Curso Application Development with Cloud Run

Calle de la Basílica, 19
28020 Madrid
(34) 915 53 61 62
www.cas-training.com

WE ARE CAS

Duración
21 horas

Modalidad
Presencial

Learning by doing

Curso Oficial

Acerca de:

El **curso Application Development with Cloud Run** presenta los conceptos básicos, las prácticas, las capacidades y las herramientas aplicables al desarrollo moderno de aplicaciones nativas de la nube con **Google Cloud Run**. A través de una combinación de conferencias, laboratorios prácticos y materiales complementarios, aprenderás a diseñar, implementar, proteger, administrar y escalar **aplicaciones en Google Cloud** mediante **Cloud Run**.

Dirigido a:

Desarrolladores de la nube, desarrolladores de API, clientes y socios.

Objetivos:

- Obtener un conocimiento detallado de **Cloud Run**, la plataforma informática completamente administrada de Google Cloud para implementar y escalar aplicaciones en contenedores de forma rápida y segura.
- Escribir y migrar código utilizando tus lenguajes favoritos (Go, Python, Java, Ruby, Node.js y más).
- Comunicación segura de servicio a servicio basada en identidades de servicio y otorgar a las aplicaciones solo los permisos que necesitan.
- Aprender a crear aplicaciones de alta disponibilidad con baja latencia para el usuario final, a nivel mundial.
- Obtener información sobre cómo conectarse y conservar datos en las ofertas de bases de datos administradas en Google Cloud.
- Comprender cómo la abstracción de toda la gestión de la infraestructura crea una experiencia de desarrollador sencilla.

Requisitos:

- Estar familiarizado con los comandos de Linux y la interfaz de línea de comandos.
- Tener un conocimiento básico de Google Cloud.
- Tener un conocimiento básico de redes.
- Tener un conocimiento básico de uno o más lenguajes de programación como Go, Python, Java, Ruby o Node.js.
- Tener un conocimiento básico de shell scripts, YAML, JSON, HTTP y TLS.

Material del curso:

Documentación oficial para el **curso Application Development with Cloud Run**.

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: Introducing Application Development with Cloud Run Temas: This module gives a general overview of Cloud Run. If you're new to Cloud Run (or even to Google Cloud), this will be a great introduction. Objetivos:

- A general understanding of Cloud Run
- Understand how how high availability, low end-user latency and developer productivity are important architectural drivers for web based applications today
- Understand the advantages of serverless on Google Cloud.

Módulo 2: Understanding Cloud Run Temas:

- You can use any language, any library and any binary. Cloud Run expects your app (in a container image) to listen on a port and respond to HTTP requests.
- Use a docker repository on Artifact Registry to store your images: Cloud Run only deploys from there.
- Cloud Run uses autoscaling to handle all incoming requests
- Pay for use pricing model
- No background tasks: Container lifetime is only guaranteed while handling requests
- There is no persistent storage: Store data downstream
- Cloud Run is portable (containers and Knative)

Objetivos:

- Understand Container Images and Containers
- Understand how Cloud Run is different from an always-on server
- Implement the deployment of a container image to Cloud Run (hands-on lab)
- Understand auto-scaling and on-demand containers

Módulo 3: Building Container Images Temas:

- The contents of a container image (deep dive)
- There are two ways to build container images
  - Buildpacks (hands-off)
  - Docker (you're in control)
- Cloud Run supports both source-based and a container image based workflow
- The most important considerations of building a secure container image

Objetivos:

- Deeply understand what is inside a container image
- Package an application into a container image with Buildpacks (hands-on lab activity)
- Understand that Dockerfiles are a lower-level and more transparent alternative to Buildpacks

Módulo 4: Building Container Images Temas:

- Container lifecycle
  - Idle vs serving
  - Shutdown lifecycle hook
- Cold starts
  - Min instances
- Container readiness
- The service resource and what it describes
- Configuring memory limits and CPU allocation
- Deploying a new revision
- Traffic steering (tagging, gradual rollouts)

Objetivos:

- Understand the advantages of the shutdown lifecycle hook
- Understand how to avoid request queuing
- Implement new versions of an application (hands-on lab activity)
- Implement gradual traffic migration (hands-on lab activity)

Módulo 5: Configuring Service Identity and Authorization Temas:

- Cloud IAM
  - Service account, policy binding, roles, types of members, resource hierarchy (in practice)
  - Service accounts
  - Cloud Run IAM roles
- Cloud Run
  - Default service account
  - Risks of using the default service account

Objetivos:

- Understand that every action on a Cloud resource is actually an API call
- Understand how and why to limit the permissions in your Cloud Run service to only specific and necessary API calls
- Understand the process needed to make the default permissions of a Cloud API more secure
- Use the client libraries to call other Google Cloud services (hands-on lab activity)

Módulo 6: Serving Requests Temas:

- Custom Domains
- Global Load Balancer
  - URL Map
  - Frontend
  - Backend services
- Benefits and drawbacks of GLB over custom domain
- Types of GLB Backends
- Multi-region load balancing
- Multi-regional applications challenges
- Cloud CDN

Objetivos:

- Use Cloud CDN to improve the reliability and performance of an application
- Use path-based routing to combine multiple applications on one domain
- Route incoming requests to the Cloud Run service closest to clients

Módulo 7: Using Inbound and Outbound Access Control Temas:

- Ingress settings
- Cloud Armor
- Using Cloud IAM to protect services
  - Understand how authenticated requests (IAM + OIDC tokens) work (builds on Module 5)
- VPC, VPC Access Connector
- Egress settings

Objetivos:

- Connecting your project to resources with a private IP
- Implementing controls to prevent outbound traffic to dangerous or unwanted hosts
- Implementing filters for inbound traffic using content-based rules

- Implementing controlled access to only specific service accounts

Módulo 8: Persisting Data Temas:

- Understanding why you need to store data externally when running a workload on Cloud Run.
- Connect with Cloud SQL from Cloud Run
  - Understand how it works (managed Cloud SQL Proxy)
- Managing concurrency as a way to safeguard performance (understand why and when)
- Connecting with Memorystore
- VPC Connector
  - Challenges with scaling Memorystore (throughput)
- Briefly introduce Cloud Storage, Firestore and Cloud Spanner, while reinforcing how the client libraries use the built-in service account to connect (Module 5 is prerequisite knowledge).
- Multi-region data storage (and what Spanner and Firestore can do for you)

Objetivos:

- Understand how to connect your application with Cloud SQL to store relational data
- Use a VPC Connector to reach a private Memorystore instance
- Understand how to connect with Cloud Storage, Spanner and Firestore

Módulo 9: Implementing Service-to-Service Communication Temas:

- Understanding Cloud Pub/Sub
  - Understanding topics, push subscriptions
  - Idempotency (Handling retries and at-least-once invocation)
    - Event ID, design for resume, or use a lease
  - Handling undeliverable messages
- How to asynchronously schedule a background task on a different service
- Cloud Tasks, and when to choose it over Cloud Pub/Sub
- Benefits of using Pub/Sub to pass messages over making sync RPC requests
- Learn about services in Google Cloud with a built-in integration to push events to Pub/Sub (Cloud Build, Artifact Registry, Cloud Storage, IOT
- Core, BigQuery)
- Cloud Scheduler to invoke services on a schedule.
- CloudEvents
- EventArc, and how to consume Audit logs
  - What to expect now, and how EventArc will develop over time

Objetivos:

- Using Cloud Pub/Sub to send messages between services
- Discovering the URL of other Cloud Run services
- Receiving events from other Google Cloud services
- Processing background tasks asynchronously

Módulo 10: Orchestrating and Automating Serverless Workflows Temas:

- Conceptual overview of Cloud Workflows
- Invoking and passing parameters
- Understand steps and jumps
- Defining, using and passing values with variables
- Using the switch statement to add logic
- Workflow visualization
- Calling HTTPS endpoints

- Calling an authenticated Cloud Run service
- Example: polling API for completion

Objetivos:

- Understand the capabilities of Cloud Workflows
- Learn how to model a simple workflow with steps and conditional jumps
- Integrating Cloud Run with Cloud Workflows
- Understand how to invoke workflows

CAS TRAINING

UN ESPACIO PARA CRECER

cas-training.com