Android Based Remote Control Of Pc And Pcs

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Abstract-Remote control system is much needed element to control and monitor device quickly. This paper implement a new design for control PCs using android mobile device. In case of mobile device, has been slight explore. It may handle software and hardware developments. An android application running a group of server program on the device, connected to network. This server client written in java and running both on desktop and web system. This android method connects through mobile device VNC.

Keywords: Android, Remote control, Encoding, RFB, VNC.

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1. INTRODUCTION

A mobile phone (also known as a cellular phone, cell phone, and a hand phone) is a device that can make calls and receive calls over a radio link while moving around a wide geographic area. In addition to telephony, modern mobile phones also support a wide variety of other services such as text messaging, MMS (Multimedia Messaging Service), email, Internet access, short-range wireless communications (infrared, Bluetooth), business applications, gaming and photography. Now-a-days, the scenario as changed. Mobile phones that offer these and more general computing capabilities are referred to as smart phones. These features are same as the one which were previously provided by computer system architecture. VNC is platform independent Which consists of VNC client and server for many GUI based operating system. It is based on thin client architecture. A VNC system consists of a client, a server, and a communication protocol. The VNC server is the program on the machine that shares its desktop screen. The server passively allows the client to take control of it. The VNC client (or viewer) is the program that watches, controls, and interacts with the server. The client controls the server. The VNC protocol (RFB) is very simple, based on one graphic primitive from server to client ("Put a rectangle of pixel data at the specified X,Y position") and event messages from client to server.VNC server can handle multiple clients at the same time. It uses Remote Frame Buffer protocol to communicate or share information between client and server. This should be done within network. There are many applications available for sharing the desktop between two or more PCs. This paper focuses on accessing mobile device on remote PC and control of android platform. It can be used for file transfer between client and server. It can also contribute to customer care services and any software company. Some features of this application are downloading and uploading files, installing applications and starting applications etc.
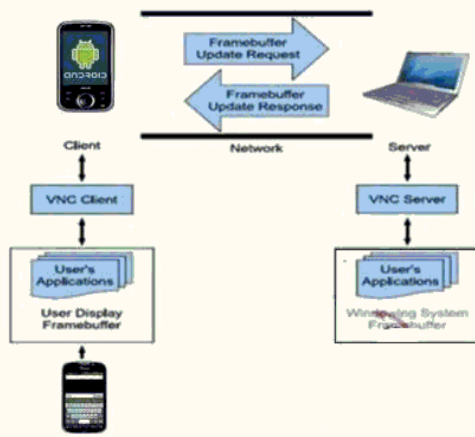

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computers. The user can also copy files from the computers into his smart phone using our application or set a session schedule during which the computer should re-main on.

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2. PROPOSED SYSTEM

This proposes the use of mobile phones to remotely control computers. Virtual Network Computing is a graphical desktop sharing system that uses RFB protocol to remotely control the display of another device. This can be done via network. It is used to capture a mouse and keyword events of the remote device for controlling functionality. It relays the graphical screen updates back to the connected device. A VNC system consists of a client, a server and a communication protocol. The mobile device is used as server that accepts the connections from different clients. The client layer is used to interact between the controlling equipment and monitored device. In our project we are monitoring PCs connected in network, by registering them through their MAC and responding accordingly to the end user's request. A black list is created which contains all the applications which the user wants to restrict. Thus configuring the computers connected in the network. This blacklist is stored in the database along with the username and password of the user and all the computers that he wishes to monitor. When any restricted application is opened then the user has the authority to terminate these applications. Thus our project provides a constant eye on all the applications running on the

DESIGN OF PROPOSED SYSTEM

3.1 Remote visualization service

VNC server is responsible to share the graphic information with the client layer. The VNC service should be configured to make use of tight encoding. Because of this, the display will be smooth even if the network is slow. The client makes request to the server with connection parameters and establishes a connection. The client layer requests the server to show the device's display. If the server does not support the VNC system, a raw display can be used as alternative.

3.2 Application management service

Application Management service is used for centralized management of applications. The client layer can access the information regarding the applications and also modify it. This would make it possible to perform software updates on all monitored devices. For Example, the client can make request to the server to install an application and the server is responsible to install the application sent by the client.

3.3 Service and process management service

At any instance of time the device may have set of processes running. This task could make a bad use of resources to complete its task. The server is used to give

information about these processes and services. The client layer is responsible to manage these processes and services.

3.4 File system management service

In computing, a file system is used to store and retrieve the information. Most of the devices require the exchange of files between different systems. File system management service provides a central location for sharing files between both systems. Further the client can add files into the device, for example to make some data available to users or update the files. The server will allow the client to update, add, perform any operations on file or remove file.

3.5 Device status service

Device status service is used to check the status of a device by providing the general information of the device to the clients. This would help the control user to determine the device that requires immediate attention. For example, server could notify a client about a problem.

4. ENCODING TECHNIQUES

RFB is a simple protocol which can be used to access to Graphical User Interface remotely. As it works at frame buffer level it is applicable to all windowing systems and applications The RFB protocol can operate over any reliable transport, either byte stream or message based. The RFB protocol performs its functions by responding to the request from client about specific onscreen rectangle and then server responds in the form of the update. This consists of an encoding or the difference between the moment of the request and the last time the client requested data about this rectangle. This leads to high consumption of bandwidth and consequent delay in the process for sending information. To tackle this problem, different encoding techniques have been developed. The data will be sent in the form of rectangle of pixels. Every rectangle of pixel data is prefixed by a header providing with the position of rectangle on the screen, the width and height of the rectangle and type of encoding used. This encoding type gives detailed information about the encoding of pixel data.

The data then follows using specified encoding. These encoding techniques are useful to specify the way to transfer the graphical information. When the client wants to establish communication with server, both sides must first agree upon the encoding type to be used before proceeding further. If the client requires a non-existent encoding, the server will appropriate the next encoding available. There are six basic types of VNC encoding techniques used such as RAW, RRE, Core, Hex tile, Zlib and Tight.

4.1 RAW

This is the simplest of all encoding type. In RAW encoding, the data contains width and height pixel value. The server sends all graphical pixels to the client. This pixels are in the form of width*height pixel values (where width and height are the width and height of rectangle). The values represent each pixel in left-to-right scan line order. It requires minimum process time and gives very high performance when the server and the client are on the same machine. The performance is reducing if the client is hosted in a remote device as it requires transferring large amount of data. This encoding technique must be supported by all the clients.

4.2 RRE

RRE stands for Rise and Run-length encoding. It consists of grouping consecutive identical pixel in order to send only the information of one pixel and the number of replications of that pixel. RRE encoded rectangles arrive at client in a form which can be rendered immediately and effectively by the simplest of graphics engine. RRE works by partitioning the rectangle of pixel data into rectangular sub-regions. Each of these sub-regions consists of pixel of single value and its union compromises the original rectangular region. It is used when large blocks of same color exists.

4.3 CoRRE

CoRRE stands for Compact Rise and Run-length encoding. It is a minor variation on RRE. It uses a

maximum of 255x255 pixel rectangles. This allows for single-byte values to be used so that the packet size can be reduced. This is in general more efficient, because the savings from sending 1-byte val is used when the VNC server does not work with the Tight encoding.

4.4 Hextile

Hextile is also a variation of RRE. As the name suggest, it divides the rectangle into 16*16 tiles. It allows the dimensions of the sub-rectangles to be specified in 4 bits each, 16 bits in total. In this, the rectangle is split into tiles starting at the top left going in left to right, top to bottom order. The width of last tile in each row will be correspondingly smaller if the width of the whole rectangle is not an exact multiple of 16. Similarly, if

the height of the whole rectangle is not an exact multiple of 16 then the height of each tile in the final row will also be smaller.

4.5 Zlib

Zlib is used to reduce the size of packet as much as possible. This is done by compressing the information. But this technique has disadvantage that it requires more amount of CPU processing. This method is used when the VNC server does not work with the Tight encoding.

4.6 Tight

Tight encoding is a combination of the JPEG and Zlib,compression mechanisms. In this the data is preprocessed to maximize the compression ratio and minimize CPU consumption. This method is also effective for slow network.

5. SYSTEM IMPLEMENTATION
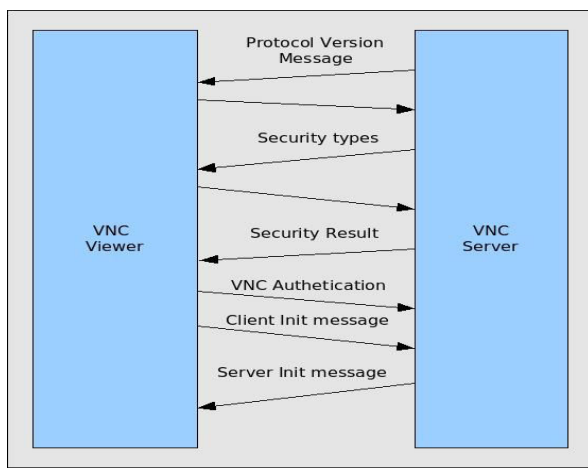
is built on mobile operating system platform. This has been popularly used for mobile devices like smart phones, tablet PC's. It consist of VNC server and VNC clients. The server and client are connected using TCP/IP connection over network.

5.1 RFB Protocol Procedure

The RFB protocol procedures of VNC system RFB [6] is used to remotely access graphical user interface. The RFB protocol is divided into 3 phases. When the server and client establish the connection, the server sends the

protocol version message to the client. This is called handshaking phase. They agree upon security types by exchanging security message. The next phase is initialization phase. When server receives the clientInit message from client it sends the serverInit message. This message informs the client about the width and height of the server's frame buffer. It also gives information about its pixel format and device name. The last phase is normal protocol interaction. The client sends the server messages such as SetPixelFormat and SetEncoding messages. Various encoding methods are used which comprise of RAW, RRE, Hextile, Zlib, and Tight. After agreeing upon encoding methods the client sends FramebufferUpdateRequset message to the server. The server sends its screen to the client only when it receives update message from the client.

5.2 Algorithm

To detect the modified regions the precise prediction of modified pixel location is very important. This is done in order to reduce the time. For this, we hierarchically determine the pixel location for comparison. This can be achieved using the algorithm as described below.

5.2.1 Hierarchical region detection algorithm

This algorithm works by consequently down-sampling the unit rectangle. In step (a), the unit rectangle is

The prototype system

Input image
32x32 pixels

Level 0
8x8 nodes

Level 1
4x4 nodes

Level 2
1 node

Output
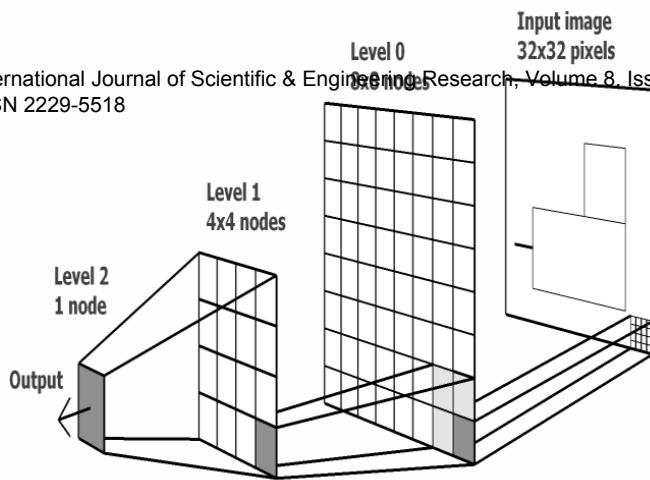
down-sampled by a factor of 4 in both horizontal and vertical direction. Then pixel comparison is done in a raster scan order. If it detects a modified pixel then the corresponding unit block is a code block, otherwise it goes to step (b). In this step, the unit rectangle is down-sampled by a factor of 2 and again the pixels are compared. If a modified pixel is detected then the unit rectangle is a code block. Otherwise in step (c), the remaining pixels are compared in the same way as mentioned above. If no modified pixel is determined, the corresponding unit rectangle is determined as a skip block.

6. APPLICATIONS

VNC is reliable software for remote assistance, administration, remote desktop sharing and IT help desk. It can also be used in distance education from any place in the world. VNC connected users can chat with other users connected at the same time, or with a host computer user. It also enables connected users to transfer files in either direction or also share with other users connected at the same time. VNC also finds its applications in customer care service.

7. CONCLUSION

The Virtual Network Computing is client/server architecture. VNC is an ultra-thin system based on an elementary display protocol. It enables the user to view, monitor and take control of other application on a different host. This application is developed to perform remote control of android device. It is used to enhance remote desktop in by screen sharing and file transfer. This is

achieved using RFB protocol. At client side, the region detection algorithm is used to consequently increase screen updates. With the increase in the use of android, this architecture will be used for computers, tablet PCs and other many handheld devices. It enables the user to view, monitor and take control of other application on a different host.

REFERENCES:

[1]Rushdie Kale, Prof s p Kosbatwal"Android Based Remote Control of mobile Device using VNC System"2014.

[2]Archana Jadhav,"VNC Architecture Based Remote Control Access Through Android", 2012.

[3] JayaBharathi," Remote Computer Access Through Andriod Mobile",2012.

[4] Yonggao Yang and Lin Li."Turn Smart phones into computer Remote Controller,2012.

[5]ArchanaMahajan,"Controlling Remote Pc using Mobile",2011.