

Design of Education Management System Based On Cloud Platform

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ABSTRACT

With the development of information technology, all higher vocational colleges have accumulated some basic data of their own, but most of the same data will be scattered and repeated in different business systems. The reason for this situation is that the basic data acquisition function cannot be correctly connected with the business system, which leads to repeated acquisition of data volume. Therefore, the data acquisition workload is large and the data is unreliable. In this paper, the logic design of basic data acquisition application based on cloud computing is designed. The cloud computing mode is adopted to provide basic data cloud services for all schools in each district, and all the original system functions are transferred to the cloud server. At the same time, the cloud is used to provide data service and allocate data to prevent the same data from being repeatedly built in different business systems. The disadvantages mentioned above are broken and the data acquisition and data service functions are connected in real time. The basic data acquisition method and the collection interface design usually come from the concrete practical application.

Keywords: *Education management system, cloud platform, system model, storage management design*

1. INTRODUCTION

With the development of Internet technology, the rise of Massive Open Online Courses (MOOCs) and micro Courses has caused a revolution of education informatization in college education. Students' learning is no longer a single classroom learning, but diversified Online learning is gradually integrated into higher education [1]. Information technology enables learners to learn on the network platform at any time as long as they have intelligent learning terminals. In the work of education management, scattered educational information and data make it difficult for educators to quickly obtain the required resources in the search process, and educators use resources without communication and interaction, resulting in adverse effects on the teaching and research environment [2-4].

Education cloud platform is an interdisciplinary subject of computer and education, which applies the very popular cloud computing technology into education. From a theoretical perspective, education cloud platform can use modern computer technology to assist

teaching activities, integrate traditional teaching concepts with mainstream learning theories, and provide modern education with rich and comprehensive educational resources [5]. Under the premise of information resource sharing, the school education network and campus network can be combined to form a comprehensive education platform, and personalized services can be provided according to different types of users.

2. CLOUD COMPUTING ARCHITECTURE

The cloud computing framework is shown in Fig. 1. Each module can cooperate with each other, and researchers can directly achieve data collection, acquisition, processing and other functions by calling system resources. The advantages of this framework are simple hardware resources and low consumption cost. For the current realization of data mining technology, most of them are through algorithm research, and then the algorithm is deployed to cloud computing to achieve [6-7].

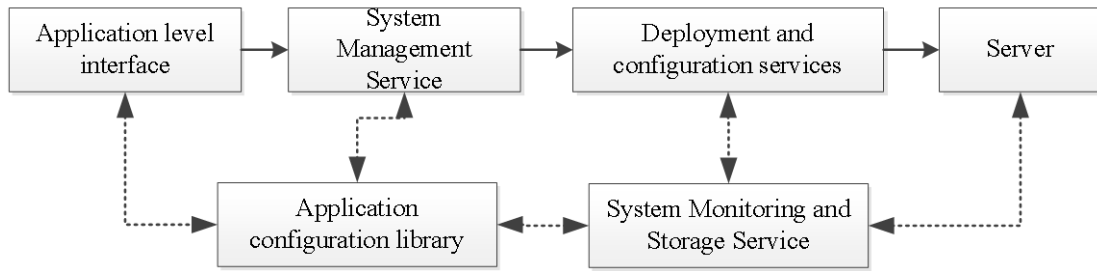


Fig. 1 Cloud computing framework

3. CLOUD COMPUTING TARGET SYSTEM MODEL

Fig. 2 shows the model diagram of the cloud computing target system, on which the acquisition of basic educational data and the combination of cloud technology are built. The acquisition of basic educational data is carried out through various terminals

such as computers and mobile phones, and uploaded to the development applications based on the data acquisition platform. The application uploads the collected basic educational data to the Internet, and the data mining platform of the Internet can carry out algorithm processing on the collected data module, so that all Internet data can be shared in real time and the disadvantages of repeated data acquisition and processing can be overcome [8-9].

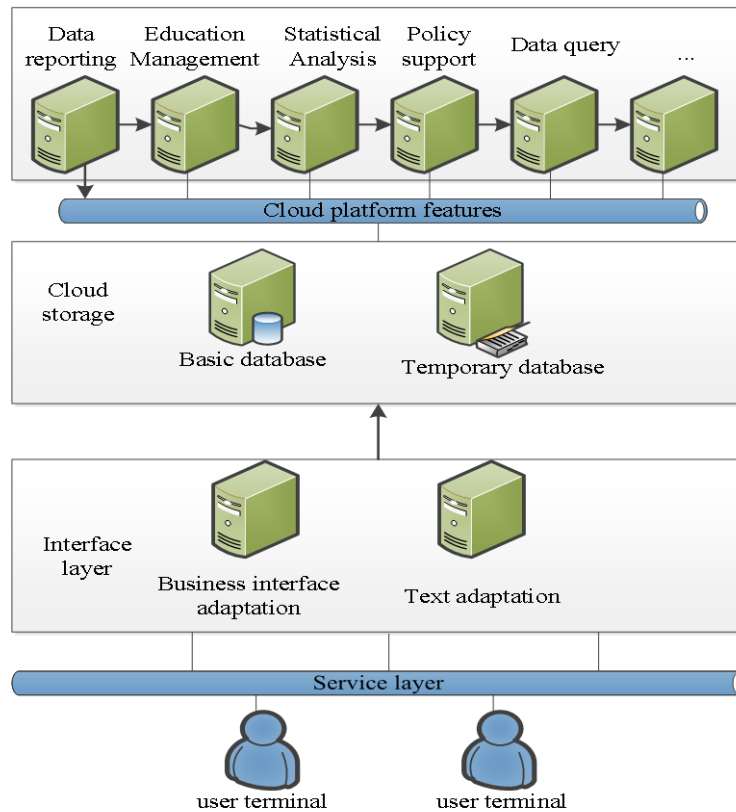


Fig. 2 Application logic architecture diagram of basic data acquisition and service

4. BASIC DATA ACQUISITION APPLICATION LOGIC DESIGN BASED ON CLOUD COMPUTING

4.1 Design of production system

In system design, if condition a is satisfied in the relation, structure b will be indicated. The formula of the rule is shown as:

$$f_z : \text{OR}_{i=1}^n (\text{AND}_{j=1}^m e_{ijz}) \rightarrow t_z \quad (1)$$

In formula 1, $m, n > 1$, $z = 1, 2, 3, \dots, r$

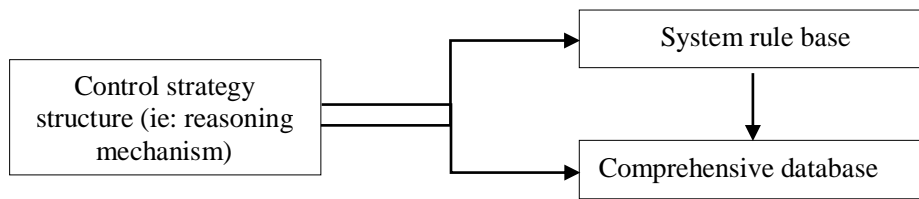


Fig.3 production rule system

Among them, the comprehensive database contains relevant task information data as the storage space of system information, including teaching information, student information, performance information, achievement information and other information data, which can be called by reasoning machine and rule library. The system rule base contains all kinds of inference rules and solution formulas, and the database can be operated according to the formulated rule basis. Reasoning mechanism, namely reasoning machine, is based on the comprehensive database and system rule base, and makes analysis and decision according to the determined applicable rules.

4.2 System data acquisition

The generative working process of this system is mainly divided into three stages: condition matching, condition screening and action stage. The first is conditional matching, which specifies a generative competition set according to the scope required by the problem. In this set, conditional screening is carried out according to the strategy, one of the best is selected and regular actions are carried out on it. After the completion of the action, the comprehensive database is modified for the new environmental changes generated. Since each work link is completed by different control procedures, different procedures can be divided according to the functional requirements.

There are three ways to collect basic data:

(1) Different businesses have adaptors for different business systems to achieve real-time synchronization of business systems and data acquisition;

F_z stands for rule Z, t_z stands for the result of rule Z, e_{ijz} stands for the premise, OR and AND respectively stand for the relationship between "AND" and "OR" in the premise.

In this system, the establishment of a production system based on production rules is mainly used in the system of reasoning mechanism. Among them, the production system consists of three parts, namely: comprehensive database, system rule database and comprehensive database. The relationship between these three parts is shown in Fig. 3:

(2) The data can be obtained through the text adapter, which can convert different text formats, so as to realize the docking of text conversion;

(3) For basic data modification and other functions, a small amount of manual filling is needed. And through the acquisition and input of data into the cloud service, the modification or input of very individual data into the database is completed.

5. STORAGE MANAGEMENT DESIGN OF EDUCATIONAL BASIC DATA

In the education system mode of cloud environment, there are two modes of basic data storage and acquisition: centralized mode and distributed mode. Usually, the two modes will be combined and the management mode of "hierarchical storage, hierarchical management, security conceit and Shared application" will be adopted, and then the data will be stored according to the data storage security mechanism required in the platform construction. Data acquisition is the responsibility of the data production unit, and the data application unit is responsible for the development and application of data security. Fig. 4 shows the storage management logic of city and district. The logic diagram is divided into five levels, namely, cloud application layer, municipal cloud storage, district-level cloud storage, and basic data rate to be reviewed.

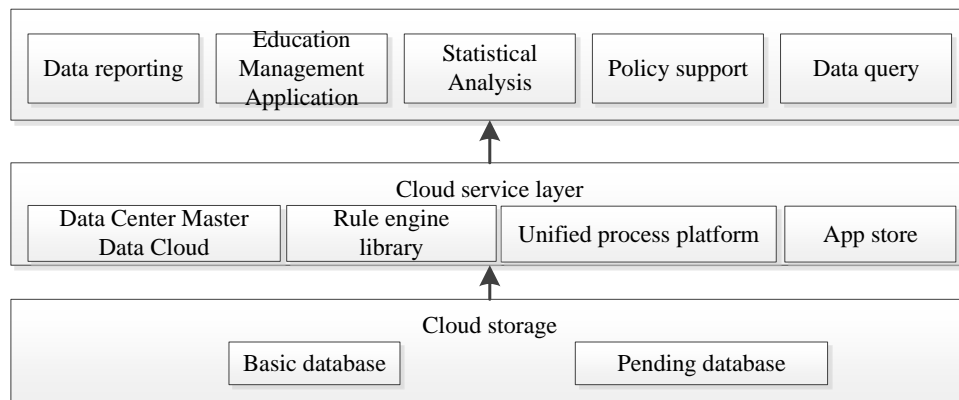


Fig. 4 Diagram of the underlying data store management logic architecture

In the cloud application layer, the function of data reporting, application of education management system, statistical analysis of data, decision support, data collection, data query and modification can be completed. The cloud application layer is the closest to the concrete practical application and can directly reflect all the functions of the system. Data between municipal cloud storage and district-level cloud storage can be backed up synchronously and in real time. Municipal cloud storage is divided into five regions: A, B, C, D and E. Among them, Region E is the administrative area without the establishment of basic database. Therefore, there is no synchronous real-time backup with the regional cloud storage. The bottom level is the basic data rate to be audited. The collected data and the data to be audited enter this area for auditing. Only after the approval of the audit can the data continue to be transmitted to the upper layer, thus ensuring the security and reliability of the data.

6. CONCLUSION

Under the current background, it is necessary to actively understand the relevant content of the education cloud platform, explore the specific use of the education cloud platform, and change the concept of student education management in higher vocational colleges. While completing the transformation of information education, it can also be practical to improve the effectiveness of school personnel training, change the social image of China's higher vocational colleges, and point out the direction and path of the future educational management innovation and development of higher vocational colleges.

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