

## DevOps Engineering on AWS

Varighed: 3 Days    Kursus Kode: GK1979    Leveringsmetode: Virtuel deltagelse

### Beskrivelse:

DevOps Engineering on AWS teaches you how to use the combination of DevOps cultural philosophies, practices, and tools to increase your organization's ability to develop, deliver, and maintain applications and services at high velocity on AWS. This course covers Continuous Integration (CI), Continuous Delivery (CD), infrastructure as code, microservices, monitoring and logging, and communication and collaboration. Hands-on labs give you experience building and deploying AWS CloudFormation templates and CI/CD pipelines that build and deploy applications on Amazon Elastic Compute Cloud (Amazon EC2), serverless applications, and container-based applications. Labs for multi-pipeline workflows and pipelines that deploy to multiple environments are also included.

Course level: Intermediate

Duration: 3 days

### Activities

This course includes presentations, group exercises, and hands-on labs.

### Virtuel deltagelse

Et V&C Select kursus indholder nøjagtigt det samme som et almindeligt kursus. Før kursusstart modtager man kursusmaterialet. Dernæst logger man på kurset via internettet og ser via sin pc den selvsamme præsentation som de øvrige deltagere, man kommunikerer via chat med underviseren og de øvrige deltagere på kurset. Denne uddannelsesmodel er både tids-og omkostningsbesparende og kan være et oplagt alternativ til almindelig klasseundervisning, hvis man f.eks. har et begrænset rejsebudget.

### Målgruppe:

This course is intended for: DevOps engineers DevOps architects Operations engineers System administrators Developers

### Agenda:

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| ■ In this course, you will:   | ■ Integrate Git repositories into CI/CD pipelines   |
| ■ Use DevOps best practices to develop, deliver, and maintain applications and services at high velocity on AWS | ■ Automate build, test, and packaging code with AWS CodeBuild   |
| ■ List the advantages, roles and responsibilities of small autonomous DevOps teams                              | ■ Securely store and leverage Docker images and integrate them into your CI/CD pipelines                                |
| ■ Design and implement an infrastructure on AWS that supports DevOps development projects                       | ■ Build CI/CD pipelines to deploy applications on Amazon EC2, serverless applications, and container-based applications |
| ■ Leverage AWS Cloud9 to write, run and debug your code   | ■ Implement common deployment strategies such as "all at once," "rolling," and "blue/green"                             |
| ■ Deploy various environments with AWS CloudFormation   | ■ Integrate testing and security into CI/CD pipelines   |
| ■ Host secure, highly scalable, and private Git repositories with AWS CodeCommit                                | ■ Monitor applications and environments using AWS tools and technologies  |

### Forudsætninger:

We recommend that attendees of this course have:

- Previous attendance at the Systems Operations on AWS or Developing on AWS courses
- Working knowledge of one or more high-level programming languages, such as C#, Java, PHP, Ruby, Python
- Intermediate knowledge of administering Linux or Windows

systems at the command-line level

- Two or more years of experience provisioning, operating, and managing AWS environments

## Indhold:

### Day 1

#### Module 0: Course overview

- Course objective
- Suggested prerequisites
- Course overview breakdown

#### Module 1: Introduction to DevOps

- What is DevOps?
- The Amazon journey to DevOps
- Foundations for DevOps

#### Module 2: Infrastructure Automation

- Introduction to Infrastructure Automation
- Diving into the AWS CloudFormation template
- Modifying an AWS CloudFormation template
- Demonstration: AWS CloudFormation template structure, parameters, stacks, updates, importing resources, and drift detection

#### Module 3: AWS Toolkits

- Configuring the AWS CLI
- AWS Software Development Kits (AWS SDKs)
- AWS SAM CLI
- AWS Cloud Development Kit (AWS CDK)
- AWS Cloud9
- Demonstration: AWS CLI and AWS CDK
- Hands-on lab: Using AWS CloudFormation to provision and manage a basic infrastructure

#### Module 4: Continuous integration and continuous delivery (CI/CD) with development tools

- CI/CD Pipeline and Dev Tools
- Demonstration: CI/CD pipeline displaying some actions from AWS CodeCommit, AWS CodeBuild, AWS CodeDeploy and AWS CodePipeline
- Hands-on lab: Deploying an application to an EC2 fleet using AWS CodeDeploy
- AWS CodePipeline
- Demonstration: AWS integration with Jenkins
- Hands-on lab: Automating code deployments using AWS CodePipeline

### Day 2

#### Module 4: Continuous integration and continuous delivery (CI/CD) with development tools

- CI/CD Pipeline and Dev Tools
- Demonstration: CI/CD pipeline displaying some actions from AWS CodeCommit, AWS CodeBuild, AWS CodeDeploy and AWS CodePipeline
- Hands-on lab: Deploying an application to an EC2 fleet using AWS CodeDeploy
- AWS CodePipeline
- Demonstration: AWS integration with Jenkins
- Hands-on lab: Automating code deployments using AWS CodePipeline

#### Module 5: Introduction to Microservices

- Introduction to Microservices

#### Module 6: DevOps and containers

- Deploying applications with Docker
- Amazon Elastic Container Service and AWS Fargate
- Amazon Elastic Container Registry and Amazon Elastic Kubernetes service
- Demonstration: CI/CD pipeline deployment in a containerized application

#### Module 7: DevOps and serverless computing

- AWS Lambda and AWS Fargate
- AWS Serverless Application Repository and AWS SAM
- AWS Step Functions
- Demonstration: AWS Lambda and characteristics
- Demonstration: AWS SAM quick start in AWS Cloud9
- Hands-on lab: Deploying a serverless application using AWS Serverless Application Model (AWS SAM) and a CI/CD Pipeline

#### Module 8: Deployment strategies

- Continuous Deployment
- Deployments with AWS Services

#### Module 9: Automated testing

- Introduction to testing
- Tests: Unit, integration, fault tolerance, load, and synthetic
- Product and service integrations

### Day 3

#### Module 10: Security automation

- Introduction to DevSecOps
- Security of the Pipeline
- Security in the Pipeline
- Threat Detection Tools
- Demonstration: AWS Security Hub, Amazon GuardDuty, AWS Config, and Amazon Inspector

#### Module 11: Configuration management

- Introduction to the configuration management process
- AWS services and tooling for configuration management
- Hands-on lab: Performing blue/green deployments with CI/CD pipelines and Amazon Elastic Container Service (Amazon ECS)

#### Module 12: Observability

- Introduction to observability
- AWS tools to assist with observability
- Hands-on lab: Using AWS DevOps tools for CI/CD pipeline automations

#### Module 13: Reference architecture (Optional module)

- Reference architectures

#### Module 14: Course summary

- Components of DevOps practice
- CI/CD pipeline review
- AWS Certification

## Flere Informationer:

For yderligere informationer eller booking af kursus, kontakt os på tlf.nr.: 44 88 18 00

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