CS120

Introduction to Red Hat OpenShift Service on AWS

Course Description

Learn how to deploy, access, and perform day-to-day operations to a ROSA cluster.

This course teaches IT operations staff how to deploy a public Red Hat OpenShift Service on AWS (ROSA) cluster for experimentation and to provision projects for development teams to work within. IT operations staff will learn how to perform day-to-day operation of ROSA clusters and support application teams which use that cluster. IT operations staff can then apply the same skills and similar procedures to private ROSA clusters of their organizations.

Course Outline

- **Create Public Red Hat OpenShift Service on AWS (ROSA) Clusters**
  Create a Red Hat OpenShift Service on AWS (ROSA) cluster that is accessible through the internet
  - **Introduction to ROSA**
    Describe how ROSA clusters fit into the AWS infrastructure, the required tools to create and access ROSA clusters, and the typical deployment patterns for ROSA clusters: public, bring your own Amazon Virtual Private Cloud (VPC), and private link
  - **Prerequisites for ROSA Cluster Creation**
    Describe the required tools and services to create ROSA clusters. Prepare an AWS account and a management workstation to create a ROSA cluster, and verify that an AWS account meets all the prerequisites for creating a ROSA cluster
  - **Creating a ROSA Cluster**
    Create an internet-accessible ROSA cluster
  - **Accessing a ROSA Cluster as an Administrator**
    Create OpenShift cluster administrator credentials to access a managed cluster by using the OpenShift CLI, OpenShift Web Console, and Kubernetes CLI
  - **Connecting a ROSA Cluster to Red Hat Services**
    Connect a managed cluster to Red Hat Cloud Services

- **Configure Projects for Application Teams**
  Configure projects for application teams to develop or deploy applications, and grant non-cluster administrators sufficient autonomy for their jobs and to prevent misusing a ROSA cluster and AWS services
  - **Configuring Identity Providers for ROSA Clusters**
    Configure an identity provider for developers to access a ROSA cluster and self-service projects to deploy unprivileged applications
  - **OpenShift Multi-Tenancy with Projects**
    Describe the OpenShift features that enable multi-tenancy
  - **Configuring Project Self-Service**
    Describe the OpenShift features that enable self-service for application teams
- **Declarative Project Management**
  Automate project creation and ongoing maintenance by using OpenShift GitOps while preserving the autonomy of non-administrator users over those projects
  - **GitOps for Kubernetes**
    Define the fundamentals of GitOps and its use with Kubernetes clusters and applications. Describe the essential concepts of Argo CD that Red Hat OpenShift GitOps supports
  - **Automating ROSA Cluster Management with OpenShift GitOps**
    Describe the GitOps approach to automating OpenShift cluster management
  - **Drift Remediation with OpenShift GitOps**
    Describe ROSA resource reconciliation with OpenShift GitOps. Describe the OpenShift GitOps approach to remediating cluster state deviation
- **ROSA Cluster Upgrades**
  Upgrade ROSA clusters with new OpenShift versions
  - **OpenShift Updates and Application Availability**
    Describe the OpenShift update process and how it affects application availability
  - **Configuring Scheduled Cluster Upgrades**
    Describe the process of scheduling a ROSA cluster upgrade and configuring automated y-stream upgrades
- **Delete ROSA Clusters**
  Delete ROSA clusters and ensure that all of its related AWS resources are deleted
  - **Deleting AWS Resources from Deleted ROSA Clusters**
    Describe the process of deleting a ROSA cluster

- **Deleting AWS Resources from Deleted ROSA Clusters**
  Describe scenarios that require manual deletion of AWS resources that are related to a ROSA cluster after the cluster was deleted