Android based Network Monitoring and Administration using Wi-Fi , GPRS

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Abstract— Mobile devices are becoming essential for today's life. In developed countries, about half of the people have a Smartphone, resulting in millions of these electronic devices. Android is the most popular operating system for Smartphones and other electronic devices such as tablets. Hence, for network administrators, it is essential to start managing all the Android based devices. Network is formed by the collection or group of computers. While in office is an easy task to manage and control the activities of the network. A remote LAN network can be controlled by a user from anywhere using a mobile based application (running on ANDROID operating system). The necessity of such a system arises when the user is unavailable at the actual site of the network. In such a case, to monitor and control the various activities of the network, a wireless and user friendly interface needs to be created through which the user can execute different commands to control the various activities of the network.

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1 INTRODUCTION

Now a days, the demands of user can be available at everywhere at every time simultaneously because of smart phones have grown significantly in terms of both processing and user interface. Hence in a smart phone challenging call for present concurrent everywhere applications to be organized. The plan with the mobile handsets and smart phones are to transport the valuable services apart from the basic communication. Due to new activities in current times and quick development of businesses, it has become vital to find out latest resolution to handle the different technical setups used in such organizations. Each association has its own set of communication networks used for distribution of information either within the organizational limits or with other parties. The survival of such a network demands for a well designed and professional system to control and monitor the different activities of the network. Occasionally it develops into essential to handle the network from remote places also. Monitoring of network is nothing but the information gathering function of network management. Network monitoring applications are formed to gather data for network management applications. The gathering of useful information from different parts of the network is the reason of network monitoring so that the network can be controlled using the collected information and managed. In remote locations the majority of the network devices are located. These devices do not typically have openly connected terminals so that network management application cannot monitor their statuses easily. Thus, network monitoring techniques are developed to permit network management applications to confirm the states of their network devices. As more and more network devices are used to assemble bigger networks, network monitoring techniques are stretched to monitoring networks as a whole.

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2 NETWORK MONITORING

Network monitoring states that the use of a system that constantly monitors a computer network for slow or failing components and that notifies the network administrator in case of outages through email, SMS or other alarms. While in office, to control and manage the activities of the network is an easy task. But, how do you go about with monitoring and controlling of network when you are out of station or away from office,? Instead of depending on any other third party information we can use unlike Network Monitoring schemes. Due to the increasing capabilities of the electronics and computing devices in modern large scientific and industrial facilities more and more information is required. For this reason, communications must be assured in every place of the facility. And this must be done in a consistent, speedy and secure way. At this point the perfect solution seems to be cables. But wireless is a good option for monitoring and control when they are not really necessary for performance reasons. There are different advantages of Wireless communications such as reduced costs, scalability, ease of maintenance, and mobility. Several wireless solutions such as Wi-Fi or ZigBee Bluetooth can be establish in the market. Wi-Fi, is a very flexible technology and easy to implement, cheap and offers a wide bandwidth. So, it has been executed in large-scale systems. In Network Monitoring system there should be at least one monitoring centre that can control and manage all the network activities. Monitoring of Network should be carried out constantly that is 24 hours of the day. Network monitoring holds control and management of all the components connected in the network such as server, router, network provider, etc. Network monitoring centre report all the activities which occurred in the network to the administrator.

3 LITERATURE

It aims to enlarge an integrated software solution that permits a network administrator to remotely monitor his LAN

network by using Android cell phone. Say you have a LAN setup at your office. Sitting at home you want to learn the LAN status. You can do so by storing this project in your cell phone and executing the same. In the era of project mobile devices, wireless devices are normally used and it has penetrated every part of our life.

A network management system proposed by Vougioukas and Rouincliotis based on GSM technology that supports multi-user, multi-session and a two-way network management. The system also offers remote network access to the administrator. Author developed the bi-directional communication functionality between cellular phone users and network services

Khan and Mishra [13] developed GPS-GSM based tracking system is design and which discovers the object position i.e., vehicles or other assets etc, and updates remote user via GSM modem. Object motion is reported by a short text message. This real time monitoring system is able to notice object's current position using GPS and informs the vehicle owner via GSM.

Ramamurthy et al [14] developed humidity remote monitoring and control system, which examines and controls the humidity from the remote location. When the level of humidity crosses the predefined limit; the processor sends a SMS to the concerned person using GSM network. The user can now accesses the system through the cell phone by sending AT commands to a GSM modem. The system also gives password security to prevent unauthorized access to the system, and uses GSM technology by providing full access to the system for security, analysis and control of humidity by HMCS (Humidity monitoring and control system).

J2ME based cellular application for remote administration of a server using GPRS technology is designed and developed by Kulkami et al., [15], and the main purpose of this solution is to remotely access and control different applications such as launching games, WordPad, winamp, or other similar application. Administrator can shutdown, restart or logoff remote server, and also administrator can access database including query processing and viewing the results. Architecture of this application is classified in 3 categories, j2me client, http server, and computer with static IP (internet protocol).

GPS-GPRS based Object Tracking System implemented by Hasan et al., [17], it permits user to view the current and past location of recorded object through internet on Google map. System identified the current position of object using GPS, and send data to user via GPRS. Data is stored in MySql database for past and current tracking.

## 4 NETWORKS MONITORING USING ANDROID PHONE

The main objective of this system is to provide maximum details about the network to the administrator on their android phones, when administrator is absent from office or goes out station. There can be number of protocols are used to monitor and control the network using android phone; it can be android protocols and network management protocols or combination of them. Simple Network Management Protocol (SNMP) is an "Internet-standard protocol for managing devices on IP networks." Devices that typically support SNMP include routers, switches, servers, workstations, printers, modem racks, and more."Complete Architecture of network monitoring depends on three main modules.

Module 1: Client - A client is the primary unit of any network. A number of clients (controlled by the main Server) work in co-ordination to complete the task as allocated to it by the server. Every client is installed with a client Demon tool which continuously keeps track of all the processes running on the client and performs the activities as instructed by the server.

Module 2: Server - It receives the requests or control commands from the user (administrator). These commands are then processed by the server for performing the preferred functions on the network. It also communicates with all the other client destinations on the network and monitors the activities carried out by them.

Module3: Mobile Application (Android) -It is an application which is installed on the administrator's Android based mobile phone. The basic use of this application is to allow the user to control the activities of the network form any remote location. The user enters the commands through an Android based graphical user interface which are received by the server for further
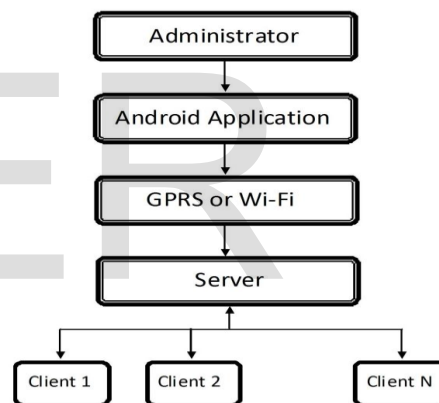
processing. This application can also be used to monitor the status of any client machine on the network.

Figure 1: Block diagram of system Architecture

5 CONCLUSION

This application will provide assistance to the system administrator in monitoring the task. Due to wide use of android devices, this application is developed for all devices having android operating system and later and it provides mobility for users for controlling their computer desktops from remote place over internet through various functions such as view running process, run process, end process, shutdown system, create file, view file, print file, mail file. Thus the extended scope of this system will prove to be helpful in providing mobility and accessing the remote Server over the internet in feasible and scalable way.

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