

Content Sharing: Data Sharing Application

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Abstract— Nowadays mobile users carry a huge amount of information inside their mobile phones. The proposed platform works for Android, and uses Internet connection to send and receive various kinds of file between smart phones. Actually, digital contents are not only carried but also created on the road using mobile devices equipped with cameras, audio and video recorders, location systems, etc. In this paper we propose a technological platform which makes simple and flexible the sharing of various files among mobile users. The proposed platform makes use of existing wireless technologies available in mobile devices. The user of the application can send various types of files such as text files, music files, image files, video files, docx files and APK files. The system allows the users of mobile devices to send APK files present in their devices to other users of the same application through the Internet.

Key words: Data Sharing Application, Content Sharing

I. INTRODUCTION

The amount of digital contents that each mobile user carries with her/him has been increased. The use of personal portable devices (such as mobile phones, PDAs, notebooks, digital photo/video cameras, mp3 players) grows everyday so that it can be considered a social phenomenon rather than only a technological one.

In this paper we propose Content Sharing, a very flexible platform that meets user needs and exploits next-generation radio technologies managing possible different transceivers available in the same device. The Content Sharing platform can be considered a general purpose middleware whose aim is to create data sharing services in mobile environments in a modular and adaptive way [2].

The proposed application works for Android, and uses internet connection to send and receive various kinds of file between smart phones. Once downloaded the app, we can access the application with ease and perform desired tasks.

II. RELATED WORK

The idea of supporting social interactions through smart phones has been extensively shown in. This paper describes different systems which exemplify the capability of smart phones to support and create new interactions between users. Some of the solutions proposed, providing the same services as the ones addressed by our system, are exclusively Bluetooth-based. On one hand this technology encourages face-to-face interactions; on the other hand it represents a restriction due to its small coverage. Several other works in literature deal with the problem of data sharing in mobile environments, especially for what concerns P2P-based mobile systems. Some papers are related to a specific application, as in where authors propose a system based on audio streaming over mobile devices. In other works, solutions based on novel protocols or different

transmission techniques are proposed to solve the architectural and technical problems raised.

III. EXISTING SYSTEM

Most of the existing systems make use of Bluetooth technology for transferring various kinds of files. Though the transfer speeds are impressive at around 1 Mbps, certain other technologies like Infrared can offer speeds up to 4 Mbps. This is an area that can be improved on in the near future. Major limitation of Bluetooth technology is that it works within a particular specified range [3].

To overcome this limitation, we present this paper which describes file sharing over Internet using Android devices. Mobile content sharing, as a practical concept, has had limited user acceptance. Current available technologies for mobile content creation and sharing impose functionality and usability obstacles and are not widely used by mobile phone users [4].

The existing mobile P2P work mainly concentrate on P2P application in Ad-hoc network, in particular 3G networks. Mobile phones are increasingly equipped with features that allow them to generate, store, and make use of a large amount of digital content. Such content can be associated with attributes obtained via context and/or user annotation [1].

Bluetooth file sharing applications for mobile users is time taking and still remains a substantial problem for the transmission of the large shared files [5].

IV. SYSTEM OVERVIEW

Content Sharing is a platform which provides an application framework where mobile devices make use of user friendly methods to share and exchange digital contents among heterogeneous systems and through different communication technologies.

Let us consider a user who owns a mobile device with a certain supported technology. When the user enters a region where the services related to application are active, she/he can access the digital contents shared by the network which match her/his interests. In the meantime, the user offers her/his own data, (e.g., digital contents, multimedia files) in order to enrich the amount of data which can be shared among all the interested users. Each mobile node belonging to the Content Sharing platform makes use of a user profile which is composed of a data structure. The user profile describes what the user is ready to offer to the community and the resources that the user is searching for. Inside the active region there are also some InfoStations. These network nodes are aware of the other nodes in the same region and according to the nodes' configuration, make available the resources that match the user interests. All the nodes (mobile and InfoStations) are based on the same core while some particular functionalities can be activated or not according to the terminal profile which

specifies if the node is a mobile one or not. The mobile node is configured by the user through the user profile. This profile includes: the operation mode (to automatic or interactive); the interests which correspond the resources user is searching for; the resources that can be viewed by the other users. The list of interests that the user chooses is obtained by the InfoStations in the following way. When a mobile node enters the radio coverage of an InfoStation, and it is configured to accept messages, it receives an XML file containing all the interests referred to a specific service organized in a tree structure. Then, the user, even off-line, browses the tree and selects some interests. This procedure creates (if this is the first time) or updates (if it has been already created) the XML file containing all the user's interests. When the mobile node reaches the coverage radio of the same or another InfoStation, it receives new interests if any, and uploads to the InfoStation its own XML file. The InfoStation according to the selected interests, sends to the user both text messages and URLs of resources' managers which match the user's interests. The implemented user interface is very intuitive and allows the device's configuration through very few interactions with the user. In Section V we will show how the user can easily navigate through the application. The platform has been devised and implemented in order to allow users to share any kind of resources (such as audio files, video files, text files, etc.). It is flexible so as to self-configure and adaptively select the best working mode (either infrastructure or ad hoc). Moreover, it can be enhanced with new functionalities in a very simple and transparent way for the user.

V. SYSTEM ARCHITECTURE

The logical architecture, shown in Fig. 1, highlights the main elements of a system based on the Content Sharing platform. Observe that each element shown in figure is not essential in the architecture except for the mobile nodes. The logical architecture is composed of the following parts:

A. Mobile Nodes:

Cellular phones, PDAs, and notebooks running software which allows sharing text and multimedia through Bluetooth, Wi-Fi interfaces, etc

B. InfoStations:

Network nodes which reveal the presence of mobile nodes and according to their configuration provide the right resources. In this case let us assume a user configures her/his profile choosing some activity she/he is interested in. Once the user enters inside the coverage range of the InfoStation, the latter will provide news and all the other resources available for that activity.

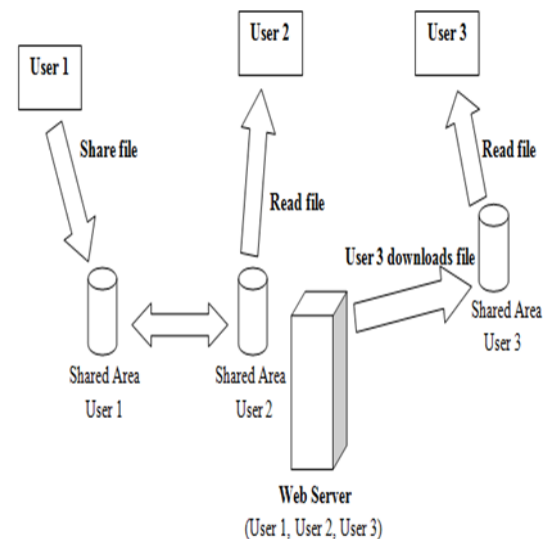


Fig. 1: Proposed System Architecture

C. Content Management System (CMS):

CMS is the element which allows some authenticated users to upload information, resources, URLs, etc. through a web based interface. These resources, stored in a stand-alone database, will be available to the mobile users through the InfoStations. In this case, the authenticated users are the administrators.

D. Short Message Service (SMS):

SMS is a text messaging service component of phone, Web, or mobile communication systems. It uses standardized communications protocols to allow fixed line or mobile phone devices to exchange short text messages.

E. Database:

Database is element which store all the resources submitted by authenticated users. The system support several databases and each of them is organized in order to match the XML file that the InfoStation sends to the users.

VI. CONCLUSIONS

In this paper we have presented a general purpose middleware whose aim is to create data sharing services in mobile environments in a modular and adaptive way. We are testing the system elements using Eclipse. As a future work we plan to enlarge the system functionalities, enhancing the system user-friendliness and implementing the modules related to the privacy issues. Moreover, some modules related to the automatic mobile node behavior will be designed, so that to have a mobile information system that safely evolves, following the user settings.

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