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Local Area Network Administration Using Mobile

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Abstract-Computer connectivity is a need for today. A large number of business and universities have installed Local Area Network based on the windows domain as a primary computing environment. The system administrators of these computing environments need flexible remote administration so that they can be in touch with environment 24/7. Today's system has such tools to administration but they require internet connectivity or any connection. This paper will give you 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.

Index Terms- **LAN, Mobile Network, Remote Administration, RPC.**

I. INTRODUCTION

To develop a Network based system for task management of all clients along with the username, password (mobile no.) login facility administrator of the system. The administrator can redirect the work force and get the best out of institute members. This requires the organization to keep track of the user activities in remote machine so as to get full benefit of their talent and time. The control of system made on Internet to monitor as well as on Mobile to control so that administrator of the system can monitor and control the LAN.

Administrator or authorized user logins to the system by entering his/her valid user name. For logging into the system, he will send message to the mobile, which is connected to the system. This mobile is having USB port, for e.g.: NOKIA 3110.Through USB cable it is connected to the system. Devices are getting networked at a very fast space. Information appliances like cell phones, two-way pagers, PDA's, screen phones are becoming important in our lives. These devices are diverse in features, forms and function – they typically tend to be special-purpose and limited-function oriented.

This paper gives an idea of an application of server side architecture. In server side application administrator will send SMS through any mobile. Mobile which is connected to server will receive that message. This application is useful for handling the system remotely, from anywhere in the world. After logging into the system, user will send SMS to system's mobile. After receiving, server will check whether the sender of the message is an authenticated user of the system. The username is correct, the IP address sent is valid, and then checks the command is correct. If it is correct it will process that command else it will reply invalid command to the administrator's mobile. After processing the command it will send feedback to the user's mobile.

II. DIFFERENT TECHNIQUES FOR REMOTE ADMINISTRATION

A. MSRPC "Win32 legacy management APIs"

The traditional method to administer remote Windows systems [1] is to use Win32 legacy management APIs. These APIs can be easily identified because they take a server name as one of their parameters, when the server name is empty "NULL", the API operates on the local server, and when a server name is specified, and the API operates on the specified remote server. For instance, all APIs with names starting with Net such as NetShareEnum () belong to this class of APIs. When used to administer a remote server, these APIs use the MSRPC protocol, "Microsoft implementation of the DCE RPC standard" with the SMB transport. SMB is the core protocol of Windows networks and operates on both port 139/tcp and 445/tcp. When used as a transport for MSRPC, named pipes inside the IPC$ share are used as RPC services endpoints. Microsoft Remote Procedure Call "RPC" is an inter-process communication "IPC" mechanism that enables data exchange and invocation of functionality residing in a different process. That process can be on the same computer, on the local area network "LAN", or across the Internet. The Microsoft RPC mechanism uses other IPC mechanisms, such as named pipes, NetBIOS, or Winsock, to establish communications between the client and the server. With RPC, essential program logic and related procedure code can exist on different computers, which is important for distributed applications.

B. GUI-oriented tools build in windows

Many Windows system administrators tend to use graphical remote administration tools [1] that allow access to Windows GUI. Recent Windows systems "Windows 2000, Windows XP, Windows Server 2003" natively support Terminal Services, the feature of Windows NT that allow multiple concurrent interactive logon sessions. The network protocol used by Terminal Services is RDP, Remote Desktop Protocol, and operates by default on TCP port 3389. Terminal Services rely on Windows authentication to authenticate users establishing remote sessions. In addition, applicative permissions are supported by Terminal Services to restrict the category of users allowed to establish Terminal Services sessions, Permissions tab in the Properties of the RDP-Tcp transport in Terminal Services Configuration MMC snap in. Remote Desktop, included with Windows XP Professional, enables you to connect to your computer across the Internet from virtually any computer, Pocket PC, or Smart phone. Once connected, Remote Desktop gives you mouse and keyboard control over your computer while showing you everything that is happening on the screen. With

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Remote Desktop, you can leave your computer at the office without losing access to your files, applications, and e-mail. Your sales force will be able to access the latest pricing sheet from on the road by using Remote Desktop in Windows XP Professional.

C. CLI-oriented tools

CLI "Command Line" remote administration tools are sometimes needed, for instance to execute non interactively system administration scripts. PsExec is a convenient tool for Windows systems administrators because it allows executing processes on a remote system, provided the [1] server service is available "TCP ports 445 or 139" and that you have local administrator credentials on the remote system. PsExec first copies its executable, psexesvc.exe, contained in the psexec.exe binary, using SMB, under %systemroot%\System32\, installs the service and starts it. These steps require administrator credentials. If you are logged on with local credentials that also correspond to local administrator credentials, with a domain administrator account or with an account with username and password identical to a local administrator account on the remote system, additional credentials are not needed. Rcmd is a Windows NT 4.0 Resource Kit tool composed of a Windows service and a command line client that supports remote process execution. The Rcmd service opens a named pipe, \pipe\rcmdsvc. The Rcmd client establishes an SMB session to the IPC$ share, authenticated with an account that needs to have the SeInteractive Logon Right logon right "Allow log on locally".

D. Web based tools

One of the major issues confronting information systems "IS" managers today [1] is how to provide secure access to corporate IS resources to people who are physically located Outside of the corporate network. In today's increasingly connected society, traveling salespeople, telecommuters and staff working extra hours all need real-time access to resources on corporate networks. For security reasons, these resources, such as databases, sales tools and email are usually protected by firewalls so that users outside the corporation cannot access them. Companies are looking for ways to provide cost-effective network access to their remote and mobile employees. Many Remote-control solutions are one way to provide this access. The Web based remote administration tools like Go To My PC 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. Corporate administrators have access to extensive management and reporting tools that enable central control over these remote-access services. While choosing a Windows remote administration tool, the following characteristics have to be considered the TCP ports required to use the remote administration feature the supported authentication mechanisms, system authentication implemented by Windows, application level authentication only.

III. Need Of The Concept

Sometimes the situations occur as we need to leave our personal computer switched on. In such a situation after sometime we need to shutdown our PC. This made the basic requirement of the concept for remotely controlling our PC. Other solutions existed for remotely controlling but had some or the other disadvantages. Thus we researched for a simple and effective method for controlling our PC from a remote location. The importance of security of the data stored in the PC is increasing as with the increase in networking. We are always interested in securing our data. But what about securing data when we need to keep our PC on for some purpose such as downloading and need to leave for other tasks. This system is to provide the remote PC controlling system. Suppose we have a LAN and one person is administrating this LAN. If in any case administrator need go away from LAN till he wants to perform some basic operation on LAN. In such situation he can send SMS to the mobile connected to the server and particular operation in SMS will be performed by server.

IV. Implementation

Here aim is to build a user interface, using which we can interface with different PCs connected in LAN by sending only SMS to perform large number of operations on them. It is a tool which can be used in various fields. Using mobile computer communication using SMS we can operate any PC with particular IP address in LAN.

Suppose administrator wants to shutdown any computer connected to the LAN he/she need to send SMS to the mobile connected to the server. Server continually read for any new SMS if he found new SMS then command stated in the SMS will be executed by the server and server will shutdown the stated computer. For this we are going to use RMI that allows execute method on different location.

Numbers of operations that can be performed by administrator are as follows:

1. Process Management:
   - Shut down.
   - Restart.
   - Logoff.
   - Kill the process.
   - View the list of running processes.
2. File Management:
   - Delete
   - Rename.
3. User Management:
   - New User
   - New Admin

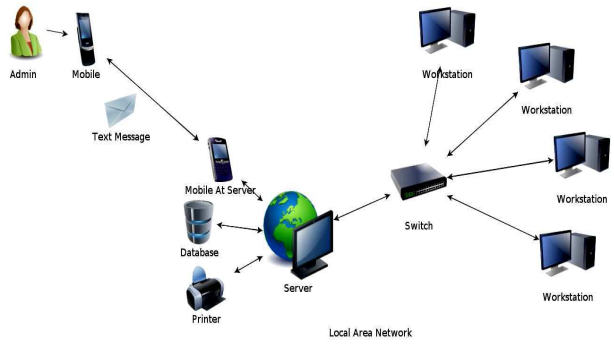

Fig.1. Working of LAN Administration [11]

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A. Implementation:

- First of all mobile-computer communication is important that will be implemented by using port.
- Here new SMS will be fetched by the Server.
- Server will use SMS Library and perform particular operation.
- RMI(Remote Method Invoke) feature of JAVA is useful for performing operation on any machine connected to LAN
- Whenever method is executed on remote machine then command will be executed on that particular machine. Ex. PING

B. Remote Method Invoke:

The **Java Remote Method Invocation** Application Programming Interface (API), or **Java RMI**, is a Java application programming interface that performs the object-oriented equivalent of remote procedure calls (RPC).

1. The original implementation depends on Java Virtual Machine (JVM) class representation mechanisms and it thus only supports making calls from one JVM to another. The protocol underlying this Java-only implementation is known as Java Remote Method Protocol (JRMP).
2. In order to support code running in a non-JVM context, a CORBA version was later developed. RMI functionality comes in the package java.rmi, while most of Sun's implementation is located in the sun.rmi package.

C. SMS LIB

SMSLib is a Java library which allows you to send/receive SMS messages via a compatible GSM modem or GSM phone. SMSLib also supports some bulk SMS operators (for outbound messaging only).

D. Features

Supports GSM phones and GSM modems connected via serial port interfaces or IP interfaces. Works with PDU/TEXT protocols. Supports Inbound & Outbound simple text messages. Works with 7bit, 8bit and UCS2 (Unicode) message encodings. Supports Inbound & Outbound big (multipart) messages. Flash messaging. Outbound messages with port information addressing. Outbound WAP PUSH SI messages. Status (Delivery) Report messages. Basic GSM information available: Modem, Manufacturer, S/W revision, Signal level, etc. Supports a few bulk operators, using http/https protocols. Support the SMPP protocol.

V. Conclusion

A Remote Administration Tool is remote control software that when installed on a computer allows a remote computer to take control of it. With remote control software you can work on a remote computer exactly as if you were right there at its keyboard. With fast, reliable, easy-to-use pc from remote control software, it lets you save hours of running up and down stairs between computers.

Generally in Remote Administration, Personal computers are used. For Administrator it is easier to control network if He/she is present in that environment. But consider the situation where administrator is outside the network, then it will be difficult to manage the network. The strategy suggested in this paper will be helpful to above stated situation.

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