

GC-EDM ENTERPRISE DATABASE MIGRATION



DURATION	LEVEL	TECHNOLOGY	DELIVERY METHOD	TRAINING CREDITS
4 Days	Intermediate	Google Cloud	VILT & ILT	NA

INTRODUCTION

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.

AUDIENCE PROFILE

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.

PREREQUISITES

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

COURSE OBJECTIVES

This course teaches participants the following skills:

- 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.

COURSE CONTENT

Lesson 1: 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.

Lesson 2: 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.
- Activity.

Lesson 3: 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.

Lesson 4: 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.

Lesson 5: 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.
- Labs.

Lesson 6: 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.
- Labs.

Lesson 7: 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.

- Lab.

Lesson 8: 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.
- Labs.

Lesson 9: 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

- Lecture.
- Lab.

Lesson 10: 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.
- Activity.

ASSOCIATED CERTIFICATIONS & EXAM

There is no international certification linked to this course currently.