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(54) SYSTEM AND METHOD FOR MOBILE GAMES

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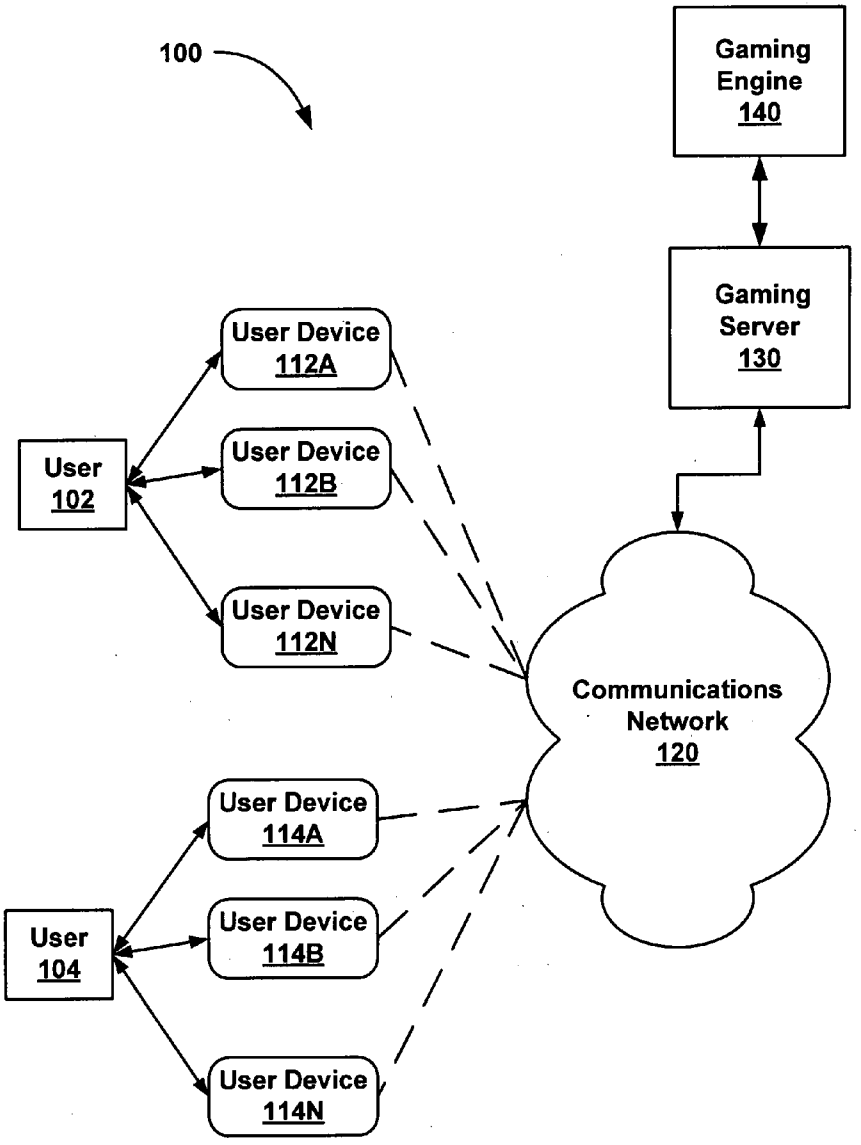
(52) **U.S. Cl.** ..... **463/42**

(57) **ABSTRACT**

A method for seamlessly transitioning communication and control between a user and a real-time online activity from a first user device to a second user device is disclosed. The method includes establishing a communication link via a network between the first user device and the activity for controlling the user's participation in the activity, creating a communication link via the network between the second user device and the activity, validating the second user device, transferring control of the user's participation in the activity to the validated second user device, and terminating the communication link between the first user device and the real-time online activity.



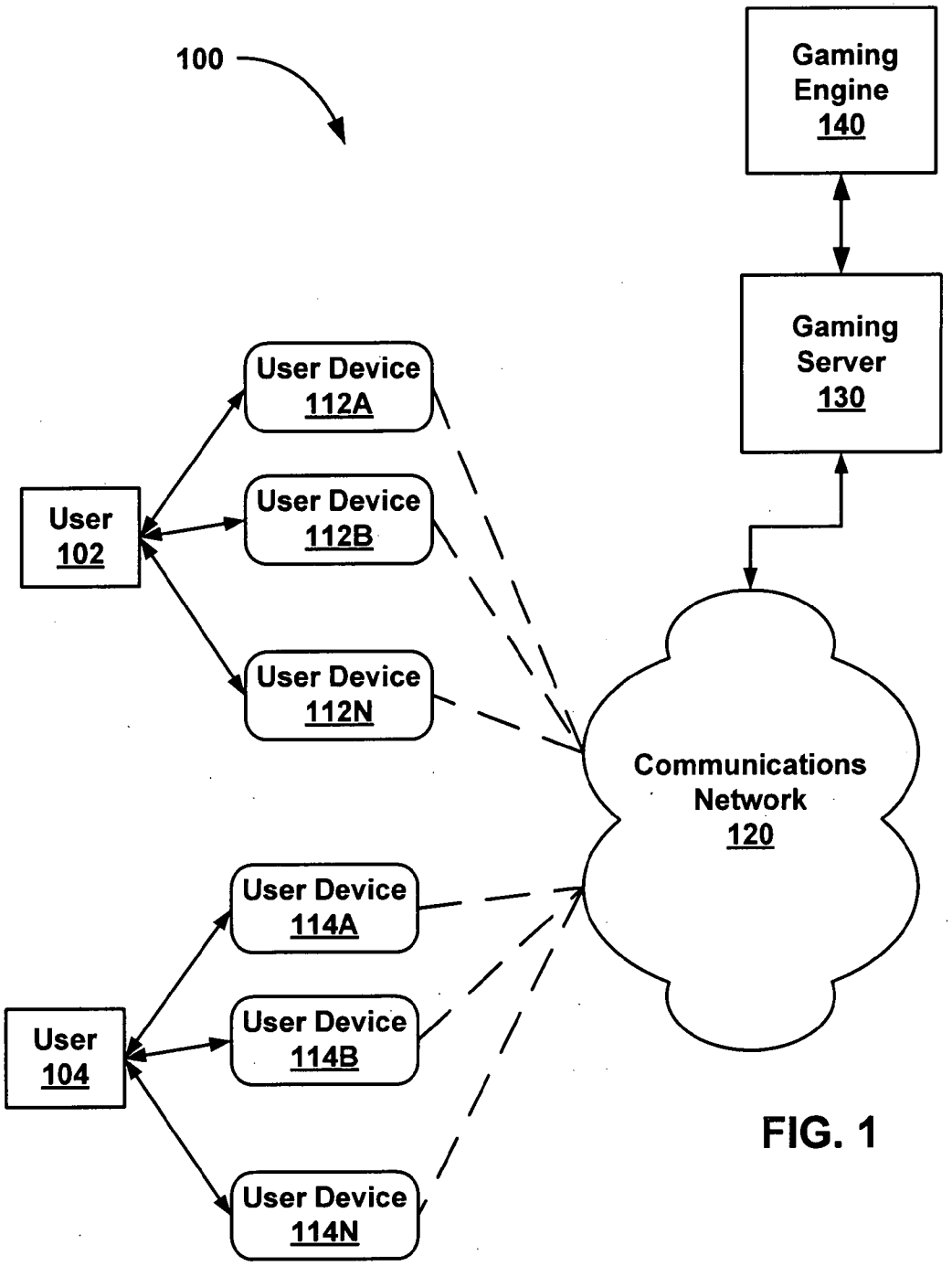

100
Gaming Engine 140
Gaming Server 130
User Device 112A
User Device 112B
User Device 112N
User 102
Communications Network 120
User Device 114A
User Device 114B
User Device 114N
User 104

FIG. 1

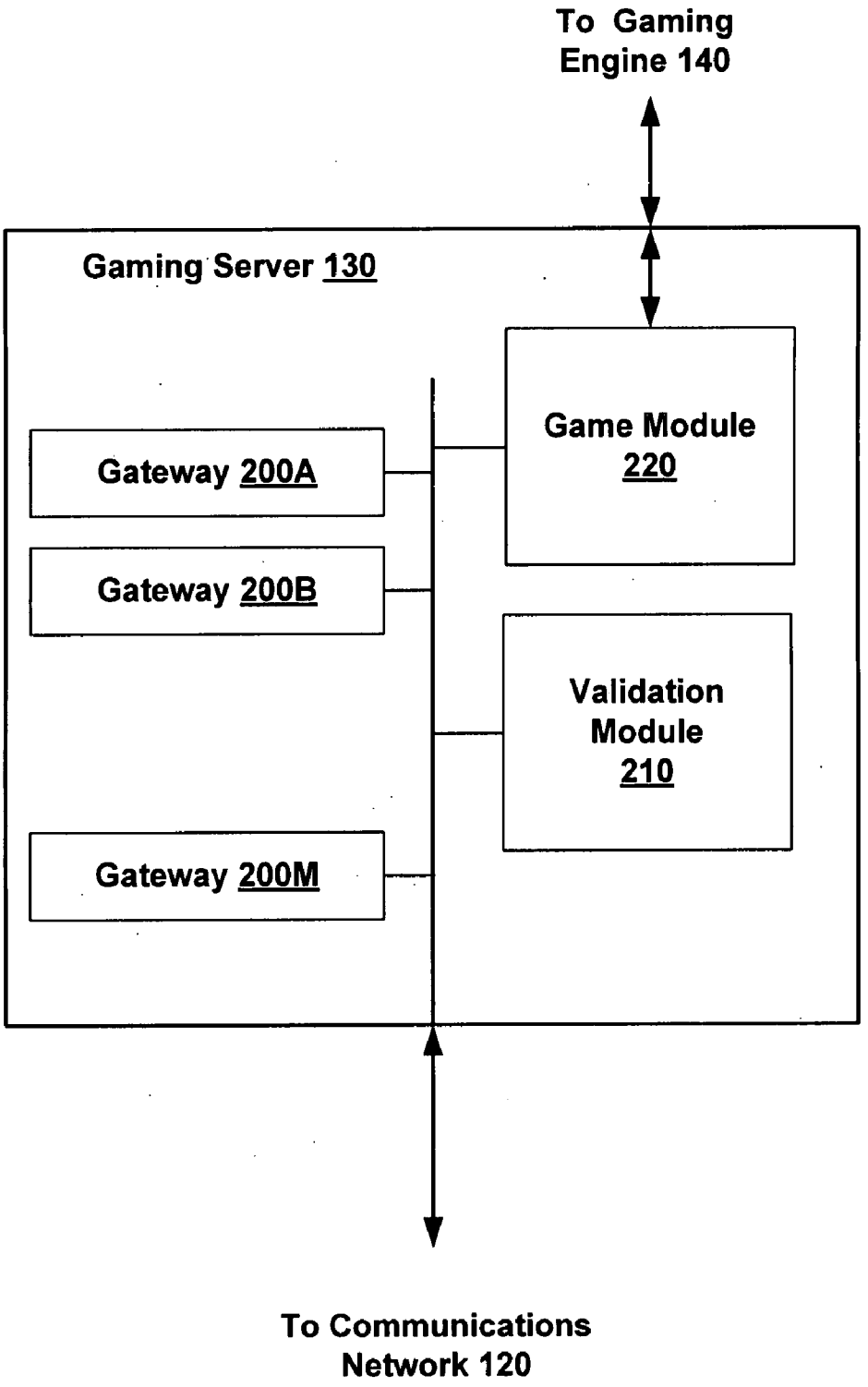

To Gaming Engine 140
Gaming Server 130
Game Module 220
Gateway 200A
Gateway 200B
Validation Module 210
Gateway 200M
To Communications Network 120

FIG. 2

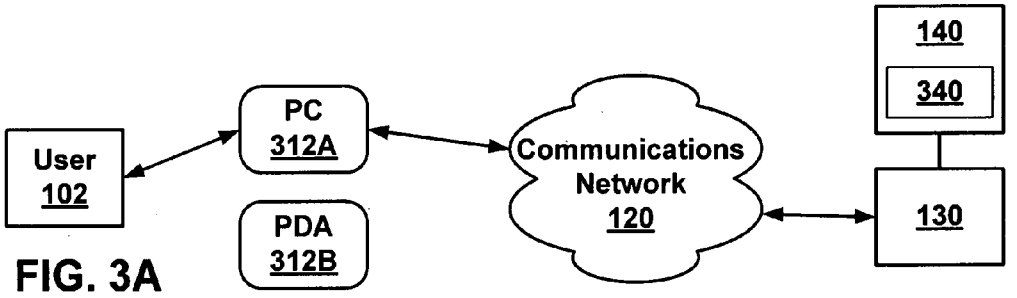



FIG. 3A

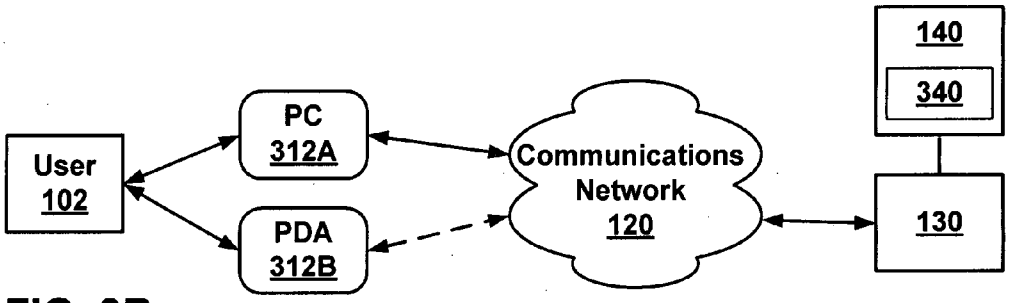



FIG. 3B

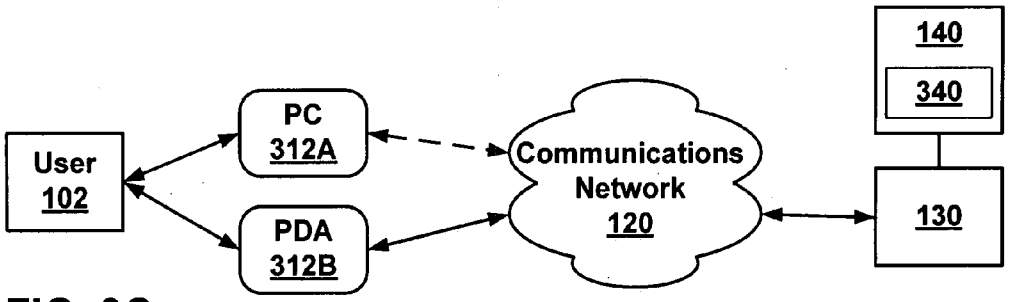



FIG. 3C

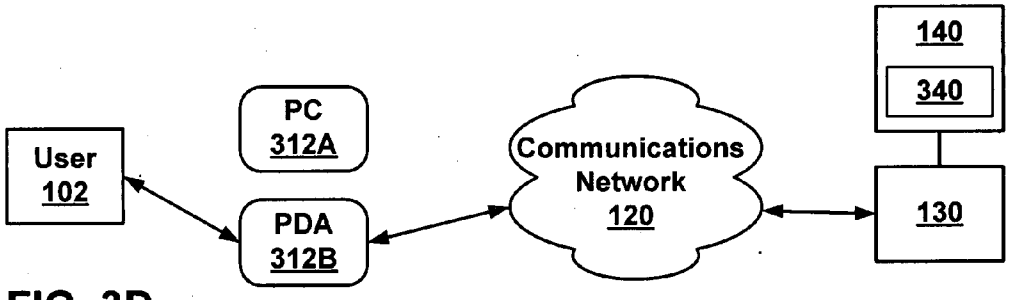



FIG. 3D

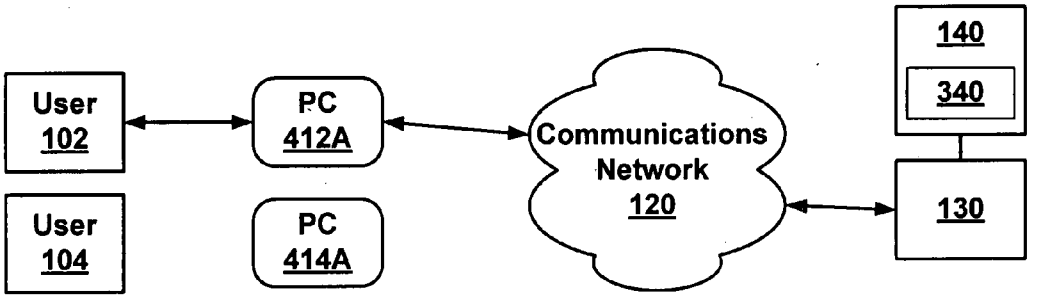



FIG. 4A

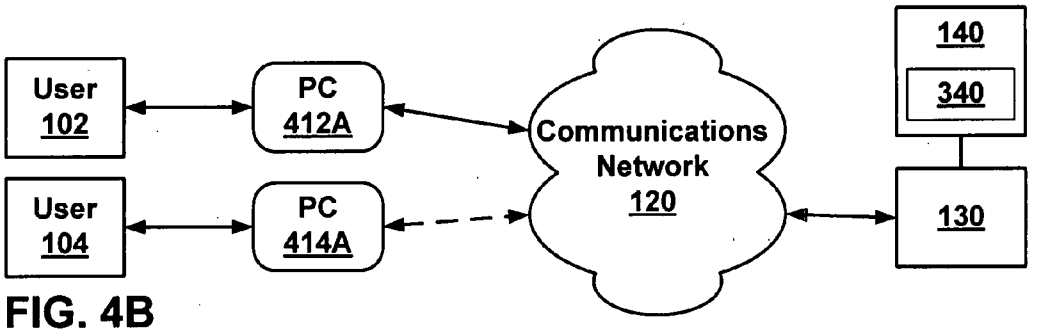



FIG. 4B

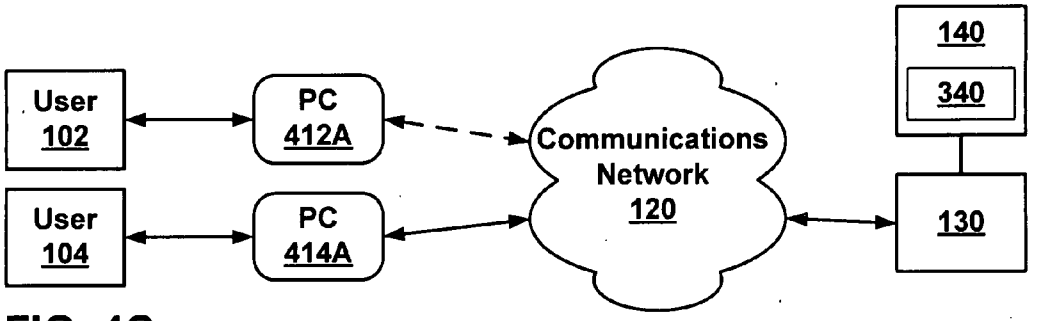



FIG. 4C

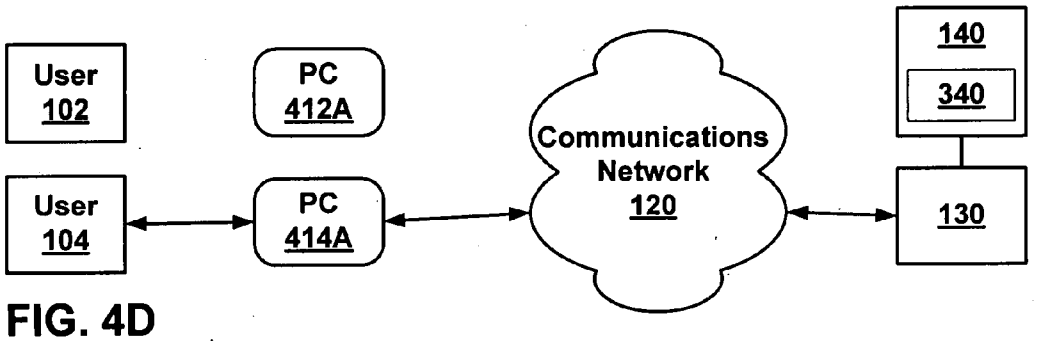



FIG. 4D

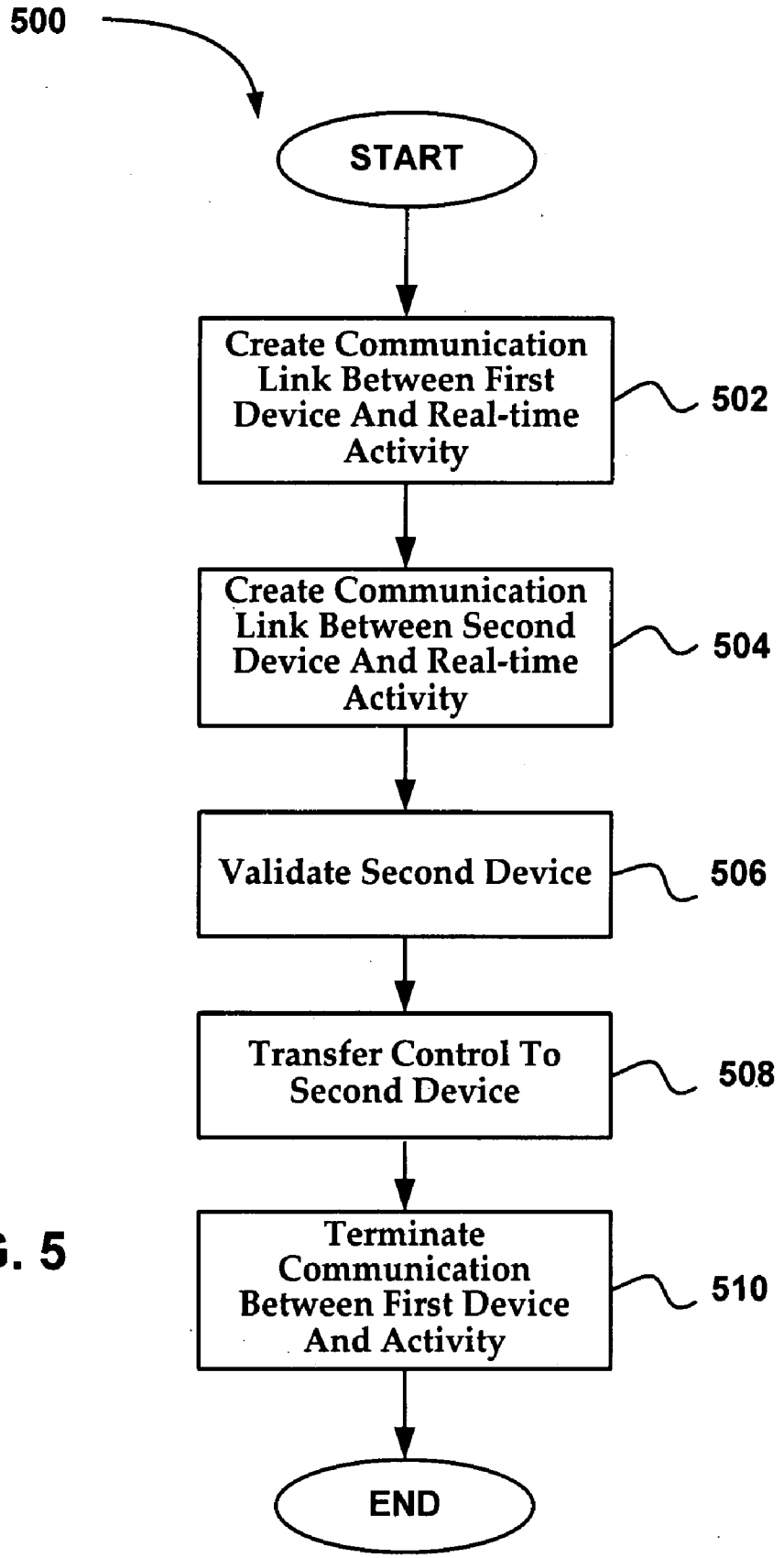

500
START
Create Communication Link Between First Device And Real-time Activity
502
Create Communication Link Between Second Device And Real-time Activity
504
Validate Second Device
506
Transfer Control To Second Device
508
Terminate Communication Between First Device And Activity
510
END

FIG. 5

# SYSTEM AND METHOD FOR MOBILE GAMES

## BACKGROUND

**[0001]** 1. Field of the Invention

**[0002]** The present invention relates generally to internet activities, and more particularly to participating in games.

**[0003]** 2. Description of Related Art

**[0004]** There are various systems that enable multiple users to participate in real-time online gaming activities over the Internet. In some systems, users may be able to compete, cooperate, or socialize while participating in the real-time gaming activities online. Such activities may include single player games in social settings, two player games, multi-player games, and massive multi-player games including live players from around the world. The types of games include card games, board games, games of chance, table top games and so forth.

**[0005]** Some gaming communities enable head-to-head competition between two players, ring games, daily tournaments, and/or massive multi-table events that generally include real-time graphics and sound for enabling interaction with other players. In some cases, players may see and chat with other players from around the world directly through the game. Players may sometimes also pan and control camera angles to direct their views of the other players and player avatars. Communities of players may develop according to location, schools, work, hobbies, friendships, relatives, game interests, skill levels, and so on. Players' scores may be posted for viewing by the other players in the gaming communities.

**[0006]** Players may connect to real-time online social activities within the gaming communities using various devices, including personal computers (PC's) or mobile devices such as personal digital assistants (PDA's), personal entertainment devices, or wireless telephones, and so forth.

**[0007]** Often, a player may wish to transfer control of his or her participation from one device to another. For example, a player participating in a live poker tournament using a desktop computer may decide to leave the computer to travel, and may wish to continue participating in the game while traveling. To do so, the player may log out of the game from the desktop computer and back into the game from, for example, a PDA. However, by the time the PDA reconnects to the game, several hands may have been played or the player's seat in the game may be gone and the player must start over in a new tournament. In another example, the batteries in a portable device may run out of power in the middle of a game. In response, the player may try to switch to a desktop computer. Again, by the time the desktop computer reconnects to the game, hands may have been played and/or the player's seat in the game may be gone.

**[0008]** Such current systems do not have the ability to preserve real-time participation in an online gaming activity while transferring control of the activity from one device to another.

## SUMMARY

**[0009]** The present invention provides a method for a user to transfer control over a real-time online game or other online activity from one user device to another user device while the user continues to participate in the game or activity without interruption. Alternatively, the user may transfer control of the real-time game to a friend or a guest who may be at another location and who may assume the user's identity and continue to participate in the game on another device without interruption.

**[0010]** In one embodiment of the present invention a method for seamlessly transitioning communication with and control by a user of a real-time online activity from a first user device to a second user device comprises establishing a communication link via a network between the first user device and the activity for controlling the user's participation in the activity, creating a communication link via the network between the second user device and the activity, validating the second user device, transferring control of the user's participation in the activity to the validated second user device, and terminating the communication link between the first user device and the real-time online activity.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0011]** FIG. **1** is a block diagram of an exemplary gaming community that may be used with various embodiments of the invention.

**[0012]** FIG. **2** is a block diagram of an exemplary architecture of the gaming server of FIG. **1**.

**[0013]** FIGS. **3**A-**3**D illustrate a method of a transferring user control over a game activity from a user device to another user device, according to one embodiment of the present invention.

**[0014]** FIGS. **4**A-**4**D illustrate a method of transferring of control over a game activity from a first user to a second user, according to another embodiment of the present invention.

**[0015]** FIG. **5** is a flow chart of an exemplary method for seamlessly transitioning communication and control between a user and a real-time online activity from one user device to another, according to the present invention.

## DETAILED DESCRIPTION

**[0016]** FIG. **1** is a block diagram of an exemplary gaming community **100** that may be used with various embodiments of the invention. The gaming community **100** includes a plurality of users such as users **102** and **104**, a communications network **120**, a gaming server **130**, and a gaming engine **140**. The users **102** and **104** may participate in real-time online social activities hosted by the gaming engine **140**. The user **102** may communicate with the gaming server **130** by using any of user devices **112**A-**112**N via the communications network **120**. The user **104** may likewise communicate with the gaming server **130** with any of user devices **114**A-**114**N via the communications network **120**. The user devices **112**A-**112**N and user devices **114**A-**114**N may include computers, gaming systems, and/or mobile devices, such as PDA's, wireless telephones, digital cameras, mobile phones, cell-phones, smart-phones, notebook computers, laptop computers, hand-held game consoles, and personal media players, and so forth. While two users **102** and **104** are illustrated, the gaming community **100** may include any number of users and user devices.

**[0017]** In various embodiments, the communications network **120** may include a local area network (LAN) such as an intranet, a wide area network (WAN) such as the Internet, a wireless network, etc. User devices **112**A-**112**N and **114**A-**114**N, and gaming server **130**, contain software such that they may communicate with each other and transfer data. The

communication link may include such hand-shaking, security protocols and/or encryption as is appropriate for the devices used.

**[0018]** Gaming server **130** is an online server configured to validate the user devices **112**A-**112**N and **114**A-**114**N and to provide communication links and activity control between the gaming engine **140** and the user devices **112**A-**112**N and **114**A-**114**N, respectively. The gaming server **130** may transfer the activity control from one communication link (e.g., with the user device **112**A) to another communication link (e.g., with the user device **112**B) as described below.

**[0019]** The gaming engine **140** is configured to provide real-time online gaming or other activities to users such as users **102** and **104**. The users **102** and **104** may control their participation in the activities via the communication links between the user devices **112** and **114**, respectively, and the gaming server **130**. In various embodiments, online gaming activities may include single player games, multi-player games, team games, competitions, tournaments, multi-player tables, multi-table events, massive multi-player games, in-game chat, and so on. Examples of games include Texas hold'em, sudoku, chess, backgammon, mahjong, dominoes, blackjack, hearts, slots, roulette, poker, card games, board games, ring games, games of chance, and so forth.

**[0020]** FIG. **2** is a block diagram of an exemplary architecture of the gaming server **130** of FIG. **1**. The gaming server **130** includes a plurality of gateways **200**A, **200**B, . . . **200**M (hereinafter **200**A-**200**M), a validation module **210**, and a game module **220**. The gateways **200**A-**200**M are configured to establish communication links between the gaming server **130** and the user devices **112**A-**112**N and **114**A-**114**N. For example, gateway **200**A may receive a communication request via the communications network **120** from the user device **112**A and establish a communication link with the user device **112**A such that gateway **200**A and user device **112**A are linked. Likewise, gateway **200**B may receive a communications request from user device **114**A and become linked with the user device **114**A.

**[0021]** In some embodiments, the links between gateways **200**A-**200**M and the user devices **112**A-**112**N and/or **114**A-**114**N may be made or terminated at any time, and gateways **200** used for new links with other devices. For example, the communication link between the gateway **200**A and the user device **112**A may be terminated whereupon the gateway **200**A may receive a request and establish a communication link with the next user device requesting a communication link, for example, the user device **114**B.

**[0022]** The validation module **210** is configured to validate the user devices **112** and **114** to which the gateways **200** have established communication links. The validation module **210** may use user information about the user **102** to determine whether to validate the user device **112**A, such as a user name, password, etc.

**[0023]** The validation module **210** may also use device specific information or device environmental information to validate the user device **112**A. Device specific information may be stored on the device in volatile or nonvolatile memory. Examples of device specific information include an operating system, protocol, handshaking data, encrypted keys, digital certificates, and so forth. The validation module **210** may interrogate the user device **112**A to retrieve and evaluate device specific information.

**[0024]** Device environmental information may be acquired by a user device and may include information such as location, proximity to other devices, temperature, pressure, and so forth based on software and/or circuits built in or attached to the user device. This information may be provided to the validation module **210**. For example, the validation module **210** may receive GPS coordinates to determine the location of the user device **112**A. Alternatively, the validation module **210** may interrogate a user device **112**A coupled to a radio frequency identification (RFID) tag sensor to determine proximity of another user device (e.g., user device **114**A) carrying an RFID tag.

**[0025]** If the user device **112**A cannot be validated based on user information, device specific information, or device environmental information the validation module may instruct the gateway **200**A to terminate the communication link. If the validation module **210** determines that the user device **112**A is valid, the gateway **200**A may be instructed to maintain the communication link. The validation module **210** may further inform the game module **220** that the user device **112**A is valid.

**[0026]** If the validation module **210** detects an attempt by the user **102** to participate in a game using both the user device **112**A and the user device **112**B simultaneously, it may be assumed that a transfer of control is being attempted. In such a case, the validation module **210** may inform the game module **220** and control may be transferred.

**[0027]** The validation module **210** may be programmed to impose other requirements. For example, a user **102** may be allowed to participate only during certain hours (e.g., 16:00 to 22:00 or only on weekends). If the user **102** attempts to log in via the user device **112**A outside of an authorized time period, the validation module **210** may determine that the user device **112**A cannot be validated for participation at such time.

**[0028]** In some embodiments, the validation module **210** may track the location of a user device in real time. For example, a user device **112**A may be authorized to participate in a game of chance (gambling) within Nevada, but not California. If the validation module **210** detects that the user device **112**A is entering California, the communication link between the user device **112**A and the gaming server **130** may be terminated or suspended.

**[0029]** The validation module **210** may track the locations of all the user devices in a game. For example, a game such as poker may require that no two user devices are permitted to be within a predetermined distance of each other, to prevent collusion between two players, or self dealing such as one user playing two hands simultaneously. Thus, if the validation module **210** detects that user device **112**A and **114**A are within fifteen feet of each other using, for example, RFID tags or GPS coordinates, the validation module **210** may terminate the communication link to either or both devices.

**[0030]** The validation module **210** may also use location information to aid in verifying the identity of a user **102**. For example, it may appear that the user **102** is seeking to establish a communication link to a game via the gaming server **130** from a user device **112**A located in New York, and then a few minutes later attempting to establish a communication link to the game from a user device **112**B reporting a location in California. The validation module **210** may conclude that the user **102** cannot be in both places in such a short time and terminate the communication link with the user device **112**B and/or **112**A.

**[0031]** Once the communication link is established and a user device such as user device **112**A is validated, the game module **220** is configured to connect the user device to the

gaming engine **140**. In some embodiments, the validation module **210** may determine a protocol compatible with the user device **112**A. Once the communication link connects the user **102** to the gaming engine **140**, the user **102** may participate in a game hosted by the gaming engine **140** and control the game activities. In some embodiments, the gaming server **130** and the gaming engine **140** may be the same device.

**[0032]** In some embodiments, the game module **220** translates graphics and data into a format compatible with the user devices. For example, a user device **112**A may use a JAVA environment for displaying a graphic representation of the online gaming activity whereas another user device **114**A may operate under a PDA specific operating system (e.g., PDA OS). The game module **220** receives information about the online gaming activity including positions, resources, moves, graphic representations and so forth from the gaming engine **140** and translates the information into a format compatible with JAVA or PDA OS as appropriate. Alternatively, the gaming engine **140** may translate the information into a format compatible with the user devices.

**[0033]** FIGS. **3**A-**3**D illustrate a method of a transferring user control over a game activity from a user device (e.g., PC **312**A) to another user device (e.g., PDA **312**B), according to one embodiment of the present invention. As illustrated in FIG. **3**A, the user **102** controls an online gaming activity in the gaming community **100** using a first communication link including the PC **312**A, the communications network **120**, the gaming server **130**, and a game **340**. As illustrated in FIG. **3**A-**3**D, the game **340** is a module in the gaming engine **140**. In some embodiments, the game **340** may be a module in the gaming server **130** or a stand-alone instance of the gaming engine **140**. The gaming engine **140** may include multiple games of which the game **340** is one module. The user **102** may wish to transfer control of the online gaming activity from PC **312**A to a second communication link including the PDA **312**B, the communications network **120**, the gaming server **130**, and the game **340**, to continue the game without interruption on PDA **312**B.

**[0034]** In FIG. **3**B a second communication link is established between the PDA **312**B and the gaming server **130**. The second communication link may include a protocol appropriate for the PDA **312**B which is a different protocol from that used in the first communication link with the PC **312**A. The gaming server **130** may validate the PDA **312**B as discussed above, may use another gateway, such as a gateway **200**B, to establish the second communication link to the PDA **312**B.

**[0035]** In FIG. **3**C, the gaming server **130** has validated the PDA **312**B and connected the user **102** to the game **340**. The validation module **210** may notify the game module **220** that the PDA **312**B linked to the gateway **200**B is valid and instruct the gateway **200**B to maintain the communication link to the PDA **312**B and drop the communication link to the PC **312**A. Thus, the user **102** may control game activities in the game **340** via the communication link to the PDA **312**B.

**[0036]** In FIG. **3**D, the gaming server **130** has terminated the communication link to the PC **312**A. The game module **220** may terminate the communication link between the PC **312**A and the game **340** after establishing the communication link between the PDA **312**B and the game **340**. Alternatively, the game module **220** may terminate the link to the PC **312**A before establishing the link to the PDA **312**B if the time between the connections is short enough so that the user does not notice it.

**[0037]** FIGS. **4**A-**4**D illustrate a method of transferring of control over a game activity from a first user **102** to a second user **104**, according to another embodiment of the present invention. FIGS. **4**A-**4**D differ from FIGS. **3**A-**3**D, respectively, in that control is transferred between two users in FIGS. **4**A-**4**D whereas in FIGS. **3**A-**3**D the control remains with the same user **102** and is transferred between two user devices.

**[0038]** In FIG. **4**A, a PC **412**A under control of the user **102** is connected to a communications network **120** and a first communication link has been established between the PC **412**A and the game **340**. In this example, the user **102** decides to stop playing the game **340** but would like someone else, perhaps a friend or an expert, to continue the game **340** in his or her place. The user **102** may desire that the user **104** take over the game **340** in real-time and without interruption, for example, to preserve or improve a position in the game **340**. Such transfer of control of the game **340** to another user may be appropriate for some types of games.

**[0039]** In FIG. **4**B, the user **104** has activated the PC **414**A and established a second communication link with the gaming server **130**. The gaming server **130** may validate the PC **414**A and determine a compatible protocol using the validation module **210**, as discussed above. The users **102** and **104** may be in the same location or different locations. In some embodiments, the user **104** may be in a different city, country, or on the other side of the world from the user **102**.

**[0040]** The user **102** may need to provide the user **104** with a user identification (ID), password, or other information to enable validation of the PC **414**A so that the user **104** may participate in the game. In some embodiments, a "guest" ID and/or password may be provided to the user **104** to indicate to the gaming server **130** that the PC **414**A is being controlled by someone other than the user **102**. The guest ID and password may be temporary to enable the user **102** to regain control. Optionally, the user **102** may invalidate the guest ID and/or password at any time.

**[0041]** In FIG. **4**C, the gaming server **130** has validated the PC **414**A and connected the second communication link to the game **340**. Thus, the user **104** may control game activities in the game **340** using the PC **414**A via the second communication link. In FIG. **4**D, the gaming server **130** has terminated the first communication link.

**[0042]** FIG. **5** is a flow chart of an exemplary method **500** for seamlessly transitioning communication and control between a user and a real-time online activity, such as an online game, from one user device to another, according to the present invention. In step **502**, the server hosting the activity establishes a communication link via a communications network such as the Internet, between a first device and the activity for controlling the user's participation in the activity. Once established, the communication link may continue while the user participates in the activity using the first device. At some point, the user decides to transfer control of the activity from the first device to the second device.

**[0043]** In step **504**, the server creates a new communication link via the communications network between the second user device and the activity. The user may continue participating in the activity using the first device while the server establishes the new communication link. In various embodiments, the server may create the new communication link automatically, or with the participation of the user. For example, upon power on, a user device may automatically use

the stored information to navigate to a website in the gaming engine hosted by the server. Alternatively, the user may manually navigate to the website.

**[0044]** In step **506**, the server validates the second user device. In some embodiments, the validation step takes a few seconds or less than a second to preserve real-time features of the activity. Automated validation procedures may be established and installed into the second user device in advance by the user and/or the server. Thus, an automated validation exchange between the second user device and the server may be accomplished rapidly.

**[0045]** In step **508**, the server transfers control of the user's participation in the activity to the validated second user device and the user may continue to control and participate in the activity using the second user device instead of the first user device.

**[0046]** In step **510**, the server terminates the communication between the first user device and the activity. The termination of the communication prevents the user from using both the user devices simultaneously to control or participate in the activity. The steps **506-510** may be performed within a few seconds or less to make the transfer transparent and prevent the user from issuing conflicting commands to the activity from both user devices. In some embodiments, the user devices may be operated by the different users, as above.

**[0047]** Although the method **500** is described as being comprised of steps **502-510**, fewer or more steps may comprise the method and still fall within the scope of various embodiments.

**[0048]** While various embodiments have been described above, it should be understood that they have been presented by way of example only, and not limitation. For example, the gaming engine **140** is not limited to providing games but may provide real-time online activities other than games (e.g., virtual classrooms, participatory entertainment, dramas, interactive conferencing, and so forth) to multiple users. For example, the validation module **210** may determine location of a user device using cell phone system coordinates (e.g., determined using multilateration), proximity of a user device to one or more known RFID tag, internet service provider (ISP) information, and/or an internet protocol (IP) address. Thus, the breadth and scope of a preferred embodiment should not be limited by any of the above-described exemplary embodiments.

What is claimed is:

**1**. A method for seamlessly transitioning communication and control between a user and a real-time online activity from a first user device to a second user device comprising:

creating a communication link via a network between the first user device and the activity for controlling the user's participation in the activity;

creating a communication link via the network between the second user device and the activity;

validating the second user device;

transferring control of the user's participation in the activity to the validated second user device; and

terminating the communication link between the first user device and the real-time online activity after transferring control to the second user device.

**2**. The method of claim **1**, wherein the first user device is a computer, a mobile device, a mobile telephone, or a personal digital assistant.

**3**. The method of claim **1**, wherein the second user device is a computer, a mobile device, a mobile telephone, or a personal digital assistant.

**4**. The method of claim **1**, wherein validating the second user device comprises receiving device specific information about the second device.

**5**. The method of claim **4**, wherein the device specific information includes information about software installed in the second user device.

**6**. The method of claim **4**, wherein transferring control further comprises using a protocol compatible with the second user device.

**7**. The method of claim **4**, further comprising sending information about the online activity to the second user device based on the device specific information.

**8**. The method of claim **7**, wherein the information about the online activity includes a graphic representation of the online activity.

**9**. The method of claim **1**, wherein validating the second user device comprises receiving device environmental information from the second user device.

**10**. The method of claim **9**, wherein the device environmental information includes device location information.

**11**. The method of claim **10**, wherein the device location information is based on global positioning system (GPS) coordinates of the second user device.

**12**. The method of claim **10**, wherein the device location information is based on cell phone coordinates determined using multilateration.

**13**. The method of claim **1**, wherein the online activity comprises a game.

**14**. The method of claim **13**, wherein the game comprises a multiplayer game.

**15**. The method of claim **13**, further comprising providing the user with a graphic representation of the game.

**16**. The method of claim **13**, wherein validating the second user device is based on a location of another player in the game.

**17**. The method of claim **13**, wherein validating the second user device is based on a location of all the other players in the game.

**18**. A method for transferring control of real-time online activity from a first user device to a second user device comprising:

creating a first communication link via a network between the first user device and an online server;

establishing control of the first user device over the online activity;

creating a second communication link via the network between the second user device and the online server;

validating the second user device;

establishing control of the second user device over the online activity; and

terminating control of the online activity by the first communication link after establishing control of the second user device over the online activity.

**19**. The method of claim **18**, wherein the first user device is operated by a first user and the second user device is operated by a second user.

**20**. The method of claim **18**, wherein the online activity comprises the user's participation in an online game.

**21**. The method of claim **20**, wherein the online game comprises a multi-player game.

**22**. The method of claim **20**, further comprising providing information about the online game to be displayed by the second user device after validating the second user device.

**23**. The method of claim **18**, wherein validating the second user device includes determining a location of the first user device and the second user device.

**24**. A method for transferring control of a real-time online activity from a user device linked to the activity via a network to a new user device comprising:

receiving a request from the new user device via the network to control the online activity;

authorizing the new user device to control the online activity;

creating a link to the new user device; and

terminating the link to the user device after creating the link to the new user device.

**25**. The method of claim **24**, further comprising determining a location of the new device and wherein authorizing the new user device further comprises authorizing the new user device only if the location of the new user device is within a predetermined area.

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