



Curso Understanding Cloud Spanner

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Nivel
Intermedio



Duración
18 horas



Modalidad
Aula Virtual



Learning
by doing



Curso
Oficial

Curso Understanding Cloud Spanner

Dirigido a:

Database administrators, engineers/developers, and cloud architects who want to learn how to create, optimize, and manage Spanner databases and migrate existing databases into Spanner.

Objetivos:

- Build scalable, managed, relational databases using Google Cloud Spanner.
- Create and manage Spanner databases using the CLI, Terraform, Python API, and the Cloud Console.
- Optimize relational database schemas for Spanner's distributed database model.
- Leverage Google Cloud tools for administering Spanner databases and managing data.
- Program and run queries and transactions using the Spanner API.
- Integrate Spanner with your applications.

Requisitos:

Some prior Google Cloud experience at the fundamental level is assumed. Experience with relational databases, the SQL language, and some programming is also assumed.

Material del curso:

Documentación Oficial de Google Cloud - Understanding Cloud Spanner

Perfil del docente:

- Formador certificado por GCP.
- Más de 5 años de experiencia profesional.
- Más de 4 años de experiencia docente.
- Profesional activo en empresas del sector IT.

Metodología:

- "Learning by doing" se centra en un contexto real y concreto, buscando un aprendizaje en equipo para la resolución de problemas en el sector empresarial.
- Aulas con grupos reducidos para que el profesional adquiera la mejor atención por parte de nuestros instructores profesionales.
- El programa de estudios como partners oficiales es confeccionado por nuestro equipo de formación y revisado por las marcas de referencia en el sector.
- La impartición de las clases podrá ser realizada tanto en modalidad Presencial como Virtual.



Contenidos:

Lecture

Module 1: The Need for Spanner

- What is Spanner?
- Spanner and the CAP Theorem
- History of Spanner
- Cloud Spanner Use Cases

Module 2: Getting Started with Spanner

- Planning Spanner Instances
- Automating Instance Creating
- Creating Databases in Spanner

Module 3: Optimizing Spanner Schemas

- Spanner Architecture
- Choosing Primary Keys
- Defining Database Schemas in Spanner
- Understanding Interleaving and Foreign Keys
- Understanding Secondary Indexes

Module 4: Programming Spanner Applications, Queries, and Transactions

- Authentication and Authorization
- Using the Spanner Client Libraries
- Running Queries
- Managing Transactions

Module 5: Deploying Spanner Applications

- Using Spanner from Applications
- Building Data Pipelines into and out of Spanner

Module 6: Spanner Administration

- Managing your Data in Spanner
- Managing Change
- Operations

Module 7: Capstone Project

Lab

Creating Spanner Instances and Databases (Console)

- Compare Spanner configuration options.
- Create Spanner databases using the Console.
- Create Spanner databases using the PostgreSQL dialect.

Creating Spanner Instances and Databases (CLI and Terraform)

- Create instances and databases using the gcloud CLI.
- Automate Spanner infrastructure using Terraform.

Choosing Primary Keys

- Generate Spanner primary keys as UUIDs.
- Convert counters and timestamps into values appropriate for Spanner primary keys.

Managing Relationships with Foreign Keys and Interleaved Tables

- Create a relational database with proper primary keys and relationships optimized for Spanner
- Leverage indexes to improve read performance in Spanner

Programming Spanner Applications with Python

- Use Python to create and delete Spanner instances and databases.
- Program Spanner databases that use the PostgreSQL dialect.



Running Queries and Transactions

- Run parameterized queries using indexes against a Spanner database using the Python Client library.
- Execute transactions against a Spanner database.

Deploying Spanner Applications with Cloud Functions and Cloud Run

- Deploy Cloud Functions that read and write to Spanner databases.
- Set up and use the Spanner emulator for development.
- Build a REST API that allows you to read and write Spanner data.
- Deploy a REST API to Google Cloud Run.

Migrating Data to and from Spanner with Dataflow

- Write ETL pipelines using Apache Beam.
- Run Apache Beam pipelines using Google Cloud Dataflow.

Leverage the Autoscaler Tool for Cloud Spanner to Achieve Workload Elasticity

- Configure the Autoscaler and environment
- Deploy the Autoscaler
- Observe the autoscaling

Challenge Lab: Administering a Spanner Database

- Create a Spanner database and import existing data.
- Backup and restore the database.
- Export Spanner data and import it into BigQuery.
- Deploy a data access API that allows access to your Spanner database.
- Use the Operations monitoring tools for dashboards, uptime checks, and alerts.



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