

Design of SaaS Platform for University Reader Service Information Resource Sharing Based on System Structure Data Computing

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Abstract: The effective sharing of high-quality teaching and scientific research resources in colleges and universities can realize the complementary advantages between colleges and universities, and improve the overall education and teaching quality of colleges and universities. Through the introduction of SaaS and a brief analysis of the resource sharing situation in domestic universities, the application service scenario of university teaching and scientific research resource sharing that can apply the SaaS idea is proposed. Compared with other solutions, it brings faster deployment time and lower deployment time. cost, and a more convenient user experience, and designed the architecture of a SaaS-based digital resource sharing platform for colleges and universities. At the same time, the sharing mechanism was studied, and suggestions for the standardization of shared resources were put forward.

Keywords: SaaS Platform, University Reader Service, Information Resource Sharing, System Structure Data Computing

1. INTRODUCTION

The Internet of Things (IoT) is a network that is expanded and extended on the basis of the Internet, and the "interconnection of all things" is carried out between things to realize the exchange and communication of information. The emergence of the Internet of Things [1], coupled with the sharp decline in the cost of data communication, and the emergence of various sensing technologies and smart devices, has accelerated the collection and application of data [2]. However, while facing a variety of specific industry applications and continuously generating massive real-time data, human resources refer to the level of teachers and managers owned by the school [3].

Many scholars at home and abroad have used different methods to discuss the effective allocation and utilization of internal resources in colleges and universities. By establishing a multiple linear regression model [4], John F. Ryan proposed a resource optimal allocation strategy that university funds should be tilted towards teaching and scientific research. It only flows within the network [5], and some advantageous resources are often held in strong universities and ordinary universities. If you want to obtain high-quality resources, you need to spend expensive expenses [6]. Such low-level repeated construction results in a lot of waste of resources, and digital resources cannot be used optimally. Therefore, it is necessary to integrate digital resources, expand resource sharing, and study feasible university digital resources. The construction plan and sharing mechanism of the resource sharing platform are of great significance [7]. The Internet has undergone numerous reforms since its inception. We have experienced the traditional Internet era to the current mobile Internet era, and the convenience brought by this is that people can more conveniently obtain [8] the required multimedia information through various mobile devices [9]. Therefore, the desire for reading information is not only a simple book text, but extends to the multimedia resources related to the book content [10].

The sharing of educational resources in colleges and universities includes: hardware sharing, software sharing and teacher sharing [11], among which the multimedia teaching resources in colleges and universities belong to the category

of software resources. Multimedia teaching means that in the teaching process [12], a certain teaching design is adopted, appropriate modern teaching media is used, and various media information acts on the teaching process to achieve the optimal teaching effect [13]. In order to break the information island, solve the problem of data sharing and exchange in the Internet of Things system, fully tap the value of data, and improve the utilization rate of data [14], this paper will propose a design scheme of data sharing and exchange platform based on the Internet of Things based on the framework of the Internet of Things [15], mainly to complete the Internet of Things. The functions of data collection, data exchange, data processing and data management can be used to manage and integrate data [16].

Sinuany-Stern et al. used the DAE method to build a model, and discussed the optimal allocation of educational resources by evaluating the operational efficiency of colleges and universities [17]. Brey and Raab used the DAE method to evaluate and analyze the relative efficiency of American public universities. In addition, Hooshang Izdai et al. used the Stochastic Frontier estimation method to study the optimal allocation of higher education [18] resources. Some domestic scholars have analyzed the information resource sharing behavior from economic theory. For the first time in China, Professor Ma Feicheng introduced the economic analysis system of interlibrary information resource sharing [19]. Ma Feicheng also used the group consumption model to analyze the efficiency of information resource sharing. He believed that information resource sharing is a mutually beneficial behavior, and information resources Sharing expands the information consumption ability of information users and increases information welfare [20].

The speed of dissemination of information using the Internet as a carrier is far beyond our understanding. The main source of information acquisition is the Internet. At this time, the traditional information carrier, books, is undergoing some changes closely following the times [21]. SMEs in colleges and universities are the places where book users are most concentrated and used most frequently. Therefore, it has become particularly important to innovate on the mobile Internet that keeps up with the times in the form of

contemporary book education. However [22], the author has investigated the relatively large and authoritative multimedia teaching resource network in China, and found that the downloads of multimedia teaching resources on the website are pitiful [23]. The reason why the download volume of resources is selected as a measurement data is that the download volume can be used as a reference for resources to be spread and shared. If you have experience in searching for multimedia teaching resources on relevant websites, you will find that [24].

2. THE PROPOSED METHODOLOGY

2.1 The System Structure Data Calculation

The overall architecture of the data sharing and exchange platform based on the Internet of Things is shown in Figure 1. The platform supports unified storage and unified management of distributed massive structured data and unstructured data, and provides flexible permission management and operation functions. The system provides a unified user management and authentication system. Follow the data service standard specification system formulated by the platform to obtain the corresponding data. The evaluation system of regional higher education resource allocation is proposed. Wu Shaoxin uses economic theory to discuss the expansion mechanism of domestic college resources.

More literatures put forward various solutions and application technologies from the technical point of view to the construction, development, management and safe use of campus network, which can make full use and sharing of knowledge resources such as teaching and scientific research, library and information in colleges and universities. , which greatly promotes the application of campus network in various colleges and universities. From the current research status, it can be seen that my country attaches great importance to the construction of digital resource sharing, and according to previous researches by scholars, it can be proved that digital resource sharing is economically feasible. However, the current research on digital resource sharing in my country mainly focuses on library and information resources. In terms of the sharing of information resources, there are few research literatures on how to make the digital resources of various colleges and universities can be used by other colleges and universities and the systematic research on the sharing mechanism. By binding the QR code with the book content, the corresponding content QR code is deployed in the relevant exercises, examples, extracurricular expansion and other sections of the book. The corresponding expansion resources of the content greatly expand the breadth and breadth of knowledge of the book itself.

2.2 The University Reader Service Information Resource Sharing Platform

Most scholars believe that SaaS software is a kind of software that is deployed on the host and accessed through the Internet. The basic form of SaaS software is as follows: the application software is uniformly deployed on the server of the SaaS provider, and the software user does not need to buy a software license, but can order the required application software services from the provider through the Internet by renting according to actual needs. Customers can order the required application software services from the manufacturer through the Internet according to their actual needs, pay the manufacturer according to the number and duration of the ordered services, and obtain the services and technical support provided by the manufacturer through the Internet. Its essence is to replace the investment in informatization construction

through online leasing, and enjoy the convenience, efficiency and professional informatization services of information technology. It is in the highest position in the library management system and has the most complex functions.

Including the management and maintenance of book staff and books, the addition, modification, deletion and permission granting of ordinary staff in the library, and a macro view of the operating status of the entire library. Cloud computing uses distributed storage to store data, and uses redundant storage to save copies of the same data on multiple nodes, so that even if one of the nodes goes down due to natural disasters, power failures and other problems. Otherwise, other nodes can immediately take over the task of the node and continue to run, which also ensures the high availability and reliability of data. The data collection subsystem consists of IoT data collection service, collection application service, integrated development designer, unified management platform, etc. The IoT service provides functions such as IoT device management, IoT node access authorization, IoT data transmission, and data heterogeneous management.

The collection application service provides authentication and authorization, monitoring and management interfaces, extension interfaces, data bridging, data adaptation, and data synchronization. In the SaaS model, users only need to pay a small amount of computer and network equipment costs.

2.3 The SaaS Platform Design

The first level is custom SaaS. This model is basically the model of ASP in terms of maturity. Different client companies run their own customized application software on their own hosting space; the second level is configurable SaaS. In this mode, all application instances use the same software code, and the vendor provides detailed configuration choices and sufficient hardware and storage resources. Based on the consideration of factors such as the number of services provided by the platform, the number of users, and the cost of development and maintenance, this paper adopts the separate mode of shared database, that is, all customers use the same database, but each has a different set of data table combinations that exist in its separate database. within the mode.

This model achieves a certain balance between data sharing and isolation. In order to help users get better resource sharing services, this multimedia resource sharing cloud platform can integrate the existing rich multimedia teaching resources in colleges and universities and solve the problem of resource storage. , improve the efficiency of resource sharing. It can not only meet the user's resource service needs, but also meet the user's interactive communication needs and provide personalized resource push services. Therefore, this multimedia teaching resource cloud sharing platform mainly designs functional services from two aspects. With the development of modern education reform and the continuous application of computers in all aspects of teaching, there have been major innovations in teaching methods, teaching methods and teaching tools. Ordinary colleges and universities other than 985 and 211 colleges and universities with rich teaching and scientific research resources and other various higher education institutions use various means and forms to obtain rich and high-quality teaching and scientific research resources of various colleges and universities at a lower cost.

The various functions analyzed by the requirements of the book education QR code system are firstly that the system administrator needs to access the database, and needs to have

the operation authority to all the data and tables in the database. For editing, the first is to upload the book content in the system, and the second is to organize and summarize the book catalog. It is more inclined to be based on the type of service. Provide services such as development framework virtual machine, operating system and system software. Provide users with a complete platform (including complete and related plug-ins and other services), users can usually build their own applications on the platform.

3. CONCLUSIONS

The SaaS-based university teaching and scientific research resource sharing platform designed in this paper provides a free, flexible, open, inexpensive and mutually improving resource integration platform for the effective use of high-quality resources in universities and the construction of educational informatization. It expands the time and space of the real campus, and provides a material basis for college teachers and students to understand and master the school's professional settings and discipline construction in a timely manner. It is of certain significance for reducing material expenditures for colleges and universities and promoting resource sharing.

4. REFERENCES

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