The design and realization of the management system of college physical education under the network environment

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Abstract. With the expansion of the scale of institutions of higher learning, the requirements on the management of physical education gradually improve. In order to improve the management level of physical education in schools, it is urgent to develop a physical education management system in colleges and universities, so as to solve the needs of each college for physical education management and improve the management level. This system adopts the design idea of software engineering, and conducts detailed and detailed research on the system from preliminary material collection, demand analysis, feasibility study, overall design, detailed design, system coding and system test. In the system development design, the application of the current popular ASP.NET development framework, the database aspect used Microsoft's SQL Server 2008, at the same time added some JavaScript scripts and JQuery framework technology, and finally realized the university physical education management system based on B/S architecture. This paper describes the demand analysis of the physical education administration system, and expounds the design and implementation process of each functional module. The main functional modules of the system include student information management module, teacher information module, teaching plan management module, teaching affairs arrangement management module, student course selection management module, class management module, student performance management module, teacher teaching quality evaluation management module and system management module.

1. Introduction
Since the formation of the concept of cloud computing, it has been very rapid development, especially by the development and research of Google Corporation and International Busine Machines Corp, for the future development of the network pointed out the direction. By means of by multiple computers with the integration of resources, by comprehensive type of computing power, on the basis of related infrastructure, software and hardware conditions can obtain storage, computing and many other services, the cloud computing basic definitions. When building a network service platform with cloud computing, the network resources can be effectively integrated, which will provide more diverse and high-quality services to users. Users in the system platform can submit service application information, the use of some non local resources, he through the system program, in terms of maintenance and functional extensions with high performance. With the development and improvement of science and technology, the development and improvement of cloud computing has been developed rapidly [1], and the related technologies have been widely used. As using cloud computing technology, the core of the enterprise, Google give full play to the advantages of the technology, greatly reduce the operation cost of the system, has good storage and computing functions, great economic benefit has been obtained. In addition, Amazon Co also conducted in-depth exploration and research in terms of cloud computing technology,
its independent research and development of simple storage services, Web Services - elastic computing cloud, cloud service platform makes the performance greatly improved. China is now finding status, based on the Internet provides software and services software service is the main form of cloud platform, including customer relationship management, enterprise resource planning system, online financial management software and eight hundred passengers, etc.. The formation and development of cloud computing has become the main development trend of network services, in this context, it is necessary to improve the service related to the large data and information. In modern society, the system needs to handle the information and data quantity is more and more big, this requires configuration of the corresponding hardware equipment, in order to achieve massive data unified processing, computing and storage, at the same time in order to meet the requirements of the safety performance of the system must be to increase the user's hardware investment. For smaller companies, hardware cost increases will directly affect the economic benefits, in addition to the need of software configuration, the renewal and the maintenance etc. a series of management, increasing the financial burden on users. In view of the above problems, in cloud computing, research and development of the network service platform, include a number of features and functions, to meet the business needs of small and medium enterprises, for enterprise's development and growth has created a good opportunity [2].

2. Cloud computing theory and its key technologies

After long-term development and improvement, network storage, network computing, etc. a variety of advantageous resources are sufficient mining and development, which including education and technology R & D industry has very important influence, the information data sharing and real-time communication for reality, work efficiency has been improved. In the network computing cost expenses also significantly reduced, has formed a distributed computing core technology, utility computing, Internet Computing and according to the required services such as cloud computing concept. All of the above for the cloud calculation theory basis for forming.

2.1. Characteristics of cloud computing

Expansion is one of the characteristics of cloud computing, in fact, the comprehensive utilization of resources, can be seen as a resource pool, to provide a number of services to achieve optimal allocation of different resources. Cloud computing to promote the transfer and interaction between the network management information, to achieve the goal of information sharing, to become the future of information technology resources, the key mode of construction. Cloud service platform can greatly improve work efficiency, create greater efficiency, reduce costs and expenses, and reduce the workload of staff. From either a digital information or computer resources in an arbitrary point of view, in the cloud platform, a single computer resources will get further integration, to achieve the optimal allocation, greatly improving the cost to construct the network service platform, can achieve remarkable results, the resources to make full use of.

Figure 1. Schematic diagram of cloud computing architecture
2.2. Overview of key technologies in cloud computing
Network service platform based on cloud computing, play in the storage process are mainly rely on the form is distributed, confidence in a large number of data were multiple measures of protection, to improve the reliability of the system, to protect the security of data, will be more convenient services to users. Is the current cloud computing concept degree of perfection and related technology development status, Hadoop distributed file system and scalable distributed file system (Google GFS) discovery is a cloud platform used in the core technology of a storage area, in order to meet the large demand for cloud computing to the university sports educational administration teaching platform based on building management system to transfer application performance strong, large amount of service units of storage technology. GFS, distributed file system is the current two key cloud storage technology, which provides a basis for the study of cloud computing related Internet companies [3].

![Figure 2. Schematic diagram of key technologies of cloud computing](image)

2.3. Virtualization technology software application
Cloud computing platform in the basic equipment can work in a virtualized environment, will provide services to the user, through the role of virtualization technology, cloud platform to realize elastic telescopic, give full play to the software and hardware equipment, reduce the cost consumed in the configuration of infrastructure, improve the operation efficiency of the system is of great significance. The virtualization technology based on network cloud occupies a key position in the system program server, operating system and the central processing unit, which can improve the quality of network service. Depending on the resources of the computer set pattern can be virtual technology into polymerization, split into two categories, play a role in security network software and hardware resources independent of that cloud computing in the crack patterns of virtualization technology mainly refers to is further division of resources, the single resource into a plurality of resources of small units, but also in the real environment of different network resources integration[4].

![Figure 3. Sketch map of virtualization technology](image)

3. Design and implementation of the system
Starting from the angle of sports educational management requirements, cloud services platform mainly depends on the application and data server to play a role, by the six servers constitute, which play a data backup and protect the function of the server are four, and the rest of the server is master data base of
redundancy backup. IBM System x3950 M2 using cloud services platform in the educational management system, involving users equipped with scale Xpander option kit series products and added another four units system x3950 m2, makes the original management system of the server effectively expanded, from and more comprehensive adjusting information technology energy input, full and effective play cloud computing ability.

The cloud platform used in storage field equipment selection is Oceanspace S5000 storage system, the product in computing ability and data security, redundancy and has obvious advantages, in storage research occupies a very high position, can effectively deal with the huge data information, interface design is more flexible, data migration or backup services both is enhances the essence of the teaching quality, and plays a decisive role in the efficient operation of the system. The special disk repair and protection function in the storage function can ensure the availability of the data information stored in the disk, so as to avoid the occurrence of the abnormal condition, so that the whole system can be operated more reliably. In addition, in the advanced intelligent hard disk delay and power technology, can effectively reduce CPU energy consumption, to ensure the normal play of the heat dissipation function of the equipment and can reduce the fan operation, and alternating current consumption brought about by the energy waste due to. Compatible with existing network systems. Network system based on cloud platform of colleges and universities sports educational management system, in the design stage must be on the application to the hardware equipment to carefully review and analysis, ensuring the quality of the equipment meet the requirements, but also can ensure the reliability of the data information, management staff more convenient, high-efficient management, meet the users do not need to achieve personalized extended target, application efficiency to achieve the best[5].

4. Conclusion

The system strictly abides by the design thought of software engineering in the process of development. Meanwhile, the developer carries out a thorough discussion on the system's demand analysis, market credibility, architecture design, interface arrangement and functional test, in order to reduce the error rate of the system in the implementation process as much as possible. After considering many factors, the developer finally decides to use the ASP with good stability at present. NET development framework, while the database design aspect is the same as other kinds of system development, which all USES SQL Server 2008 of Microsoft company, and integrates JavaScript script and JQuery framework technology on this basis. After a period of efforts by developers, the development of university physical education management system is successfully completed.

There are also areas where further modifications are needed. For example, the hardware deployment of the system should be more concerned about system security, and the remote anti-attack technology should be added to ensure that the system can guarantee the security of core data in the face of natural disasters and man-made damages; The system can also make comprehensive use of emerging technologies such as data warehouse, data mining and artificial intelligence to conduct in-depth mining of students' grades and students' basic information, discover some hidden rules and connections, and apply them into the practical teaching affairs and physical education teaching work to further improve the quality of physical education. On the authentication mechanism of administrator login, the integrated authentication mechanism of USB key and password can be considered to fully guarantee the security of the system. These will be the main research direction of my later work.

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