V1.0

Training Program on

Openshift Administration

Openshift Administration Training Program

What is Openshift?

OpenShift is a cloud computing platform that allows developers to build, deploy, and manage applications. It is an open-source container application platform developed by Red Hat. OpenShift is based on the Kubernetes container orchestration system, which is designed to automate the deployment, scaling, and management of containerized applications.

OpenShift provides a set of tools and features that enable developers to create and deploy applications quickly and easily. It also provides a secure, scalable, and highly available infrastructure for running applications.

OpenShift supports a wide range of programming languages and frameworks, including Java, Ruby, Python, Node.js, and PHP. It also supports a variety of databases, messaging systems, and other services that can be easily integrated into applications.

OpenShift can be deployed on a variety of cloud platforms, including Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform (GCP), and on-premise data centers. OpenShift also provides a web-based interface and a command-line tool that allows developers to manage their applications and infrastructure from a single location

Advantages of Openshift for Developers and IT Professionals:

- Easy application deployment: OpenShift simplifies the process of deploying and managing applications by providing a platform for building, testing, and deploying applications in a streamlined and automated manner.
- Scalability: OpenShift is built on Kubernetes, which makes it easy to scale applications horizontally or vertically to meet the demands of the workload.
- Security: OpenShift provides a range of security features such as user authentication, role-based access control, and secure network communication to ensure that applications are protected from security threats.
- Multi-cloud support: OpenShift can be deployed on a variety of cloud platforms, including public clouds like AWS, Azure, and GCP, as well as private clouds and on-premise data centers.
- Compatibility with a wide range of technologies: OpenShift supports a wide range of programming languages, frameworks, and tools, making it easy for developers to work with their preferred technologies.
- Containerization: OpenShift uses containerization technology to provide a consistent runtime environment for applications, which can help to reduce the risk of conflicts between dependencies.
- DevOps integration: OpenShift provides an integrated development and operations environment, enabling teams to work collaboratively and efficiently.

OpenShift simplifies the process of building, deploying, and managing applications, while providing a secure, scalable, and highly available infrastructure for running them

Audience

The hibernate training is a 4-days course designed for:

- System administrators: IT professionals with experience in managing servers and infrastructure can benefit from learning how to manage OpenShift clusters.
- DevOps engineers: DevOps engineers who are responsible for building, testing, and deploying applications can benefit from learning how to use OpenShift to streamline the deployment process.
- Cloud architects: Cloud architects who are responsible for designing and implementing cloud-based infrastructure can benefit from learning how to use OpenShift as a platform for building cloud-native applications.
- IT operations professionals: IT operations professionals who want to learn how to manage containerized environments can benefit from learning how to use OpenShift to deploy and manage containers.
- Developers: Developers who want to build and deploy applications on OpenShift can benefit from learning how to use the platform to streamline the deployment process and manage their applications.
- Anyone who is interested in building skills in container orchestration, deployment, and management can benefit from this training program.

Objectives:

- Understanding containerization and container orchestration: Participants will learn about the basics of containerization and container orchestration using Kubernetes and OpenShift.
- Installing and configuring OpenShift clusters: Participants will learn how to install and configure OpenShift clusters and how to create and manage OpenShift projects.
- Deploying and scaling applications: Participants will learn how to deploy and scale applications using OpenShift, including how to use templates, manage storage, and configure networking.
- Managing OpenShift clusters: Participants will learn how to manage OpenShift clusters and nodes, including how to monitor and troubleshoot common issues.
- Implementing security features: Participants will learn how to use OpenShift to implement security features, including user authentication, role-based access control, and image stream policies.
- Advanced OpenShift features: Participants will learn how to configure advanced features of OpenShift, such as advanced scheduling and resource management, advanced networking, and multi-tenancy.

By the end of the training program, participants should be able to demonstrate their ability to manage and scale OpenShift clusters, deploy and manage containerized applications, and implement security features to protect their applications. The additional objective is to prepare participants for the Red Hat Certified Specialist in OpenShift Administration certification exam.

Candidate Prerequisites

- Basic computer skills: Participants should be comfortable using a computer and have a basic understanding of computer programming concepts.
- Knowledge of Linux command-line basics: Candidates should have a good understanding of Linux command-line basics, including how to navigate the file system, use basic commands, and edit files.
- Familiarity with containerization: Candidates should have a basic understanding of containerization concepts and technologies, including Docker and container orchestration with Kubernetes.
- Familiarity with cloud computing: Candidates should have a basic understanding of cloud computing concepts and technologies, including virtualization, cloud deployment models, and cloud service models.
- Familiarity with networking: Candidates should have a basic understanding of networking concepts and technologies, including IP addressing, DNS, and routing.
- Familiarity with web application architecture: Candidates should have a basic understanding of web application architecture and how web applications interact with the underlying infrastructure.

Overall, candidates who have experience working with Linux, containers, cloud computing, and networking are well-prepared for the Red Hat Certified Specialist in OpenShift Administration training program. Candidates who do not meet these prerequisites may need to take additional training or gain more experience before attending the program.

Infrastructure Prerequisites

Software:

Participants will need to install several software packages, including the OpenShift command-line interface (CLI), the Git version control system, and a text editor. Participants should also have access to a web browser such as Firefox or Chrome.

Hardware:

Computer or Laptop: Participants will need access to a computer with at least 8 GB of RAM, an i5 + range of processors, and at least 100 GB of free disk space.
A reliable internet connection is also required.

Cloud Infrastructure:

Participants will need access to an OpenShift cluster to complete the hands-on exercises in the training program. This can be achieved by using a hosted OpenShift environment, such as the Red Hat OpenShift Online or OpenShift Dedicated, or by installing OpenShift on a local machine or on a public or private cloud environment.

Virtual Infrastructure (Optional):

If participants choose to install OpenShift on their local machine, they will need virtualization software such as VirtualBox or VMware

Training Outline:

Note: The duration and the contents are approximate. The trainer may change the approach and the duration, based on the response of the participants.

Day 1

- ***Introduction to OpenShift and container orchestration***
- ***Installing OpenShift and creating a simple application***
- ***Overview of Kubernetes architecture and components***
- ***Deploying applications with Kubernetes***

Day 2:

- ***Managing OpenShift projects and users***
- ***Deploying and scaling multi-container applications***
- ***Using templates to create new applications***
- ***Managing storage for containerized applications***

Day 3:

- ***Configuring networking for OpenShift applications***
- ***Managing OpenShift clusters and nodes***
- ***Monitoring and logging in OpenShift***
- ***Managing container security with image streams and policies***

Day 4:

- ***Configuring advanced scheduling and resource management***
- ***Managing and configuring OpenShift at scale***
- ***Deploying and configuring advanced networking features***
- ***Managing and troubleshooting common OpenShift issues***