A Review of Cloud Storage Architecture

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ABSTRACT- Cloud storage is form of data storage that allows data to be stored in a remote location rather than on your computer or hard drive. Cloud storage has become an essential part of today's computing environment. There are many clouds storage services available and each offers different features and advantages. With so many different options out there, it can be difficult to choose right one for your needs. This paper will deal with architecture of cloud storage and advantages and disadvantages of cloud storage.

KEYWORDS- Cloud Storage, data, computer, hard drive, services

I. INTRODUCTION

Figure 1: Introduction to cloud storage

A cloud storage architecture is the backbone of a data management strategy in the modern digital age. The cloud is a repository of data that can be accessed by any device or person with internet access. It provides a decentralized storage and management system that stores data in multiple physical locations and makes it accessible on demand through an internet connection. It eliminates the burdens of maintaining physical storage infrastructure and reduces the overall cost and complexity of maintaining a data management system by providing secure, scalable, and reliable data storage capabilities at a relatively low cost.

II. OBJECTIVE

The objective of this paper is to understand how the cloud storage architecture is designed to provide scalable, reliable and secure data storage. The objective of a cloud storage architecture is to provide an elastic and cost-effective platform for data storage. Cloud storage provides the ability to store data, manage and administer it across multiple locations or data centers, and access it from any computer connected to the network.

Figure 2: objective [3]

III. HISTORY OF CLOUD STORAGE ARCHITECTURE

As the demand for cloud-based services continues to increase, so does the need for reliable and efficient storage architectures. In the early days of cloud computing, there was no standard way to store data in the cloud. This led many vendors to adopt proprietary storage architectures, which resulted in several challenges for the end users. One of the main issues was the lack of standardization across data centers. Vendors used different protocols and formats for storing data which made integration difficult and time-consuming. They also faced scalability challenges as most storage solutions were limited by the available infrastructure such as hard disk space and processing power. Today, most cloud service providers use common standards such as object storage to manage large amounts of data. Object storage has become increasingly popular due to its cost-effectiveness, reliability, and flexibility. It has replaced legacy storage systems like file systems and databases and is playing a major role in the development of modern cloud infrastructure.

IV. BENEFITS OF CLOUD STORAGE ARCHITECTURE

Figure 3: Benefits of cloud storage Architecture [4]

- Scalability: A cloud storage architecture is scalable, allowing businesses to increase their storage capacity as needed without investing in new infrastructure. Businesses can increase or decrease their storage capacity without disrupting service to their end users.
- Flexibility: A cloud storage architecture offers the flexibility to store data using a variety of formats, including disk, tape, and object-based storage. Businesses can store data in multiple locations to ensure fast access to their data in the event of an outage or disaster at their primary data center.
- Reduced cost: A cloud storage architecture can reduce an organization's overall storage costs by minimizing capital expenditures related to hardware and software deployment. Because data is stored on remote cloud servers rather than on on- premises storage devices, businesses are able to avoid large up-front investments in hardware that are required to support data storage workloads
- Improved security: A cloud storage architecture provides greater data security than on-premise storage solutions because data is hosted on secure off-site servers rather than on-premises storage devices that can be more easily compromised.

V. DRAWBACKS OF CLOUD STORAGE ARCHITECTURE

- Storage: The cloud storage architecture can be costly, depending on the amount of data you store and how often you access it
- Cost: It can be expensive to store data in the cloud. Depending on the size and frequency of your access, you may end up paying a significant amount in cloud storage fees each month.
- Performance: Although cloud services are typically faster at retrieving data than hard drives, the cloud is not always as fast as local storage

VI. DIFFERENT TYPES OF CLOUD STORAGES

Figure 4: Different types of cloud storage [2]

The proliferation of devices and the ever-growing need for data storage has led to a demand for cloud storage architectures. Cloud storage architectures make it possible for organizations to offload data storage and management tasks from their on- premises servers so that they can focus more on core business processes. There are a number of benefits that organizations gain when they deploy a cloud storage architecture for their mission-critical applications. There are different types of cloud storages as follows

A. Web Storage

This is a type of cloud storage that allows users to store their data on remote webs hosted on the internet. This type of cloud storage is most popular with users whose data is stored on multiple devices or computers. Web storage also offers some security features that help protect user files against theft and loss. Unfortunately, however, many users do not have complete control over the security of their data as it is stored on a remote website. Many online companies also offer free web storage space to their customers as part of their service or marketing.

B. Public and Private Storage

Public cloud storage: This is where companies like Google and Amazon offer their services to the public. This means that anyone with an internet connection can access the data stored in these clouds. (YouTube, Google Drive)

Private cloud storage: This refers to a service that is offered by a single company or organization to their own employees of clients. They typically store this data in data centers located inside their premises. (Dropbox, Apple iCloud).

C. Hybrid Storage

This is a storage system that combines local storage and cloud storage. A local storage is when the data is stored locally on your computer and a cloud system is where the data is stored on a remote server. A NAS is a device that's used to transfer files between computers on a local network. This type of device can sync data to the cloud (to save space) or it can store data locally. Using a hybrid

storage system is a great way to combine the benefits of both the cloud and local Cloud Backup: With cloud backup, data is backed up to a server that's stored storage. You can also choose to back up your data to multiple servers. That way if there's ever a problem, you won't lose all of your data. You can also recover any deleted files. This is a good way to back up documents like PDFs and photos that you may need to access quickly. Using cloud backup can also protect your data from fire, theft, or water damage.

D. Amazon Web Services

Amazon Web Services (AWS) is a platform as a service (PaaS) offered by Amazon.com that provides cloud computing services. AWS allows users to access and use applications hosted in the cloud. Amazon EC2 is a service that enables users to create and manage virtual servers. AWS also provides database management services and content delivery networks.

"Applications are secure in AWS" - Marc Davis, Director, Technology Infrastructure at Red Hat "We've always viewed security as a collaborative project between the company and its customers. We've always done everything we can to keep our customers' data safe. In fact, we've provided our customers with a variety of security features and tools." AWS provides a number of tools and security measures to help protect customer's data. The architecture of the AWS cloud makes it difficult for attackers to gain access to customer data,

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