+33 (0)1 48 10 09 46
formation@ambient-it.net
140 Avenue Jean Lolive 93500 Pantin - France

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GKE Training: Kubernetes GCP

Google Cloud Platform & Kubernetes Engine

2 days (14 hours)

Presentation

GKE (Google Kubernetes Engine) offers a "one-click" alternative, enabling you to benefit from the extensive expertise of Google, which launches over four billion containers in its data centers worldwide every week. Kubernetes boosts the efficiency of digital businesses, but requires a great deal of expertise to deploy and manage in-house. Google Cloud Platform (GCP) coupled with GKE offers you a powerful Cloud tool to achieve this.

This training course will help you understand how to delegate the management of your Kubernetes cluster to Google. You'll be able to take advantage of Docker container orchestration features never seen before in the competition. What's more, you'll learn to focus on getting the most out of your cluster, so you can deliver ever higher quality services to your users.

This course will show you how to run Kubernetes clusters with GKE, both for state-of-the-art (Testing) and proven (Production) versions of the orchestrator.

This course will introduce you to the latest stable release of Amazon EKS with Kubernetes 1.32.

Objectives

- Learn about the features and benefits of microservices
- Deploying applications on elastic infrastructures
- Using Kubernetes with Google Kubernetes Engine (GKE)
- Automatically position containers on a cluster or in the cloud
- Automate application scaling
- Implement high-availability and self-healing software services
- Optimize the storage of large amounts of data with volumes

- Advanced monitoring of software services
- Simplify application software version upgrades
- Deploying Kubernetes in production on GCP

Target audience

Developers, Architects, System administrators, DevOps

Prerequisites

- Have attended our Kubernetes training course or have experience with it
- Basic knowledge of a Unix system
- How to create and run Docker containers

GKE training program: Kubernetes with GCP

INTRODUCTION TO MICROSERVICES

- The evolution of applications: the "12 factors" methodology
- Microservices
- Refactoring a microservices application

PRESENTATION OF GOOGLE KUBERNETES ENGINE

- Google Cloud Platform overview
- Creating and managing virtual machines on Google Compute Engine
- Creating and managing a Kubernetes cluster on GKE
- Pay only for resources actually used
- Understanding GKE's advanced features

KUBERNETES: THE BASICS

- Create a Kubernetes cluster: on your workstation, in a virtual machine cluster or on GKE.
- Deploying an application on multiple machines
- Explore an application
- Exposing an application on the network
- Scaling up
- Updating software versions

KUBERNETES: THE MAIN CONCEPTS

- Pod overview
- Interacting with Pods
- Application configuration and security (ConfigMaps and Secrets)
- Services overview (ClusterIP, NodePort, LoadBalancer, Headless)
- Create your own service
- Organize your Pods with Labels

DEPLOYING MICROSERVICES

- Strategies for deploying microservices applications
- High-Performance Computing strategies (Jobs)
- Case study: deploying with kubectl and yaml
- Scale-up strategies (Replicasets and Daemonsets)
- Case study: using replicas
- Case study: installing a distributed log manager
- Software update strategy (Deployments)
- Case study: Rolling update

ADVANCED CONCEPTS

- Volatile and persistent storage (with Google Persistent Disks)
- Advanced supervision techniques: Prometheus
- Deploying distributed databases (StatefulSet)
- Advanced networking techniques

Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives with regard to the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

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

Organization

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

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.