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A Message Sharing System based on Task and Roles Characteristics in Mobile Environment

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Abstract

The rapid growth of mobile devices and mobile communication technologies in recent years has great influence in our daily life. These technologies have also created a huge potential for enabling collaborative work. Usually, a collaborative work is usually composed of multiple tasks and participants. Therefore, messages or information sharing among the group is an issue. In order to avoid SPAM and missing messages, there should be a system to check the messages and recognize all relevant receivers. In this paper, a service-oriented architecture system is presented to solve the problem. A project-based task analysis and an authority-recognition model are used to identify receivers regarding their correspondent tasks. Therefore, members in the system can easily share information without being bothered by SPAM or worrying about missing any important messages.

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Keywords: *mobile collaboration, mobile worker, message sharing and WBS.*

1. Introduction

The rapid growth of Internet technologies creates great opportunities for modern business model, which includes not only electronic commerce, but also globalized collaboration. Due to the complexity of globalization, all stakeholders might not be at the same place at the same time. Communication becomes an issue. To solve the problem, network communication is necessary. The stability and flexibility of Internet can respond to

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most questions. Therefore, people who are actually geographically distributed can work in the same project for the same purpose. To ensure that "out of sight" does not cause "out of sync" is an issue(Hinds & Bailey, 2003). To coordinate work, information must be correctly transferred to related participants and communication has to be adequately understood (Maier, Echert, & Clarkson, 2006). Some applications achieve the requirements by means of "fully sharing". Therefore, every message is publicly announced on a bulletin board or privately received in his/her message-box for every participant (Tseng, 2011). The former solution might cause message lost-reading if the messages are too many to read through, and the latter method might disrupt users' work because of irrelevant or unimportant message (SPAM) coming too often. None of them is a perfect solution.

In order to achieve "adequately understood" transmission, "who to receive" and "when to receive" must be considered. Two aspects are usually considered for message transmission. The first one is based on the message flow and the latter choice is regarding the size of receivers group.

Considering how information is transferred between two users, "push" and "pop" are two different methods (Fig. 1). "Push" is the method to allow information producers to send the messages to the receivers. On the other hand, "pop" shows the receivers' control over when/what messages to retrieve. For instance, an advertisement provider sending an email promotion is using the "push" method. A user capturing a QRCode with his smart phone and visiting a website is the "pop" flow direction. Therefore, who initiates the conversation is the key point.

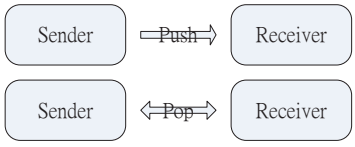

Fig. 1. Message Flow

Another consideration might be based on what kinds of group to receive the messages. "Broadcast" is used for mass communication, so everyone in the system will be included. The text-based advertisement is one example. A "grouped message" would send the same message to a pre-defined group of members, such as an event invitation. An "individual" message means every user should get a personal message, which is customized, such as a telegram.

When people work as a group from distanced places, they can only communicate through mobile devices or cellular phones. They can phone each other, which is an "individual" communication. Alternatively, they can send a group message to "broadcast" to everyone. Although a group message is also possible by selecting specific receivers manually, the sender must know who should or should not receive the message. It might not be easy.