Web-based Instant Messaging

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Introduction

Instant messaging (IM) is an online real-time communication between two or more people based on typed text, voice or video chat over the internet or Local Area Network (LAN) [1]. Web-based Instant Messaging is an IM that is integrated or embedded in a web browser.

Web-based IM has witness a tremendous growth in popularity since inception because of the advantages over a traditional IM application. Web-based IM requires no application download, updates, installation or configuration. You only require a computer that is connected to the internet with a web browser to communicate with your friends and family. Secondly, web-based IM is platform independent, which means that web-based IM can be used in any operating system provided that there is a web browser and internet connection or LAN. Thirdly, with web-based IM there is no problem of firewall. No need for any configuration to avoid firewall since the application is embedded / integrated in a web browser.

In this documentation, section 1 will focus on the User's Requirement Document. While section 2 will deal on the Requirement Analysis Document and finally section 3 will be on the project plan.

1   Users Requirement Document

This section presents the Users Requirement Document which describes the user's view of the problem, a brief description of the problem domain, and complete description of the problem. Also what is expected from the system and what is not expected from the system will be highlighted.

The Users Requirement Document is a reflection of survey carried out in the course of this project to determine what users think about the system, how they see it and what they want from it. A questionnaire of 9 questions was given to 10 users to determine the users view and expectation from the system. The response was positive and encouraging.

1.1   Users view of the problem

Users require a convenient, effective and less expensive means of communicating with family and friends as shown in Figure 1. Some of the problems indicated by users include:

➢ **Text chat:** ability to communicate easily and conveniently in real-time with family and friend based on type messages [4].

➢ **Contact list:** a list of contacts (screen names, pictures) with whom a direct communication can be opened instantly when clicked on [4].

➢ **Presence awareness:** a visual display indicator showing the status or availability of an instant messaging user [4].

➢ **Chat history log:** ability of the system to store or maintain archive of text conversation with other people [4].

➢ **Voice chat:** support for voice (audio) communication [4].
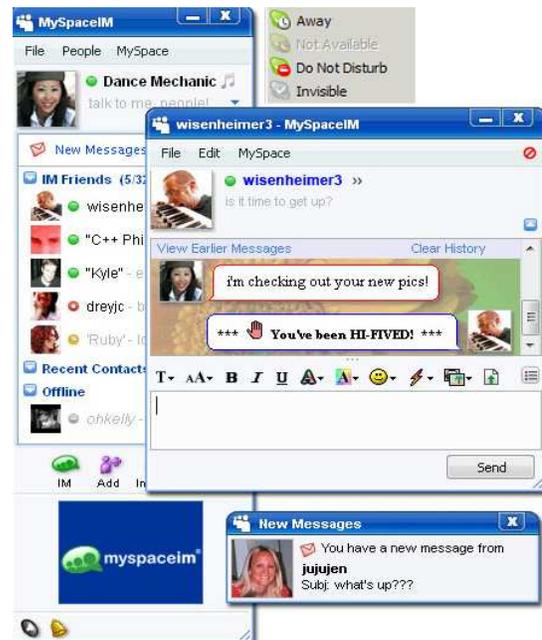

Fig 1: MySpace Instant messaging system [7].

1.2   Brief description of the problem domain

Before the advent of web-based instant messaging, traditional Instant Messaging applications did not completely meet user's expectation because of some issues. To be able to use non web-based IM application, it has to be downloaded, installed and most time configured. Secondly, most non web-based instant messaging applications are platform dependent, which means different application for different

operating system. Thirdly, in most cases especially in schools, office instant messaging is blocked by firewall so users will not be able to use the application.

1.3   Complete description of the problem

❖ **Application download, installation and configuration**

These are real hindrance to instant messaging communicating. Some of the instant messaging applications files are big (over 5MB), and bandwidth some times is expensive and download speed low. In these cases, downloading the application file and updates will not be cheap and also takes time which a times can be frustrating. Secondly, Most of the time users use public computer (schools, cafés, etc) and installation is not allowed in most computers in schools, cafés, etc. In a situation, the IM application the user is using is not installed on the computer the user will not be able to use instant messaging.

❖ **Platform dependent**

Non web-based instant messaging applications are platform dependent. That is, a single application file for an IM application will not be used in different operating system. The developer has to develop different application file for different operating system. This process is expensive and time wasting. And also users using different operating systems have to download more than one application file for one instant messaging program.

❖ **Firewall issue**

Most schools, companies and organizations block instant messaging in the firewall. So users will not be able to communicate using instant messaging system in those places.

1.4   What is expected from the system?

The system is expected to have the following features.

❖ **No application download, installation and configuration**: - There will not be any download, installation and configuration of any application or updates.

❖ **Platform independent**: - The system will not be platform dependent. It works in any operating system provided that thee is a browser and internet connection or LAN.

❖ **Text chat**: - The system will support real-time communication between two or more people over the internet or LAN based of typed messages (text).

❖ **Contact list**: - The system will support contact list- list of screen names of user's colleague, family and friends.

❖ **Presence awareness**: -The system will have presence awareness feature.

❖ **Chat history log**: - The system will support archiving of users instant messaging conversations.

❖ **Voice chat**: - Voice chat will be implemented if time permits.

❖ **Video chat**: - Video chat will be implemented if time permits.

1.5   What is not expected from the system?

The system will not support the following features.

❖ **Chat room**: - The system will not have chat rooms feature.

❖ **File transfer**: - The system will not support file transfer.

❖ **Secure / encrypted communication**: - The system will not support secure / encrypted communication.

2   Requirement Analysis Document (RAD)

The user's requirements were listed and discussed in the previous section this section analysis the users requirement from the designer point of view base on the system and software requirements for the implementation of the system.

The system will be entirely based on open source platform.

2.1   Programming languages

Flex and ActionScript will be used to implement the system. Flex in an open source version of flash from Adobe Macromedia. Flex is used in developing and deploying cross-platform rich internet applications [8]. ActionScript is a scripting language based on ECMAScript. It is used mainly for development of websites and software using Adobe Flash Player platform [9].
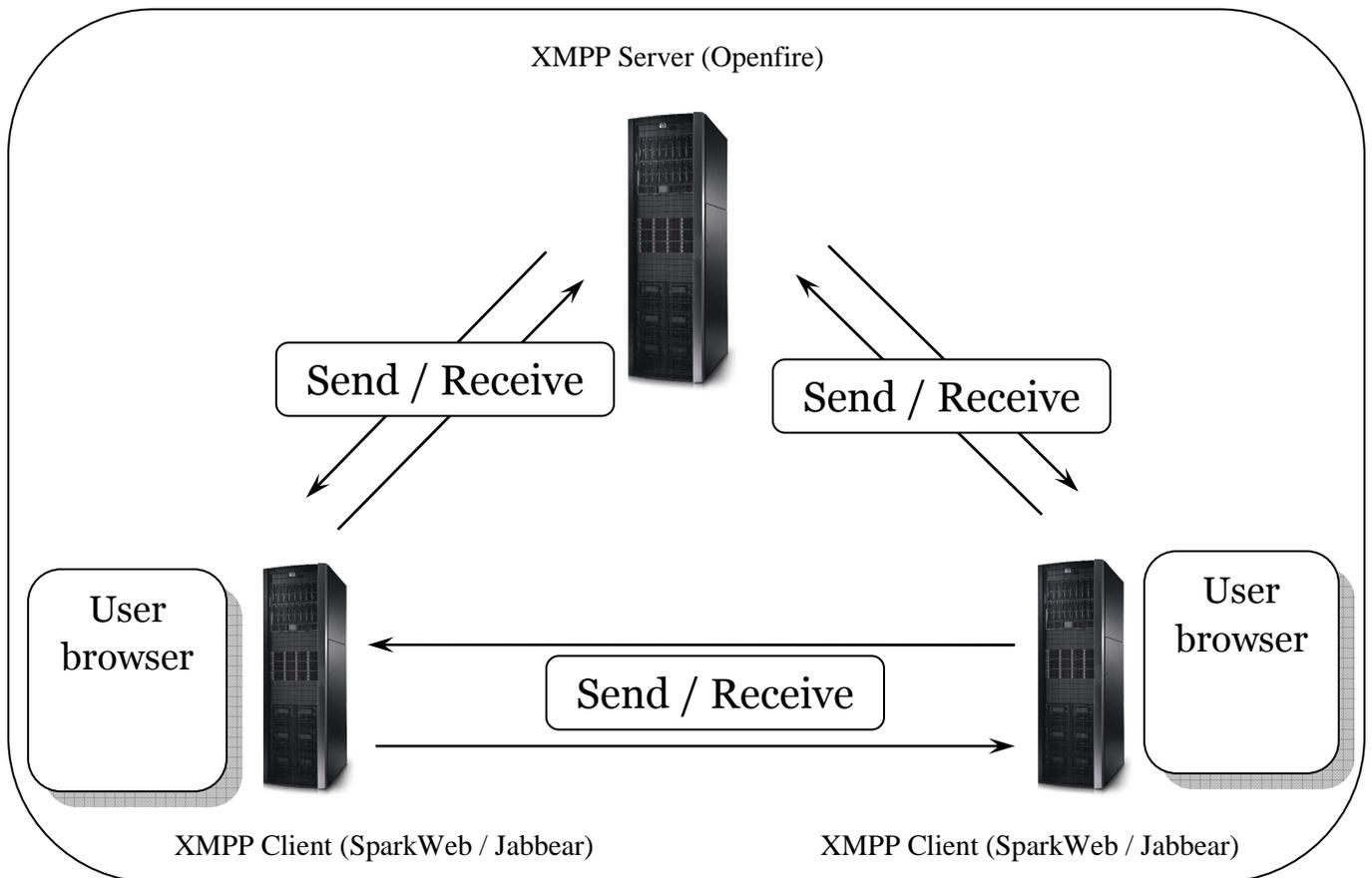
2.2   Open Source Platform

The system will be based on Extensible Messaging and Presence Protocol (XMPP) platform. XMPP is an open source Extensible Markup Language XML-based protocol for server-to-server near-real-time extensible instant messaging and presences [10].

➢ **XMPP Server (Openfire):** - An XMPP Server provides basic presence, messaging and routing features [11]. Openfire is an open source Real Time Collaboration (RTC) severs, that uses XMPP for instant messaging [12].

➢ **XMPP Clint (SparkWeb / Jabbear):** - An XMPP Client is a software application that enables connection to an XMPP Server for instant messaging with other people [11]. SparkWeb is an open source, web-based instant messaging client using XMPP that is optimized for business and organization. It has built-in support for group chat and strong security [12]. Jabbear is an instant messaging client using XMPP.

2.3   The process of IM communication

When the user logs in to the IM interface on the browser, the user login details and the computers IP address are sent to the XMPP Server through the XMPP Client. XMPP Server authenticates the user, and sends the contact list of the user, and the IP address of the computer of the contacts that are online. The user can then communicate with the user directly.

Fig 2: The process of instant messaging communication.

2.4   Existing Open Source Platform

There are already existing open source implementations of this system. Some of them include:

- ➢ Face book

- ➢ Gmail

- ➢ Meebo

- ➢ IMLove

- ➢ Etc.

3 Project plan

This is the road map of the project.

3.1   Term 1: - In term 1 I downloaded flex 3 SDK and flex builder (IDE). I also started and completed project plan and project analysis documentation. Finally, I presented the project analysis section of this project to the department.

3.2   Term 2: - In this term I will identify the User Interface specification, design the user interface and design the prototype for the system. I will also continue with learning flex programming, try simple flex project and code and test the interface of the system. And finally present the project design and development to the department.

3.2   Term 3: In this term I will code the back-end of the system, integrate it with the interface and test the system. Finally present the project implementation to the department.

3.4   Term 4: In this term I will implement and present the system to the department.

	Term 1		Term 2			Term 3	Term 4
Project analysis	Started Project plan, URD & RAD	Project Doc & presentation ready					
Project design			List UI specification	Design user interface	Design system prototype		
Project implementation	Do flex 3 SDK & flex IDE	Downloaded Adobe FMDS	Learn to program in flex	Try simple flex project	Code the IM interface	Code the IM back-end	Implement the system
Project testing & presentation					Test the interface	Test the system	Present the system

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