OpenStack Administration: Control Plane Management (CL170) Training

Duration: **2 Day**

BİLGİNÇ IT Academy
info@bilginc.com
bilginc.com

Managing Red Hat OpenStack Services on OpenShift Environments

Red Hat OpenStack Services on OpenShift combines OpenStack services running on OpenShift with RHEL compute nodes that support virtual machine-based workloads.

OpenStack Administration: Control Plane Management (CL170) is designed to provide Red Hat OpenStack cluster administrators with the skills required to manage the health and performance of OpenStack control plane services.

Throughout the course, participants learn how to identify and troubleshoot issues by inspecting Kubernetes operators and workloads, evaluate the health of OpenStack services, and configure OpenStack control plane services through Kubernetes custom resources.

This course is based on **Red Hat OpenStack Services on OpenShift 18**.

Organizational Impact

The knowledge and practices covered in CL170 can help organizations operate Red Hat OpenStack environments through a more centralized and manageable approach.

Effective management of Red Hat OpenStack infrastructure can support seamless installation processes, faster deployments, and centralized management of infrastructure extending from core environments to the edge.

Individual Impact

After completing this course, Red Hat OpenStack administrators will be better prepared to assess the health of OpenStack control plane and data plane components and identify potential configuration issues across the environment.

Participants will also develop practical knowledge of monitoring OpenStack data planes and configuring compute nodes by using Kubernetes custom resources and Ansible Playbooks.

Prerequisites

Participants should have or consider the following knowledge and experience:

- Taking the Red Hat skills assessment is recommended to determine whether this course is appropriate for your current level of experience
- Successful completion of **Red Hat System Administration I (RH124)** is recommended
- Completion of **Red Hat System Administration II (RH134)** and **Red Hat Enterprise Linux Automation with Ansible (RH294)**, or equivalent skills, is recommended but not mandatory
- Completion of **Red Hat OpenShift Administration I: Operating a Production Cluster (DO180)** or equivalent skills

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- An understanding of fundamental data center storage concepts, including storage protocols, NAS, and SAN
- Knowledge of data center networking concepts, including the OSI model, VLANs, firewalls, and internet protocols such as ICMP, IP, and HTTP
- Familiarity with basic object storage concepts, such as experience with AWS S3, is useful but not required
- Ceph administration experience is beneficial but not mandatory

Who Should Attend

This course is particularly suitable for:

- Platform engineers responsible for or interested in managing Red Hat OpenStack clusters
- Cloud administrators working with OpenStack-based cloud infrastructure
- System administrators involved in managing, tuning, and troubleshooting Red Hat OpenStack environments

What You Will Learn

The course covers the following key areas:

- Evaluating the health of OpenStack operators and workloads and identifying services that are disabled or incorrectly configured
- Gathering troubleshooting information from OpenStack control plane and data plane environments for customer support requests
- Enabling and customizing OpenStack control plane services through control plane custom resource configuration
- Checking the health of OpenStack compute nodes and identifying missing or incorrectly configured data plane services
- Removing, replacing, or reprovisioning failed compute nodes

Training Outline

1. Introduction to Red Hat OpenShift Container Platform

Identify the architecture and resources of Red Hat OpenShift, navigate its graphical and command-line interfaces, and learn how to locate information about commonly used commands.

2. Inspecting OpenStack Services on OpenShift

Identify the OpenStack services operating on OpenShift and evaluate the health of the OpenStack operator together with its dependent resources.

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3. Customizing OpenStack Services

Learn how to enable and disable OpenStack services and customize their configurations according to operational requirements.

4. Verifying OpenStack API Connectivity

Identify and inspect the resources responsible for establishing connectivity between the OpenStack control plane and data plane.

5. Verifying Connectivity to OpenStack Cell Services

Confirm that an OpenStack cell can communicate correctly with its database and messaging services. Validate the additional services that allow compute nodes to establish connections to the cell.

6. Accessing Storage Resources in OpenStack

Evaluate the status and connectivity of storage resources within an OpenStack environment and verify that these resources are accessible as expected.

7. Verifying Reliable OpenStack Services

Configure and assess high availability for the OpenStack control plane and the supporting services required for reliable operation.

8. Verifying Network Encryption for OpenStack Services

Inspect OpenStack component configurations and verify that network communications are protected through certificate-based encryption.

9. Inspecting Data Plane Services and Compute Nodes

Identify OpenStack data plane resources and evaluate the health of data plane services and compute nodes.

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10. Customizing an OpenStack Data Plane

Apply custom configurations to data plane node sets and verify that the required configuration settings have been successfully applied.