Training: Google Cloud
Enterprise Database Migration

Google Cloud

TRAINING GOALS:

This course is intended to give architects, engineers, and developers the skills required to help enterprise customers architect, plan, execute, and test database migration projects. Through a combination of presentations, demos, and hands-on labs participants move databases to GCP while taking advantage of various GCP services.

This course covers how to move on-premises, enterprise databases like SQL Server to Google Cloud (Compute Engine and Cloud SQL) and Oracle to Google Cloud bare metal.

What you'll learn

- Plan, execute, test, and monitor simple and complex enterprise database migrations to Google Cloud.
- Evaluate on-premises database architectures and plan migrations to cloud-optimized deployments.
- Choose appropriate Google Cloud database targets based on on-premises data sources.
- Migrate SQL Server databases to Cloud SQL and Compute Engine.
- Run Oracle databases on Google Cloud bare metal.
- Recognize and overcome the real-world challenges of moving data to prevent data loss, preserve data integrity, and minimize downtime.
- Test and monitor data migration projects.
- Leverage tools to automate data migration.
- Make the business case for moving databases to Google Cloud.

Audience

This course is primarily intended for engineers planning a data migration to GCP; Engineers working on a database migration project; and Technical managers, IT decision-makers, and others who want to understand the benefits, risks, rewards, and processes of migrating databases to the cloud.

Products

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- Associated topic areas

CONSPECT:

- Migrating Enterprise Databases to the Cloud
  - Objectives
    - Get a high-level solution overview of use cases, customers, and competitors.
    - Understand traditional database architectures.
    - Optimize databases for the cloud.
    - Architect cloud databases for high-availability, scalability, and durability.
  - Activities
    - Lecture
- Google Cloud Data Migration Solutions
  - Objectives
    - Evaluate the database solutions available on Google Cloud.
    - Run databases on Google Cloud infrastructure using Compute Engine.
    - Leverage Kubernetes and GKE for deploying databases.
    - Use Cloud SQL for managed database solutions.
    - Provision Bare Metal Solution for Oracle databases.
    - Estimate the cost of database solutions.
  - Activities
    - Lecture, labs, and activity
- Google Implementation Methodology
  - Objectives
    - Migrate to the cloud using Google’s implementation methodology
    - Perform the key database migration activities
    - Choose the appropriate database migration approach.
  - Activities
    - Lecture and activity
- Migration Strategies
  - Objectives
    - Lift and shift databases from on-premises to Google Cloud.
    - Backup and restore databases from on-premises to Google Cloud services.
    - Migrate databases to the cloud with no downtime.
    - Optimize databases for the cloud.
  - Activities
    - Lecture

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- Networking for Secure Database Connectivity
  - Objectives
    - Build secure networks to host databases and database client applications.
    - Allow secure communication across networks using VPC Peering, VPNs, and interconnect.
    - Control access to databases using firewall rules.
    - Automate network infrastructure using Terraform
  - Activities
    - Lecture and labs
- Migrating SQL Server Databases to Google Cloud
  - Objectives
    - Lift and shift SQL Server databases using Compute Engine.
    - Employ Cloud SQL for managed SQL Server databases.
    - Architect SQL Server for security, high availability, and disaster recovery.
    - Configure SQL Server to run with Kubernetes on GKE
  - Activities
    - Lecture and labs
- Migrating Oracle Databases to Google Cloud
  - Objectives
    - Explain why running Oracle on Google Cloud makes sense.
    - Review the technical specs of Oracle BMS.
    - Define common use cases for running Oracle on Google Cloud.
  - Activities
    - Lecture and lab
- Testing and Monitoring Databases in Google Cloud
  - Objectives
    - Use unit, integration, and regression testing techniques to ensure database migration success.
    - Monitor your migration projects with Google tools
  - Activities
    - Lecture and labs
- Google Cloud Data Migration Tools
  - Objectives
    - Move large amounts of data to the cloud using Google transfer services
    - Program data processing and ETL pipelines using Cloud Data Fusion
    - Create workflows using Composer
  - Activities

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        - Lecture and lab
    - Making the Business Case for Moving to Google Cloud
        - Objectives
            - Write a business case to justify a database migration.
            - Perform risk and cost/benefit analysis on a cloud migration project.
            - Estimate the costs associated with database migration.
        - Activities
            - Lecture and activity

REQUIREMENTS:

GCP Professional Cloud Architect and/or Professional Data Engineer certification; Understanding of relational and NoSQL database design; Database development experience using SQL; Programming experience.

Difficulty level



CERTIFICATE:

The participants will obtain certificates signed by Google Cloud (course completion).

TRAINER:

Authorized Google Cloud Trainer

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