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Computer Information Data Security and Encryption Technology

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Abstract: With the development of society, science and technology are advancing. In people's production and activities, computer technology has been widely used. People enjoy the convenience of computer technology, at the same time, an urgent need to solve the problem also arises, that is, computer information and data security. Therefore, in the face of such a problem, the encryption of computer information data must be taken seriously. Based on the security of information data, this paper focuses on the exploration and analysis of information encryption technology. I hope it will be helpful for information and data security.

Keywords: Computer information data, security, encryption technology.

Introduction

Computer technology and digital information processing technology have become the main means of information communication in people's life and work. The application of these technologies can effectively organize and manage a large number of data information generated in daily life. However, with the convenience of digital information, there are more and more threats to the security of digital information, and the consequences are more and more serious. In recent years, with the development of market economy, science and technology are also making progress. Computer technology plays an important role in various fields of today's society, including digital currency, online banking, e-commerce platform, etc. It can be seen that in daily life, people's dependence on electronic information technology is also obvious. Therefore, the security of computer information data is gradually being concerned by the masses of people. If the information data is leaked or plagiarized, the threat people face will be incalculable, which will bring different degrees of loss to people's lives and work. Therefore, the security of computer information data will become an urgent problem to be solved. In other words, in order to ensure that computer information technology can better serve people and society, it is necessary to conduct in-depth research and further application of information encryption technology.

Value analysis of computer information

Computers have been widely used in many fields. The computer can not only process and realize a variety of functions, but also store the massive data information generated in the application process, which contains a large number of privacy data or confidential data. Unauthorized personnel cannot obtain and use these data. However, due to the high economic value of these information, a large number of information theft, information destruction and other acts have emerged. Once the important information is leaked, the loss is very expensive, so it is necessary to take necessary encryption and security protection measures to ensure the safety of information and data in computer application, on the one hand, to avoid information leakage, on the other hand, to minimize the loss in the event of information leakage[1].

Security threats faced by computer information data

Information security threats from computer viruses

After years of development, computers have been widely used, and the means and methods of virus attack against computer programs or data have also been greatly developed. The threshold of virus writing has been gradually reduced, and the development of variant viruses has been very rapid. With the help of professional writers, factors such as more and more secret virus code writing have brought serious threats to data security. The virus that invades the computer system can tamper with, destroy or even steal the data stored in the computer. Among the three kinds of acts mentioned above, stealing can cause the most serious harm [2].

Information security threats from users' lack of security awareness

The premise that computers bring convenience to people's life and work requires people to take necessary protective measures. But in practical application, the efforts of computer related users in protecting information security are still at a low level. For example, the data access permission setting is insufficient, the user does not need identity authentication to log in the system, and the security protection password or means are too simple, which will cause data leakage [3].

Information security threats from application vulnerabilities

The application of data is mainly realized by program. With the acceleration of social development and the improvement of people's requirements, the functions that can be realized by applications are more and more complex, while the production cycle is greatly reduced. In this case, there must be some security vulnerabilities in the application. If these vulnerabilities are obtained by illegal people, they will indirectly cause data security problems [4].

Computer information and data security

Factors of computer information data security

Now it is the background of information and knowledge. In this background, computer information technology has played an important role in people's daily life. In the process of computer application, a key problem is information and data security. Generally, there are two main factors that affect the security of computer information and data. First, human factors. In the security of computer information technology, one of the most important factors is human factor. For example, various forms of electronic fraud, hackers or trojans, viruses, etc. At present, the main threat to the security of computer information and data is here [5].

External conditions of computer information security

Computer security and communication security are two important external conditions to ensure the security of computer information technology. First of all, computer security. Users are used to storing information or data on the computer, and ensuring the security of the computer itself is the primary task. Computer security is mainly reflected in hardware and software. In terms of hardware, the computer should be checked and maintained regularly, so that the computer can operate normally. In terms of software, select some anti-virus software with good anti-virus quality for regular anti-virus. Moreover, communication security. On the computer, the transmission condition and medium of information technology is communication. When there are security problems in communication, there will be some hidden dangers in computer information data. Despite the development of science and technology, computer network technology is becoming more and more perfect, but in the security of computer information and data, we still have a lot of work to do. If we do these work well, a series of problems such as Trojan virus will be effectively improved [6].

Security encryption technology of computer information data

Encryption technology of storage and transmission of computer information data

Storage encryption technology and transmission encryption technology are two important parts of information confidentiality technology. Next, I will introduce them one by one. First of all, the storage encryption technology is mainly used to prevent the storage security of information data in the computer. According to different implementation methods, it can be divided into two categories: ciphertext storage and storage control. Among them, ciphertext storage is achieved by means of encryption module, and access control is achieved by limiting the user's authority or identifying the user's legitimacy. No matter what kind of implementation method, the storage encryption technology has effectively played the purpose of protecting the computer information and data security, to a certain extent, preventing some information and data security risks. Secondly, transmission encryption

technology. In order to ensure the security of information and data transmission process, the data to be transmitted is encrypted, that is, transmission encryption technology. Generally, transmission encryption technology is divided into two types: line encryption and end-to-end encryption. Line encryption is to encrypt the data in the line with different keys to ensure the security of computer information data. The end-to-end encryption refers to the encrypted processing by the user at the beginning of information sending and transmission, which is transmitted by unrecognized information in the way of information packet. When the information arrives at the destination, the data can be decoded to get the information that can be read, and then be used for various purposes by the user [7].

Key management encryption technology and confirmation of computer information data

Encryption technology in computer information data security management, we know that key management encryption technology and confirm encryption technology is another different computer encryption technology, can be used to ensure the security of information data. In detail, first of all, for the key management encryption technology, the key is an important part of computer information security encryption. Generally speaking, key media include disk, magnetic card, etc., in which key management focuses on key generation, storage and destruction, etc. Through our key encryption work, we can ensure the integrity and correctness of the key operation link, so as to ensure the security and reliability of the above network information technology to a certain extent. Second, there is the confirmation encryption technology. Confirmatory encryption technology can ensure the security and integrity of data, prevent the loss of data and malicious copy by limiting the shared area of computer information data in the computer. One aspect of this technology is that the information sender can't deny the documents and information sent by his own hand, and can let the legitimate information receiver know the authenticity of the received information. Another point needs to be pointed out here. In the confirmation encryption technology, according to different purposes, the forms of information data confirmation system mainly include identity confirmation, digital signature, etc.

Information data integrity identification and abstract technology

As a common technology, integrity authentication mainly involves the identification of key, identity, information data, password, etc. in order to achieve the confidentiality of computer information data, the system will check the characteristic value and data of the input object according to the established program, so as to achieve the purpose and requirements of information data encryption. The key point of information digest technology can be processed by one-way hash encryption function, so as to achieve one-to-one information data transmission and transmission. When the information sender encrypts the digest, he / she can use his / her own private key process, while the receiver can determine and verify the accuracy and

legitimacy of the data according to the key decryption technology, and through the summary of the original digest and transmission information Line comparison analysis and summary, whether the data information is changed can be clear, thus ensuring the security and integrity of computer information data[8].

Conclusion

With the wide application of computer, the more functions can be realized, the more important it is to take necessary security measures for computer data and information. In order to ensure the security of data and information and promote the steady development of computer and its related technologies, we must adopt a variety of data encryption methods for various aspects and behaviors of computer information application. Under the current situation, we must ensure the security of computer information data. In order to achieve this goal, we must invest more financial and human resources to study the technology of information data encryption, and pay attention to the role of information encryption technology in computer security, so as to provide a safe and reliable information environment for a large number of network workers or users. In this way, the security of computer information data can be guaranteed.

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