

DevOps Engineering on AWS

| Duration | Delivery Method | Level |
|----------|-------------------------|----------|
| 3 days | Online / Instructor Led | Advanced |

In this course, you will learn the most common DevOps patterns to develop, deploy, and maintain applications on the AWS platform. We will explore the core principles of the DevOps methodology and examine a number of use cases applicable to startup, small to medium-sized business, and enterprise development scenarios.

Benefits of DevOps Engineering on AWS

- New course which results in greater career opportunities
- Massive chances of working for bigger companies associated with AWS
- Opportunity to stand out among a crowd, however big, of professionals
- Chance to become one of the few AWS Certified people

Course Objectives

- Use the principal concepts and practices behind the DevOps methodology
- Design and implement an infrastructure on AWS that supports one or more DevOps development projects
- Use AWS CloudFormation and AWS OpsWorks to deploy the infrastructure necessary to create development, test, and production environments for a software development project
- Use AWS CodeCommit and AWS CodeBuild to understand the array of options for enabling 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
- Distinguish between the array of application deployment technologies available on AWS, including AWS CodeDeploy, AWS OpsWorks, AWS Elastic Beanstalk, Amazon Elastic Container Service (Amazon ECS), and Amazon Elastic Container Registry (Amazon ECR), and decide which technology best fits a given scenario
- Leverage automated testing in different stages of a CI/CD pipeline

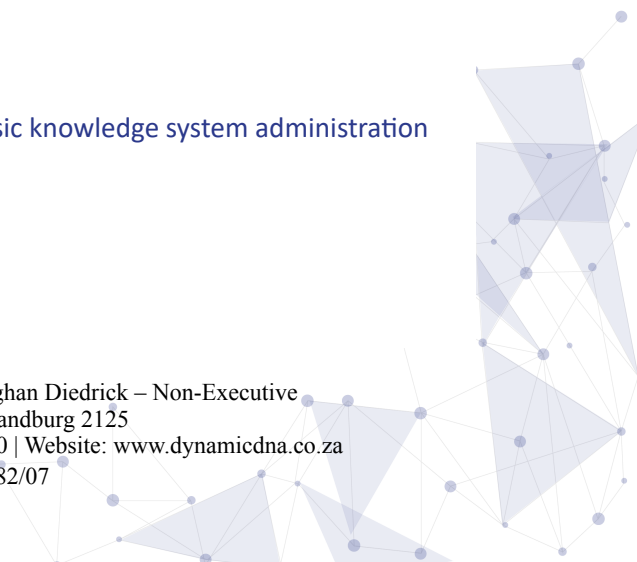
Pre-requisites for DevOps Engineering on AWS

It is recommended that the learners of this course have the basic knowledge system administration and web application development.

Course Content

Module 1: Introduction to DevOps

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- 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 Toolkit

- 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 with development tool

- 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
- Introduction to Microservices

Module 5: 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 containerised application

Module 6: 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 7: Deploying strategies

- Continuous Deployment
- Deployments with AWS Services

Module 8: Automation testing

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

Module 9: 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 10: 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)