COURSE ABSTRACT

Merative Cúram on Kubernetes for Developers

CUR086

Course Description

This course provides the essential knowledge and resources to help technical roles implement and manage Merative Cúram deployments on Kubernetes. This course also guides you through the many resources to help you build your knowledge of cloud, continuous integration/continuous delivery (CI/CD), and containerization technologies.

The course begins with an introduction to cloud and containerization technologies. It then delves deeper into Docker, Kubernetes, and Helm, focusing on how they enable Cúram deployments on Kubernetes. Following this, you'll explore DevOps concepts and CI/CD pipelines. The final section emphasizes the architecture of Kubernetes solutions for Cúram.

The first three sections are designed for those new to containerization and DevOps, while the final section focuses specifically on the Cúram on Kubernetes solution.

General Information

Delivery Method: Self-paced.

Audience: This is a technical course and is suited to learners with a technical background, such as developers, architects, DevOps engineers, and system administrators.

Topics: The course covers the following topics:

- Cloud computing and containerization.
- Docker, Kubernetes, and Helm.
- DevOps and delivery pipelines.

- Cúram on Kubernetes offering.

Learning Objectives: After completing the course, learners should be able to:

- Describe the key cloud and containerization terms and concepts, including Docker, Kubernetes, and Helm.
- Outline the DevOps approach to software development.
- List common tools to implement a CI/CD pipeline.
- Configure containers for Cúram by using Docker.
- Configure and manage Kubernetes clusters.
- Create and deploy Helm charts for Cúram using best practices.
- Select best practices to help you manage and operate your Cúram cloud solution.

Prerequisites: None

Duration: 16 Hours *

Skill Level: Intermediate

Version: This course was updated for Cúram 8.1.2.

Notes

This course does **not** include an elab. You are expected to gain hands-on practice in the recommended courses.

*The course duration gives learners an estimate of how much time they need to allocate to the course to cover the core concepts. The actual time required to complete the course varies by learner. In addition, the time it takes to cover the material depends on your current knowledge of the topics and which additional resources you want to review.

Course Agenda

Unit 1 – Core Concepts - Prerequisites

Lesson 1 –Cloud Computing Overview

Duration: 50 minutes

Learning objectives: After completing this lesson, learners should be able to:

- Define the key cloud terms and concepts.
- Distinguish between the different cloud service models.
- Outline the features of private, public, and hybrid deployment models.
- List typical cases for each deployment model.
- Identify the main cloud providers in the cloud services market.

Lesson 2 – Containerization Overview

Duration: 55 minutes

Learning objectives: After completing this lesson, learners should be able to:

- Briefly explain what is meant by application modernization.
- Define the following concepts:
  - Containerization
  - Microservices
  - Cloud native
  - 12-Factor applications
- Explain the purpose of Docker, Kubernetes, and Helm.
- Outline the broad approaches for moving applications to the cloud.

Lesson 3 – Linux Overview

Duration: 15 minutes

Learning objectives: After completing this lesson, learners should be able to:

- List the main flavors of Linux.
- List resources for learning Linux.

Unit 2 – Docker, Kubernetes & Helm

Lesson 1 – Docker

Duration: 300 minutes

Learning objectives: After completing this lesson, learners should be able to:

- Explain what Docker is and how it is used.
- Describe how Docker containers are built.
- Interpret sample Cúram Dockerfiles.
- Briefly describe how to build Cúram Docker images.
- Outline Docker features for storage and networking.
- List best practices for creating, maintaining, and securing containers.
- List resources for developing a deeper understanding of Docker.

Lesson 2 – Kubernetes

Duration: 120 minutes

Learning objectives: After completing this lesson, learners should be able to:

- Explain what Docker is and how it is used.
- Describe how Docker containers are built.
- Interpret sample Cúram Dockerfiles.
- Briefly describe how to build Cúram Docker images.
- Outline Docker features for storage and networking.
- List best practices for creating, maintaining, and securing containers.
- List resources for developing a deeper understanding of Docker.

Lesson 3 – Helm

Duration: 60 minutes

Learning objectives: After completing this lesson, learners should be able to:

- State the purpose of Helm.
- List basic Helm commands.
- Interpret the sample Helm charts provided for Cúram on Kubernetes.

Unit 3 – DevOps

Lesson 1 – DevOps Overview

Duration: 60 minutes

Learning objectives: After completing this lesson, learners should be able to:

- State the benefits of DevOps.
- List the DevOps principles.
- Describe the following DevOps concepts:
  - Continuous development
  - Continuous integration
  - Continuous deployment
  - Continuous delivery
  - Continuous testing
  - Infrastructure as code

Lesson 2 – Delivery Pipelines

Duration: 60 minutes

Learning objectives: After completing this lesson, learners should be able to:

- Describe typical stages in the delivery pipeline architecture.
- List common tools that are used in the delivery pipeline stages.
- List resources for developing CI/CD skills.

Unit 4 – Getting Started with Cúram on Kubernetes

Lesson 1 – Cúram on Kubernetes Offering

Duration: 60 minutes

Learning objectives: After completing this lesson, learners should be able to:

- Describe the Cúram on Kubernetes offering.
- Summarize the stages in the Cúram on Kubernetes Runbook, which are used to build a sample deployment.

Lesson 2 – Architecture & Runbook

Duration: 90 minutes

Learning objectives: After completing this lesson, learners should be able to:

- Outline the changes that were introduced to Cúram to support Cúram on Kubernetes.
- Describe the Cúram on Kubernetes deployment reference architecture for OpenShift and AKS.
- Explain the main steps in the Runbook for deploying Cúram on Kubernetes.

Lesson 3 – Operating and Monitoring Cúram on Kubernetes

Duration: 90 minutes

Learning objectives: After completing this lesson, learners should be able to:

- Define the service management considerations for operating and managing a cloud solution
- List tips for monitoring and troubleshooting Cúram on Kubernetes
- Describe how to upgrade Cúram on Kubernetes.