Storage and database services in Google Cloud

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Introduction

Google Cloud provides a variety of storage services based on types of data for different kind of requirements. This article will majority of the google cloud storage services and use cases for these databases.

Type of Data	Service	Best for	
Object Storage	Google cloud storage	Images,Media,Audio,Video,Backup,Archival	Low cost and unlimited storage
Block Storage	Persistent Disks	Local VM , configuration files, Application specific data, Databases	
Relational Database	Cloud SQL	MySQL,SQL Server, PostgreSQL, Data < 30TB	
	Cloud Spanner	Global , HA service for Mission critical application	
NoSQL (Document)	Data Store	User profile data Mobile and web applications	
NoSQL	BigTable	TimeSeries data, key value pair data,IoT data, High IOPS	
Data Warehouse	BigQuery	Data warehouse best for Analytics, BI Reporting	
In Memory	Cloud Memorystore	For application critical for latency,user sessions and gaming application	

Object Storage — Google Cloud Storage

Cloud Storage is a managed service for storing unstructured data. Store any amount of data and retrieve it as often as you like. You can store any type of object audio, video, media, backup, and archival data.

Features

1. Storage class — Different storage classes with lower storage price based on how long we store data.

2. Versioning — Maintain different versions and deletion historry , useful for critical data.

3. Retention policy — determine how long objects in the bucket must be retained and prevent from deleting critical objects,documents

4. Lifecycle rules — Using lifecycle rules and conditions we can delete, and change storage class for objects

Best For
Image,media,large files,Backup,Archival

Block Storage — Persistent Disk

Reliable, high-performance block storage for virtual machine instances. Enterprise scale, limitless flexibility, and competitive price for performance.

There are different types available for Persistent disks which differ in performance, pricing, and capacity.

	Zonal standard PD	Regional standard PD	Zonal balanced PD	Regional balanced PD	Zonal SSD PD	Regional SSD PD	Zonal extreme PD	Local SSDs	Cloud Storage bı
Storage type	Efficient and reliable block storage	Efficient and reliable block storage with synchronous replication across two zones in a region	Cost-effective and reliable block storage	Cost-effective and reliable block storage with synchronous replication across two zones in a region	Fast and reliable block storage	Fast and reliable block storage with synchronous replication across two zones in a region	Highest performance persistent block storage option	High performance local block storage	Affordable object storage
Minimum capacity per disk	10 GB	200 GB	10 GB	10 GB	10 GB	10 GB	500 GB	375 GB	n/a
Maximum capacity per disk	64 TB	64 TB	64 TB	64 TB	64 TB	64 TB	64 TB	375 GB	n/a
Capacity increment	1 GB	1 GB	1 GB	1 GB	1 GB	1 GB	1 GB	Depends on	n/a
Maximum capacity per instar	257 TB*	257 TB*	257 TB*	257 TB*	257 TB*	257 TB*	257 TB*	9 TB	Almost infinite
Scope of access	Zone	Zone	Zone	Zone	Zone	Zone	Zone	Instance	Global

Best For
Local VM file storage, Databases, Application specific files

Relational Storage — Cloud SQL

Fully managed relational database service for MySQL, PostgreSQL, and SQL Server with rich extension collections, configuration flags, and developer ecosystems.

Cloud SQL automates all your backups, replication, encryption patches, and capacity increases — while ensuring greater than 99.95% availability,

Best For
Web Applications, Transactional systems, CRM, ERP
Microservices, containerized applications

Relational Storage — Cloud Spanner

Cloud-native with unlimited scale, global consistency, and up to 99.999% availability.Processes more than 2 billion requests per second at peak.Fully managed relational database with unlimited scale, and strong consistency.

Best For

Scalable and HA and mission-critical applications, Supply chain inventory management.

NoSQL Storage — Datastore(Firestore)

Highly scalable, massively popular document database service for mobile, web, and server development that offers richer, faster queries and high availability up to 99.999%.

Best For

Web, the mobile application for user profile data

NoSQL Storage — BigTable

Highly performant, fully managed NoSQL database service for large analytical and operational workloads. Offers up to 99.999% availability.

Processes more than 5 billion requests per second at peak, and with more than 10 Exabytes of data under management.

Best For

Time series data, IoT data, Analytics

Data Warehouse — BigQuery

BigQuery is a completely serverless and cost-effective enterprise data warehouse. It has built-in machine learning and BI that works across clouds, and scales with your data.

Features

1. Built-in machine learning

2. Analyze and share data across clouds (Multi-cloud)

3. Real-time analytics with built-in query acceleration

4. Geospatial analysis with BigQuery

Best For
Analytics,ML, BI Applications

In Memory — Cloud memory store

Memorystore for Redis provides a fully-managed service that is powered by the Redis in-memory data store to build application caches that provide sub-millisecond data access.

Best For
Gaming, streaming applications

For reference