CONCEPT

Linux and Windows Server Administration: Active Directory, PowerShell and Hardening

7 – 18 June 2027
London - Central London four-star



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Introduction:

Linux and Windows Server administration is often split between teams that each know one platform, so servers are built by hand, accounts and permissions drift, patches lag and nobody has rehearsed a restore. This Core Concept course gives system administrators two weeks of hands-on labs: Linux shell, storage, services and hardening in week one, then Windows Server roles, Active Directory, Group Policy, Hyper-V and PowerShell in week two. Participants finish by building a Hardened Mixed Server Lab Build Pack covering both platforms.

Course Objectives:

- Administer Linux servers from the shell, managing users, groups, permissions, packages and systemd services
- Configure LVM storage, file systems, network interfaces and host firewalls on Linux and automate routine tasks with bash and scheduled jobs
- Deploy current Windows Server with Active Directory Domain Services, DNS and DHCP and organise objects into a delegated OU structure
- Enforce configuration and security settings through Group Policy and secure file shares with NTFS and share permissions
- Automate Windows Server tasks with PowerShell and run Hyper-V virtual machines, update approvals and backup and recovery
- Harden and verify a mixed Linux and Windows server estate against CIS Benchmark recommendations

Target Audience:

- Server operations functions that build, patch and keep Linux and Windows servers running
- Infrastructure functions that run directory services, name resolution and address allocation for the organisation
- Windows administrators taking on responsibility for Linux hosts, and Linux administrators taking on Windows Server
- Virtualisation and data centre functions that host workloads on Hyper-V and Linux hosts
- IT security operations functions that check server configuration, accounts and hardening status

Course Outline:

Day 1: Linux Shell, Accounts and Packages

- Bash Shell Navigation, Redirection, Pipes and Text Tools: grep, sed and awk
- Linux Directory Tree: /etc, /var, /home and /usr on a Server Host
- User and Group Accounts with useradd, usermod, passwd and sudoers Rules
- Ownership, chmod Permission Modes, umask and Access Control Lists with setfacl
- Package Management with dnf and apt: Repositories, Updates and Package Queries

Day 2: systemd Services, Journal Logs and LVM Storage

- systemd Unit Files: Service, Target, Mount and Timer Units
- Service Control with systemctl: Enable, Start, Mask and Dependency Checks
- journalctl Log Queries, Persistent Journal Storage and rsyslog Forwarding
- LVM Build: Physical Volumes, Volume Groups and Logical Volumes with Online Resizing
- XFS and ext4 File Systems, fstab Mount Entries and LVM Snapshot Backups

Day 3: Linux Networking, Firewall and Bash Automation

- NetworkManager and nmcli: Static Addressing, Resolver Settings and Bonded Interfaces
- Host Firewall Rules with firewalld Zones and nftables
- Bash Scripting: Variables, Conditionals, Loops and Exit Codes
- Scheduled Jobs with cron, anacron and systemd Timers
- Log Rotation with logrotate and Script-Based Health Checks

Day 4: SSH Access, Linux Hardening and Monitoring

- OpenSSH Key-Based Authentication, sshd_config Restrictions and Jump Hosts
- CIS Benchmark Hardening Review for Linux Distributions at Overview
- SELinux and AppArmor Modes, Contexts and Denial Troubleshooting
- Resource Monitoring with top, vmstat, iostat, ss and sar
- Prometheus Node Exporter and Grafana Dashboards for Server Metrics

Day 5: Linux Server Build Lab and Fault Scenarios

- Lab: Linux Web Server Build with Accounts, LVM Volumes and Firewall Rules
- Boot Troubleshooting with GRUB, Rescue Targets and Root Password Recovery
- Disk-Full, Stopped-Daemon and Permission-Denied Fault Scenarios
- Linux Administration Runbook: Build Steps, Checks and Rollback
- Linux Configuration Baseline Checklist and Week-One Review

Day 6: Windows Server Installation, Roles and Active Directory Domain Services

- Current Windows Server Installation Options: Desktop Experience and Server Core
- Server Manager, Windows Admin Center and Roles and Features Installation
- Active Directory Domain Services Deployment: Forest, Domain and Domain Controller Promotion
- Organisational Unit Design, User, Group and Computer Objects and Delegation of Control
- FSMO Roles, Sites and Replication Health Checks with repadmin and dcdiag

Day 7: DNS, DHCP and Group Policy

- AD-Integrated DNS Zones, SRV Records, Forwarders and Scavenging
- DHCP Server Scopes, Reservations, Options and Failover Pairs
- Group Policy Objects: Linking, Inheritance, Security Filtering and WMI Filters
- Password, Account Lockout and Audit Policy Settings Through Group Policy
- Group Policy Troubleshooting with gpresult and Resultant Set of Policy

Day 8: File and Print Services, Hyper-V and PowerShell

- File Server Shares: NTFS versus Share Permissions and Access-Based Enumeration
- DFS Namespaces, DFS Replication and File Server Resource Manager Quotas
- Print Server Management: Drivers, Queues and Printer Deployment by Group Policy
- Hyper-V Virtual Switches, Virtual Machines, Checkpoints and Live Migration
- PowerShell Remoting, Cmdlets, Pipeline Objects and Script Modules for Directory Tasks

Day 9: Update Management, Backup, Recovery and Hybrid Identity

- Windows Server Update Services: Approval Groups and Patch Status Reports
- Windows Server Backup: System State Backup and Bare Metal Recovery
- Active Directory Recycle Bin and Authoritative Restore of Deleted Objects
- Microsoft Entra Connect Hybrid Identity: Synchronisation and Sign-In Options at Overview
- Performance Monitor, Event Log Subscriptions and Server Health Indicators

Day 10: Capstone: Mixed Linux and Windows Server Lab

- Lab: Mixed Domain Build with a Windows Domain Controller and Linux Member Servers
- Linux Domain Join with realmd and SSSD and Kerberos Sign-In Test
- Cross-Platform Hardening Checklist Against CIS Benchmark Recommendations
- Restore Drill and Service Recovery Exercise Across Both Platforms
- Hardened Mixed Server Lab Build Pack Presentation and Peer Review

Skills You Will Gain:

- Linux Shell Administration
- systemd Service Management
- LVM Storage Configuration
- Bash and Cron Automation
- Active Directory Administration
- Group Policy Management
- PowerShell Scripting
- Server Hardening Review

Why Attend This Course:

- Return with a Hardened Mixed Server Lab Build Pack of build steps, scripts and hardening checklists for Linux and Windows hosts
- Cover both server platforms in one programme, so one administrator can support the whole estate instead of handing tickets across teams
- Spend part of every day at the command line and in server consoles on live lab machines rather than on slides
- Compare server operations practice with administrators from banks, hospitals, utilities, government bodies and service providers

Conclusion:

Stable server estates rely on administrators who can build, secure, automate and recover hosts on more than one platform. Week one moves through the Linux shell, accounts and packages, systemd and journal logs, LVM storage, networking, firewall rules, bash automation, SSH hardening and monitoring. Week two adds Windows Server roles, Active Directory, DNS, DHCP, Group Policy, file and print services, Hyper-V, PowerShell, update management, backup and hybrid identity. The final day joins both platforms in one domain lab and produces a Hardened Mixed Server Lab Build Pack.