Curso Architecting with Google Kubernetes Engine

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WE ARE CAS

Duración
21 horas

Modalidad
Aula Virtual

Learning by doing

Curso Oficial

Acerca de:

Con el **curso Architecting with Google Kubernetes Engine** aprenderás a implementar y administrar aplicaciones en contenedores en **Google Kubernetes Engine (GKE)**. Conocerás cómo usar otras herramientas en Google Cloud que interactúen con las implementaciones de GKE. Este curso presenta una combinación de conferencias, demostraciones y laboratorios prácticos para ayudarte a explorar e implementar elementos de solución, incluidos componentes de infraestructura como pods, contenedores, implementaciones y servicios, junto con redes y servicios de aplicaciones. También, aprenderás a implementar soluciones prácticas, incluida la administración de seguridad y acceso, la administración de recursos y la supervisión de recursos.

Dirigido a:

- Arquitectos de nube, administradores y personal de SysOps/DevOps.
- Personas que utilicen Google Cloud para crear nuevas soluciones o para integrar sistemas existentes, entornos de aplicaciones e infraestructura con Google Cloud.

Objetivos:

- Comprender cómo funcionan los contenedores de software.
- Comprender la arquitectura de Kubernetes.
- Comprender la arquitectura de Google Cloud.
- Comprender cómo funciona la red de pods en Google Kubernetes Engine.
- Crear y administrar clústeres de Kubernetes Engine con Google Cloud Console y los comandos gcloud/kubectl.
- Iniciar, revertir y exponer trabajos en Kubernetes.
- Administrar el control de acceso mediante Kubernetes RBAC e IAM.
- Administrar las políticas de seguridad y de red de los pods.
- Utilizar Secrets y ConfigMaps para aislar las credenciales de seguridad y los artefactos de configuración.
- Comprender las opciones de Google Cloud para los servicios de almacenamiento administrado.
- Supervisar las aplicaciones que se ejecutan en Google Kubernetes Engine.

Requisitos:

Haber completado el curso Google Cloud Fundamentals: Core Infrastructure o tener una experiencia equivalente.

Material del curso:

Documentación oficial para el **curso Architecting with Google Kubernetes Engine**.

Perfil del docente:

- Formador certificado por Google Cloud.
- Más de 5 años de experiencia profesional.
- Más de 4 años de experiencia docente.
- Profesional activo en empresas del sector IT.

Metodología:

- “Learning by doing” se centra en un contexto real y concreto, buscando un aprendizaje en equipo para la resolución de problemas en el sector empresarial.
- Aulas con grupos reducidos para que el profesional adquiera la mejor atención por parte de nuestros instructores profesionales.
- El programa de estudios como partners oficiales es confeccionado por nuestro equipo de formación y revisado por las marcas de referencia en el sector.
- La impartición de las clases podrá ser realizada tanto en modalidad Presencial como Virtual.

Contenidos:

Módulo 1: Introduction to Google Cloud

- Temas:
  - Use the Google Cloud Console
  - Use Cloud Shell
  - Define Cloud Computing
  - Identify Google Cloud Compute Services
  - Understand Regions and Zones
  - Understand the Cloud Resource Hierarchy
  - Administer your Google Cloud Resources
- Objetivos:
  - Identify Google Cloud services and their function.
  - Choose the right Google Cloud services to create your own Cloud solution

Módulo 2: Containers and Kubernetes in Google Cloud

- Temas:
  - Create a Container Using Cloud Build
  - Store a Container in Container Registry
  - Understand the Relationship Between Kubernetes and Google Kubernetes Engine (GKE)
  - Understand how to Choose Among Google Cloud Compute Platforms
- Objetivos:
  - Create a Container using Cloud Build.
  - Store a Container in Container Registry.
  - Compare and Contrast Kubernetes and GKE features.

Módulo 3: Kubernetes Architecture

- Temas:
  - Understand the Architecture of Kubernetes: Pods, Namespaces
  - Understand the Control-plane Components of Kubernetes
  - Create Container Images using Cloud Build
  - Store Container Images in Container Registry
  - Create a Kubernetes Engine Cluster
- Objetivos:
  - Conceptualize the Kubernetes Architecture.
  - Deploy a Kubernetes Cluster using GKE.
  - Deploy Pods to a GKE Cluster.
  - View and Manage Kubernetes Objects.
  - Conceptualize the Migrate for Anthos process

Módulo 4: Kubernetes Operations

- Temas:
  - The Kubectl Command
- Objetivos:
  - Work with the Kubectl Command.
  - Inspect the Cluster and Pods.
  - View a Pod's Console Output.

- Sign in to a Pod Interactively.

Módulo 5: Deployment, Jobs, and Scaling

- Temas:
  - Deployments
  - Ways to Create Deployments
  - Services and Scaling
  - Updating Deployments
  - Rolling Updates
  - Blue/Green Deployments
  - Canary Deployments
  - Managing Deployments
  - Jobs and CronJobs
  - Parallel Jobs
  - CronJobs
  - Cluster Scaling
  - Downscaling
  - Node Pools
  - Controlling Pod Placement
  - Affinity and Anti-Affinity
  - Pod Placement Example
  - Taints and Tolerations
  - Getting Software into your Cluster
- Objetivos:
  - Create and Use Deployments.
  - Create and Run Jobs and CronJobs.
  - Scale Clusters Manually and Automatically.
  - Configure Node and Pod Affinity.
  - Get Software into your Cluster with Helm Charts and Kubernetes Marketplace.

Módulo 6: GKE Networking

- Temas:
  - Introduction
  - Pod Networking
  - Services
  - Finding Services
  - Service Types and Load Balancers
  - How Load Balancers Work
  - Ingress Resource
  - Container-Native Load Balancing
  - Network Security
- Objetivos:
  - Create Services to expose applications that are running within Pods.
  - Use load balancers to expose Services to external clients.
  - Create Ingress resources for HTTP(S) load balancing.
  - Leverage container-native load balancing to improve Pod load balancing.
  - Define Kubernetes network policies to allow and block traffic to Pods.

Módulo 7: Persistent Data and Storage

- Temas:
  - Volumes
  - Volume Types
  - The PersistentVolume Abstraction
  - More on PersistentVolumes
  - StatefulSets
  - ConfigMaps
  - Secrets
- Objetivos:
  - Use Secrets to isolate security credentials.
  - Use ConfigMaps to isolate configuration artifacts.
  - Push out and roll back updates to Secrets and ConfigMaps.
  - Configure Persistent Storage Volumes for Kubernetes Pods.
  - Use StatefulSets to ensure that claims on persistent storage volumes persist across restarts.

Módulo 8: Access Control and Security in Kubernetes and Kubernetes Engine

- Temas:
  - Understand Kubernetes Authentication and Authorization
  - Define Kubernetes RBAC Roles and Role Bindings for Accessing Resources in Namespaces
  - Define Kubernetes RBAC Cluster Roles and ClusterRole Bindings for
  - Accessing Cluster-scoped Resources
  - Define Kubernetes Pod Security Policies
  - Understand the Structure of IAM
  - Define IAM roles and Policies for Kubernetes Engine Cluster Administration
- Objetivos:
  - Define IAM roles and policies for GKE.
  - Define Kubernetes RBAC roles and role bindings.
  - Define Kubernetes pod security policies.

Módulo 9: Logging and Monitoring

- Temas:
  - Use Cloud Monitoring to monitor and manage availability and performance
  - Locate and inspect Kubernetes logs
  - Create probes for wellness checks on live applications
- Objetivos:
  - Create forensic logs for systems monitoring.
  - Monitor your system performance from different vantage points.
  - Create probes for wellness checks on live applications.

Módulo 10: Using Google Cloud Managed Storage Services from Kubernetes Applications

- Temas:
  - Understand Pros and Cons for Using a Managed Storage Service Versus
  - Self-managed Containerized Storage
  - Enable Applications Running in GKE to Access Google Cloud Storage Services
  - Understand Use Cases for Cloud Storage, Cloud SQL, Cloud Spanner, Cloud Bigtable, Cloud Firestore, and BigQuery from within a Kubernetes Application
- Objetivos:

- Understand use cases for Cloud Storage within a Kubernetes application.
- Understand use cases for Cloud SQL and Cloud Spanner within a Kubernetes application.
- Understand use cases for Datastore within a Kubernetes application
- Understand use cases for Cloud Bigtable within a Kubernetes application.

Módulo 11: Logging and Monitoring

- Temas:
  - CI/CD overview
  - CI/CD for Google Kubernetes Engine
  - CI/CD Examples
- Objetivos:
  - Manage application code in a source repository that can trigger code changes to a continuous delivery pipeline.
  - Create a continuous delivery pipeline using Cloud Build and start it manually or automatically with a code change.
  - Implement a canary deployment that hosts two versions of your application in production for release testing.

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