

Research on the Construction of Computer Experimental Teaching Platform based on Cloud Computing Technology

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Abstract: This paper mainly introduces the advantages of computer experimental teaching platform based on cloud computing technology, analyzes the problems existing in the application of traditional computer experimental teaching platform, and discusses the construction points of computer experimental teaching platform based on cloud computing technology, so as to give full play to the role of cloud computing technology, strengthen the research on the construction of computer experimental teaching platform, and innovate the traditional computer experimental teaching platform. It can improve the application effect of computer experimental teaching platform, provide students with high-quality experimental teaching environment, and solve the problems in computer teaching, to ensure the quality of computer experimental teaching.

Keywords: Cloud Computing Technology; Computer; Experiment Teaching; Platform Construction

The 21st century is an information age. With the rapid development of science and technology and the continuous improvement of technical level, new changes have been brought to people's life and production. The requirements of the society for talents are also gradually increasing. What we need is not only knowledge-based talents, but also compound talents with high quality, strong comprehensive ability and innovative consciousness. Based on this, we should actively promote the reform of modern education, and constantly enrich the teaching content, so as to introduce new teaching ideas, and pay attention to the construction of educational infrastructure. At present, the traditional computer experimental teaching platform cannot meet the current teaching needs. Cloud computing technology should be introduced to build a new computer experimental teaching platform, to improve the level of computer experimental teaching and maximize the benefits of computer teaching.

1. Advantages of computer experimental teaching platform based on cloud computing technology

The advantages of computer experimental teaching platform based on cloud computing technology are mainly reflected in the following points: First, the cost is low. After the introduction of cloud computing technology, the installation of computer experimental teaching platform system can greatly shorten the time. It only takes a few minutes to transfer data and data to the platform, and the data transmission efficiency is effectively improved; Second, it has good security. The computer experimental teaching platform supported by cloud computing technology can realize remote diagnosis and maintenance, comprehensively check out the existing problems, and implement effective maintenance, in order to reduce human investment, and improve the security of the system. When a computer is attacked by a virus, cloud computing technology can find important files or private information in the system to avoid damage or leakage; Third, it has good practicability. It can break through the limitation of space, give users more storage space, and the system runs smoothly. Teachers can also directly supervise students' learning projects online.

2. Problems in the application of traditional computer experiment teaching platform

At present, there are still some problems in the application of traditional computer experimental teaching platform, which need to be further solved. The main problems are: First, most computer experiment teaching platforms adopt single machine mode, which is vulnerable to virus. Once the virus invades, the system will collapse, and the maintenance of the platform will be difficult in the later period. It needs to update the computer hardware equipment constantly, which costs a lot. In addition, due to the teaching demand, many teaching software should be installed in the computer experimental teaching platform, which increases the use burden of the platform system. Once the load is exceeded, the system will be paralyzed; Second, the management of computer teaching platform needs to be improved. The main problem is that the management of computer lab is very heavy. If a computer system is in question, it will take a lot of time to repair. Even if simultaneous interpreting is carried out, it will take several hours. Because the system is not stable enough, it will not guarantee the simultaneous interpreting and the workload of the staff is too large. There are also problems in computer system upgrading. Each set of computers contains multiple operating systems, which is easy to make errors when installing and upgrading; Third, it is affected by virus. At present, the safety protection measures adopted in the computer experiment teaching platform in colleges and universities are only basic anti-virus software, which can only prevent simple viruses, and some viruses will not be blocked. When it is damaged by virus, the user's relevant data will not be used normally, which not only delays the teaching progress, but also affects the learning state. And many students will take the mobile hard disk to save the data when they study, but the mobile hard disk is also the main way of virus transmission, which has certain security risks; Fourth, there are many kinds of computer software used at present, and the update speed is slow. Some software is not used frequently, a large number of software occupies more space of computer system, which affects the smooth operation of computer system, and some software has poor compatibility, causing failure installation.

3. Key points of computer experimental teaching platform construction based on cloud computing technology

3.1 Structure of computer experimental teaching platform based on cloud computing

Cloud computing is a kind of service mode, which depends on Internet technology. It needs to realize dynamic through the Internet, and it is easy to expand the virtualization resources. Its application effectively expands the network access space, can realize the sharing of computer resources, and can obtain the required resources in a short time. With simple management, you can interact with the service provider directly. The structure of computer experiment teaching platform based on cloud computing technology includes two main contents: The first is cloud service. Cloud services also include subprojects, including infrastructure and services, platforms and services; Software and services. Among them, infrastructure and services mainly provide users with security equipment, network equipment, virtual machines, storage devices, physical machines and other computing resources; Platform and service is to provide users with operating system platform, database, web server, etc. Software and services refer to renting software and obtaining corresponding software application functions; The second is cloud management. Cloud management is rich in content and involves many modules, such as snapshot management, account management, experiment management, system management, etc.

3.2 Operation of computer experimental teaching platform based on cloud computing

After building the cloud computing experimental teaching platform, when the client is started for the first time, the server will automatically transfer the data in the system to the client's hard disk. Through the tag, the client hard disk can create data by itself. Generally, it can cache data when receiving data and using data. After each client startup, the client startup data will be formed through cache data and a small amount of server read-write data, which can enhance the experience of platform users. Moreover, compared with the stand-alone mode in the traditional computer experimental teaching platform, the cloud computing experimental teaching platform can give full play to the virtual desktop server management technology. It enables the computer

experimental teaching platform based on cloud computing to log in different account information, and display the corresponding operating system interface according to the type of account information, so as to meet the different needs of students and realize personalized teaching service.

3.3 Front end function module of computer experimental teaching platform based on cloud computing

When running the computer experimental teaching platform based on cloud computing, cloud stack API can be used to realize the front-end operation of the platform and provide corresponding services. The front-end function of cloud experiment platform includes the following modules; First, user interface module; Second, cloud experiment platform module; The third is the management interface module, which includes experiment planning, experiment deployment, experiment operation and experiment assessment. It also involves course management, experiment management, account management, system log, remote terminal and user-defined experiment; The fourth is the course library module; The fifth is the experiment library module; The sixth part is user management, module management, snapshot management and system management.

Compared with the traditional computer experimental teaching platform, the computer experimental teaching platform based on cloud computing technology has higher application efficiency and stronger functionality. The experimental teaching platform is not only equipped with basic physical equipment, but also makes full use of network virtualization technology, optimizes the network architecture, and makes the system operation more convenient. Moreover, users can define the experimental content according to the actual needs, realize personalized teaching, and guarantee the quality of the experimental environment. It can realize the visualization of computer experiment process and restore the experiment. In addition, the computer experimental teaching platform based on cloud computing technology adopts the isolation mode, that is to say, each project in the platform will not interfere with each other and has a certain degree of independence. The front-end function of cloud computing experiment platform is more powerful. It not only has curriculum library, experiment library, management interface and user interface, but also divides business modules according to the identities of teachers, students and administrators. The operation interfaces and business modules of different types of users are different and have certain differences, which can make the three parties use the computer experiment platform reasonably, so as to meet the needs of its use.

4. Conclusion

In a word, in the construction process of computer experimental teaching platform, we should give full play to the role of cloud computing technology, change the traditional form of computer experimental teaching platform, and improve the teaching effect of computer experimental teaching.

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