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Lab Administration Using Remote Access

Saher Kadri, Nikita Magar, Poonam Suryawanshi, Raginee Titar, Prof. Shailesh Hule

Abstract:-There is a multiple systems connected in a network. This Smart Remote Access Technology or RAT (Remote Access Technology) uses the concept of Server and Client where the Server is the Smart and Powerful Computer to watch other connected Computer's called as Clients. The Sever gives the commands to the Clients and Clients have to perform them as per requirement. These Clients cannot be seen or cannot be accessed by any other by any other System rather than the Server. These concepts provides better security to the operations and increase the speed of operation. Many times the user tries to use the built-in software's provided by the Operating Systems or any Developing Organization to perform the Remote Operations but the problem of data security always comes as a threat to the user and many times the end user is not aware of this threats so they can loss their confidential data to any unauthorized hands which can lead to huge problem in future.

Index Terms—Remote Access Technology, Remote Shutdown, Remote PC Power Management, Process Management

I. INTRODUCTION

Remote Access Technology is well known technology used now-a-days in all types of field such as Hospitals, Colleges, Offices, Cyber Cafe, etc. the basic concept under this technology is just that we keep a Smart and Powerful Computer to watch other connected Computer's. The term Remote stands for "The things suited around the globe" and the Access stands for "take the control". It helps in most terms such as to get the required data from any part of the world, to see what the user is performing on the screen, to dictate some instruction to the user, etc.

Some Operating System provides such type of products built-in itself but in that the level of security provided is very low which is sometimes very risky. Many well-known products provides Remote Access but they provide very limited features within. Hence there was a need to develop an application which can provides the security to this operations and also provides all the features at a single platform with same flexibility and efficiency but better results.

This Remote Access Technology or RAT (Remote Access Technology) uses the concept of Server and Client where the Server is the Smart and Powerful Computer to watch other connected Computer's called as Clients. The Sever gives the commands to the Clients and Clients have to perform them as per requirement. These Clients cannot be seen or cannot be accessed by any other by any other System rather than the Server. These concepts provides better security to the operations and increase the speed of operation.

II. LAB ADMINISTRATOR SYSTEM

When a person like Employee, Teacher, Parent's, etc. stay away from their respective computers then they are unable to get the required data or information from that computer until they themselves shall go there and get the data by logging to that computer. The Remote Access Softwares provided by Microsoft or any other company have restriction to perform the work or limited access to data stored at remote machine, so there is a bigger need to develop this Smart Remote Access to user's specified above for the easy and better access to such remote computers.

III. ADVANTAGES

The main advantage of using Remote Access Technology we can do the Remote Shutdown as PC power management solution is a simplicity or its launching and maintenance.You don't need to change or upgrade your network hardware, because application can successfully run on the existing one. And you can setup and launch application in your environment within few minutes with no special knowledge or training.

A. Remote PC Power Management

Turn network PCs on/off by executing Wake-on-LAN and Shutdown operations remotely. Reduce power consumption by switching remote PCs to a Sleep.

B. Remote PC State Management

Make an unattended Reboot of network PCs and force current active user to Log Off. Lock and Unlock keyboard and mouse on remote PCs. Display notification messages on remote PCs.

C. Operations Cancellation

Configure remote operations with an option to cancel them on the remote side. It helps, for example, to make a shutdown of all desktops and allow active users to continue their work.

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IV. REMOTE PC POWER MANAGMENT

An automatic PC power management software for networks. It allows you to make a central remote power management of network PCs. Directly from your workplace you can get an access to any PC in the local network to make a shutdown, Wake-on-LAN, reboot and other operations. You can simplify power management tasks and make power on and off for group of computers at once either manually or according with an automatic power management scheme.

Centralized PC power management is one of the key aspects of the effective network administration. The main benefit of using software power management solution is easy management of remote PCs, because administrators can turn on and off all computers across the network remotely. This solution doesn't require hardware upgrade or significant investment, but allows organizing an automatic power management, reducing energy consumption and saving up to 200 kWh/year per PC or $50 per PC annually.

It doesn't require any scripting or special configuration to change state of remote PCs. You only need to select the remote operation and PCs where it will be executed. The list of supported operations includes Shutdown, Wake-on-LAN, Reboot, Log Off, Hibernate, Sleep, Lock and Unlock input devices (keyboard and mouse). You can run them on one or multiple selected PCs at once either manually or by a schedule.

A. Automatic Task Execution

Setup remote operations for automatic execution on defined date and time. Application automatically tracks configured tasks and launch them when their start conditions are reached.

B. Task Execution Results

Check execution status for every completed task. For every PC, where it was executed, get information about launch time, execution result and troubleshooting info in case of error.

C. Task Management

Track status and progress of the remote tasks execution. Terminate task execution on a particular PC or all PCs at once. Get detailed task execution progress information for every PC.

V. CAPTURING THE IP ADDRESS

Layer 1 – It is the Physical layer. Here Frames are shown at the physical layer.

Layer 2 – It is the Data Link layer. In this packet, we can see that Ethernet II is used as data link layer protocol. We can find the MAC address of the source and destination in this header.

Layer 3 – It is the Network layer. In this packet, we see that the is used as Network layer protocol. We can see the source and destination IP in this header. IP

Layer 4 – It is the Transport layer. In this packet, TCP is used as Transport layer protocol. We can find the source and destination ports in this header.

Layer 5 – It is the Application layer. In this packet, HTTP is used as Application layer protocol.

Let's explore one of the layers. Other layers can be explored further in the similar fashion. If we expand the Layer 5 i.e. HTTP header, it looks as follows.

VI. METHODS

- *Capture IP Address*: We capture IP address of all the clients systems in a network using different commands of netwoking.
- *Process Management:* We Capture all foreground and background processes of each client system connected in network.
- *Remote Shutdown:* We remotely login, shutdown or restart all the client systems in the network.
- *System Status:* We check all System hardware and software of a client system and if client face any issue then we can remotely resolve that issue.

VII. SYSTEM ARCHITECTURE

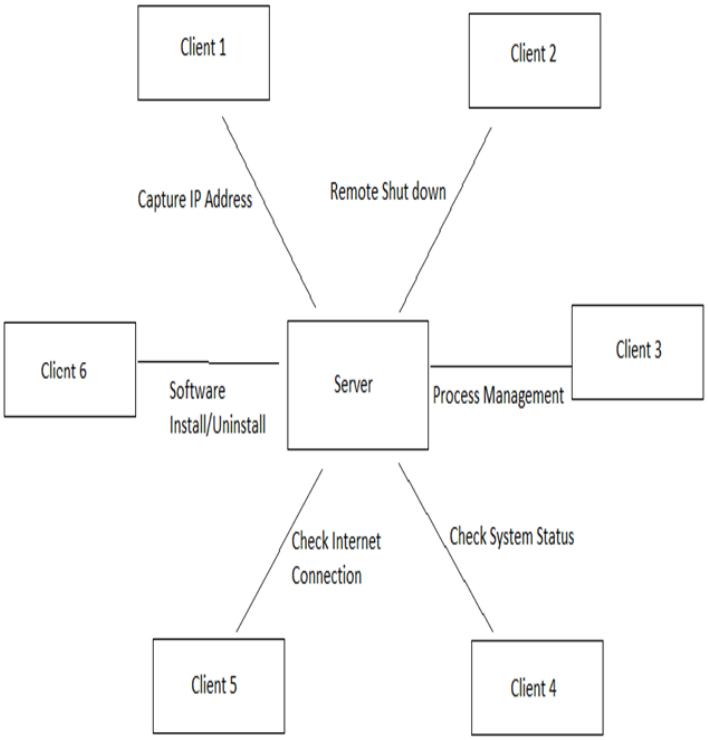

Fig.1 System Architecture

VIII. SOFTWARE ARCHITECTURE

The architecture includes several modules through which we will capture IP address and manage Processes .The modules are Login module, Process Management module and Key-logger module

- Login Module: In this module administrator Login into the system using IP address and password.
- Process Management Module :In this we are doing all process managemnt. Administrator check all the running processes of client system. Admin can see all the internet history of client.
- Key Logger Module: At the end of the day, admin login into the key logger and check all the activies performed by user in a whole day.
- System Status Module :In this module, we check all the software and hardware in the clients system are in usable manner or not.
- Remote Shutdown: In this administrator can remotely shutdown all the PCs in a network remotely or from the a server system.

IX. CONCLUSION

By this way we want to create a Smart Remote Access Technology which will provide same features like the other Remote Access Technology with better performance. Even if the System failure occurs during the operations, the original data of the Client/Computer will remain unchanged. We can also provide a security to End User in terms of Unauthorized Access to the commercial data.

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