



Technical Foundations of FinOps on Google Cloud

Course description

This course dives deep into the technical underpinnings required to implement and operate a successful FinOps practice on Google Cloud Platform. Participants will explore Google Cloud's native cost management tools, learn advanced optimization techniques across key services, understand how to leverage automation for governance, and gain insights into building a collaborative FinOps culture. The focus will be on practical, actionable strategies and technical configurations to drive financial accountability and efficiency within Google Cloud environments, empowering technical teams to make data-driven decisions that balance speed, cost, and quality.

- Course level: Advanced
- Duration: 2 days

Activities

This course includes in-depth presentations, architecture discussions, hands-on labs using Google Cloud console and CLI, demonstrations of FinOps tools, and group exercises for strategy development and problem-solving.

Course objectives

In this course, you will learn to:

- Articulate the core principles of FinOps within the context of Google Cloud, understanding its impact on engineering, finance, and product teams.
- Master Google Cloud's native cost management and reporting tools, including Cloud Billing, Cost Management reports, and effective Labeling strategies for robust cost allocation.
- Design and implement advanced cost optimization strategies for a wide range of Google Cloud services such as Compute Engine, Google Kubernetes Engine (GKE), Cloud Storage, Networking, and Database services.
- Leverage Google Cloud features like custom IAM roles, budget alerts, and programmatic access for building automated FinOps governance and enforcement mechanisms.
- Apply advanced analytics techniques using BigQuery and Looker Studio for in- depth cost analysis, anomaly detection, and accurate financial forecasting.
- Foster a culture of financial accountability and continuous collaboration across engineering, finance, and product teams to embed FinOps principles into the development lifecycle.

Intended audience

This course is intended for technical professionals actively involved in managing and optimizing Google Cloud environments and costs:

- Cloud Architects
- Site Reliability Engineers (SREs)
- DevOps Engineers
- Cloud Financial Analysts
- Engineering Managers and Technical Leads
- Platform Engineers
- Infrastructure-as-Code Developers

Prerequisites

We recommend that attendees of this course have:

- A solid understanding of Google Cloud fundamentals, including core services (e.g., Compute Engine, Cloud Storage, VPC, IAM) and resource hierarchy concepts.
- Practical experience with the Google Cloud Console and gcloud command-line interface.

- Basic familiarity with cloud billing concepts and the operational aspects of cloud environments.
- Understanding of general software development or infrastructure operations principles.

Course outline

Module 1: Introducing FinOps on Google Cloud

- What is FinOps? Principles (Inform, Optimize, Operate) and FinOps Foundation framework
- The FinOps lifecycle in the Google Cloud context: Planning, Execution, Analysis
- The shared responsibility model for cloud cost management and its implications on GCP
- Key stakeholders and their roles in driving FinOps success on Google Cloud
- Overview of Google Cloud's native cost management ecosystem and third-party tooling integration
- Demo: Navigating the Cloud Billing console and understanding key sections

Module 2: Google Cloud Cost Visibility and Allocation

- Cloud Billing Accounts and Resource Hierarchy: Structuring organizations, folders, and projects for effective billing management.
- Cost Management Reports: Deep dive into the "Cost Management" section in Cloud Billing, leveraging filters, groups, and time ranges for granular insights.
- Labeling and Resource Hierarchy: Designing and implementing robust labeling strategies for accurate cost allocation, chargeback, and showback across projects and services.
- Exporting Billing Data to BigQuery: Setting up continuous export of detailed billing data to BigQuery for advanced, custom analysis.
- Budgeting and Alerts: Configuring budgets, threshold rules, and programmatic notifications via Cloud Functions and Pub/Sub for proactive cost governance.
- Hands-on Lab: Setting up Billing Export to BigQuery and Creating Custom Cost Reports with Labels

Module 3: Technical Cost Optimization Strategies on GCP

- **Compute Engine Optimization:** Right-sizing instances with recommendations, leveraging preemptible VMs and Spot VMs, managing Committed Use Discounts (CUDs), and optimizing instance groups with autoscaling.
- **Google Kubernetes Engine (GKE) Optimization:** Sizing clusters and node pools, understanding Autopilot vs. Standard GKE cost implications, optimizing workload resource requests/limits, and using Spot VMs in GKE.
- **Cloud Storage Optimization:** Implementing intelligent storage classes (Standard, Nearline, Coldline, Archive) and lifecycle management policies, and managing regionality costs.
- **Networking Cost Optimization:** Strategies for reducing egress costs, optimizing external IP usage, understanding VPC Service Controls impact, and Load Balancer cost considerations.
- **Database Services Optimization (Cloud SQL, Firestore, BigQuery):** Instance sizing, auto-scaling, monitoring usage patterns, BigQuery slot types (on-demand vs. flat-rate), and query optimization.
- **Hands-on Lab:** Implementing Right-Sizing Recommendations for Compute Engine and Configuring Cloud Storage Lifecycle Policies

Module 4: Automation and Governance for FinOps on GCP

- **IAM and Least Privilege:** Defining custom roles for FinOps team members, auditors, and billing administrators to enforce secure access.
- **Programmatic Cost Management:** Utilizing the Cloud Billing API for automated budget checks, cost anomaly detection, and custom reporting.
- **Policy Enforcement:** Leveraging Organization Policies for resource constraints (e.g., allowed regions, specific resource types) and deploying Infrastructure as Code (IaC) with Terraform/Cloud Deployment Manager for consistent, cost-aware provisioning.
- **Resource Hierarchy and Quotas:** Proactive management of quotas to prevent overspending and ensure resource availability without excess capacity.
- **Automated Remediation:** Developing Cloud Functions or Workflows to automatically identify and stop/scale down idle or misconfigured resources.
- **Demo:** Automated Resource Shutdown with Cloud Functions triggered by Cloud Monitoring Alerts

Module 5: Advanced FinOps Analytics and Forecasting on GCP

- Deep Dive into BigQuery Billing Data: Understanding the billing export schema, common SQL queries for granular cost analysis, and joining billing data with operational metrics.
- Visualizing Cost Data with Looker Studio: Creating custom, interactive dashboards for diverse stakeholders (engineering leads, finance, executives) to track FinOps KPIs.
- Predictive Costing and Anomaly Detection: Basic techniques for forecasting cloud spend using historical data, identifying sudden cost spikes or anomalies using statistical methods and Cloud Monitoring alerts.
- Integrating with Third-Party FinOps Tools: Overview of popular enterprise FinOps platforms and how they integrate and extend GCP billing data and capabilities.
- Hands-on Lab: Building a Custom FinOps Dashboard in Looker Studio utilizing BigQuery billing data

Module 6: FinOps Culture, Collaboration, and Continuous Improvement

- Building a Collaborative FinOps Team: Defining roles, responsibilities, communication channels, and fostering cross-functional collaboration.
- Integrating FinOps into the Software Development Lifecycle (SDLC): Embedding cost awareness from application design and development to deployment and deprecation.
- Establishing FinOps KPIs and Metrics: Defining and tracking key performance indicators to measure FinOps success and demonstrate value.
- Chargeback vs. Showback Models: Technical implementation considerations for attributing costs back to business units or product teams on GCP.
- Continuous Optimization Cycle: Establishing a framework for iterative measurement, analysis, learning, and adaptation of FinOps strategies.
- Group Exercise: Developing a FinOps Implementation Roadmap for a Hypothetical Organization

Module 7: FinOps in Practice: Case Studies and Advanced Scenarios

- Real-World GCP FinOps Case Studies: Analyzing successful FinOps implementations and lessons learned from organizations using Google Cloud.

- Multi-Cloud/Hybrid Cloud FinOps Considerations: Strategies for managing costs and visibility across diverse cloud and on-premises environments, including shared resources.
- Specialized Service Optimization: Focusing on unique cost patterns and optimization techniques for AI/ML services (e.g., Vertex AI), Dataflow, Cloud Run, and serverless functions.
- Advanced Networking Scenarios: Cost implications and optimization strategies for VPN, Cloud Interconnect, Private Service Access, and Direct Peering.
- Hands-on Lab: Advanced Querying for Specific Workload Cost Attribution and Anomaly Investigation in BigQuery

Module 8: Course Wrap-up

- Key takeaways and reinforcing the technical principles of effective FinOps on Google Cloud.
- Next steps for deepening FinOps expertise and continuous learning in the cloud financial management domain.
- Additional resources: Official Google Cloud documentation, FinOps Foundation resources, community forums, and certifications.
- Course summary and open Q&A session.

Your course overview ends here.
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About CloudThat

Established in 2012, CloudThat is an award-winning company and the first in India to offer cloud training and consulting services for individuals and enterprises worldwide. Recently, it won Google Cloud's New Training Partner of the Year Award for 2025, becoming the first company in the world in 2025 to hold awards from all three major cloud giants: AWS, Microsoft, and Google. CloudThat notably won consecutive AWS Training Partner of the Year (APJ) awards in 2023 and 2024 and the Microsoft Training Services Partner of the Year Award in 2024, bringing its total award count to an impressive 12 awards in the last 8 years.

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