# Computer Security Issues and Legal Systems Based on Cloud Computing

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*Abstract: With the development of information technology in China, cloud computing technology has been universally used in the field of computer. The threshold of cloud computing gives rise to the possibility that the cost to utilize network information resources is reduced, endowing people with more extensive freedom of information, and thus civil and commercial activities are profoundly changed. The development of cloud computing has brought great impact on computer cyber security, and computer security has become a key issue required to be paid attention to in network development. We should draw lessons from foreign experience to formulate and perfect relevant laws and establish the mechanism of mutual cooperation and interaction between government functional departments. This paper summarizes the legal significance of cloud computing and puts forward the legal regulation strategy of computer security based on cloud computing.*

*Keywords: cloud computing, computer security, legal system*

## 1. Introduction

With the development of computer science and technology, network information technology has gained great popularity at a fast pace. Big data based processing is achieved by cloud computing technology after integrating network computer technology so as to provide users with a large number of network resources, as a result, computer users can enjoy massive information resources on the network. Cloud computing has become an important manifestation of scientific and technological progress in the new era, and cloud computing technology has been widely applied in many fields such as urban transportation. Security is the basic value orientation of rights theory. Besides, information security is an important support for building information society, which is an important interest protected by network law. The rise of cloud computing improves the reliability of information exchange and challenges the existing legal system of computer security. At present, there are many prominent problems in the legal governance of cyber security. Due to the technical defects of cloud computing, hackers violate the privacy of network users, leading to potential threats to computer security. With the increasing dependence of people's life on computer technology, it is necessary to further build a perfect cyber security legal guarantee system based on cloud computing in order to ensure the computer security under cloud computing.

## 2. Research on the legal significance of cloud computing

### 2.1. Concept of cloud computing technology

Cloud computing is an internet-based method of computing that is now used by 80 percent of the business of the global software giant Microsoft. The principle of cloud computing is to distribute data computing exchange on Internet computers, and the purpose of cloud computing is to provide computing information services to the public as a public facility. Currently, the understanding of cloud computing is constantly changing, and Baidu Encyclopedia explains that it is a product of the integration of grid computing and other traditional computers with the development of network technology. In the narrow sense, cloud computing is to build data centers through distributed computing to provide users with data storage and other services. In a broad sense, it refers to the establishment of network server clusters to provide users with different information services such as data storage[1].

After the agricultural and industrial civilization, human society has entered the information revolution tide in which new technology posed impact on the old production mode. The power of

purposeful assignment has shifted from traditional social resources to information resources. The rise of cloud computing enables the dominant status of information,which is penetrated into various aspects of modern politics, economy and culture. Supported by information transmission tools, the differentiation and reorganization of social organizations can be made based on information symbols and knowledge systems so as to construct an abstract world. Social structure differentiation and integration are controlled by abstract symbols of information center content. Modern society is a social system with space-time extension supported by information. The application of cloud computing technology improves the ability of human beings to disseminate information, exerting profound influence on activities in various fields of human society.

### 2.2. Influence of cloud computing development on law

The development of cloud computing has a huge impact on society and law, which is reflected in improving the performance of e-government governance, giving people extensive freedom of information, and profoundly changing human civil and commercial activities. After the popularization of consciousness in human freedom, the claim of freedom of information is put forward. Only when the freedom of information acquisition and dissemination is guaranteed in the information society can civil freedom be realized[2]. The era of cloud computing provides strong technical support for the freedom of information acquisition. Enterprises can query the information they need from the network database, and individual netizens' misinterpretation of the freedom of information leads to the emergence of absolute liberalism. A large number of pornographic and violent junk information flooded the Internet, the law must actively respond to the adverse network information analysis feedback.

### 3. Challenges of cloud computing to computer security

Computer security refers to the inviolable security of information storage, release, acquisition and other links. In the cloud computing environment, the scale of network information transmission has surged, and network information transmission is the process of information flowing to the subject of power through the network carrier. Security problems have become a difficult problem to be solved in the cloud computing era. In the era of cloud computing, computer security has cyber security management problems, and is faced with challenges such as the rampant invasion of user privacy by hackers and the destruction of network information resources by viruses.

### 3.1. Computer security in the era of cloud computing

With the development of computer era, in order to ensure the security of computer network technology, it is necessary to strengthen information security management to ensure cyber security. The ownership and management of user information & data resources are completely separated, resulting in greater application risks for users to access data information[3]. Under the background of cloud computing, virtualization becomes the main feature of network technology false information on computer network increases, Chinese laws failed to specify the punishment provisions for relevant illegal acts, and computer users lack the ability to distinguish information data, resulting in computer cyber security problems. Under the background that cloud computing virtualization become the main characteristics of the network technology, the user, through the computer technology, can analyze data in external virtual network, the network data information vulnerable to hackers, and other forms of external network intrusion attack, computer network data information being invaded can destroy the users' personal information, makes the computer network users suffer heavy loss, for the computer user data security hidden danger.

### 3.2. Security risks of computer network in cloud computing environment

Cloud computing brings great convenience to people and endangers the privacy security of enterprise users. In the cloud computing environment, computers become more dependent on the Internet, and the existing network technology fails to eradicate technical loopholes. Hackers exploit vulnerabilities in system security to break into computer systems, hackers use network technology to find defects in the software and hardware of cloud computing system. Modern hackers do this based on certain political and economic interests. The characteristics of hackers' infringement of network privacy under cloud computing are reflected in the expansion of object, intelligent infringement means and illegal disclosure of network private data[4]

Computer virus is a program inserted in the destruction of functional data, affecting the computer instruction code, containing computer virus program implanted in the network computer will spread quickly, destroy the normal use of the computer. Computer viruses pose a huge threat to the acquisition of network information. When users upload cloud server information, the virus will destroy the internal data structure of the service area and quickly spread to other user computer systems. Rampant hackers and the defects of cloud computing technology make computer security face great challenges. At present, cyber security technology fails to avoid hacker intrusion, making hackers become a difficult problem for network privacy protection.

Computer security, in the era of cloud computing, involves a series of problems such as the abuse of user supervision by service providers and supervision of supercomputing capacity. The development of cloud computing improves the degree of technologization of the information society, but the existence of computer security problems cannot guarantee the freedom of information of citizens[5]. Countries are actively exploring legislation to ensure computer security under cloud computing, such as the Cyber Criminal Convention of the European Union and the Communications Monitoring Power Act of the United Kingdom. In 2020, the Standing Committee of the 13th National People's Congress deliberated and passed the Data Security Law, which reflects the country's emphasis on non-traditional security and opens the first year of the law on data protection. The existing law has shortcomings such as too general important data and too light punishment for legal responsibility. It is suggested to implement dynamic data development, attach importance to classified data protection, and comprehensively improve national security.

## 4. Computer security legal system based on cloud computing

Computer security is an important support for the construction of information society. Cloud computing technology brings disadvantages of low security, and people face various security risks when transmitting information through the network. It is necessary to reconstruct the network social order in the era of cloud computing to ensure the public to exercise the right to know in a timely and effective manner[6]. The legal system of computer security includes the legislation and technical standards of information security management, preventing the behavior of destroying the order of network information resource circulation by regulating network information dissemination. To strengthen the legal system of computer Security in the Era of Cloud Computing, it is necessary to refine the legal provisions of cyber security based on cloud computing, strengthen the legislation of cyber security based on cloud computing, and promote the public's participation in the legislation of cyber security based on cloud computing.

### 4.1. Computer cyber security legal regulations in the context of cloud computing

Computer cyber security under the background of cloud computing requires legislative departments to improve the information security protection law and improve personal information security laws based on the legislative experience of neighboring countries. There is a close relationship between user information and personal life, and the public has an urgent demand for Internet supervision. Special legal protection regulations can achieve legal effect. The scope of personal information should be defined in legislation to protect privacy information and ensure the standardization of legal governance of Internet user personal information[7]. With the development of E-commerce technology in China, problems such as platform selling price fraud have become prominent. It is necessary to introduce relevant e-commerce protection law to protect the legitimate rights and interests of users. We will expand the scope of application for Internet users, clearly stipulate sales fraud and other activities, and severely punish illegal activities.

In 2017, China issued the *Cyber Security Law*, which provides for network operation environment protection and network service information security. However, the details of the law are broad and relevant provisions need to be improved. Relevant departments should update relevant laws according to the development of network information. For example, the legislation of real-name system is not standardized, and some network users cannot implement cyber security problems due to the lack of real-name system. Network users should establish a sense of network information cancellation, to avoid criminals to use network name information again. China should constantly improve the development of network information technology, provide legal support for cyber security issues, reduce the emergence of cyber security problems under the computer.

With the development of cloud computing technology, network technology is closely related to

people's lives. Relevant departments should improve legislation to guide the masses to participate in security legislation, integrate and screen the suggestions of the masses, develop normative documents with legal benefits, and promote the authority of cyber security legislation. Relevant departments should collect the opinions of the masses in the legislation of cyber security work and build a cyber security legislation and regulation system that serves the masses. At present, there are no clear provisions on personal information protection in China's laws, and Internet information service management measures do not clearly protect personal information from the source. The subject of personal information protection and punishment needs to be clarified

### *4.2. Perfect legal system of computer network information security under cloud computing*

In terms of informatization construction, developed countries have carried out active legislative practices for network information security. For example, the United States has formulated the "Federal Information Processing Security Standards"; the European Union has formulated the "Information Technology Security Evaluation Standards". Among the Internet information security legislation is the "Computer Anti-Fraud and Abuse Act", and Japan has formulated the "Personal Information Protection Related Act". In 1997, China established the Sub-Technical Committee on Information Technology Security. China attaches great importance to the legislation of network information security in the era of cloud computing, and formulated a number of relevant laws such as electronic Signature Law and Telecommunication service standards.

With the development of cloud computing and other information technologies, the existing legislation has gradually exposed the shortcomings of the lack of clear provisions on the concept of network information security, the repetition of legislative content, and the low rank of most relevant legislation laws. The technical standards of network information security in the era of cloud computing can ensure information security, and the legislation on network information security can be made to adjust the legal relations involving information security to eliminate the negative impact of network information technology characteristics on the society. It is necessary to speed up the introduction of more detailed and operable laws and regulations on network information security, and establish a mechanism for coordination and interaction between various functional departments. CPPCC national Committee members proposed to speed up the formulation of information security law, should clarify the definition of network information security, provision of electronic government information disclosure and social public related financial transportation and other public network information protection. It focuses on the obligations of Internet service providers in information security. Network information security legislation should be in the framework of the current constitutional system, the current relevant legislation in China should be cleaned up in time, enhance the coordination of legislation to avoid blind randomness.

### 5. Conclusion

Against the backdrop of cloud computing and to promote the sound and perfect legal governance system, relevant departments should in-depth analysis of computer cyber security problems, effectively carry out computer cyber security work, make it clear the imperative of legal governance work for computer cyber security. We should strengthen the cyber security legislation, and guide the masses to participate in the cyber security legislation, promote the development of our country and the perfection of legal system of network society. Besides, advanced excellent legal regulations should be actively introduced, and a strong protection wall system should be developed for cyber security. Big data based information management has been strengthened, and various network means have been adopted from various angles to achieve the safe and stable development of computer technology and network technology, and to strengthen the development of network information protection technology.

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