Google Cloud Platform Storage Services

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Learning Objectives

- Overview of GCP Storage Services
- Cloud Storage
- Persistent Disks
- Cloud Filestore
- Demo: Storing data in Cloud Storage
- Use Cases of Storage Services

Overview of GCP Storage Services

Overview of GCP Storage Services

- Storage services add persistence and durability to applications
- Storage services are classified into three types:
  - Object storage
  - Block storage
  - File system
- GCP storage services can be used to store:
  - Unstructured data
 - Folders and Files

Google Cloud Storage

Google Cloud Storage

- Unified object storage for a variety of applications
- Applications can store and retrieve objects through single API
- GCS can scale to exabytes of data
- GCS is designed for 99.999999999% durability
- GCS can be used to store high-frequency and low-frequency access of data
- Data can be stored within a single region, dual-region, or multi-region

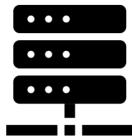# Google Cloud Storage – Storage Classes

High-performance object storage

Backup & archival storage

High Frequency Access	Low Frequency Access	Lowest Frequency Access
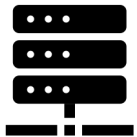
Standard

- Most common storage class used by developers

- Optimized **for reduced latency**

Nearline

- Meant for data accessed less frequently

- Chosen for data accessed less than **once a month**

Coldline

- Meant for data accessed least frequently

- Chosen for data accessed less than **once a year**

Google Cloud Storage – Location Type

Regional

Your data is stored in a specific region with replication across availability zones in that region. Good for colocating compute and storage for high performance.

Dual-region

Your data is replicated across a specific pair of regions. Good for when you need colocated compute and storage and automatic failover.

Multi-region

Your data is distributed redundantly accross US, EU, or Asia. Good for serving content to end users and when you want automatic failover.

Persistent Disks

Persistent Disks

- PD provides reliable block storage for GCE VMs
- Disks are independent of Compute Engine VMs
- Each disk can be up to 64TB in size
- PDs can have one writer and multiple readers
- Supports both SSD and HDD storage options
- SSD offers best throughput for I/O intensive applications
- PD is available in three storage types:
  - Zonal
  - Regional
  - Local

Google Cloud Filestore

Google Cloud Filestore

- Managed file storage service for applications
- Delivers NAS-like filesystem interface and a shared filesystem
- Centralized, highly-available filesystem for GCE and GKE
- Exposed as a NFS fileshare with fixed export settings and default Unix permissions
- Filestore file shares are available as mount points in GCE VMs
- On-prem applications using NAS take advantage of Filestore
- Filestore has built-in zonal storage redundancy for data availability
- Data is always encrypted while in transit

Google Cloud Storage Services – Use Cases

GCP Storage Services - Use Cases

Product	Storage Type	Key Feature	Use Case
Google Cloud Storage	Object storage	Scalable, durable and long-term storage	Centralized storage for frequently and infrequently accessed files
Persistent Disks	Block storage	Attached to GCE VMs	Dedicated attached storage for apps running in VMs based on HDDs and SSDs
Cloud Filestore	File system	NFS fileshare for GCE VMs	NAS-like shared file storage with standard UNIX permissions

Google Cloud Platform Fundamentals

Resources for Google Cloud Storage

Key Links
- Google Cloud Storage
- Persistent Disks
- Cloud Filestore

References
- Google Cloud Storage Products – Use Cases
- Best Practices for Cloud Storage