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Cloud Build Training

2 days (14 hours)

Overview

Cloud Build is Google Cloud's managed CI/CD service for building, testing, and packaging your applications in a reproducible manner. It integrates seamlessly with Git workflows and containerized deployments to accelerate delivery while enhancing traceability.

This training aims to make your pipelines reliable and scalable: creating cloudbuild.yaml, managing triggers, running tests, building Docker images, and publishing artifacts. You'll learn how to secure the pipeline (IAM, secrets) and optimize build times (caching, parallelization).

The approach is firmly hands-on, featuring guided workshops and demonstrations using a typical project. Deliverables include ready-to-use pipelines, configuration templates, and an operations checklist (logs, alerting, best practices).

Like all our training courses, this one will introduce you to **the latest stable version** of the technology and its new features.

Objectives

- Configure a Cloud Build pipeline from a Git repository.
- Write and maintain multi-stage cloudbuild.yaml files.
- Build, tag, and publish images to Artifact Registry.
- Secure the build process with IAM, service accounts, and secrets.
- Diagnose and optimize builds using logs, cache, and metrics.

Target Audience

- Developers looking to automate build/test/package.

- DevOps/SRE engineers responsible for CI/CD on Google Cloud.
- Tech leads responsible for standardization.

Prerequisites

- Solid foundation in Git and branch workflows.
- Basic knowledge of Docker (build, image, registry).
- Understanding of CI/CD principles (pipelines, artifacts, environments).
- Basic knowledge of Google Cloud (projects, IAM, APIs).

Technical prerequisites

- Computer with at least 8 GB of RAM (16 GB recommended).
- Linux, macOS, or Windows (WSL2 recommended).
- Access to a Google Cloud project with Cloud Build and Artifact Registry creation permissions.
- Tools: gcloud CLI, Docker, code editor, terminal.

Cloud Build Training Agenda

[Day 1 - Morning]

Introduction to Cloud Build and CI/CD fundamentals on Google Cloud

- Role of Cloud Build in a CI/CD pipeline: build, test, packaging
- Key concepts: builds, steps, images, logs, artifacts
- Setting up a project: APIs, IAM permissions, service accounts
- First builds: running a command, building a Docker image, reading logs
- Hands-on workshop: Launch your first build and produce a versioned artifact.

[Day 1 - Afternoon]

Writing and structuring a pipeline with cloudbuild.yaml

- Structure of a cloudbuild.yaml file: steps, args, dir, entrypoint
- Variables and substitutions: $PROJECT_ID, $SHORT_SHA, custom substitutions
- Artifact management: Artifact Registry, storage, tags, and versioning conventions
- Optimizing execution: parallelization, timeouts, reusing build images
- Hands-on workshop: Build a Docker image, tag it, and publish it to Artifact Registry.

[Day 2 - Morning]

Triggers, Git integration, and build automation

- Creating triggers: push, pull/merge requests, tags, branches
- Pipeline strategies: build by branch, build by tag, image promotion
- Quality validation: running unit tests, lint checks, and static analysis in steps
- Environment management: variables per trigger, substitutions, naming conventions
- Hands-on workshop: Set up a trigger on a branch and run tests + automatic build.

[Day 2 - Afternoon]

Security, secrets, and continuous deployment

- IAM best practices: least privilege, dedicated service accounts, auditing
- Managing secrets: Secret Manager, encrypted variables, preventing leaks in logs
- Deployment: Chain build + deployment to Cloud Run (or GKE depending on context)
- Traceability: logs, metadata, image tags, rollback via versions
- Hands-on workshop: Automatically deploy a new version to Cloud Run with secrets managed via Secret Manager.

Target Audience

This training is intended for both individuals and companies, large or small, wishing to train their teams in a new advanced IT technology or to acquire specific business knowledge or modern methods.

Assessment upon enrollment

The pre-training assessment complies with Qualiopi quality standards. Upon final registration, the learner receives a self-assessment questionnaire that allows us to evaluate their estimated proficiency in various types of technologies, as well as their expectations and personal goals regarding the upcoming training, within the limits imposed by the selected format. This questionnaire also allows us to anticipate certain connection or internal security issues within the company (intra-company or virtual classroom) that could pose challenges for monitoring and ensuring the smooth running of the training session.

Teaching Methods

Practical Course: 60% Practical, 40% Theory. Training materials distributed in digital format to all participants.

Organization

The course alternates between theoretical input from the trainer, supported by examples and reflection sessions, and group work.

Assessment

At the end of the session, a multiple-choice questionnaire is used to verify that the skills have been properly acquired.

Certification

A certificate will be issued to each trainee who completes the entire training program.