

Research on the Application of Data Encryption Technology in Computer Network Security

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Abstract : In the information age, information technology has been used in various fields in China, which has brought great changes to people's daily life and work, but there are also some information leakage problems of users, which affect people's property security to a certain extent. In this process, staff should fully understand the background of data encryption technology. Therefore, they need to highlight the application effect of data encryption technology in their daily work, explore the current computer network operating environment, as well as the transmission requirements of information data, so as to bring more quality assurance for people's convenient life and work, and at the same time, enhance the application value of computer technology in various fields of China with the help of diversified technologies.

Keywords : Computer; Network Security; Data Encryption Technology; Application

Network technology is often used in our daily work and life, which provides great convenience for the masses. However, due to the network information security problems, some users' information and data are leaked, which brings some property losses to users. On this basis, the relevant staff should effectively apply information technology to purify and integrate the computer network environment, so as to ensure the effectiveness and security of information and data transmission, ensure the security of users' Internet access, and strengthen the application level of data encryption technology. The loss of information and data often occurs in the computer network, which brings a lot of losses to some users. In the actual process of optimizing the computer network environment, we should encrypt the information to ensure that the information is not lost and the information is not leaked. It is necessary to gradually strengthen our national economic strength and optimize the operating environment of our computer network.

1. The basic discussion of data encryption technology

1.1 The concept of data encryption technology

Data encryption technology mainly refers to the use of information and data in the process, with the help of network encryption key for the safe custody of these data information, to provide convenience for users. As for data encryption technology, its reference in the process of using computer network can present the data information needed by users in an encrypted way, so as to ensure the transmission security of information and data. The cipher text is not specific numbers and patterns, which cannot be seen by users, and each encryption key is different. It can be divided into two encryption forms, one of which is dedicated, the other is the public key, and the operation modes of the two encryption methods are also different. When the specific user uses it, he should encrypt the information data, highlight the protection role of the information data, and emphasize the application value of the data encryption technology in the operation of the computer network.

1.2 Types of data encryption technology

When users access the Internet, the security of information and data is particularly important, so in this process, the relevant staff need to make full use of information technology, flexibly apply data encryption technology in the computer network, and

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improve the transmission security of information and data.

1. 2. 1 Link encryption technology

This technology is also called on-line secret technology. It mainly encrypts the original information and data, and finally forms cipher text, so as to ensure the transmission of information data. In the network node or user's use, with the help of decryption, the encrypted information is converted into plaintext, and the information data is transmitted. In each network node, the transmission of information and data has a key, which can only be solved with the help of certain calculation methods.

1. 2. 2 Node encryption technology

This is a similar technology with online secret technology. In the transmission of information and data, it is protected and decrypted in network nodes. However, this technology is mainly used in nodes and decrypted by modules.

1. 2. 3 End to end encryption technology

This technology is mainly for the network node information data encryption, and decryption also needs a key. It can ensure that the whole process of information is encrypted, and there will be no information and data loss or leakage due to network node problems. This kind of encryption technology in the use of the process is more secure and better encryption, and each encryption process is a single, not affecting the transmission of other encrypted files.

2. Security of computer system

2. 1 Specific requirements for computer system security

If the staff want to ensure the security of information and data transmission in the computer network, and bring greater convenience and use security to users. Based on this, the staff need to give full play to the security of data encryption technology, gradually optimize the computer network operation environment, and determine the security and effectiveness of information and data transmission, in order to pave the way for the application and promotion of computer network in various fields of our country. At the same time, we need to make full use of information technology, apply data encryption technology flexibly, and gradually improve the security of information and data transmission, so as to bring greater convenience to users, improve the actual work efficiency, and the convenience of people's daily life.

2. 2 Security problems in computer system

2. 2. 1 Computer system operation error

It is mainly because of the influence of the computer itself and the user's comprehensive literacy that the computer system has errors in the operation. In this process, the data information may be lost. Moreover, due to the operation error of the computer system, the staff's efficiency will be low and the specific work will be affected.

2. 2. 2 Software and hardware problems of computer system

In the operation of the computer system, if there are problems in the software and hardware, it will affect the normal development of the computer work, or lead to the normal use of the computer. If there are problems in the software and hardware, it needs the staff to correct and adjust in time, and optimize the computer network operation environment.

2. 2. 3 Man made destruction

Some computer networks are in operation because of the risk of computer network system, and in some enterprises, the computer can encrypt the data documents. Especially for some system failure problems, the information and data will be leaked, which will lead to the leakage of the information and data of users. In particular, some system failure problems lead to the leakage of the information data, and the data will be gradually strengthened the application effect of dense technology.

3. Application strategy of data encryption technology in computer network security

3. 1 Security application in database

Database can store a large amount of information data, in order to ensure the safety of these information data, we need to apply data encryption technology to the database, optimize and process the data information, and ensure the safety of data information.

3. 2 Application in software security

Software is the basis for users to surf the Internet. The security of software is more important to the information leakage of users. In order to ensure the security of their own information, some users will install anti-virus software on the computer. However, in the face of virus invasion, although the anti-virus software can kill the virus, but it cannot guarantee the security of information and data, so in the software for data encryption technology, flexible application can ensure the information integrity of users and enhance the security of software.

3.3 Application in e-commerce

The computer has been promoted and used in the field of work in our country, and in the new era of social development, e-commerce also provides convenient development conditions for various work fields, and sets up a network bridge for enterprises and consumers in various regions, so that all kinds of goods can circulate on the Internet. Based on this, there are also many problems, such as in the e-commerce network platform users' personal information is often leaked and lost, affecting their property security, as well as hacker attacks, which will bring certain losses to the platform and users. However, in order to ensure the safe transmission and use of information, staff should pay attention to the efficient use of data encryption technology, so as to optimize the operating environment of e-commerce in China and promote the healthy development process of e-commerce in China.

3.4 Application in private network security

In the process of social development in the new era, network information technology has been widely used in various fields of our country, mainly to meet the actual work and life needs of the masses, and some staff also build a private network, mainly to provide convenience for work, so that the private network has received the attention and attention of the masses, especially strengthening the private network. In order to improve the security of network, it is necessary to apply the data encryption technology flexibly and optimize the application environment of private network. In the process of purifying the computer network environment, the staff should pay attention to the current network operation status and the application effect of information technology, so as to strengthen the application significance and value of information technology, and promote the security and practicability of China's private network.

4. Conclusion

Computer is common information equipment in enterprises. With the support of Internet technology, it brings more convenient conditions to the internal work of enterprises. However, there are also some problems in the process of computer application, such as information security, which also affects the security of users' personal information and seriously damages users' property. Relevant staff should pay attention to the application of data encryption technology, so as to better ensure the use of network computers by users, and in-depth analysis, in the normal operation and development of computer network, it is necessary to make full use of data encryption technology, conduct comprehensive supervision on information data, and ensure the safe use effect of computer network technology in various fields of our society.

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