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Data retrieval for Cloud Computing

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Abstract:

Nowadays, large amount of data are generated in electronic form which is manage in efficiently manner and accessed when needed by users that is refer to as cloud computing. Cloud computing provides accessing of any kind of services dynamically over Internet on demand basis. Number of demand services are provided to cloud user by developing benefits and evolving latest distributed computing technology. This data may get deleted by man-made disaster (either CSP or customer itself without their knowledge) or by natural disasters (either earth quakes or volcanoes) from the datacenters. 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 they lack in 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*

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Introduction

Now a days, cloud computing is one of the beneficial technology for backup the lost data. It is form enables to consumers to access resources online through internet, from wherever at any time without worrying about technical/physical management and maintenance problems of the original resources. **According to Indian National Institute of Standard and Technology of India** defines cloud computing: as a model for enabling convenient, on-demand network access to a share combination of configurable computing resources (networks, servers, storage, applications and services) that can be provided fastly and released with minimum management effort or services provider. This technology is huge technology which is surpassing all previous technology of computing like cluster, distributed etc. of this competitive and challenging Information Technology (IT) world. Cloud computing needs increasing day by day as its advantages overcome its disadvantages of various early computing techniques. It requires large amount of space over the data storage devices to store data due to which size of Hard Disk Drive (HDD) increased up to terabyte. Its storage provides online storage where data stored in form of virtualized pool that is usually hosted by third parties. This storage size problem for users prefer to cloud where they can store large amount of data. In case of damage of cloud or other corruption was occur, some problem is arise of data security, in this situation important data might be loss to avoid this situation there should be some mechanism to supply backup of stored data and recover that data if above situation might be occur in which i.e cloud failure or data can be loss. Some different technique that will be known as plain data back-up technique. But these technique having many reliability and security issues as well as they are not convenient and reliable. To overcome these drawback from plain data backup and recovery issues, it requires more secure and effective system that is as follows:

Table: Comparison between various techniques of Back-up and recovery

S.NO.	Approach	Advantage	Disadvantage
1.	Online data back-up and Disaster Recovery Technique	Used for Movable clients like laptop, smart phone	> 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 concerns with cost reduction > works even if router fails	> Inconsistencies between logical and physical configurations may lead to some performance problem >It is unable to includes optimization concept with cost reduction
7.	Rent Out the Rented Resources	> Virtualization, rents it to the clients in form of cloud services	> Implementation get complex >Resources must kept under

		>Cost depends on the infrastructure utilization	special attention due to rented concept

REMOTE DATA BACK-UP SERVER

Back-up server of main cloud is nothing but the copy of main cloud is exist. This server is slightly located and it having complete copy of main cloud that is referred as to Remote Data Backup Server whereas main cloud known as central repository and remote cloud known as remote repository. In case of central repository loss of data under some circumstances such as earthquake, flood, fire etc. or by human attack or deletion that has been done mistakenly. Backup have two distinct purpose: primary purpose is to recover the lost data that data can be lost by common experience of users and secondary purpose of backups is to recover data from earlier time according to user define data retention policy. It can happen Remote Data Back-up provide following services:

- Data Security
- Data Integrity
- Data Confidentiality
- Trustworthiness
- Cost Efficiency

Data Security

Remote server have primary priority to provide the total data security of users. Data security in cloud that improve by centralization of data, increased security-focused resources, etc. but concerns can persist about loss of control over certain sensitive data, and the lack of security for stored kernels. Security is good or better for data than the traditional systems because providers are able to devote resources to solving security issues that many customers cannot afford. When data is distributed in wider area or greater number of devices and in multi-tenant systems then complexity of security is greatly increased which are being shared by unrelated users. By security, owner of data should be able to access his private data and perform read, write or any other operation and only intentionally or non-intentionally, only particular user should have access to that data or not any other users.

Data Integrity

About Data integrity of server, known by the server's whole structure along with all complete states. Data which resist to any kind of change in it at the time of transmission and reception. Such type of data is verifies by using the data integrity and validity or fidelity of data on Remote server is also checked by using data integrity.

Data Confidentiality

In certain times, Data files have to be kept in secret that if number of users simultaneously accessing the cloud. In case of other users accessing files on cloud, they should not be able to see particular data file is belong to only that particular user. That is refer to as Data Confidentiality characteristic.

Trustworthiness

Remote cloud contain the important characteristics of trustworthiness. Remote cloud should keep that because every user having their private also confidential data on cloud. In cloud backup, Trustworthiness characteristic should be present in remote also.

Cost efficiency

The cost for employment of remote server and its recovery & back-up technique also play an important role while creating the structure for main cloud and its correspondent remote cloud. Processing of data recovery contain the cost efficient so that large number of companies along with users can take benefit 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 back-up of domain of cloud computing are discuss in techniques. Lesser the cost of recovery, percentage of users must be better.

Review of Literature

Yadav and Das 2012, dictated that data recovery means retrieving lost, deleted, unusable or inaccessible data that is lost by various reasons. Data recovery is not only recover lost files but also recovers the 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, such as maintaining the cost of implementation and implementation complexities as

low as possible. For cloud computing, each one of the backup solution is unable to achieve all the issues of remote data back-up server with less storage space.

Bangale et.al 2014, discuss that vast amount of data is going to be collected on the web servers due to computerization and availability of data from remote location. It helps in reducing allocation of geographical area required for storing records and also promotes paperless work and time consumed for searching required document is less. 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 web based developing model which permits the clients to access data and resources from any geographical location at any time on subscription basis. Cloud computing provide the advantages to clients, security and privacy of stored data in cloud. It is more useful and profitable than the prior conventional storage framework particularly in adaptability, cost diminishment, portability 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, providing the more computing power, band-width and storage keeps growing at a comparable pace. It means that digital devices become useful in more and more tasks every day and companies quickly provide applications for many different tasks. In digital forensic, need to be result that investigator continually update methods and tools in order to deal both with more data and different types of data in an often very limited timeframe. Data recovery is improving by refining and evaluating existing models in area of binary data.

Conclusion

Cloud computing play an important role to share resources and information from a poll of distributed computing as a server over Internet. It is provide benefits to users, security and privacy to retrieval the lost data by using seed block algorithm (SBA) technique. SBA is used for collecting the information from remote location and for recover the files in case of file deletion or cloud can be destroyed. Results is that SBA focuses on security for backup the stored files at remote server and it is also reduce the time required to recover the file.

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