Logging, Monitoring, and Observability in Google Cloud

Duration: 3 Days Course Code: GO8329

Overview:

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.

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

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Target Audience:

This class is intended for the following participants:
- Cloud architects, administrators, and SysOps personnel
- Cloud developers and DevOps personnel

Objectives:

- **This course teaches participants the following skills:**
- 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.

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.

Testing and Certification

None

Follow-on-Courses:

No recommendation

Content:

The course includes quiz and hands-on lab after each module.

Module 1: Introduction to Google Cloud Observability

- 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.

Module 2: Monitoring critical systems

- 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.

Module 3: Alerting policies

- 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.

Module 4: Advanced logging and analysis

- 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.

Module 5: Working with Cloud Audit Logs

- 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.

Module 6: Configuring Google Cloud services for observability

- 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.

Module 7: Monitoring the Google Cloud network

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

Module 8: Investigating application performance issues

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

Module 9: Optimizing the costs for Google Cloud Observability

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

Additional Information:

Official course book provided to participants

Further Information:

For More information, or to book your course, please call us on 00 971 4 446 4987

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