How to Safely and Efficiently Perform Big Data Computer Information Processing

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Abstract: In the era of big data, to ensure information security and avoid information leakage, it is necessary to fully handle computer information security. We should focus on improving computer hardware and software equipment, in order to improve network virus defense systems, and continuously improve data collection technology, communication technology, storage technology and security management technology. This article will systematically discuss how to safely and efficiently perform big data computer information processing and present personal insights.

1. Introduction
In the 21st century, the world has entered the era of big data, and computer information processing technology has been widely used in all walks of life, thus effectively promoting the good development of various industries. However, network system vulnerabilities and various network viruses also pose a risk to the data information. To ensure the security of data information, it is necessary to comprehensively improve the security quality of computer network systems, continuously optimize the data network structure, improve the networking mode, and enhance the boundary to protect and improve the network virus defense system. This article will briefly introduce the basic definition of big data, systematically discuss the security risks faced by big data computer information processing, and how to safely and efficiently perform big data computer information processing layer by layer.

2. Basic Definition of Big Data
From a narrow perspective, big data technology is the product of the information age, which can effectively improve information processing efficiency, expand information storage, and collect, integrate and analyze multiple information. For the time being, big data computer information processing technology has been widely used in various industries such as Chinese cultural education industry, industry, agriculture and commerce, and has achieved good application results. Moreover, big data computer information processing technology integrates various resources such as text, pictures, video, audio, etc., which can facilitate the nationals to obtain the required information in a short time, and effectively promote information dissemination and sharing. Secondly, for the moment, the most widely used computer network technology industry is in the field of information management. The industry mainly uses computer network technology platform to complete various information integration, management, production and processing businesses. Big data network computer information processing technology can effectively sort and summarize the complex data information, so as to improve work efficiency. Thirdly, big data network technology functions are reflected in many aspects, showing different application advantages in different industries. For the modern enterprise management work, the use of big data network computer processing technology can effectively realize resource sharing, assist enterprises to organize various resource allocation work, and improve the

efficiency of information collection and investigation. For the field of scientific research, the value of computer network technology is particularly significant. The development of contemporary science is inseparable from computer network technology. In the fields of medicine, biology, architecture, physics, etc., it is necessary to use computer to complete information management. Data computing and resource sharing work. In addition, the use of big data network technology in the field of engineering construction can assist managers to develop the most complete management plan, thus comprehensively strengthening the project construction.

3. Security Risks Faced by Big Data Computer Information Processing Work

3.1 A Loophole in Computer Network System
From the macro level, there are still loopholes that cannot be ignored in current computer network systems. In the process of transmission, computer information sometimes lacks stability due to network speed problems, which inevitably leads to information theft. Secondly, the secure connection between the computer application layer and the information transmission layer needs to be strengthened, and it is easy to breed various security risk factors.

3.2 Network Virus is Seriously Harmful
At present, many vocational colleges have broken through the IP and WLAN planning of the campus network, and realized integrated authentication management, which has brought challenges to the campus network security management to a large extent. Despite this, there are still website tampering, Trojan virus, data theft and ransomware in campus network management, which are mainly spread in the form of programs, emails, and web pages. The cracking of such viruses requires decryption of private keys, which is harmful to the campus network. Once the campus network was infected, it will cause serious damage.

4. How to Safely and Efficiently Perform Big Data Computer Information Processing

4.1 Improve the Security Quality of Computer Network Systems
Safe and efficient data processing operations for big data computers must first focus on improving the security quality of computer network systems to ensure the security and stability of computer information transmission and storage, designing security management solutions based on network operation conditions, and minimizing data information risks. Secondly, while improving the security quality of computer network systems, we should focus on strengthening computer information processing capabilities, optimizing judgment and differentiation functions, and setting up secure sockets for computer application layer and information transmission layer to build a secure and reliable network environment. In addition, physical means and logic should be taken to eliminate risk factors in time, to avoid leakage of data information during transmission, and to ensure the safe operation of computer systems [1].

4.2 Optimize Data Network Structure
With the continuous development of big data technology, China's network structure has evolved from a wired network to a wireless network, and then it has become a form of wireless network occupying the main position. Under the situation that the use of domestic network services is gradually expanding, to meet the screening, transmission, integration, analysis and secure storage of massive data information. Network management personnel should continuously sort out and integrate network services, comprehensively optimize the data network structure, and organize the partitioned websites, establish a unified website management platform. Secondly, all industries should establish a big data sharing platform to reduce the risk of separate data collection. We should establish a professional network security management team, and then carry out data security collection, storage, analysis and maintenance by professionals, and refine the data network structural layer. At present, from the

perspective of the overall structure, the data network structure layer is mainly divided into three layers, namely the data display layer, the data analysis layer and the data integration layer [2], and the first figure is the data network structure layer simulation map.
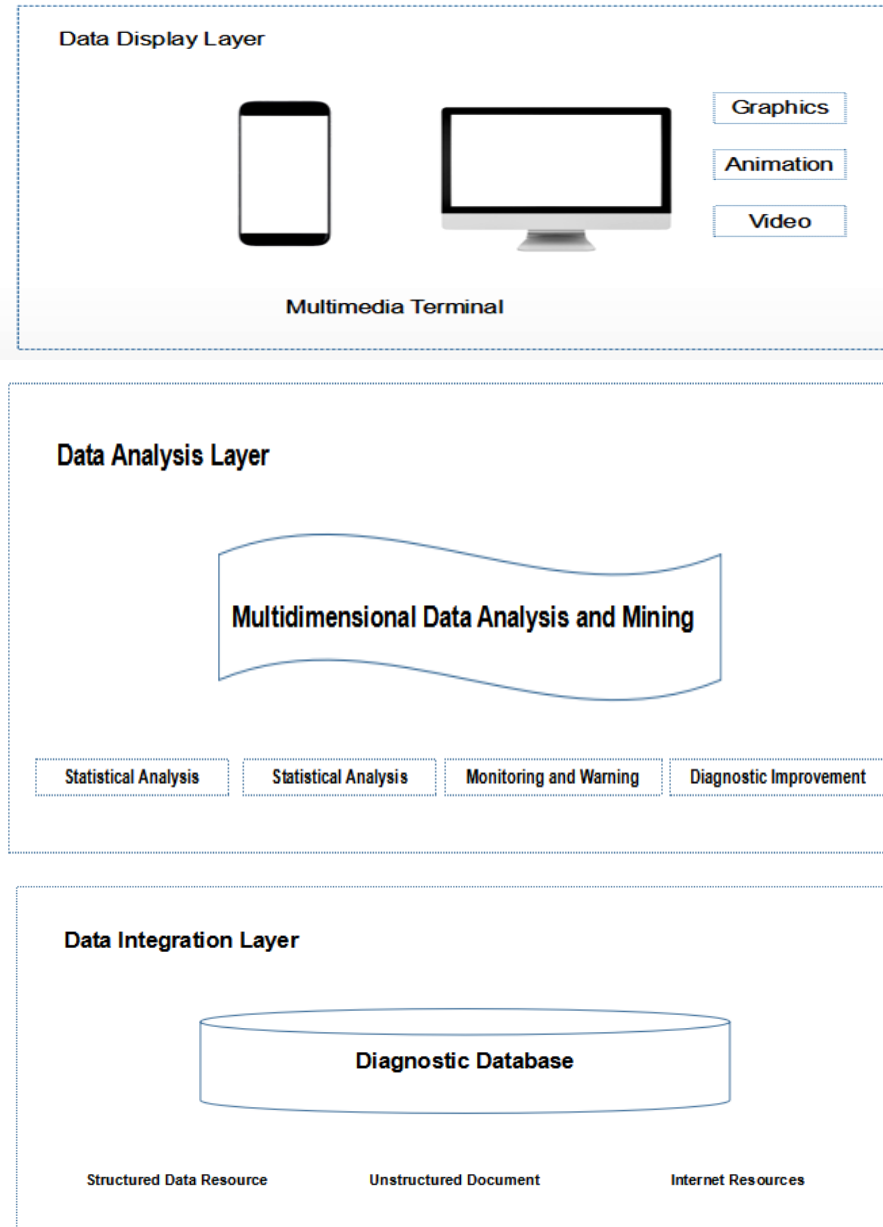
Figure 1 Data Network Structure Layer Simulation Diagram

It can be seen from Figure 1 that the data display layer can use multimedia terminals to facilitate the connection of computers and mobile phones, U disk, MP3, MP5 and other multimedia appliances, providing graphics, animation, video and other information; the data analysis layer is mainly used to analyze and mine multidimensional data. At the same time, we should do statistical analysis of data, implement safety monitoring and early warning, and make diagnosis and improvement. Data integration layer can diagnose data, integrate structured data resources, Internet resources and unstructured documents, and secure all data information storage work.

Thirdly, network security administrators can use cloud computing technology to optimize secure network storage devices, form network processing "clouds", reduce the number of storage devices and

server purchases. We need to build cloud computing platforms with virtual technologies, and achieve efficient deployment of network resources to ensure the data security defense and information processing capabilities. At the same time, cloud computing can also improve data contribution, prevent duplication, improve information accuracy, and use cloud computing to form service sites, develop targeted service content, and provide a distinctive secure network construction model.

On the other hand, to optimize the campus network structure, it is necessary to set up a supporting structure management system according to the scale of the computer network system service. And transform the organizational structure of the "access-aggregation-core" of data information activities into a flat management structure system. The second figure is the data network flat management structure diagram.
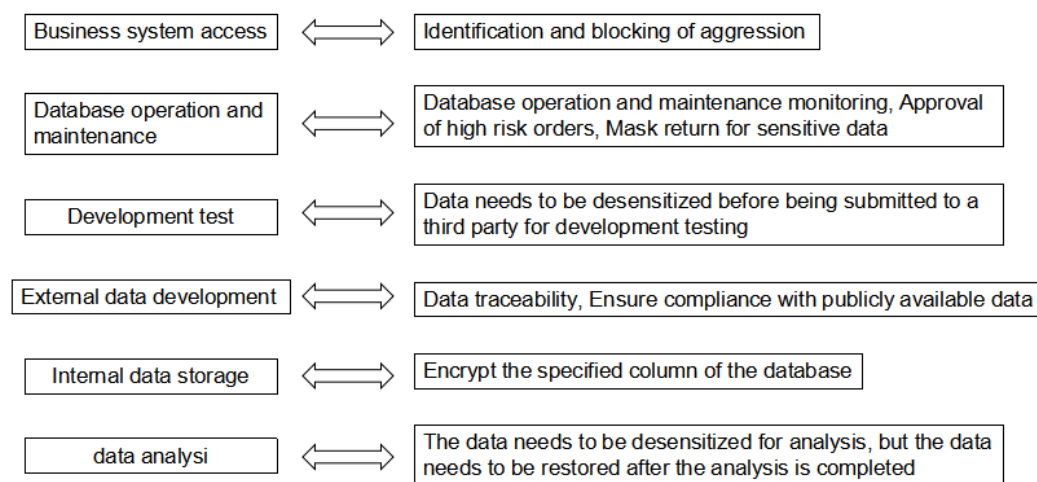

Figure 2 Data Network Flat Management Structure

It should be noted that the flattened structure does not require a reduction at the physical level, but rather distinguishes the bearer functions of the local area network devices in various industries. The logic of the network can be organized into a wide access layer and a service control management layer. At the same time, broadband access is composed of access and aggregation devices. It is only a function of providing high-bandwidth functions for the industry management and WLAN Layer 2 isolation between them. The service control is mainly composed of the core layer and is provided for all staff, user control and other business function management [3]. In addition, the purpose of flat network management is to achieve refined network security management requirements and improve the convenience of the network platform. At the same time, in the process of flat management of data networks, the real-name authentication and IP management of LANs in various industries are more precise. The waste of IP addresses is reduced, which provides a lot of convenience for IPv6 deployment to a large extent.

4.3 Improve Networking Mode

In the era of big data, the secure transmission networking mode is mainly divided into three types: the first one is the C-RAN centralized construction mode, which is mainly used in the network deployment of integrated service departments and common equipment buildings. Between 10 and 60. The second type is the C-RAN small-scale centralized deployment mode, which is to deploy CU/DU for the integrated service station and the access point equipment room, and use the trunk cable ring and the B equipment to form a ring. The base stations connected are 5 to 10. The third is the D-RAN construction mode, which mainly deploys CU/DU hierarchically for the macro station room, and the number of base stations connected is 1 to 3. In addition, in the process of deploying 5G base stations,

different factors such as the space size of the equipment room, pipeline resources, power supply air conditioners and fiber resources should be considered comprehensively. And the best deployment mode should be selected according to the local conditions and guidelines [4]. At the same time, we should give full play to the professional and interactive advantages of data network systems, develop more advanced network software. Besides, we should strengthen the security information network transmission management, and provide strong technical support for improving the clarity, for each component. If we optimize all of these, the quality of data information can be securely received, transmitted and stored, and information can be stolen.

4.4 Enhanced Network Perimeter Protection
At present, the local area network of each industry is divided into two parts: internal and external. The internal business is mainly provided by internal users of the industry, such as financial system, accounting system, DHCP service, personnel system and DNS service, etc. The scope is relatively wide, and the business is more complicated. Therefore, it is necessary to set the permission of the external network to prohibit access in the export firewall, such as the mail system and website access, which helps to enhance the network boundary protection capability. Secondly, LAN management needs to set up strict system vulnerability scanning, kill it in time, and repair the possible risks of the network running, so that the firewall can open the corresponding external network access port. Under normal circumstances, hackers mainly come from the external network, so you need to be extra cautious when setting permissions. Thirdly, the safe and efficient work of big data computer information processing must make full use of security equipment or service equipment (such as auditing system, scanner, IPS, bastion machine, VPN, WAF, etc.) to provide necessary protection for external services. At the same time, you should pay attention to the regular upgrade of network security. According to the survey, the current domestic data network security level protection system has moved from the 1.0 era to the 2.0 era. The grading system has also expanded from the information system to the basic information network and other network systems, and once again refined into the Internet of Things, cloud computing, big data and other platforms. In addition, the 2.0 system also expands the scope of protection, and has developed security network requirements, assessment guidelines and implementation plans, which are conducive to the security of local area networks.

4.5 Sound Network Virus Defense System
To improve the data network virus defense system, we must focus on strengthening the construction of computer software and hardware, research and development of the most advanced anti-virus software. Thus can comprehensively optimize the practical functions of anti-virus software, continuously improve the anti-virus effect of software, and regularly check and kill various viruses. In addition, not only must do a good job in virus killing, but also pay attention to strengthening the virus defense capabilities of computer network systems, and do a good job in network security monitoring to prevent virus intrusion. On the other hand, the staff needs to encrypt the important data information, set the security password, and avoid the virus stealing data information. In the process of setting passwords, we should focus on breaking the password setting in the traditional mode. While collecting and transmitting information, we also need to encrypt, scientifically set access rights for data information, and prohibit illegal access [5].

5. Conclusion
In summary, efficient data processing of big data computers to ensure the security of data information, staff must pay attention to improve the security quality of computer network systems to ensure the security and stability of computer information transmission and storage. Combined with network operation design safety management plan, strive to reduce data information risk index, we can correctly adopt physical means and logic to eliminate risk factors in time. Comprehensively optimize data network structure, organize partitioned websites, establish a unified website management platform, and set up supporting services according to computer network system service scale structure

management system. We need to give full play to the professional and interactive advantages of data network systems, vigorously strengthen the security information network transmission management, improve the security networking mode. It also can continuously enhance the network boundary protection capabilities, and build a complete network virus defense system.

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