

Research on the Security of Computer Network under Cloud Computing

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Abstract: As a new method of computing, cloud computing has brought great convenience to people's network life, but at the same time, there are some security risks. This paper briefly introduces the concept and characteristics of cloud computing, and briefly analyzes the significance to study the security of computer network in the environment of cloud computing, and briefly analyzes the security vulnerabilities in this environment according to the characteristics of cloud computing, to research and put forward the corresponding measures to strengthen the security.

Twenty-first Century is the information age, information technology has become a pioneer force in the development of the times, with the deepening of the globalization process, the Internet has also become a bridge to connect the world, and a large number of resources and data have been shared through the network. The emergence of cloud computing has accelerated the process of data processing and sharing. However, the development of new technology has also brought new security risks. Therefore, the problem of computer network security in the environment of cloud computing is also getting more and more attention.

1. The concept of cloud computing

Cloud computing, as its name implies, is a new type of computing methods based on the network. It is different from traditional computing methods, cloud computing is a distributed network computing which through the Internet first to split the huge computing program into subroutines, then to calculate and analyze these smaller subroutines, and finally to transmit the analysis results to the corresponding users. Compared with traditional computing methods, cloud computing has lower requirements for user terminal devices, which can make information processing more quickly and conveniently, and can make the resources sharing better. Generally speaking, cloud computing has the following features. First, cloud computing has the function of data storage, which can be more secure for the storage of data, with good security and security. Second, the distributed computing of cloud computing makes the processing of data more convenient and faster. Third, cloud computing provides a platform for users to share resources, can better interact with resources. Under the environment of cloud computing, the storage of date is safer, which can avoid data missed, stolen and damaged which caused by some unexpected factors, and can better preserve the integrity of date. However, after all, cloud computing is based on network, open network will reduce the security of cloud computing. Therefore, we should pay attention to the security of computer network in the environment of cloud computing, and use effective preventive measures to improve the security.

2. Analysis on the current situation for the security of computer network in the environment of cloud computing

2.1 The Existing technical risks

Although the information technology is progressing and developing, but for ordinary users, the port or network sometimes will be unstable, will occur the phenomenons, such as server fault, server connection interruption, and so on, the interruption caused by these reasons or other reasons, or the interruption in the process of data storage, or the interruption of other service, all will lead to the data problems, may be can cause the data which can't be processed, and even can not be gotten,

even lead to the failure of calculation. In addition, false address, false labels and other issues also affect the security of computer network in the environment of cloud computing, some computers can not correctly identify will give criminals brought opportunity, therefore, it is necessary to strengthen technology research and development, only strengthen the research and development of the corresponding technology, then can better to maintain the security of computer network in the environment of cloud computing.

2.2 Virus attacks

Viruses and hackers are always a major problem to threat the security of the Internet, and the security of computer networks in the environment of cloud computing is also facing such a threat. Though compared with traditional methods, cloud computing has certain security and secrecy, but this is only relative. In accordance with current technology, cloud computing can not achieve complete secrecy. In addition, virus technology is also changing, the inherent protection system is not able to cope with the virus brought by software or mail, the computer is invaded, and information and data are stolen, to cause the user information to leak or even suffer losses. Therefore, the user terminal should be for viruses, update and download the corresponding protection system in time, to protect the security of the computer network in the environment of cloud computing.

2.3 Internal security risks of cloud computing

The security situation in the environment of cloud computing, not only has foreign aggression, but also has internal worries. With the deepening of the globalization process, the Internet is gradually across borders and time zones, this open mechanism leads to lower safety, this wider scope has allowed some criminals to take advantage of it, to use the network vulnerabilities to do some illegal crime and infringe the rights of others. Although cloud computing can save the data better, and have a certain degree of concealment, can guarantee the business information, data and documents, but the information transmission has corresponding process, if it was intercepted in the process of the transmission, will cause the information leakage, this is the internal security risks of cloud computing. The confidentiality of user information is relative, compared with other external users, but the internal staff can easily use and get information, at this time, the confidentiality is completely disappeared. If the internal staff from an enterprise or institution do some operations, the information and data stored in the environment of cloud computing will be leaked out, which will cause some economic or credibility losses.

3. Measures to strengthen the security

3.1 Improve the awareness of security and prevention

To strengthen the security of the computer network in the environment of cloud computing, the most important thing is to improve the awareness of security and prevention for the users. Because the problems faced by users in the environment of cloud computing are multi-element, multi-field and multifaceted problems. If the users don't have a good awareness of security and prevention, even strong firewall and high technology service providers will also be unable to protect the security of users' computer network. To this end, users should learn and understand the relevant knowledge of network security, fully understand the network, understand the security vulnerabilities and enhance the awareness of security. Identity authentication is the main means to protect the security of users' network and information. Identity authentication can enhance the network security of the computer and maintain the security of the platform in the environment of cloud computing. Therefore, related platforms should strictly supervise the process of identity authentication, strengthen verification technology, ensure the security of users' information and data, and avoid the security risks caused by human operation or management reasons. Users should also strengthen the awareness of prevention, not to disclose the password to others, to protect their own information. When the user operates cloud platform and cloud computing, users should also have the awareness

of security and understand the corresponding security knowledge, and do careful operation according to the steps, so that we can better enhance the security performance of platform data.

3.2 Strengthen the research and development of technology

Security problems occurred at the present stage, some of the reasons are that the technical level is not in place and the protection technology is not strong enough. Therefore, it is imminent to strengthen the research and development of technology. Due to server problems lead to users' information or data lost which often occurred, therefore, should strengthen the research and development of technology to maintain the server communication, provide stabler services for users, and research and develop the data recovery technology, even if the service interruption, relevant data can continue to maintain the integrity, achieve the computing of break-point and continuing transmission. We should strengthen the screening technology of network system, discover and prevent false websites in time, to protect the security of users' network. Meanwhile, aiming at the phenomenon of hackers superimposed and new viruses emerging, and so on, the protection technology should also be innovated, and should be taken better measures for new technologies, so as to update the protection system in time. The computer's own firewall should also be fully used, these security tools are effective measures to defend against hackers and virus attacks. The user should update the system firewall in time, and do not close the firewall because it is not able to browse some of the websites. It is also necessary to combine the firewall and other security components regularly to realize the optimization of the resource system and protect the network security of the computer. At the same time, digital signature technology and other new authentication methods can also be used to enhance security factors, better solve the security vulnerabilities of network, and protect computer network security in the environment of cloud computing.

3.3 Improve the security and confidentiality of data

In addition to the above methods, users can also improve the security of the data through the following technical measures. First, the use of data encryption technology. Encryption technology is the most basic and effective way to improve the security performance of data. Through data encryption technology, the security of data in the process of transmission can be guaranteed. No matter between cloud and terminal, cloud management and cloud storage, only adopt the data encryption technology to encrypt the date, all can greatly enhance the security and secrecy of data. Two encryption algorithms can also be used for multiple protection of data, RSA asymmetric encryption algorithm between client and storage server, at the same time, DES symmetric encryption algorithm is used to enhance data security during the process of transmission. Second, the use of filter technology. Through the use of the filters for Websense and vericept, better to manage and monitor the corresponding data, and can also intercept some more sensitive data, this can better improve the security of the cloud computing environment. Third, the use of data authentication technology. When build and maintain a cloud computing environment, should build a trust relationship and establish a security service level, and periodically carry out corresponding risk assessment for users' needs, establish permissions based on the corresponding security level, and establish a systematic and low-risk cloud computing environment.

3.4 Establish and improve the relevant laws and regulations

At present, appears all kinds of conditions, such as infringing privacy and embezzlement and stealing personal information, it is fundamentally that China has no laws and regulations on network data, and cannot protect users' security of personal confidence and data information from the legal level. In order to better protect the security of computer network in the environment of cloud computing, the state should take relevant measures, formulate relevant laws and regulations, improve the law and policy to process the problem of Internet, in view of the existing problems, respond effectively and solve measures to strengthen law enforcement, to let the world of the Internet also be able to comply with the law, to make the network environment more harmonious and safer.

4. Conclusion

With the rapid development of information technology, the Internet has become an indispensable part of people's life, the emergence of cloud computing technology is more convenient for people's Internet life. However, the network security problems in the environment of cloud computing have brought endless trouble to people. Therefore, this paper analyzed the network security problems existing in cloud computing, and proposed corresponding solutions for these vulnerabilities and problems, so that users can better and safely use cloud computing to process network data and share resources.

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