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Pavel Podivilov

Yegenyi Gutnik

Yuri Dolgov

Roman Yurievich Shuvaev

Anton Sergeevich Mukhin

*See next page for additional authors*

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**Inventor(s)**

Pavel Podivilov, Yegeniy Gutnik, Yuri Dolgov, Roman Yurievich Shuvaev, Anton Sergeevich Mukhin, Robert Lopez Toscano, and Christian Andrew Warren

## Event Based Sharing of a Device

Abstract: A host of an event may grant guests time-based access to electronic devices during the event. The host of the event may create the event at a social planning website. The host may have previously configured an access server and electronic device to grant access to the electronic device to guests during the event based on the event being created at the social planning website.

Users or owners of electronic devices capable of interconnecting with other electronic devices may desire simple and flexible sharing of their electronic devices. For example, a person having a party at home may want to share access to a home door lock, a wireless router, or a digital media player. The person may have already created an event on a social planning website, and the server of the social planning website may have enough information, such as the start and end time and guests, to determine who and when to share the electronic device(s) with.

The owner of the electronic devices may have previously configured the electronic device(s) with authentication information such as a password, and may provide the authentication information to an access server. The access server may retrieve the start and end time and guests from the server of the social planning website, provide event information such as the start time and end time and authentication information such as temporary passwords to the electronic device(s), and provide the temporary passwords to the guests. The guests may then use the authentication information to access the electronic device(s), and the electronic device(s) may allow access based on the authentication only during the time of the event. After configuring the access server and the electronic device(s), the user need not interact with the access server or electronic device(s), and may grant the guests time-based access to the electronic device(s) by creating events at the social planning website which may be maintained by an event server.

FIG. 1 is a diagram showing entities in a system for granting users time-based authorization to an electronic device 108. The entities may communicate with each other via a network, such as the Internet. The system may include a host 102. The host 102 may include a computing device accessed by the user creating an event and inviting guests. The user may create the event by logging into an event server 104, which may maintain a social planning website, a social networking website, or a web-based calendar application which may allow the user to invite other persons to an event, via the host 102.

The event server 104 may allow the user to create an event based on date and time, as well as location. The event server 104 may also allow the user to invite guests. The user may, for example, provide a title, date and time, and location for the event, as well as a guest list. The user may also list the electronic device(s) that the guests will be allowed to access during the event. The event server 104 may send electronic notifications, such as email, to users of the guest computing devices 110, 112, informing them of the title, date and time, and location of the event.

The user of the host 102 may also decide to grant the guests 110, 112 access to the electronic device 108 during the scheduled event. The host 102 may login to an access server 106 and provide the access server 106 with access to the user's account that is in the event server 104 and authentication information for the device 108. The access server 106 may maintain an account for the user to manage multiple devices, and may also include web applications such as email, calendar, or other applications. The user may have previously configured the device 108 with access settings, via either the host 102 or another computing device.

The access server 106 may pull the invitees or guests 110, 112 from the event server 104, and grant them access to the device 108 during the date and time of the event. The access server 106 may also configure the electronic device 108 to grant access to the guests 110, 112 during

the date and time of the event. The device 108 may include an electronic device with secure access, such as an IEEE 802.11 Wireless Fidelity (Wi-Fi) access point, an electronic lock, a digital media player, a printer, a scanner, a storage device, a camera, or any networking device. The host 102, event server 104, access server 106, and guests 110, 112 may include computing devices such as servers, personal computers, laptop or notebook computers, or smartphones. The host 102, event server 104, access server 106, electronic device 108, and guests 110, 112 may each include one or more processors capable of executing instructions stored by a memory device, one or more memory devices configured to store instructions for the at least one processor to perform the methods and functions described herein, and one or more communication interfaces configured to communicate with other computing devices.

FIG. 2 is a timing diagram showing the configuration and use of the system shown in FIG. 1. The host 102 may configure the device 108 (202). The host 102 may configure the device 108 by, for example, setting up a password or other authentication system by which the device 108 may be accessed. The configuration may include allowing someone with a password or a specific entity, such as the access server 106, to create temporary passwords or other authentication techniques to allow different users to access the device 108. The configuration may also include adding devices to an Access Control List (ACL) of devices, such as the guests 110, 112, that are allowed to access the device 108 at specified times.

The host 102 may also register with the access server 106 (204). The host 102 may register with the access server 106 by creating an account, which may include a username and password, and by providing the password or other authentication credential used to access and/or configure the electronic device 108, to the access server 106. The access server 106 may

thereafter register with the device 108 (206) using the credentials provided to the access server 106 by the host 102.

The host 102 may create an event with the event server 104 (208). The host 102 may, for example, create an account and/or log into the social planning website maintained by the event server 104 and create an event that includes a title, a location, a date, and/or a time. The event may also include a list of invitees with contact information for the invitees such as email addresses. The event may also include a list of electronic devices, including the electronic device 108, which may include a Wi-Fi access point, electronic lock, digital media player, a printer, a scanner, a storage device, a camera, or any networking device, that the guest 110 (and anyone else invited to the event) will be allowed to access during the event.

The host 102 may provide contact information for the guest 110, such as the guest's email address. The host 102 may first invite at least a first guest 110. Based on the host 102 creating the event, the event server 104 may invite at least the first guest 110 (210). The event server 104 may invite the first guest 110 by sending the first guest 110 information about the event, such as the title, date, time, and location, as well information about the host 102 such as a name and/or email address. The event server 104 may invite the guest 110 by electronic communications, such as email.

The host 102 may decide to share the device with the invitees of the event created at the event server 104 by sending a share device instruction (212) to the access server 106. The instruction to share the device 108 may be provided by the host 102 to the access server 106 by the host 102 logging into the access server 106 using credentials determined during the registration (204). Based on the host 102 sending the access server 106 the instruction to share the device (212), the access server 106 may send event information (213) to the device 108. The

event information may include, for example, a time of the event and other authentication credentials such as one or more temporary passwords that the guests will provide to the electronic device 108 to access the electronic device 108. In addition to or alternatively to the temporary passwords, the electronic device 108 may add the guest 110 to the ACL maintained by the electronic device 108. If the guests are added to the ACL maintained by the electronic device 108, the access server 106 will provide the event information (213) to the electronic device after requesting and receiving the guest or invitee list from the event server 104, and will update the event information (213) with the electronic device 108 each time the access server (106) receives an updated guest or invitee list or a change to the guest or invitee list from the event server 104.

In an example implementation, rather than the host 102 sending the access server 106 the message (212) indicating that the device 108 should be shared after creating the event (208), the access server 106 may pull the event from the event server 104. The host 102 may have previously registered with the event server 104, and provided login credentials for the host's 102 account with the event server 104 to the access server 106. The access server 106 may periodically check with the event server 104 to determine whether the host 102 has scheduled any events, and if so, the dates and times, guests, and any electronic devices that should be shared with the guests. The access server 106 may thereafter enable the guests to access the electronic devices without the host 102 having to interact with either the access server 106 or electronic device 108 after creating the event (208).

After receiving the instruction to share the device 108 or periodically, the access server 106 may request guests (214) from the event server 104. The access server 106 may request guests and/or events by pulling the guest list and/or events created by the host 102 from the event server 104. The access server 106 may, for example, log into the event server 104 using

credentials provided by the host 102. The event server 104 may respond the request by providing the current guest list (216). The access server 106 may then send authentication credentials (218) to the currently invited guest 110. The authentication credentials may include, for example, a temporary password.

After having instructed the access server 106 to share the device 108, the host 102 may decide to add at least a second guest 112 to the event (220). The host 102 may provide contact information for the second guest 112 to the event server 104. The event server 104 may add the second guest 112 to the guest list, and send an invitation (222) to the second guest 112. The invitation (222) may include the same information as the invitation (210) sent to the first guest 110, such as the title, date, time, and location of the event.

The access server 106 may periodically poll the event server 104 for a current guest list and/or event list. The access server 106 may request guests (224) again from the event server 104. The event server 104 may respond to the request for guests (224) with the current guest list (226). The event server 104 may either send a current list of all the guests to the access server 106, or may send only those guests that have changed, such as guests that have been added or removed. In response to receiving the current guest list indicating that a new guest has been invited, the access server 106 may send authentication credentials (228) to the new guest 112. The authentication credentials may include, for example, a temporary password to access the device 108.

The event 234 created by the host 102 at the event server 104 may have a specific timeframe, such as between 7pm and 9pm. Guests who attempt to access the device 108 before the event 234 begins or after the event 234 ends and may be denied access, but guests who

attempt to access the device 108 during the event 234 using the authentication credentials supplied by the access server 106 may be granted access.

In the example shown in FIG. 2, the first guest 110 may request access (230) before the event 234 begins. The first guest 110 may, for example, provide the authentication credentials supplied by the access server 106 before the event 234 begins. The device 108 may receive the request for access (230), determine that the request has been made before the event 234 begins, and deny (232) access based on the request.

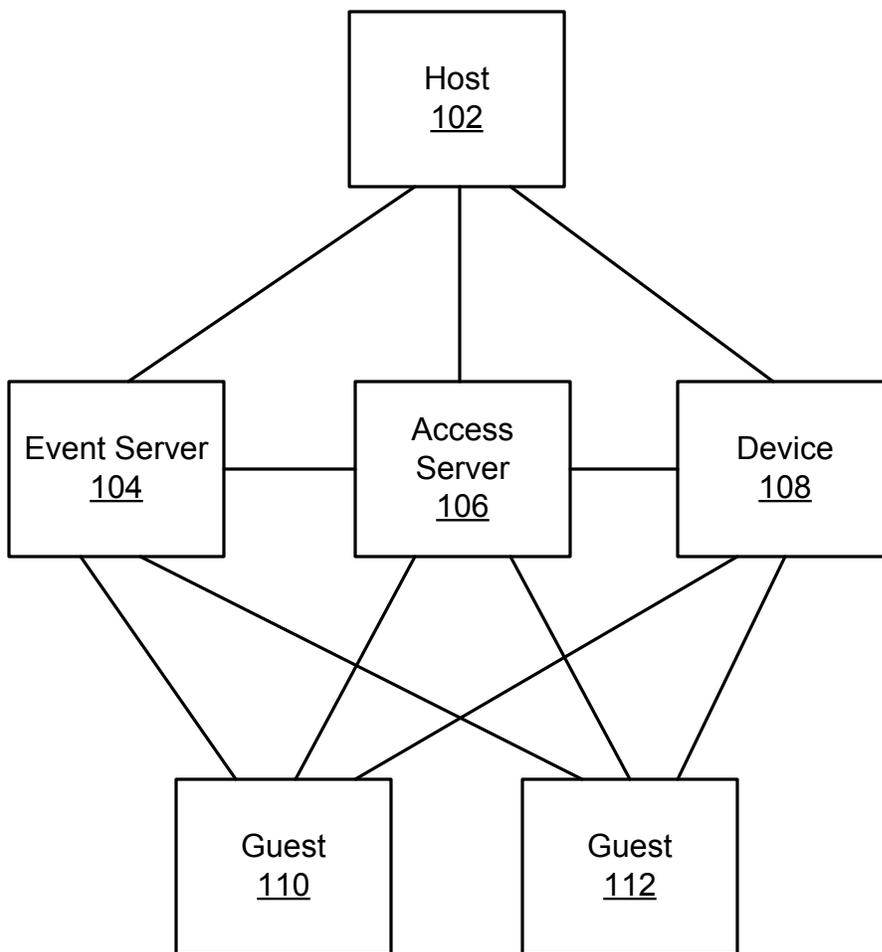
In the example shown in FIG. 2, the first guest 110 may later request access (236) during the event 234. The device 108 may check the supplied authentication credentials, determine that the supplied authentication credentials match the credentials provided by the access server 106 to the device 108 as part of the event information (213), and grant access (238) to the first guest 110.

In the example shown in FIG. 2, the second guest 112 may show up late to the party, requesting access (240) after the event 234 has ended. The device 108 may determine that although the authentication credentials may be correct (or may not check the authentication credentials), the request for access (240) has been made after the event 234 has ended based on the information provided by the access server 106 to the device 108 in the event information (213), and deny access (242) to the second guest 112. After the event 234 has ended, the device 108 may also stop granting access to the first guest 110, who was previously provided access to the device 108.

In an example implementation, the electronic device 108 may confirm authentication credentials provided by the guests 110, 112, and/or the time of the event 234, with the access server 106. Upon receiving the access requests 230, 236, 240, which may include authentication

credentials such as usernames, device identifiers, and/or passwords, the electronic device 108 may send the authentication credentials to the access server 106. The access server 106 may then determine whether access should be granted or denied based on the authentication credentials, identity of the electronic device 108, and date and time. The access server 106 may send the electronic device 108 a message indicating the grant or denial, and the electronic device 108 may grant or deny the access request 230, 236, 240 based on the message received from the access server 106.

The access server 106 may relieve the user of the host 102 from having to interact with either the access server 106 or the electronic device 106 to grant guests 110, 112 access to the electronic device 108. Once the user has configured the device 108 and access server 106, the user may interact only with the event server 104, creating events with invitees and shared electronic devices, and the access server 106 may pull the events, guests, and electronic devices from the event server 104 to grant the guests 110, 112 time-based access to the electronic device 108.



**FIG. 1**

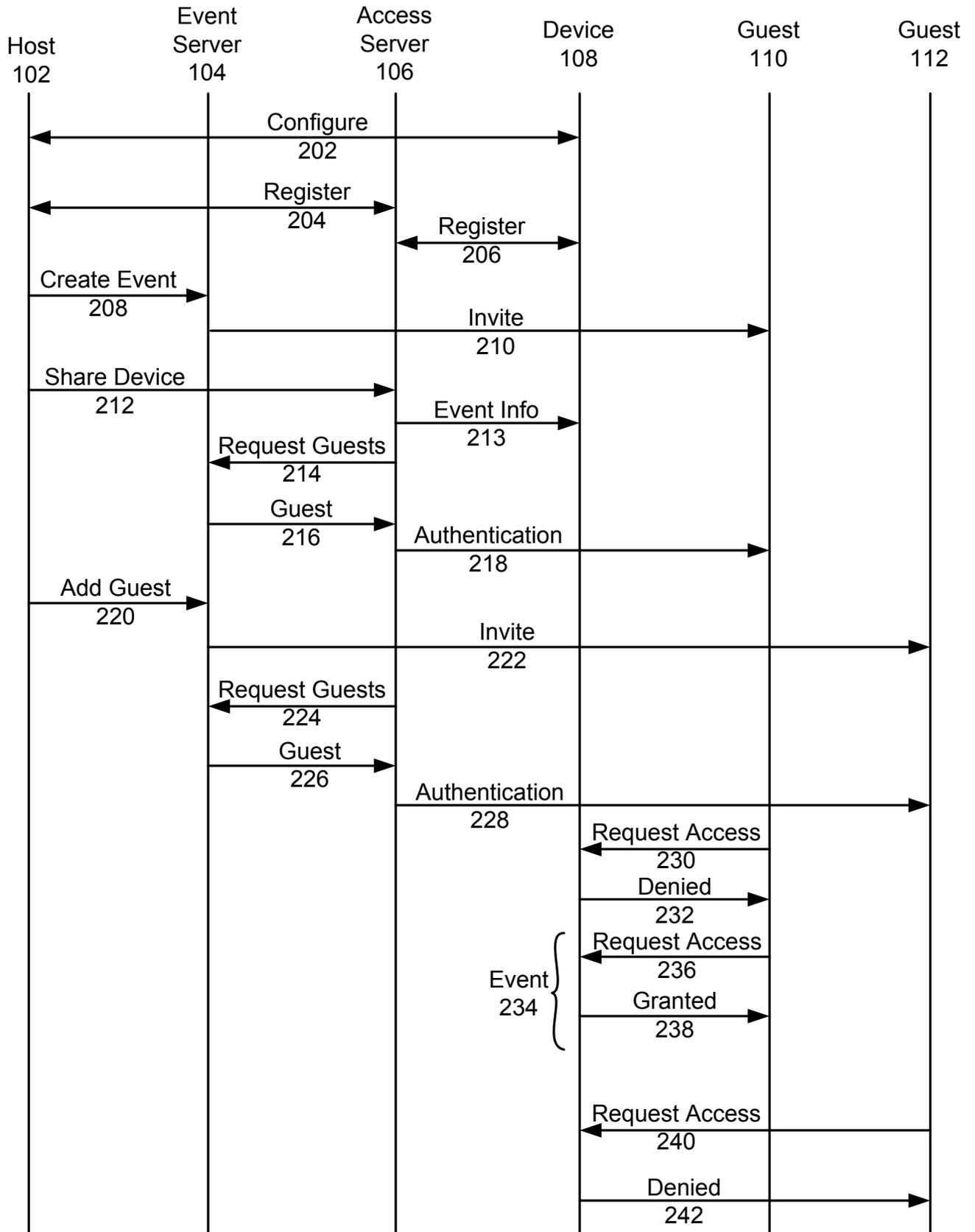


FIG. 2