# Study on Data Security policy Based on cloud storage

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**Abstract—** Along with the growing popular of CloudComputing. Cloud storage technology has been paid more andmore attract as an issue network storage technology whichis extends and developed by cloud computing conception. Cloud computing environment depend on user services such as high-speed storage and retrieval provided by cloud computingSystems .interim data security is an important problem tosolve urgently for cloud storage technology. In recent years,There are more and more harmful attacks on cloud storageSystem, and cloud storage system of data leak out also frequentlyoccurred. Cloud storage security concerns the user's data security. The main purpose of this paper is to achieve data security ofcloud storage and to develop corresponding cloud storage security policy. Those were combined with the results of existingacademic research by analyze the security risks of user data incloud storage and approach a subject of the relevant security technology,which based on the structural characteristics of cloud storage system.

***Keywords -- cloud computing; cloud storage; security policy; data security***

## 1 INTRODUCTION

A. Here we developed and progress of computer technology, the Internet has been becoming an integral part of one's life. The user-demands of internet use have not only limited to browse the portal but also to the development of Internet application services resulting in explosive growth of internet data. the internet service provider needs more process units and storage devices to ensure the regular operation of the corresponding system functions. it is still an urgent issue to solve for internet service provider that the high cost of memory devices, personnel management, and equipment maintenance. To reduces the problems, cloud computing came into existence. Compared to the traditional computing model, the cloud computing model distributes computing tasks on a large number of computers due to the explosive growth of internet data today. This model allows users to allocate resources to the required on demand and access the computer and storage systems on demand, providing fast, efficient, and inexpensive computing power that maximum users' storage service needs. As a result, the data computing model has changed from the traditional computing model to the large data cloud computing model. At present, as an emerging network storage technology extended and developed by cloud computing concepts, cloud storage technology is essential with the widespread popular of Cloud Computing. Cloud storage technology uses cluster applications, network technology or distributed file systems, etc. Cloud storage technology makes full use of the existing different storage devices in the system to provide users with data storage, data retrieval, data backup and other functions through application software ran by a user terminal.
B. The purpose and significance of the study More and more individual and business users focus on cloud storage and transfer data to cloud storage with the development of cloud storage. Using cloud storage services requires users to store the data in the cloud storage device, instead of storing data on a PC as traditional computing model does. There must be a outsize risk because users do not know the boundaries of the cloud storage system, do not know whether the storage devices were shared, and cannot ensure the availability and reliability of storage device. The data of the user may be stored in a shared cloud storage system instead of storing in devices of cloud service provider. So users cannot control data security to ensure the confidentiality and integrity. Cloud storage technology has no standardized, normalized security policy as an emerging network storage technology; notwithstanding cloud service providers have put forward many specific cloud storage safety measures. Moreover, previous research results lacked enough systemic and in-depth analysis and discussion about the security risks and cloud management leaks of cloud storage users. To attract more Internet users

and promote cloud computing and cloud storage systems successfully, this paper summarizes a perfect security policy that applied to cloud service providers and users which aiming at ensuring the safety and reliability of the data and the benefits of cloud service providers and users.

## 2. Methods:

### A] BASIC CONCEPTS

i) CLOUD COMPUTING

In recent years, the data of network application is showing the scale of explosive growth. Some traditional server devices are too difficult to load a huge amount of data processing.Meantime, the costs of server operation and maintenance arealso increasing. As a result of distributed processing, parallel processing and grid computing, cloud computing will split a huge calculate processing tasks into some subroutines through the network automatically. And then return the result to a userafter calculated and take a part by a system composed of manyservers. Service providers' net service can deal with tens of millions or even billions of information in a few seconds using cloud computing technology, which is as powerful as "supercomputer". Furthermore, the service is multi-functional such as a model of computer and software, Internet-related, etc. The architecture models of cloud computing system consist of three layers:

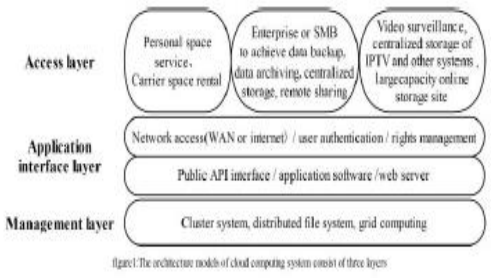


figure1 The architecture models of cloud computing system consist of three layers

□□ Virtualization Users can use variety kinds of terminals to obtainapplication services irrespective of whatever his location is anddo not need to care about where the application runs.

- High reliability

Cloud computing ensures high reliability of service usingmultiple copies of data for fault allowance and nodeisomorphism interchangeable.

- Very Large Scale

At present, cloud computing has a considerable scale,higher-up business such as Google, IBM, Yahoo has hundredsof thousands to millions of servers.

- On-demand service

Cloud computing allows users to purchase anytime, anywhere according to their needs.

- Low-cost

Automated centralized management of cloud computingallows many companies do not need to burden the high cost ofdata Centre management. The versatility of cloud computing is a huge improvement of resources utility compared with a traditional system.

ii) CLOUD STORAGE

Cloud storage has become one of the hotspots of information storage recently with the rise of cloud computing. Cloud storage refers to a system that provides data storage and service access functions for users through cluster application, network technology and distributed file system, which collects a large number of different types of storage devices in thenetwork through application software to work together. In summary, cloud storage is a service, which is not referred to a device, but rather an aggregation of many storage devices and servers for users. For those who use cloud storage. They use the data access service provided by entire cloud-storage system instead of using simply a storage device. Storage service stores the local data over the network in the online storage space provided by the Storage Service Provider (SSP). Users who need to store services only need to apply for storage services to the SSP rather than to build their data centers. Therefore, users avoid the duplicated construction of the storage platforms and save expensive investment of hardware and software infrastructures. The structure of the cloud storage system consists of four layers:

□□ Storage layer the storage layer is the most fundamental part of cloud storage. The storage device can be an FC Fiber Channel storage device.It also can be an IP storage device such asNAS and iSCSI, or a DAS storage device such as SCSI orSAS.

Cloud storage system often consists of numerous storageDevices which distributed in different regions. They wereconnected to each other through WAN, Internet or FC fiberchannel network. Over storage devices, the unified storage device management system will achieve logic virtualization management, multi-link redundancy management of storage devices and status monitoring and fault maintenance of hardware devices.

□□ Management layer

Management layer is the core of cloud storage and the part most difficult to achieve. Management layer implements the collaboration between multiple storage devices in the cloud storage through the cluster, distributed file system and grid computing technology so that multiple storage devices can provide the same service and greater and better data access performance. CDN content delivery system and data encryption ensure that cloud storage data will not be accessed by a unauthorized user. Meanwhile, to keep the security and stability of cloud-storage, taking measures such as data backup and disasterrecovery can prevent cloud storage data from being lost.

□□ Application interface layer

Application interface layer is the most flexible part ofcloud storage. According to the actual business type, different cloud storage operators can develop different application service interface, providing a series of services. For example, video surveillance application platform, IPTV and video-on-demand (VOD) application platform, network hard disk application platform, remote data backup application platform, etc. B. Current situation □□ Development of cloud storage.

□□ Drop box

Drop box is an online storage service product launched by Drop box in 2007.
The free space of the product is 2 GB, and it
can be paid for expansion, up to 100 GB for $ 199.
Due to the excellent characteristics, product strategy and Word-of-mouth Marketing of Drop box, the number of users increases very quickly. Thenumber of registered users had been broken 100 million. Drop box has a considerable number of fans in China.

□□ SkyDrive

SkyDrive is an online storage service product launched by Microsoft in 2007 with free space of 25 GB by April 22, 2012, followed by 7 GB. SkyDrive canalso be paid for expansion. The current number of registered users is about 40 million.

□□ Google Drive

Google Drive is a cloud storage service launched by Google on April 24, 2012, officially with free space of 5GB. Google Drive can also be paid for expansion. Pay $ 60
upgrade to 60 GB, and $ 25 for 25 GB.
The current number of registered users is nearly 100 million. Furthermore, Amazon, Apple and other companies have been competing to launch their free cloud storage products. China Telecom, Lenovo, Alibaba, Xiaomi and other vendors cloud mobile phone and cloud services were also unveiled. Cloud storage has become a trend.

## 3.Conclusion

While more and more users start using cloud storage services, there is no security mechanism in the process of data transmission and storage in the cloud storage system. The following parts will analyse the security risks of data storage from four aspects.

*A. Data transmission risk*

Data transmission depends absolutely on the network in cloud storage mode. Therefore, the threat of network attacks on data security is badly big. Hackers can take advantage of the vulnerabilities and technical errors of the network. They intercept information, modify access rights, obtain or modify data, to compromise the benefits of cloud storage providers and users. In the physical layer, the data of cloud storage system may not only be leaked in the form of electromagnetic waves but also be intersected in the process of network communication. In the Data Link, Network and Transport Layer, in the case of inappropriate use of Technology, data will be at risk even though there are SSL, SSH, IPSEC and other VPN technology for data transmission to create a trusted secure connection. In the Application layer, the DDoS and other network attack will take up many of the network bandwidth, resulting in network equipment downtime. Service can’t respond to user requests, resulting in user data in the transmission process damaged or lost, affecting the availability and Integrity of data.

*B. Data storage risk*

Some valued data and resources, related programs and applications of users are stored in the cloud using cloud storage service. Current cloud storage service providers take measures of centralized storage, unified management, real-time monitoring of users' data, to ensure system and data security. However, the cloud storage system is an enormous and complex system with a structure of four layers, which involves the integrity, confidentiality and availability issues of data. Different cloud service providers have their security policies and technical mixtures to ensure the safety of the user's data. This section will briefly report the risk of data storage from two feature of the hardware application strategy and cloud storage service providers' management.

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