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Cloud Spanner training

3 days (21 hours)

Presentation

Google Cloud Spanner is a fully managed, unlimited-scale and highly scalable SQL database service. It lets you create and deploy a production-ready SQL database solution in minutes, and use and maintain it with little effort.

Relational databases traditionally rely on vertical scaling, but Google's Cloud Spanner is carefully designed to offer horizontal scaling and global replication with all the rigors of strong consistency. Because Spanner is such a unique product, it's necessary to understand its subtleties to get the most out of it.

In our Cloud Spanner training course, you'll learn how to identify when Spanner is the right tool for you, then design your data correctly and configure your instance to make the most of Spanner's amazing capabilities.

First, you'll learn where Cloud Spanner fits into the suite of Google Cloud Platform (GCP) storage technologies and how it compares to BigQuery, Cloud SQL and others. Next, you'll discover Spanner's data model and how it enables horizontal scaling.

Finally, you'll explore how to use Spanner in conjunction with other GCP services, including Dataflow templates, to migrate data into Spanner.

On completion of this course, you'll have the Cloud Spanner skills and knowledge needed to architect solutions to problems requiring global replication, strong consistency and horizontal scaling in a relational database management system (RDBMS).

Objectives

- Learn how to create, manage and monitor Cloud Spanner instances
- Learn how to use Cloud Spanner in virtual machine instances.
- Learn how to import and export databases and work with STRUCT objects.

Target audience

Google Learn IT and technology professionals

Prerequisites

Knowledge of Google Cloud Platform

Google Cloud Spanner training program

Introduction

- What is Cloud Spanner and what is its purpose?
- Cloud Spanner use cases
- Cloud Spanner's place in the Google Cloud Platform

Spanner features

- How to create an instance
- Creating a Cloud Spanner database
- Creating a Cloud Spanner table
- How to add a schematic
- Executing a query
- Write and modify data

Cloud Spanner's key concept

- Performance optimization
- Data Manipulation Language (DML)
- Replication
- Real-time and external consistency
- Access control
- Audit logging

Using Cloud Spanner

- Using Cloud Spanner in a virtual machine
- Cloud Spanner with Cloud Function
- Connector Cloud Dataflow

Cloud Spanner emulator

- Installation and operation
- Installation methods: CLI gcloud, Docker
- Emulator with gcloud
- Create and activate an emulator configuration
- Client libraries with emulator

Spanner with Cloud SQL and BigQuery

- The main differences
- SQL best practices
- BigQuery with Spanner
- How Cloud Spanner executes requests
- Using query parameters
- Writing effective queries
- Using ORDER BY to sort your SQL results

Data types

- Whole and complex data
- ARRAY and STRUCT
- Database import and export
- Data type properties
- Type Array
- Type Boolean
- Type Bytes
- Type Date
- JSON type
- Type String

Modify data

- Using the GCP console
- Using DML, mutations and GCloud

- Application of IAM roles
- Long-term operations management

Bodies

- Presentation of the bodies
- Instance configuration
- Instance creation and management
- Calculation capacity
- Instance monitoring with GCP console
- With Stack Driver
- Display query statistics

Importing and exporting databases

- Dataflow templates
- Exporting Cloud Spanner to Avro
- Importing Avro files from Cloud Spanner
- Import and export data in CSV format
- Using STRUCT objects

Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.