Research and Application of Computer Network Remote Control System

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Abstract. With the rapid development of computer network applications and the growing popularity of computer technology, computer network remote control technology widely used. Users unrestricted geographical conditions, different locations via the network control network devices, network devices to obtain information. Remote control technology greatly facilitates network maintenance and control, has a very important value. According to this trend, the paper computer network remote control technology research.

Introduction

At present, the remote control theory has been extended break through biological engineering technology the neural network, the information network in the field, the economic sphere, social fields, showing strong vitality and development prospects of the technology. Computer network remote control theory mature, and it has been applied to a variety of network systems: Spatial Information Network System spacecraft and ground facilities constructed corresponding transport network systems in cars, trains, ships and aircraft component for the formation of the power supply power network systems, weather forecasting earth integrated network systems [1].

Remote control of computer technology advances, computer network research and design work has opened up many new possible ways. It will continue to promote the core strength of the new technological revolution, expanding the scope of application of control theory, be applied to the information network in the field of innovation, which will be the development trend of social demands of the 21st century and inevitable [2].

Structure of a Computer Network Remote Control System

Remote control system architecture and communication protocol is an integral part of a computer network remote control. Network computer network remote control system is a "minute" and "and" the network entity, network system is divided into two: the master controlled network architecture and network architecture, they make up the entire computer remote control network [1].

Networks can also be referred to as a master server, a managed network can also be referred to as the client, based on service requirements and implement functions detailed classification. Provide managed network services, while maintaining the client in a relatively stable state; master network for service, to apply for the required services in accordance with the user's permission.
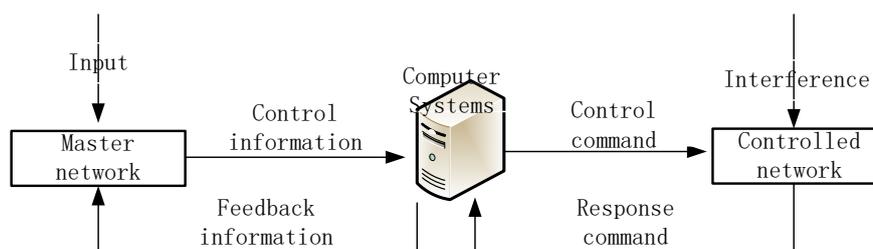

Fig.1 Network messaging mode

Computer network remote control system using communication, network technology, expansion of human control, increase human application pathway (Fig. 1).

Design and Application of Remote Control System

Overall Design of remote control system comprising: a remote control system overall structure and implementation environment. The overall structure is described in detail the composition of the remote control system, and as a basis for design and implementation; development of the system to achieve environmental describes the required software and hardware.

The overall design of the remote control system. The entire computer network remote control system consists of a master network server, resource control node, communication networks, firewalls, data resources service center, user control terminal and controlled network resources and other components. Master network and managed network each composition system, communications and operations between them is via LAN or Internet transfer and exchange [3].

Master network control information processing server is the main place, its classified information, issued and monitoring equipment operating environment resources. Staff at the control end user to perform the operation after encoding, a fixed data format for transmission over a communications network to the master network server, network server master interprets the received information, and the implementation of specific operational instructions specified by the network issued commands to the managed network servers [4].

Command controlled network server parses and analyzes the results received from the application to a specific device, then the device status and operating results of the feedback information to the remote control terminal. Entire computer network of remote control system structure is shown in Fig.2.
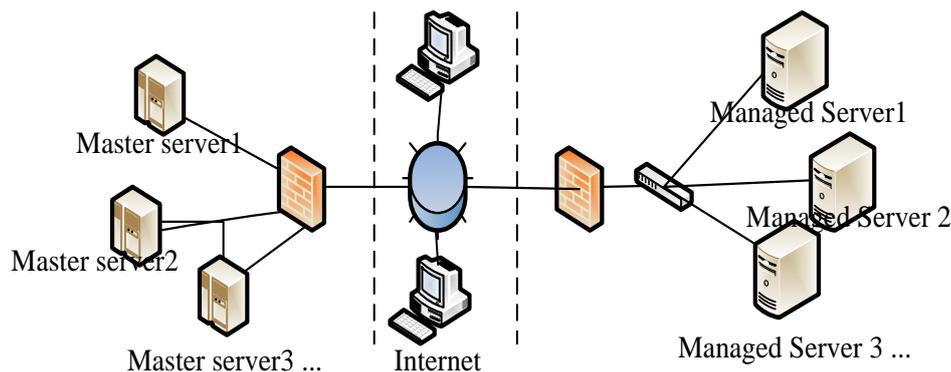

Fig.2 Remote control systems are summarized composition

Master Network. Master network computer network remote control system is based on user requirements and network final application protocol specification, according to the functions, at different levels to design and implementation. Generally speaking, the main features include network implementation service registration, device management, user settings and controlled end control and management, and this is divided into several main characters; the details of speaking, is in strict accordance with the master network remote control network requirements and network communication protocols, and through the relationship of parts of hierarchically organized, write code and implement various functions of the system [5].

The overall structure of the system is shown in Figure 3. Wherein the control server is an important part of the whole system, it creates a service provider, it is necessary to manage the management information provided by the service provider registration, but also to obtain information controlled by the client; equipment management mainly for managed client mouse, keyboard, monitor, and other input and output devices of the remote handling and management, messaging; users will need to achieve user rights management, user authentication and other functions.
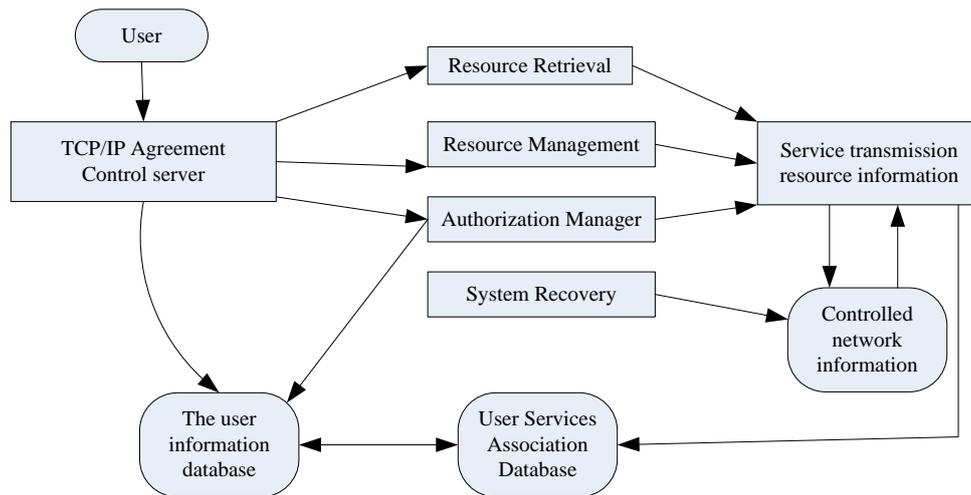
Fig.3 Master network

Controlled network system. Controlled network program starts automatically. Controlled network resources without the need for manual intervention conditions, it can automatically start; waiting for service sends commands and timely response. There are two starting method:

The first method is to use the WIN.INI file automatically start the associated program. WIN.INI is a system stored in C: a system initialization files the \ WINDOWS \ directory [5]. When starting up the system retrieves the file dependencies for the initial setup of the system environment.

In this document "[windows]" data segment, there are two data items "load =" and "run =", their role is to start after the system automatically load and run related programs [4]. Controlled network program needs to start after the system is loaded and run, in response to the field, only the files needed to run the full file name of the data item to add back in, the system will automatically start to run the program, at the same time, controlled network program will enter a specific operating environment.

Controlled network another important feature is the server hardware and software resources to provide client services. It includes not only recording and extracting distal keyboard events, control the remote computer process, a remote shutdown or restart, but also browse and edits files and directories target computer, start the computer peripherals, remote maintenance.

Protocolagreement. Remote control of network connections supported mainly LAN, WAN, dial-up, Internet and other means, but also through the string El (including logic string 1) [6], and El, infrared end El and other connections for remote control. More used protocols are TCP, IP, UDP and other agreements. In this paper it is TCP / IP protocol.

TCP protocol is mainly to achieve high reliability of data packet switched transmission between computers; the protocol is connection-oriented protocol, relatively safe, stable, but not efficient, resource-intensive [6]. TCP protocol is connection-oriented end to end reliable protocol, which supports a variety of network applications, so network development and today it has become the application of standard network protocols.

Remote control of a prerequisite is to have a controlled environment that is the computer network. Therefore, before about a specific remote control technology, first introduced the knowledge of some of the network. For remote control software such knowledge is indispensable [6], especially TCP / IP protocol because TCP / IP is the soul of the entire computer network.

Upper layer TCP protocol is directly facing the application, which is lower "IP protocol" on the application for which it provides a series of similar operating system interrupt calls. For the upper layer applications, TCP protocol should be able to transfer data asynchronously. For a reliable connection-oriented data transmission implemented on unreliable networks, TCP protocol must address reliability, flow control and other issues. The agreement must be able to provide traffic control for the upper application access as much as possible to support a variety of services, but also can provide data for multiple applications.

Achieve image. In fact, by the client process control information retrieved from the local computer screen, such as mouse movements (down), keyboard input, etc. to a remote computer through TCP / IP protocol, and through remote monitoring server process on the remote computer, the control terminal of the mouse, keyboard and other screen operations into controlled side of the keyboard, mouse, and other operational events, so as to control the remote computer and display work.

To the control terminal after crawling from the controlled side of the screen, the console is displayed in the user specified area of the screen bitmap [5]. In order to achieve the main purpose of the control terminal of the controlled side controlled by the controlled side of the screen bitmap operations involved here are two key technologies: First, coordinate conversion technology, which refers to the control end users in this on the controlled side's display screen on the mouse or keyboard clicks, the coordinates of the click point is converted to the corresponding point coordinate controlled side, then transfer to a controlled terminal; the second is the synthesis of a mouse or keyboard events, it is to control side identity for event-controlled side of the screen bitmap, spread controlled side, synthesis controlled side mouse (or keyboard) event.

Summary

Through the design of the computer network remote control system and analyze its main network server applications, managed network, and real-time image data transmission process, the full description of the remote control technology will be developed between computers in the future society. It has been widely used. But in the process of using a computer remote control system, the technical staff should also pay attention to the future of network remote control technology is not only more user-friendly interface, simple operation, and will pay more attention to the underlying communications programming, using more appropriate technology, to better improve the function .

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