

Research on the Application of Cloud Computing in Education Informatization

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Abstract: Education informatization is the main development direction of modern education, in which, the state has made a lot of investment. However, the current situation is not optimistic. Therefore, cloud computing has been widely used in education informatization, which has injected new vitality. It is a new type of resource utilization mode, whose application promotes the rapid development of education informatization. Based on this, this paper analyzes the application status of cloud computing in education informatization, and puts forward suggestions on specific application measures, hoping to help promote the development of education informatization.

1. Introduction

1.1 Concept of Cloud Computing

Cloud computing is a new computing mode, which is based on grid computing base and distributed system technology. It provides rich resources to users through network services and belongs to a business model. It transforms the traditional project-based and “chimney-style” construction mode into a service consumption mode like water or electricity ^[1]. This mode change makes the service form of cloud computing more flexible, so it brings users a better experience. As the main trend of information network service development, cloud computing has become the representative of business model and IT technology. It provides services and better meets different needs of different users. Both the amount of information provided and the efficiency of information provision have been greatly improved. It can not only help reduce the application cost, but also save a lot of time for users. Cloud computing has significant advantages, so it has been widely used.

1.2 Characteristics of Cloud Computing

The characteristics of cloud computing mainly include four aspects, which bring huge business value to users. First of all, cloud computing has the characteristic of low cost. It adopts centralized management service mode, which mainly uses cloud management software and virtualization technology to carry out services. Therefore, it integrates all aspects of low-cost physical nodes. Users are able to combine their own needs to apply cloud computing, which is conducive to reducing to a great extent the cost. Secondly, cloud computing has the characteristic of strong service capability. Because it has a powerful ability of horizontal expansion, for a certain service project, it achieves multiple servers to provide services together, which makes the computing capacity and storage capacity enough strong to better meet the needs of users. In addition, cloud computing also produces rapid response to business changes. Through cloud computing, it realizes the dynamic deployment of resource pool, which integrates resources in a short time, and then meets the needs of users in many aspects. Third, cloud computing has the characteristic of Internet services. Users are capable of getting information from the Internet directly through the terminal equipment. It breaks through the geographical restrictions of the service. Users can call the information needed on the Internet at will. Finally, cloud computing is safe and reliable. On the one hand, it is quite advanced. On the other hand, it attaches great importance to the security of information. Centralized construction is needed to provide greater convenience for security protection, and help to improve security and reliability level. Therefore, compared with the traditional information system, cloud computing is more effective in security and reliability.

2. Application Status of Cloud Computing in Education Informatization

2.1 Problems in the Application of Teaching Resources

First of all, the distribution of educational resources is uneven. In economically developed areas, they are relatively concentrated, while in relatively backward areas, they are relatively scarce. Secondly, in order to make educational resources play a better role, we need to constantly make renovation, but the cost is relatively high, which makes the updating speed of educational resources slow, especially in the aspect of technology. Finally, the sharing of educational resources is difficult to be realized. In the process of curriculum integration, due to the limitation of technical level, the integration progress is slow, which has a negative impact on the sharing of educational resources. In short, due to the existence of the above adverse phenomena, the utilization rate of educational resources is seriously affected, and a large number of educational resources are wasted. In addition, it further enlarges the quality of education in various regions.

2.2 Problems in Infrastructure

Cloud computing is a new technology, which is still in its infancy in China. Due to the lack of infrastructure construction and the relatively backward technology level, its application in the education process often leads to data errors and data loss. Moreover, it results into a large number of network vulnerabilities, making a lot of important education data lack of security and confidentiality, which greatly affects the application in education informatization.

3. Application of Cloud Computing in Education Informatization

3.1 Creation of Network Learning Platform

At present, the application of cloud computing in education informatization is still in its infancy, and its effect has not been fully revealed. However, with the continuous promotion and improvement, it will play a greater role. Therefore, in the future education informatization, the popularization and application of cloud computing is an inevitable trend. With the progress of technology, in the future, whether schools, educational institutions, or individuals, will migrate information to the “cloud” to achieve broader information sharing. For students, cloud computing provides the corresponding environment, resources and personalized services for their learning activities. Students are able to obtain the required information directly through the network, on which, abundant information content are provided. The application of cloud computing in education information cloud platform promotes the improvement of education informatization level, and also enhances the improvement of network learning level. Students can access rich resources and learn a lot of knowledge through network at a small cost or even without cost. Therefore, cloud computing is vital for students’ learning activities effect. On the one hand, it exercises students’ autonomous learning ability. On the other hand, it makes students’ learning get rid of the shackles of time and place and carries out learning activities more flexibly, so as to better meet the personalized learning needs of students and improve the utilization efficiency of students’ fragmented time. Moreover, teachers and parents are capable of mastering students’ learning dynamics through the platform, and understanding their learning achievements at any time.

3.2 Building of the Internet Library

At present, many schools have their own network library, bringing great convenience to learning. Students can collect and download the required information according to their own needs. In order to further enhance the role of network library, and ensure its normal operation and the security of the server, usually the response number of the server is limited. Therefore, the normal operation of the library server can only be ensured within the limit standard. Once it is beyond the scope, the normal operation is likely to be affected. To solve this problem, cloud computing is suggested to be applied to build an Internet library. With a large server group, cloud computing can meet the needs of numerous users at the same time. Meanwhile, the computing power of its server is very powerful with reliable security, ensuring the accuracy of data, and making rapid response no matter how

many users. Therefore, cloud computing can be used to build the Internet library to better serve students.

3.3 Sharing of Educational Resources

Through the above analysis, we realize that it is difficult to realize the sharing of educational resources, which is affected by a variety of constraints that are hard to solve, such as imperfect infrastructure construction, Internet penetration and lack of funds. The existence of these problems makes the uneven distribution of educational resources more common, and the sharing of resources difficult to be achieved. In order to solve this problem, cloud computing provides new ideas and feasibility. Applying cloud computing to education information cloud platform can realize resource sharing. Cloud computing is the product of the era of big data, with a very strong storage capacity. Through the huge database, it adopts the centralized storage mode. So it can provide strong support and help for the integration, screening, sorting and refining of massive education resource database^[3], which provides convenient conditions for the sharing of education resources. Through the Internet, national educational institutions integrate educators across the country, strengthen the maintenance and management of educational resources, and further enhance the standardization of educational resources. Based on the maintenance and management of educational resources, a resource library is formed to realize the external sharing of educational resources. In addition, the interface of resource library can be opened to the society. In this way, the market resources are introduced, further enriching its connotation and form. At the same time, it will provide greater commercial value for educational resources, which plays an important role in promoting the development of education. Finally, through the application of information security protection technology and big data analysis technology, the utilization rate of data resources can be improved, and the security of data resources can be better guaranteed. The data is concentrated in the cloud center to meet the needs of various users. For teachers, they are able to obtain the required resources directly through the terminal equipment, further improve and adjust the teaching mode, carry out more targeted teaching for students, and enrich teachers' education resource pool. For students, they can quickly obtain the education resources they need directly through computers or mobile phones and other terminal devices, so as to provide more powerful environmental conditions for their own learning and promote the development and progress of students.

4. Development Trend of Cloud Computing in Education Informatization

In China, cloud computing is still in its infancy and lacks flexibility in data updating. With the development and improvement of cloud computing technology, its flexibility will be effectively improved, the organic combination of cloud computing and education informatization will be promoted, and the role of cloud computing will be fully played. Cloud computing enjoys a wide development space in education informatization. First of all, it can be applied to integrate teaching resources so as to improve the utilization of existing teaching resources. The existing resources are required to be encapsulated and transformed to form a new computing and data center, such as a virtual computing laboratory and virtual access point, so that different users can connect to the cloud through the access point. Meanwhile, a cloud online office system can be built. Cloud online office system refers to the deployment of relevant files and programs in the cloud. Users are able to directly reproduce, browse and edit the document content through the browser, and upload the edited teaching files to the server. On the one hand, online office system improves the security of the network, because the use and storage of relevant files and programs are completed in the service terminal, which helps to protect the data information. On the other hand, the system reduces the repeated storage of files, which greatly improves the space utilization. At the same time, the use and storage of files are completed in the client without a lot of software and hardware. It is conducive to helping reduce the cost.

5. Conclusion

Cloud computing has the characteristics of high reliability and security, as well as scalability and on-demand service. Therefore, its application promotes the rapid development of education informatization and helps to realize the informatization and modernization of education in China.

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