NETWORK ADMINISTRATION MANAGEMENT

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Abstract - *In this growing age of internet communication through chat applications is the most basic and convenient method used by everyone. We have seen so many chat applications like What's app, Hike, messenger, etc. All these applications have millions of users worldwide for instance What's app has about 500 million users worldwide and if we only consider India we have about 150 million active users. What's app uses the simplest protocol, if the user simply creates his account and can communicate with any other users who has a registered account through their numbers*

All of these applications are third party application in which their database servers are used, what if we want to create an application for a small organization in which only the users registered in the organizations database can communicate with each other instead of using third party applications. The main benefit of this application is we will be able to separate communication of employees in the organization with any of his other communications. In addition to the application we have created a network system which provides communication in an organization. Every company is based on basically two servers, web server & network server. Network server includes a hierarchy of departments & needed to have a chain rule in order to have this work properly.

In today's era before building any stuff you need to be secure & pinned it as a highest priority & working on a Linux server provide you sufficient space & security.

*Key Words***:** Web server, Network server.

1.INTRODUCTION

In an organization communication is very necessary for its employees. Chat app created here only lets the employees of the organization to send messages to each other, the main benefit of this application is that the message data which is stored on the database is only accessible by the organization's network administrator which would avoid any mishaps inside the organization. By this messaging application the employees of the organization can avoid using any other applications.

As we know the importance of authenticity as you're required to be the employee of the organization in order to fetch or retrieve any message. In our other module , we have different servers upon which you can share files with

security as a highest priority & Linux is pretty much based on that area. Authenticity can be controlled by the given permissions based on the power given to employee by head of the department.

These server are being made in order to keep this in mind that not everyone can work or like to work on Linux & further server is being provided in order to keep simplicity.

2. METHODOLOGY

Communication through messaging is only possible when we have a database which stores all the messages and retrieve them. For this we have used Google's Firebase console for creating database and providing authentication and for communication over the network in the organization Red Hat Linux and VMware tool is used.

2.1 Google Firebase

The Google's Firebase gives us the platform which provide cloud functions for development like Real-time database, Authentication, Cloud messaging Hosting (websites), Analytics.

2.2 Firebase for Android

Firebase provides database for Android apps which can provide you Authentication, Real-time database, Analytics and much more. This platform helps to add all the functions to the application which would otherwise require server side scripting languages.

2.3 RHEL (4.0)

Red hat Linux version 4 is being used in these server due to its simplicity as well as proper Authentication at every entry point.

2.4 VMware

Through VMware we get a platform where we can install our various servers in spite of being actual server in your installed PC server.

3. IMPLEMENTATION

The whole process of this application can be divided into following steps.
I. Add firebase to your android application
II. User login and registration
III. Create database for messages.

The Network based module consist of various sub steps.
 I. Create one web server which will host all the web sites for the Company.
II. Create one DNS server (which is same as your web server).
III. Create one mailing server which will provide the email service for the Company.
IV. Mail server should have POP3 support so user can download email in their own laptop/desktop.
V. Implement samba on your file server so it can be accessed from a windows machine.
VI. Please use firewall in your server make sure that TELNET, FTP and SSH is not allowed from outside the network (allow only to your group members IP only).

3.1 Connecting Firebase to Application

Firebase can be added to the application using dependencies in the android application and the 'google.json' file. In Android studio 2.2.1 it can be done automatically otherwise in case of Eclipse the configuration has to be done manually. When the application is added to the Firebase it is displayed on the console.[1]
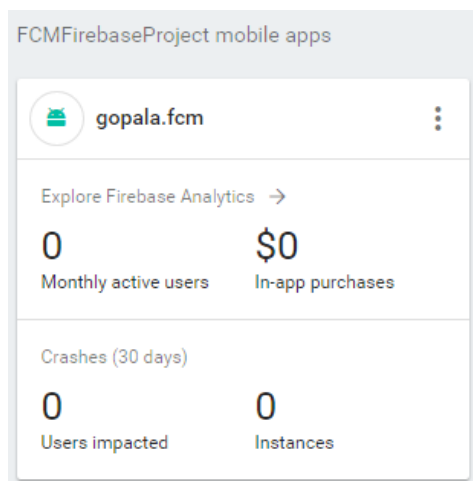

Fig 1 – Connected application to firebase

3.2 User Login and Registration

Users are registered to the database and login authentication is provided through code of the application. When users are added it is displayed in Real-time database.[2]

3.3 Create database for Messages

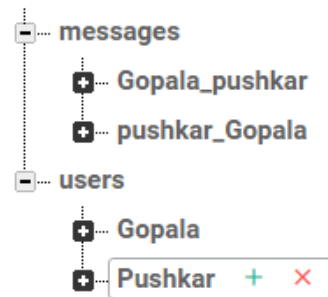Database for each individual user is created for sending and retrieving messages.

Fig 2 – Firebase databse representing users and messages

3.4 Squirrel Mail

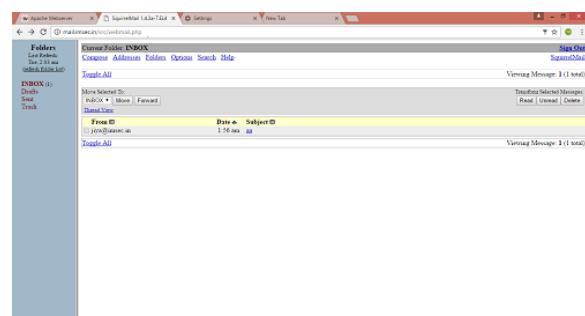Mail should be sent to anybody whoever work for organization to whomever.[3]

Fig 3 - Displaying mail transfer

3.5 NFS File System

We're using this file sharing technology we have to know that you can share as many as file you like from Linux to Linux based system.[4]
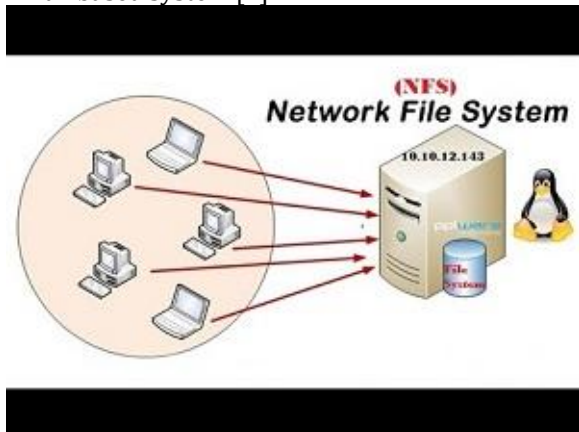

Fig 4 – NFS file sharing

3.6 SAMBA File sharing

SAMBA file sharing provides file sharing from Linux to windows platform in the internal network.

3.7 WEBMIN

It is a web based application for Linux users on which this set up is stand along.

Fig 5 – WEBMIN tools

4. CONCLUSION

The main aspect of this project is avoiding the use of third party resources in any organization and provide a secure network which can provide confidentiality within an organization and reliable communication. More user functions can be added and security measures can be implemented, the most astonishing function of this application is that this module can be separated and with a few changes in code this application can be implemented in any organization.

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