

Disk and Storage Types

After completing this episode, you should be able to:

- Discuss some of the various disk and storage types that are available in the cloud

Description: In this episode, you will learn about just some of the disk and storage types available in the cloud today. This episode includes a discussion of object storage, block storage, and file storage as well as solid-state drives and hard disk drives.

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Storage types:

- **Object storage** - Object-based storage is a data storage architecture that organizes and manages data as objects, each with a unique identifier, metadata, and data, providing scalability, flexibility, and simplified management for handling vast amounts of unstructured data.
- **Block storage** - Block-based storage is a data storage approach that divides data into fixed-sized blocks, typically accessed via protocols like iSCSI or Fibre Channel, allowing for direct and low-level access to storage volumes and enabling high-performance storage solutions for applications like databases and virtualization.
- **File storage** - File-based storage is a data storage method where data is organized into files and directories, accessible via file protocols such as NFS or SMB, offering a hierarchical structure for storing and accessing data in a shared environment.

Disk types:

- **Solid-state drive (SSD)** - SSD is a storage device that uses flash memory technology to store data persistently, offering faster access times, lower latency, and higher reliability compared to traditional hard disk drives (HDDs).
- **Hard disk drive (HDD)** - HDD is a storage device that uses rotating magnetic disks and mechanical read/write heads to store and retrieve data persistently, providing high-capacity storage at a lower cost per gigabyte compared to solid-state drives (SSDs).

Performance implications - Choosing between different cloud-based storage options such as object-based storage, block-based storage, and file-based storage can significantly impact performance, as each option offers distinct characteristics tailored to specific workload requirements. Object-based storage excels in handling large amounts of unstructured data with scalability, while block-based storage provides high-performance storage for transactional workloads, and file-based storage offers compatibility with legacy applications and file-sharing capabilities.

Cost implications - Selecting different cloud-based storage options, like object-based storage, block-based storage, and file-based storage, can influence costs based on factors such as storage capacity, data access frequency, and additional features like redundancy and data replication. Object-based storage typically offers cost-effective scalability for large volumes of data, while block-based storage may incur higher costs for provisioned storage and data transfer, and file-based storage often includes pricing based on capacity and access frequency.

Additional resources

- What is Cloud Storage: <https://aws.amazon.com/what-is/cloud-storage/> (<https://aws.amazon.com/what-is/cloud-storage/>)