Training: Google Cloud
Technical Foundations of FinOps on Google Cloud

Google Cloud

TRAINING GOALS:

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.

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.

Audience

This course is primarily intended for cloud engineers, architects, and technical professionals who want to understand cost optimization and financial operations in Google Cloud environments.

Products

- Dataplex

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- Cloud Storage
- BigQuery
- Dataflow

CONSPECT:

- 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.
- 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
- Resource Labeling and Tagging
  - Topics
    - Labels
    - Tags

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        - 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
- 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
- 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
- Compute and GKE Cost Management and Optimization
    - Topics
        - Computing waste and cost management
        - Compute Engine cost management
        - Understanding network costs

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        - 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
- 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
- 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
- Automating Billing Activities
    - Topics
        - Automating resource management

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- 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

- 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

REQUIREMENTS:

Knowledge of Google Cloud infrastructure as discussed in Google Cloud Fundamentals: Core Infrastructure.

Difficulty level



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CERTIFICATE:

The participants will obtain certificates signed by Google Cloud (course completion).

TRAINER:

Authorized Google Cloud Trainer

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