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The Opportunity and Development of Computer Information Processing Technology in the Age of Big Data

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Abstract: Researching the opportunities and development of computer information processing technology in the context of big data era is the key to ensuring that such technologies can meet the development needs of the industry and avoid being eliminated. Firstly, this paper will briefly introduce the concept of big data and computer information processing technology, and then the opportunities and challenges faced by computer information processing technology in the era of big data are analyzed. The last part mainly combines these contents to propose the future development of computer processing technology.

1. Introduction

Under the background of the increasing degree of social information in China, the concept of big data is no longer unfamiliar to people and has been applied in many fields. For the problems discussed in this article, in the era of big data new requirements are put forward for computer information processing technology. Such technologies must be able to complete the processing of massive data in a short time, and ensure the security and accuracy of data [1], while traditional computer information processing technology can not meet such a request. In the era of big data, the data structure will be more complicated, and there are more links involved in the storage and application of data, and more security issues need to be faced. In this context, if computer information processing technology can not adapt to such development needs, then it is likely to face the dilemma of being eliminated. On the other hand, the continuous development of big data has brought new development opportunities for computer information processing technology. In order to better adapt to the needs of big data processing, computer information processing technology must be improved on the basis of the original. Combining the above two points, this article will discuss in depth the main development direction of computer information processing technology in the future under the era of big data.

2. Brief Description of Basic Concepts

2.1. Big Data

By definition, big data is essentially a large data set with large data types. This data set cannot be captured, managed or processed by traditional database tools [2]. The characteristics of big data mainly include the following contents: ① Large volume. Combined with the existing data, the size of big data has reached the PB level. ② The data category is large. This is mainly due to the continuous development and wide-ranging popularity of smart terminals. The data sources are increasing, the types of data and various types are becoming more and more abundant, and the traditional structured



data categories cannot handle these data.③Data processing speed is fast. The data can be processed in real time even in the case of a large amount of data. This is also the key to the rapid development of big data itself and its recognition in the industry. ④The data is highly authentic. Big data is mainly derived from various types of information generated during the user's actual operation. The authenticity can be better protected, and the authenticity of the data is the key to ensuring the scientific and rational decision-making of the enterprise. Combined with the status quo, big data can play a role in disease treatment and prevention, natural disaster prediction, crime prevention, etc. [3] Therefore, research on the development of computer information processing technology in the context of big data era is very Necessary.

2.2. Computer Information Processing Technology

Combined with the definition of computer information processing technology, such technology mainly includes the following parts: 1. Data collection and dissemination. This process mainly includes the steps of searching, collecting, sorting and analyzing the target data, and then sending the classified data to the database on this basis. For the big data discussed in this article, the collection and dissemination of data is the basis for supporting the effective application of big data. 2. Information storage. Computer storage capacity determines its ability to process data. Combined with the characteristics of big data, computer information processing technology must be able to meet the storage requirements of big data in data volume. 3. Information security. Network information and various types of data do not exist separately. There is a certain relationship between information and information, and between data and data. Information security technology is the key to ensuring that users' privacy is not infringed and corporate information will not be leaked. It is also one of the main contents of computer information processing technology [4]. Combined with the above content, because of the increasing amount of data and the increasing complexity of data sources, big data naturally puts forward higher security requirements for computer information processing technology.

3. Opportunities and Challenges Faced by Computer Information Processing Technology in the Background of Big Data Era

3.1. Computer Information Processing Technology Should Be Able to Cope With the Pressure of Massive Data Information

As mentioned above, the larger data size is the main feature of big data. For this feature, computer information processing technology must be able to collect, analyze and process massive data information. In order to meet such requirements, in addition to sufficient storage space, data transmission technology, compression technology, etc. must also be improved on the basis of the original. At present, computer information processing technology is still difficult to cope with the rapid development of big data itself, and the application of data mining, cloud computing and other technologies is also in its infancy.

3.2. Computer Information Processing Technology Should Be Able to Guarantee Network Information Security in The Era of Big Data

More complex data structures and data processing steps will lead to continuous reduction of information security. In order to ensure that network information security will not be affected by the introduction of big data, relevant technical personnel should be able to secure computer information on the basis of the original. Management work attaches importance to avoiding the invasion of big data by hackers or viruses, and even leading to information leakage or loss [5]. In order to meet such development needs, the network environment monitoring and other work involved in computer information processing technology should be able to improve the characteristics of big data, and minimize the attacks by criminals against big data.

3.3. Computer Information Processing Technology Should Meet The Requirements of Big Data for Information Processing Capabilities

As mentioned above, real-time processing for massive data is the key to ensuring that big data can perform its intended function. For such requirements, computer information processing technology must be able to meet the increasing demands of information processing capabilities. The process quickly extracts valuable data and performs subsequent processing and transmission work safely and quickly. Only in this way can the information be maximized to the expected effect and the value of the information itself can be effectively reflected.

3.4. Relevant Professionals Should Continuously Improve Their Understanding of Big Data Concepts and Related Technologies

Combined with the above content, big data puts forward new requirements for the processing speed and processing ability of computer information processing technology, and in order to meet such requirements, the participation of a large number of professionals is indispensable. This part of the staff must thoroughly understand and master the big data concept and related technologies, and combine the most cutting-edge research results in this field to determine the future development direction of computer information processing technology, and ensure that such technologies can be effectively combined with big data.

4. Computer Information Processing Technology in the Age of Big Data

4.1. Information Collection Technology

In the era of big data, information collection technology should meet the following requirements in two aspects: 1. Quality of information collection. The quality of information collection is the basis for the follow-up work. In order to meet the requirements in this aspect, relevant technicians must pay attention to the possible bad situations in the information collection process and prevent these situations. 2. Information collection speed. In the future development process, the types and sources of information will inevitably become more and more, and the collection speed corresponding to different information will also be different due to the information format. For such a situation, computer information collection technology must be able to meet the requirements in the acquisition speed [6].

4.2. Information Storage Technology

In the context of the era of big data, the information that computers need to process, in addition to text, also contains video, pictures and other content, and if you still use general storage technology to complete information storage, then it is very likely Completely store all information or waste of resources. In order to avoid this kind of situation, information storage technology should be able to improve in the following aspects: 1. Emphasis on the application of cloud computing and related technologies. The traditional information storage can only be done by means of a computer, and the storage space of the computer is very limited. With the help of cloud computing concepts and related technologies, this problem can be effectively solved. At the same time, information processing capabilities can be greatly improved with the help of cloud computing, and thus better meet the development needs of the era of big data. 2. Emphasis on the application of distributed information storage mode. The distributed storage mode can effectively solve the problems of the inability to process massive data and insufficient processing speed in the traditional information storage mode. On the other hand, with the aid of the distributed information storage mode, the data reading speed can also be based on the original information. There has been a significant increase.

4.3. Information Security Technology

Combined with the characteristics of big data itself, the application of big data concept in different fields will inevitably bring certain security problems. For the problems discussed in this paper,

computer information processing technology must meet the requirements in terms of security. Relevant researchers should start from the following aspects to ensure that the development of information security technology can meet the needs of big data applications: ①Build a sound computer information security system. This system should be able to effectively monitor and prevent hackers or virus attacks against big data, and use this system to minimize the impact of such problems. ②Encourage technical personnel to participate in the development of safety technology products. The rapid development of big data has caused traditional security products to fail to meet the needs of existing applications. Therefore, relevant units should further encourage technical personnel to participate in the research and development of security products, and combine R&D with existing data applications to ensure various types of data. Security and authenticity.

4.4. Network Deep Technology

This technology can process a large amount of data information, and can change with dynamic changes, and has strong distribution and particularity. Combined with these characteristics, through the application of this technology, the information in the network will be effectively perceived and acquired, and on this basis, different kinds of data are merged together to facilitate data extraction and integration. Combined with the characteristics of big data itself, the rapid processing of data of different types and different sources is the main problem that needs to be solved in the actual application process of big data. With the help of deep network technology, big data can naturally play better expectations. The role and guarantee the speed of data processing can meet the requirements of users. Therefore, in the future development process, relevant researchers must be able to study the deep technology of the network as the key content of computer information processing technology, in order to guarantee the technology. Development can be synchronized with the rapid development of big data.

5. The Future Development Direction of Computer Information Processing Technology

5.1. Open Development

The role of big data lies in the process of data collection and transmission. For this, if the computer system is too closed, the role that big data can play will naturally be limited. In this regard, computer information processing technology will naturally continue to develop toward openness. In order to meet the needs of data sharing, it is unrealistic to rely solely on computers to complete related work. With the help of Internet technology, big data will be able to obtain more and wider information and complete on this basis. In this context, the value contained in the data information will be more effectively developed, and ultimately, the protection of big data and computer information processing technology can better meet the needs of users on the original basis.

5.2. Cloud Computing Applications Continue to Expand

Combined with the above, cloud computing and big data actually complement each other. In the subsequent development process, both big data and cloud computing belong to data storage and processing services, which require a large amount of storage and computing resources. In the context of increasing data volume and increasing data complexity, there may be two performance bottlenecks. In order to cope with such a situation, due to the characteristics and advantages of cloud computing itself, such as flexible scaling, dynamic provisioning, and resource virtualization, by combining big data with cloud computing, the two will maximize their advantages. Better meet user needs and bring higher business value. In other words, the computer information processing technology corresponding to big data necessarily needs the support of cloud computing, and this feature will be more obvious in the future.

5.3. Integration With Network Technology is Deeper

The development of big data itself is inseparable from network technology. For computer information

processing technology, such technology must strengthen the integration depth with network technology in the future development process, and then strengthen the application of network data information. Processing power, auxiliary information processing and network technology are integrated with each other.

6. Conclusion

In summary, based on the introduction of the concept of big data and computer information processing technology, this paper first analyzes the challenges and opportunities faced by computer information processing technology in the context of big data era, and focuses on computer information processing. The main development direction of technology in the future has been discussed in depth. In the subsequent development process, relevant personnel must be able to combine computer data processing technology with the characteristics of big data, and fully combine such technologies with cloud computing, openness and other concepts to ensure the practical application of such technologies. The process can be consistent with the characteristics of big data, and assist in the continuous development of such technologies.

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References:

- [1] Liu Yiqing. The beginning of computer information processing technology and application in the era of big data [J]. Communication World, 2019, 26 (01).
- [2] Bai Xiao. Research on Computer Information Processing Technology under the Background of Big Data Era[J]. Information and Computer (Theoretical Edition), 2018(24).
- [3] Li Xiangzhong. Talking about Computer Information Security Processing Technology under the Background of Big Data[J].Information Technology and Informatization,2018(12).
- [4] Jing Yiran. "Big Data + Computer" is a strong team or a hidden crisis? - Take information processing technology as an example [J]. China New Communications, 2018 (23).
- [5] Zeng Rongjuan. The development direction of computer information technology and its application [J]. Sichuan Cement, 2018 (11).
- [6] Feng Haohai. Analysis and development of computer intelligent information processing technology [J]. Computer Knowledge and Technology, 2018, 14 (31).