

On Application of Computer Network Security Technology in Network Security Maintenance

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Abstract: In the information age, network technology has become the key technology of social development and people's daily life. The development of various walks of life and people's work and life can not be separated from the application of network technology. However, in the process of the development and application of computer network technology, people has gradually paid more and more attention to the problem of network security. If we can not effectively solve the problem of network security, it will directly affect people's work and life, which are related to information security. Therefore, this paper first introduces the security requirements of computer network; and then, it discusses the significance of the application of computer network security technology and the influencing factors of network security on the basis of analyzing the security problems existing in the process of network development at present; at last, it puts forward the effective application strategy of computer network security technology, hoping to provide a reference for the improvement of network security of China in the future.

1. Introduction

In recent years, the development level and application scope of computer network in China have been greatly improved, and the importance of network security has become increasingly prominent. In order to meet the needs of social development and people's life, we must pay full attention to the problem of network security, strengthen the research and application of computer network security technology, provide a safe and reliable environment for the development and application of computer network, and lay a solid foundation for the realization of sustainable development of computer network in the future.

2. Basic Requirements of Computer Network Security

On the whole, the security of computer system is directly related to the running performance and stability of computer. If the computer network system is maliciously damaged, then the information security of users can not be protected in the process of using computer network, which can easily cause the problem of information disclosure and lead to serious property losses for enterprises and individuals. In addition, once the computer system is attacked, all kinds of programs in the computer usually can not work properly, which leads to the poor experience of the user and the low efficiency of the work. Specifically, the basic requirements of computer network security mainly include the following aspects:

2.1 Requirement of Security

In the process of computer network application, the two most critical aspects are the security of the network environment in which the computer is located and the security of the computer's own system and hardware. So, in the practical application of computer network, the relevant administrators must pay full attention to these two aspects, check and maintain the computer network environment and system hardware regularly according to the actual use of computer network, eliminate the security vulnerabilities existing in the process of computer network, improve the security maintenance level of computer network, and ensure the information and data security of users.

2.2 Requirement of Confidentiality

The confidentiality requirement of computer network is a very basic requirement, and it is also the basic principle of the application and development of computer network technology. If the privacy of user information data cannot be guaranteed in the process of using the computer network, it will cause serious property losses to enterprises and individuals. Therefore, in the future development process, the relevant administrators must pay full attention to the privacy of computer network users, and provide comprehensive protection for users' information and relevant data.

2.3 Requirement of Integrity

As the continuous development and improvement of computer network technology, the attacking means of illegal hackers on network are emerging in large numbers endlessly. If the defense ability of the network can not be improved comprehensively, it is very easy to provide opportunities for the hackers to steal, tamper and destroy the information data, which leads to the loss of integrity of users' information data. Therefore, it is necessary to strengthen the research and application of computer network security technology, to improve the defense ability of computer network, and to avoid the destruction of data information by illegal hackers.

3. The Significance of Strengthening the Research and Application of Computer Network Security Technology

Since entering the information age, the speed of social development in China has been accelerating. The development of various industries in the society needs a large number of advanced technologies to support. At the same time, in order to further improve the efficiency of social development, the demand for information sharing in various industries is increasing, and the degree of information sharing is deepening. Under this background, the application of computer network technology is facing higher security risks, and the development of computer network technology is also facing severe challenges. Especially as the constant improvement of the economic in China, it not only promotes the development of network information technology, but also provides convenience for hackers to learn and develop network hacking technology.

In the process of the development and improvement of computer network, the application scope of computer network system is also expanding, from the initial military and scientific research fields to the production of society and people's daily life, which indicates that the risk of computer network security is increasing, and the harm caused by it is also increasing. Therefore, firstly, strengthening the security of computer network can not only meet the actual needs of social development and people's life in the future, but also realize the sustainable development of the computer network, we must fully realize the importance of network security. It is very important to strengthen the research and application of computer network security technology and comprehensively strengthen the defense ability of computer network technology, create a secure and stable environment for the users, ensure the confidentiality, security, integrity of users' data information and their property, so as to lay a solid foundation for the realization of sustainable development of computer network in the future.

4. Analysis of Factors Affecting Computer Network Security

4.1 Trojan Attack

Trojan attack is a common means for hackers to intercept information transmission and storage by making use of the vulnerabilities in the computer network system. On the one hand, Trojan attack will steal and tamper the important information and data of users; on the other hand, it will cause the computer network to be unable to use normally, or even totally down, resulting in serious property losses to enterprises and individuals.

4.2 Virus Attack

Computer virus is also a common network security threat. Once the user's computer is infected with the virus, it will not only hinder the normal operation of the network, but also cause permanent damage to the hardware system of user's computer.

4.3 Vulnerabilities in the System Itself

In the process of using computer network, except for external attacks, the vulnerabilities in the system itself can also cause computer security problems. Once there is a vulnerability in the network system, it will facilitate the malicious intrusion of hackers. Hackers can steal the data information in the network system by means of virus implantation, and destroy the user's server and system as well.

5. Defects in the Process of Computer Network Maintenance in China At Present

On the whole, the defects existing in the process of computer network maintenance in China at present mainly include three main aspects: first, the network communication protocol used in China is still dominated by TCP/IP at the present stage, which is difficult to meet the needs of computer network security maintenance at present; Second, the openness of computer network China is increasing, and the depth and breadth of information and data sharing are increasing, which also indirectly provides an opportunity for illegal hackers; third, the level of network intrusion technology is also constantly improving, the intrusion technology is becoming stronger and stronger, it is difficult for ordinary users to accurately identify and effectively deal with network virus in the daily process of network use. In addition, as the constant popularity of computer equipment and the Internet, the population of network users has become more and more. For the elderly and young network users, their awareness of security prevention is relatively weak, which is very easy to be induced and deceived in the process of their network application, resulting in lot of network security risks.

6. Effective Strategies for the Application of Computer Network Security Technology

6.1 Further Strengthening the Optimization and Perfection of Firewall Technology

Firewall technology is a very common and basic security technology in the process of computer network maintenance. From the type of firewall, it is mainly divided into application firewall and filter firewall. Among them, the application firewall is mainly used for server security protection. In the process of practical application, it first scans the data of the computer servers comprehensively and systematically, and once the security vulnerability is found, the data transmission of the server will be terminated in time, so that the intrusion path can be blocked and the security of the computer network can be guaranteed. Filter firewall filters the data that the router transmits to the computer host, intercepts the suspicious data, and avoids the virus from entering the computer system.

6.2 Improving the Application Level of Data Encryption Technology

Data encryption technology is not mysterious, our daily login password is a kind of encryption technology. By using data encryption technology, the security of information and data can be significantly improved and the security of users' information and data can be effectively guaranteed. According to the principle of data encryption technology, all the data encryption technologies use secret algorithm to realize data security, and the secret algorithm can be divided into two kinds: symmetric encryption algorithm and asymmetric encryption algorithm. The difference between the two is that the encryption process of symmetric encryption algorithm is identical with the decryption process, and the encryption process of asymmetric is not identical with the decryption process, so asymmetric encryption algorithm can provide more effective protection against illegal intrusion.

6.3 Strengthening the Application of Antivirus Software

In recent years, in order to improve the functionality and security of the computer, the defense ability of the computer has been constantly improved, but in the actual application of the computer network, it is far from enough to rely on the protection of the computer system itself. Therefore, it is necessary to improve the comprehensiveness of computer security protection with the help of some effective antivirus software. According to the different needs and characteristics of computer protection, the antivirus software is also quite different. For example, if you want to enhance the defense of a computer system, you can install the appropriate antivirus software on the computer server. If we want to ensure the security of the data and information received by the computer system, we can install the antivirus software for securing data and information, which can scan and identify the information received by the computer system in real time, and ensure the security of the computer system. Therefore, in the process of applying antivirus software, we must combine the actual situation of computer system and security protection requirements to select proper antivirus software, only in this way can we give full play to the role of antivirus software and improve the security of computer network.

6.4 Scanning and Monitoring Computer Systems Regularly

Except for the above commonly used measures for protecting computer network, it is also necessary to regularly scan the vulnerability of computer system and find out if it has been hacked, and then, to find problems and deal with them in time, so as to avoid leaving opportunities for hackers.

7. Conclusion

Generally speaking, in the background of information, the application scope of computer network is becoming more and more extensive, covering all fields of society. At the same time, the threat of computer security is also rising, and if the security level of computer network can not be effectively improved, it not only can not meet the demand of social development in China, but also hinder the further development of computer network. Therefore, in the process of the future development, the importance of the application of the computer network security technology must be fully highlighted, the research and application of the computer network security technology must be strengthened, the defense capability of the computer network must be comprehensively improved, the information security of the user must be ensured, so as to lay a solid foundation for the realization of the sustainable development of the computer network in the future.

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