



# Research on the Application of Computer Information Management Technology in Network Security

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## Abstract

Computer technology has achieved a very high penetration rate in various industries in China today, and it has also played a huge role. But a very important link in the process of applying computer technology in all walks of life is the use of computer management technology. Only effective management of computer information technology can create a good information technology environment for users. Therefore, it is of great practical significance to deeply discuss computer information management technology under the network security situation. This paper mainly discusses the application of computer information management technology in network security.

## Keywords

Computer information management technology; Network security; Application

## Introduction

The application of network technology can not only bring about a great change in people's lifestyles, but also greatly improve people's living standards and quality of life. In the 21st century, computers have become an indispensable part of people's lives. Computer network technology has gradually become an important tool and means for people's daily production and practical activities. Network technology has gradually become an important reliance for people to carry out work and practical activities. In this case, we must attach great importance to network security issues. Only by fully ensuring the security of computer networks can the level of computer information management technology be comprehensively improved, our network environment can be more secure, and more guidance and help can be provided for the progress and development of human civilization, and the level and quality of information technology can be steadily improved.

## 1. Overview of Computer Management Technology

### 1.1 History of Computer Development

When I talk about computers in daily life, I usually mean computers. Computers are electronic computers with high-speed computing capabilities. They can not only perform digital calculations, but also complete logical calculations. Some advanced computers can even store memories. The world's first electronic digital computer was developed by the University of Pennsylvania in the United States in 1946. The computing speed and transportation quality of the computer itself were not high, and it was very bulky. Since then, with the continuous development of technology, humans have developed transistor computers. The emergence of transistor technology has greatly promoted the

development of computers and further promoted the development of computer information management [1]. Subsequently, integrated circuit computers and large-scale integrated circuit computers have gradually appeared. With the continuous development of technology, computers that people can carry with them and can perform some complex and high-speed calculations have gradually been formed. Today, computer technology has made a qualitative leap. Moreover, computer technology has played a huge role in various fields such as military, astronomy and politics. With the development of various industries, the requirements for computer computing power and storage capacity are also getting higher and higher.

## **1.2 The role of computer management technology in network security**

With the rapid development of science and technology and the growing social needs, computer management technology has emerged. The development of computer information management technology plays an irreplaceable role in the field of network security. At the same time, it has further promoted the prosperity of the world economy. As the times continue to progress, network security is also constantly changing and innovating [2]. Computer information management technology has been widely used in China. People have also gradually realized that only by applying computer information management technology well can we create a better and safer network technology environment and provide better services for people. In the field of network security, the application of computer management technology is mainly to timely detect and repair the vulnerabilities in the Internet. Although the current computer technology level has developed to a certain stage, there are still many criminals who use various attack methods to threaten network security. Therefore, it is necessary to fully guarantee the reasonable application of computer information management technology to prevent computers from being invaded by viruses and hackers.

## **2. Causes of Computer Information Technology Security Vulnerabilities**

Computer information management technology usually leads to security vulnerabilities due to the following reasons. First, the computer network itself has defects. Computer networks can provide people with global connections without time differences. Therefore, computer networks themselves reflect strong openness and sharing. In this way, users can share and transmit various types of information data anytime and anywhere without being restricted by time and space. However, in this process, it is also easy to cause the leakage of their own information. For example, some criminals can use hacker attacks, virus implants and other methods to threaten the security of computer transmission lines. After being attacked by criminals, the network protocols and user data in the user's computer network will also be compromised, and even some personal important information and confidential documents will be stolen. If the computer network of the national security department or the financial department is attacked maliciously, it is likely to cause irreparable losses [3].

The second is hacker attacks. Due to the openness and sharing of computer networks, anyone can access the network as long as they have a viewing device. In a computer network, all users have the same attributes, so some criminals often take advantage of computer vulnerabilities to maliciously penetrate computer defense systems and steal important user information and data. It can be seen that malicious hacker attacks are also an important factor threatening computer network security.

The third is software vulnerabilities. Some software may have vulnerabilities in the computer language itself due to negligence of developers or other factors during the writing process. In this case, the computer software may also have defects or vulnerabilities, which hackers can exploit to invade personal computers, thereby stealing personal information and data. In some cases, personal computers can also be remotely controlled through the network. Finally, computer users themselves lack sufficient security awareness. Computer technology has become an indispensable part of people's daily production and life. Most people can operate computers skillfully, but when using computers, people still lack sufficient network security awareness, which leads to computer data being exposed to the eyes of criminals.

## **3. Application of Computer Information Management Technology in Network Security**

### **3.1 Utilization of various information security technologies**

By making full use of various new information security technologies, the security of computer information management technology can be fully guaranteed. In the field of network security, there are currently various security

technologies such as firewalls, antivirus software, and encryption technology. The firewall itself is an effective layer of protection for computers [4]. This technology can be used to achieve effective isolation between the intranet and the extranet, as shown in Figure 1. In this way, user information data can be effectively protected, and illegal requests can be isolated through the firewall. However, traditional firewall technology does not have strong interception capabilities and intelligent identification technology. Therefore, as a computer user, you should strengthen the application of intelligent firewall technology based on actual conditions, so that you can achieve automatic interception of illegal requests through quality learning and automatic updates of the firewall, providing basic protection for information security.



**Figure 1. Firewall technology.**

Antivirus software can proactively detect and defend against illegal activities on the Internet. Installing antivirus software on a computer can automatically detect computer viruses, and any files uploaded to the computer will be scanned by the antivirus software. Once a latent virus is found, early warning and monitoring can be implemented in a timely manner, reminding users to process virus information data in a timely manner.

In addition, in order to fully guarantee the security of user information data transmission in the future, encryption technology can also be used to encrypt information data before transmission, so as to ensure the security of information transmission. In the process of using encryption technology, the encryption method should be as secret as possible to improve the encryption strength, and at the same time, it can effectively prevent malicious theft and destruction of various information data.

### **3.2 Use of technical means**

To further improve network security, various types of computer network security tests should be reasonably applied. From a practical perspective, users should install firewall software when using computer networks. This will form an effective technical protection barrier between private networks, public networks, intranets and extranets, timely block various unsafe network behaviors from the outside world, and effectively prevent computer networks from being threatened by Trojans and viruses. However, there are many types of firewalls available to computer users in the current market, and the more representative ones are mainly filtering and proxy types [5]. When choosing a firewall, computer users should consider the specific conditions such as the types of commonly used websites and the frequency of network use, and select a firewall technology with a high degree of match after in-depth analysis. After making the decision on the firewall technology, the corresponding permissions should be set reasonably, so that the security of computer network use can be improved while providing convenience for network use.

In addition, personal computers need to be equipped with reasonable anti-virus software. The most widely used anti-virus software in current personal computers are Kingsoft and 360. The security of anti-virus software needs to be monitored in a timely manner during installation, use and update, and various bundled or malicious links in the anti-virus software should be effectively avoided, so as to effectively avoid threats to personal computer network security.

In addition, regular inspections should be conducted on network security, and firewall and anti-virus software should be updated and maintained regularly. In the process of using computer security management technology, timely maintenance and adjustments should be made once loopholes are found, so that the computer's ability to resist viruses can be further improved. At the same time, regular inspections should be conducted on computer network

intrusions to avoid security risks in network operation, and to eliminate unstable factors such as malicious attacks in a timely manner, so as to further improve the security and stability of network operations.

### **3.3 Improve computer information management system**

Computer networks have become an indispensable tool in people's lives and production today. Moreover, with the increasing number of computer network users, in order to fully ensure the security of computer network use, it is necessary to further strengthen network security risk management. Only with a high level of information management awareness and security awareness can the good application of computer information technology be achieved. From the current data statistics, it can be found that most computer security risks are caused by the lack of security awareness of individual users. The lack of awareness of the severity and importance of network security issues by computer users is likely to pose a threat to computer network security. Therefore, as a computer user, you must continuously improve your network security awareness, consciously improve your computer information management technology application level, and carry out network security knowledge learning, so that the application efficiency of computer information management technology can be effectively improved. At the same time, we should also focus on the weak links of computer networks, continuously strengthen management, and timely scan and maintain security vulnerabilities, so as to ensure the security of network operation.

### **3.4 Application of intelligent analysis engine technology**

The intelligent analysis engine has become a core component of today's network security management system. It can mainly realize the in-depth analysis of the data correlation of various heterogeneous products in the network, and timely mine the unstable and unsafe factors in the network through analysis. Once an unsafe factor is found in the intelligent analysis process, an alarm signal will be directly issued through the system, and an effective response plan can also be given in time through the intelligent system. Correlation analysis is the main technical difficulty in the current network security management work, and correlation analysis also plays a very important role in network security correlation. At the same time, correlation analysis is also a very critical link in the construction of network security management system. In the process of correlation analysis, it is necessary to classify the security data of each component in detail, and at the same time, comprehensively filter and deeply analyze various events occurring at different times and places from a comprehensive perspective, so that the precision and accuracy of information analysis can be further improved. In addition, in the process of network security management, management technology should be unified and coordinated, so that the importance and advantages of security management can be fully highlighted.

### **3.5 Strengthen risk assessment**

Strengthening the assessment of computer network risks can continuously improve the safety awareness of computer users and operators. As computer network security practitioners, we should continuously improve our learning ability effectively, so that we can accurately judge network security risks when facing security situations. At the same time, we must also accurately assess the potential network risks and hidden dangers of computers, so that we can timely explore various factors that affect the stable operation of computers, and after a detailed analysis of the degree of harm of various influencing factors, we can propose corresponding solutions as soon as possible, so that the security and stability of network operation can be guaranteed, and the network risk hazards of computer users can be controlled to the lowest level.

### **3.6 Strengthen system protection**

System protection is a very important technical means in the process of computer information management. Through system protection means, computer information security can be fully guaranteed. Therefore, in the process of continuous development and optimization of Internet technology, the computer protection system should be continuously improved, and various defects and loopholes in the system should be promptly remedied, so as to effectively strengthen Internet security protection skills. For example, encryption technology can be used to set permissions and passwords for various important information data on the computer, so as to avoid the loss of important information and data.

## 4. Conclusion

With the rapid development of network technology, the application of computer information management technology is becoming more and more extensive. In order to further strengthen network security and avoid personal interests of computer users being damaged, the application of various network security technologies such as firewalls and anti-virus software should be further strengthened. At the same time, various network security technologies should be optimized in a timely manner to effectively improve the level of computer information management technology. Only by strengthening risk control and comprehensively improving the safety awareness of relevant personnel can the effective application of computer information management technology be realized in network security.

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