Optimization Design Of Computer Information Processing System Based on Big Data Vision

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Abstract. With the development of computer technology and network technology, electronic technology has entered the information age. In the information age, the generation of a large number of data promotes the transformation of production and life style, and then brings human society into the era of big data. By analyzing the development of information processing system in the era of big data, this paper puts forward the core elements of information processing system and the optimization method of computer information system in the view of big data, aiming to strengthen the effective combination of big data technology and computer information system, and provide theoretical reference for related research.

Key words: Big Data, Computer, Information Processing Technology, Optimal Design

1. Introduction

Various types of computer technology promote the crazy growth of data in the form of index. Big data information processing technology has gradually become an important strategic resource, and is also gradually innovating the modern production and life style. In the rapid development of big data, data information processing and statistical analysis become the key production factors. In the face of the information challenges brought by the background of big data, computer information processing technology needs to constantly improve itself, and then develop and utilize massive resource data, and on this basis, build a more transparent and large-scale information processing method to be solved.

2. Understanding of big data and information processing technology

2.1. Big data environment

Big data is a visual description of the massive data collection in the information age. Big data is based on the massive data, network and computer science and technology to realize the function of intelligent analysis and decision-making. In the face of the expanding and complex information resources, through the high-speed data collection, processing and analysis, and then extract valuable decision-making information, has a huge guiding role for production and life. With the further development of computer technology, the source and scale of big data are also improving. Traditional information processing technology can not meet the needs of faster and more efficient data processing.
In order to effectively guide people's decision-making, it is the essential content of big data to quickly collect, store, analyze and summarize useful data in massive data\(^1\).

2.2. **Computer information processing technology**

Computer information processing technology integrates the application technology of microelectronic network, remote sensing and other key technologies. It collects, analyzes, applies and transmits information data through technology accumulation. Generally, computer information processing technology can be divided into information retrieval technology, system data processing technology, communication network technology, and the most widely used database technology. Many kinds of database technology show high application value in the universality of practical application, which can effectively improve the office efficiency and information processing ability. The information processing technology under the background of big data mainly includes the following aspects: first, fast data collection and dissemination technology; second, efficient information storage technology; third, information security technology. These three aspects are respectively related to information collection, storage and information security, which are in line with the application characteristics of the era of big data\(^2\).

3. **The development of information processing system in the era of big data**

In the era of big data, computer information processing system mainly includes three aspects: first, data collection. Data collection is responsible for the collection, classification, preliminary analysis and processing of big data as well as the identification of data value. There are a series of challenges in data acquisition of computer information processing system. With the increasing scale and complexity of big data, the workload of data collection and processing is increasing geometrically. With the support of existing algorithms, the computer hardware operation function can not meet the needs of big data collection and classification processing in the new era. Second, information storage. The information storage part is responsible for the storage of the preliminary and final processing information in the computer information processing system, and provides support for the next step of transmission and sharing applications. In the era of big data, the storage part of computer information processing system, not only stores text data, but also all kinds of audio data, video data, file data, etc., need to be properly preserved. However, in the era of big data, the information storage is complex and large-scale, which brings great pressure to the existing technology development. Third, information security technology. The information security technology in the computer information processing system is a necessary part. In the era of big data, the relevance between information data is stronger. If there is a problem in the local data, it will impact the whole data structure and bring a huge threat. In this way, the huge and complex big data will make the information security unable to realize the protection of all data\(^3\).

4. **The core of information processing system in the view of big data**

4.1. **Information data security**

It is of great significance to master and understand the core of information processing system from the perspective of big data for promoting the improvement and optimization of information system. It has been proved that information security technology is the core part of information processing system in the era of big data. The dependence of production and life on information data makes people pay more and more attention to data security. In order to better protect the information data security, it is of great significance to improve the security mechanism in the computer information security system. In the current development of the traditional information processing system, the security technology is far from meeting the needs of the masses. How to optimize the information security is an important aspect at present.

4.2. **Big data storage**
If we want to better adapt to the data blowout development in the era of big data, we need to properly realize the big data storage technology. Big data storage is different from the traditional data storage technology in chain storage and linear storage. The components of big data have strong correlation, complexity, dispersion and other characteristics, which makes linear storage and chain storage not completely suitable for big data storage, and will cause great efficiency waste. It is very important to study new algorithms to adapt to big data storage and improve the ability of big data storage.

4.3. Data analysis and transmission

Processing and processing data is a very important step in computer information processing, but in the face of massive data information, how to extract key and useful information from it and process it into decision information support is of great significance. Under the condition of insufficient algorithm support, big data analysis algorithm should be continuously improved, including comprehensive analysis algorithm and basic algorithm. In addition, the computing platform of big data also needs to be further optimized, including parallel computing platform and parallel computing mode. The analysis and processing of big data and the transmission of big data need to sort out big data as a whole. How to improve the efficiency of this process is of great significance for big data information processing.

5. Optimization method of computer information system in the view of big data

5.1. Integrating cloud computing technology

Cloud computing technology and big data technology are both computer network technologies in the new era, and they gradually appear complementary relationship in the development process. Under the development of the times, computer network constantly carries out self innovation and reform, but the traditional hardware development limits the processing demand of a large number of data, limits the traditional computer information processing ability, and affects the solution of the problem. The application of cloud computing technology to computer information processing system can effectively improve the overall computing efficiency and storage capacity of computer information processing system. Through the in-depth application of distributed algorithm, it can effectively improve the actual efficiency of cloud computing technology. In the process of building cloud computing network, it provides more space for big data and data storage, and effectively improves computer information. Speed and efficiency of processing. The integration of cloud computing technology can effectively improve the problems of data transmission under traditional big data, and promote the further development of big data technology.

5.2. Optimization of information security technology

The computer information processing system in the view of big data is to connect all data systems together with the help of network, so as to realize data sharing and calculation. However, this open design makes more and more information security risks appear in the network. Many lawbreakers obtain some trade secret information through data information analysis and behavior research in the network, and then they will threaten the personal interests of users and businesses. In the era of big data, data information security needs to prevent illegal behaviors of network data analysis and processing, and effectively improve the security of big data information. However, the computer information security system in the perspective of big data can not only be a single terminal protection or data protection, but also be promoted to the stage of network protection. The combination of information security algorithms will play an important role in this process.

5.3. Deep network data perception

Deep network data perception is a technology to perceive, analyze and research the endless digital information in the deep space of the network. The size of deep network is about 40-450 times of the Internet. Whether it is data composition or data analysis method, it is quite different from the general
Internet. Therefore, it is also necessary to access in a special way, and in the deep network, any behavior will not leave traces, and it is difficult to determine the final access path. In the view of big data, deep network analysis enables the computer information processing system fusion to achieve the integration of high-quality data and the extraction and integration of information data, which promotes the enhancement of computer information system functions, which has a huge impact.

5.4. Optimization of data index technology
Non relational database is a new database based on big data, which advocates parallel storage of non relational data information. This way to a large extent stimulates the carrying capacity of data information, and non relational database is not a simple database type, but through the optimization of data structure to form a more effective storage scheme. Its key technology can support the real-time docking effect of data index. The distributed storage system designed by Google before is also based on the design concept of non relational database as the prototype. From the perspective of practical application, the mass storage function is the main feature of non relational database, and has a more prominent adaptability, scalability, and high performance of data information processing. It has high application value for the continuous optimization of data storage function. This method effectively realizes the optimization of data storage method in computer information system.

6. Conclusion
The computer information processing system from the perspective of big data has changed greatly in many aspects. The basic reason for the change is that the traditional computer information processing system can not adapt to the large-scale and complex types of big data processing and storage. Based on the overall understanding of the current situation of the development of computer information processing system, and based on the challenges it faces, we can further analyze and explore the optimization methods of the future computer information processing system. Among them, cloud computing technology, distributed algorithm, deep network data perception, data index technology optimization, etc. can provide huge support for the improvement of computer information system, make it better adapt to the computer information processing in the view of big data, and make big data provide more comprehensive support for production in the new era.

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