Logging Monitoring and Observability in Google Cloud

Duration: 1 Day (6 hours & 30mins)

Prerequisites:

To get the most out of this course, participants should:

- Have completed the Google Cloud Platform 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

Course Description:

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.

Target Audience:

• Cloud architects, administrators, and SysOps personnel
• Cloud developers and DevOps personnel

Course Outlines:

Module 01: Introduction to Google Cloud Operations Suite
➢ Describe the purpose and capabilities of Google Cloud's operations suite
➢ 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 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 7: Monitoring Google Cloud Network and Data Access
➢ 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 and benefits of Error Reporting, Cloud Trace, and Cloud Profiler.
➢ Explain the functionalities of the Error Reporting, Cloud Trace, and Cloud Profiler.

Module 9: Optimizing the Costs for Operations Suite
➢ Analyze resource utilization cost for monitoring related components within Google Cloud.
➢ Implement best practices for controlling the cost of monitoring within Google Cloud.

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