Logging, Monitoring, and Observability in Google Cloud

Duration: 3 Days **Course Code: GO8329** **Delivery Method: Virtual Learning**

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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Virtual Learning

This interactive training can be taken from any location, your office or home and is delivered by a trainer. This training does not have any delegates in the class with the instructor, since all delegates are virtually connected. Virtual delegates do not travel to this course, Global Knowledge will send you all the information needed before the start of the course and you can test the logins.

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:

Testing and Certification

None

- 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.

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 +1 (800) 268 7737

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