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Exploration of automatic operation, maintenance and monitoring technology in big data platform

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Abstract

With the continuous development of today's society and the continuous progress of science and technology, we are in an era of big data, giving full play to the advantages and role of big data, and it is widely used in people's work and life. The popularization of network and the application of computer software technology provide power support for the operation of big data platform, The rapid development of big data era makes people's life and work more convenient and fast, which is not only reflected in the information exchange between people, but also reflected in the convenience of software technology in the data era, such as wechat scanning code payment and Taobao shopping platform. The application of data software technology not only improves the convenience and quality of people's life, but also brings strong economic benefits to software developers. Nowadays, with the rapid popularization of network technology and the rapid upgrading of computer technology, a large amount of data can be processed and analyzed by using computers. However, data is also divided into useful and useless. While data provides convenience for people, some useless data will also bring inconvenience to people. According to the current development status of big data platform, this paper puts forward the problems existing in the automatic operation and maintenance and monitoring technology of big data platform, and puts forward reasonable solutions.

Keywords

Big data platform, Automation, Data software technology.

1. Introduction

In recent years, the rapid development of the Internet in the rapid spread of computer technology, the rapid development of big data technology momentum. With the development of big data technology and the emergence of Development Problems, it also faces great challenges. One of the biggest challenges is the clinical data problem, the main problem can be manifested in the collection of data information and information storage two aspects, among them, the problem of collecting information data mainly shows that we don't know how to deal with data and how to extract effective information, but the problem of information storage is that we don't know how to store the collected information, storage issues also include the form and manner of storage. Therefore, the construction of the data platform of automatic operation and maintenance and monitoring technology has become particularly important.

2. The advantages of automated operation

Automated and simplified operation and maintenance has five advantages: reducing cost, improving productivity, high availability, high reliability and optimizing performance. The automatic operation and maintenance can reduce the risk and pressure burden of IT operation

and maintenance, and improve the quality and level of IT operation and maintenance to a certain extent.

2.1. Reduce input costs

The advantage of reducing costs is mainly manifested in that automated operation and maintenance can improve the efficiency of enterprise operation, reduce the occurrence of problems such as errors that staff think, and at the same time can reduce the demand for manpower and thus reduce the investment cost of enterprises in manpower requirements and other aspects. Enterprise IT input costs.

2.2. Improve the productivity and production level of enterprises

Productivity improvement means that automated operation and maintenance technology does not require manual work output. The original complex traditional operation requires specialized personnel in charge of operation and maintenance to operate, and automatic operation and maintenance technology can change the original operation and maintenance method. The operation and maintenance staff are released from the complicated and cumbersome work procedures, so the staff who were originally responsible for the operation and maintenance can put their knowledge and operation and maintenance skills into more valuable jobs. In this way, not only the working time required for operation and maintenance work is reduced, but also sufficient motivation can be provided for other work positions. Failure of the system during operation will cause huge losses to the reputation and property of the enterprise. By using automatic operation and maintenance technology, data can be automatically saved, and when data is lost, there is also an automatic recovery mechanism to help enterprises repair data [1].

2.3. High availability

Automatic operation and maintenance technology has the advantage of high availability. The all-weather system monitoring and remote communication technology of automatic operation and maintenance technology can greatly reduce the probability of network system downtime and shorten its downtime. Even if the system fails, the enterprise can quickly restore the system through the recovery mechanism to reduce the possible losses caused by the failure.

2.4. High reliability

Repetitive work often occurs in the work, and repetitive work occurs in the work process of operation and maintenance personnel. After completing the work, operation and maintenance personnel may be less vigilant in the process of repeated operation, which will greatly improve the probability of operation and maintenance work error.However, the application of automatic operation and maintenance technology does not have the occurrence of these human errors, eliminating the human factor of the occurrence of errors will greatly reduce the probability of repeated work errors, thus improving the reliability of operation and maintenance work, and at the same time can reduce the work burden of operation and maintenance staff.

2.5. performance optimization

Traditional operation and maintenance work mainly relies on manual operation and maintenance operations, with complicated and tedious work flow and low efficiency in task execution.While giving full play to its own advantages, automated operation and maintenance technology can also make up for the low efficiency of traditional operation and maintenance and improve the efficiency and quality of operation and maintenance work while reducing the demand for operation and maintenance personnel.

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3. Advantages of automatic operation and maintenance monitoring technology

The operation monitoring system in the traditional system construction can be divided into system monitoring, application monitoring and data monitoring and other monitoring systems, among which the monitoring objects and procedures to be responsible for monitoring in the monitoring aspects of middleware monitoring, application monitoring, database monitoring and network monitoring are complicated.The stability and reliability of the system can be guaranteed only by monitoring the system well.The automated operation and maintenance supervision and control system changes all the above monitoring objects, and its core is still to ensure the high availability and high performance of the network. However, the automatic operation and maintenance supervision and control technology simplifies the originally complex and diverse monitoring procedures, improving the monitoring efficiency and improving the quality of monitoring [2].

4. Problems faced by big data platform in traditional IT operation and maintenance

4.1. The IT operation and maintenance mechanism is imperfect, and the process operation level lacks unity

Traditional IT operation and maintenance work lacks a complete and standardized IT operation and maintenance mechanism, and its IT operation and maintenance process lacks a unified standard. For example, in the work link of event submission, IT operation and maintenance work ignores the unified standard of event prediction and priority setting.Use of operations staff work experience and subjective judgment for event handling, such operations, lack of overall unified specification although can handle events, but the lack of unified reference for handling events, this sample will be very easy to caused by human factors of the difference of individual experience level overall IT operations of low quality,This affects the overall effect of IT operation and maintenance. The general design of big data application system is based on a three-tier structure, namely, client, database and intermediate layer. The architecture is shown in Figure 1.

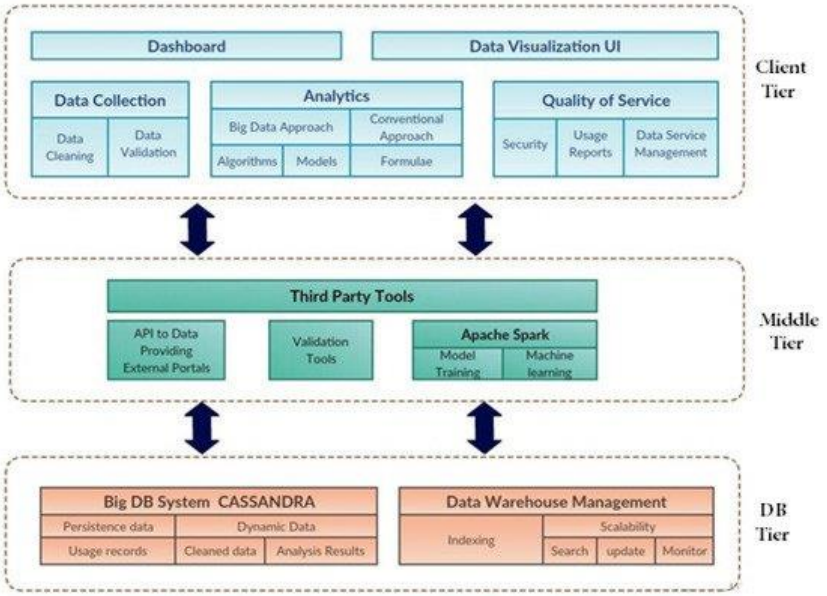

Figure 1. Architecture of big data application system.

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4.2. IT operation and maintenance lacks an effective and complete configuration item data management library

At the present stage, IT operation and maintenance does not have a complete and effective database of configuration item data management. Although the configuration collects part of the configuration data information, IT only focuses on the core and key IT equipment and facilities. The incomplete configuration item data management database is difficult to provide powerful data information support for the comprehensive development of information.

4.3. Over-reliance on core staff, heavy workload and low efficiency

In the traditional IT operation and maintenance work, the IT operation and maintenance knowledge and skills possessed by some IT operation and maintenance workers are only kept in their minds, and they have not been systematically and standardized and recorded. Whether knowledge or experience remains in a very narrow range, it cannot be brought into full play in a larger range. Then the work of these IT operation and maintenance workers will only be limited to some technical and knowledgeable work levels, and difficult problems, such as the determination of the nature of time and the more difficult problems such as priority, will all be pushed to the technical level. High-level core personnel are responsible, which increases the workload of core personnel. The increase in workload will increase the probability of errors to a greater extent, and at the same time, it will also affect the overall work efficiency and quality of the IT operation and maintenance team.

4.4. Complex IT elements are difficult to monitor effectively

The composition of it operation and maintenance facilities is complex and diverse. It operation and maintenance elements, from the basic computer room dynamic environment to the final practical application, from its configured hardware to software, from the backstage to the front desk support services, are complex, and the process of operation and maintenance work is also very complex, which makes it difficult for its complex it elements to achieve efficient and high-quality monitoring. At the micro level, there are many brands and types of it operation and maintenance facilities. Taking information storage as an example, its brands include IBM, EMC, Huawei and other facility brands. The monitoring work of the operation and maintenance system includes the monitoring objects of hard disk status, performance and other aspects. In addition, there are many brands of it operation and maintenance facilities, and the hard disk structure of each brand is large and different, which intensifies the difficulty of monitoring work. To sum up, there are multiple drawbacks in traditional IT operation and maintenance. It is very necessary to promote automatic operation and maintenance and monitoring technology [3].

5. Key Technologies Involved in Big Data Platform

5.1. System construction of big data platform

After intensive discussion and analysis on the research inheritance of big data platform, in its application field, big data platform has the characteristics of close data association and large scale of integration, and the application direction of big data is more inclined to the business of enterprises. Decision-making and stock market analysis and other industries with a large amount of data integration.

5.2. Automatic operation and maintenance function design

When designing the functions of the automated operation and maintenance platform, the functions of the automated operation and maintenance platform can be divided into inspection management, equipment management, operation and maintenance monitoring, database management, and information management.

Inspection management

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Set up a management department specially responsible for inspection, integrate the data produced in operation and maintenance work and send them to the corresponding inspection management department in a unified manner. After unified inspection by the personnel of the management department, the data will be handed over to the core responsible personnel for approval, so as to improve the reliability of data.

Device management

The operation information of the query server is obtained through a centralized platform and a centralized equipment information processing system.

Operation and maintenance monitoring

The monitoring system constructed by the Internet monitors the database data in real time around the clock, so as to ensure the reliability of the data information.

Knowledge Base and Information Management

The knowledge and work experience of IT operation and maintenance work should be unified and standardized, and then a unified knowledge base should be established to provide IT operation and maintenance personnel with an effective way to consult various knowledge information. First of all, for enterprises with a large amount of data integration, the decision-making data, operation and maintenance regulations, and management systems within the enterprise need to be processed in a centralized manner. accuracy of information. Information processing data can use cluster analysis (as shown in Figure 2), multivariate planning and correlation analysis. Secondly, the automatic operation and maintenance data processing of the big data platform also includes data processing advantages such as data matching security, data monitoring processing, and redundancy of monitoring systems.

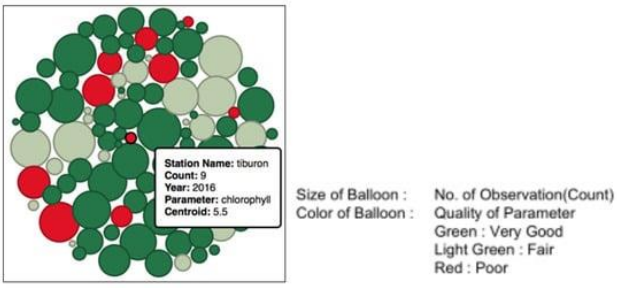

Figure 2. Clustering (K-means) analysis using bubble graph.

6. Conclusion

To sum up, great attention should be paid to the accuracy of big data platform data information. Automated operation and maintenance and monitoring technology can improve the accuracy of data information, improve the reliability of data information, and make it highly available and efficient.The monitoring technology has also changed the complex monitoring characteristics of the original monitoring technology, presenting a streamlined and efficient monitoring system, providing a guarantee for the stable operation of data platforms in all walks of life.Big data platform for automated operations of the development of technology and control technology of the prison they require constant optimization and upgrading, it requires that the technical staff to focus on the operation of the data platform, timely discover and deal with the problem in the operation process, to ensure that automatic operations and monitoring the implementation of the technology can efficiently implement.

References

[1] Yu Shengquan Adaptive learning - the development trend of distance education [j] Research on open education, 2000 (3): 12-15

ISSN: 2664-9640

[2] Chen Chengde Research on web-based adaptive learning support system [d] Guangzhou: South China Normal University, 2003.

[3] Zhang Jingyi.A Case Study of Natural Science Teaching in Primary Schools—Analysis of the ARCS Motivation Model[J].Journal of Science Education, 2005(13): 191-216.

[4] Liao Minxiu. Strategies for Improving Information Literacy Learning Motivation Using ARCS Motivation Model [J]. Library and Information Service, 2016(20): 46-51.

[5] Wu Nanzhong. Construction of an adaptive learning model and its implementation strategy [J]. Modern Educational Technology, 2017(9): 12-18.