

# Discussion on Application of Data Encryption Technology in Computer Network Communication Security

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**Abstract:** With the rapid development of China's economy, no matter the intelligence of science and technology, the degree of information intelligence is constantly deepening. This is the only way for scientific development, but the development of society has gradually proposed higher requirements and challenges for computer network information technology. In the era of big data, computer and Internet technology can bring more convenience to people's lives and work, but it also leaves a lot of security risks. The problem of information security that people face when using computers, and the problem of data theft must be solved. The main purpose of this paper is to analyze the application of data encryption technology in computer network information security.

## 1. Introduction

People are inseparable from computer network technology, whether they are living or working. This has become an indispensable part of people's daily life. It promotes the development of the world's development economy and cultural exchanges, bringing to society. When new opportunities arise, new challenges are brought about. The main challenge is how to ensure the security of information when applying computer network technology. For ordinary computer network technology users, their information security mainly refers to personal privacy issues. For enterprises, in addition to privacy in the enterprise, it also includes many trade secrets. Once hackers steal commercial secrets, not only will they the economic crisis of the enterprise will even have a negative impact on market development. To this end, ensuring the security of computer network technology applications has become a problem to be solved in the current development.

## 2. The main threat to computer network information security

In the current society, people use computer network technology to facilitate people's daily life and work, but because the technology is not perfect, it will also pose a threat to information security, which mainly involves the following: First, the computer system has certain loopholes; Second, virus infection; third, internal and external attacks on the network, these will pose a threat to the use of computer network technology.

## 3. The application of Data Encryption Technology in Computer Network Information Security

### 3.1 The specific application of data encryption technology

When applying data encryption technology, there are two main applications: the first one, the network database. In the era of big data, information explosion and information diversification have become one of the inevitable problems, and network database as one of the carriers of a large number of information storage, application data encryption technology can guarantee the security of the database in practical applications. The quality of protection has gradually improved. Data encryption technology is applied in the network database, which mainly plays its security role through the two links of information storage and information transmission. In the entire network database application, the computer server can be encrypted by data encryption technology, which ensures that the data information in the network database is designed to be a differential key to

record the specific data information. Therefore, the security of the network user when using the computer is effectively improved, and the security of storing the information or transmitting the information when applying the network information database can be ensured. In addition, when using the network database as a user of the network database, it is necessary to constantly improve their own security awareness of information processing. In other words, users are required to perform backup processing when facing important information files, especially For some confidential information, the only way to truly protect the security of computer network users using computer network technology, to ensure that information will not be stolen by others;

Second, e-commerce. Today in the era of big data, with the emergence of different network information storage methods such as cloud computing and network disk, China's e-commerce has developed very rapidly. In order to ensure the security of computer network users in the application of e-commerce, it is necessary to ensure that when people use e-commerce, their overall information security can be guaranteed. In other words, data encryption technology is needed to improve the use of e-commerce. E-commerce is mainly through the computer network technology and then the economic activities carried out on the Internet. This kind of economic activity relies on the Internet itself. If the Internet environment is not safe enough, it will make it difficult for the e-commerce activities to be used in both the use and the staff. Work, and even the use of security issues in e-commerce to steal business information, directly disrupting the stable development of China's market economy. To this end, it is required to use the real-name registration method in the registration process of e-commerce. This method can ensure that the e-commerce staff meets the requirements of our country, and also needs to add a password in it. When setting the password, it is necessary to guarantee various forms of the password. The password needs to be composed of letters, symbols and numbers. The password is complicated, and the purpose is to make the password really hinder the role of the hacker. Only by doing a two-pronged approach can we gradually reduce the payment risks in e-commerce, and truly achieve the purpose of protecting the information security of computer network users, and promote the faster development of e-commerce in China;

Third, set up a virtual private network. The virtual private network set up by applying data encryption technology in computer network technology can also improve the security of information. The main reason is that the virtual private network can better use the data encryption technology. This technology is mainly applied in China. In enterprises and schools, enterprises and schools are the two most important aspects of China's market and social development. It is very important to apply virtual private networks to improve the security of computer network technology. For enterprises, the use of data encryption technology to establish a virtual private network can ensure that information in the enterprise is not stolen, especially the trade secrets contained therein. Once the business secrets in the enterprise are stolen, it will lead to economic crisis. It will even cause the economic collapse of the enterprise, which has a very negative significance for China's market economy and the overall development of society. Schools have the most information about students. Once the information of the school is stolen, the information of the students will not be protected, and even the privacy of the students will be exposed. It is necessary to improve the information security of the school. Applying data encryption technology to a virtual private network can increase the protection of information by setting a public key or private key password, and can improve the security of information, ensuring that users can ensure the overall development while using the virtual private network. Good business activities and knowledge learning;

Fourth, encrypting software also requires data encryption. With the rapid development of science and technology, the application of smart phones in social development, and the use of ipads have prompted the gradual increase of software types in China's market, which brings new risks to the security of computer network technology. In the past, many people thought that software was not It will cause information leakage, and through the current development status, it can be found that software is very easy to cause information leakage. Therefore, it is also important to apply data encryption technology to encrypt software. Reducing the risk of using computer software is also the most important part of scientific development. Only by continuously improving the encryption

effect of computer software can the security of computer network users be improved. At the same time, it needs to be enhanced according to the needs of users. The effect of the firewall is to update the firewall regularly to ensure that it can meet the user's needs during use. It also needs to provide users with new anti-virus methods according to different software to ensure that the computer network users use the software. Effective and safe to use.

### **3.2 The application of Digital Signature Authentication Technology**

The digital signature authentication technology that exists in the application of data encryption technology plays an active role in ensuring information security. This technology can help computer network users improve the information security when using computer network technology. In the application of digital signature authentication technology The main purpose of discovering this technology is to verify that the information of the computer network user is the same as the original information. The main purpose is to use the information encryption and decryption method to verify and analyze the information of the computer network user to ensure that the computer network user is actually Information security in use is protected. From the analysis of the effect of applying digital signature authentication technology in China, we can find that there are two main ways of using it: the first one, private digital encryption; the second, supplying digital encryption.

In most cases, the use of digital encryption is used in the national tax industry or in other countries' public utilities. Digital signature authentication technology can ensure the security of these industries when using computer network technology, and quickly check the information of computer network users. The use of digital signature authentication technology can improve the information security of the national public industry, so that it can not be stolen by others, and can also improve the reliability of national information security in China. At the same time, there is another reason for the use of digital encryption in the public sector in many countries. With the development of science and technology, online payment has become one of the most common phenomena in China. Due to the increasing social pressure, many young people There is no time to go to the business hall for payment, which requires the use of computer network technology to complete the payment tasks that it needs. The emergence of mobile payment and online payment requires us to manage information security and prevent hackers from using network technology to steal information. In the current society, people use computer network technology to carry out daily life and work, and use computer network technology to conduct some finances. Trading, if information security is difficult to stabilize, will lead to a decline in the trust of computer network technology, and even lead to people not using computer network technology for information sharing and use. However, once the era of big data is difficult to disappear, in this era, the use and security management of network information must be done to ensure that people's property safety and information security can meet people's requirements. The use of digital signature authentication technology can also be used to set up the signature authentication system. The emergence of such a system can greatly improve the security of computer network users when using computer network technology, and directly improve the efficiency of many public industries in China when handling business. The use of signature security authentication system can ensure information security, help many public industries in China improve their work quality and work efficiency, and enable more and more people to apply computer network technology to facilitate their own lives.

### **3.3 Network Information Security Measures**

While applying data encryption technology to enhance the security of computer network technology information, it is also necessary for computer network users to recognize the importance of network information security. That is to say, all computer network users are required to do the following when applying computer network technology: The first point is to improve the awareness of information security of computer network technology. One of the reasons for the security problems of many computer network users applying computer network technology is that they do not realize the importance of information security. This means that they do not strictly follow the network usage requirements to regulate their own behavior, which gives a lot of The criminals can take advantage of the opportunity to steal information through the network. If the computer network

users themselves do not have the awareness of computer network technology information security, even if the computer management technology is continuously strengthened, it is difficult to ensure the security of information, and it is more difficult to ensure that information will not be stolen. It is precisely because there are many computer network users who have no network security awareness to invade the user's computer and steal information. Only the computer network users can use the computer network technology to implement the security work, and then the network can be ensured. The secure transmission of information truly reduces the chances and possibilities of information being stolen;

Secondly, as a computer network user needs to understand the computer virus properly, the only way to better manage the information when applying the data encryption technology, and quickly find the corresponding solution when the computer encounters a virus intrusion, and improve the information. Security management. Due to the diversification of computer network viruses in the process of their formation, computer network users need to constantly learn more about computer viruses, improve their awareness of computer viruses, and improve their own response to computer viruses. effectiveness. As a computer network user, you should learn a certain amount of computer theory before applying computer network technology. This method can ensure that computer network users can think about how to deal with the problem and improve the use of the computer in the first time when the computer has problems. The computer virus can be cleaned up quickly. Thirdly, the security management personnel who are the computer network technology need to continuously update the anti-virus software according to the virus in the market, and also need to apply the data encryption technology to the data encryption technology. Innovate to better improve the security of computer network users using computer network technology, improve the security of China's computer network technology operating environment, and ensure that it makes positive contributions to China's economic development and social development. Managers who are computer network technology environments must also raise their sense of responsibility and recognize the importance and practical significance of network information security for social development.

#### **4. Conclusion**

In summary, in the application of computer network technology, the use of data encryption technology can make the system program more perfect, while avoiding the emergence of network security problems as much as possible, ensuring that users can use computer network technology to ensure their information security. Let enterprises avoid interference from hackers, make enterprises' information application safe, promote healthy competition and virtuous circle of the market, improve the economic benefits of enterprises, and make positive contributions to China's national economy.

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