Configuring and Managing Red Hat OpenShift Networking

Course code: DO282

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.Following course completion, you will receive a 45-day lab access to hands-on labs for any course that includes a virtual lab environment.Note: This course is offered as a 4-day in-person class, a 4-day virtual class, or is self-paced. Durations might vary based on the delivery. For full course details, scheduling, and pricing, select your location and then "get started" from the right menu.

Who is the course for

- Network Architects and Network Administrators who are responsible for designing, managing, and optimizing network infrastructure within OpenShift clusters
- Platform Engineers and Cloud Administrators who support containerized and virtualized workloads on OpenShift platforms
- System Administrators: System administrators who seek to move traditional hypervisor-based workloads to OpenShift Virtualization and to manage their networking
- System Administrators who manage OpenShift clusters and require a deep knowledge of advanced networking features for diverse application requirements.

What we teach you

- Manage pod and service networks with CNIs, CNO, OVN-Kubernetes, and Multus.
- Provide workload isolation, multi-network connectivity, efficient traffic management, VM live migration, and external access using UDNs and CUDNs.
- Describe OpenShift DNS architecture, inspect CoreDNS, troubleshoot resolution, and implement forwarding.
- Design, implement, and manage comprehensive ingress networking.
- Implement and manage egress traffic control, including Egress Firewalls, Egress IPs, Egress Routers, and route overrides.
- Enable, configure, and manage native BGP routing with FRR and implement OVN-Kubernetes Route Advertisements.
- Configure OpenShift node networking and VM connectivity using the Kubernetes NMState Operator for high availability.
- Explain OpenShift Network Observability for visibility, troubleshooting, monitoring, and security enforcement.

Required skills

- Take our free assessment
- to gauge whether this offering is the best fit for your skills.
- Red Hat OpenShift Administration II: Configuring a Production Cluster | DO280

Course outline

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-plug-in.

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).

Exploring and Managing DNS in Red Hat OpenShift

GOPAS Praha
Na Strži 2097/63
140 00 Praha 4 - Krč
Tel.: +420 226 201 390
info@gopas.cz

GOPAS Brno
Nové sady 996/25
602 00 Brno
Tel.: +420 530 513 590
info@gopas.cz

GOPAS Bratislava
Dr. Vladimíra Clementisa 10
Bratislava, 821 02
Tel.: +421 902 903 132
info@gopas.sk

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

Managing Ingress Traffic in Red Hat OpenShift

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

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.

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.

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.

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

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