Analysis of Computer Network Security in the Age of Large Data

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Abstract. The arrival of the information age is driving the continuous development of our country's economy and the continuous transformation of our society. At present, the number of Internet users in our country is increasing rapidly. Smartphones and portable computers have become necessary for people to travel. In the era of big data, the problem of computer network security needs our attention. Technology is a double-edged sword. While bringing convenience to all of us, it also brings a lot of problems, such as telecom fraud, information leakage and other problems about network information security caused public discussion. Therefore, this paper analyzes the problems and solutions of computer network security in the era of large data.

1. Introduction

The era of big data makes people become close. Anyone can contact with each other through the network platform. By sharing resources, knowledge and news, work efficiency can be improved and communication between people can be greatly facilitated. At the same time, online shopping, online cinema, so that people can enjoy leisure without leaving the house. While we enjoy the great convenience brought by the Internet, we also need to pay attention to the safety of the Internet, especially some teenagers or those who just touch the society, if you don't pay attention, you will be in danger. So we must pay attention to the information security problem that appears in the Internet at present.

2. The Importance of Computer Network Information Security

People's daily life is more and more inseparable from the Internet, with the popularity of mobile Internet, mobile payment, mobile theater, mobile phone and other applications have become people cannot leave the body. If we don't pay attention to network information security, then our information will be made public, and our money and normal life will be disturbed¹. Nowadays, many people receive harassing phone calls, harassing text messages and some fraudulent information every day. If we don't control the information on the Internet, we may be fooled unconsciously. Many cyber hackers attack computers. Computer information leakage also exists in every corner of the society, so we must pay attention to the security of network information, only in this way can we ensure the continuous development of the economy and personal happiness and security. Figure 1 shows the public's awareness of the dangers of the virus in our country.
3. Problems in the Big Data Computer Network

3.1. Hackers Intrusion

The term "hacker" comes from abroad. With the advent of the era of big data, many individuals, enterprises and even national network systems will come from all over the world. It affects the information security of the current computer network. By both active and passive attacks, information in many computers can be leaked. At this time the information in the computer is no longer hidden, become what everyone can see, many hackers attack is to obtain greater economic benefits, will cause the network system to be paralyzed, affect the normal operation of individuals, enterprises and even the country.

3.2. There are loopholes in national laws

In the third information revolution, China's information development has shown fission development and exponential development, but although China's computer network development is fast, but still belongs to the emerging things, the state has no systematic legal provisions in this respect. There are still a lot of loopholes, many people for the great economic interests, desperate, while the law is right, punishment rules unknown, resulting in even if caught crime costs too low, will also affect the law's coercion and deterrence. Therefore, in order to maintain the health of the current computer information network, it is necessary to have relevant laws to support, at the same time, China's network supervision is not strong, managers do not have a strong sense of supervision, network information security maintenance technology and maintenance capacity is relatively backward will make it have bigger hidden trouble\(^2\).

3.3. Virus and Personal Operations

In the information age, network information is complex. many software have loopholes. Some network enterprises in the production of related software, but also ignored the work of network firewall and related information maintenance, it has its own loopholes, but also easy to let the virus invade. At the same time, the development of high-tech also makes the virus have been innovated and updated. The speed with which some viruses spread and the destruction of most of them is shocking, sometimes in a flash destroying the entire network system, threatening the stability of computer

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Figure 1 Knowledge of Virus Hazards

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- Partial data loss: 19%
- System failure to use: 19%
- The browser configuration being modified: 11%
- Network unavailable: 13%
- Use limitation: 17%
- Being controlled remotely: 19%
- All data loss: 8%
- Don’t know: 5%
network information security. At the same time, many netizens ignore the Internet information security, often click on some dangerous web pages, because of personal improper operation or error, in the relevant password design, with too simple password, it is easy to steal, personal information is also more likely to be leaked. At the same time, the awareness of network protection and crisis awareness is not strong, to the virus and information security thieves to take advantage of the opportunity. Figure 2 shows the proportion of computer virus types in China.

![Proportion of computer virus types](image)

**Figure 2** Proportion of computer virus types

4. The Specific Preventive Measures for the Problem of Computer Network Information Security

4.1. Strict Implementation of Firewall Work
In order to effectively solve the problem of network information security in our country, it is necessary to strictly implement the firewall work. Firewalls are an invisible network barrier that can effectively keep computer viruses and hackers away for thousands of miles. At the same time, the firewall itself has a strong ability to resist attacks, can filter unsafe pages through a variety of information ways, and can timely remind Internet users to click on dangerous links, can fundamentally ensure the security of computer systems. Many computer users will use some mobile devices, such as U-disk, CD-ROM and so on, if there is no effective anti-virus directly connected to the computer, the computer will be subjected to a cyber attack, this time must be scanned through the firewall, to ensure that external viruses are difficult to enter the computer network. At the same time, after the design of the original firewall, we must do a good job of data encryption, but also according to the current Internet of the latest virus and information danger to further add technology. Confronted with relevant important enterprises and national confidential documents, it is necessary to send ciphertext, so as to effectively avoid hacking attacks to ensure information security.

4.2. The State shall improve relevant laws
Firewall work can only be said to be the standard, to be the root, we must improve China's relevant laws and systems. For hackers, once the investigation and punishment must be increased, through the criminal law and other relevant laws to enhance the law of deterrence and deterrence, so that the
relevant personnel do not dare to network virus transmission. At the same time, relevant departments need to innovate ideas, keep pace with the times, according to the development of large data and network information problems to strengthen supervision\[4\]. Perfecting relevant legal policies provides the best barrier for the current network information security. At the same time, we should set up information security management center at the national level, implement 24-hour continuous supervision and management, timely control of hacker attack and virus attack, prejudge ahead of time, solve problems in time, and ensure information security in our country.

4.3. Actively carry out Trojan virus detection and effective defense
In order to meet the demand of computer network under the current big data background, we must carry on the innovation optimization to the original technology through the effective way. The Trojan horse and virus are detected in advance to avoid the danger of computing computer. At the same time, also to install related anti-virus software, such as 360, security guards, effective against viruses to detect and kill, to ensure that information is not leaked, reduce the impact on users. Through the overall optimization to make the environment between the network and the internal and external more peaceful, but also can improve the user's self-security awareness, avoid computer security risks, promote the current health and security of the network environment, optimize the overall level of network security.

5. Conclusion
To sum up, in the era of big data, we must realize the importance of computer network information, at the same time, we must analyze the existing problems and solve them pertinently. Personal information and state information are protected by implementing firewalls and improving relevant laws. Be careful to guard against information security problems caused by the network, especially for young people, the temptation of the computer is too big, a carelessness will be in prison. Individuals, enterprises and countries should exert their subjective initiative and take reasonable measures to avoid information leakage so as to ensure the green and sustainable development of China's Internet industry.

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