Utility Maximization for Centralized Network Using Remote Server and Android Phone

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Abstract: This paper proposes system to control and access the remotely located LAN network from our wireless handheld device i.e. cell phone from anywhere irrespective of distance. In concern the computer access in personal presence is an easy task, but while you are outstation/away from it, then to monitor and controlling of it instead of depending on third party information you can always have your cell phone serve the purpose. Just login anytime to application and do your task what you intend to do. This project is to provide the maximum control to the admin , when he/she is away from office/goes out station.

Keywords: Android, Wireless Media, Remote Monitoring & Control

I.   INTRODUCTION

Network monitoring is the information collection function of network management. Network monitoring applications are created to collect data for network management applications. The purpose of network monitoring is the collecting of useful information from various parts of the network so that the network can be managed and controlled using the collected information. Most of the network devices are located in remote locations. These devices do not usually have directly connected terminals so that network management application cannot monitor their statuses easily. Thus, network monitoring techniques are developed to allow network management applications to check the states of their network devices. As more and more network devices are used to build bigger networks, network monitoring techniques are expanded to monitoring networks as a whole.

At our workplaces many computers are connected together and form a network. Normally this network is monitored through a central monitoring server. This is similar to the client-server architecture. In this application the central server is further connected to an android phone. The machines connected in the network are clients and the android phone becomes our administrator as the monitoring is going to be done through this android phone only. Mobile phone needs to have its internet enabled and perfectly working to be able to establish connection with the central server. There are various features proposed in the developing application. This project is loaded in the android phone and whenever the administrator wants to carry out any monitoring activity he needs to open the application in phone and use the features as per need. So whenever administrator wants to know what is happening at the workplace and wants to know the activities being carried on the machines, this application is ready to help him.
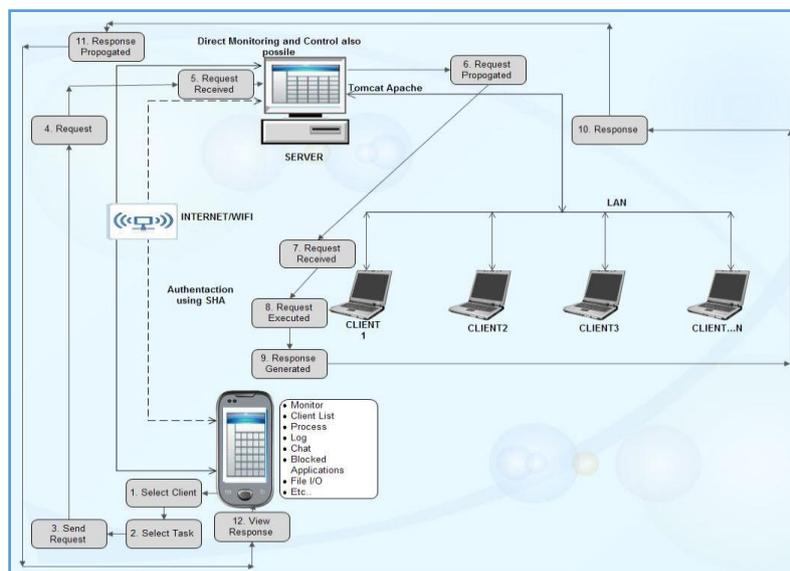
ARCHITECTURE

Fig. System Architecture

Administrator sends his request through his mobile phone to the server. Server then recognizes the client machine which administrator wants to monitor and control. Administrator is provided with a GUI based application in Android phone to send command instantly. Server sends command to the client like start process, shut down process, kill process, create, delete file, Process List. Through the Android service provider the communication is done with the mobile phone which communicates with server and server communicates with the clients. All clients are controlled and monitored by administrator. The administrator controls the LAN through his mobile phone even he is at the remote place. The administrator also checks the load on the LAN. If server fails in this model then Client can communicate to admin through mobile phones.

The feature which is selected by the admin on phone, a HTTP request is sent from the phone in URL form and received by the server. This same HTTP request is read and encoded and sent further to the client. The client reads this URL message and extracts the command name and other required parameters. The command is executed on the particular machine to which the server sent the URL to. The URL from phone contains the IP address of central server and its port number.

II. RELATED WORK

The paper mainly focus on lan controlling by using various techniques which enables user to remotely operate some functionalities for report generation.

Proposed system providing the following feature:

o   Offers valuable wireless connection.

o   There is no need of GSM modem in our application so it is cost affective.

o   The area of covered services is more than current system.

o   It requires lesser time to establish data connection than current system.

The main drawback of system was it uses sqllite [] database for storage. Its true that sqllite can handle up to 40 millions data entries but then also is has many limitations which made the system limited to use.

Nowadays, it is very difficult to find trained personnel that can manage new features introduced into the various servers, routers and switches. Administration process can be simplified and largely automated with the help of Policy Based Network Management. In this paper, they looked at a general policy based architecture that can be used to simplify several technologies emerging in context of IP networks. By defining two levels of policies, a business level and a technology level, they explained how the network administration could be simplified.[6]

Basically, a network is formed by grouping together many computers. It is easy for managing and controlling various activities of the network while in office. But, it is very difficult to control the network away from the office.

You can use your cell phone and emails to solve this problem. With the help of cell phone, we can administer the network using SMS service and see which person is busy with what at office. Also by the use of emails, we can build a variety of network utilities which are required to monitor a LAN network effectively.It aims to build an integrated software solution to remotely monitor LAN network with an email account.

We got the detailed survey of SMS based monitoring, android based LAN monitoring and email based LAN monitoring system from this paper. Out of the three monitoring systems, Email and Android based monitoring is efficient and reliable as compared to sms based monitoring system [7].

We can use our phone to send a request through SMS to the server via GSM Modem. Server then recognizes the client machine which administrator is supposed to monitor. Administrator is provided with a GUI based application in J2ME to send command message instantly. Server sends command like start process, shutdown process, kill process, create, delete, send task list, and compile code to the clients.

In this system interaction between server and various clients is mainly carried out with the help of SMS. The communication is Unidirectional, it is not two way. The mobile used must be having GSM facility only.

The software developed is a server based software application that provides ability to send and receive SMS messages through GSM network and communicates through standard TCP/IP protocol. In this system Android is never used, but in our system, we will use Android cell phones.[1]

The features installed in the application which can be installed in an android phone are explained as well as the advantages and future scope. This paper demonstrates how the application is used and details about the architecture of the LAN with android phone are given. The problem of security and authorization is also addressed in the paper stating how the application created is accessible only to an authorized person. The "Network Monitoring: WLAN monitoring" Software will be able to identify different clients connected in a network and will be able to monitor them through a mobile phone irrespective of distance. This will reduce the workload on network administrator to great extent.[2]

They have proposed Silent Unattended Installation Package Manager (SUIPM). This automates the process of silent unattended installations, it also requires the minimal possible level of interaction with the user. SUIPM generalizes process of silent and unattended installation. This process is totally autonomous and doesn't require any user interaction. SUIPM creates Silent Unattended installation packages, which can be deployed on the computer without user intervention.[3]

The process of accessing the computer with the help of Android phones is based on VNC (Virtual Network Computing) technique. So, we must install VNC server on the computer to be able to work on this. The user can access & perform operation through the range of Wi-Fi platforms like Linux, Mac, windows etc. The image of the desktop is

compressed before it is transmitted to the cellular phone. Various functions have been provided so as to ease the viewing on cell phones. A user can view two areas simultaneously using a twin view function. The prototype is already implemented using java and tested on a java based cellular phone. Also, Television can operated by mobile phone not only at home, but also from the outside. User will have the total control of it, with an added advantage that TV can be kept away from children and other unwanted people.

But, the main disadvantage is lack of wake-on LAN compatibility in most TVs. This means we can only navigate and Turn OFF the TV but we cannot turn it ON.[4]

This paper shows how the PC can be controlled from remote place from a smartphone by using internet. Shortly we can say that, the smartphone can be considered as the monitor of the PC. It turns your phone into a wireless keyboard and mouse with touchpad, using your own wireless network. It requires Android operating System having wireless connection and also server application for PC. By obtaining IP address from the PC , we can directly browse the contents on the mobile phone. Another way to browse the PC on mobile by assigning real IP to the PC and make the PC web hosting server by DNS entry into ISP provider.

Smart phone and tablet universal remote software is usually highly customizable. As with traditional universal remotes some are programmed using the handset (phone/tablet) itself and others are programmed using a computer. With help of remote control features, you can finally put your extra remotes away in a drawer somewhere. Now your phone (or tablet) is your remote.[5]

TABLE

Ref. No	Reference Name
[1]	GSM Based LAN Monitoring and Controlling
[2]	Wlan Monitoring Using Android Phone
[3]	LAN Monitoring and Controlling using Android
[4]	Remote computer access through Android mobiles
[5]	Concept of Remote controlling PC with Smartphone Inputs from remote place with internet
[6]	Simplifying Network Administration using Policy based Management
[7]	A survey on Network Monitoring and Administration using Email and Android Phone.

III.   CONCLUSION

The "LAN Monitoring" Software will be able to identify different clients connected in a network and will be able to monitor them through a mobile phone irrespective of distance. This will reduce the workload on network administrator to great extent. The earlier systems consists of technologies like GSM module or SMTP protocols which has dependencies.

In this paper we are proposing a novel approach to maximize control over the connected network. Use of a mobile device is unique functionality provided and algorithms used for security of the data over the network. This project makes it possible to support even the personal smart phones, laptops in the vicinity of LAN in use.This paper contributes for IT Administrators to remotely control any computer present in the network, allowing them to remotely troubleshoot and solve problems faster. In our system we have also added the facility for taking snapshots of client machines in network in our Android phone. It can help the colleges to monitor the labs, to restrict the use of forbidden sites or applications. The application also helps one to monitor his own PC when he/she is away the workstation. We can conclude that android based system is efficient and reliable from previously developed systems.

REFERENCES

[1] Prof. Mamata Bhamare, Tejashree Malshikare, Renuka Salunke, Priyanka Waghmare, GSM Based LAN Monitoring and Controlling ,International Journal of Modern Engineering Research (IJMER) www.ijmer.com Vol.2, Issue.2, Mar-Apr 2012 pp-387-389 ISSN: 2249-6645 www.ijmer.com

[2] Pooja Chaudhary, Atul Bavoria, *Department of Computer Engineering, Maharashtra Institute of Technology, Pune, India,* Wlan Monitoring Using Android Phone, International Journal of Engineering Research and Development *e-ISSN: 2278-067X, p-ISSN: 2278-800X, www.ijerd.com***,*Volume 10, Issue 7 (July 2014), PP.23-27*

[3] Dhanke D.T., Bodkhe S.S., Hambarde S.M., Vaidya R.P. Computer Engi- neering department, Dr. D Y Patil school of engineering, Pune University, LAN Monitoring and Controlling using Android International Journal of Advanced Research in Computer Engineering & Technology (IJARCET) Volume 3 Issue 3, March 2014

[4] Jaya Bharathi chintalapati, Srinivasa Rao T.Y.S, Department of Computer Science & Engineering,M.Tech.(CSE), JNTUniversity ,INDIA. Remote computer access through Android mobiles, *IJCSI International Journal of Computer Science Issues, Vol. 9, Issue 5, No 3, September 2012,ISSN (Online): 1694-0814, www.IJCSI.org*

[5] Dr. Khanna SamratVivekanand Omprakash ,Information Technology Dept, ISTAR, Sardar Patel University, VVNagar, India, Concept of Remote controlling PC with Smartphone Inputs from remote place with internet, *Volume 2, Issue 1, January 2012 ISSN: 2277 128X International Journal of Advanced Research in Computer Science and Software Engineering.*

[6] Dinesh C. Verma, *Member, IEEE,* Simplifying Network Administration using Policy based Management.

[7] Prof. C. S. Nimodia, Prof. S. S. Asole ,Khurana Sawant Institute of Engg & Tech, Hingoli (India),Babasaheb Naik College of Engg. Pusad (India), A survey on Network monitoring and administration using email and android phone, *International Journal of EmergingTechnology andAdvanced Engineering Volume 3, Issue 4, April 2013.*