

DO282

Configuring and Managing Red Hat OpenShift Networking

Course Description

Implement advanced OpenShift networking features to design, secure, and maintain scalable, production-grade network solutions.

This course is designed to close the skill gap by offering a deep dive into OpenShift Networking with version 4.20, with a strong emphasis on mastering User Defined Networks (UDNs) as a tool for architectural flexibility, workload isolation, and VM mobility. Through hands-on labs and real-world scenarios, learners will gain practical proficiency in core openshift networking, DNS, managing ingress and egress traffic, implementing native BGP functionality, node networking and network observability.

Prerequisites for this course

- Red Hat OpenShift Administration II: Configuring a Production Cluster | DO280

Course Outline

1. Core Networking with OVN-Kubernetes in OpenShift

Explain how Kubernetes networking functions in the cluster, and manage pod and service networks with Container Network Interfaces (CNIs), the Cluster Network Operator (CNO), OVN-Kubernetes logical networks, and the Multus meta-plugin.

2. Implementing and Managing User-defined Networks in Red Hat OpenShift

Provide workload isolation, multi-network connectivity, efficient traffic management, VM live migration, and appropriate external access for OpenShift workloads by using user-defined networks (UDNs) and cluster user-defined networks (CUDNs).

3. Exploring and Managing DNS in Red Hat OpenShift

Describe the DNS architecture of an OpenShift cluster, inspect the CoreDNS configuration, troubleshoot name resolution issues, and implement DNS forwarding for private domains.

4. Managing Ingress Traffic in Red Hat OpenShift

Design, implement, and manage comprehensive and flexible ingress networking for applications that run in an OpenShift environment.

5. Managing Egress Traffic in Red Hat OpenShift

Implement and manage egress traffic control mechanisms in an OpenShift cluster, including Egress Firewalls, Egress IPs, Egress Routers, and route overrides for additional networks.

6. Implementing Native BGP Routing in Red Hat OpenShift

Enable, configure, and manage native BGP routing capabilities using FRRouting (FRR) and implement OVN-Kubernetes Route Advertisements to dynamically expose cluster networks to the external physical provider network.

7. Configuring OpenShift Node and Virtual Machine Networking with NMState

Design, configure OpenShift node networking and virtual machine connectivity using the Kubernetes NMState Operator to integrate with provider networks and ensure high availability.

8. Enabling OpenShift Network Observability to Monitor, Visualize & Secure Traffic

Explain how the OpenShift Network Observability works to provide visibility, troubleshoot network issues, monitor performance, and enforce security policies