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(54) **METHOD AND SYSTEM FOR PROCESSING VIRTUAL TREASURES OF ONLINE GAME AND COMPUTER READABLE STORAGE MEDIUM**

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(57) **ABSTRACT**

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A method for processing a virtual treasure of an online game is disclosed. In the method, when a client logs in an online game server with a client account through a network, detect if at least one virtual-treasure transaction log stored in a portable virtual-treasure storage device connected to the client has not been updated in the online game server. The online game server provides an online game through the network. If the at least one virtual-treasure transaction log stored in the portable virtual-treasure storage device has not been updated to the online game server, virtual treasure information corresponding to the client account stored in the online game server is updated according to the virtual-treasure transaction log which has not been updated to the online game server. The online game to the client is provided through the network according to the virtual treasure information.

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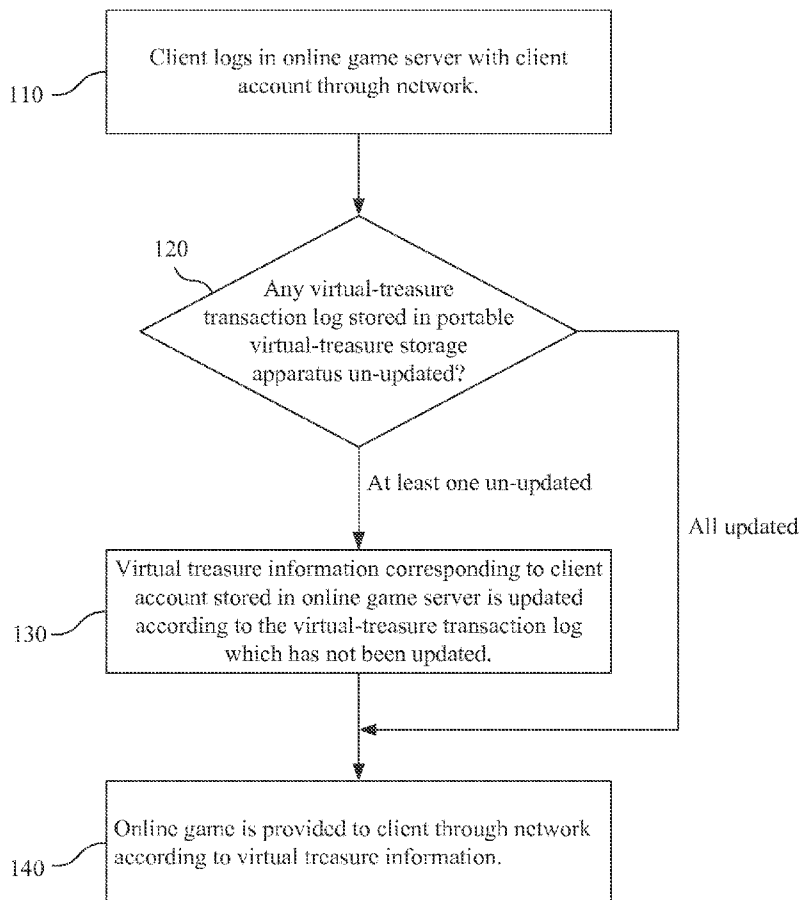
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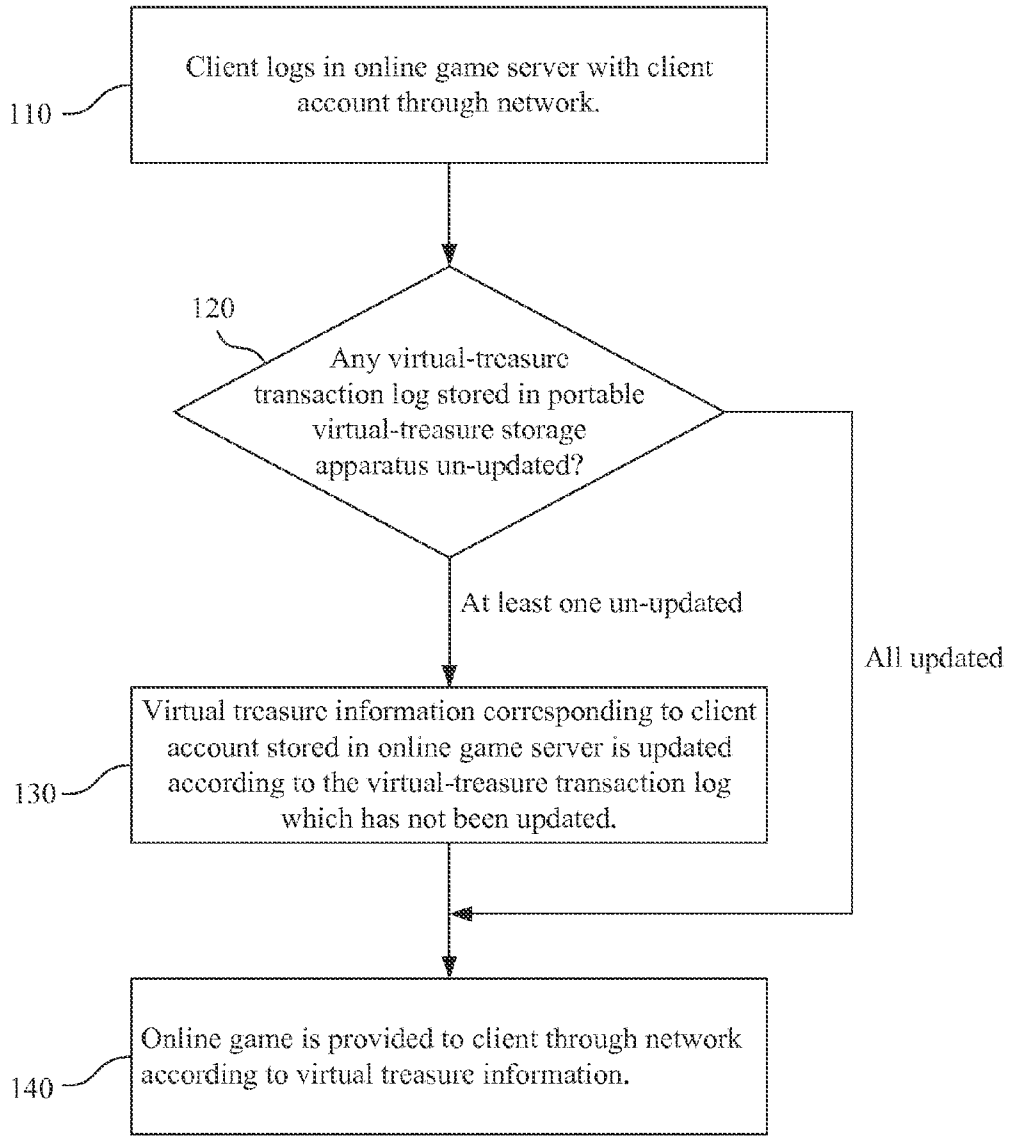
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100

Fig. 1

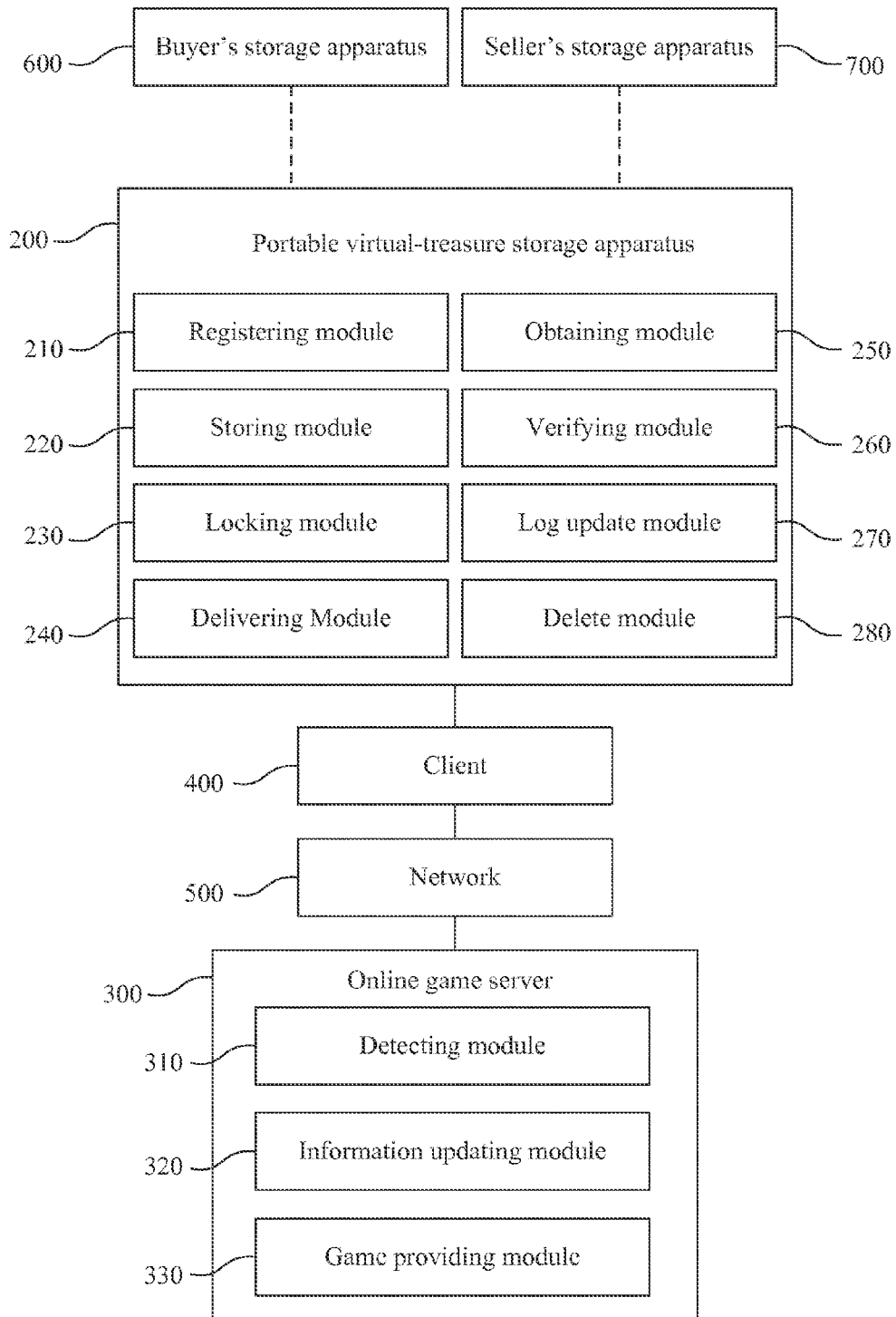


Fig. 2

**METHOD AND SYSTEM FOR PROCESSING VIRTUAL TREASURES OF ONLINE GAME AND COMPUTER READABLE STORAGE MEDIUM**

**RELATED APPLICATIONS**

[0001] This application claims priority to Taiwan Application Serial Number 100142593, filed Nov. 21, 2011, which is herein incorporated by reference.

**BACKGROUND**

[0002] 1. Technical Field

[0003] The present invention relates to a method and a system for processing virtual treasures of an online game and a computer-readable storage medium storing a computer program to execute the method. More particularly, the present invention relates to a method and a system for processing virtual treasure of online game utilizing a portable device and a computer-readable storage medium with a computer program to perform the method

[0004] 2. Description of Related Art

[0005] As computers become popular and network technology develops, computer games are developed from a single-player gaming to a multi-player gaming. For the multi-player gaming, online multiplayer games, which provide a platform for several players to join at the same time through a server, have achieved popularity greatly.

[0006] In common, online game providers may provide gaming scenario, and players can choose their own characters. During proceeding of online games, players can beat enemies in the games, complete missions according to instructions, exchange items or equipments with other players, or buy some virtual treasures in a virtual store. Virtual treasures in online games can enhance their attacking or defending ability by equipping virtual treasures.

[0007] In general, information about accounts of players and virtual treasures possessed by the same may be stored in a database. Hence, if accounts of players are hacked, virtual treasures possessed by the same may be stolen. In addition, players may exchange their virtual treasure for their virtual characters. However, since virtual treasures in online games do not exist physically, players can not check virtual treasures with their own eyes or sense of touch. The only platform to exchange virtual treasures is on the online game which is being proceeded but not in person. As a result, it is risky to exchange virtual treasures. Furthermore, it is hard to identify players in online games, and thus cheat often occurs or virtual treasures for exchange may be stolen goods.

**SUMMARY**

[0008] According to one embodiment of this invention, a method for processing a virtual treasure of an online game is provided to store a virtual treasure and a transaction log of the same in a portable device for proceeding of an online game. The method may take the form of a computer program product stored on a computer-readable storage medium having computer-readable instructions embodied in the medium. In the method, when a client logs in an online game server with a client account through a network, detect if at least one virtual-treasure transaction log stored in a portable virtual-treasure storage device connected to the client has not been updated in the online game server. The online game server provides an online game through the network. If the at least

one virtual-treasure transaction log stored in the portable virtual-treasure storage device has not been updated to the online game server, virtual treasure information corresponding to the client account stored in the online game server is updated according to the virtual-treasure transaction log which has not been updated to the online game server. The online game is provided to the client through the network according to the virtual treasure information.

[0009] According to another embodiment of this invention, a system for processing virtual treasures of an online game is provided to store a virtual treasure and a transaction log of the same in a portable device for proceeding of an online game. The system includes a portable virtual-treasure storage device and an online game server. The portable virtual-treasure storage device is utilized for building a connection with a client. The online game server is utilized for providing an online game. The online game server includes a detecting module, an information updating module and a game providing module. When the client logs in the online game server with a client account through a network, the detecting module detects if at least one virtual-treasure transaction log stored in a portable virtual-treasure storage device connected to the client has not been updated in the online game server. If the at least one virtual-treasure transaction log stored in the portable virtual-treasure storage device connected to the client has not been updated to the online game server, the information updating module updates virtual treasure information corresponding to the client account stored in the online game server according to the virtual-treasure transaction log which has not been updated to the online game server. The game providing module provides the online game to the client through the network according to the virtual treasure information.

[0010] The present invention can achieve many advantages. Since virtual treasures are stored in the portable virtual-treasure storage device (not the online game server or client devices), virtual treasures may not be stolen if the online game server or the client devices are hacked. In addition, since transaction log of the virtual treasure is further stored, if the virtual treasure is obtained through a legal way can be verified utilizing its transaction log.

[0011] These and other features, aspects, and advantages of the present invention will become better understood with reference to the following description and appended claims. It is to be understood that both the foregoing general description and the following detailed description are by examples, and are intended to provide further explanation of the invention as claimed.

**BRIEF DESCRIPTION OF THE DRAWINGS**

[0012] The invention can be more fully understood by reading the following detailed description of the embodiments, with reference made to the accompanying drawings as follows:

[0013] FIG. 1 is a flow chart showing a method for processing virtual treasure of online game according to an embodiment of this invention; and

[0014] FIG. 2 is a block diagram for illustrating a system for processing virtual treasure of online game according to an embodiment of this invention.

**DETAILED DESCRIPTION**

[0015] Reference will now be made in detail to the present embodiments of the invention, examples of which are illus-

trated in the accompanying drawings. Wherever possible, the same reference numbers are used in the drawings and the description to refer to the same or like parts.

**[0016]** Referring to FIG. 1, FIG. 1 is a flow chart showing a method for processing virtual treasure of online game according to an embodiment of this invention. In the method for processing a virtual treasure of an online game, a virtual treasure and a transaction log of the same is stored in a portable device for proceeding of an online game. The virtual treasure may be virtual money of an online game, a virtual pet of an online game, a virtual equipment of an online game or any other type of virtual treasure of an online game. The method for processing a virtual treasure of an online game may be in the form of a computer program product stored in a computer-readable storage medium having computer-readable instructions embodied in the medium. Any suitable storage medium may be used. In some embodiments, such suitable storage medium may be a non-transitory computer readable storage medium including non-volatile memory such as read only memory (ROM), programmable read only memory (PROM), erasable programmable read only memory (EPROM), and electrically erasable programmable read only memory (EEPROM) devices; volatile memory such as static random access memory (SRAM), dynamic random access memory (DRAM), and double data rate random access memory (DDR-RAM); optical storage devices such as compact disc read only memories (CD-ROMs) and digital versatile disc read only memories (DVD-ROMs); and magnetic storage devices such as hard disk drives (HDD) and floppy disk drives. In some embodiments, the computer-readable storage medium may be implemented utilizing a security chip, such that data stored on the security chip can be accessed only through a hardware security channel, which provides better security protection. In other embodiments, other suitable storage mediums may be used, which should not be limited in this disclosure.

**[0017]** The method **100** for processing a virtual treasure of an online game may starts at step **110**, wherein a client logs in an online game server with a client account through a network. When a client logs in the online game server with a client account through the network (step **110**), the method **100** continues to step **120**, wherein detect if any virtual-treasure transaction log stored in a portable virtual-treasure storage device connected to the client has not been updated in the online game server. The online game server provides an online game through the network. The client may be connected to the portable virtual-treasure storage device through a wired or wireless data transmission interface. Furthermore, before the detection at step **120** is performed, a mutual authentication method may be utilized to enable the client to authenticate with the online game server according to authentication data stored in the portable virtual-treasure storage device. The detection at step **120** can be executed only if the mutual authentication is passed. In one embodiment of this invention, the program for the mutual authentication method may be pre-stored in the portable virtual-treasure storage device and only the portable virtual-treasure storage device can execute the program. Therefore, if the client or the online game server is hacked, the mutual authentication method may not be cracked by such embodiment. The authentication data stored in the portable virtual-treasure storage device may be a symmetric key. The mutual authentication method may be Diffie-Hellman key exchange algorithm or any other Secure Sockets Layer (SSL) like algorithm. Moreover, after the

mutual authentication is passed, the client and the online game server may further exchange a Data Encryption Standard (DES) key, a DESede key, an Advanced Encryption Standard (AES) key or any other type of symmetric key for later data encryption/decryption between the client and the online game server.

**[0018]** If the at least one virtual-treasure transaction log stored in the portable virtual-treasure storage device has not been updated to the online game server, the method **100** continues to step **130**, wherein virtual treasure information corresponding to the client account stored in the online game server is updated according to the virtual-treasure transaction log which has not been updated to the online game server.

**[0019]** From step **130**, the method **100** continues to step **140**, wherein the online game is provided to the client through the network according to the virtual treasure information. Therefore, since virtual treasures are stored in the portable virtual-treasure storage device (not the online game server or the client), virtual treasures may not be stolen if the online game server or the client is hacked. In addition, since transaction log of the virtual treasure is further stored, if the virtual treasure is obtained through a legal way can be verified utilizing its transaction log. For example, the transaction log of the virtual treasure may store users who have possessed thereof. Hence, it is determined that the virtual treasure is obtained through a legal way if the last owner stored in the transaction log and the one who transmits the transaction log are the same; otherwise, it is determined that the virtual treasure is not obtained through a proper way, such that the virtual treasure may not be available. As a result, the virtual treasure can be prevented from being stolen easily by utilizing the transaction log.

**[0020]** Furthermore, if all virtual-treasure transaction logs stored in the portable virtual-treasure storage device connected to the client have been updated to the online game server, the method **100** directly continues to step **140** to provide the online game to the client through the network according to the virtual treasure information.

**[0021]** Moreover, during the proceeding of the online game, a user of the client may obtain new virtual treasure. Hence, in some embodiments of the method for processing virtual treasure of online game, if a new virtual treasure is obtained through the online game by using the client account, the client account is registered in a transaction log of the virtual treasure obtained. Subsequently, the transaction log of the virtual treasure obtained is stored in the portable virtual-treasure storage device connected to the client. Hence, the user of the client can utilize the newly obtained virtual treasure during the proceeding of the online game by executing steps **120-140**.

**[0022]** A user of the client may disconnect the portable virtual-treasure storage device from the client, and exchange the virtual treasure stored in the portable virtual-treasure storage device to other's storage devices. Hence, in some embodiments of the method for processing a virtual treasure of an online game, before transacting a virtual treasure which is desired to be exchanged and stored in the portable virtual-treasure storage device to a buyer's storage device, the virtual treasure desired to be exchanged may be locked. Hence, the virtual treasure desired to be exchanged may not be taken away before the exchange finish. In addition, the portable virtual-treasure storage device and the buyer's storage device may verify each other before the locking, and the locking may be executed after the verification to each other is passed.

Subsequently, the portable virtual-treasure storage device transmits a transaction log of the virtual treasure desired to be exchanged to the buyer's storage device for verification. In some embodiments, the buyer's storage device can do the verification by determining if the client account of the portable virtual-treasure storage device is the latest owner registered on the transaction log of the virtual treasure desired to be exchanged. If the virtual treasure desired to be exchanged passes verification, the portable virtual-treasure storage device unlocks the virtual treasure desired to be exchanged and transmits it to the buyer's storage device. Subsequently, the buyer's storage device updates the transaction log of the virtual treasure desired to be exchanged stored in the buyer's storage device by registering the account of the buyer's storage device as the latest owner of the virtual treasure. Hence, the exchange is finished, and after the buyer's storage device executes steps 120-140, a user of the buyer's storage device can utilize the newly exchanged virtual treasure during the proceeding of the online game. Therefore, users can exchange virtual treasures in person with their storage device, which reduces the risk of virtual treasure exchange. In some embodiments, connecting to the online game server is not a must during the exchange, which provides convenience.

**[0023]** A user of the client may disconnect the portable virtual-treasure storage device from the client, and utilize the portable virtual-treasure storage device to obtain virtual treasures from other's storage device. Hence, in some embodiments of the method for processing virtual treasure of online game, before transacting a virtual treasure desired to be exchanged stored in a seller's storage device by the portable virtual-treasure storage device, the portable virtual-treasure storage device may be utilized to obtain a transaction log of the virtual treasure desired to be exchanged from the seller's storage device. Subsequently, the portable virtual-treasure storage device verifies the obtained transaction log of the virtual treasure desired to be exchanged. In some embodiments, the portable virtual-treasure storage device can do the verification by determining if the account of the seller's storage device is the latest owner registered on the transaction log of the virtual treasure desired to be exchanged. If the virtual treasure desired to be exchanged passes verification, the portable virtual-treasure storage device transmits a verification-passed signal to the seller's storage device to obtain the virtual treasure desired to be exchanged from the seller's storage device. The transaction log of the virtual treasure desired to be exchanged and stored on the portable virtual-treasure storage device may be updated in subsequence. In one embodiment of this invention, during the update, the client account of the portable virtual-treasure storage device may be registered as the latest owner of the virtual treasure. Hence, the exchange is finished, and after the portable virtual-treasure storage device executes steps 120-140, a user of the portable virtual-treasure storage device can utilize the newly exchanged virtual treasure during the proceeding of the online game. Therefore, users can exchange virtual treasures in person with their storage device, which reduces the risk of virtual treasure exchange. In some embodiments, connecting to the online game server is not a must during the exchange, which provides convenience.

**[0024]** A user of the client may delete virtual treasure stored in his/her portable virtual-treasure storage device. Hence, in some embodiments of the method for processing virtual treasure of online game, when a virtual treasure is deleted utilizing the client account on the online game, the

virtual treasure desired to be deleted is deleted from the portable virtual-treasure storage device. Moreover, a transaction log of the virtual treasure desired to be deleted may be updated. For example, a default user account or an administrator of the online game server may be set as the latest owner of the virtual treasure desired to be deleted in its transaction log.

**[0025]** Referring to FIG. 2, FIG. 2 is a block diagram for illustrating a system for processing virtual treasure of online game according to an embodiment of this invention. The system for processing virtual treasure of online game is provided to store a virtual treasure and a transaction log of the same in a portable device for performing an online game.

**[0026]** The system includes a portable virtual-treasure storage device 200 and an online game server 300. The portable virtual-treasure storage device 200 is utilized for building a connection with a client 400. The portable virtual-treasure storage device 200 and the client 400 may both include a data communication unit for building a connection with each other through a wired or wireless data communication interface.

**[0027]** The online game server 300 is utilized for providing an online game. The online game server 300 includes a detecting module 310, an information updating module 320 and a game providing module 330. When the client 400 logs in the online game server 300 with a client account through a network 500, the detecting module 310 detects if at least one virtual-treasure transaction log stored in a portable virtual-treasure storage device 200 connected to the client 400 has not been updated in the online game server 300. Before the detection made by the detecting module 310, the system may utilize a mutual authentication method to enable the client 400 to authenticate with the online game server 300 according to authentication data stored in the portable virtual-treasure storage device 200. The detecting module 310 can do detection only if the mutual authentication is passed. In one embodiment of this invention, the program for the mutual authentication method may be pre-stored in the portable virtual-treasure storage device 200 and only the portable virtual-treasure storage device 200 can execute the program. Therefore, if the client 400 or the online game server 300 is hacked, the mutual authentication method may not be cracked by such embodiment. The authentication data stored in the portable virtual-treasure storage device 200 may be a symmetric key. The mutual authentication method may be Diffie-Hellman key exchange algorithm or any other Secure Sockets Layer (SSL) like algorithm. Moreover, after the mutual authentication is passed, the client 400 and the online game server 300 may further exchange a Data Encryption Standard (DES) key, a DESede key, an Advanced Encryption Standard (AES) key or any other type of symmetric key for later data encryption/decryption between the client 400 and the online game server 300.

**[0028]** If the at least one virtual-treasure transaction log stored in the portable virtual-treasure storage device 200 has not been updated to the online game server 300, the information updating module 320 updates virtual treasure information corresponding to the client account stored in the online game server 300 according to the virtual-treasure transaction log which has not been updated to the online game server 300. The game providing module 330 provides the online game to the client 300 through the network according to the virtual treasure information. Therefore, since virtual treasures are stored in the portable virtual-treasure storage device 200 (not the online game server 300 or the client 400), virtual treasures

may not be stolen if the online game server **300** or the client **400** is hacked. In addition, since transaction log of the virtual treasure is further stored, if the virtual treasure is obtained through a legal way can be verified utilizing its transaction log. For example, the transaction log of the virtual treasure may store users who have possessed thereof. Hence, it is determined that the virtual treasure is obtained through a legal way if the last owner stored in the transaction log and the one who transmits the transaction log are the same; otherwise, it is determined that the virtual treasure is not obtained through a proper way, such that the virtual treasure may not be available. As a result, the virtual treasure may not be stolen easily utilizing the transaction log.

[0029] During the proceeding of the online game, a user of the client may obtain new virtual treasure. Hence, the portable virtual-treasure storage device **200** may include a registering module **210** and a storing module **220**. If a new virtual treasure is obtained through the online game by using the client account, the registering module **210** registers the client account in a transaction log of the newly obtained virtual treasure. For example, the registering module **210** may register the client account as the latest owner in the transaction log of the newly obtained virtual treasure. Subsequently, the storing module **220** stores the transaction log of the obtained virtual treasure in the portable virtual-treasure storage device **200** connected to the client **400**. Hence, after the client **400** logs in the online game server **300** with the portable virtual-treasure storage device **200** connected, the user of the client **400** can utilize the newly obtained virtual treasure during the proceeding of the online game.

[0030] A user of the client **400** may exchange the virtual treasure stored in the portable virtual-treasure storage device **200** to other's storage devices. Hence, the portable virtual-treasure storage device **200** may include a locking module **230** and a delivering module **240**. Before transmitting a virtual treasure desired to be exchanged stored in the portable virtual-treasure storage device **200** to a buyer's storage device **600**, the locking module **230** locks the virtual treasure desired to be exchanged to prevent the virtual treasure desired to be exchanged being taken away before the exchange finish. Before the locking module **230** does the lock step, the portable virtual-treasure storage device **200** and the buyer's storage device **600** may mutually authenticate each other before the locking, and the locking module **230** may be triggered after the authentication is finished. The delivering module **240** delivers a transaction log of the virtual treasure desired to be exchanged to the buyer's storage device **600** for verification. If the virtual treasure desired to be exchanged passes verification, the portable virtual-treasure storage device **200** unlocks the virtual treasure desired to be exchanged and transmits the virtual treasure desired to be exchanged to the buyer's storage device **600**. Subsequently, the buyer's storage device **600** updates the transaction log of the virtual treasure desired to be exchanged stored in the buyer's storage device **600**. The buyer's storage device **600** can log in the online game server **300**, such that a user of the buyer's storage device can utilize the newly exchanged virtual treasure during the proceeding of the online game. Therefore, users can exchange virtual treasures in person with their storage device, which reduces the risk of virtual treasure exchange. In some embodiments, connecting to the online game server **300** is not a must during the exchange, which provides convenience.

[0031] A user of the client **400** may utilize his/her portable virtual-treasure storage device **200** to obtain virtual treasures

from other's storage device. Hence, the portable virtual-treasure storage device **200** may include an obtaining module **250**, a verifying module **260** and a log update module **270**. Before the portable virtual-treasure storage device **200** transacts a virtual treasure desired to be exchanged stored in a seller's storage device **700**, the obtaining module **250** obtains a transaction log of the virtual treasure desired to be exchanged from the seller's storage device **700**. In some embodiments, before the obtaining module **250** obtains the transaction log, the portable virtual-treasure storage device **200** and the seller's storage device **700** may mutually authenticate each other. The obtaining module **250** may be triggered after the mutually authentication is finished. The verifying module **260** verifies the transaction log of the virtual treasure desired to be exchanged. If the virtual treasure desired to be exchanged passes verification, the verification module **260** transmits a verification-passed signal to the seller's storage device **700** to obtain the virtual treasure desired to be exchanged from the seller's storage device **700**. Subsequently, the log update module **270** updates the transaction log of the virtual treasure desired to be exchanged stored on the portable virtual-treasure storage device **200**. In one embodiment of this invention, the log update module **270** may register the client account of the portable virtual-treasure storage device **200** as the latest owner of the virtual treasure during the update. Hence, the exchange is finished, the portable virtual-treasure storage device **200** can log in the online game server **300**, such that a user of the portable virtual-treasure storage device **200** can utilize the newly exchanged virtual treasure during the proceeding of the online game. Therefore, users can exchange virtual treasures in person with their storage device, which reduces the risk of virtual treasure exchange. In some embodiments, connecting to the online game server **300** is not a must during the exchange, which provides convenience.

[0032] A user of the client **400** may delete virtual treasure stored in his/her portable virtual-treasure storage device **200**. Hence, the portable virtual-treasure storage device **200** may include a delete module **280**. When a virtual treasure in the online game is desired to be deleted by using the client account on the online game, the delete module **280** deletes the virtual treasure desired to be deleted from the portable virtual-treasure storage device **200** and updates a transaction log of the virtual treasure desired to be deleted. For example, the delete module **280** may set a default user account or an administrator of the online game server as the latest owner of the virtual treasure desired to be deleted in its transaction log, and in subsequence the deleted virtual treasure is available for others.

[0033] Although the present invention has been described in considerable detail with reference to certain embodiments thereof, other embodiments are possible. Therefore, the spirit and scope of the appended claims should not be limited to the description of the embodiments contained herein. It will be apparent to those skilled in the art that various modifications and variations can be made to the structure of the present invention without departing from the scope or spirit of the invention. In view of the foregoing, it is intended that the present invention cover modifications and variations of this invention provided they fall within the scope of the following claims.

What is claimed is:

1. A method for processing a virtual treasure of an online game, the method comprising:

- (a) when a client logs in an online game server with a client account through a network, detecting if at least one virtual-treasure transaction log stored in a portable virtual-treasure storage device connected to the client has not been updated in the online game server, wherein the online game server provides an online game through the network;
- (b) if the at least one virtual-treasure transaction log stored in the portable virtual-treasure storage device has not been updated to the online game server, updating virtual treasure information corresponding to the client account stored in the online game server according to the virtual-treasure transaction log which has not been updated to the online game server; and
- (c) providing the online game to the client through the network according to the virtual treasure information.
2. The method for processing a virtual treasure of an online game of claim 1, further comprising:
- if a virtual treasure is obtained through the online game by using the client account, registering the client account in a transaction log of the virtual treasure obtained, and storing the transaction log of the virtual treasure obtained in the portable virtual-treasure storage device connected to the client.
3. The method for processing a virtual treasure of an online game of claim 1, further comprising:
- before transacting a virtual treasure which is desired to be exchanged and stored in the portable virtual-treasure storage device to a buyer's storage device, locking the virtual treasure desired to be exchanged, and utilizing the portable virtual-treasure storage device to deliver a transaction log of the virtual treasure desired to be exchanged to the buyer's storage device for verification; and
- if the virtual treasure desired to be exchanged passes verification, unlocking the virtual treasure desired to be exchanged, and updating the transaction log of the virtual treasure desired to be exchanged stored in the buyer's storage device.
4. The method for processing a virtual treasure of an online game of claim 1, further comprising:
- before transacting a virtual treasure which is desired to be exchanged and stored in a seller's storage device to the portable virtual-treasure storage device, utilizing the portable virtual-treasure storage device to obtain a transaction log of the virtual treasure desired to be exchanged from the seller's storage device;
- utilizing the portable virtual-treasure storage device to verify the transaction log of the virtual treasure desired to be exchanged;
- if the virtual treasure desired to be exchanged passes verification, utilizing the portable virtual-treasure storage device to transmit a verification-passed signal to the seller's storage device to obtain the virtual treasure desired to be exchanged from the seller's storage device; and
- updating the transaction log of the virtual treasure which is desired to be exchanged and stored on the portable virtual-treasure storage device.
5. The method for processing a virtual treasure of an online game of claim 1, further comprising:
- when a virtual treasure in the online game is desired to be deleted by using the client account, deleting the virtual treasure desired to be deleted from the portable virtual-treasure storage device and updating a transaction log of the virtual treasure desired to be deleted.
6. The method for processing a virtual treasure of an online game of claim 1, further comprising:
- utilizing a mutual authentication method to enable the client to authenticate with the online game server according to authentication data stored in the portable virtual-treasure storage device.
7. A system for processing virtual treasures of an online game, the system comprising:
- a portable virtual-treasure storage device for building a connection with a client; and
- an online game server for providing an online game, comprising:
- a detecting module for detecting if at least one virtual-treasure transaction log stored in a portable virtual-treasure storage device connected to the client has not been updated in the online game server when the client logs in with a client account through a network;
- an information updating module for updating virtual treasure information corresponding to the client account stored in the online game server according to the virtual-treasure transaction log which has not been updated to the online game server if the at least one virtual-treasure transaction log stored in the portable virtual-treasure storage device has not been updated to the online game server; and
- a game providing module for providing the online game to the client through the network according to the virtual treasure information.
8. The system for processing virtual treasure of online game of claim 7, wherein the portable virtual-treasure storage device comprises:
- a registering module for registering the client account in a transaction log of a virtual treasure obtained if the virtual treasure is obtained through the online game by using the client account; and
- a storing module for storing the transaction log of the virtual treasure obtained in the portable virtual-treasure storage device connected to the client.
9. The system for processing virtual treasure of online game of claim 7, wherein the portable virtual-treasure storage device comprises:
- a locking module for locking a virtual treasure which is desired to be exchanged before transacting the virtual treasure desired to be exchanged stored in the portable virtual-treasure storage device to a buyer's storage device;
- a delivering module for delivering a transaction log of the virtual treasure desired to be exchanged to the buyer's storage device for verification,
- wherein if the virtual treasure desired to be exchanged passes verification, the portable virtual-treasure storage device unlocks the virtual treasure desired to be exchanged and transmits the virtual treasure desired to be exchanged to the buyer's storage device, such that the buyer's storage device updates the transaction log of the virtual treasure desired to be exchanged stored in the buyer's storage device.
10. The system for processing virtual treasure of online game of claim 7, wherein the portable virtual-treasure storage device comprises:
- an obtaining module for obtaining a transaction log of a virtual treasure which is desired to be exchanged from a



seller's storage device before the portable virtual-treasure storage device transacts the virtual treasure desired to be exchanged stored in the seller's storage device; a verifying module for verifying the transaction log of the virtual treasure desired to be exchanged; and a log update module for updating the transaction log of the virtual treasure desired to be exchanged stored on the portable virtual-treasure storage device if the virtual treasure desired to be exchanged passes verification.

**11.** The system for processing virtual treasure of online game of claim 7, wherein the portable virtual-treasure storage device comprises:

a delete module, wherein when a virtual treasure is desired to be deleted using the client account, the delete module deletes the virtual treasure desired to be deleted from the portable virtual-treasure storage device and updates a transaction log of the virtual treasure desired to be deleted.

**12.** The system for processing virtual treasure of online game of claim 7, wherein the system for processing virtual treasure of online game utilizes a mutual authentication method to enable the client to authenticate with the online

game server according to authentication data stored in the portable virtual-treasure storage device.

**13.** A computer readable storage medium for storing a computer program to perform a method for processing a virtual treasure of an online game, wherein the method comprises:

- (a) when a client logs in an online game server with a client account through a network, detecting if at least one virtual-treasure transaction log stored in a portable virtual-treasure storage device connected to the client has not been updated in the online game server, wherein the online game server provides an online game through the network;
- (b) if the at least one virtual-treasure transaction log stored in the portable virtual-treasure storage device has not been updated to the online game server, updating virtual treasure information corresponding to the client account stored in the online game server according to the virtual-treasure transaction log which has not been updated to the online game server; and
- (c) providing the online game to the client through the network according to the virtual treasure information.

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