Research on Key Technology of Software Engineering for Big Data Technology

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Abstract: Software engineering is a technology based on the development of computers, which can effectively promote the development of modern information technology and bring a lot of convenience to People's Daily life and work. Strengthening the development of key technology of software engineering can promote its effective application to a certain extent, and further play its role in people's production and life. Based on this, this paper studies the key technologies of software engineering oriented to big data technology. Firstly, it briefly summarizes the relevant contents of big data and software engineering, then analyzes the types of key technologies of software engineering oriented to big data technology, and finally puts forward the optimization measures of key technologies of software engineering oriented to big data technology. It is hoped that this article can provide some reference for relevant practitioners.

Keywords: Big data; Software engineering; Key technology

In the process of rapid development of modern science and technology, big data technology is widely used in various fields. The use of big data technology can effectively solve the problems in data transmission, collection and other aspects, and do a good job in data mining and analysis, give full play to the role of data, and provide technical support for the future development of software engineering. However, there are still many shortcomings in the application of big data technology in software engineering, which requires relevant technical personnel to strengthen the development of key software engineering technologies oriented to big data technology, so as to promote the effective application of big data technology in software engineering. The following author will elaborate on the relevant content.

1. Big Data and Software Engineering

In the process of the rapid development of the Internet, the growth of information on a global scale has shown explosive characteristics, data information contains obvious value, and big data technology is to analyze and mine this part of data, so as to use the immediate value to create more benefits for enterprises. Therefore, with the continuous development of big data and people's high demand for data analysis, software engineers are faced with great challenges to a certain extent [1]. In the era of big data, software engineering is faced with many problems, including: (1) the data types are diversified and need to be processed by appropriate technologies; (2) The large scale of data puts forward higher requirements for data storage and processing; (3) Improve the technical level of data mining and statistical analysis, and have higher requirements for the ability of software engineers; (4) Data requirements become more complex and should be adapted to diversified use scenarios. In order to meet the requirements of the era of big data, relevant technicians should strengthen the research of key technologies of software engineering for big data technology, so as to obtain good results.

2. Types of key software engineering technologies for big data technology

2.1 Cloud computing technology

Cloud computing technology is a new type of information processing technology born in the era of big data. Its characteristics are mainly reflected in data storage and analysis. With the help of the network, various data are uploaded to the server, and then the computing power of the computer is used to do data processing work. At the same time, cloud computing technology is still a new computing model, which has been widely used in medical, enterprise and financial fields, improving computing efficiency and quality. Through the use of cloud computing technology, equipment and software can be managed in a unified manner, so that data

can be shared, and the work quality and efficiency can be significantly improved [2]. In addition, cloud computing technology can store data on different servers according to the requirements of users, so as to prevent users from realizing data backup on multiple servers, which can greatly improve the quality and efficiency of work, and reduce the risk of data leakage faced by users. Therefore, facing the software engineering technology of big data technology, it is necessary to use cloud computing technology to complete the optimization and upgrading work.

2.2 Software service engineering technology

Strengthening software service development meets the mainstream needs of society, and it is also the mainstream needs of social development. Technically speaking, software service engineering technology is usually applied in software development with good service functions, that is, development programs and programming languages are used in the form of engineering to do a good job in software development with good application functions and service functions [3]. In the software engineering development, mainly around the service ability, based on distributed style, virtual characteristics, do a good job in user debugging, to ensure that users have good security and stability when applying software engineering system. In addition, software service engineering technology can also integrate various application data, continuously improve the software management operation ability, and clarify the relevant operation process. In the era of big data, software service engineering technology is usually applied to the local area network to give more protection to users in the local area network to avoid virus attacks, thus improving the security of software engineering. For example, the application of software service engineering technology in enterprise services is mainly to develop a software system of services and application effects, and make the software have private customized functions, and strengthen the custom functions of software service engineering. Because software service engineering technology wants to be effectively applied, it needs to invest a lot of funds, which hinders the popularization of this technology to a certain extent, and it is difficult to be applied in many small and medium-sized enterprises, so it is necessary to continue to carry out technology development and constantly improve the application ability of software service engineering technology.

2.3 Data mining technology

Data mining technology belongs to big data mining technology. Data mining technology can carry out in-depth analysis of big data, dig out the rules and trends of data, and provide support for decision-making and related business optimization. In the era of big data, the potential value of data can be mined through the use of data mining technology, which can help the government and enterprises to find potential risks and commercial value [4]. For example, by using data mining technology to mine and analyze customer shopping information and data, customers' consumption preferences, habits, purchasing behaviors and other relevant information can be learned, which provides a basis for enterprise marketing, product optimization and development strategy formulation. Government departments can use data mining technology to understand the population structure, social relations and other social information, which is conducive to the formulation of relevant policies and risk control.

3. Optimization measures of key software engineering technologies for big data technology

3.1 Improve the scope of use

During the development of software engineering, attention should be paid not only to the early technical design, but also to the later maintenance and management, so as to ensure that the application scope of technology has a good extension, and data information can be well applied based on the security of data information [5]. In addition, we pay attention to the problem of data information sharing in software engineering. In the actual operation process, we should pay attention to the following problems: (1) Scientific selection of software platform. The characteristics of each software platform are different, so it is necessary to make the corresponding choice considering the specific situation. (2) Effective processing of data information. For example, when an E-mail message is processed, it needs to be sent to the recipient through a secure channel; When dealing with a lot of information, the weight of each module should be defined from the actual situation. The processing of software requires the utilization of the existing functions of the application. (3) Improve the efficiency of big data processing. The application of big data technology in data and information processing can effectively improve the efficiency of data and information processing and improve the functions of software engineering, so it is necessary to rationally apply big data technology and expand its scope of use. For example, in the process of processing massive data, distributed and parallel technology should be adopted as far as possible, which can greatly improve the efficiency of data processing.

3.2 Ensure timeliness of software development

In the big data environment, the future development direction of software engineering is focused on the timeliness of software

engineering development. In order to achieve this goal, we should: (1) Introduce more advanced management concepts, strengthen the professional quality of software engineers, and ensure good efficiency of software development. The use of big data technology can effectively improve the management quality of software engineering, so as to improve the timeliness of software development. (2) Do a good job of project research and analysis before software development, and clarify engineering standards and requirements, so that software development can be carried out on this basis. For example, before the formal start of the development work, it is necessary to clarify the development process and objectives, and then determine the development standards and requirements. (3) Before development, it is also necessary to formulate a sound development schedule, analyze all parts of the project, and carry out software development according to specific needs. (4) Communicate with customers in time during software development, grasp customer needs, and complete software design on this basis. For example, when designing software, it is necessary to carry out scientific design in the aspects of interface, structure and function, so that the system can have good security and stability, so that the efficiency of software development can be significantly improved, and the timeliness of software development can be well guaranteed.

3.3 Strengthen software engineering security

In the big data environment, the key technology of software engineering can effectively solve the problems of data transmission and storage, but it also brings more challenges to the development of technology, so the relevant staff takes into account the security factors in the actual application process, and uses a more effective method to carry out management work. In the operation, we should start from the following aspects: (1) do a good job in technical management, strengthen regular training, improve the comprehensive literacy of relevant staff, so that they can master the correct operation method in the actual work process, and ensure that the key technology of software engineering has a good security; (2) Formulate effective strategies to strengthen system security, for example, in the process of detecting system vulnerabilities, detection efforts should be increased, and loopholes existing in the system should be patched to prevent criminals from invading the system. In addition, it is also necessary to do a good job in the prevention and control of computer viruses, to avoid virus intrusion into the computer, to provide good protection for the stable operation of the computer system.

3.4 Adding the variety of transmission Modes

When software engineering is developed, diversified transmission methods should be adopted to increase data transmission volume and ensure stable transmission, so that subsequent data analysis can be carried out well. In order to increase the diversity of transmission modes, we should start from the following aspects: (1) Using network technology to carry out data transmission, and promote the effective optimization of key software engineering technologies; (2) The use of wireless transmission technology to strengthen the protection of data, while ensuring that the data will not be subjected to any interference during transmission, to achieve technical optimization; (3) The use of optical communication to transmit data information, due to the good stability and security of optical communication itself, can improve the efficiency of data transmission, which is conducive to technical optimization. In general, in the process of technical optimization, the most suitable transmission mode should be selected to ensure the security of data, and the transmission effect should be optimized to promote the good development of key software engineering technologies.

Summary:

In short, in order to play the role of the key technologies of software engineering, it is necessary to strengthen the research on the key technologies of software engineering from the perspective of big data technology, and constantly optimize them, so as to achieve more ideal results. In this paper, the optimization of key software engineering technologies for big data technology is mainly discussed from four aspects: improving the scope of use, ensuring the timeliness of software development, strengthening the security of software engineering, and increasing the diversity of transmission modes. By taking the above optimization measures, more ideal results can be achieved and the software engineering industry can be developed well.

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