The Main Strategy of Using Computer to Improve Information Security Construction in Colleges and Universities

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Abstract. With the rapid development of China's cities, the whole city has been covered by the network. Continuous improvement of network technology has become an indispensable part of our life. Data information has become an alternative way of expression in our life. Data has become the core research content of every school. Many schools begin to pay attention to internal information security construction. This paper briefly summarizes the definition of network information security[8]. This paper describes the research status of campus network information security. Finally, this paper puts forward the main strategy of security construction.

Keywords: Computer, Information Security, Construction, Strategy

1. Introduction

Nowadays, every one of us can't live without computers. Our work is still inseparable from computers and networks. Information management in modern society has become a new mode of life. We can think that the emergence of computers has changed many people's way of life. With the rapid progress of computer technology, network security has become a hot topic. In real life, the frequency of stealing information is very high. In order to solve these problems effectively, experts try many ways to improve information security.

Many people may not understand the importance of information security issues. Information security has affected the development and progress of many schools. In fact, students' personal information is stolen frequently[6]. The problem of campus network being occupied also happens frequently. People suggest using computer technology to improve campus network information security. To verify the accuracy of this statement. This paper puts forward the theoretical definition of network information security (see Figure 1). This paper presents the research status of computer information security. Finally, this paper describes the construction strategy of computer technology in university network information security.

2. Theoretical analysis of campus network information security based on computer

2.1. Main definitions

In our life, the hardware, data and program of computer network system are intangible property.
Information security means that the data and programs in the network system will not be damaged. Maybe many people will change the definition of network information security because of different work habits. Many people think that information security refers to the network system data is not malicious tampering. The technical goal of information security is to effectively block all malicious attacks.

2.2. **Functional domain of information security**

In fact, the functional domain of information security is mainly divided into four parts. They are configuration management, fault management, performance management and security management. These management contents have independent management organizations[4]. Configuration management refers to the control of network configuration by network manager. Fault management refers to fault diagnosis. Performance management refers to the main way to improve performance. Security management refers to the safeguard measures of information security.

![Figure 1](image)

**Figure 1.** The popularization of campus network security knowledge has been gradually implemented

2.3. **Analysis of information security model**

Information security model is divided into six main levels. They include application system, application platform, session security layer, network layer, link layer and physical layer. Designers need to ensure the security of these system levels. Physical security refers to transmission security. Link level security refers to information anti eavesdropping security. Session level security refers to the security of customer data (see Figure 2).

2.4. **Analysis of information security architecture**

The most important problem in information security is the confidentiality of information. The computer should determine the application group of information. Computers also need to identify the target group of information. Designers should use computers to establish corresponding communication security barriers[10]. In fact, the core of information security is network control. The security verification of the network layer is equivalent to the guard of the gate. We must ensure that the verification system can effectively shut out some foreign viruses.

3. **Analysis of the current situation of campus information security research**

3.1. **Research status of foreign information security**

In foreign countries, the research of network information security started very early. Many countries have invested a lot of manpower and funds in this regard. The United States is the representative of developed countries. In the early 1990s, the United States has started a research project on information security. American scholars emphasize the problem of social information management. The United States has even set up the network security evaluation criteria. The contents of these guidelines provide a technical basis for other countries.
3.2. Research status of information security in China
The network information security standards proposed by the United States provide the basis for the development of information security in China. In recent years, many people begin to realize that the impact of information security on the country is huge[5]. With the rapid progress of computer technology, China has trained a lot of computer talents. Based on the research of American information security, China has put forward some new innovative theories. Generally speaking, the research of information security in China is in the stage of development.

3.3. Development of information security products
According to a large number of literature data statistics, we have found four kinds of information security products. The first is to prevent computer virus products. The second is alert software to prevent hackers. The third is commonly used firewall products. The fourth is network security products. In addition, China has also studied some security authentication systems. Such as identity authentication system, dynamic authentication system and security audit system.

3.4. Threats to information security
The progress of network technology has improved our living standard. Computer can realize resource sharing and effective utilization. Data storage and data transmission is a complex process. Network hackers and network viruses will threaten the security of our computer system. In addition, illegal theft and information interception are also some illegal acts of information theft. Aggressive network programs are also a major threat.

4. Analysis of the main attack methods of the current campus network information security

4.1. Attack mode of distributed denial of service
Generally speaking, hackers will use a stolen account to install the virus program in a computer device. This virus program can usually be hidden in a folder. Ordinary antivirus software can't find it. After this computer device and other computers are interconnected, the virus will be copied to other computer devices[7]. This kind of virus is often used in network broadband attack. Therefore, the appearance of this kind of virus is called distributed denial of service (see Table 1).

| Attack mode          | Terms of settlement         | Success rate |
|----------------------|----------------------------|--------------|
| Denial of service    | Firewall technology         | Medium       |
| Remote control       | Anti-virus software         | High         |
| Stealing information | Data security technology    | High         |
| Lock file            | Verification technology     | Medium       |

4.2. Remote control attack mode
When we use social software, we may find remote operation services. This kind of service can make it convenient for other people to help us control the computer. There is a kind of network virus called exploitative attack virus. If the computer is invaded by the virus, the computer will not accept the user's control instructions. Someone seems to be controlling our computer. The threat of this remote control attack is relatively large.

4.3. Theft attack mode
Our common Trojan viruses are generally information stealing viruses. When we are browsing some unsafe websites, Trojans will be hidden in network files. When we click on some video files, the Trojan will be downloaded to our computer. This kind of Trojan horse virus is also called information stealing virus. We can use computer antivirus software to scan Trojans.

4.4. Attack mode of file being locked
There is a virus that can lock our computer files. This virus is generally uncommon. Its common mode of communication is fixed network communication. Its spread is very wide. Generally speaking, the solution to this virus is to submit extortion funds[1]. The virus can also fake e-mail. When the computer receives the e-mail, students open the e-mail at the same time, the virus will enter the computer.

5. Analysis of the main technical strategies for maintaining campus network information security based on computer

5.1. Firewall technology strategy
If our computer is attacked, we may first think that there is a vulnerability in the firewall. Firewall security technology is every computer can be fixed to use. Its usage is very simple. It can improve network security without modifying the fixed network. Firewall technology can be regarded as the guard of computer equipment. It can check and filter some external incoming packets.

5.2. Application of data encryption technology
Students' personal information is very important. Every student should pay attention to the confidentiality of information. In schools, some students also have the right to keep academic information confidential[3]. Data encryption technology can protect our data from infringement. This powerful security measure can protect confidential data from being tampered with. When the user wants to open the encrypted data, the user must enter a specific password.

5.3. Application of access control technology
Many students will visit some unsafe external websites, which generally have a lot of network viruses. And these viruses cannot be detected by firewalls. Students can use access control technology to control the access rights of external websites. When students want to open an external website, access control technology will first determine the security of the website. When the security verification is
passed, students can enter this website.

6. Countermeasures of information security in Colleges and Universities Based on computer

6.1. Strengthen students' concept of information security
Students' personal information is often stolen. Many people even steal students' personal academic information. However, some college students still do not understand the concept of network security. They will still visit some unsafe websites[2]. They still scan unsafe QR codes. Therefore, the school must strengthen the students' concept of information security learning. Schools must attach importance to network security education.

6.2. Strengthen campus network protection measures
Many schools use simple firewall technology to manage the internal network security problems. In fact, the vulnerability of firewall technology is very big. The author does not suggest that schools only use firewall technology. Colleges and universities should establish their own security network system. The system should include major antivirus software and some major file repair software. In addition, schools should be equipped with sophisticated authentication technology.

6.3. With the rapid progress of the computer age, the types of data become more and more. Many colleges and universities do not have senior information management personnel. These universities usually have a lot of information loss phenomenon[9]. In today's society, talent is the most important. Schools must pay attention to the cultivation of information security talents. In addition, schools should recruit more information technology talents. The construction of technical talents must be guaranteed.

7. Conclusion
Campus network information security has always been a hot topic. China's Ministry of education has begun to pay attention to the problem of campus information security. Schools should not only build advanced information security protection system, but also cultivate students' awareness of network security.

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