

Research on Intrusion Detection Technology Based on Computer Network

Qian Liu

Yunnan Open University, Kunming 650223, Yunnan, China.

Abstract : After entering the 21st century, with the continuous progress and development of China's social economy, China's science and technology has also been rapid development, computer in this context, has gradually spread to people's daily life and work, people are increasingly inseparable from the use of computer. However, due to the existence of computer network security performance risks, and criminals want to use these loopholes for illegal activities, so computer network security has become a focus of increasing concern, related to all aspects of people's daily life. The purpose of this paper is to discuss and study the role and significance of computer network intrusion detection technology, introduce network intrusion methods, and put forward relevant measures and methods to improve computer network security.

Keywords : Computer; Network Intrusion; Detection Technology; Research

1. The role and significance of computer network intrusion detection technology

1.1 Significance of computer network intrusion detection technology

The safe operation of computer network is of great significance to people's life and work, so it is imperative to improve the network security performance. Because of its high efficiency work skills, and many ways of entertainment, computers are essential in people's life and work, and now almost have been popularized to every household. Computer network is a huge information network, which connects the information of each computer user together. Once the computer network is invaded, it is likely to make every computer on the network are threatened by information security.^[1] Therefore, the rise and development of computer network intrusion detection technology is very necessary. It can detect and screen the information running on the computer network, stop the suspicious information in time and inform the user to check, which can improve the user's network security.

1.2 The role of computer network intrusion detection technology

Computer network intrusion detection technology can protect the network security performance to a certain extent, discover the potential security risks in the operation of the computer in time, and remind users to make alarm notification, which is conducive to people to discover security vulnerabilities in time, and check and maintain the computer network security, so as to improve the safe operation performance of the computer. Moreover, it can protect the information security of users on the computer, reduce the risk of information leakage, and improve the security of network operation.^[2]

2. Methods and means of computer intrusion

2.1 Network virus invades computer, information security cannot be guaranteed

Network virus invading computer is a common method and means of network intrusion. Network virus is a resource target used

to destroy a specific computer system. The computer infected with network virus can continuously reproduce, spread and parasitize^[3]. It can make the computer under the control of the virus, and the user can lose the control of the computer, as the result, the user can easily invade the computer's network disk, steal the information he wants, and destroy the computer system. Because of the relevance of the Internet, the virus can quickly spread to the computer connected to the network through the network, leading to network paralysis.

For example, "panda burning incense" is a highly infectious network virus spread by lawbreakers. As soon as the virus appeared, it caused a large-scale network security failure. When the computer was infected by the virus, the user lost control of the computer. Through the virus, the confidential information in the computer was continuously stolen, so that many people's information was revealed, causing people's panic, forming a very bad social impact.

2.2 The network firewall is invaded, the network security is worrying

Firewall technology is a kind of protection measure set up by people to protect network security, which is very effective for protecting network security. Firewall generally has very strong aggressiveness^[4]. It can block and eliminate virus and other unsafe factors, but there is no perfect firewall technology in the world, because with the development of science and technology, computers are constantly upgrading, and the problems encountered are more complex. Some lawbreakers find the technical loopholes and defects in firewall technology, and use these loopholes and defects to carry out network intrusion. Once the firewall is invaded, it is possible to tamper with the prevention and control technology program in the firewall, making it lose the role of protection. The security of network information is exposed in the eyes of criminals, who can steal user information at will, or be attacked by other viruses, resulting in the collapse of computer programs, unable to run, and the information security of users is not guaranteed.

2.3 Identity intrusion into network services, leading to information leakage

Nowadays, many network services need users to provide identity information to websites. Due to the requirements of real name information, many websites need users to provide identity information to open and use access rights. This is originally a means to protect network security, but this method is used by criminals, they will invade the website network, impersonate or cheat the system, so as to create false links and other means, and cheat users to enter identity information. For example, criminals use vulnerability attacks, information collection attacks and other means to invade the network, so that the website may be controlled by the intruder, and then set up a false program to obtain the user's personal information, and sell these personal information, causing the user's personal information leakage, affecting daily life.

3. Measures to reduce computer network intrusion and improve network intrusion detection technology

3.1 Collecting network information and identifying information security

In order to improve the computer network security, we need to improve the network intrusion detection technology. Through the intrusion detection technology, we can collect and detect the information in the network transmission, to analyze the information. If we find suspicious information, we can send an alarm or block the network security equipment in time, which is helpful to improve the information security and reduce the network security risks. For example, today's computers generally install applications such as 360 security guard. These applications play a detection function in the daily operation of the computer. When an application wants to run in the computer, if the security guard detects that there is an unknown information source, it will immediately jump out of the information reminder and tell the user that there is a risk of information source, so that the user can operate cautiously. In this way, when users are reminded, they will pay special attention. If they feel that the risk is high, they may terminate the operation and reduce the hidden danger of network security.

3.2 Responding to the collected network information and analyzing the network security

Computer security intrusion detection technology can respond to the collected network information, detect and analyze it quickly, intercept the information with security risks, and improve the security of network information. For example, when we use the browser, the browser will take the initiative to block risky information, such as network authentication information. Unless we go

to set the column and modify the setting, this kind of information will not be reflected.

3.3 Combining intrusion detection technology with firewall application and improving network security performance

Because the general risk information will take the initiative to avoid the firewall, camouflage security information to invade the network, so the network intrusion detection technology should be combined with the firewall application technology, and develop a special program in the firewall technology to connect with the network detection technology. In this way, on the basis of detecting information security, the firewall can play its role in network security protection, block and isolate suspicious information in time, avoid the computer system being invaded and controlled, which is conducive to improving the construction of network security protection network, and upgrading the information security of users and enhancing the network security coefficient.

4. Conclusion

To sum up, with the development of social economy and the progress of science and technology, the computer has been widely used in people's daily life and work, the computer greatly improves the production efficiency, so in people's life and work can't leave the computer, and the network security performance of the computer is also particularly important, which is widely valued by people. However, due to the security risks of the computer system and the bad motives of the criminals, the computer network has been severely tested, and the invasion of the network will not only make the computer users suffer economic losses, but also for people, they are always afraid of their own information leakage, causing adverse effects on their lives.

Usually, the means and methods of computer security intrusion include network virus invading computer, information security can't be guaranteed; or network firewall being invaded, network security is worrying; and identity invading network services, leading to information leakage. These methods of network intrusion will affect the security of computer. Therefore, in order to reduce the computer network intrusion and improve the network detection technology, the general measures can be taken are: firstly, collect network information and identify information security; secondly, respond to the collected network information and analyze network security; finally, combine intrusion detection technology with firewall application to improve network security performance. To a certain extent, these methods can improve the network security of computer and ensure the needs of users to access the Internet safely.

References

1. Jiang Y. Research on network intrusion detection technology based on artificial intelligence. *Information Communication* 2019; (12): 70-72.
2. Lv F, Ma K, Ye D. Research on optimization of network intrusion detection technology in electronic countermeasure system. *Computer Measurement and Control* 2017; 25(06): 219-222.
3. Hao C. Intrusion detection technology of network database based on K-means algorithm. *Computer Knowledge and Technology* 2019; 15(01): 34-35.
4. Li Z. Application of intrusion detection technology in network security protection. *Journal of Natural Science, Harbin Normal University* 2013; 29(04): 60-63.