SUSE Linux Enterprise Server 15 Advanced Administration

Course Duration: 32 Hours **Course code: SLE301v15**

1. Course Overview

This four-day advanced course focuses on administering and managing SUSE Linux Enterprise Server (SLES) 15 in enterprise environments. It covers advanced system configuration, network services, storage management, security hardening, and automation. Learners will gain hands-on experience in optimizing system performance, managing enterprise workloads, and ensuring high availability and reliability in production environments.

2. What you'll learn?

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

- Manage advanced system administration tasks in SLES 15
- Configure and troubleshoot enterprise storage solutions
- Implement advanced networking configurations and services
- Secure Linux systems using enterprise-grade security practices
- Automate administrative tasks using scripting and tools
- Manage system performance, monitoring, and logging
- Configure high availability and clustering solutions
- Deploy and manage enterprise services in Linux environments

3. Target Audience

- Linux system administrators
- DevOps engineers and infrastructure engineers
- IT professionals managing enterprise Linux environments
- Cloud and data center administrators

4. Pre-Requisites

Before taking this course, you should have:

- Basic knowledge of Linux system administration
- Familiarity with command-line interface (CLI)
- Understanding of networking fundamentals
- Experience with SUSE Linux or other Linux distributions (recommended)

5. Course content

Module 1: Course Introduction

- Introduction and course logistics
- Overview of SLES 15 enterprise features
- Course objectives and lab environment setup

Module 2: Advanced System Management

- System initialization and boot process (GRUB2, systemd)
- Managing services using systemd
- Kernel management and tuning
- Managing software with Zypper and RPM

Module 3: Advanced User and Permission Management

- Managing users and groups at scale
- PAM (Pluggable Authentication Modules) configuration
- Advanced file permissions and ACLs
- Sudo configuration and privilege delegation

Module 4: Networking Configuration and Troubleshooting

- Advanced network configuration (Wicked, NetworkManager)
- Static and dynamic IP configuration
- DNS, DHCP, and routing setup
- Network troubleshooting tools and techniques

Module 5: Storage Management

- Disk partitioning (GPT, MBR)
- Logical Volume Manager (LVM) advanced concepts
- File systems (XFS, Btrfs) management
- Mounting and automounting (fstab, autofs)

Module 6: Btrfs and Snapper Management

- Understanding Btrfs architecture
- Creating and managing subvolumes
- Snapshot management using Snapper
- Rollback and system recovery

Module 7: Process and Performance Management

- Monitoring processes and system performance
- Resource control using cgroups
- Performance tuning and optimization
- System monitoring tools (top, htop, vmstat, iostat)

Module 8: Security and Hardening

- Firewall configuration (firewalld)
- AppArmor configuration and profiles
- Securing SSH and remote access
- System auditing and logging

Module 9: Logging and System Monitoring

- Managing logs with journald
- Centralized logging concepts
- Log rotation and analysis
- Monitoring tools and alerts

Module 10: Automation and Scripting

- Bash scripting for automation
- Task scheduling (cron, at)
- Automating system administration tasks
- Introduction to configuration management tools

Module 11: Network Services Configuration

- Configuring web servers (Apache/Nginx)
- File sharing services (NFS, Samba)
- Email and proxy services basics
- Service troubleshooting

Module 12: High Availability and Clustering

- Introduction to High Availability (HA)
- Pacemaker and Corosync basics
- Cluster configuration and management
- Failover and redundancy planning

Module 13: Virtualization and Containers

- Introduction to virtualization in SLES
- Managing KVM and virtual machines
- Introduction to containers (Docker/Podman)
- Container lifecycle management

Module 14: Backup and Disaster Recovery

- Backup strategies and tools
- System recovery techniques
- Snapshot-based recovery
- Disaster recovery planning

Module 15: Capstone Lab and Real-World Scenarios

- End-to-end enterprise system setup
- Troubleshooting real-world issues
- Performance optimization case study
- Final project and assessment

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