Configuring and Managing Red Hat OpenShift Networking (DO282) Training

Duration: **4 Day**

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Designing and Managing Advanced OpenShift Network Infrastructure

Configuring and Managing Red Hat OpenShift Networking (DO282) provides the advanced networking skills required to design, secure, and maintain scalable, production-grade network solutions on Red Hat OpenShift.

Based on **OpenShift 4.20**, the course provides an in-depth and practical exploration of OpenShift networking. A major focus is placed on User Defined Networks (UDNs), including their use for architectural flexibility, workload isolation, and virtual machine mobility.

Through hands-on labs and real-world scenarios, participants develop practical experience with core OpenShift networking, DNS, ingress and egress traffic management, native BGP functionality, node networking, and Network Observability.

After completing the course, participants receive **45 days of lab access** to hands-on labs for courses that include a virtual lab environment.

The course can be delivered as a four-day in-person class, a four-day virtual class, or through self-paced training. Duration may vary depending on the selected delivery method.

Organizational Impact

DO282 helps organizations develop the advanced networking expertise required when scaling OpenShift deployments across complex, multi-tenant, or performance-sensitive environments.

Skills involving User Defined Networks for workload isolation and VM live migration, secure ingress and egress traffic management, and advanced Network Observability can help organizations design and operate more secure, scalable, and production-grade network solutions.

This expertise can also improve the ability to investigate complex network problems, reduce the operational impact of prolonged network incidents, and help organizations take fuller advantage of the advanced networking capabilities available within OpenShift.

Individual Impact

DO282 provides participants with an in-depth, hands-on understanding of the operational aspects of OpenShift networking.

After completing the course, participants will have practical experience managing OVN-Kubernetes CNI networking, implementing and troubleshooting User Defined Networks (UDNs and CUDNs), inspecting and configuring DNS, managing ingress and egress traffic, and working with Network Observability capabilities.

These skills enable network architects, platform engineers, cloud administrators, and system administrators to more confidently design, deploy, manage, and troubleshoot sophisticated networking architectures within production OpenShift clusters.

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Recommended Next Course or Exam

After completing DO282, participants can continue with the following certification exam:

- **Red Hat Certified Specialist in OpenShift Networking (EX282)**

Prerequisites

Participants should consider the following requirements:

- Taking the Red Hat skills assessment is recommended to determine whether the course matches your current skill level
- Completion of **Red Hat OpenShift Administration II: Configuring a Production Cluster (DO280)**

Who Should Attend

This course is particularly suitable for:

- Network architects and network administrators responsible for designing, managing, and optimizing networking infrastructure within OpenShift clusters
- Platform engineers and cloud administrators supporting containerized and virtualized workloads on OpenShift
- System administrators who want to migrate traditional hypervisor-based workloads to OpenShift Virtualization and manage the associated networking
- OpenShift system administrators who require advanced networking knowledge to support diverse application and workload requirements

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What You Will Learn

The course covers the following key areas:

- Managing pod and service networks with CNIs, the Cluster Network Operator (CNO), OVN-Kubernetes, and Multus
- Providing workload isolation and multi-network connectivity with User Defined Networks (UDNs) and Cluster User Defined Networks (CUDNs)
- Supporting efficient traffic management, VM live migration, and external access through UDNs and CUDNs
- Understanding OpenShift DNS architecture, inspecting CoreDNS configuration, and troubleshooting name resolution
- Implementing DNS forwarding for private domains
- Designing, implementing, and managing comprehensive ingress networking
- Controlling egress traffic through Egress Firewalls, Egress IPs, Egress Routers, and route overrides
- Enabling and managing native BGP routing with FRRouting (FRR)
- Implementing OVN-Kubernetes Route Advertisements to dynamically expose cluster networks to external physical provider networks
- Configuring OpenShift node networking and virtual machine connectivity with the Kubernetes NMState Operator
- Integrating with provider networks while supporting high availability requirements
- Using OpenShift Network Observability for network visibility, troubleshooting, performance monitoring, and security policy enforcement

Training Outline

1. Core Networking with OVN-Kubernetes in OpenShift

Explore how Kubernetes networking operates within an OpenShift cluster. Learn to manage pod and service networks by using Container Network Interfaces (CNIs), the Cluster Network Operator (CNO), OVN-Kubernetes logical networks, and the Multus meta-plug-in.

2. Implementing and Managing User Defined Networks in Red Hat OpenShift

Use User Defined Networks (UDNs) and Cluster User Defined Networks (CUDNs) to provide network isolation and multi-network connectivity for OpenShift workloads.

Learn how these networking capabilities can support efficient traffic management, VM live migration, and the external connectivity required by different workloads.

3. Exploring and Managing DNS in Red Hat OpenShift

Explore the DNS architecture used within an OpenShift cluster and learn how to inspect CoreDNS configuration.

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Develop skills for troubleshooting name resolution issues and configuring DNS forwarding for private domains.

4. Managing Ingress Traffic in Red Hat OpenShift

Learn how to design, implement, and manage comprehensive and flexible ingress networking solutions for applications running within an OpenShift environment.

5. Managing Egress Traffic in Red Hat OpenShift

Explore the mechanisms available for controlling network traffic leaving an OpenShift cluster.

Learn how to implement and manage Egress Firewalls, Egress IPs, Egress Routers, and route overrides for additional networks.

6. Implementing Native BGP Routing in Red Hat OpenShift

Learn how to enable, configure, and manage OpenShift's native BGP routing capabilities by using FRRouting (FRR).

Implement OVN-Kubernetes Route Advertisements to dynamically expose cluster networks to an external physical provider network.

7. Configuring OpenShift Node and Virtual Machine Networking with NMState

Design and configure OpenShift node networking and virtual machine connectivity by using the Kubernetes NMState Operator.

Learn how these configurations can integrate OpenShift with provider networks while supporting high availability requirements.

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

Explore how OpenShift Network Observability provides visibility into network traffic across an OpenShift environment.

Learn how these capabilities can be used to troubleshoot network issues, monitor performance, visualize traffic behavior, and support the enforcement of security policies.