

Google Cloud: Core Infrastructure Fundamentals

Duration: One Day (9am – 4pm)

Course Pre-Requisites: The course is designed for those new to Google Cloud and aims to equip them with foundational knowledge for further exploration.

Course Overview

This one day course provides an introduction to the core components and services offered by Google Cloud. Participants will gain an understanding of the various computing and storage services, as well as essential management tools. This course consists of a mixture of theoretical learning and hands on Lab work.

1. Introducing Google Cloud

This section introduces Google Cloud, explaining its advantages and unique features. Participants will learn about the network infrastructure, distinguishing between different service models like IaaS and PaaS.

- Identify the advantages of Google Cloud.
- Define the components of Google's network infrastructure.
- Classify the difference between IaaS and PaaS.

2. Resources and Access in the Cloud

Resources and access management are vital for any cloud deployment. This section dives into Google Cloud projects, identity, and access management, ensuring secure and efficient resource utilization.

- Identify the purpose of projects on Google Cloud.
- Define the purpose of and use cases for Identity and Access Management.
- **Lab: Getting Started with Cloud Marketplace.**

3. Virtual Machines and Networks in the Cloud

Discover the power of virtualization with Google Compute Engine. Understand basic networking concepts and how they apply within the Google Cloud ecosystem.

- Identify the purpose of and use cases for Google Compute Engine.
- Define the basics of networking in Google Cloud.
- **Lab: Getting Started with VPC Networking.**

4. Storage in the Cloud

Data storage solutions in Google Cloud are diverse and powerful. This section gives an overview of options like Cloud Storage, Bigtable, SQL, Spanner, and Firestore, guiding participants on choosing the right storage solution for their needs.

- Understand the purpose of and use cases for various storage solutions.
- Learn how to choose between the various storage options on Google Cloud.
- **Lab: Getting Started with Cloud Storage and Cloud SQL.**

5. Containers in the Cloud

Containers revolutionize the way applications are deployed and managed. Dive into container concepts, and explore Google Kubernetes Engine, understanding its significance in modern cloud infrastructures.

- Define the concept of a container and identify uses for containers.
- Identify the purpose of and use cases for Google Kubernetes Engine and Kubernetes.
- **Lab: Getting Started with Kubernetes Engine.**

6. Applications in the Cloud

This section focuses on application deployment using Google App Engine. Participants will understand the differences and use cases for the Standard and Flexible environments, and get introduced to other related services like Cloud Endpoints and Cloud Run.

- Identify the purpose of and use cases for Google App Engine.
- Contrast the App Engine Standard environment with the App Engine Flexible environment.
- **Lab: Hello Cloud Run.**

7. Developing and Deploying in the Cloud

Learn about the tools and services that Google Cloud offers for application development. Topics like Cloud Source Repositories, Cloud Functions, and infrastructure automation using templates will be covered.

- Describe how Cloud Source Repositories and Cloud Functions can support application development.
- Explain how template-based creation and management of resources is efficient.
- **Lab: Automating Deployment of Infrastructure using Terraform.**

8. Logging and Monitoring in the Cloud

Monitoring and logging are crucial for maintaining cloud health. Understand key concepts like SLIs, SLOs, and SLAs, and learn about integrated tools for monitoring, alerting, and debugging in Google Cloud.

- Define SLIs, SLOs, and SLAs.
- Identify the purpose of integrated monitoring, alerting, and debugging.