Remote Control and Administration of Computer Network via SMS

Akshata Gurav[1], Disha Jagadale[1], Pranali Shinde[1], Shruti Hosur[1], Snehal Khuperkar[1], N.A. Kamble[2]

UG Scholar, Dept. of CSE, SGI, Atigre, India[1]

Assistant Professor, Dept. of CSE, SGI, Atigre, India[2]

ABSTRACT: There is always a great concern for network administrator about how to deal with network related activities. The most important task for network administrators is to troubleshoot the problem arises with network failure in reasonable time span. This problem can occur at any point and administrator may not have any information about it. This situation will occur if physical access to the network devices is not possible. There may be possibility that administrator is away from network locations. So instead of depending on third party for the information, he/she can be connected with a cell phone to serve the purpose. This approach also will allow network administrator to apply all necessary commands, using SMS. The short messages are then used to rectify faults, causing network failure. Additionally in this paper, we are proposing an alert message service. This service allows the administrator to get an alert message if at any point any client has lost the network connection. In this way, this application allows the administrator to remotely operate the network activities.

KEYWORDS: Commands, GSM Modem, Short Message Service, LAN Network, Mobile

I. INTRODUCTION

Computers are connected in a group to form a network. To manage and control the tasks of the Network when in lab is a simpler task. But, while you are far, it becomes very difficult to manage the network. Instead of depending on third party for the information, you can be connected with your cell phone to serve the purpose. The communication between the clients and the remote administrator is achieved with help of a central monitoring server. Using cell phone administrator can monitor and control the network using SMS service and see what activities are being going on in office.

Our aim is to allow a network administrator to remotely monitor the LAN by his cell. The communication between the clients and the wireless media happens through this server. Using a mobile, administrator can develop different network utilities those are required to effectively and efficiently monitor a LAN network. The aims to develop a solution that allows a network administrator to get an alert message on his/her cell whenever the client looses the network connection. So that he can quickly get alerted about the lost clients. Network monitoring at the office level can be used to monitor and handle the network by the administrator any time, if at a particular point he cannot be present there. He does not have to be dependent on any third party for information relating the network and can instead check the network status himself using his mobile. Using mobile device the administrator can perform following actions:

1. Kill process   4. Restart   7.Logoff
2. Shut down   5. Alert Message   8.Lockpc
3. Broadcast message   6. Process list

Remote administration is becoming increasingly common and is often used when it is difficult or impractical to be physically near a system in order to use it. Any computer with an Internet connection, TCP/IP or on a Local Area Network (LAN) can be remotely administrated.

II. RELATED WORK

In 2012 Rupali Chopade et. Al. [5] proposed one tool that doesn't need any type of internet connectivity with environment. This tool uses mobile network to administrate LAN environment. User just need to write message that message contains command and send that message to mobile which is connected to server, and server will read

message and will perform particular operation over an environment and return feedback to admin mobile. This tool is being developed using Remote method invocation concept and has object oriented architecture. This paper gives an idea of an application of server side architecture

A. Raghvendra Rao et. Al. [6] has adopted new approach where they use SNMP protocol, based on short message services (SMS). In this approach an application is installed on a system which has access to the network under administration. Upon the administrator request, all necessary information will be gathered by this application, using SNMP protocol and then is sent to the administrator via short message service, SMS. In turn the administrator is able to issue commands with certain format applicable to the SMS, to the same application. At this stage the application with the collaboration of SNMP, the issued command will be applied to the target device. The system has been implemented and evaluated in both experimental and real network at Yazd University.

Prof. C. S. Nimodia et. Al. [7] provides maximum details about the network to the administrator on their email accounts and android phones, when administrator is not in office or goes out station. In the era of internet services & mobile phones, email & mobile applications are widely used and it has penetrated every part of our life, but remote monitoring of networks through email and android mobile applications which are GPRS or Wi-Fi enabled is still a mirage. There are be number of protocols, which are used to control and monitor the network using android phone; it can be android protocol and network management protocols or combination of them. This paper provides the detailed survey of SMS based monitoring which is GSM based, email based LAN monitoring system and android based LAN monitoring and administration.

M. Sarram et. Al [1] suggests a method for remote administration of computer network. Also network managers can send commands to the server by Short Message Service (SMS) to let it issue commands for fixing the failure. By applying this approach, network managers can control and manage their network when they are far from the network location. In this approach administrator can send an SMS and get all the information what exactly is client doing. This system provides an alert system from server to administrator's mobile. In the alert system, whenever the client has lost the connection the administrator will get informed about it.

III. EXISTING MODEL

Computer connectivity is a need for today. So the system administrator requires flexible administration. To manage and control the tasks of the network is a simpler task. But, when you are out of working area it becomes very difficult to manage the network. In such cases the network administrator is not only needs to communicate with the third party but also he has to inform the third party to handle problems and the activities of the problems. Also it is very time consuming to troubleshoot the problems. So in such cases administrator needs to be depending on third party.
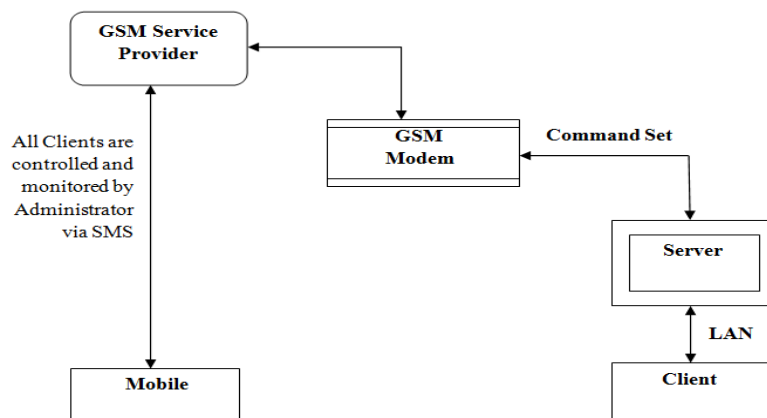
IV. PROPOSED WORK

Figure 1. The architecture of proposed system

In proposed system, the network administrator can handle the network via short message service through his cell phone and if necessary, he can send and apply a command to a specific device on the network, using SMS. In Addition the network administrator is able to log the status of any individual device by SMS. The architectural design of this system is shown in Figure 1.

The core functionality of this system is to develop an interface between server and client, where clients are connected via LAN and GSM modem which is used for communication between client and server. The structure of the system is going to work as the remote user sends text messages to the GSM receiver. The GSM receiver then sends this message to the GSM modem. The GSM modem then sends the command to server. The command is taken place on client side based on the content of message. In addition the network administrator can monitor the network status at any time by applying the commands. In this system we are introducing an alert system from server to administrator's mobile. That is, if in any case, the client has lost the connection then the alert message will be sent to the administrator.

Objectives of Proposed System

- The main aim and objective of system is to develop an interface between server and client, where clients are connected via LAN and GSM modem is used for the communication between client and server.
- The objective here is to develop a system that allows the administrator to remotely control and monitor multiple clients using a cellular phone.
- This system will be a powerful and flexible tool which will offer the service any time, and from anywhere.
- The main approach for designing this system is to implement the commands from a cellular phone over the GSM network on the client side.
- The operation will be performed on client side and a feedback (human side) will be send back to the cellular phone.
- Alert system has been introduced for administrator to get informed about the connection problem.

V. MODULE

- **GUI Oriented Tools build in Windows**

  Windows system administrators likely to use graphical remote administration tools that allows access to Windows GUI. Recent Windows systems "Windows 2000, XP, Server 2003" support Terminal Services. Terminal Services depend on Windows authentication to authenticate remote sessions created by users. Remote Desktop, included with Windows XP Professional, allow you connecting to your computer towards the Internet virtually from any computer, PC or Smartphone.

- **WMI Windows Management Instrumentation**

  WMI is the management framework available in current windows systems. WMI is developed on the COM "Component Object Model" infrastructure and can thus operate remotely, using DCOM "Distributed COM".

- **CLI-Oriented Tools**

  CLI "Command Line" remote administration tools are needed, to pass the massages.

- **Web based tools**

  The web based remote administration tools like GoToMyPC is a hosted service that enables secure browser-based access to any Internet-connected Microsoft Windows -based PC. Features include a screen-sharing Viewer, drag-and-drop File Transfer, Remote Printing, Guest Invite and Chat.

- **Alert system**

  The main aim behind this system is to provide an alert message service to the network administrator. So that he can easily get informed about the lost connection of clients.

VI. RESULT

The following graph (Figure 2) shows the connection of client to the server within milliseconds. The graph represents within how much time the client gets connected to the server.
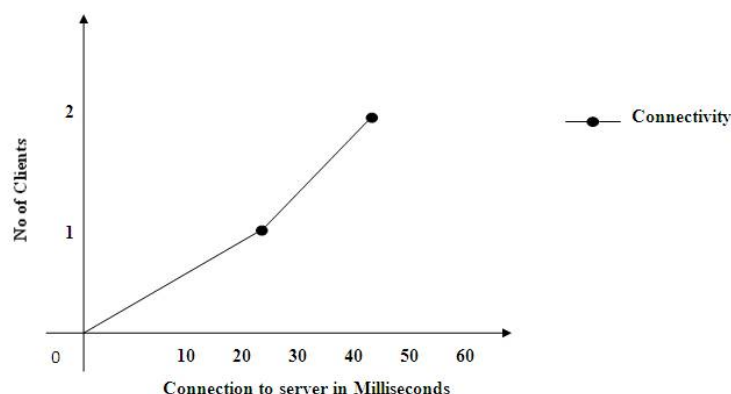
Figure 2. Connection of clients to the server

VII. CONCLUSION

In this work an overall remote management and control system for computer network administration, with utilization of short message service is proposed. The main advantage of SMS is the convenience and efficiency of having access to the monitoring and control, using the popular and handy apparatus of mobile phone. The system has provided a low cost, accessible, remotely controlling and monitoring of LAN using GSM is been introduced. This solution can be customized to suit any other industrial requirement related to monitoring and controlling LAN network. The system has provided an alert service to the administrator to get informed whether any client has lost the connection.

Also this system has the drawback of SMS cost, if too many messages are required to send the commands.

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