Google Cloud Platform Database Services

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Learning Objectives

- Overview of GCP Database Services
- Cloud SQL
- Cloud Bigtable
- Cloud Spanner
- Cloud Memorystore

Demo: Provisioning Managed MySQL Database Instance

- Use Cases of Database Services

GCP Database Services

Overview of GCP Database Services

- GCP has managed relational and NoSQL database services
- Traditional web and line-of-business apps may use RDBMS
- Modern applications rely on NoSQL databases
- Web-scale, distributed applications need multi-region databases
- In-memory database is used for accelerating the performance of apps

Google Cloud SQL

Google Cloud SQL

- Fully managed RDBMS service that simplifies set up, maintain, manage, and administer database instances
- Cloud SQL supports three types of RDBMS
  - MySQL
  - PostgreSQL
  - Microsoft SQL Server (Preview)
- A managed alternative to running RDBMS in VMs
- Cloud SQL delivers scalability, availability, security, and reliability of database instances
- Cloud SQL instances may be launched within VPC for additional security

Google Cloud Bigtable

Cloud Bigtable

- Petabyte-scale, managed NoSQL database service
- Sparsely populated table that can scale to billions of rows and thousands of columns
- Storage engine for large-scale, low-latency applications
- Ideal for throughput-intensive data processing and analytics
- An alternative to running Apache HBase column-oriented database in VMs
- Acts as a storage engine for MapReduce operations, stream processing, and machine-learning applications

Google Cloud Spanner

Cloud Spanner

- Managed, scalable, relational database service for regional and global application data
- Scales horizontally across rows, regions, and continents
- Brings best of relational and NoSQL databases
- Supports ACID transactions and ANSI SQL queries
- Data is replicated synchronously with globally strong consistency
- Cloud Spanner instances run in one of the three region types:
  - Read-write
  - Read-only
  - Witness

Google Cloud Memorystore

Cloud Memorystore

- A fully-managed in-memory data store service for Redis
- Ideal for application caches that provides sub-millisecond data access
- Cloud Memorystore can support instances up to 300 GB and network throughput of 12 Gbps
- Fully compatible with Redis protocol
- Promises 99.9% availability with automatic failover
- Integrated with Stackdriver for monitoring

GCP Database Services – Use Cases

Use Cases

Product	DB Type	Key Feature	Use Case
Google Cloud SQL	Relational	Supports MySQL, PostgreSQL, and MS SQL Server	Traditional web applications and business applications
Google Cloud Bigtable	NoSQL	Column-oriented NoSQL database	Big data and machine learning workloads
Google Cloud Spanner	RDBMS + NoSQL	Globally distributed database with strong consistency	Geographically deployed scalable applications with distributed database backend
Google Cloud Memorystore	In-memory	Low latency Redis cache	Accelerate retrieval of frequently accessed data

Google Cloud Platform Fundamentals

Resources for Google Cloud Databases

Key Links

- Cloud SQL
- Cloud Bigtable
- Cloud Spanner
- Cloud Memorystore

References

- Select the right Database for your needs
- Choosing the right GCP Database
- On GCP, your Databases your way