

Computer Network Security Issues and Suggestions in Cloud Computing Environment

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Abstract: Owing to the support of rapid socio-economic progress in China in the 21st century, significant achievements have been made in the field of science and technology. Various modern information technologies are becoming increasingly mature and widely applied in various fields of society and in all aspects of people's actual lives. As a type of modern information technology, cloud computing has brought great convenience to network life and various types of work, but it has also brought more serious computer network security issues. In this development environment, how to prevent and respond to the losses caused by network system attacks has become a problem that troubles all users. Based on this, this article conducts a deep analysis of computer network security issues and suggestions in the cloud computing environment, hoping to provide some theoretical assistance for improving computer network security.

1. Introduction

Cloud computing is a new service model established on the basis of various modern information technologies and internet, which can provide users with faster and more convenient network access services. Users only need to pay a small amount of funds during the use process to enter the computer resource sharing library. In this way, users do not need to invest too much effort in resource integration and management, nor do they need to communicate too much with cloud computing service providers, which can reduce various cost losses ^[1]. The computer network security work in the cloud computing environment mainly refers to the use of management measures and technical means to maximize the security and accuracy of various data information in the cloud computing environment. Therefore, the author believes that studying the problems of computer network security in the cloud computing environment and proposing corresponding suggestions are necessary and crucial, and have certain practical significance.

2. Computer Network Security Issues in Cloud Computing Environment

2.1 Incomplete Laws and Regulations Related to Network Security

In the context of the information age, computer network technology has been widely applied in the operation and development of various industries, providing great convenience for effective data sharing and improving the efficiency of information dissemination. Because of this technological advantage, big data technology has become the main progress trend in the network information age, and at the same time, it has also increased the content of all kinds of false data information. In addition, there is a certain lag in the current laws and regulations on network security implemented in China, which makes it impossible to effectively and severely punish various types of false data information dissemination and illegal and irregular network behaviors. In summary, the lack of sound laws and regulations related to network security in China has to some extent led to many security issues in computer networks in cloud computing environments ^[2].

2.2 Existence of Network Security Technology Vulnerabilities

In recent years, against the backdrop of technological innovation and development in China,

cloud computing technology has been optimized and upgraded. However, compared to developed countries, China's cloud computing technology is still in the initial stage of development and continuous exploration. Computer network security technology is not perfect, and it is even unable to effectively distinguish some false data information and false IP addresses, thereby increasing the probability of security risks.

2.3 Insufficient Security of Computer Network Technology

Under the cloud computing environment, some enterprises have not timely carried out computer network data security and privacy protection work. In the actual work process, relevant staff only rely on cloud computing technology for data collection and sharing, and some data information is retained in the external network, resulting in computer network systems being more susceptible to attacks by hackers and network viruses, leading to more serious computer network security issues [3].

3. Suggestions on Computer Network Security Issues in Cloud Computing Environment

3.1 Strengthen Awareness of Computer Network Security Prevention

From the perspective of cloud computing environment, to effectively solve various computer network security problems, the top priority is to firmly establish the correct awareness of computer network security risk prevention, and then actively develop targeted prevention strategies, security management systems, etc. under the guidance of the correct awareness of prevention, in order to reasonably avoid various computer network security problems. Users need to increase their awareness and importance of computer network security issues in the actual use of cloud computing technology and computer network technology, and actively take corresponding self-restraint measures to avoid various computer network security issues caused by their non-standard operation behavior and weak security awareness. Based on this, users can combine the characteristics of computer network technology in the cloud computing environment, and start to do a good job in network security prevention from the following aspects:

Firstly, users should focus on the identity authentication of the information system, and forms such as identity card information authentication and authorized login should be combined to further enhance the security and confidentiality of computer network systems, in order to reduce the probability of various network security risks. Secondly, users should also continuously improve their network data and information application and information security management skills on the basis of enhancing their own security awareness, ensuring the standardization of their computer network technology operation behavior. In addition, users should also reduce the transmission and sharing of data information in public places and external networks, so as to avoid the risk of data information leakage caused by improper human operation [4]. Users need to maintain confidentiality during the processing of personal information to avoid the leakage of personal privacy information in the event of computer network system failure. These seemingly insignificant habits are measures to ensure computer network security in the cloud computing environment, and they need to be taken seriously and their attitudes and behaviors towards using the internet should be properly adjusted. Thirdly, when transmitting and sharing various types of data information, users need to strengthen data integration and backup efforts, so that even if there is a computer network failure in a cloud computing environment, their internal data information will not be lost.

3.2 Ensure the Security and Confidentiality of User Data and Information

When applying computer network technology based on cloud computing environment, users also need to actively utilize various technical means to further enhance the security and confidentiality of computer network systems. Firstly, users can use "Truecrypt", "PSA/DES encryption algorithms" and other methods to encrypt and manage user information and stored various types of data information, which can maximize the security and confidentiality of user information and data. Secondly, users can use filter technology, including technologies such as websense, vontu, and

vericept, to monitor various types of data information in the computer system in real time, timely discover data information with security risks, and effectively intercept it. In this way, the probability of computer network security issues occurring in cloud computing environments can be reduced, ensuring the security and stability of user computer system usage. Thirdly, in the cloud computing environment, relevant enterprises and units should choose to cooperate with cloud computing technology suppliers and service platforms with high market reputation, good brand image and reputation as much as possible. This can ensure the security and stability of user computer network usage to a certain degree, and reasonably avoid issues such as data information leakage, loss, and tampering.

3.3 Improve the Security of Computer Network Security Server and Application System

Cloud computing technology suppliers and technology R&D personnel should follow the pace of innovation and progress in the scientific and technological field, and upgrade and update computer network security servers and applications in a timely manner, so as to effectively solve various computer network security problems in the cloud computing environment [5]. Firstly, the current network environment presents certain characteristics of openness and virtualization. Technical researchers need to ensure that computer network servers and applications can accurately identify various risk factors and security hazards during actual operation, and independently intercept them to maximize the effectiveness of computer network servers and applications. Secondly, technical personnel not only need to reasonably prevent and respond to malicious attacks and intrusion behaviors from various hackers and network viruses, but also should conduct appropriate anti-tracking to enhance the security protection function of computer network servers and applications.

3.4 Actively Push the Research and Application of Computer Network Security Technology

Reasonable utilization of computer network technology in the cloud computing environment can enhance the comprehensive collection and utilization of data information, and is of great significance for improving the quality of various work and comprehensive management level. But at this stage, compared with the western developed countries, China's computer security technology still has much room for improvement and progress. Therefore, to use computer network technology properly, we must do a good job in the research, development and application of computer network security technology. Firstly, from the perspective of the government, national government departments should fully leverage their management functions and formulate targeted laws and regulations based on various computer network security issues that exist in the current cloud computing environment. Government departments should also guide relevant industry experts, technology research and development fields, etc. to actively participate in the research and application of computer network security technology, actively learn from advanced foreign computer network security technology experience, and establish a healthy computer network security technology system based on China's development situation. Secondly, from the perspective of customers, the main purpose of computer network security prevention work is to ensure the information security of customers [6]. Due to the accelerated updating and upgrading of various network security protection technology software and systems, relevant technology research and development departments in China should do corresponding research and development work, such as setting up multi-level and systematic network firewalls, to improve computer network security in cloud computing environments.

4. Conclusion

In summary, computer network technology in the cloud computing environment has become an essential technological means for continuous operation and innovative progress in various industries, playing an irreplaceable role in practical applications. However, based on the analysis of the application and utility of computer network technology in the current cloud computing environment, there are many security risks due to the constraints of technical factors and various external

influencing factors. Based on this, relevant technical personnel should deeply explore and face up to computer network security issues in the cloud computing environment, and develop targeted solutions to promote the construction and progress of social informatization.

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