Google Cloud

Technical Foundations of FinOps on Google Cloud

Dive deep into the technical underpinnings of FinOps and gain the expertise to optimize your cloud spending and drive business value. This comprehensive course is designed for cloud architects, engineers, and technical professionals seeking to master the tools, technologies, and strategies that empower effective cloud financial management.

DURATION
2 days

LEVEL
Intermediate

FORMAT
Instructor-led

What you'll learn

• Understand the core principles of FinOps and how it bridges the gap between technology and finance in the cloud.

• Explore proven techniques to identify cost inefficiencies, optimize resource utilization, and achieve significant savings.

• Utilize advanced monitoring tools and data-driven insights to track spending patterns, forecast costs, and make informed decisions.

• Implement effective cost allocation models to accurately attribute cloud expenses to specific teams or projects.

• Leverage IaC to automate cost management processes, enforce spending policies, and ensure consistent financial governance.

• Use industry-leading FinOps platforms and tools to gain comprehensive visibility into your cloud spending and optimize resource usage.

• Apply your knowledge to real-world scenarios through hands-on exercises and case studies.

• Foster a culture of cost awareness and accountability within your organization.

Overview	10 modules · 13 labs
Who this course is for	Customers
Prerequisite	Knowledge of Google Cloud infrastructure as discussed in Google Cloud Fundamentals: Core Infrastructure

Module 01   Foundations of FinOps on Google Cloud

Topics
- Financial governance challenges
- Google Cloud FinOps framework
- Cloud FinOps operating model
- Google FinOps journey

Objectives
- Recognize financial governance challenges facing organizations today.
- Understand the purpose of Google Cloud FinOps framework.
- Implement the Google Cloud FinOps operating model.
- Discern the three phases and five pillars of the Google FinOps journey.

Module 02   Exploring and Understanding Billing Data

Topics
- Google Cloud Billing accounts
- Cloud Billing dashboard
- Billing account access
- Billing export to BigQuery
- Connecting Looker Studio to Billing data

Objectives
- Understand Google Cloud Billing account management.
- Navigate the Cloud Billing dashboard.
- Control access to billing accounts with IAM and permissions.
- Configure and use BigQuery billing to export data.
- Visualize your costs with Looker Studio.

Activities
- Lab: Exploring the Billing Dashboard
- Lab: Visualizing your Costs with Looker Studio

Module 03   Resource Labeling and Tagging

Topics
- Labels
- Tags
- Label and tag information in billing data

Objectives
- Utilize labels on resources.
- Define and bind tags to projects and resources.
- Access label and tag information in billing data.

Activities
- Lab: Tagging Resources
- Lab: Examining Labels and Tags in BigQuery Billing Data

Module 04   Budgets and Alerting

Topics
- Budgets and alerts
- Budget roles and permissions
- Automating budget creation

Objectives
- Understand the benefits of budgets and alerts.
- Create a budget.
- Create budgets with gcloud, Python, and Terraform.

Activities
Demo: Using gcloud and Terraform to create budgets and alerts

Module 05   BigQuery Cost Management and Optimization

Topics
- Query costs
- Storage costs
- Allocating costs of BigQuery
- Other BigQuery cost concerns

Objectives
- Understand BigQuery compute and storage costs.
- Use queries and tools to help understand and manage BigQuery costs.
- Recognize best practices for BigQuery cost management.

Activities
Lab: Examining BigQuery Costs Across the Project, Folder, and Organization

Module 06   Compute and GKE Cost Management and Optimization

Topics
- Computing waste and cost management
- Compute Engine cost management
- Understanding network costs
- Google Kubernetes Engine cost management

Objectives
- Use cloud resources efficiently and avoid waste.
- Understand computing and network charges incurred in Google Cloud.
- Understand additional Google Kubernetes Engine costs beyond computing and networking.

Activities
- Lab: Reviewing and Understanding Compute Billing
- Lab: Reviewing and Understanding Kubernetes Costs

Module 07   Cloud Storage and Database Costs

Topics
- Cloud Storage
- SQL on Google Cloud
- NoSQL on Google Cloud

Objectives
- Optimize Cloud Storage costs based on location, access patterns, and lifecycle.
- Understand SQL database costs, including Cloud SQL, AlloyDB, and Spanner.
- Utilize Database Committed Use Discounts (CUD).
- Understand NoSQL database costs, including Memorystore, Firestore, and Bigtable.

Activities
- Lab: Working with Cloud Storage Cost Management
- Lab: Reviewing and Understanding Database Billing

Module 08   Machine Learning and Vertex AI Cost Management

Topics
- Machine learning model training and hosting
- Monitoring Vertex AI costs
- Generative AI costs

Objectives
- Decipher charges associated with machine learning model preparation, training, and hosting.
- Understand costs associated with generative AI usage, including subscriptions and API usage.

Activities
- Lab: Reviewing Vertex AI Costs in Billing Data

Module 09   Automating Billing Activities

Topics
- Automating resource management
- Cloud asset inventory service
- Programmatic actions on budget alerts
- Google FinOps Hub

Objectives
- Use techniques for automating resource management.
- Respond programmatically to budget alerts Pub/Sub messages.
- Utilize the Cloud Asset Inventory service.
- View recommendations in the Google FinOps Hub.

Activities
- Lab: Automate Tagging upon Resource Creation Using Asset API, Pub/Sub and Cloud Run Functions
- Lab: Programming Budget Alert Actions Using Pub/Sub and Cloud Run Functions

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Module 10   Building a FinOps Practice

Topics
- FinOps Team
- Goals, Milestones, and Metrics
- Processes and Workflows
- Measuring Success
- Continuous Improvement

Objectives
- Establish a FinOps team and a roadmap.
- Implement processes and workflows for FinOps.
- Define success for a FinOps strategy.
- Recognize the need for continuous improvement and evolution of FinOps.

Activities   Lab: FinOps Challenge Lab