SUSE Edge 3 Platform Deployment

Course Duration: 24 Hours **Course code: EDGE211v3**

1. Course Overview

This course focuses on deploying and managing the SUSE Edge 3 platform to support edge computing environments. Learners will gain hands-on experience in setting up edge infrastructure, managing distributed clusters, and deploying applications closer to data sources for improved performance, scalability, and reliability.

2. What you'll learn?

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

- Understand edge computing concepts and SUSE Edge architecture
- Deploy SUSE Edge 3 platform components
- Configure and manage edge clusters
- Implement containerized workloads at the edge
- Manage connectivity between edge and central data centers
- Monitor and troubleshoot edge environments
- Ensure security and reliability in distributed systems
- Optimize performance for edge deployments

3. Target Audience

- Cloud Engineers
- DevOps Engineers
- Infrastructure Engineers
- System Administrators
- Edge Computing Professionals

4. Pre-Requisites

Before taking this course, you should have:

- Basic knowledge of Linux administration
- Familiarity with Kubernetes and containers
- Understanding of networking concepts
- Basic cloud computing knowledge

5. Course content

Module 1: Course Introduction

- Course objectives and structure
- Overview of edge computing
- Introduction to SUSE Edge 3 platform

Module 2: Edge Computing Fundamentals

- What is edge computing
- Edge vs cloud vs on-premises
- Use cases and industry applications
- Challenges and benefits

Module 3: SUSE Edge 3 Architecture

- Components of SUSE Edge platform
- Central management vs edge nodes
- Cluster architecture
- Data flow and connectivity

Module 4: Infrastructure Preparation

- Hardware and system requirements
- Network planning for edge deployments
- Storage considerations
- Preparing edge nodes

Module 5: Platform Installation and Setup

- Installing SUSE Edge 3 components
- Initial configuration
- Cluster initialization
- Accessing management interfaces

Module 6: Cluster Deployment and Management

- Creating and managing edge clusters
- Node registration and configuration
- Managing workloads
- Scaling clusters

Module 7: Kubernetes at the Edge

- Overview of Kubernetes in edge environments
- Deploying containerized applications
- Managing pods and services
- Edge-specific Kubernetes considerations

Module 8: Networking and Connectivity

- Edge networking architecture
- Secure communication between edge and core
- Load balancing and routing
- Connectivity challenges and solutions

Module 9: Storage Management at the Edge

- Local and distributed storage options
- Data synchronization strategies
- Persistent storage for edge workloads
- Backup and recovery

Module 10: Security in Edge Environments

- Securing edge devices and clusters
- Identity and access management
- Data protection and encryption
- Network security best practices

Module 11: Monitoring and Troubleshooting

- Monitoring edge infrastructure
- Logging and alerting
- Troubleshooting connectivity and performance issues
- Debugging edge workloads

Module 12: Automation and Lifecycle Management

- Automating deployment and updates
- Managing edge lifecycle
- Configuration management
- Integration with CI/CD pipelines

Module 13: Performance Optimization

- Resource optimization at the edge
- Managing latency and bandwidth
- Scaling workloads efficiently
- Performance tuning techniques

Module 14: Real-World Use Cases and Labs

- Deploying applications at the edge
- Managing distributed environments
- Handling failure scenarios

- Industry use cases

Module 15: Capstone Project

- Design and deploy a SUSE Edge platform
- Implement secure and scalable edge solution
- Monitor and optimize performance
- Final project evaluation and presentation

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