What is Cloud Storage – Architecture, Types, Advantages & Disadvantages

By **Laxmi Ashrit**

While creating a site backup it is very important for the website's security to store backups in a secure location. That is where the Cloud Storage comes in. Unfortunately, many businesses rely on outdated storage solutions (such as local servers), which may cause loss of vital data. This article gives you a detailed information of what is Cloud Storage, its types, architecture, applications, advantages and disadvantages.

Key Considerations About Cloud-based Backup Services

What is Cloud Storage

Cloud storage is a digital storage solution which utilizes multiple servers to store data in logical pools. The organizations buy the storage capacity from the providers to store user, organization, or application data. In past few years, the cloud storage has grown in popularity and has become a direct challenger to local storage, mainly due to the benefits it provides:

- **Security**: The backups are located across multiple servers and are better protected from data loss or hacking.
- **Accessibility**: The data stored is accessible online regardless of location.

Fig. 1 – Introduction to Cloud Storage

There are two major providers in the field of cloud storage namely:

- **Amazon S3:** It enables file storage to multiple servers and offers file encryption wherein we can share the data publicly.
- **Google Cloud:** It offers unlimited storage space. It also has the ability to resume the file transfer after a failure.

History of Cloud Storage

Cloud computing was invented by Joseph Carl Robnett Licklider in the 1960s with his work on ARPANET that connects people and data from anywhere at any time.

In 2006, Amazon Web Services introduced storage device AWS S3. In 2009, Google released their application systems like Google Docs and Google sheets. Hence, the cloud has been around and functional for quite some time.

Cloud Storage Architecture

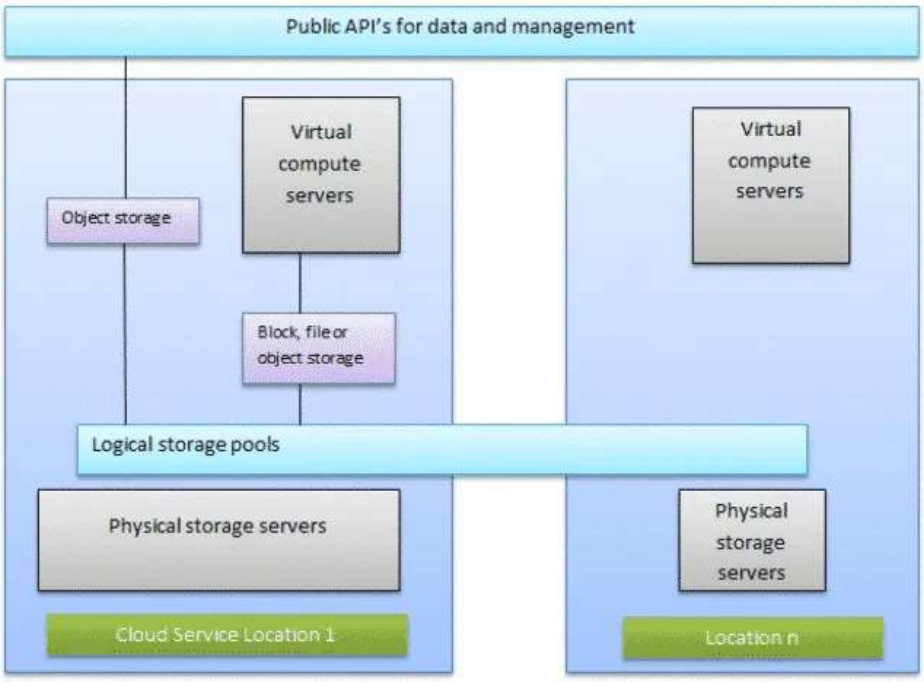

Fig. 2 – High Level Cloud Storage Architecture

Cloud storage is based on virtualized infrastructure and is like cloud computing in terms of accessible interfaces, scalability and metered resources. A cloud-storage service is utilized from an off-premises service (Amazon S3).

It refers to a hosted object storage service, but the term has broadened to include other types of data storage that are now available as a service, like block storage.

Object storage services like Amazon S3, Oracle Cloud-Storage and Microsoft Azure Storage, Object Storage Software like Open Stack Swift are all examples of storage that can be hosted and deployed

with cloud-storage characteristics.

Types of Cloud Storage

There are four types of Cloud-Storage as detailed below:

Personal Cloud Storage

It is a subset of public cloud-storage that stores individual's data in the cloud and provides the individual with access to the data from anywhere. It also provides data syncing and data sharing across multiple devices. An example of personal cloud-storage is Apple iCloud.

Public Cloud Storage

It is where the enterprise and storage service provider are separate and there aren't any cloud resources stored in the enterprise's data center. The cloud-storage provider fully manages enterprise's public cloud storage.

Private Cloud Storage

The enterprise and cloud-storage provider are integrated in the enterprise's data center. Private cloud storage helps in resolving the potential for security and performance concerns while still offering the advantages of cloud-storage.

Hybrid Cloud Storage

It is a combination of public and private cloud-storage where critical data are stored in enterprise's private cloud while other data is stored in public cloud.

Cloud Storage Providers

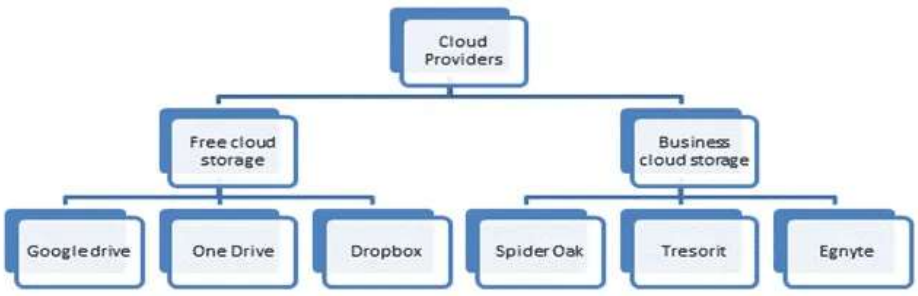

Fig. 3 – Types of Cloud Storage Providers

Consumers and businesses continue to reduce their need to rely on local storage by placing files and applications in the cloud. One has to choose a provider who will offer the maximum amount of low-cost storage and bandwidth, while still keeping your data safe.

Free Cloud Storage

Below is the list of some top rated Cloud Storage providers:

Google Drive

Google is one of the giants in cloud-storage. It offers:

- **Free Data Storage up to 15GB –** Google Drive is one of the most generous cloud offerings. Google storage space is also shared with other Google services including Gmail and Google Photos. Mobile apps are also available for easy access for iOS and Android users.

Fig. 4 – Logo of Google Drive

- **Backup and Sync Desktop App –** It lets you to synchronize files from PC to the cloud.
- **G Suit Tools –** Includes online office tools for word processing, spreadsheets and presentations which make sharing files with others effortless.

One Drive

One Drive is particularly for Microsoft Windows users. It allows 5GB of free data storage. It has a great integration with Microsoft products. The files can be edited without downloading. File sharing in One Drive is possible with other users even if they aren't One Drive users.

Fig. 5 – Logo of One Drive

Dropbox

It has a great storage support for third-party apps with web interface that remains streamlined and easy-to-use.

Fig. 6 – Logo of Dropbox

Dropbox has 2GB of storage space for new users. However there are other ways for boosting this space without paying, such as inviting friends (500MB for referral), completing getting started guide (250MB), etc.

There are desktop apps for Windows, Linux and Mac, and mobile apps including Android, iOS and even Kindle.

The web version lets you edit files without the need of downloading them.

Business Cloud Storage

The examples of Business Cloud-Storage are as follows:

Spider Oak

Founded in 2007, Spider Oak is a collaboration tool, file hosting and online backup service. It allows users to access, synchronize and share data using a cloud-based server.

Fig. 7 – Logo of Spider Oak

The main focus in Spider Oak is on privacy and security. The tool has a very basic design which makes the admin console and all central device management very straightforward to use. It also includes drag and drop feature for organizing files.

Tresorit

Founded in 2011, Tresorit is a cloud storage provider based in Hungary and Switzerland. It emphasizes on enhanced security and data encryption for businesses and personal users.

Fig. 8 – Logo of Tresorit

It allows you to keep control of your files through 'zero-knowledge encryption' which means only you and the chosen few you decide to share with and see your data.

Egnyte

Founded in 2007, Egnyte provides software for enterprise file synchronization and sharing. It allows businesses to store their data locally and online.

Fig. 9 – Logo of Egnyte

It integrates with applications such as Office 365. This allows both remote and internal employees to access the files with ease.

Advantages of Cloud Storage

The advantages of Cloud Storage include:

- **File Accessibility** – The files can be accessed at any time from any place so long as you have Internet access.
- **Offsite Backup** – Cloud Storage provides organizations with offsite (remote) backups of data which in turn reduces costs.
- **Effective Use of Bandwidth** – Cloud storage uses the bandwidth effectively i.e. instead of sending files to recipients, a web link can be sent through email.
- **Security of Data** – Helps in protecting the data against ransomware or malware as it is secured and needs proper authentication to access the stored data.

Disadvantages of Cloud Storage

The disadvantages of Cloud Storage include:

- **Dependency on Internet Speed** – If the Internet connection is slow or unstable, we might have problems accessing or sharing the files.
- **Dependency on a Third Party** – A third party service provider (company) is responsible for the data stored and hence it becomes an important pre-requisite in selecting a vendor and to examine the security standards prior investing.
- **High Cost for Huge Data** – Organizations that require a large amount of storage may also find costs increase significantly even after the first few gigabytes of data stored.
- **No/ Minimal Control over Data Storage Framework** – Since the cloud storage framework is entirely managed and monitored by the service provider, the customer has minimal control over it .

Also Read:
Robotic Process Automation (RPA) - Introduction, Works, Advantages and Applications
Barcode Number System - Types, Structure, How it works, Application, Advantage & Disadvantage

page contents