

Network Information Security Protection of Digital Archives Based on Cloud Storage

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Abstract: Under the environment of digital archives, archives information can be effectively organized to form an open collection of archives information resources, which fully embodies the application value and timeliness of archives and greatly improves the availability of archives information resources to the general public. Cloud storage, as the symbolic product of the new wave, has had a profound impact on the Internet world. With its powerful functions, it has been preliminarily applied in some commercial fields in China and achieved considerable economic benefits. In the current process of digital archives construction and development, although cloud storage can provide technical support, because cloud storage is still in its infancy, there are still many problems to be solved in information resource security. This paper applies cloud storage technology and methods to the construction of archives information resource sharing, which can not only improve the utilization of archives information resources, save archives investment, improve archives service level, innovate archives service means, but also open up new application fields for cloud storage.

1. Introduction

The construction of digital archives is a kind of archives management mode that applies modern scientific and technological means to sort out and preserve archives information resources and provide modern and networked services [1]. Digital archives play an important role in promoting archives information services: first, digitize paper archives through scanning and other image technologies to facilitate query and utilization [2]. Second, promote the retrieval of archives machine-readable catalogue, realize full-text retrieval, and enable archives users to enjoy "one-stop" services. Under the environment of digital archives, archives information can be effectively organized to form an open collection of archives information resources, which fully reflects the application value and timeliness of archives, and greatly improves the availability of archives information resources to the general public [3]. It can provide rich and diverse services, provide personalized retrieval, and output services in multimedia forms such as text, sound and pictures. To effectively solve the problem of "information island", digital archives need not only the database construction of a certain kind of archives, but also the network interconnection of various kinds of databases [4]. In the process of building digital archives, the most important work is the construction of network information security system of digital archives.

The cloud storage platform can provide users with powerful computing power, provide sufficient space support for data storage and management, and the data in the "cloud" can be copied to multiple physical robots for storage, effectively avoiding the risk of data loss and damage [5]. As a symbolic product of the new generation wave, cloud storage has had a profound impact on the Internet world. With its powerful function, it has been preliminarily applied in some commercial fields in China and achieved considerable economic benefits [6]. In the current construction and development process of digital archives, although cloud storage can provide technical support, because cloud storage is still in its infancy, there are still many problems to be solved in the security of information resources [7]. Although cloud storage can use its technical support to promote the construction and development of archives, after all, it is still in its infancy, and there are still many problems to be discussed and solved, among which security is the first outstanding problem to be solved [8]. Applying the technology and method of cloud storage to the construction of archival

information resources sharing can not only improve the utilization rate of archival information resources, save the investment of archives, improve the service level of archives and innovate the service means of archives, but also open up a new application field for cloud storage [9].

2. Network security of Digital Archives

2.1. Technical problems

Computer viruses will cause disastrous damage to the security system of digital archives. Because computer viruses are parasitic, contagious, latent and hidden, once they invade the servers of digital archives, the damage to archives resources will be fatal. Digital archives is an information system based on network technology. The security problems in the network threaten digital archives. Due to the "congenital deficiency" of computer software and hardware, there are security risks in the system. There is a back door in the design and manufacture of hardware, which may cause the leakage of confidential information. Among them, the defects of the core software, operating system and database system are increasing. Digital archives and cloud storage is a digital information resource management and service system based on user information activities. It is a digital information resource management and service system that provides intelligent, active and personalized ultimate information services for user groups with different needs, and supports users to process information flexibly, self-help and independently, refine knowledge, cooperate and communicate and solve practical problems. As shown in Figure 1.

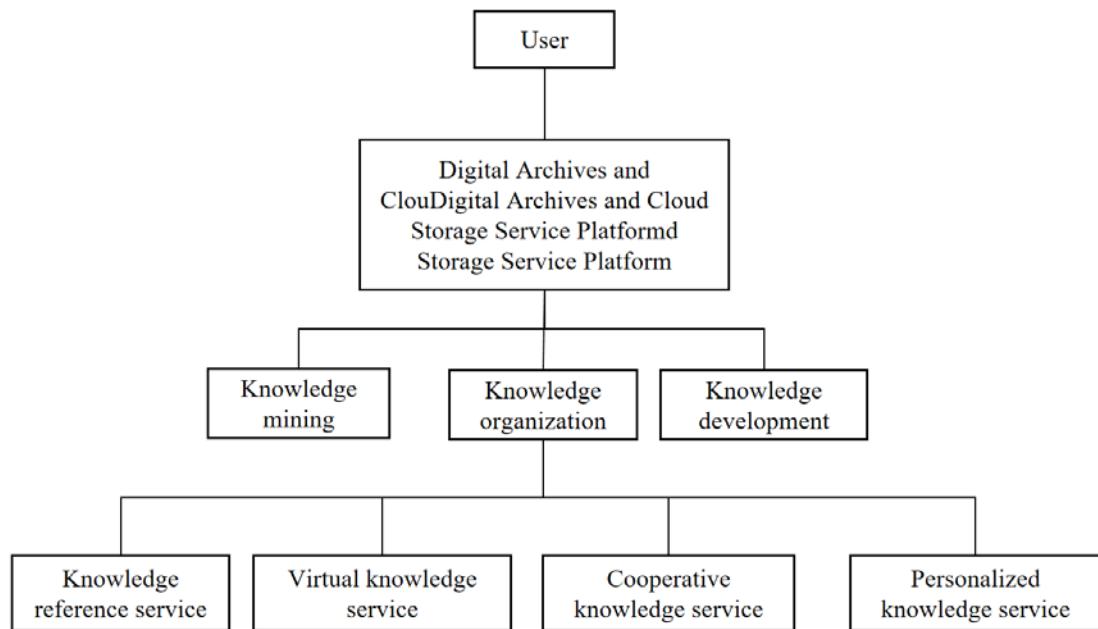


Figure 1 Optimized integration model of digital archives and cloud storage knowledge services

For example, there are many security vulnerabilities in our commonly used operating system, whether windows or Linux, which makes it easy for viruses or hackers to obtain control of the information system through these vulnerabilities, resulting in system instability and even the loss and leakage of confidential data. At present, the management of the server depends too much on the system administrator. The system administrator often integrates all permissions. However, once the system administrator is attacked, the consequences will be fatal.

2.2. Problems at the management level

Leaders do not attach great importance to the network security of digital archives, and generally use the funds of this library for the construction or introduction of archives system, with little financial support for security. Although now is the era of information sharing, the particularity of archives can't be fully shared with other information. Many archives are confidential and can't be

made public. Once the archives data are damaged, lost or tampered with, the losses will be immeasurable. General practitioners have a weak awareness of network security in digital archives. Most of them are very professional in data entry and retrieval, but they are at a loss as to how to choose and use network security products and deal with system problems. The security of the network itself and the information security in the network, in which protecting the information security of the network is the ultimate goal. The network information system of digital archives is a system with open services and information sharing. It is precisely because of the openness and interoperability of the network that the system security problems become increasingly prominent and serious. In the process of construction, some digital archives have not formulated safety systems such as regular inspection and maintenance system, safety accident report and emergency system, backup and disaster recovery system, or put the system on the shelf, do not implement it or go through formalism. Therefore, in order to ensure the safety of network equipment, system and data in the process of networking of digital archives, ensure the normal operation of various work of network-based digital archives, and build a stable and reliable network information security system has become an important task in modern archives management.

3. Security Management Measures of Digital Archives in Cloud Storage Environment

3.1. Accelerate the construction of laws and regulations

In the cloud storage environment, the data security and confidentiality of archives will involve intellectual property protection, accountability and other rights issues. Cloud storage can share digital archive information. Cloud storage technology can shield the diverse formats of information resources, connect all resources on the Internet, and bring one-stop cross-database retrieval service to users, so as to share information resources. Because the cloud storage technology is not mature enough, and there is no specific targeted law, archives should make relevant agreements and clauses with cloud storage providers to avoid risks, maintain service relationships and ensure the healthy development of data and information. The main functions of digital archives can be summarized as information intake, information storage, information resource management, information retrieval, information release and data security. Its construction purpose is for the long-term preservation and convenient acquisition of digital information, which is ten times similar to the functions of cloud storage model. The corresponding relationship between the two is shown in Table 1.

Table 1 The correspondence between cloud storage and digital archives can

| Cloud storage | Digital Archives |
|--|---|
| Information ingestion (ingest) | Comprehensive and comprehensive access to archival information resources through collection, capture and carrier transformation |
| Information storage (archival storage) | Storage of digital information resources |
| Data management | Management, transmission, effective access and release of archives information content and metadata |
| Information access | Query and access management of digital archives information |
| Preservation planning | The query and access right management of digital archives information ensure the long-term, safe storage and availability of information resources through scientific planning and measures |
| System administration | Digital archives system management |

Among them, archives are important information resources. Through cloud storage sharing, specific information resources of heterogeneous archives in various regions and departments can be integrated, so as to achieve the purpose of sharing archives information among different archives and departments. Cloud storage providers themselves should also formulate reasonable and feasible management policies to improve the reputation of enterprises and ensure the security of information resources in the cloud. It can provide users with a unified access interface, actively select the corresponding access protocol, and complete the specific service requests put forward by users.

3.2. Secure data storage

Ensure the security of file information access and communication process in the digital archives, and each user has different access rights to the file information resources in the digital archives. For the data in the "cloud", the cloud supplier needs to take effective security measures to ensure the security and reliability of the data. Moreover, running virtualization storage technology can copy the data in the "cloud" to multiple physical machines for storage. Even if there is an operation error or hardware crash, there is no need to worry about data loss and damage. Cloud storage can guarantee the security of archive information. Because cloud storage adopts the centralized data storage mode, it is easy to conduct security monitoring, so it is a technology with very high security. In addition, it is also necessary to set the hardware equipment reasonably in the archives, so as to make a comprehensive and timely backup of the collection data resources and ensure the data security and reliability. Arrange special managers to manage and distribute data in the data center, and at the same time carry out real-time safety monitoring.

3.3. Device access

In the cloud storage environment, in order to ensure the data and service security of digital archives, the access rights of users should be divided and controlled according to the actual needs of users. Cloud storage can make full use of existing resources, effectively solve the problems of huge data computing, processing and analysis, and provide sufficient storage space, so as to effectively solve the data storage problems of digital archives. When users request access, they must first verify their access rights. After verification, users can enjoy cloud data resources within their access rights. When in the cloud storage mode, the cloud network's own powerful computing power and nearly unlimited bandwidth can bring an excellent interactive environment to file information sharing, which is very beneficial for file department personnel to know the specific requirements of users in time, so as to provide targeted personalized service.

4. Conclusions

To sum up, the construction of archives network information security system is a systematic project. We must recognize the particularity and complexity of network information security problems, and constantly maintain and update the system in time according to the changes of the situation and some problems exposed in the existing system. In physical archives management, archives managers generally have a strong sense of security, but they are often helpless in the construction of digital archives, which is related to the insufficient reserves of computer technology and network security knowledge of archives management practitioners. Through the combination of technical prevention and management prevention, we can establish an all-round, multi-level and systematic network information security system, so as to finally achieve the purpose of providing security for network information. At present, in the process of social development, cloud storage technology is widely used in various industries. In the process of building digital archives, it is even more necessary to seize the favorable opportunity. For the information service and management of digital archives, what needs to be paid attention to at present is: clearly understand and fully grasp the technical essence, characteristics, basic attributes and application value of various cloud storage services, and then selectively introduce them into the field of digital archives, so as to further enhance the service capacity of digital archives. I believe that with the mature application of cloud storage technology in other fields, it will be widely used in the service and management of digital archives information resources.

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