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Novel Framework Of Cloud Based Memory Storage

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ABSTRACT:

In the edge of internet, Cloud storage has become very important part of internet. In cloud storage we store the data over the internet through the cloud computing. here we can get as much storage as we want by purchasing it. Lots of companies are working on it with full potential. Like Amazon, Google, IBM etc. As an internet user, Whatever, we are doing we are producing data at every time. But we have the limited amount of storage. the speed of producing data is very high. So, in near future our limited storage is not going to be sufficient. As we can understand that future of cloud storage is very bright in term of storing data. So, we should shift ourselves permanently to the cloud storage for the purpose of storing data. At place of using any physical storage devices in our desktop, laptop, phones. We should use the cloud storage. Using of cloud storage would be very beneficial for us. it will enhance the efficiency of our devices.

Firstly, Amazon has started this kind of cloud services in 2006. Particularly, it was started in Hong Kong because of huge amount of data were processed daily in various fields. In its starting time, it was little slow, but now it is working on very big level. Currently, cloud market is generating huge amount of revenue. Companies are investing in cloud storage at very high level. Every day you can't imagine the amount of data we are producing every day 2.5 quintillion bytes of data every and 90% of data we have produced in last two years. Now, we can understand the pace of generating data.

Keywords: Cloud storage, cloud storage market, security

Introduction :

Cloud storage is used to store the data online. Which is accessible by the users at any time and at any location. For the business purpose and for the individual purpose the consumers can store their data securely and they can access it, according to their requirement. The cloud storage was invented by the computer scientist Dr. Joseph Carl Robnett Licklider in the 1960. After few decades compuServe has started giving the small amount of space to the persons to store their files. In 1990 AT&T Lab has started its first web base storage for business and individuals using cloud storage. After this lots of companies has started providing this service which people are using it currently. We can use the cloud storage for the business purpose and for personal use. Popular cloud storage providers are Apple (iCloud), AWS (Amazon Web Service), Dropbox, Google etc.
We store all these data in the cloud through the cloud computing. Accessibility is very smooth in this process. we can access the data worldwide from any location and any device with help of internet. It will very cost effective as well for the users. They can use the storage according to their requirement at place of using same amount of data compares to huge amount users. Customers also can store their financial information, health care, education, government, big data and lot more, we can store in the cloud using cloud computing.

How does it work?

Actually, we need to buy the storage on cloud from third party cloud providers. Basically, they own and run the cloud storage over the internet. They also manage the capacity, security and durability to make data available to the whole world through the internet. We can access our data using an API. The cloud provider handles all these data via having multiple data center across the world. Now, we need understand that how cloud storage manages all the different-different files.
There are three different-different types of storage:

1. Block storage
2. File storage
3. Object storage

2.1 Block storage:

Block storage stores the data in smaller pieces(unit) and those pieces are called as blocks. Those blocks have some attached identifier and they stored in a system storage derives. They are very fast and efficient and high-performance workload.

2.2 File storage:

In the file storage, the files are stored in folder. Basically, they make proper hierarchical System. File storage system basically, used in personal computers storage derives and network-attached storage (NAS). There are some directories and sub-directories to locate the files and folders. By using this system the access of data and retrieval is easier for users.

2.3 Object storage:

In this type of storage data will be stored as an object. It has few main components in stored data in file with meta data is associated and a unique identifier. We access the data using an API. Object storage stores the data in a single object with unique identification number (ID) because of the file storage protocols. Whenever the users want to access its data. He can access it through this ID number. Object based storage also allow us to customize it.

In this era, everybody using internet it, very efficiently. Which is a very good thing. But problems comes when storage comes when storage comes in the scene. Almost everything in today's life, people are mostly depend on phones, tab, computer or whichever device they are using. They are scheduling their appointments, booking hotels, making notes, clicking picture over all they producing data. Now, because they have limited amount of storage. One day they can lose their data. Also, storing huge amount of data can affect your operating system. According to Google, only in India we have 500 million users of cloud storage. So, without any hesitation we can say that 50% Indian are using the cloud services. The cloud storage market growth is continuously growing at very high pace. I have tried to explain it through the graph which is given below(figure no.1). We have seen very heavy traffic globally over the cloud servers. Which shows that cloud users are getting this service very interesting.

(Fig no.1)

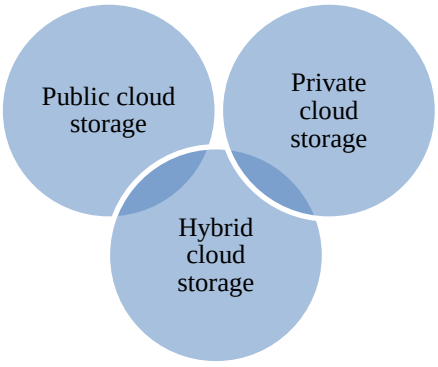
If I will explain according to the graph, we can see that market is growing exponentially. From 2024 to 2030 they have noticed 22.5% growth by CAGR in the market. Which is a very big achievement for the cloud providers. According to Alied Market Research website they have assumed that the cloud storage market was valued at $98.8 billion till 2023. Also, they have predicted to reach $777.6 billion by 2033.

After looking at the market size growth, many multi-national companies are investing in cloud services. Like amazon has lunch it's one of service called Amazon S3(Simple storage service) and EC2(Elastic compute cloud). It has provided a well commercialized resource to the customers. Same like the amazon, Google has also started one of its services that known as Gfs(Google file system) and other companies are providing the cloud services like Microsoft, IBM and etc.

Types of cloud storage :

We have three different – different cloud storage. Which are based on different – different access models:

(Fig no. 2)



Public cloud storage:

In public cloud storage is a kind of service. Which is provided by the other companies. Which can be accessed by the authorize users or company. In this case company or users don't need to think about the maintenance of the data. Also, the user and company has very less opportunity to customize the security of the data. But it is reliable, affordable service. There are many service providers are available in the market like AWS, Google cloud, IBM, Microsoft Azure are very popular cloud service providers in the market.

Private cloud Storage:

Private cloud storage is owned by an enterprise or company. Company stores its data over the internet in this case. Responsibility of security of the data would be done by the company. In this case, the data of the will be very secure. Only authorized person would be able to access this data. The very important advantage of the private cloud storage is that company will have complete control over the users. This cloud storage is maintained by the company itself by having the expensive data centers.

Hybrid cloud storage:

As the name suggests, the hybrid have the qualities of both the cloud storage public and private. In the hybrid cloud storage, the cloud users get the security like private cloud storge and personalization like the public cloud storage. The users have better security customization in the hybrid cloud storage. In the all the cloud storage, this is one of the best cloud storage System for the users.

Problem Identification :

As we know that many cloud server providers are in the market. But we are still facing the problem of storing data. Being an individual user at some point of time we have limited amount of storage. Also, for a single user or few no. of users we are not going to have a data center. It will be very expensive as well for us. At this point, we have only one option to move our data in some other storage device like hard drive, pen drive etc. There is a problem with this during the transfer of the data. We can lose our data. This problem is front of lot of startup companies. They don't have any kind of data center to their data and financially they are not that much stable. So, they can not setup a proper data center to store their data. we are producing 2.5 quintillion bytes of data every day. So, to maintain this amount of data is not an easy process to anyone.

Proposed Solution :

There are only one easy and efficient solution of this problem and that is cloud. We should shift all the storage over the cloud expect the required offline memory to operate the device like for RAM and for Booting process of the device etc. The big amount of storage is used by the user to store its own data. So, to store those data we should use the cloud storage service. Storing thing over the cloud is safe, reliable and affordable.

5.1 Advantage of storing data over the cloud:

1. Your data will accessible very easily.
2. It will decrease the load on your device. So, device will run very efficiently.
3. It is very reliable, affordable for us.
4. It will increase the market size of cloud providers and users.
5. We don't need have fear of losing our data. We can easily switch from one device to another device.

5.2 Drawbacks:

1. Internet speed is one of very important problem with us.
2. Security will be one problem. So, for this problem we should use only the trust full cloud provider's service.
3. You should keep your id and password very secret to you.

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