






# Google Cloud Fundamentals: Core Infrastructure

This course uses lectures and labs to give you an overview of Google Cloud products and services. You learn the value of Google Cloud and how to incorporate cloud-based solutions into your business strategies.

 **DURATION**  
1 day

 **LEVEL**  
Introductory

 **FORMAT**  
Instructor led  
On-demand

## What you'll learn

- Identify the purpose and value of Google Cloud products and services.
- Define how infrastructure is organized and controlled in Google Cloud.
- Explain how to create basic infrastructure in Google Cloud.
- Select and use Google Cloud storage options.
- Describe the purpose and value of Google Kubernetes Engine.
- Identify the use cases for serverless Google Cloud services.



<b>Overview</b>	8 modules · 37 videos · 4 labs · 10 classroom activities
<b>Who this course is for</b>	<ul style="list-style-type: none"><li>• Individuals planning to deploy applications and create application environments on Google Cloud</li><li>• Developers, systems operations professionals, and solution architects getting started with Google Cloud</li><li>• Executives and business decision makers evaluating the potential of Google Cloud to address their business needs</li></ul>
<b>Products</b>	<ul style="list-style-type: none"><li>• Identity and Access Management (IAM)</li><li>• Cloud Marketplace</li><li>• Compute Engine</li><li>• Cloud Storage</li><li>• Cloud Bigtable</li><li>• Cloud SQL</li><li>• Cloud Spanner</li><li>• Firestore</li><li>• Google Kubernetes Engine</li><li>• Cloud Functions</li><li>• Cloud Run</li></ul>
<b>Prerequisite</b>	Familiarity with application development, systems operations, Linux operating systems, and data analytics or machine learning is helpful in understanding the technologies covered.
<b>Not covered</b>	<ul style="list-style-type: none"><li>• App Engine</li><li>• SRE concepts</li><li>• SRE best practice</li></ul>

## **Module 0**    **Introduction to the Course**

<b>Topics</b>	The course introduction explains the course goals and previews each section.
<b>Objectives</b>	Introduce course objectives and preview each section of the course.

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## **Module 01**    **Introducing Google Cloud**

<b>Topics</b>	<ul style="list-style-type: none"><li>• Cloud computing overview</li><li>• IaaS and PaaS</li><li>• The Google Cloud network</li></ul>
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<b>Topics</b>	<ul style="list-style-type: none"><li>• Environmental impact</li><li>• Security</li><li>• Open source ecosystems</li><li>• Pricing and billing</li></ul>
<b>Objectives</b>	<ul style="list-style-type: none"><li>• Identify the benefits of Google Cloud.</li><li>• Define the components of the Google network infrastructure, including points of presence, data centers, regions, and zones.</li><li>• Identify the difference between infrastructure as a service (IaaS) and platform as a service (PaaS).</li></ul>
<b>Activities</b>	Module quiz

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## **Module 02**    **Resources and Access in the Cloud**

<b>Topics</b>	<ul style="list-style-type: none"><li>• Google Cloud resource hierarchy</li><li>• IAM</li><li>• IAM roles</li><li>• Service accounts</li><li>• Cloud Identity</li><li>• Interacting with Google Cloud</li></ul>
<b>Objectives</b>	<ul style="list-style-type: none"><li>• Identify the purpose of projects on Google Cloud.</li><li>• Define the purpose of and use cases for IAM.</li><li>• List interaction methods with Google Cloud.</li><li>• Use Cloud Marketplace to interact with Google Cloud.</li></ul>
<b>Activities</b>	<ul style="list-style-type: none"><li>• Lab: Getting Started with Cloud Marketplace</li><li>• Quiz: Module quiz</li></ul>

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## **Module 03**    **Virtual Machines and Networks in the Cloud**

<b>Topics</b>	<ul style="list-style-type: none"><li>• Virtual Private Cloud networking</li><li>• Compute Engine</li><li>• Scaling virtual machines</li><li>• Important VPC compatibilities</li><li>• Cloud Load Balancing</li><li>• Cloud DNS and Cloud CDN</li><li>• Connecting networks to Google VPC</li></ul>
<b>Objectives</b>	<ul style="list-style-type: none"><li>• Explore the basics of networking in Google Cloud.</li><li>• Identify the purpose of and use cases for Google Compute Engine.</li></ul>



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| <b>Objectives</b> | <ul style="list-style-type: none"><li>• Outline how Google Compute Engine can scale</li><li>• Detail important VPC compatibilities including routing tables, firewalls and VPC peering.</li><li>• Explore how Cloud Load Balancing functions in Google Cloud.</li><li>• Deploy a basic infrastructure to Google Cloud</li></ul> |
| <b>Activities</b> | <ul style="list-style-type: none"><li>• Lab: Getting Started with VPC Networking and Google Compute Engines</li><li>• Quiz: Module quiz</li></ul>   |
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## Module 04 Storage in the Cloud

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| <b>Topics</b>     | <ul style="list-style-type: none"><li>• Cloud Storage</li><li>• Cloud SQL</li><li>• Cloud Spanner</li><li>• Firestore</li><li>• Cloud Bigtable</li><li>• Comparing storage options</li></ul>  |
| <b>Objectives</b> | <ul style="list-style-type: none"><li>• Identify the purpose of and use cases for Cloud Storage.</li><li>• Distinguish between Cloud Storage classes.</li><li>• Distinguish between Google Cloud's Database storage options.</li><li>• Deploy an application that uses Cloud SQL and Cloud Storage.</li></ul> |
| <b>Activities</b> | <ul style="list-style-type: none"><li>• Lab: Getting Started with Cloud Storage and Cloud SQL</li><li>• Quiz: Module quiz</li></ul>   |
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## Module 05 Containers in the Cloud

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| <b>Topics</b>     | <ul style="list-style-type: none"><li>• Introduction to containers</li><li>• Kubernetes</li><li>• Google Kubernetes Engine</li></ul>   |
| <b>Objectives</b> | <ul style="list-style-type: none"><li>• Define the concept of a container and identify uses for containers.</li><li>• Identify the purpose of and use cases for Kubernetes and Google Kubernetes Engine.</li></ul> |
| <b>Activities</b> | <ul style="list-style-type: none"><li>• Quiz: Module quiz</li></ul>  |
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## Module 06 Applications in the Cloud

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| <b>Topics</b> | <ul style="list-style-type: none"><li>• Cloud Run</li><li>• Cloud Function</li></ul> |
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- Objectives**
- Identify the purpose and use cases for Cloud Run
  - Describe how Cloud Functions can support application development on Google Cloud.
  - Deploy a containerized application on Cloud Run
- Activities**
- Lab: Hello Cloud Run
  - Quiz: Module quiz
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## Module 07 Course Summary

**Topics** The course summary recaps the major concepts learners were introduced to during the course.

**Objectives** Recap the content covered in each section of the course

