Logging, Monitoring, and Observability in Google Cloud (LMOGC)

ID GO-LMOGC **Duración** 3 días

Quién debería asistir

This class is intended for the following participants:

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

Prerrequisitos

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

- Google Cloud Fundamentals: Core Infrastructure (GCF-CI) or equivalent experience
- Basic scripting or coding familiarity
- Proficiency with command-line tools and Linux operating system environments

Objetivos del curso

This course teaches participants the following skills:

- Plan and implement a well-architected logging and monitoring infrastructure
- Define Service Level Indicators (SLIs) and Service Level Objectives (SLOs)
- Create effective monitoring dashboards and alerts
- Monitor, troubleshoot, and improve Google Cloud infrastructure
- Analyze and export Google Cloud audit logs
- Find production code defects, identify bottlenecks, and improve performance
- Optimize monitoring costs

Contenido del curso

This three-day instructor-led course teaches participants techniques for monitoring, troubleshooting, and improving infrastructure and application performance in Google Cloud. Guided by the principles of Site Reliability Engineering (SRE), and 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.

Esquema Detallado del Curso

Module 1 - Introduction to Google Cloud Monitoring Tools

- Understand the purpose and capabilities of Google Cloud operations-focused components: Logging, Monitoring, Error Reporting, and Service Monitoring
- Understand the purpose and capabilities of Google Cloud application performance management focused components: Debugger, Trace, and Profiler

Module 2 - Avoiding Customer Pain

- Construct a monitoring base on the four golden signals: latency, traffic, errors, and saturation
- Measure customer pain with SLIs
- Define critical performance measures
- Create and use SLOs and SLAs
- Achieve developer and operation harmony with error budgets

Module 3 - Alerting Policies

- Develop alerting strategies
- Define alerting policies
- Add notification channels
- Identify types of alerts and common uses for each
- Construct and alert on resource groups
- Manage alerting policies programmatically

Module 4 - Monitoring Critical Systems

- Choose best practice monitoring project architectures
- Differentiate Cloud IAM roles for monitoring
- Use the default dashboards appropriately
- Build custom dashboards to show resource consumption and application load
- Define uptime checks to track aliveness and latency

Module 5 - Configuring Google Cloud Services for

Observability

- Integrate logging and monitoring agents into Compute Engine VMs and images
- Enable and utilize Kubernetes Monitoring
- Extend and clarify Kubernetes monitoring with Prometheus
- Expose custom metrics through code, and with the help of OpenCensus

Module 6 - Advanced Logging and Analysis

- Identify and choose among resource tagging approaches
- Define log sinks (inclusion filters) and exclusion filters
- Create metrics based on logs
- Define custom metrics
- Link application errors to Logging using Error Reporting
- Export logs to BigQuery

Module 7 - Monitoring Network Security and Audit Logs

- Collect and analyze VPC Flow logs and Firewall Rules logs
- Enable and monitor Packet Mirroring
- Explain the capabilities of Network Intelligence Center
- Use Admin Activity audit logs to track changes to the configuration or metadata of resources
- Use Data Access audit logs to track accesses or changes to user-provided resource data
- Use System Event audit logs to track GCP administrative actions

Module 8 - Managing Incidents

- Define incident management roles and communication channels
- Mitigate incident impact
- Troubleshoot root causes
- Resolve incidents
- Document incidents in a post-mortem process

Module 9 - Investigating Application Performance Issues

- Debug production code to correct code defects
- Trace latency through layers of service interaction to eliminate performance bottlenecks
- Profile and identify resource-intensive functions in an application

Module 10- Optimizing the Costs of Monitoring

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

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