SUSE Linux Enterprise 15 High Availability Deployment

Course Duration: 24 Hours **Course code: HAE321v15**

1. Course Overview

This course provides in-depth knowledge and hands-on experience in deploying and managing High Availability (HA) solutions using SUSE Linux Enterprise Server (SLES) 15. Learners will understand clustering concepts, configure HA clusters, manage resources, and ensure business continuity through failover and redundancy mechanisms.

2. What you'll learn?

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

- Understand High Availability (HA) concepts and architecture
- Install and configure SUSE Linux Enterprise High Availability Extension
- Build and manage HA clusters using Pacemaker and Corosync
- Configure cluster resources and constraints
- Implement failover and load balancing strategies
- Monitor and troubleshoot cluster environments
- Ensure data integrity and service availability
- Apply best practices for enterprise HA deployments

3. Target Audience

- Linux System Administrators
- System Engineers
- Infrastructure Engineers
- Data Center Professionals
- IT Professionals managing mission-critical systems

4. Pre-Requisites

Before taking this course, you should have:

- Basic knowledge of Linux administration
- Familiarity with SUSE Linux Enterprise Server
- Understanding of networking concepts
- Basic command-line experience

5. Course content

Module 1: Course Introduction

- Course objectives and structure
- Overview of High Availability concepts
- Introduction to SUSE Linux Enterprise HA

Module 2: High Availability Fundamentals

- What is High Availability
- Clustering concepts and types
- Active/Passive vs Active/Active clusters
- Quorum and fencing concepts

Module 3: SUSE Linux Enterprise HA Architecture

- Components of HA Extension
- Pacemaker and Corosync overview
- Cluster communication mechanisms
- Cluster stack architecture

Module 4: Installation and Initial Configuration

- Installing SLES 15 HA Extension
- Configuring cluster nodes
- Setting up cluster communication
- Initial cluster creation

Module 5: Cluster Resource Management

- Resource types and agents
- Configuring cluster resources
- Resource groups and constraints
- Managing dependencies

Module 6: Fencing and Quorum Configuration

- Importance of fencing (STONITH)
- Configuring fencing devices
- Quorum policies and split-brain handling
- Best practices for cluster stability

Module 7: Failover and Load Balancing

- Configuring failover scenarios
- Resource migration and failback
- Load balancing techniques
- Testing failover mechanisms

Module 8: Storage Integration

- Shared storage concepts
- Configuring cluster file systems
- DRBD (Distributed Replicated Block Device)
- Data replication strategies

Module 9: Monitoring and Troubleshooting

- Monitoring cluster health
- Using cluster management tools (crm, Hawk)
- Log analysis and debugging
- Troubleshooting common issues

Module 10: Security in HA Clusters

- Securing cluster communication
- User access and authentication
- Network security considerations
- Best practices for secure HA deployment

Module 11: Maintenance and Upgrades

- Performing cluster maintenance
- Rolling upgrades
- Node addition and removal
- Backup and restore strategies

Module 12: Automation and Scripting

- Automating cluster operations
- Using scripts for resource management
- Scheduling tasks
- Integration with configuration management tools

Module 13: Disaster Recovery Planning

- Designing DR strategies
- Multi-site clustering
- Backup and recovery planning
- Business continuity best practices

Module 14: Hands-On Labs and Real-World Scenarios

- Setting up HA clusters
- Configuring resources and failover
- Implementing DRBD
- Troubleshooting live scenarios

Module 15: Capstone Project

- Design and deploy a complete HA cluster
- Implement failover, storage, and security
- Test high availability scenarios
- Final project evaluation and presentation

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