



Week 1

Google Cloud Platform Fundamentals: Core Infrastructure

Overview

Week 1

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Course Info

Week 1

Discuss this week's modules here.

4402 threads · Last post a day ago

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Introducing Google Cloud Platform

Google Cloud Training

Google Cloud Platform offers four main kinds of services: Compute, Storage, Big Data, and Machine Learning. This course focuses mostly on the first two, together with Google Virtual Private Cloud (VPC) networking. This module orients learners to the basics of Google Cloud Platform. It traces the evolution of cloud computing and explains what is unique about Google's approach to it. The module introduces the key structural concepts of regions and zones.

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Learning Objectives

- Explain the advantages of Google Cloud Platform.
- Define the components of Google's network infrastructure, including: Points of presence, data centers, regions, and zones.
- Compare Infrastructure-as-a-Service (IaaS) and Platform-as-a-Service (PaaS).

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What's New in this Version?

- ✓ **Reading:** Welcome to Google Cloud Platform Fundamentals: Core Infrastructure 10 min
- ✓ **Video:** What's new? 40 sec
- ✓ **Reading:** How to download course resources 2 min

Introducing Google Cloud Platform

- ✓ **Video:** Welcome to GCP Fundamentals 46 sec
- ✓ **Video:** What is cloud computing? 1 min
- ✓ **Video:** How did we get here? 1 min
- ✓ **Video:** Every company is a data company 26 sec
- ✓ **Practice Quiz:** Cloud Computing Services 2 questions
- ✓ **Video:** GCP computing architectures 1 min
- ✓ **Video:** The Google network 44 sec
- ✓ **Video:** GCP regions and zones 1 min
- ✓ **Video:** Environmental responsibility 1 min
- ✓ **Video:** Google offers customer-friendly pricing 1 min
- ✓ **Video:** Open APIs 1 min
- ✓ **Practice Quiz:** GCP Regions and Zones 2 questions
- ✓ **Video:** Why choose Google Cloud Platform 1 min
- ✓ **Video:** Multi-layered security approach 3 min
- ✓ **Video:** Budgets and Billing 2 min

Quiz: Introducing Google Cloud Platform 6 questions

Getting Started with Google Cloud Platform

 Google Cloud Training

GCP customers use projects to organize the resources they use. They use Google Cloud Identity and Access Management, also called "IAM," to control who can do what with those resources. They use any of several technologies to connect with GCP. This module covers each of these topics, and it introduces a service called Cloud Launcher that is an easy way to get started with GCP.

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Learning Objectives

- Identify the purpose of projects, folders, and organization nodes on Google Cloud Platform
- Describe the purpose of and use cases for Identity and Access Management
- List the methods of interacting with Google Cloud Platform
- Build a solution deployment using Cloud Launcher.

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Module Introduction

Video: Module introduction 2 min

The Google Cloud Platform resource hierarchy

Video: The Google Cloud Platform resource hierarchy 5 min

Practice Quiz: The Google Cloud Platform resource hierarchy 3 questions

Identity and Access Management (IAM)

Video: Identity and Access Management (IAM) 2 min

Video: IAM roles 3 min

Practice Quiz: Resources and IAM 3 questions

Interacting with Google Cloud Platform

Video: Interacting with Google Cloud Platform 4 min

Cloud Marketplace (formerly Cloud Launcher)

Video: Cloud Marketplace (formerly Cloud Launcher) 1 min

Demonstration, lab activity, and quiz

Video: Demonstration: Getting Started with Cloud Launcher 2 min

Video: Getting Started with Google Cloud and Qwiklabs 4 min

Graded External Tool: Getting Started with Cloud Marketplace (formerly Cloud Launcher)

Started Due Oct 19, 9:59 AM EAT

[Resume](#)

Quiz: Getting Started with Google Cloud Platform 8 questions

Virtual Machines in the Cloud

Compute Engine lets you run virtual machines on Google's global infrastructure. This module covers how Compute Engine works, with a focus on Google virtual networking.

Learning Objectives

- Identify the purpose of and use cases for Google Compute Engine
- Summarize the various Google Cloud Platform networking and operational tools and services
- Build a Compute Engine virtual machine using the Google Cloud Platform (GCP) Console.
- Build a Compute Engine virtual machine using the gcloud command-line interface.

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Module introduction

Video: Module Introduction 46 sec

Virtual Private Cloud (VPC) Network

Video: Virtual Private Cloud (VPC) Network 1 min

Practice Quiz: Virtual Private Cloud (VPC) Network 2 questions

Compute Engine

Video: Compute Engine 3 min

Practice Quiz: Compute Engine 2 questions

Important VPC capabilities

Video: Important VPC capabilities 7 min

Demonstration, lab activity, and quiz

Video: Demonstration: Getting Started with Compute Engine 5 min

Graded External Tool: Getting Started with Compute Engine Started Due Oct 19, 9:59 AM EAT

[Resume](#)

Quiz: Google Compute Engine and Networking 8 questions

Storage in the Cloud

Every application needs to store data. Different applications and workloads require different storage and database solutions. This module describes and differentiates among GCP's core storage options: Cloud Storage, Cloud SQL, Cloud Spanner, Cloud Datastore, and Google Bigtable.

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Learning Objectives

- Summarize the purpose of and use cases for: Cloud Storage, Cloud SQL, Cloud Spanner, and Cloud Bigtable
- Choose between the various storage options on Google Cloud Platform
- Build a BigQuery table using data from Cloud Storage.
- Use SQL queries to analyze data stored in BigQuery.

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Module introduction

✓ **Video:** Introduction to Google Cloud Platform Storage Options 50 sec

Cloud Storage

✓ **Video:** Cloud Storage 4 min

✓ **Video:** Cloud Storage interactions 5 min

✓ **Practice Quiz:** Cloud Storage 3 questions

Cloud Bigtable

✓ **Video:** Google Cloud Bigtable 4 min

✓ **Practice Quiz:** Cloud Bigtable 2 questions

Cloud SQL and Cloud Spanner

✓ **Video:** Google Cloud SQL and Google Cloud Spanner 3 min

✓ **Practice Quiz:** Cloud SQL and Cloud Spanner 3 questions

Cloud Datastore

✓ **Video:** Google Cloud Datastore 1 min

✓ **Practice Quiz:** Cloud Datastore 2 questions

Comparing Storage Options

✓ **Video:** Comparing Storage Options 3 min

Demonstration, lab activity, and quiz

✓ **Video:** Demonstration: Getting Started with Cloud Storage and Cloud SQL 10 min

✓ **Graded External Tool:** Getting Started with Cloud Storage and Cloud SQL
Started Due Oct 19, 9:59 AM EAT Resume

✓ **Quiz:** Google Cloud Platform Storage Options 8 questions

Containers in the Cloud

Google Cloud Training

Containers are simple and interoperable, and they enable seamless, fine-grained scaling. Kubernetes is an orchestration layer for containers. Kubernetes Engine is Kubernetes as a service, a scalable managed offering that runs on Google's infrastructure. You direct the creation of a cluster, and Kubernetes Engine schedules your containers into the cluster and manages them automatically, based on requirements you define. This module explains how Kubernetes Engine works and how it helps deploy applications in containers.

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Learning Objectives

- Define the concept of a container and identify uses for containers
- Identify the purpose of and use cases for Google Container Engine and Kubernetes
- Build a Kubernetes cluster using Kubernetes Engine.
- Deploy and manage Docker containers in Kubernetes Engine using the kubectl command.

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Containers, Kubernetes, and Kubernetes Engine

- ✓ **Video:** Containers, Kubernetes, and Kubernetes Engine 8 min
- ✓ **Practice Quiz:** Containers 2 questions
- ✓ **Video:** Introduction to Kubernetes and GKE 12 min
- ✓ **Video:** Introduction to Hybrid and Multi-Cloud Computing (Anthos) 7 min
- ✓ **Practice Quiz:** Kubernetes 2 questions
- ✓ **Practice Quiz:** Kubernetes Engine 2 questions

Lab: Demonstration, activity, and quiz

- ✓ **Video:** Lab Introduction - Getting Started with Kubernetes Engine 35 sec
- ✓ **Video:** Demo: Getting Started with Kubernetes Engine 6 min
- ✓ **Graded External Tool:** Qwiklabs – Getting Started with Kubernetes Engine Started Due Oct 19, 9:59 AM EAT **Resume**
- ✓ **Quiz:** Containers, Kubernetes, and Kubernetes Engine 6 questions

Applications in the Cloud

 Google Cloud Training

App Engine is a Platform-as-a-Service ("PaaS") offering. The App Engine platform manages the hardware and networking infrastructure required to run your code. App Engine provides built-in services that many web applications need. This module describes how App Engine works.

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Learning Objectives

- Explain the purpose of and use cases for Google App Engine and Google Cloud Datastore
- Compare the App Engine Standard environment with the App Engine Flexible environment
- Express the purpose of and use cases for Google Cloud Endpoints
- Express the purpose of and use cases for Apigee Edge.
- Preview an App Engine application using Cloud Shell.
- Launch an App Engine application and then disable it.

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Module introduction; introduction to App Engine

- ✓ **Video:** Module introduction; introduction to App Engine 1 min
- ✓ **Practice Quiz:** App Engine 2 questions

App Engine Standard Environment

- ✓ **Video:** Google App Engine Standard Environment 3 min

App Engine Flexible Environment

- ✓ **Video:** Google App Engine Flexible Environment 2 min
- ✓ **Practice Quiz:** App Engine Flexible and Standard Environments 2 questions

Cloud Endpoints and Apigee Edge

 **Video:** Google Cloud Endpoints and Apigee Edge 3 min

Demonstration, lab activity, and quiz

 **Video:** Demonstration: Getting Started with App Engine 3 min

 **Graded External Tool:** Getting Started with App Engine Started Due Oct 19, 9:59 AM EAT Resume

 **Quiz:** Applications in the Cloud 6 questions

Developing, Deploying and Monitoring in the Cloud

 Google Cloud Training

Popular tools for development, deployment, and monitoring just work in GCP. Customers also have options for tools in each of these three areas that are tightly integrated with GCP. This module covers those tools.

Learning Objectives

- Understand options for software developers to host their source code.
- Understand the purpose of template-based creation and management of resources.
- Understand the purpose of integrated monitoring, alerting, and debugging.
- Build a Deployment Manager deployment.
- Update a Deployment Manager deployment.
- View the load on a VM instance using Stackdriver.

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Development in the Cloud

 **Video:** Development in the cloud 3 min

 **Practice Quiz:** Development in the cloud 1 question

Deployment: Infrastructure as code

 **Video:** Deployment: Infrastructure as code 1 min

 **Practice Quiz:** Cloud Functions 1 question

Monitoring: Proactive instrumentation

 **Video:** Monitoring: Proactive instrumentation 2 min

Demonstration, lab activity, and quiz

 **Video:** Demonstration: Getting Started with Deployment Manager and Stackdriver 9 min

 **Graded External Tool:** Getting Started with Deployment Manager and Stackdriver Started Due Oct 19, 9:59 AM EAT Resume

 **Quiz:** Developing, Deploying, and Monitoring in the Cloud 5 questions

Big Data and Machine Learning in the Cloud

 Google Cloud Training

GCP's big-data and machine learning offerings are intended to help customers get the most out of data. These tools are intended to be simple and practical to embed in your applications. This module describes the available big-data and machine learning services and explains the usefulness of each.

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Learning Objectives

- Understand the purpose of and use cases for the products in the Google Cloud big data platform.
- Understand the purpose of and use cases for the products in the Google Cloud machine learning platform.
- Load data into a BigQuery table from Cloud Storage.
- Use SQL queries to analyze data in BigQuery.

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Module introduction

Video: Introduction to Big Data and Machine Learning 51 sec

Google Cloud Big Data Platform

Video: Google Cloud Big Data Platform 3 min

Video: Cloud Dataflow 2 min

[Resume](#)

Video: BigQuery 2 min

Video: Cloud Pub/Sub and Cloud Datalab 3 min

Google Cloud Machine Learning Platform

Video: Google Cloud Machine Learning Platform 3 min

Video: Machine learning APIs 2 min

Demonstration, lab activity, and quiz

Video: Demonstration: Getting Started with BigQuery 2 min

Graded External Tool: Getting Started with BigQuery Started Due Oct 19, 9:59 AM EAT

Quiz: Big Data and Machine Learning 7 questions

Summary and Review

Google Cloud Training

This module reviews the GCP services covered in this course and reminds learners of the differences among them. The module compares GCP compute services, GCP storage services, and important Google VPC networking capabilities.

Learning Objectives

- Compare GCP's compute services.
- Compare GCP's storage services.
- Compare Google VPC's networking capabilities.

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Course review

Video: Review 4 min

Quiz: Summary and Review 10 questions

Next steps

▶ **Video:** Next steps 28 sec

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