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A system and method for managing meter information in a gaming system
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ABSTRACT

5 A method for managing meters in a gaming system comprises
receiving meter information at a client gaming machine in
a format employed by a client/server gaming system. The
information is processed to be compatible with a gaming
management system. The processed meter information is
10 then provided to the gaming management system.

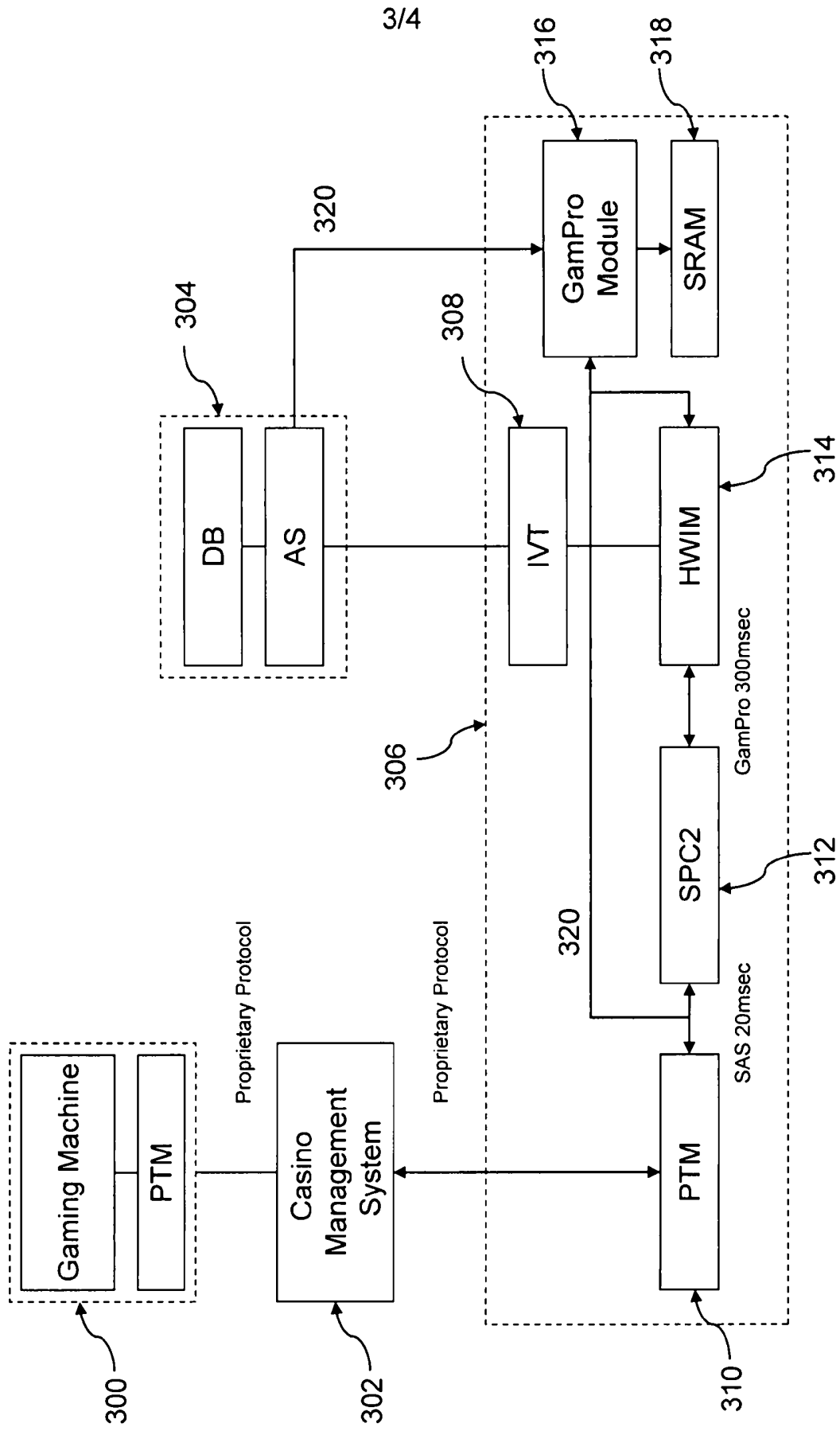


Fig. 3

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COMPLETE SPECIFICATION

Standard Patent

Applicant(s):

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Invention Title:

*A SYSTEM AND METHOD FOR MANAGING METER INFORMATION IN A GAMING
SYSTEM*

The following statement is a full description of this invention,
including the best method for performing it known to me/us:

A SYSTEM AND METHOD FOR MANAGING METER INFORMATION IN A
GAMING SYSTEM

FIELD OF THE INVENTION

5

The present invention relates to a meter management system and method for managing meters in a gaming system which includes legacy components.

10 BACKGROUND OF THE INVENTION

It is often necessary to collect and record data with regard to the number and/or type of events which occur within a device or machine.

15 For example, it is often desirable or necessary to require the collection and recording of a number of events and measurement parameters that occur when a user interacts with a gaming machine or a gaming system. Such events or parameters are also referred to as "meters" or
20 "meter information".

One example of a meter is a physical hardware device, which may take the form of a non-resettable (i.e. absolute) counter that registers events such as the input and output of a monetary value (e.g. the payment of bills
25 or coins), the number of win events and the amount of each stake or bet. Another example of a meter is a software based counter implemented within a software application or routine in a computerised gaming system.

It is desirable for gaming operators, such as
30 casinos, to collect meter information in a central database so that later analysis may be performed on the collected information.

As gaming machines are constantly evolving, a gaming operator will generally operate a mixture of older or
35 "legacy" gaming machines together with newer gaming machines, with both types of machines sometimes sharing a client/server architecture on the same gaming network.

5 The gaming machines may interface with a casino or gaming management system. The casino or gaming management system is generally a separate system, even though it is interfaced, at some level with each gaming system operated by the gaming operator.

10 The use of a plurality of different gaming machines and management systems presents a challenge to the collection of meter information, as each machine and/or management system may have or utilise different types of meters and/or may report meter information in different formats.

SUMMARY OF INVENTION

15 In a first aspect, the present invention provides a method for managing meters in a gaming system, comprising the steps of:

20 receiving meter information at a client gaming machine in a format employed by a client/server gaming system;

processing the information to be compatible with a gaming management system ; and

25 providing the processed meter information to the gaming management system.

30 The method may include the further step of caching the at least one of the meter information or the processed meter information prior to providing the processed meter information to the gaming management system. The processed meter information may be provided from the cache on receipt of a request from the gaming management system or at predefined time intervals.

The format of the processed meter information may be changed to comply with a communication protocol.

35 The meter information may be provided to a hardware interface module.

The meter information may be information pertaining

to a game provided by the system or it may be information pertaining to a parameter of the gaming system.

The meter information may be provided in a format compatible with the SAS protocol.

5 The first or second gaming system may include at least one gaming device.

10 In a second aspect, the present invention provides a meter management system for managing meters in a gaming system, comprising:

a client gaming machine arranged to receive meter information in a defined format employed by a client/server gaming system, the client gaming machine comprising an integration module arranged to process the information to be compatible with a gaming management system and provide the processed meter information to a gaming management system.

20 In a third aspect, the present invention provides a computer program arranged to, when executed on a computing system, carry out the method steps in accordance with a first aspect of the invention.

25 In a fourth aspect, the present invention provides a computer readable medium incorporating a computer program in accordance with a third aspect of the invention.

30 In a fifth aspect, the invention provides a method for managing meters comprising receiving meter information at a client gaming machine in a format employed by a client/server gaming system; and

35 caching the meter information or a processed version thereof at the client gaming machine at least until the meter information has been successfully transferred to a gaming management system.

In a sixth aspect, the present invention provides a meter management system for managing meters in a gaming system, comprising:

5 a client gaming machine arranged to receive meter information in a defined format employed by a client/server gaming system and to cache the meter information or a processed version thereof at least until the meter information has been successfully transferred to a gaming management system.

10

In a seventh aspect, the present invention provides a computer program arranged to, when executed on a computing system, carry out the method steps in accordance with a fifth aspect of the invention.

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In an eighth aspect, the present invention provides a computer readable medium incorporating a computer program in accordance with a seventh aspect of the invention.

20

In a ninth aspect, the present invention provides a data signal comprising the computer program code in accordance with the seventh aspect.

25

In a tenth aspect, the present invention provides transmitting the data signal in accordance with the ninth aspect.

DETAILED DESCRIPTION OF THE DRAWINGS

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Embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 is an example computing system capable of implementing an embodiment of the invention;

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Figure 2 is an example network environment capable of interacting with an embodiment of the invention;

Figure 3 is a schematic diagram illustrating the

component parts of a system in accordance with an embodiment of the invention; and

Figure 4 is a flow chart depicting the method steps performed by an embodiment of the invention.

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DESCRIPTION OF AN EMBODIMENT

The system, method and associated software application in accordance with an embodiment of the invention may be executed on a computing system such as the example computing system shown in Figure 1.

At Figure 1 there is shown a schematic diagram of a computing system 100 suitable for use with an embodiment of the present invention. The computing system 100 may be used to execute applications and/or system services such as the collection, aggregation, processing and reporting of data in accordance with an embodiment of the present invention.

The computing system 100 preferably comprises a processor 102, read only memory (ROM) 104, random access memory (RAM) 106, and input/output devices such as disk drives 108, keyboard 110 (or other input peripherals such as a mouse, not shown), display 112 (or other output peripherals such as a printer, not shown) and communications link 114. The computer includes programs that may be stored in ROM 104, RAM 106, or disk drives 108 and may be executed by the processor 102.

The communications link 114 connects to a computer network but could be connected to a telephone line, an antenna, a gateway or any other type of communications link. Disk drives 108 may include any suitable storage media, such as, for example, floppy disk drives, hard disk drives, CD ROM drives or magnetic tape drives. The computing system 100 may use a single disk drive or multiple disk drives. The computing system 100 may use any suitable operating system, such as Windows™ or Unix™.

The computing system 100 may be a gaming server

arranged to be networked to a plurality of gaming machines, such that information may be sent from the gaming server to one or more gaming machines, or from the one or more gaming machines to the gaming server.

5 The computing system 100 may be capable of executing a software application 116 (which may be in the form of an API) in accordance with an embodiment of the invention.

10 It will be understood that the computing system described in the preceding paragraphs is illustrative only and that the presently described embodiment or other embodiments which fall within the scope of the claims of the present application may be executed on any suitable computing system, which in turn may be realized utilizing any suitable hardware and/or software.

15 Other computing systems that may be suitable include server computers, hand-held or portable computing devices, consumer electronics, and other devices capable of receiving electronic information, including automated 'teller' machines and vending machines.

20 Figure 2 illustrates an example network environment 200, with a server computer 202 in communication with client computers 204a, 204b, 204c, etc., via a network (or a bus) 206, in which an embodiment of the present invention may be employed.

25 In more detail, the server 202 may be a gaming server, arranged to interconnect a number of gaming machines 204a, 204b, 204c, etc., via the communications network 206, which may be a local or wide area network, such as an intranet, the Internet, etc. The
30 communications network may also be a wireless network such as a network that utilises the IEEE 802.11 standard.

35 It will be understood that each client computer need not be a gaming machine, but may be a terminal, another computing system, a portable communications device, such as a mobile telephone, or any other device capable of receiving information from the server.

 The server 202, and the client devices 204a, 204b,

204c, etc., may communicate with each other over the communications network 206 by use of any suitable networking protocol, such as TCP/IP, GSA G2S (Gaming Standards Association Game-to-System protocol), GSA S2S (Gaming Standards Association System-to-System protocol) 5 or any other suitable protocol for the exchange of information 208.

The exchange of information may include the provision of XML files, the XML files providing information to be 10 utilized by any or all of the servers and client devices.

Referring now to Figure 3, there is shown a schematic diagram illustrating the components of a system in accordance with an embodiment of the present invention.

Figure 3 is a schematic diagram that depicts a system 15 in accordance with an embodiment of the present invention. Figure 3 includes a first gaming system 300 typically comprising a plurality of gaming machines each comprising a player tracking module PTM. The first gaming system 300 is an existing or so called "legacy" system which operates 20 in conjunction with a casino management system 302.

The gaming system 300 and the casino management system communicate 302 via a proprietary protocol. The casino management system 302 is required to perform various tasks necessary for the correct and efficient 25 operation of each of the gaming machines in the gaming system. The tasks may include, but are not limited to, the management of player tracking, the administration of bonus rewards, the payment of prizes and the collection and management of meter information.

30 A second gaming system 304 installed in parallel with the first gaming system 300 is a client-server based gaming system 304 comprising a central database DB, one or more application servers AS and a plurality of client gaming machines 306 (only one of which is shown in Figure 35 3 for the sake of clarity).

The client gaming machines 306 of the second gaming system are each provided with a client software module

308, also termed an interactive video terminal (IVT) which interacts with the application server AS and a player via an input/output interface (not shown). The input/output interface may be, in one embodiment, a touch screen
5 located on a "poker machine", or other gaming device. However, it will be understood that any suitable interface may be provided to allow for player interaction with the gaming system.

10 The gaming machines 306 are also each provided with a player tracking module PTM 310 adapted to communicate with the casino management system via the above mentioned proprietary protocol.

15 Various meters are managed centrally in the second gaming system 304. Internal communication interface modules are provided in the gaming machines 306 in order to communicate the meter information to the casino management system 302. The internal communication modules may also be used to exchange other information between the player tracking module 310 and the client software 308
20 (IVT). The "other" information may include, for example, information pertaining to the amount of money inserted into the gaming machine, or voucher identification indicia provided to the gaming machine.

25 The internal communication interface modules comprise a hardware interface module HWIM 314 that provides an abstraction layer between drivers for hardware units and the other interface modules.

30 A meter integration module 316 ("GamPro module") is adapted to implement the coordination of meters towards the legacy system such that correct meters information and, correct other information is reported to the casino management system 302 in the correct format. The player tracking module PTM 310 communicates internally (i.e. within the gaming machine) with a first communication
35 protocol (termed SAS) whereas the meter integration module 316 communicates with a second protocol (termed GamPro).

A SAS protocol converter SPC2 312 is provided to

convert the communication between the two mentioned protocols and to ensure a timely response to the player tracking module 310.

5 The gaming machines 306 are provided with a static random access memory (SRAM) module 318 used for various cache operations. For example, the SRAM module may be utilised to keep data that has been created in the client part of the gaming machine and that is to be communicated to the server side of the gaming system 304. The data may
10 subsequently be wiped from the SRAM module 318 once it is confirmed that the data has been received and stored in the server side.

In the embodiment described herein, the SRAM is also used to cache the information that is communicated to and
15 from the player tracking module, that the information has been to keep the data persistent until it has been confirmed received on the other side of the internal communication interface modules.

The meters values are thus communicated along the
20 communication path 320 to the casino management system 302 in the following sequence (and with reference to Figure 4):

1. The meters are collected and managed centrally in the client-server system (Step 400).
- 25 2. The meters are then communicated to the meter integration module 316 (GamPro module) (Step 402) where the meters are processed for integration with the meter management of the casino management system (Step 404).
3. The meters are cached in the SRAM 318 (Step 406).
- 30 4. The processed meters are communicated from the meter integration module 316 (GamPro module) to the player tracking module PTM 310 via the hardware interface module HWIM 314 and the SAS protocol converter (Step 408).
5. The meters are communicated to the casino management
35 system 302 from the player tracking module PTM 310 via the proprietary protocol (Step 410).

Thus, the meter integration module and the protocol

converter form part of a meter management system.

The processed and protocol converted meters may be communicated to the player tracking module PTM 310 as individual meter values or in a meter report. The meter values or the meter report may be sent after each meter updating cycle in the client-server system, according to a meter reporting schedule (i.e. at regular defined time intervals), on receipt of a request from the gaming management system or when needed for offline purposes.

10 The meter information is cached until it is safely received. Variations in the manner in which the meter information is transmitted would be within the purview of a person skilled in the art.

15 Although not required, the embodiments described above may be implemented via an application programming interface (API), for use by a developer, and can be included within another software application, such as a gaming machine operating system or a gaming server operating system.

20 Generally, as program modules include routines, programs, objects, components, and data files that perform or assist in the performance of particular functions, it will be understood that a software application which carries out method steps in accordance with an embodiment of the invention may be distributed across a plurality of routines, objects and components, which correspondingly may be located across a plurality of physical hardware devices. Such variations and modifications are within the purview of those skilled in the art.

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CLAIMS:

1. A method for managing meters in a gaming system,
5 comprising the steps of:
 receiving meter information at a client gaming
 machine in a format employed by a client/server gaming
 system;
 processing the information to be compatible with a
10 gaming management system; and
 providing the processed meter information to the
 gaming management system.
2. A method in accordance with claim 1, comprising the
further step of caching at least one of the meter
15 information or the processed meter information prior to
providing the processed meter information to the gaming
management system.
3. A method in accordance with claim 1 or 2, comprising
the further step of changing the format of the processed
20 meter information to comply with a different communication
protocol.
4. A method in accordance with claim 3, comprising the
further step of providing the meter information to a
hardware interface module.
- 25 5. A method in accordance with claim 2, comprising the
further step of providing the processed meter information
from the cache on receipt of a request from the gaming
management system.
6. A method in accordance with claim 2, comprising the
30 further step of providing the processes meter information
at predefined time intervals.
7. A method in accordance with any one of the preceding
claims, whereby the meter information is information
pertaining to a game provided by the system.
- 35 8. A method in accordance with any one of the preceding
claims, whereby the meter information is information
pertaining to a parameter of the gaming system.

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9. A method in accordance with any one of the preceding claims, whereby the meter information is provided in a format compatible with the SAS protocol.
10. A method in accordance with any one of the preceding
5 claims, wherein the first or second gaming system includes at least one gaming device.
11. A meter management system for managing meters in a gaming system, comprising:
a client gaming machine arranged to receive meter
10 information in a defined format employed by a client/server gaming system, the client gaming machine comprising an integration module arranged to process the information to be compatible with a gaming management system and provide the processed meter information to a
15 gaming management system.
12. A system in accordance with claim 11, further comprising a cache arranged to cache the integrated meter information prior to providing the integrated meter information to the gaming management system.
- 20 13. A system in accordance with claim 11 or 12, further comprising a filter arranged to change the format of the integrated meter information to comply with a different communication protocol.
14. A system in accordance with claim 13, wherein the
25 meter information is provided to a hardware interface module.
15. A system in accordance with claim 12, wherein the integrated meter information is provided from the cache on receipt of a request from the gaming management system.
- 30 16. A system in accordance with claim 12, wherein the integrated meter information is provided at predefined time intervals.
17. A system in accordance with any one of the preceding claims, wherein the meter information is information
35 pertaining to a game provided by the system.
18. A system in accordance with any one of the preceding claims, wherein the meter information is information

pertaining to a parameter of the gaming system.

19. A system in accordance with any one of claims 11 to 18, whereby the meter information is provided in a format compatible with the SAS protocol.

5 20. A system in accordance with any one of claims 11 to 19, wherein the first or second gaming system includes at least one gaming device.

10 21. A computer program arranged to, when executed on a computing system, carry out the method steps of any one of claims 1 to 10.

22. A computer readable medium incorporating a computer program in accordance with claim 21.

15 23. A method for managing meters comprising receiving meter information at a client gaming machine in a format employed by a client/server gaming system; and

 caching the meter information or a processed version thereof at the client gaming machine at least until the meter information has been successfully transferred to a gaming management system.

20 24. A meter management system for managing meters in a gaming system, comprising:

 a client gaming machine arranged to receive meter information in a defined format employed by a client/server gaming system and to cache the meter
25 information or a processed version thereof at least until the meter information has been successfully transferred to a gaming management system.

30 25. A computer program arranged to, when executed on a computing system, carry out the method steps in accordance with claim 23.

26. A computer readable medium incorporating a computer program in accordance with claim 25.

27. A data signal comprising the computer program code according to claim 25.

35 28. Transmitting the data signal according to claim 27.

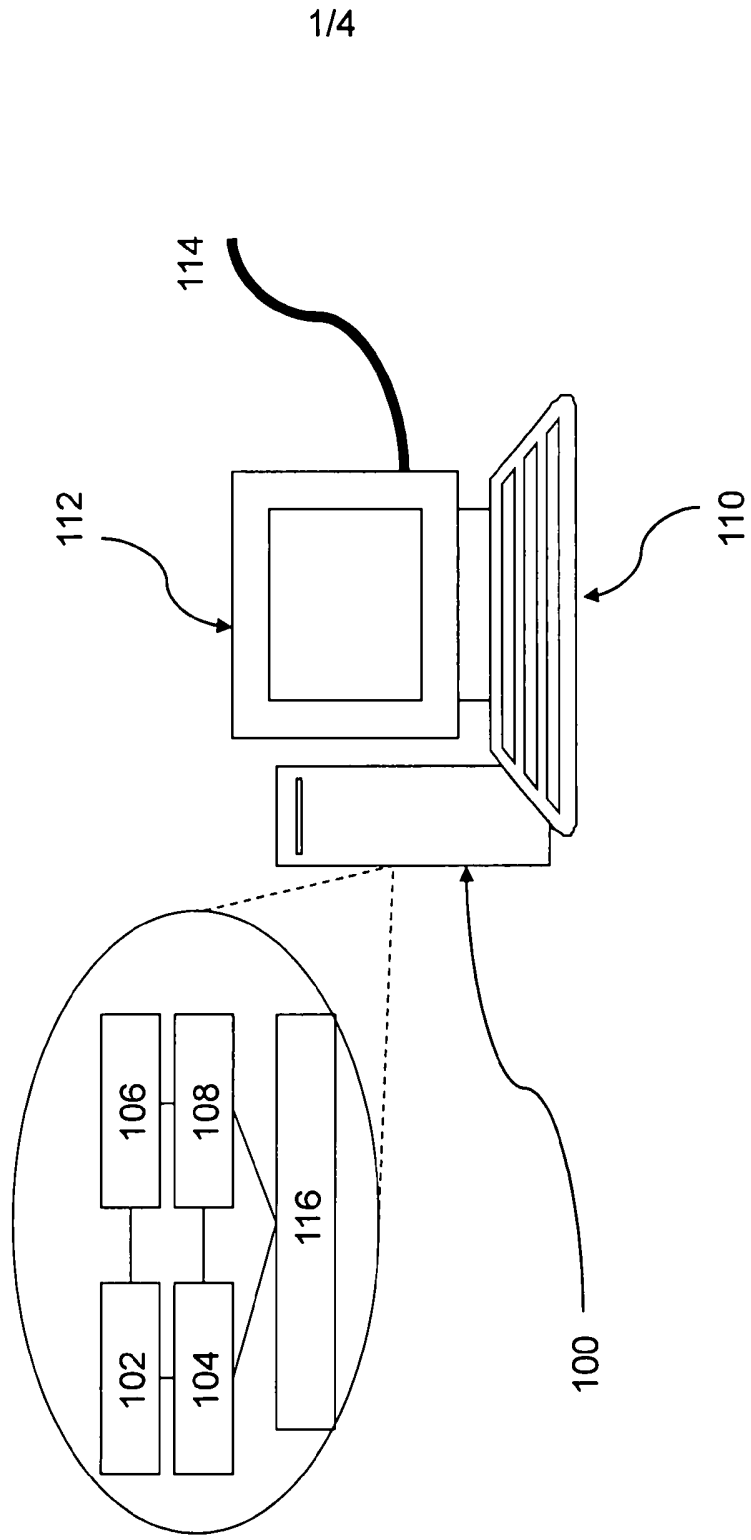


Fig.1

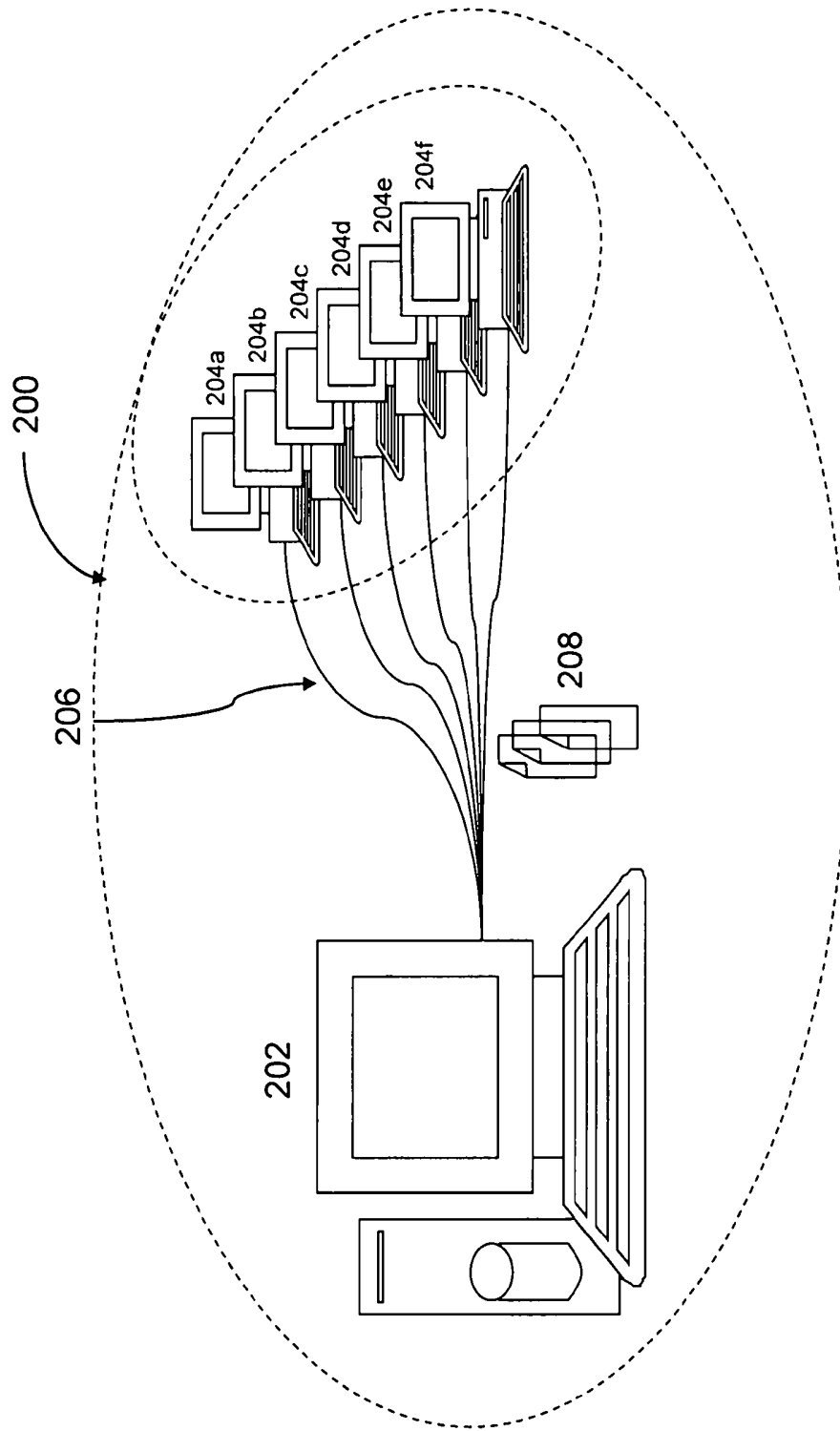


Fig. 2

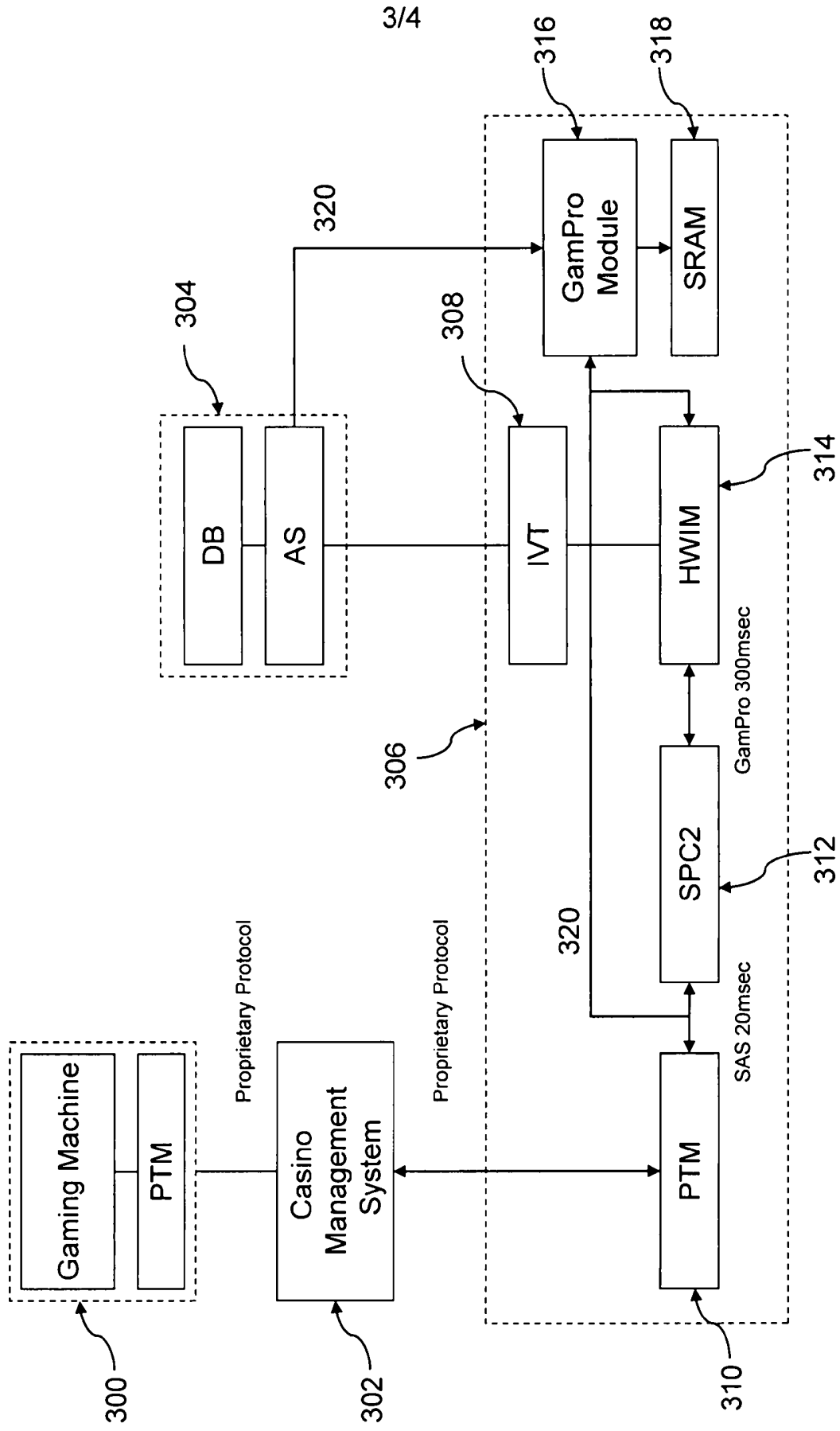


Fig. 3

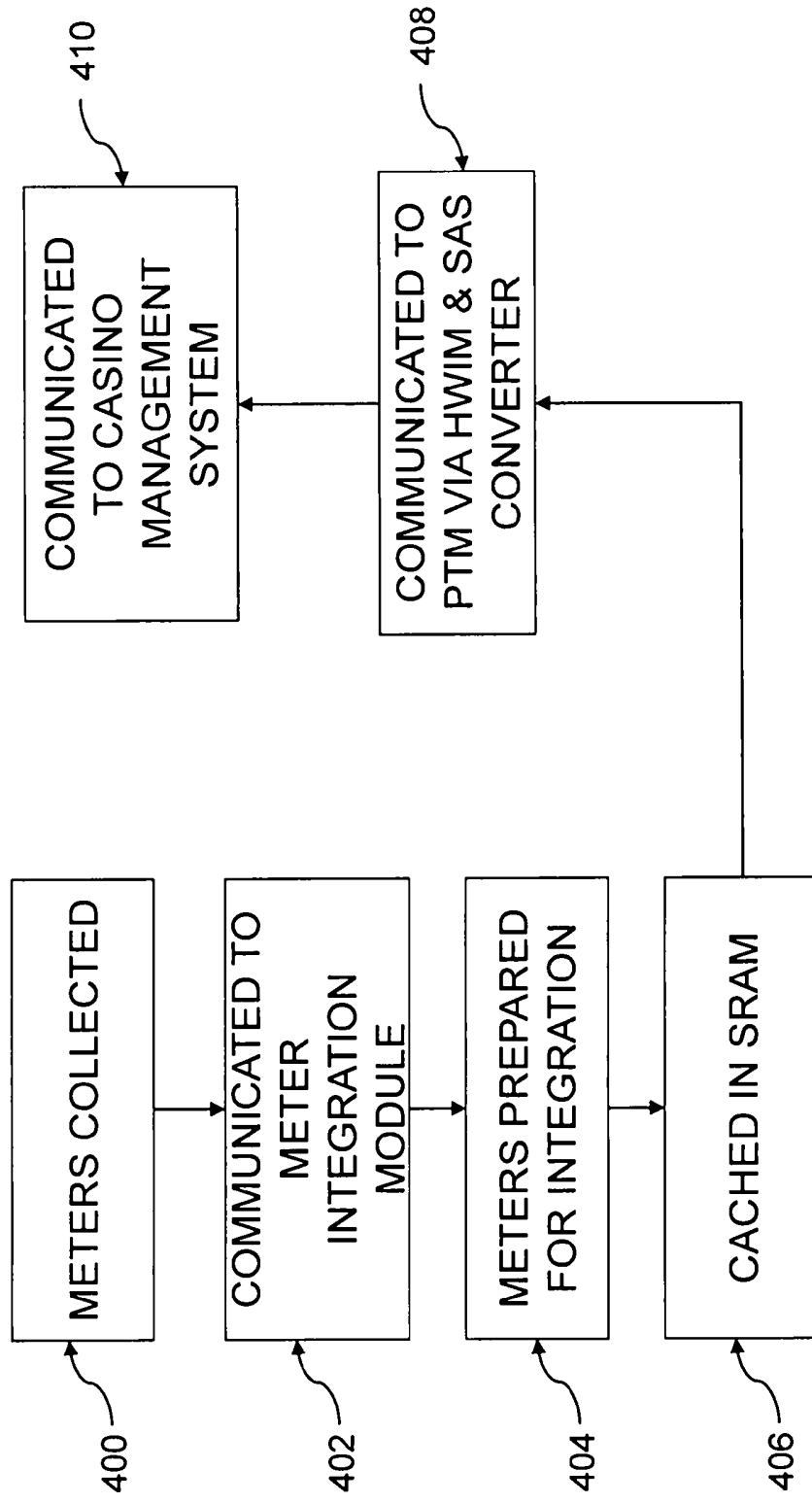


Fig. 4