Cloud DevOps Engineer

Content

Module 1: Google Cloud Fundamentals: Core Infrastructure

- **Topics Covered:**
    - Introducing Google Cloud
    - Resources and Access in the Cloud
    - Virtual Machines and Networks in the Cloud
    - Storage in the Cloud
    - Containers in the Cloud
    - Applications in the Cloud
    - Developing and Deploying in the Cloud
    - Logging and Monitoring in the Cloud
- **Hands-On Labs:**
    - Cloud Storage: Qwik Start - Cloud Console
    - Cloud Storage: Qwik Start - CLI/SDK
    - Cloud IAM: Qwik Start
    - Cloud Monitoring: Qwik Start
    - Cloud Functions: Qwik Start - Console
    - Cloud Functions: Qwik Start - Command Line
    - Google Cloud Pub/Sub: Qwik Start - Console
    - Google Cloud Pub/Sub: Qwik Start - Command Line
    - Google Cloud Pub/Sub: Qwik Start - Python

Module 2: Developing a Google SRE Culture

- **Topics Covered:**
    - DevOps, SRE, and Why They Exist
    - SLOs with Consequences
    - Make Tomorrow Better than Today
    - Regulate Workload
    - Apply SRE in Your Organization

Module 3: Reliable Google Cloud Infrastructure: Design and Process

- **Topics Covered:**
    - Defining Services
    - Microservice Design and Architecture
    - DevOps Automation
    - Choosing Storage Solutions

- o Google Cloud and Hybrid Network Architecture
- o Deploying Applications to Google Cloud
- o Designing Reliable Systems
- o Security
- o Maintenance and Monitoring
- **Hands-On Labs:**
  - o Cloud Source Repositories: Qwik Start
  - o Managing Deployments Using Kubernetes Engine
  - o Troubleshooting Workloads on GKE for Site Reliability Engineers
  - o Continuous Delivery with Jenkins in Kubernetes Engine
  - o Identifying and Resolving Application Latency for Site Reliability Engineers
  - o Debugging Applications for Site Reliability Engineers
  - o Using Cloud Error Reporting to Remediate Workload Issues on GKE

Module 4: Logging, Monitoring and Observability in Google Cloud

- **Topics Covered:**
  - o Introduction to Monitoring in Google Cloud
  - o Avoiding Customer Pain
  - o Alerting Policies
  - o Monitoring Critical Systems
  - o Configuring Google Cloud Services for Observability
  - o Advanced Logging and Analysis
  - o Monitoring Network Security and Audit Logs
  - o Managing Incidents
  - o Investigating Application Performance Issues
  - o Optimizing the Costs of Monitoring
- **Hands-On Labs:**
  - o Cloud Monitoring: Qwik Start
  - o Monitoring Multiple Projects with Cloud Monitoring
  - o Monitoring and Logging for Cloud Functions
  - o Reporting Application Metrics into Cloud Monitoring
  - o Creating and Alerting on Logs-based Metrics
  - o Autoscaling an Instance Group with Custom Cloud Monitoring Metrics

Module 5: Getting Started with Terraform for Google Cloud

- **Topics Covered:**
  - o Introduction to Terraform for Google Cloud
  - o Terms and Concepts
  - o Writing Infrastructure Code for Google Cloud
  - o Organizing and Reusing Configuration with Terraform Modules
  - o Introduction to Terraform State
- **Hands-On Labs:**
  - o Terraform Fundamentals
  - o Infrastructure as Code with Terraform

- o Interact with Terraform Modules
- o Managing Terraform State
- o Deploy Kubernetes Load Balancer Service with Terraform