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Cloud Computing Platform for Applications in Social-Commercial Area

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Grid, Cloud & High Performance
Computing in Science

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Introduction

- ▶ Since forever people have been interested in other people's opinion, especially regarding the purchase or investment they want to do later.
- ▶ Social-commercial field developed for mobile applications, incorporates the use of communication platforms based on mobile technology - using generally integrated mobile phones as a device for transmitting information in a marketing and information campaign that occurs in different environments communication.
- ▶ This paper presents the implementation of a mobile platform which allows a personalized achievement, having at their disposal a wide range of options, being possible the achievement of a user-friendly interface.
- ▶ The platform uses Google Cloud Messaging (GCM) for sending messages between user terminal and the server in which are stored data.

RELATED WORK

- ▶ The main advantage of using cloud-based technology is to increase both speed and performance.
- ▶ In recent years, Android has managed to capture the market by specific attributes that differentiate it: that is free technology and has superior features. Thus, developing applications on the Android platform has become increasingly widespread.
- ▶ Some typical services that a client can use, that uses the cloud include: timing and sending update notifications from the cloud server to customers in real time.
- ▶ Comparing with pull methods, the push methods represent the best solution when sending notifications.
- ▶ The simplest solution would be given by e-mail or SMS (Short Message Service), but they have drawbacks such as viewing during movement , or the high cost for SMS and the impossibility achieving a real-time conversation.

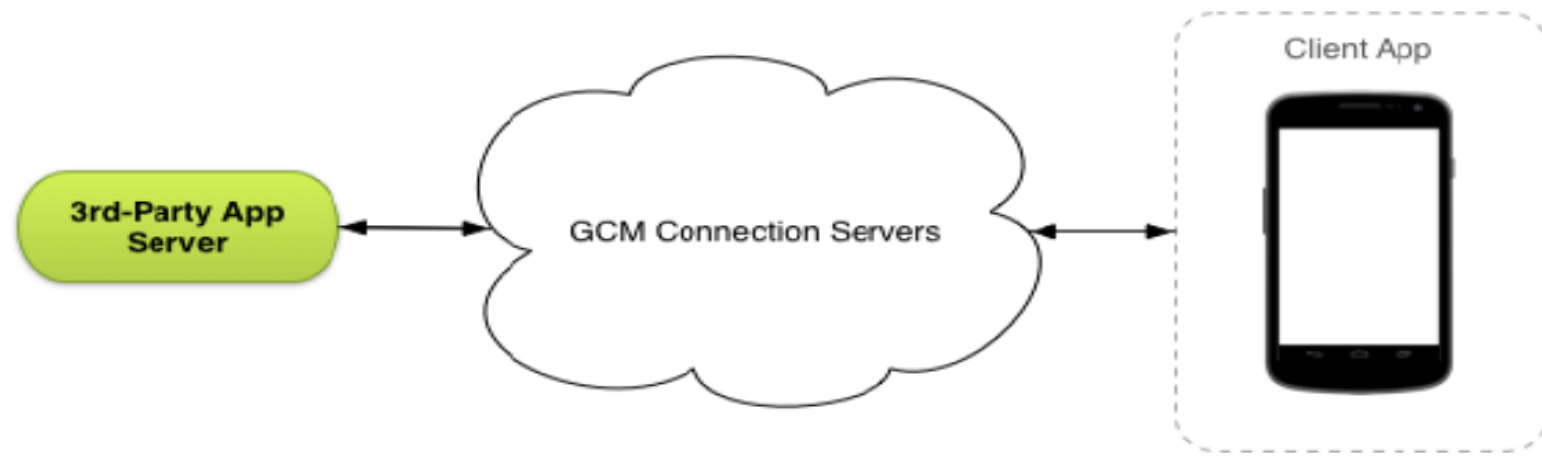
TECHNOLOGY USED (1)

- To implement this application will use Google Cloud Messaging, that provides a mechanism to back-end applications that allows:
 - notifications to the user application,
 - informing the application of the existence of new data at the server to be removed,
 - receiving messages from the devices that are connected by the same connection.
- This technology provides additional services, such as: multicast messages, the existence of multiple senders and sending messages announcing (time-to-live messages).

TECHNOLOGY USED (2)

The components in Fig. 1 interact in the following manner:

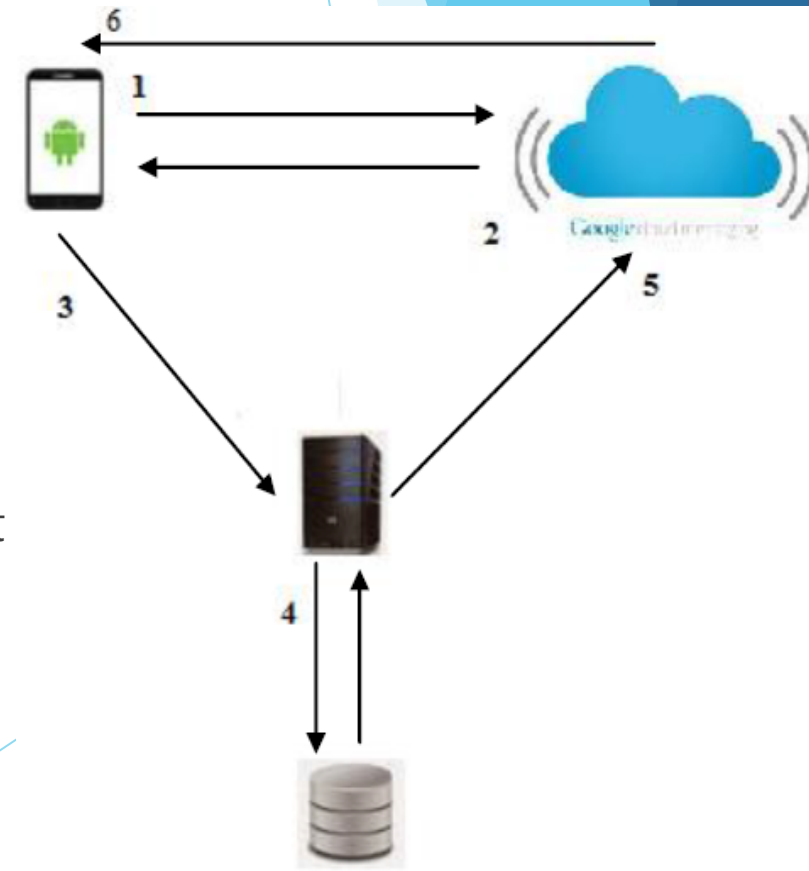
- ▶ **GCM connection servers** provided by Google take messages from third application server (3rd-party server) and send messages to a client application that has built-GCM.
- ▶ **Server application type 3rd-party** is a component that must be implemented so as to operate GCM connection servers. The server application sends messages to a GCM connection server; connection server takes the message you put in a queue and stores it, then send it to the client application. We use PHP to build the server from application.
- ▶ **The client application** is an application for Android clients incorporating GCM. To receive messages (GCM connection from server after the server application sent the message to the server GCM), this application should have a record id.



IMPLEMENTATION AND DESIGN (1)

The steps that must be respected for sending notification messages are:

1. Android application enables GCM. The application requires the ID of the message sender to receive the registration ID.
2. The GCM connection server receives the sender ID and return the application ID for registration.
3. The client application sends registration ID to the back-end server of application for storage.
4. The server will retain the registration ID in a database.
5. When sending a new message, the server application brings the registration ID from database and sends it to the GCM server with the new message.
6. GCM server sends the message to the application. In the social-commercial application, each level has the following functionality, as described in the next sections.



IMPLEMENTATION AND DESIGN (2)

A. *Client application (Front-end)*

- ▶ The application is designed for the Android platform and can run on devices that support the Android operating system.
- ▶ To create the application, we used Android Studio, which is official IDE (Integrated Development Service) for Android application development.
- ▶ Because the client application can receive messages from GCM server, Android terminals must register to the GCM servers.
- ▶ To receive messages an Internet connection is required. In general, data exists in messages due to key pair values.
- ▶ Registration activities and connectivity within social- commercial application are available in the first screen so as to be easy to use the application.
- ▶ After completing the registration steps the connection step, where the application will provide a list of users who are logged in at the time.

IMPLEMENTATION AND DESIGN (3)

B. GCM connection server

- ▶ Exchange of data between the client application and server application is achieved through connection server.
- ▶ Interconnection to other public clouds is possible by using open authentication.
- ▶ The application will have in menu a option which can select certain shops and for each one there will be a number of products or services that will have a little description, and reviews from other users.

C. Application server (Back-end)

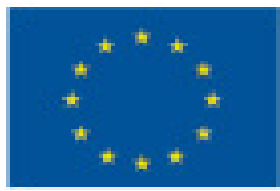
- ▶ The server of social-commercial application has 2 main functions:
 - ▶ answer when receiving an incoming registration id from a mobile device
 - ▶ send messages to Android terminals through GCM servers.

CONCLUSIONS

- ▶ In recent years, the development of Android applications has become increasingly costly, necessary for updating a large consumption of data Internet traffic and battery.
- ▶ A solution to these problems is the push notifications and implementation of cloud messaging system -based on GCM service.
- ▶ Using GCM service will reduce battery and Internet traffic consumption and at the same time is provided to users an improved experience.
- ▶ As future work we will analyze how such applications help users in finding what information they wish to receive on certain products or services are available in one place, thus sorting the multitude amount of information available online.

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