Architecting with Google Kubernetes Engine Training

Duration: **2 Day**

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Overview

This {*training} teaches you how to **deploy, manage, and secure containerized applications** on **Google Kubernetes Engine (GKE)**. Through lectures, demos, and hands-on labs, you'll explore Kubernetes components such as pods, deployments, services, networking, and storage, while learning how to apply real-world solutions.

Prerequisites

Completion of "Getting Started with Google Kubernetes Engine" or equivalent hands-on experience.

Who Should Attend

- Cloud architects
- System administrators
- SysOps / DevOps engineers
- Professionals creating new solutions or integrating existing systems on Google Cloud

What You Will Learn

By the end of this {*training}, you will have gained knowledge and skills in the following areas:

- Create and manage workloads in GKE
- Explain pod networking and service communication
- Use Kubernetes storage abstractions (volumes, StatefulSets, ConfigMaps, Secrets)
- Secure clusters with IAM, RBAC, and Pod Security Standards
- Configure monitoring and logging with Cloud Observability
- Integrate managed storage services (Cloud Storage, Cloud SQL) with GKE
- Design and implement CI/CD pipelines on GKE

Outline

Module 1: Workloads – Deployments & Jobs

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- Creating, inspecting, and updating deployments
- Using Jobs and CronJobs for scheduled tasks
- Scaling clusters manually and automatically
- Pod scheduling with affinity, taints, and tolerations

Module 2: GKE Networking

- Pod networking fundamentals
- Kubernetes Services & load balancers
- Ingress and container-native load balancing
- Network policies

Module 3: Persistent Data & Storage

- Ephemeral vs persistent volumes
- Running StatefulSets
- Using ConfigMaps & Secrets for configuration
- Persistent storage integration in GKE

Module 4: Access Control & Security

- Authentication and authorization in Kubernetes
- RBAC & IAM integration
- Workload Identity for secure service access
- Pod security standards and admission

Module 5: Logging & Monitoring

- Cloud Logging & Cloud Monitoring
- Inspecting logs via kubectl
- Configuring GKE-native observability

Module 6: Google Cloud Managed Storage Services

- Using Cloud Storage with Kubernetes apps
- Managed database services overview

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- Connecting to Cloud SQL using Auth Proxy

Module 7: CI/CD with GKE

- Understanding CI/CD principles
- CI/CD tools on Google Cloud
- Designing CI/CD pipelines for GKE
- Best practices

Module 8: Course Summary

- Review of objectives and key concepts
- Reinforcement of practical knowledge