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## Concurrent speculative execution of multiple communication applications

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## **Concurrent speculative execution of multiple communication applications**

### **ABSTRACT**

Upon detecting user context to communicate with a contact, an operating system speculatively launches communication applications that serve as communication channels between the user and the contact. With user permission, the availability of the contact on each of the communication channels is displayed along with the history of the user's communication with the contact. The user interface enables selection of a suitable communication channel for communicating with the contact without having to switch applications.

### **KEYWORDS**

- Contact directory
- Address book
- Speculative execution
- Chat Application
- Messaging

### **BACKGROUND**

Contact directories of users typically store details that help users communicate with corresponding contacts (e.g., an individual or a company) via multiple communication channels. These communication channels can include, for example, phone calls, email messages, social media interactions, etc. The corresponding details of the contacts can include phone numbers, email addresses, social media account information, etc.

Users view the contacts in a directory using a suitable application and initiate interaction with a selected contact, e.g., by selecting a channel of communication associated with the respective contact and launching an application corresponding to the selected channel. The

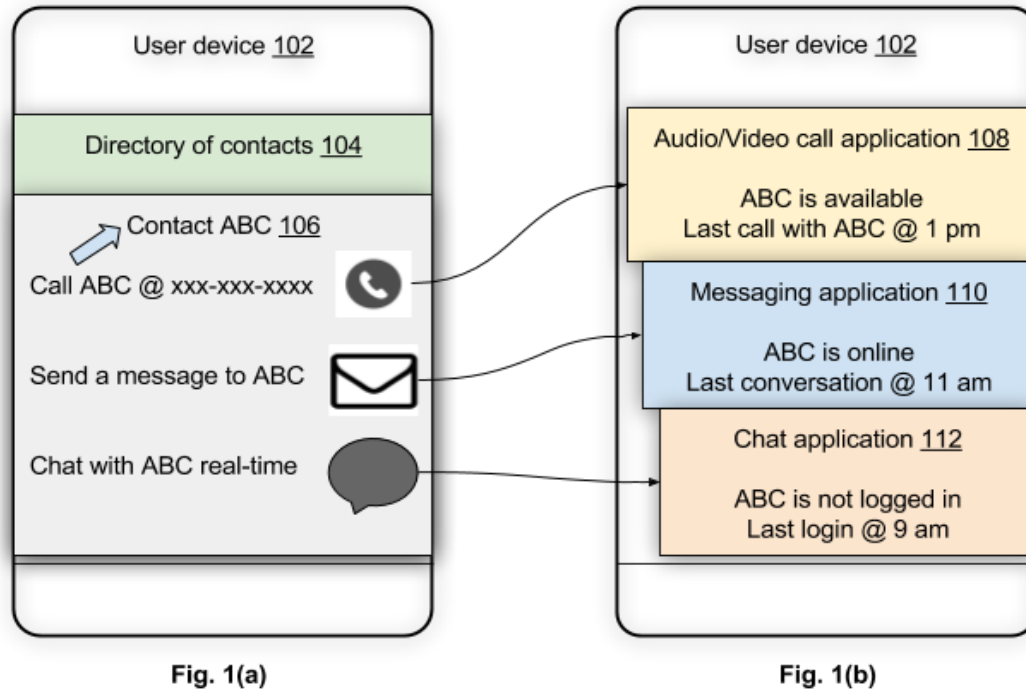
application connects the user with the contact via the communication channel using contact details from the directory entry. These contact details are provided to the communication application at the time of launch from the directory of contacts, e.g., using sharing features of the device operating system.

When a contact can be reached through more than one communication channel, the user selects a preferred mode of communication from the directory. However, users are generally not aware of the communication channel on which the contact is reachable (e.g., online) at a particular point of time. Additionally, while details of previous user communications with the contact can assist the user to select a suitable channel, such details are usually not available to the user while viewing the directory of contacts.

The context of communication and activity of a contact is ascertained after a user launches the application corresponding to the selected communication channel. However, the launch results in the directory of contacts screen being replaced with the launched application which necessitates that users return to the directory to open a different communication application. Thus, the process of identifying the appropriate channel and selection of the application enabling the communication is slow, iterative, and cumbersome.

## DESCRIPTION

Techniques described herein enable users to select a suitable channel to communicate with another user (contact) by simultaneously launching applications for multiple communication channels associated with the intended contact. Based on availability status of the contact and the history of communication displayed by each application, users can select a suitable channel for communication and the corresponding application to deploy.



### Concurrent launch of multiple user communication apps

Fig. 1(a) illustrates user selection of a contact ABC (106) from a directory of contacts (104) on a user device (102). In response to the user selection, applications such as audio/video call application (108), messaging application (110), and chat application (112) are launched simultaneously. The launch of the applications is based on a determination of the available channels to the user for communicating with the contact ABC. These applications access and display, with the permission and express consent of the contact ABC and the user, the availability status of the contact ABC and the history of the user's communication with the contact ABC. In the illustrated example, the times of a most recent audio/video call, text/multimedia message, and chat interaction between the user and the contact ABC are displayed.

Fig. 1 illustrates the simultaneously launched applications being displayed on the screen side by side. Alternatively, the applications can be launched simultaneously, and each

application displayed individually with provision for the user to switch between applications seamlessly. Upon user selection of a suitable communication channel, the other communication channel applications are terminated and removed from the displayed user interface.

user's social network, user's location and time at the location, user's biometric information, user's activities and demographic information), users are provided with one or more opportunities to control whether information is collected, whether the personal information is stored, whether the personal information is used, and how the information is collected about the user, stored and used. That is, the systems and methods discussed herein collect, store and/or use user personal information specifically upon receiving explicit authorization from the relevant users to do so. For example, a user is provided with control over whether programs or features collect user information about that particular user or other users relevant to the program or feature. Each user for which personal information is to be collected is presented with one or more options to allow control over the information collection relevant to that user, to provide permission or authorization as to whether the information is collected and as to which portions of the information are to be collected. For example, users can be provided with one or more such control options over a communication network. In addition, certain data may be treated in one or more ways before it is stored or used so that personally identifiable information is removed. As one example, a user's identity may be treated so that no personally identifiable information can be determined. As another example, a user's geographic location may be generalized to a larger region so that the user's particular location cannot be determined.

In situations in which certain implementations discussed herein may collect or use personal information about users (e.g., user data, information about a user's social network, user's location and time at the location, user's biometric information, user's activities and

demographic information), users are provided with one or more opportunities to control whether information is collected, whether the personal information is stored, whether the personal information is used, and how the information is collected about the user, stored and used. That is, the systems and methods discussed herein collect, store and/or use user personal information specifically upon receiving explicit authorization from the relevant users to do so.

For example, a user is provided with control over whether programs or features collect user information about that particular user or other users relevant to the program or feature. Each user for which personal information is to be collected is presented with one or more options to allow control over the information collection relevant to that user, to provide permission or authorization as to whether the information is collected and as to which portions of the information are to be collected. For example, users can be provided with one or more such control options over a communication network. In addition, certain data may be treated in one or more ways before it is stored or used so that personally identifiable information is removed. As one example, a user's identity may be treated so that no personally identifiable information can be determined. As another example, a user's geographic location may be generalized to a larger region so that the user's particular location cannot be determined. Further, the user may have control over what information is provided to the communication application.

## CONCLUSION

Upon detecting user context to communicate with a contact, an operating system speculatively launches communication applications that serve as communication channels between the user and the contact. With user permission, the availability of the contact on each of the communication channels is displayed along with the history of the user's communication with the contact. The user interface enables selection of a suitable communication channel for

communicating with the contact without having to switch applications.