Google Cloud

Logging, Monitoring, and Observability in Google Cloud

This course teaches participants techniques for monitoring and improving infrastructure and application performance in Google Cloud.
Using a combination of presentations, demos, hands-on labs, and real-world case studies, attendees gain experience with full-stack monitoring, real-time log management and analysis, debugging code in production, tracing application performance bottlenecks, and profiling CPU and memory usage.

DURATION
2 days

LEVEL
Introductory

FORMAT
Instructor-led
On-demand

What you'll learn

- Explain the purpose and capabilities of Google Cloud Observability.
- Implement monitoring for multiple cloud projects.
- Create alerting policies, uptime checks, and alerts.
- Install and manage Ops Agent to collect logs for Compute Engine.
- Explain Cloud Operations for GKE.
- Analyze VPC Flow Logs and firewall rules logs.
- Analyze and export Cloud Audit Logs instances.
- Profile and identify resource-intensive functions in an application.
- Analyze resource utilization cost for monitoring related components within Google Cloud.

Overview	9 modules · 64 videos · 7 labs
Who this course is for	• Cloud architects, administrators, and SysOps personnel • Cloud developers and DevOps personnel
Products	• Cloud Logging • Cloud Monitoring • Error Reporting • Cloud Trace • Cloud Profiler • Google Compute Engine Monitoring • Google Kubernetes Engine Monitoring • VPC Flow Logs • Firewall Rules Logging • Data Access audit logs
Prerequisites	To get the most out of this course, participants should meet the following requirements: • Complete the Google Cloud Fundamentals: Core Infrastructure course or have equivalent experience. • Have basic scripting or coding familiarity. • Be proficient with command-line tools and Linux operating system environments.
Not covered	This training does not cover: • SRE concepts • SRE best practices • Incident response

Module 01 Introduction to Google Cloud Observability

Objectives	• Describe the purpose and capabilities of Google Cloud Observability. • Explain the purpose of the Cloud Monitoring tool. • Explain the purpose of Cloud Logging and Error Reporting tools. • Explain the purpose of Application Performance Management tools.
Activities	One quiz

Module 02 Monitoring critical systems

Objectives

- Use Cloud Monitoring to view metrics for multiple cloud projects.
- Explain the different types of dashboards and charts that can be built.
- Create an uptime check.
- Explain the cloud operations architecture.
- Explain and demonstrate the purpose of using Monitoring Query Language (MQL) for monitoring.

Activities

- One quiz
- One lab

Module 03 Alerting policies

Objectives

- Explain alerting strategies.
- Explain alerting policies.
- Explain error budget.
- Explain why server-level indicators (SLIs), service-level objectives (SLOs), and service-level agreements (SLAs) are important.
- Identify types of alerts and common uses for each.
- Use Cloud Monitoring to manage services.

Activities

- One quiz
- One lab

Module 04 Advanced logging and analysis

Objectives

- Use Log Explorer features.
- Explain the features and benefits of logs-based metrics.
- Define log sinks (inclusion filters) and exclusion filters.
- Explain how BigQuery can be used to analyze logs.
- Export logs to BigQuery for analysis.
- Use log analytics on Google Cloud.

Activities

- One quiz
- One lab

Module 05 Working with Cloud Audit Logs

Objectives

- Explain Cloud Audit Logs.
- List and explain different audit logs.
- Explain the features and functionalities of the different audit logs.
- List the best practices to implement audit logs.

Activities

- One quiz
- One lab

Module 06 Configuring Google Cloud services for observability

Objectives

- Use the Ops Agent with Compute Engine.
- Enable and use Kubernetes Monitoring.
- Explain the benefits of using Google Cloud Managed Service for Prometheus.
- Explain the use of PromQL to query Cloud Monitoring metrics.
- Explain the uses of OpenTelemetry.
- Explain custom metrics.

Activities

- One quiz
- One lab

Module 07 Monitoring the Google Cloud network

Objectives

- Collect and analyze VPC Flow Logs and firewall rules logs.
- Enable and monitor Packet Mirroring.
- Explain the capabilities of the Network Intelligence Center.

Activities

- One quiz
- One lab

Module 08 Investigating application performance issues

Objectives

Explain the features, benefits, and functionalities of Error Reporting, Cloud Trace, and Cloud Profiler.

Activities

- One quiz
- One lab

Module 09 Optimizing the costs for Google Cloud Observability

Objectives

- Analyze resource utilization cost for monitoring-related components within Google Cloud.
- Implement best practices for controlling the cost of monitoring within Google Cloud.

Activities

One quiz