

# Analysis of Computer Communication Network and Its Security Technology

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## Abstract

Computer network communication problems often occur, mainly by the computer virus infection, or hacking these two categories of computer intrusion. But the network security problem is not just these two, computer viruses and hacking means constantly changing, so maintain the network security technology must constantly upgrade. Maintain computer communications Network security, is to maintain the privacy of users. Computer communication network security is to protect the network resources are not stolen, private information is not an important means of leakage, so pay attention to the computer communications network security maintenance, attention to related technology development and research, and create a secure network environment.

*Keywords: Computer Communication Network, Security Technology, Structure*

## 1 Introduction

At present, for the computer communication network, to strengthen the computer communication network maintenance is to ensure the normal operation of computer communication network an effective means. Improve the computer communication network security and protection means, can well guarantee the normal work of computer communication network, thereby enhancing the efficiency of the use of computer communication network. However, many people do not understand the computer communication network security and protection of the importance and maintenance methods, resulting in computer communications network security problems often occur, thus affecting the normal operation of computer communications network. Therefore, for the computer

communication network security and protection, not only to improve people's understanding of computer communication network, but also should improve the computer communication network technology.

## **2 Computer communication network security significance and connotation**

With the continuous development of computer communication network, computer communication network security and people's daily life and work more and more closely linked. Therefore, the ability to ensure the safety of computer communication network will be directly related to the practical interests of the country and the daily lives of the people, for the normal operation of major enterprises also have an extremely important role. Therefore, the effective completion of the computer network security management is to ensure national interests and promote national economic rapid and sustained growth of strong guarantee is a country in the field of computer communication technology to solve one of the most critical issues.

The so-called computer communication network system, not simply refers to the connection of the computer equipment and the connection management of the corresponding computer control software, which only refers to the computer communication network system technical support. Computer communication network system is the most critical in the Internet system users upload a variety of network information and Internet users of private information, but also various Internet operators for Internet users to provide a wide range of service functions , In order to construct a perfect computer network security management system, we must understand the contents of the computer communication network from all aspects, and according to the specific characteristics of all information to develop the appropriate security management measures.

## **3 Current situation and security hidden dangers of computer communication network security**

In recent years, computer network security has aroused the concern of society and people, has developed such as proxy servers, channel control mechanisms, firewalls and intrusion detectors and many other sophisticated computer communications security software technology, but hackers seem to have increased attacks Network data theft, hacker attacks, computer viruses and even internal system leaks and other communication network security issues are still emerging in the endless stream. At present, the computer communication network security issues include the computer system factors and human factors have two plates, including human factors caused by computer communication network security issues greater impact, a deeper level of harm.

1) Extensive network connectivity and network openness: the coverage of computer network system is very extensive, open degree is higher, the network wiring is more complex, data security in the process of transmission, confidentiality is more difficult.

2) computer software system vulnerabilities: the main software design is not considered well, leading to communication protocols, software applications, there are certain flaws in the flaws once the illegal elements or hackers that will use these vulnerabilities computer system. Second, the general software designers will design some backdoor program to facilitate specific settings, but once hacked, may lead to paralysis of the entire computer system.

3) computer virus: computer virus is a group of self-replicating, is inserted into the computer program to destroy the computer function or direct damage to the data of the program code or program instructions. Computer viruses or Trojans and the development of the computer go hand in hand, especially in the modern computer network speed for the virus and Trojan rapid, widespread and invasion provides a good condition, the modern communication network is basically 3G network, some people think that 3G smart phones, 3G Running the platform may become the main habitat of the virus.

At present, most network administrators do not have a strong sense of network security, and some human errors often occur, such as password is too simple to set, or even directly to the password to others, there are some security management personnel to set the security operation is not standardized lead to security risks. There are some criminals or hackers to steal legitimate identity into the network and then a series of damage, malicious theft, tampering with some or all of the user data information, or even directly damage the data. Computer end-user security awareness is relatively weak, only know how to enjoy the computer network services, in the course of the use of random access to the URL, easily through some insecure network, and affect network security.

#### **4 Factors affecting the security of computer communication network**

First of all, the extensive connectivity of the network provides the conditions for network attacks, including government documents, including the need for confidential political and military communication of information transmission is to rely on ordinary communication lines to transfer and exchange, although there are certain protective measures And technology, but still easy to be stolen. Second, the vulnerability of the computer system and communication network itself determines the characteristics of the attack are inevitable. The current popularity of the Microsoft operating system patches have been released in succession is not that it is more secure, on the contrary, is that our operating system security risks emerge in an endless stream. Third, the spread of computer viruses, so that the system was attacked, the data has been tampered with or destroyed, resulting in some or all of the collapse of the system. Fourth, the

current communication network systems generally use commercial software or on the basis of slightly improved software, and commercial software source code when fully or partially open, making the software has a well-known security issues.

Security awareness is not strong, unskilled operating techniques, specific operations in violation of security regulations and operating procedures, such as clear-cut boundaries unclear, secretly issued a long-term re-use of a key to decrypt the password, issued a password and password After not in time to recover, resulting in the password and password after its expiration can still enter through its network system, resulting in system management confusion and loopholes. In the network management and use, consider efficiency and man-made management more convenient, and security is less consideration. Network hardware and software systems are designed to facilitate the use of users, development, and resource sharing and remote management, always leave a "window" or "back door", or the use of existing network communication protocol (TCP / IP, UDP protocol ) Allows the network port channel into the network system, log on the user terminal or server and other data devices, while the software design is also inevitable that there are many imperfect or undiscovered vulnerabilities (bug). If the use of communication network in the process, not the necessary security level authentication and protection measures, which allows an attacker can use the software and hardware vulnerabilities directly invade the network system, destroy or steal communication information.

If the transmission channel does not have the corresponding electromagnetic shielding measures, then in the process of transmission of information will produce electromagnetic radiation, special equipment can be received. In addition, in the computer communication network construction and management, there are generally poor planning, approval is not strict, the standard is not uniform, low quality of construction, poor maintenance and management, network efficiency is not high, human interference and other issues. Therefore, the network security should cause our great attention.

## **5 Computer communication network security and protection measures**

The installation of the centralized management software is an important part of the computer network security protection. MIn order to increase the safety of the computer communication network to a greater extent, not only to install the computer software security mechanism, but also should be combined with the detection system technology. Of course, the current network security inspection software generally has its own detection method to achieve a number of computer communication network to detect the transmission of data in order to determine the computer communication network between the security of information transmission, while the computer communication network monitoring .

In order to strengthen the computer communication network security, improve the computer communication network security protection technology is also very important. At present, to improve the computer communications network security technology generally need to include the following aspects, first, encryption technology. Encryption technology mainly refers to a camouflage information technology, through the design of a certain password, to prevent external people into the computer communication system. Now widely used encryption technology, including symmetric encryption and asymmetric encryption are two encryption methods. At the same time, the modern type of password generally includes the substitution password, the product password and the shift password three kinds. Second, set up a firewall. Firewall is the modern computer communication network security first protective measures, modern firewall technology generally includes data filtering technology, application gateway and agent technology. Therefore, the firewall can identify and limit the external data information, so as to achieve the security of the computer communication network. In order to strengthen the security of computer communication network in order to ensure the rationality, validity and authenticity of computer communication network information in the exchange process, the security of computer communication network can be improved through the authentication technology. The security of the internal protocol of the computer communication network mainly realizes the security function of the protocol through the authentication of the information data. However, in the process of designing the protocol, it is also possible to increase the encryption technology so as to better realize the security protection of the computer communication network. Once the computer communication network by network viruses, intrusion detection technology will detect the intrusion of the virus, and issued an alert to alert the computer communications network staff to take measures to solve the problem of virus intrusion.

In the protection of computer communications network security, not only to consider the effectiveness of computer communication network, but also should consider the computer communication network system itself, the security. Therefore, the computer communication network data confidentiality and communication protocols should be considered in advance. In particular should be designed to identify security levels and security measures to reduce the computer communication network system vulnerabilities to prevent the invasion of the virus. Computer communication network security and protection should also strengthen the computer communication network security education and internal management, thereby enhancing the safety of computer communication network. First of all, education should be to improve the computer network communications staff awareness of security, while strengthening the computer communications network security technology education to train senior computer communications network technology professionals.

## 6 Conclusion

Computer network system and human factors will cause a lot of computer network security risks, in particular, greater harm to human factors, it should first increase network security awareness of staff management, network security, network security, network security, network security, network security, The development of scientific and comprehensive computer network security strategy to strengthen computer network security technology for the majority of users to provide more secure and better services.

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