

Application Analysis of DFS Technology in Distributed Network Teaching Platform

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Abstract : At this stage, network technology is developing rapidly. The resources in the network are massive, and a large number of resources are distributed in a decentralized and heterogeneous manner. With the continuous expansion of the application scope of distributed technology, it can provide effective scheme guidance for resource application. Combined with the current situation of network teaching platform and relevant functional requirements, it is very necessary to apply distributed technology. Taking DFS technology as an example, this paper studies the shared resource management scheme of this technology in network storage, and studies the specific application effect and path of DFS technology in distributed network teaching platform.

Keywords : DFS Technology; Distributed; Network Teaching Platform; Resource Management

1. Overview of DFS technology

DFS is the distributed file system, which is an engine technology of multi-threaded and multi host access in Windows 2008 server. This distributed file system can provide redirection from a single network name to a data share across multiple servers, has a certain fault tolerance, and meets the needs of node replica replication. Through the use of this technology, it can effectively solve the problem of sharing different curriculum resources under the same network platform, facilitate resource maintenance and management, and update dynamic resources in time. The application in the distributed network teaching platform has good practical value, and is of great value for the efficient management of network teaching platform and different curriculum resources.

2. Design objectives of distributed network teaching platform

Through the network environment, the objectives of co construction, sharing and centralized management of information resources can be realized for different curriculum teaching resources of the school network teaching platform, and the transparency and integrity between the two platforms can be effectively improved, which is also the essential purpose of the construction of distributed teaching platform.

2.1 Establishment of user information base

The purpose of building such an information base is to facilitate unified identity authentication and centralized management. Combined with the current platform deployment, provincial schools and branch platforms have built corresponding user management and authentication systems. When students carry out learning, they should log in to the corresponding platform through their account. Multi account management and frequent login are not convenient for students' learning and increase the trouble of obtaining resources. The construction of user information center can realize unified identity authentication and promote the ease of use and integrity of the platform.

2.2 Construction of distributed teaching resource database

The purpose of constructing distributed teaching resource database is to promote the construction and sharing of relevant teaching resources. In the process of constructing networked and digital resources, it is the development trend and inevitable requirement of educational informatization to realize the co construction and sharing of teaching resources. In the current network

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doi: 10.18686/ahe.v5i12.4287

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teaching platform, the relevant resource management function is relatively single, and the description of resource information is not standardized. Information islands have been formed between the relevant platforms, and the resource exchange and sharing mechanism is not perfect, which is difficult to provide a way to realize the integration and sharing of teaching resources. Therefore, we need to build an open resource sharing information base to achieve the goal of construction and sharing of relevant teaching resources, which can effectively prevent the repeated development of resources and realize the efficient utilization of resources.

2.3 Building information base

The purpose of constructing behavior information base is to realize the effective connection of two-level user behavior information. Carrying out online teaching platform requires a comprehensive study of students' online time, post times, discussion times, test situation and other data. The relevant data occur in different systems, which may lead to imperfect information collection in the whole process of learners and unable to effectively grasp students' learning situation. Therefore, the construction of behavior information database can effectively connect the data in the two-level platform, promote the continuous improvement of the accuracy of network teaching evaluation, and provide convenience for the dynamic monitoring of teaching, so as to enable the research of distance teaching to obtain more real and reliable information support.

2.4 Building Information Web Services

The purpose is to provide necessary information services for relevant application systems. Teaching information resource sharing is a necessary problem to be solved in the development of educational informatization. In the centralized information management, we should build more open service components through the application of relevant technologies to meet the services of user authentication and teaching resource sharing. The purpose of building information web services is to strengthen the data sharing between relevant systems and promote the effective realization of the utilization value of relevant information.

3. DFS engine technology design of network teaching platform

In terms of the guiding ideology of DFS technology application, it is to form a logical hierarchical directory structure of shared resources in different computers in the network, so that users can randomly access relevant shared resources in computer nodes of the whole network based on such virtual network file system directory. In terms of technology deployment, the starting point of such a solution is to build a single namespace of storage resources based on software virtualization technology. Considering that the system needs to meet the needs of users to freely combine and add storage nodes, the access of nodes also needs to use the same data pool. Therefore, through the gateway of DFS technology, it can quickly redirect to the storage layer of different data. Through the difference of DFS technology types, domain DFS class is better than single DFS, and it has more advantages in fault tolerance and expansibility.

First, system deployment planning. Under the corresponding operating system, DFS, as an access technology of network shared resources, also has a certain role of data replication service. The deployment and planning of network teaching platform with DFS technology should be carried out according to the corresponding process.

Second, defining the namespace. This is to improve the data availability during DFS deployment. If there is a problem with the branch server, the client can transfer the connection to the central server. At this time, the user can browse the logical namespace without knowing the name of the physical server or shared folder where the data is stored. For specific naming, we need to refer to the relevant wizards provided under windows 2008R2. The first step is to select the server hosting the namespace. The second step is not to name the namespace and the permissions of shared folders. The third step is to select the namespace type. The fourth step is to add DFS technology links to the namespace root directory and set the corresponding permissions.

Third, building mapping relationship. This is to enable users to access the shared folders in the network at the same time when accessing the DFS root directory. Therefore, the administrator needs to map the shared folders to the DFS namespace, and finally form a tree resource structure. In the network teaching platform, such a structure and mapping relationship can make the massive network course resource structure from complex to simple and clear, and meet the larger access needs.

Fourth, customizing the replication topology. We can build the corresponding replication path framework through the built-in replication topology application of DFS technology. In the distributed network teaching platform, there are many servers. The data center may have one or more servers. Other branch servers can be connected to the central server to provide support for expansion and management, and a centralized star topology can be designed.

4. Conclusion

In the process of distributed remote network teaching, the effective collection, storage and transmission of relevant teaching resources can be realized through multi node technology, which plays an important role in improving the efficiency of network

resource management and reducing the cost of resource management. In the process of the continuous enrichment and development of network teaching resources, the integration and orderly access to relevant teaching resources is the key technical problem in the construction of distributed network teaching platform. DFS technology can effectively deal with these problems. Studying the application of DFS technology in distributed network teaching platform is necessary to promote the efficiency of resource management and optimize the working mode of network teaching platform. Through the application of DFS technology, it can provide an effective resource sharing mechanism for the distributed network teaching platform and solve a variety of problems encountered in user access.

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