International Journal of Current Engineering and Technology
E-ISSN 2277 – 4106, P-ISSN 2347 – 5161

Available at http://inpressco.com/category/ijcet

General Article

Study of messenger and Wi-Fi sharing in android

Nikhil Mendonca†*, Jeffrin Jolly† and Yesu Mariadas†

†Information Technology, Mumbai University, Xavier Institute of Engineering (XIE), Mahim, Mumbai-400016, India

Accepted 22 March 2015, Available online 26 March 2015, **Vol.5, No.2 (April 2015)**

Abstract

A Messenger application is a service wherein a user can not only communicate over the Internet in the form of messages but also can exchange data in the form of images, audio and video files. So basically the user has in numerous uses of these services and comparatively has to pay a meager price for merely the data services used. But what if a user did not have access to the cellular network by some means. For this there is also a feature incorporated in the application of Wi-Fi sharing which would enable any user to perform similar operations without the use of Internet and instead use the Wi-Fi network of a mobile device and exchange data that are quite larger in terms of size. This paper aims at providing a basic idea on the implementation and working of a Messenger and a Wi-Fi sharing application based in android, which include the protocols, algorithms and methods that can be used for implementation.

Keywords: *Google Cloud Messenger, Adhoc, Wireless Networks, Instant Messaging, Wi-Fi.*

Introduction

Instant messaging, a communication trend carried out between two or more reasons to communicate by exchanging text messages in real time. This form of messaging compares to email, short messaging service (SMS) allows for quick and easy responses to satisfy ones need for instant and constant communication.

Today, Instant Messaging (IM) applications have rapidly become accepted by business as viable employer communication tools. Instant messaging is more instant than email, obviously easy-to-use and provides the real time collaboration organizations need to ensure quick judgments and decisions using Instant Messaging, organizations and their business partners can make a conference share files and information easily over the Internet.

We will eliminate the need the internet in sharing messages to people within a particular limited range using Wi-Fi Network. Wireless Networks (Wi-Fi) are widely used in the link devices and data transmission between them. The revolutionary idea behind the success of such a technology is the absence of wires. Data travels among RF radio frequency. The biggest advantage is that the wireless network is the device mobility. A wireless Network is easy to install and configure. Therefore, a single device can join the network from any point of the room if still under coverage.

Initially we need to assemble and modify a Linux kernel on embedded devices, smart phones. We chose to use Android as it is an Open source Operating System based on Linux kernel.

As it should be for any technology, Android gives an open platform for creating mobile applications. In fact it is a real stack of tools and libraries that enable the successful implementation of mobile application. The goal is to provide everything an operator, vendor of devices or developer need to achieve their target. Originally developed by Google and sponsored by the biggest alliances Open Handset Alliance, Android is a complete and innovative platform for mobile devices released with Open Source license in October 2008.

Thus we grouping two different technologies to create a better communication application which can send messages over the Internet and wirelessly transmit messages without the use of Internet using Wi-Fi which can be seamlessly done using the Wi-Fi card installed on the our disposable smart phones.

Proposed System

The application will allow users to send/receive messages over the Internet. The application uses GCM (Google Cloud Messaging) service. Google Cloud Messaging for Android (GCM) is a service that allows you to send data from your server to your users' Android-powered device, and also to receive messages from devices on the same connection. The reason as to why we decided to use GCM is because GCM is very light in nature .The GCM service handles all aspects of queuing of messages and delivery to the target Android application running on the target device. GCM is a open

*Corresponding author: **Nikhil Mendonca**

source and thus the use of service is completely free of cost. The API's used by the application are Google Cloud Messaging, Google Cloud SQL, Google Cloud Storage, and Google Cloud JSON API. For the use of the GCM service a Google account is mandatory. The developed application servers send messages to their Android application. The GCM Cloud Connection Server, you can receive upstream messages from the user's device. The system will wake up the Android application via Intent broadcast when the message arrives, as long as the application is set up with the proper broadcast receiver and permissions.

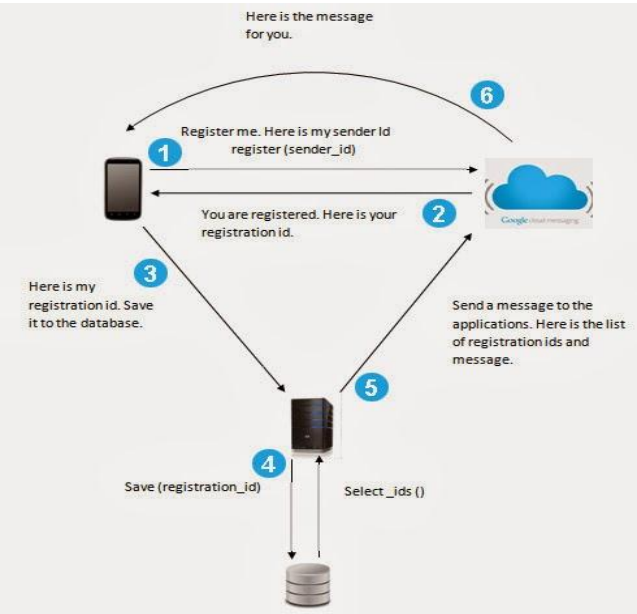

Fig 1 Representation of the GCM Life Cycle

The application will be running on Android 2.2 or higher that also have the Google Play Store application installed, or an emulator running Android 2.2 with Google APIs. It uses an existing connection for Google services. For pre-3.0 devices, this requires users to set up their Google account on their mobile devices. A Google account is not a requirement on devices running Android 4.0.4 or higher. A GCM implementation includes a Google-provided connection server, a 3rd-party app server that interacts with the connection server, and a GCM-enabled client app running on Android devices.

The integrated Wi-Fi sharing system can send messages using the Wi-Fi card installed on the devices. Wireless Networks are widely used in the link devices and data transmission between them. The revolutionary idea behind the success of such a technology is the absence of wires Data travels among RF radio frequency. The biggest advantage is that the wireless network is the device mobility. A wireless Network is easy to install and configure. Mode Infrastructure Standards on Wi-Fi connection are defined by IEEE 802.11 and Wi-Fi Alliance. Using those specifications, a wire-less card can be attached (connected) to an Access Point (AP) which provides the connection capabilities. On top of this, others services can be accessed such as communications and resource sharing. In infrastructure mode each node is connected to the Access Point which is in charge of coordinating the communications and providing the media network resources to each node.

Mesh network is where nodes can communicate pair to pair. One of the big issue is related with Wife signal strength and node mobility. Due to their motilities, deployment of nodes may change frequently. Due to limited coverage, a connection with another node might be lost. In this situation, the communication cannot happen. An intermediary node is needed. The infrastructure architecture is fully decentralized and there is not fix structure of the network. We call, single hop a communication involved 2 nearby nodes, or multi-hop a communication involved at least two nodes. The number of hops represents the number of the intermediary nodes the messages has to jump through.

In this way, each node has a double duty: hosting, acting as source node or communication end point, and routing acting as intermediary node

Conclusion

This project represents an idea that will give service to the users and reduce the efforts. Technologies were created by human beings for human beings to reduce his/her efforts and this project delivers an idea that can reduce the user's effort to communicate seamlessly with other users. This is our effort to create a messaging application that can send/receive messages over the internet and without the use internet using wireless technologies currently available and can seamlessly send messages to the another users that are in a particular range eliminating the need of internet data charges or mobile operator charges.

Future scope

Our project makes use of Wireless Networking based in Android. The Field of Android is vast and has many more areas to be explored and studied. The Wi-Fi ADHOC system has many takers and it has scope beyond limits.

In the future there may really not be any mandatory need of cellular network in a mobile device as there would wireless connectivity through which the devices would be connected in a mesh. And there would number of mesh present which would enable the communication of one device in a mesh to another device in a mesh without any need of physical connectivity present.

Acknowledgement

We would like to thank our project guide Prof. Suvarna Bhoir for her constant support and valuable feedback at all times. She gave us all the freedom to work on our project never restricting us or our research in any way. Thus big Thank You to our guide Prof. Suvarna Bhoir.

We would like to thank our college principal Dr. Y D Venkatesh and our director Fr. Francis De'Melo. Also to thank the staff of the IT Department for being very supportive at all times and for providing us an excellent environment in researching and writing this paper.

References

Akyildiz, I. F., & Wang, X. (2005). A Survey on Wireless Mesh Networks. IEEE Communications Magazine, 43(9).

Alotaibi, E., & Mukherjee, B. (2012). A survey on routing algorithms for wireless Ad-Hoc and mesh networks. Computer Networks, 56(2), 940–965. doi:10.1016/ j.comnet.2011.10.011

Boukerche, A., Turgut, B., Aydin, N., Ahmad, M. Z., Bölöni, L., & Turgut, D. (2011). Routing protocols in ad hoc networks: A survey. Computer Networks, 55(13), 3032–3080. doi: 10.1016/ j. comnet.2011.05.010

Corriero, N., Covino, E., & Mottola, A. (2011). An approach to use FB-AODV with Android. Procedia Computer Science, 5, 336–343. doi:10.1016/j.procs.2011.07.044

Gabale, V., Raman, B., Dutta, P., & Kalyanraman, S. (2013). A Classi fi cation Framework for Scheduling Algorithms in Wireless Mesh Networks, 15(1), 199–222.

Jennings, R. B., Nahum, E. M., Olshefski, D. P., Saha, D., Shae, Z. Y., & Waters, C. (2006). A study of internet instant messaging and chat protocols. IEEE Network, 20(4), 16–21.

Mehrotra, P., Pradhan, T., & Jain, P. (2014). Instant Messaging Service on Android Smartphones and Personal Computers, 4(3), 265–272.