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GSM LAN Monitoring and Controlling

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ABSTRACT

The seminar says that various network utilities which are required to effectively monitor a LAN network. It's also say that an integrated software solution that allows a network administrator to remotely monitor LAN by cell. In concern, computers are grouped together to form a network to manage and control activities of network while in office is an essay task, from office or outstation to monitor and controlling of network instead of depending on another person you can access information you can have cell phone who serve the purpose of login anytime to application and see who is busy with what in the office. This project is to provide the maximum details about the network to the administrator on their mobile phone, when administrator is away from office or goes out station.

Keywords- LAN, GSM, SMS, J2SE, WWW, MODEM.

I. INTRODUCTION

Today the world is rapidly changing the statement "We are in the world" to "world is in our hand". The paper says that control and monitor the network from our wireless handheld device i.e. cell phone from anywhere irrespective of distance. 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 widely used and it has penetrated every part of our life, but remote monitoring of network through mobile device is still a mirage, this project is an effort to make this mirage a reality, and this is where the genesis of this of this project lies. Consider a LAN setup with the server machine connected to GSM service provider via a GSM modem. The interaction between the clients and the wireless media happens through this server. A small text file residing any of the client or server machine can be opened in your cell phone [8].

II. ARCHITECTURE OF PROPOSED SYSTEM

In the figure Administrator sends his request through SMS using his phone via GSM modem to the server. Server then recognizes the client machine which administrator is supposed to monitor and extract data from locally cached data buffer where latest 15 sec data of every machine is updated or stored and sends this info to the administrator as response. Administrator is provided with a GUI based application in J2ME to send command message instantly without the need to retype message every time. Server sends command to the clients like start process, shutdown process, kill process, create, delete, send task list, Compile code. Through the GSM service provider the communication is done with the GSM modem which communicates with the server and the server communicates with the client. All clients are controlled and monitored by administrator via a series of SMS. The administrator controls the LAN through his mobile even he is at the remote place. The clients cannot send back or communicate to the administrator the communication is unidirectional it is not two way. The mobile used can be any mobile having GSM facility in it. Also the administrator can check the network load on the LAN by typing only a command. In this also serial USB interface and set of command is used for administrator to communicate to clients. The efforts that have been made regarding developing a LAN monitoring system are increasing every day. But a lot of them are still in their initial stages. One of the software that are available in the market is activexperts SMS.

Messaging Server but it has quite different application from our project. Active SMS messaging server is windows based software package that enables you to send, receive and process SMS and email messages. User can use his/her mobile phone to query a database in his computer via SMS. LAN monitoring using GSM technology can be used in offices malls as well as college or university level.

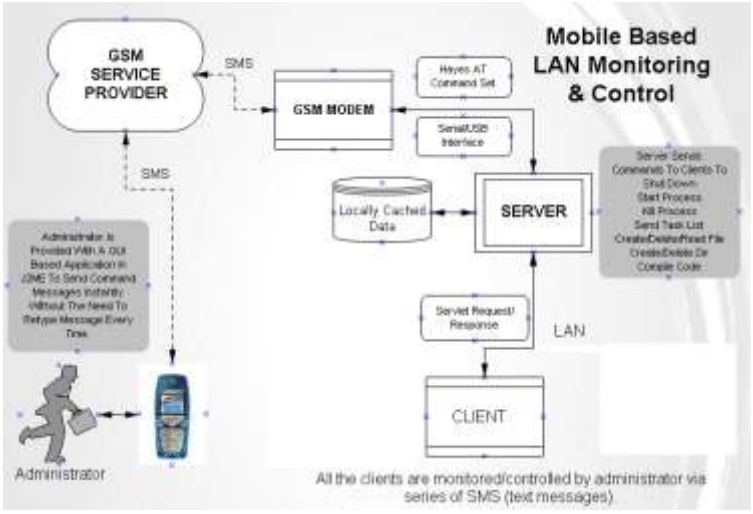

Fig.1 Architecture of mobile (GSM) Based LAN monitoring and control.

III. BLOCK DIAGRAM OF PROPOSED SYSTEM

- NET VIEW: Get in your cell phone, the list of entire client's in LAN. Keep pinging every time to check the latest status of the PC's.
- PROCESS VIEW: Get the list of all processes running in the remote machine.
- ACTIVATE PROCESS: Activate different processes in either the server machine or any of the client's.
- KILL PROCESS: Kill the desired processes in either the server or clients.
- READ: You can read the drives, folders, files of any of the client machines/ the server machine from cell.
- OPEN FILE: A small text file residing in any of the client or the server machine can be opened in your cell phone.
- BROADCAST MESSAGES: Broadcast messages to clients, server from cell.
- NEW FILE: Create a new document in the cell phone and save the same in either the server or client machine.
- SHUT DOWN: Shut down the client machine from mobile.

From the block diagram of proposed system we see that from mobile SMS is send to server through GSM modem. In SMS there is mobile number of the user, client name and operations to be perform on the client. That SMS is send to server then server recognizes the client from all clients. By using SMS parser we recognize the SMS fully, by process builder class we perform that process on that client. Then after completion of that requested operation n the client, client sends the response to the server [3]. Then server sends response to the administrator through GSM modem again SMS parsing is used to send SMS to administrator that specifies that operations on the client are performed. There is no any database maintained there is only one temporary database or we can say file. Through database we get the data we needed. There is many clients connected to server all clients have name given to it. Below we see the block diagram of GSM based LAN monitoring

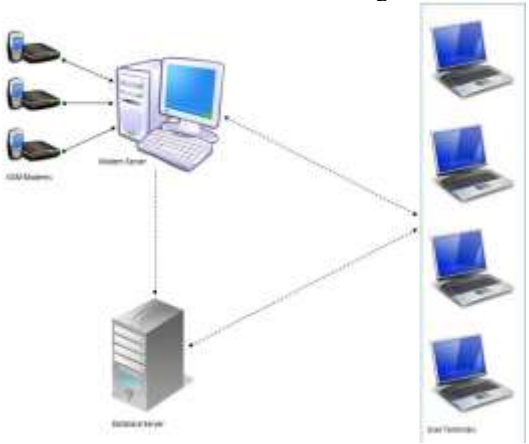

Fig 2. Block diagram of proposed system

IV. FEATURES CONTROLLED BY SYSTEM

- **Hardware Interface**
  - Mobile Devices The external hardware interface will support mobile devices, such as smart phones and LAN network.
  - External Storages the product will support transparent connections with external hard drives in order to support automatic archiving capability.
- **Software Interface**
  - Operating System The product will work with Android 2.1 and above.
  - Integrated Commercial Components The system will interact with web application programming interfaces (API) of third party services, such as HTML5.

GSM MODEM

A GSM modem is a specialized type of modem, which accepts a SIM card, and operates over a subscription to a mobile operator, just like a mobile phone. From the mobile operator perspective, a GSM modem looks just like a mobile phone. A GSM modem can be a dedicated modem device with a serial, USB or Bluetooth connection, or it may be a mobile phone that provides GSM modem capabilities. A GSM modem could also be a standard GSM mobile phone with the appropriate cable and software driver to connect to a serial port or USB port on computer.

Any phone that supports the "extended AT command set" for sending/receiving SMS messages, are defined in the ETSI GSM 07.05 In the proposed system we have used SIMCOM SIM300 GSM module. SIM300 [12] is a Tri-band GSM/GPRS engine that works on frequencies EGSM 900 MHz, DCS 1800 MHz and PCS1900 MHz SIM300 provides GPRS multi-slot class 10 capability and support the GPRS coding schemes CS-1, CS-2, CS-3 and CS-4. With a tiny configuration of 40mm x 33mm x 2.85 mm, SIM300 can fit almost all the space requirement in your application, such as Smart phone, PDA phone and other mobile device [8]. The SIM300 is designed with power saving technique, the current consumption to as low as 2.5mA in SLEEP mode. The SIM300 is integrated with the TCP/IP protocol Extended TCP/IP AT commands are developed for customers to use the TCP/IP protocol easily, which is very useful for those data transfer applications

V. APPLICATIONS OF PROPOSED SYSTEM

1. LAN monitoring at the university/college level can be used for monitoring, logging and retention of network packets that traverse university networks. The goal of this project is to maintain confidentiality, integrity and availability of the university network infrastructure and information assets.
2. LAN monitoring at the office level can be used to monitor the office LAN by the administrator at any time if at a particular point he/she cannot be present there. He/she does not have to depend on any third party information regarding the LAN and can instead check the LAN status himself using his mobile.
3. LAN monitoring at the malls is used to monitor all information of malls by administrator at any time if at particular time he/she cannot be present there.

VI. LITERATURE SURVEY

Today the world is rapidly changing the statement “We are in the world” to “world is in our hand”. In previous system to control and monitor the network from our wireless handheld device i.e. cell phone from anywhere irrespective of distance. Say you have a LAN setup at your 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 widely used and it has penetrated every part of our life, but remote monitoring of network through mobile device is still a mirage, and this is where the genesis of this of this system lies. Consider a LAN setup with the server machine connected to GSM service provider via a GSM modem. In such a system the network monitoring is done via sms. The interaction between the clients and the wireless media happens through this server. A small text file residing any of the client or server machine can be opened in your cell phone. But there are certain disadvantages of this system. Cost of Sms is high, and in any condition failure of the GSM modem may happen. So this system is not so useful. Second we can monitor and control the network using email. It provides maximum details about the network to the administrator on their email account, when administrator is away from office or goes out station. In the era of internet services, emails are widely used and it has penetrated every part of our life, but remote monitoring of networks through email is still a mirage. It develops various network utilities which are required to effectively monitor a LAN network. It aims to develop an integrated software solution that allows a network administrator to remotely monitor his LAN network by his email account. 3.1 Previous Systems for Network Monitoring 3.1.1 GSM Based LAN

monitoring system In this system it control and monitor the LAN network from our email i.e. internet, from anywhere irrespective of distance. Say, you have a LAN setup at your office. Sitting at home you want to learn the LAN status. You can do so by your cell phone and executing the same. In this system Administrator sends his request through SMS using his phone via GSM modem to the server. Server then recognizes the client machine which administrator is supposed to monitor and extract data from locally cached data buffer where latest 15 sec data of every machine is updated or stored and sends this info to the administrator as response. Server sends command to the clients like start process, shutdown process, kill Process, create, delete, send task list, and compile code. Through the GSM service provider the communication is done with the GSM modem which communicates with the server and the server communicates with the client. All clients are controlled and monitored by administrator via a series of SMS.

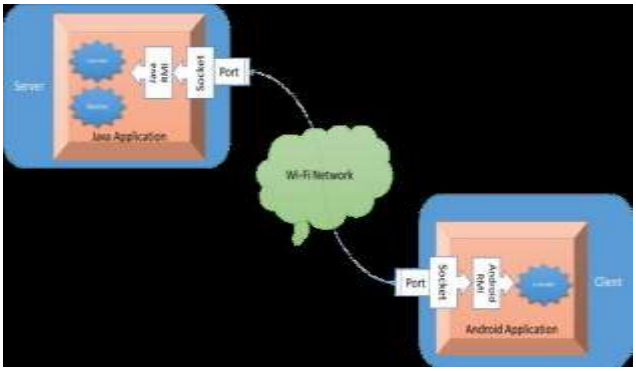

Fig 3. Architecture diagram

Fig: 3 Architecture diagram of GSM Based Network Monitoring From the block diagram we see that from mobile SMS is send to server through GSM modem. In SMS there is mobile number of the user, client name and operations to be perform on the client. That SMS is send to server then server recognizes the client from all clients. By using SMS parser we recognize the SMS fully, by process builder class we perform that process on that client. Then after completion of that requested operation n the client, client sends the response to the server. Then server sends response to the administrator through GSM modem again SMS parsing is used to send SMS to administrator that specifies that operations on the client are performed. There is no any database maintained there is only one temporary database or we can say file. Through database we get the data we needed. There is many clients connected to server all clients have name given to it. The administrator controls the LAN through his mobile even he is at the remote place. The clients cannot send back or communicate to the administrator the communication is unidirectional it is not two way. The mobile used can be any mobile having GSM facility in it. Also the administrator can check the network load on the LAN by typing only a command. In this also serial USB interface and set of commands is used for administrator to communicate to clients[7].

VII. CONCLUSION

This paper explains the basics of GSM based LAN monitoring.SMS remains the most efficient communication system for pushing the content on to the mobile devices. 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.

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