

The Application of Data Encryption Technology Based on Network Security

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Abstract:- With the development of information technology, the problem of computer network security is becoming more and more prominent. Illegal invasion, information disclosure, virus impact and network vulnerability are all factors that affect computer network security. In the process of rapid development of Internet technology, the development speed of computer communication technology is getting faster and faster. Data encryption technology not only can encrypt and decrypt data, but also can realize digital signature, authentication and authentication and other functions, thus ensuring the confidentiality, integrity and confirmation of data transmission over the network.

The application of data encryption technology in the process of information transmission, provides a favorable safeguard for information security, is the main effective way to guarantee the computer security currently. The author introduced several data encryption technology, analyzed its application in computer security.

Nowadays, in the network age, computer security issues have attracted much attention. In order to ensure computer network security, it is necessary to pay attention to improving data encryption technology. The data encryption system is simple and effective, with good security and practicality.

Keywords:- Network security, data encryption technology, computer network security, Internet technology.

Introduction:-

The data encryption technology in computer network is briefly introduced, so that people have a certain understanding of the data encryption technology and network security. With the continuous expansion of the field of network applications, it is becoming more and more important to ensure the confidentiality and security of information, which has attracted the attention of relevant departments. With the increasing maturity of mobile communication technology, the dependence of electronic computers on the network is more and more prominent, and the gradual expansion of computer use has caused users to pay close attention to the computer network security issues, but also prompted users to

By analyzing the present situation of computer network security, this paper points out the necessity of strengthening computer network security, in order to make the data encryption technology to achieve the maximum value of its own full play in the process of maintaining computer network security.

- Application of data encryption technology in computer network security:-

pay more attention to the enterprise network information security management capabilities.

The risk of information security restricts the effective use of information, and the economy, national defense and even the national security threat. In other words, information security has an important effect on the healthy and orderly development of modern society, the protection of national security and social stability, and has a crucial impact on the success or failure of the information revolution. Cryptography is the core of information security technology. It is the key to realizing confidentiality, integrity and non-repudiation.

Improvement of data encryption:-

With the help of the corresponding cryptographic algorithm, transforming the plaintext data information into ciphertext data information plays the auxiliary role of the key and protects the transmission of data information, which is the fundamental point of data encryption. Node encryption, link encryption and end-to-end encryption are very common data encryption types. For example, when users conduct transactions in online banks, once data information leakage occurs, the encryption system will quickly take appropriate

measures to ensure the safe transmission of computer network data.

Application of end-to-end encryption technology:-

In the application of end-to-end encryption technology, in the transmission process of the encrypted data from the sending end to the receiving end, there is no need to go through the decryption procedures of each link, so the network data can be well protected. At the same time, the application of end-to-end encryption technology has become extremely popular because of its advantages such as low cost, convenient operation, continuous innovation and optimization in the use process, and the ability to fully meet the actual needs of users.

Application of node encryption technology:-

The gradual improvement and development of computer network promote the effective application of node encryption technology. It is the basic premise of encryption to ensure smooth synchronous or asynchronous lines for data transmission between nodes. In addition, the smooth implementation of data information transmission encryption work also requires that the network intermediate nodes must have the corresponding data information processing capacity. At the same time, node equipment must

always maintain a completely synchronous state, and only in this way can prevent network hackers tampering and stealing data information.

Application of packet encryption:-

As the most common data encryption method, compression packet encryption mainly includes ZIP and RAR. On the basis of setting the password to decrypt and using the encrypted password to accurately obtain the relevant computer data information, this compression packet encryption method has been widely used in the network mail transportation. In addition, the application of compression packet encryption can also achieve effective compression of mail, release the disk space occupied by files, and improve the overall operation efficiency of the computer.

Application of link encryption technology:-

The application of link encryption technology can encrypt the links of computer network nodes, ensure the security and reliability of network data information transmission, encrypt the data information before transmission, and choose different types of keys. After the network node decrypts the data information, then it encrypts the data information. Its characteristics lie in the complex encryption and decryption links, which

can effectively and comprehensively ensure the security of network data transmission.

➤ Data security encryption technology:-

Encryption and hiding are two main means of data security technology. Among them, the useful information is encrypted, and information is transmitted in the form of the statement. With password recovery technology, encrypted information always appears as the code through the transmission of noise at the receiving end to initial information. With the help of encryption algorithm and secret key, the plaintext is converted into ciphertext at the sending end, and then transmitted to the receiving end. And then through decryption algorithm and secret key, the ciphertext restoring to plaintext technology at the receiving end is data security encryption technology. As a reliable means to protect information in the current computer system, data security encryption technology can encrypt information and secretly carry out information transmission, which can make the information security obtain basic guarantee.

➤ Value of data encryption technology:-

First, the promotion of security level. The construction of computer network security system has not been concerned about and paid attention to in the security level of the problem. Data encryption technology greatly improves the security of data transmission, so that the core data information about the funds flow can be protected by the corresponding security level of the computer system. Therefore, the application of data encryption technology, not only can strictly monitor the transmission process of network data information, but also can enhance users' trust in computer network security. Second, network security can be assessed. Data encryption technology can show the security level of network data in the process of information transmission and is an important indicator to evaluate network security. The security of data transmission is the basis of constructing computer network security system. In order to ensure the timely and accurate data transmission, network security agencies must constantly update the data encryption technology, improve the level of data encryption technology through the use of various types of data encryption technology, so that the security and accuracy of data information transmission is fully guaranteed. The use of data encryption technology improves

and optimize the quality of data transmission, and it has become the most important network security indicators.

➤ Classification of data encryption technology:-

(1) Link encryption technology:-

The encryption of a communication link between two network nodes can effectively protect the data transmitted over the network. All information before transmission is encrypted. The received information is decrypted at the node, and then the corresponding link key is used to encrypt the information, and then the data information is transmitted. Due to the application of link encryption technology, data information needs to be transmitted through multiple communication links, which undoubtedly greatly improves the security of information transmission process.

(2) Symmetric encryption technology:-

The technique of encrypting and decrypting data with the same key is symmetric encryption, also known as "key encryption". Encryption algorithm and key management are important factors that affect the security of symmetric encryption. Because data encryption and decryption need to

use the same key, this makes the key security transmission is particularly critical. As the most widely used data encryption method in computer network security, symmetric encryption technology mainly includes AES, IDEA and DES three common encryption algorithms. Among them, the commonly used DES algorithm in daily work and life is often used to encrypt binary data. In general, symmetric encryption technology has a wide range of applications, good application effect, and has a significant advantage in terms of encryption speed .

(3) Asymmetric encryption technology:-

In contrast to symmetric encryption, asymmetric encryption requires a combination of public and private keys for encrypting and decrypting data. If the data is encrypted using a public key, the data must be decrypted using the corresponding private key. If data is encrypted using a private key, the data must be decrypted using the corresponding public key. Asymmetric encryption is more secure than symmetric encryption because two different keys are needed for data encryption and decryption. Since both parties of symmetric encryption technology use the same key, the disclosure of the key by either party may cause the data information in the transmission process to be cracked. Asymmetric encryption technology uses two keys to encrypt and decrypt data. The public key is

known to the public, while the private key needs to be kept by itself, which makes the process of data encryption and decryption time-consuming.

Conclusion:- Network security is very important to people. If data information is stolen, it will bring great losses to people. Therefore, it is very important for computer network system to properly use encryption technology, which can protect network data and is extremely necessary for the sustainable development of computer industry. The application of data security encryption technology can ensure the information security of the computer network, promote the normal operation of the computer system, so as to better meet the work and life needs of computer users. The problem of computer network security is a long way to go to solve the task, and data encryption technology to solve this problem is the main means for the maintenance of computer network security made a significant contribution. data encryption technology and digital signature technology, which not only solves the key management problem, but also ensures the integrity and non-repudiation of the data.

The application of data encryption technology is becoming more and more widely, and gradually to

the direction of education, medicine, finance and electricity, not only brings convenient security for enterprises and government agencies, but also provides security for people's life.

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