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Sign up

State of the art of container orchestration solutions course

3 days (21 hours)

Presentation

Deploy your applications simply with application containers. Unlike virtual machines, containers virtualize part of the operating system's software layers. This means better performance.

The use of containers has several benefits:

- Use of consistent, isolated environments
- Rapid, cost-effective deployment
- Strengthen collaboration between your developers
- Can be launched from the Cloud
- Automated deployment

Our state-of-the-art training course on container orchestration solutions will introduce you to the workings and importance of containers. You'll learn how Kubernetes, Docker and CaaS work, as well as security best practices.

Objectives

- Understanding containerization technology and its ecosystem
- Identify major players and their use cases
- Know the fundamental principles of CaaS containerization
- Understanding how Kubernetes and Docker work
- Understand how private and public clouds interact with legacy systems
- Understand the best security practices for CaaS, Kubernetes and Docker
- Understand the technical and organizational limits and benefits of a microservices architecture

Target audience

- Developers
- Architects
- System/network administrators
- IT infrastructure managers
- Project managers

Prerequisites

Knowledge of computer architecture terminology and concepts.

Our training program State of the art of container orchestration solutions

Introduction to containers

- Introducing the Linux container concept
- Introducing the concept of virtual machines
- The benefits of containerization
- Current uses
- How do you containerize an application?
- The differences between containers and virtual machines

Introduction to Docker

- What is Docker?
- Advantages of the tool and its competitors
- Architectural presentation
- Image vs Containers
- Creating containers and images
- Persistent storage options

Introduction to Kubernetes

- What is Kubernetes?
- Advantages of the tool and its competitors
- Kubernetes architecture and components
- Life cycle of a kubectl request
- Deploying an application on multiple machines
- Explore an application
- Scaling up

The Kubernetes ecosystem

- Introduction to the Kubernetes ecosystem

- Introduction to components and associated vocabulary :
  - Pods/Multicontainer pods
  - Services
  - Service Discovery
  - Deployment
  - Autoscaling
  - Probes
  - Volumes
  - Init containers
  - ConfigMaps and secrets

The CaaS model

- Introducing the CaaS model
- CaaS vs PaaS
- Introducing serverless computing for containers
- The different players :
  - Microsoft Azure Container Service
  - Amazon EC2 Container Service
  - Mirantis Kubernetes Engine
  - Google Container Engine

Interaction between private cloud, public cloud and legacy

- Private cloud overview
- Introducing the public cloud
- Hybrid cloud and multicloud
- What is legacy?
- How do these elements interact?

Microservices architecture

- What's the difference between microservices and APIs?
- How microservices work
- The benefits of microservices architecture
- The limits of microservices architecture
- Best practices

Good safety practices

- Best security practices for CaaS
- Best security practices for Kubernetes
- Security best practices for Docker

To go further?

Ansible training

Kubernetes training

Openstack training

Advanced Kubernetes training

OpenShift training

Prometheus and Grafana training

Companies concerned

This course is aimed at companies, large or small, wishing to train their teams in a new, advanced computer technology.

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, with brainstorming sessions and group work.

Validation

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

Sanction

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