DevOps Engineering on AWS

Duration: 3 days
Audience: Professionnel TI

Who is this training for?

System Administrators and Software Developers

Training objectives

- Use the core concepts and practices of the DevOps methodology
- Design and implement infrastructure on AWS that supports one or more DevOps development projects
- Use AWS CloudFormation and AWS OpsWorks to deploy the infrastructure needed to create development, test, and production environments for a software development project
- Use AWS CodeCommit and AWS CodeBuild to learn about the range of options for Implement a Continuous Integration (CI) Environment on AWS
- Use AWS CodePipeline to design and implement a Continuous Integration and Continuous Delivery (CI/CD) pipeline on AWS
- Use AWS CodeStar to manage all software development activities in one place
- Implement several common Continuous Deployment (CD) use cases using AWS technologies. including blue/green deployment and A/B testing
- Distinguish between the different application deployment technologies available on AWS, including AWS CodeDeploy, AWS OpsWorks, AWS Elastic Beanstalk, Amazon Elastic Container Service (ECS), and Amazon Elastic Container Registry (ECR), and decide which one best fits a given scenario
- Use Amazon EC2 Systems Manager for patch management
- Leverage automated testing at different stages of a CI/CD pipeline
- Fine-tune the applications you send to AWS for high performance and use AWS tools and technologies to monitor your application and environment for issues

Summary

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This course will teach you the most common DevOps models for developing, deploying, and managing applications on the AWS platform. We will cover the essential principles of the DevOps methodology and explore many use cases, applicable to business development scenarios, small and medium-sized businesses, and start-ups.

Course outline

Module 1: Introduction to DevOps on AWS

- DevOps Principles
- DevOps Culture and Collaboration
- AWS DevOps Services Overview

Module 2: Infrastructure as Code (IaC) AWS Cloud Formation AWS CDK (Introduction) Infrastructure Release Management IaC Best Practices

Module 3: Continuous Integration (CI) AWS CodeCommit AWS CodeBuild Source Code Management Build and Test Automation

Module 4: Continuous Delivery and Deployment (CI/CD) AWS CodePipeline AWS CodeDeploy Full CI/CD Pipelines Deployment Strategies (blue/green, rolling, canary)

Module 5: Configuration Management and Automation

- AWS OpsWorks
- EC2 Systems Manager
- Patch Management Operational Automation

Module 6: Containers and Microservices

- Amazon ECS and EKS (Introduction)
- Amazon ECR • Deploying Containerized Applications

Module 7: Monitoring and Logging

- Amazon CloudWatch
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AWS X-Ray (Distributed Tracing)

- Centralization of Logs
- Observability

Module 8: Security in DevOps (DevSecOps)

- Integration of Security in Pipelines
- Code Analysis and Vulnerabilities
- Secrets Management

Module 9: Performance and Optimization

- Performance Testing
- Autoscaling
- Cost Optimization

Approach and methodology

This course emphasizes a hands-on, hands-on approach to implementing CI/CD pipelines and automated infrastructure in AWS. Participants conduct hands-on workshops, guided demonstrations, and exercises based on real-world deployment scenarios. Learning is reinforced by case studies and simulations of real-world DevOps environments.

Prerequisites

Basic knowledge of AWS (EC2, S3, IAM, VPC)

Recommendations

- Experience in software development or systems administration Understanding of DevOps concepts (CI/CD, automation, versioning)
- Familiarity with at least one scripting language (Python, Bash, etc.)

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