Professional Cloud Architect

Course Overview

A Professional Cloud Architect course outline is typically designed to prepare candidates for the Google Cloud Certified Professional Cloud Architect (PCA) exam. It focuses on hands-on infrastructure design, security implementation, and workload optimization using the Google Cloud Well-Architected Framework

Course Description

A course description summarizes the purpose, target audience, and core outcomes of the Professional Cloud Architect training program. It explains what the course is, who should take it, and what skills will be gained

Who Should Attend :Cloud Architects and Solutions Architects.DevOps Engineers and System Administrators.IT Professionals preparing for the Google Cloud Professional Cloud Architect certification.Prerequisites :Foundational knowledge of cloud computing concepts.Experience with command-line tools and Linux operating systems.At least one year of hands-on experience designing cloud infrastructure.Key Takeaways :Design secure, scalable, and resilient cloud architectures.Manage and provision infrastructure using automated tools.Optimize cloud deployments for maximum cost-efficiency.Analyze real-world case studies to solve complex business problems.

Learning Curriculum

Module 1

Designing and Planning a Cloud Solution Architecture

Business Requirements: Aligning cloud solutions with business use cases, ROI, and technical constraints.Technical Requirements: Designing for high availability, scalability, latency, and workload disposition.Resource Design: Planning compute (VMs, containers), storage (block, object, databases), and global networking.Migration Strategy: Creating architectural diagrams, evaluating data movement, and mapping on-premises to cloud environments.AI Integration: Utilizing Google Cloud AI and ML tools (Gemini models, Model Garden, Agent Builder) into solution designs

Module 2

Managing and Provisioning Solution Infrastructure

Network Topologies: Configuring VPCs, subnets, firewalls, and hybrid connectivity (Cloud VPN, Interconnect).Storage Systems: Implementing Cloud Storage, Cloud SQL, Bigtable, Spanner, and Firestore.Compute Provisioning: Deploying resources via Compute Engine, Google Kubernetes Engine (GKE), and serverless options (Cloud Run, Cloud Functions)

Module 3

Designing for Security and Compliance

Identity and Access Management (IAM): Managing roles, service accounts, and resource hierarchies.Data Protection: Encryption at rest/in transit, Cloud KMS, and data sovereignty compliance.Governance: Organization policies, resource management, and audit logging

Module 4

Analyzing and Optimizing Technical & Business Processes

Resiliency & Reliability: Designing disaster recovery plans and chaos engineering.Deployment & Release: CI/CD pipeline structures, DevOps workflows, and infrastructure as code.Cost Optimization: Budgeting, resource right-sizing, and leveraging committed use discounts

Module 5

Managing Implementation

Operations: Advising DevOps and SRE teams, monitoring, logging, and profiling using Cloud Operations (Operations Suite).Tooling: Interacting with GCP using Google Cloud SDK (gcloud, bq, gsutil)

Module 6

Case Study Analysis

Scenario Practice: Working through detailed, scenario-based architecture requirements (two to three mandatory case studies included in the exam) to justify design decisions.

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