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Data retrieval for Cloud Computing

Ranjeet Kumar Singh[1] and Mahesh Sharma[1]

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Abstract:

Nowadays, electronic data form are used to create the large quantity of data which is manage in efficiently manner and accessed when needed by users that is refer to as cloud computing. On the basis of demands, Cloud computing offers access to any kind of services dynamically over Internet. Number of demand services are provided to cloud user by developing benefits and evolving latest distributed computing technology. The deletion of data from the datacenters can be occurred which involves man-made disaster (either CSP or customer itself without their knowledge) or by natural disasters (either earth quakes or volcanoes). These deleted data, requirements for designing an efficient data recovering technique to recover lost data. Many researcher have developed the technique for recover data but have the lack of efficiency and reliability. This paper mainly focus on efficiency, time consumption to recover the data, data integrity, cost etc. and describe also recent techniques for backup and security will be introduced.

Keywords: *Cloud Computing, Datacenters, Natural Disaster, Efficiency*

Authors:

1. *Sherlock Institute of Forensic Science India (SIFS INDIA), New Delhi, INDIA*

Introduction

Now a days, cloud computing is considered one of the most beneficial tools for the backup of lost data. Through the use of cloud computing, the consumers are able to access the resources on internet without any doubt regarding the technical or physical managements' problems originated by original resources. **According to Indian National Institute of Standard and Technology of India**, cloud computing is a model that makes enable to fit on-demand network access for the sharing of configurable computing resources (networks, servers, storage, applications and services) that can available easily and released with minimum management effort or services. This technology is vast technology that surpassed the all previous technology of computing i.e., cluster, distributed etc. These technologies relates to this competitive and challenging Information Technology (IT) world. The need of Cloud computing is increasing day by day because the advantages of it overcome disadvantages of various previous computing techniques. There is need of large space on the data storage devices to store the data. So, the capability of hard disk drive is increased up to terabyte. The cloud computing provide the online storage where data is stored in the form of virtualized pool and hosted by third parties. But this storage size creates problem for those users who use cloud to store the large amount of data. In case of damage of cloud or other corruption was occur, some problem is arise of data security as there are the chances of data lost. To avoid this problem, some mechanism should be applied for the backup of data. For example. If the above explained situation is created and the cloud data is lost then various techniques known as plain data backup technique are applied. But these technique have many issues regarding reliability and security and these are not convenient. To overwhelm from these drawbacks of plain data backup and recovery problems, more secure and effective system have been developed and these are as follows:

Table: Various Techniques of Back-up and Recovery and their Comparison

S.NO.	Approach	Advantage	Disadvantage
1.	Online data back-up and Disaster Recovery Technique	It is used by Movable clients i.e., laptop, smart phone etc.	> Costly > Increase redundancy
2.	Parity Cloud Service (PCS)	> Reliable > Privacy > Low cost	>Implementation > Complexity high
3.	Efficient Routing Grounded on Taxonomy (ERGOT)	> Perform exact-match retrieval > Privacy	> Time complexity > Implementation complexity
4.	Linux Box	> Simple > Low cost for implementation	>Required higher bandwidth >Privacy > Complete server Backup at a time
5.	Cold/ Hot Backup Strategy	> Triggered only when failure detected	> Cost increases as data increases gradually
6.	Shared backup router Resources (SBR)	> It reduce the cost effectively > it works after failing the route	> some performance problems are created due to inconsistencies between logical and physical configurations

			> the involvement of optimization concept associated with the cost reduction is difficult
7.	Availability of Rented Resources	> Virtualization, given it to the clients appeared as cloud services on rent > Infrastructure utilization decides the cost	> Implementation get complex >Resources must kept under special attention due to rented concept

REMOTE DATA BACK-UP SERVER

Main cloud's back-up server is the duplicate form of cloud. This back server is not located easily and only have the complete copy of main cloud which is known as Remote Data Backup Server whereas central repository is used for the main cloud and remote repository for remote cloud. There are some cases of central repository in which the data is lost i.e., flood, earthquake, fire etc. or through the attack made by the human and accidently deletion. Two distinct purposes are hold by back-up: first purpose is the recovery of lost data which can be lost by the common experience of users and second purpose is the recovery of data from previous time as per the user define data retention rule. It can happen Remote Data Back-up provide following services:

- Confidentiality of data
- Reliability of data
- Cost Productivity
- Security of data
- Integrity of data

Security of Data

The first priority of remote server is to provide the total data security to users. Data security in cloud that improve by security-focused resources, control of data, etc. but the doubt remains about the loss of control over the data sensitivity as well as lack of security during storage of stored kernels. Security is good or better tool for data compared to the traditional systems because providers are able to dedicate resources to solve the security issues which is not possible for many customers. The complexity of data is increased when the confidential data is spread to the large numbers of devices because the unrelated users are able to access the data. After applying the security, data writer would be able to login on his own private data and also read, write and perform any other action on it. Only particular user who have legal authority can access to the data, not any other users.

Integrity of Data

About Data integrity of server which is known through the whole structure made by the server along with the complete states. The data which not permit any change in it during the transmission and reception, is verified through the integrity, validity and fidelity of data on remote server which is also checked and verified by the integrity of data as a sample.

Data Confidentiality

For certain times, Data files should be kept in secret when number of users are accessing the cloud simultaneously. While in the case of accessing of other users on cloud should not be permit to see the private data belong to another user. That is refer to as the characteristics of Data Confidentiality.

Reliability of Data

Remote cloud contains the vital features related to the trustworthiness. Remote cloud should keep these features because it contains the confidential and private data of user. So, in cloud backup, the remote must have the trustworthiness characteristic.

Cost efficiency

An important role is played by the cost which is paid for the employment of remote server and the technique used for the recovery & back-up during the creation of the structure of main cloud as well as its correspondent remote cloud. The process applied for the recovery of data is cost effective. So, the most of

the companies and users make the benefits of back-up and recovery services. On this issues, there have many large numbers of methods on which focus must be done. At time of recovery, foresaid issues occurs in which techniques contains the discussion of domain's back-up of cloud computing. Lesser the cost of recovery, percentage of users must be better.

Review of Literature

Yadav and Das 2012, dictated that the recovery of data means the restoration of deleted, lost, broken or inaccessible data that is lost by numerous reasons. Data recovery is not only used to recover the lost files but also for the recovery of corrupted files. For different lost reason, exist different data recovery techniques/methods. There are software and hardware reasons that cause data loss, while data can be recover by software and hardware ways. Prevention and backup of data have the best way to insure the security of data regularly.

Badhel and Chole 2014, concluded that tried to recover the lost data for cloud computing by using all techniques, i.e., the maintenance of implementation and implementation difficulties' cost should be low as possible. For cloud computing, it is not possible to achieve all problems related to remote data back-up server in less storage space through backup solution.

Bangale et.al 2014, discuss that huge amount of data which is collected on the web servers because of the automation and availability of data from remote location. It reduces the portion of geographical area which is required to store the records and also encourages for the paperless work. The main and important characteristic of cloud computing is the reduction in time which is consumed in searching of required documents. Every companies required the computerization as well as remotely accessible web services. It contain main aim that secure and protection of data by developing the recent techniques on web server.

Choure and Bansode 2015, concluded that cloud computing is appeared as web based developing model that allows the clients to access data and resources from any geographical location at any time on subscription basis. Cloud computing provides many advantages to clients as it secure and maintain the privacy of stored data in cloud. It is more useful and profitable than the previous conventional storage techniques especially in cost reduction, portability, adaptability, and functionality requirements.

Bhor et.al 2015, in this paper, data stored in easy and effective manner for the security of data by suing partition technique and success is reduce the time and space. It is also provide flexible access and less cost to data storage and provide the encoding and decoding for highly secured the data and checking remote data integrity to detect misbehaving servers and threads. It is also provide the Remote data backup services to ensure data. In this work, provide the high level security to cloud computing from external attack and provide the higher level of searching mechanisms.

Gharde and Ghaormare 2016, in this paper, studies about the remote data backup algorithm that is called seed block algorithm is done due to which recover the disaster files from remote location when the main cloud fails to draw the files to client. There is no modification can be done in original files that is shown in experimental and results due to which integrity of files should be maintained and time related issues should be solved by seed block algorithm.

Mrabti et.al 2016, discuss the issues related to data security and some concepts related to intrusion tolerance have been cited. It is discuss the technique Information Dispersal Algorithm (IDA) and encryption data in cloud computing. Cloud computing server (CCS) framework presents an advantage over the classic model in term of robustness.

Bos 2017, stated that according to Moore's Law, through the more computing power, band-width and storage are being grown at a comparable pace. It shows that the digital devices have become more useful in completing the task every day. On another side, companies also provide applications for many different tasks. In digital forensic, it is required of updates continuously of new method and technologies by investigators for the better results in the less time. Data recovery is being improved through the help of refinement and evaluation of existing models in the field of binary data.

Conclusion

Cloud computing plays an important role for the sharing of resources and information from a poll of distributed computing as a server over Internet. It provides benefits to users, security and privacy to

retrieval the lost data by the use of technique; seed block algorithm (SBA). It is used to collect the data from remote location and also for the recovery of files when files are detected or cloud is destructed due to any reason. Results is, SBA focuses on security of stored files during backup at remote server and it also reduce the time used in the recovery of file.

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