Enterprise Kubernetes Storage with Red Hat OpenShift Data Foundation

Course Duration: 40 Hours **Course Code: DO316**

1. Course Overview

The **Enterprise Kubernetes Storage with Red Hat OpenShift Data Foundation** course provides IT administrators, cloud engineers, and DevOps professionals with the skills to deploy, configure, and manage storage for Kubernetes workloads using Red Hat OpenShift Data Foundation (ODF). This course focuses on building scalable, resilient, and secure storage solutions for stateful applications, enabling organizations to unify data services and optimize storage management in hybrid and multi-cloud environments.

2. What You'll Learn?

By the end of this course, you will be able to:

- Understand the architecture and components of **Red Hat OpenShift Data Foundation (ODF)**.
- Deploy and configure ODF for **persistent storage** in Kubernetes.
- Manage block, file, and object storage for cloud-native applications.
- Configure data resiliency, replication, and disaster recovery policies.
- Optimize performance and scalability for stateful workloads.
- Monitor, troubleshoot, and secure ODF clusters.

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- Apply best practices for **enterprise Kubernetes storage management**.

3. Target Audience

This course is ideal for:

- **System administrators** managing storage in OpenShift environments.
- **Cloud and infrastructure engineers** deploying storage for Kubernetes workloads.
- **DevOps engineers** handling stateful applications on OpenShift.
- **Solution architects** designing enterprise-grade storage solutions.

4. Pre-Requisites

Participants should have:

- Completed **Red Hat OpenShift Administration I/II (DO180/DO280 equivalent)**.
- Familiarity with **Linux system administration**.
- Basic understanding of **Kubernetes storage concepts**.
- Experience with cloud or virtualization infrastructure (helpful but not mandatory).

5. Course Content

Module 1: Introduction to OpenShift Data Foundation (ODF)

- Overview of enterprise Kubernetes storage
- ODF architecture and deployment models

Module 2: Deploying ODF on OpenShift

- Installing and configuring ODF operators
- Configuring storage clusters for Kubernetes

Module 3: Storage Management and Provisioning

- Block, file, and object storage in ODF
- Persistent volume claims (PVCs) and dynamic provisioning
- Storage classes and policies

Module 4: Data Resiliency and High Availability

- Configuring replication and failover
- Ensuring disaster recovery with ODF
- Scaling storage clusters

Module 5: Securing Storage in Kubernetes

- Encryption and access control policies
- Authentication and authorization for storage access

Module 6: Monitoring and Troubleshooting

- Monitoring ODF clusters with built-in tools
- Troubleshooting storage performance issues
- Logs and diagnostics for ODF

Module 7: Best Practices and Real-world Use Cases

- Managing stateful applications in OpenShift
- Enterprise use cases of ODF (AI/ML, databases, analytics)
- Hybrid and multi-cloud storage strategies