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Module Title : DO295: Containers, Kubernetes, and Red Hat OpenShift Development I
Duration : 5 days

Overview

Containers, Kubernetes, and Red Hat OpenShift Development I (DO295) teaches you how to design, build, and deploy containerized software applications to an OpenShift® cluster. Whether you are tasked with writing container-native applications or migrating existing brownfield applications, this course provides hands-on training to boost developer productivity powered by Red Hat OpenShift.

Course summary

- Explore container and OpenShift architecture
- Create containerized services
- Manage containers and container images
- Build custom container images
- Manage and trigger application builds
- Customize an existing source-to-image base image
- Develop an OpenShift template
- Generate health checks to monitor and improve application reliability

Audience

- Developers who wish to containerize software applications.
- Administrators who are new to container technology and container orchestration.
- Architects who are considering using container technologies in software architectures.
- Site reliability engineers who are considering using Kubernetes and OpenShift.

Prerequisites

Be able to use a Linux terminal session, issue operating system commands, and be familiarwith shell scripting. An RHCSA certification is recommended but not required. Have experience with web application architectures and their corresponding technologies

Course outline

Introduction to container technology

Describe how software can run in containers orchestrated by Red Hat OpenShift Container Platform.

Create containerized services

Provision a server using container technology.

Manage containers

Manipulate prebuilt container images to create and manage containerized services.

Manage container images

Manage the life cycle of a container image from creation to deletion.

Create custom container images

Design and code a Dockerfile to build a custom container image.

Deploy containerized applications on OpenShift

Deploy single container applications on OpenShift Container Platform.

Troubleshoot containerized applications

Troubleshoot a containerized application deployed on OpenShift.

Deploy and manage applications on an OpenShift cluster

Use various application packaging methods to deploy applications to an OpenShift cluster, then manage their resources.

Design containerized applications for OpenShift

Select a containerization method for an application and create a container to run on an OpenShift cluster.

Publish enterprise container images

Create an enterprise registry and publish container images to it.

Build applications

Describe the OpenShift build process, then trigger and manage builds.

Customize source-to-image (S2I) builds

Customize an existing S2I base image and create a new one.

Create applications from OpenShift templates

Describe the elements of a template and create a multicontainer application template.

Manage application deployments

Monitor application health and implement various deployment methods for cloud-native applications.

Perform comprehensive review

Create and deploy cloudinative applications on OpenShift.

Impact of this training

Impact on the organization

Containers are a key technology for the configuration and deployment of applications and microservices, and containers and OpenShift have quickly become the de facto solution for agile development and application deployment. Administrators and developers are seeking ways to improve application time-to-market for minimum viable products. This course provides the gateway to organizational and digital transformation by providing an understanding of the potential of DevOps using a container-based architecture. Orchestrated with Kubernetes and OpenShift, a container-based architecture improves application reliability and scalability, while decreasing developer overhead and facilitating continuous deployment.

Red Hat has created this course in a way intended to benefit our customers, but each company and infrastructure is unique, and actual results or benefits may vary.

Impact on the individual

As a result of attending this course, you will understand the fundamental concepts behind containerizing, scaling, deploying, and managing applications on Red Hat OpenShift Container Platform, which is a containerized application platform that allows enterprises to manage container deployments and scale their applications using Kubernetes.

Students should be able to demonstrate these skills:

- Design container images to containerize applications.
- Customize application builds and implement post-commit build hooks.
- Create a multicontainer application template.
- Implement health checks to improve system reliability.

Recommended next exam or course

- Red Hat Certified Specialist in OpenShift Application Development exam (EX288)
- Red Hat OpenShift Development II: Creating Microservices with Red Hat OpenShift Application Runtimes (DO292)