface. In such a configuration, the handheld or mobile communication device could be multi-functional to serve as both a player tracking device and present one or more games via the remote game servers **44** (for example, the handheld or mobile communication device may be linked to or identify a specific player, whereby any play of games by the player using the device thus identifies the player; further, player rewards, promotions and the like may be directed to the player by directing such to the handheld device which is assigned to that player).

In one embodiment, the system and method of the invention may be utilized to permit a player to play more than one game at a time (i.e. two or more games simultaneously or overlapping in time). Further, those games might be provided by two or more different game vendors. For example, a single player at a gaming terminal **22** might simultaneously play a first game associated with a first game vendor and a second game associated with a second game vendor (wherein, as described above, game information regarding the two games may be provided by two separate game servers **44** to the single gaming terminal **22**).

Regardless of the configurations of the gaming terminals **22** (i.e. whether they are casino-style gaming machines, mobile electronic devices, kiosks or the like), management of credit or monetary value transactions may be centralized. As indicated above, the monetary value transaction management (tracking of monies input to the gaming terminals **22**, credits wagered and won by players at the gaming terminals **22**, monetary value or credits which are associated with player accounts when such accounts exist, etc.) may all be centralized at the terminal control server **40**. As indicated above, the terminal control server **40** may directly manage monetary value transactions, such as via a wallet/credit management engine **104**. In other embodiment, all monetary value transaction information may be routed through the terminal control server **40** to one or more external management devices, such as an existing casino accounting system or a third party accounting system or the like.

Another embodiment of the invention is illustrated in FIG. **4**. In this embodiment, the gaming terminal (such as a video lottery terminal or a server based game terminal) **222** again has a game process layer **200** and a systems process layer **202**. In this embodiment, however, the game process layer **200** and the systems process layer **202** are linked at the gaming terminal **222**.

In this embodiment, a game server **250** and a video lottery terminal (VLT) or server based game (SBG) control module **252** are located at the gaming terminal **222**, such as by being embedded at or implemented at the gaming terminal **222**. The game server **250** and VLT/SBG control module **252** preferably comprise one or more software applications (e.g. executable machine-readable code) at the gaming terminal **222**. For example, the game server **250** and VLT/SBG module **252** may each comprise one or more software applications which are stored at a memory device of the gaming terminal **222** and which are executable by one or more processors of the gaming terminal **222**.

The game server **250** may comprise or include a game logic manager **254**. The game logic manager **254** may serve as an interface between different game processes or applications which are being executed in the game processes layer **200** of the gaming terminal **222**, and the VLT/SBG module **252**. For example, the game logic manager **254** may be configured to determine which of one or more different integration protocols apply to different game processes. For example, the game logic manager **254** may determine that a first integration communication protocol must be applied to a game process/application of Vendor 1, while a second, different integration communication protocol must be applied to a game process/application of Vendor 2.

In one embodiment of the invention, the game logic manager **254** communicates with the game process layer **200**

of the gaming terminal **222** via a game/client communication protocol. In particular, the game logic manager **254** may be implemented via a specific protocol for the gaming terminal **222** (such as a specific gaming terminal manufacturer's proprietary protocol), while game applications may be implemented via other protocols as described above (such as one or more generic or common protocols). The game/client communication protocol may be configured to permit communications between the game logic manager **254** and the game applications when such are using different communication protocols, for example.

The VLT/SBG control module **252** may be configured to perform one or more of the functions of the terminal control server **40** which is described above and illustrated in FIG. **3**. For example, the VLT/SBG module **252** may include a wallet/credit management integration module **204** (and/or other modules) in similar fashion to the wallet/credit management integration module **104** of the terminal control server **40** described above.

In similar manner to that described above relative to FIG. **3**, the VLT/SBG module **252** may be configured to communicate with the systems process layer **202** of the gaming terminal **222** via a game terminal communication protocol. In this manner, the VLT/SBG module **252** may interface with the various machine or system features of the gaming terminal **222**, such as the peripheral devices.

Most importantly, the gaming terminal **222** is configured to implement a game server integration communication protocol. This protocol is configured to permit communications between the game server **250** and the VLT/SBG module **252** in like manner to the configuration described above and illustrated in FIG. **3**, except that the integration protocol is internal to the gaming terminal **222**.

Once again, the game server integration communication protocol is preferably configured to "translate" information for exchange between the game side and the system side of the gaming terminal **222**. The game server integration communication protocol may be implemented via the VLT/SBG server **252** and/or the game server **250**.

In this configuration of the invention the gaming terminal **222** may be stand-alone in that it does not need to be connected to one or more separate vendor game servers or a VLT/SBG server or terminal control server to operate. In particular, game applications from one or more vendors may be loaded onto the gaming terminal **222** for execution at the game processor layer **200** of the gaming terminal **222**. One or more game server integration communication protocols may also be loaded onto the gaming terminal **222** which permit transaction of the communications between the different game applications and the system layers or applications of the gaming terminal **222**.

Advantageously, this configuration again permits the gaming terminal **222** to utilize one or more proprietary manufacturer system layer protocols, but still permits the gaming terminal **222** to implement game code from a variety of different vendors, where the game code is not specifically coded to the protocol of the gaming terminal. As described above, for example, the game applications may be coded based upon one or more standard or generic protocols.

In other embodiments, the gaming terminal **222** could still be connected to one or more external devices or systems. For example, the gaming terminal **222** could still be configured to receive game applications from one or more vendor game servers **244**, such as via a network. In this manner, the game applications do not need to be pre-installed on the gaming terminal **222** or manually loaded onto the gaming terminal **222**, but might be downloaded or updated at various times automatically via a communication link. It will be appreciated that the vendor server **244** could also be associated with or be part of the game server **250** or otherwise be part of the gaming terminal **222**.

Likewise, the gaming terminal **222** might be connected to one or more casino systems **260**. Such systems **260** may comprise player tracking systems, player loyalty systems, user account systems, accounting systems and the like, including various components thereof such as servers. For example, the VLT/SBG module **252** might communicate game activity to a casino accounting server for use by the server in maintaining records regarding gaming terminal **222** wagers and payouts, among other information.

FIG. **5** illustrates a gaming system **500** for use with the gaming terminal **222**. Alternatively, the gaming system **500** may be used with gaming terminal **22**. In other words, in the gaming system **500**, the terminal control server may be separate from the gaming terminal or embedded in the gaming terminal. The gaming system **500** may be used as an in-room gaming system that enables hotel guests to participate in gaming and/or wagering events from a hotel room. Alternatively, or additionally, the gaming system **500** may be used in any location or combination of locations that may be remote from a casino, including an adjoining hotel or more distant property.

The gaming system **500** includes the gaming terminal **222**. While the gaming terminal **222** could be a dedicated or special device which includes a game server, control module, display and other related components, the gaming terminal **222** might be configured as a controller-type device which can be connected to one or more common or standard devices. For example, the gaming terminal **222** might comprise a controller which is configured to connect to a standard electronic video display **505** (e.g. the gaming terminal **222** may essentially comprise a display **505** which is coupled to a game box). When employed in a hotel room, a home or the like, the display **505** may be a television, computer monitor or the like. In some embodiments, the display **505** may be a dedicated display that is usable only with the gaming terminal **222**. The display **505** is capable of receiving signals that are representative of game information and game assets and graphics from the gaming terminal **222** and displaying the information, assets, and/or graphics to a user.

In some embodiments, the gaming terminal **222** and the display **505** may be used in a "display-only" mode that enables the user to view game status, progress, and/or results. For example, the user may have initiated a gaming session at a gaming terminal in the casino, and then returned to the user's hotel room to view the conclusion of the game, including any results and wagering outcomes. In such embodiments, the gaming terminal **222** may be associated with a hotel room, which in turn is associated with a hotel guest and the guest's games (e.g., via a player profile and/or a player's club identifier).

However, in exemplary embodiments, the user will interact with the gaming terminal **222** to play games or otherwise manipulate the contents of the display **505**. In one embodiment, the user may use one or more input devices to communicate with the gaming terminal **222**. Such input devices may be integral to the gaming terminal **222** (such as a dedicated keypad or the like), may be devices which can be selectively coupled to the gaming terminal **222** (such as a specialized button pad) or may be a general purpose device. For example, in one preferred embodiment, a mobile electronic device **510** is configured to communicate with the gaming terminal **222**. In some embodiments, the mobile

device **510** is a smart phone or tablet programmed to communicate with the gaming terminal **222**. In some embodiments, the mobile device **510** is a dedicated gaming controller configured to interact with the gaming system **500**. The mobile device **510** may include a software component, such as a mobile software application that can be downloaded to the player's mobile device, that facilitates the interaction with the gaming terminal **222**. Alternatively, or additionally, the mobile device **510** may use a web browser or similar component to interact with the gaming terminal **222**.

The mobile device **510** may be networked or otherwise communicatively and/or logically coupled with the gaming terminal **222** using a communication link **515** that may be wired or wireless such as Bluetooth, WiFi, the Internet, etc. The coupling and/or authentication process may include entering a pre-determined code using the mobile device **510** and/or reading, using the mobile device **510**, a QR code displayed on the display **505**. The communication link **515** is generally two-way, but may be one-way (e.g., such as with a television remote control). As a two-way communication channel, the gaming terminal **222** may receive inputs from the mobile device **510** (e.g., from a keyboard or touch screen) and send outputs to the mobile device for display to the user (e.g., to a display or touch screen). Outputs may also be sent to the display **505**. As a one-way communication link, the communication link **515** may accept inputs from the mobile device **510** and the gaming terminal **222** may provide output using the display **505**.

In the exemplary embodiment, the gaming terminal **222** is communicatively coupled with a network **520**, which may be similar to the network shown in FIG. **4**. The network **520** may be coupled to a casino system **525**, which may be similar to casino server(s) and system **260**, and one or more vendor game servers **530**, which may be similar to vendor game server **244**. As described herein, the casino system **525** may include a player loyalty or user account system. Such a system may enable a player to use credentials to log in and view or modify player profile information and previous or current game information.

In the exemplary embodiment, the gaming terminal **222** includes the game server **250** (not shown). In some embodiments, the gaming terminal **222** is communicatively coupled with the game server, such as game server **44**, (not shown) via the network **520**. The mobile device **510** is in communication with the game server **250** or **44**, either directly (e.g., via the network **520**) or indirectly (e.g., via the gaming terminal **222**).

The mobile device **510** is programmed to send inputs to the game server **250** in order to manipulate any games being played on the game server **250**. More particularly, the game server **250** may provide input options to the mobile device **510** for selection by the user. For example, the game server **250** may cause buttons to appear on the touch screen of the mobile device **510**. The buttons may be particular to the game being played on the game server **250**. During a video poker game, for example, the buttons may be HOLD, DRAW, MAX BET, etc. buttons, while relative to a slot-type game, the buttons might be SPIN, MAX BET, etc.

As described herein, the gaming terminal **222** shown in FIG. **5** includes the game process layer **200** and the system process layer **202**. Accordingly, inputs are received from the mobile device **510** at the system process layer **202** and are communicated to the game process layer **200**, being translated as required. Communication from the game process layer **200** to the mobile device **510** may happen directly or indirectly (i.e., through the system process layer **202**). Communication between the game process layer **200** and the system process layer **202** occurs as described herein. More specifically, if the terminal control server **40** is remote from the gaming terminal **222**, such communication passes through the remote terminal control server **40**. If the terminal control server **40** is embedded in the gaming terminal **222** as the VLT/SBG module **252**, then such communication passes through the VLT/SBG module **252**. Regardless of where the communication passes or where translation happens, a division between the game process layer **200** and the system process layer **202** may be maintained such that the benefits of platform independence are achieved.

Additional games, game content, or game communications may be made available or facilitated by the vendor game server **530** via the network **520**. For example, the gaming terminal **222** may download new games, or updates to currently stored games, from the vendor game server **222**.

While only one mobile device **510** is shown, it is contemplated that a plurality of mobile devices may be used with the gaming terminal **222**. Using more than one mobile device **510**, two or more players may participate in the same game on the gaming terminal **222**. Alternatively, or additionally, two or more players may participate in separate games that may be displayed using a split-screen on the display **505**. Each mobile device **510** may be associated (e.g., via separate log-ins) with a different player profile or user account with the casino system **525**. Accordingly, players may place wagers from their individual stored credits, and may receive winnings to their user account.

During operation, the user may play a game using the gaming terminal **222** and the mobile device **510**. A gaming session may be commenced or continued using the gaming terminal **222**. The user may supply identifying information using the mobile device **510** to the casino system **525** via the gaming terminal **222**. The identifying information may be a username and password or other credentials that enable the casino system **525** to authenticate the user and associate the user with a user account. If no such user account exists, the user may play for free, without wagering money. In some embodiments, the user may be identified and/or authenticated based on the mobile device **510**. For example, a unique identifier associated with the mobile device **510** may be associated with a user account. As is described herein, the user account may be associated with a plurality of credits that the user can use during wagering games. Once the user is logged in to the gaming terminal **222**, the user may selectively resume previous games (e.g., games played previously on the same game terminal or elsewhere, such as in the casino) or commence a new game. The user may select from one or more games made available by one or more vendor game servers **530**.

The user can see the game in progress on the display **505** and participate in the game using the mobile device **510**. Buttons and/or other game content may be displayed on the mobile device **510**. Such buttons and/or other game content may be downloaded to the mobile device **510** from the terminal server **222** and/or a content server (not shown), such as a web server, connected to the network **520**. Alternatively, or additionally, game content may be included in the mobile app that is installed on the mobile device **510**. The user may make wagers using the mobile device **510** and the casino system **525** may track and record wagers and outcomes. Thus, the user may accumulate credits or other winnings using the gaming terminal **222**. The user may convert the credits to cash, or "cash-out", at the casino or elsewhere, including direct transfer to a bank account, third party payment systems, and other banking or financial

systems. The user may use the mobile device **510** to add credits to the user account using any of a variety of payment methods now known or to be developed, including, but not limited to, prepaid cards, a web site, credit cards, embedded device chips like NFC, mobile point-of-sale, etc.

For example, the user may participate in interactive games such as video poker using the gaming terminal **222** and the mobile device **510**. In another example, the user may wager on non-interactive games such as keno and lotteries using the gaming terminal **222** and the mobile device **510**.

A particular advantage of this aspect of the invention is that the invention can be implemented by associating a gaming terminal **222** with an existing display device **505**, such as a television in a room, whereby the in-room television essentially becomes a gaming device. This may be accomplished merely by associating a "box"-type gaming controller with the television.

Another advantage of this configuration of the invention is that a user's mobile device can be used as the input device to the gaming terminal **222**. This avoids the need for the gaming terminal **222** to include one or more input devices (lessening the cost and complexity of the gaming terminal **222**). In addition, the user's mobile device can be custom-configured, such as to provide graphical interfaces which are unique to particular games (rather than forcing the player to use one or more dedicated input devices which may not be well-suited to providing inputs for different types of games).

The system of the present invention has numerous advantages over the prior art. First and foremost, the gaming system and gaming terminals do not require vendors to create and supply game code in accordance with a proprietary and unique platform or turn over their game code to the operator of the system so that their code can be modified for use on the system. Instead, game vendors can generate and provide game code in accordance with one or more well known, public and/or non-proprietary protocols or configurations. In fact, different vendors may supply game code which utilizes different protocols. This is highly advantageous for a number of reasons. First, a game vendor can generate game code using well known protocols rather than unique and proprietary protocols. This results in substantial time savings because the game vendor need not learn a new and proprietary protocol or be required to create their game code in multiple variations using different protocols for different applications. Second, the vendor's game code can be used in conjunction with different gaming terminals and systems without having to be generated in multiple formats. For example, the vendor might create game code using Adobe FLASH for an online implementation and then provide that same game code for use on the gaming terminals of the present invention (without having to re-write the original game code to conform to some unique and different protocol just so the game can be offered on a gaming machine).

In addition, in accordance with one embodiment of the invention, the game vendor does not lose control of their game code. As a first aspect, the vendor's game code (or just game information associated therewith) can be directly provided by the vendor to the gaming terminals. As a second aspect, in a configuration where the gaming terminals report game activity through the vendor to the terminal control server, the vendor is able to store, view and/or audit game activity associated with their game code. For example, the vendor can then track how many times their games are played at each gaming terminal, the size of the player wagers, amounts won or lost, etc.

It will be understood that the above described arrangements of apparatus and the method there from are merely illustrative of applications of the principles of this invention and many other embodiments and modifications may be made without departing from the spirit and scope of the invention as defined in the claims.

What is claimed is:

1. A gaming terminal comprising:

a housing;

at least one display device configured to display wagering game information;

one or more peripheral components;

at least one controller comprising a game process layer configured to execute one of a plurality of different game applications configured based upon different game communication protocols and a separate system process layer configured to control said terminal, including said peripheral components, said game processes layer and system process layer utilizing a first operating protocol; and

machine readable code fixed in a tangible medium and executable by said at least one controller configured to implement one or more integration communication protocols which permit communications between said game process layer and said system process layer, wherein said integration communication protocols are different for game applications which are configured based upon different game communication protocols, and which integration communication protocols allow game applications which utilize one or more second protocols which are not said first operating protocol to be implemented on said gaming terminal.

2. The gaming terminal in accordance with claim **1** further comprising machine readable code fixed in a tangible medium and executable by said at least one controller configured to execute a game server comprising an interface to said game process layer and a control server comprising an interface with said system process layer, wherein said one or more integration communication protocols are utilized between said game server and said control server.

3. The gaming terminal in accordance with claim **2** wherein said game server communicates with said game process layer via a game communication protocol.

4. The gaming terminal in accordance with claim **2** wherein said control server communicates with said system layer process via system communication protocol.

5. The gaming terminal in accordance with claim **2** wherein said integration communication protocol translates information between a game communication protocol utilized by one of said game applications and a system communication protocol utilized by said control server.

6. The gaming terminal in accordance with claim **1**, wherein said gaming terminal is configured to communicate with a mobile device.

7. The gaming terminal in accordance with claim **6**, wherein said gaming terminal is configured to receive game inputs from said mobile device.

8. The gaming terminal in accordance with claim **6**, wherein said gaming terminal is configured to transmit game outputs to said mobile device.

9. The gaming terminal in accordance with claim **1** wherein said game applications are provided by different vendors.

10. The gaming terminal in accordance with claim **9** wherein said game applications are downloaded from different servers associated with said different vendors.

11. The gaming terminal in accordance with claim 2 further comprising at least one communication link between said control server and at least one external casino system.

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