

## Virtualisation Technologies: A Comprehensive Hands-On Introduction - 4 Days

### Course 170 Overview

- You Will Learn How To**
- Employ VMware and Microsoft virtual machine (VM) technologies
  - Combine Windows and Linux workstations and servers on a single platform
  - Leverage VMs to build testing, support and training environments
  - Partition physical servers to decrease operating costs
  - Migrate from physical to virtual machines
  - Manage VMs on VMware ESX and Microsoft Hyper-V
- Course Benefits** Virtual machines allow a computer to run multiple operating systems simultaneously, letting you partition servers to isolate applications, improve portability and migration, or create entire testing labs within a single PC. In this course, you gain the skills needed to install, configure and manage virtual servers and workstations. Hands-on exercises provide practical experience with virtual computing, virtual networks and optimising virtual machines.
- Who Should Attend** Those in desktop and server support or management roles. Experience with system administration of Windows or Linux and networking knowledge are assumed.
- Hands-On Training** Hands-on exercises provide experience deploying and administering virtual machines, including:
- Exploring the virtual machine interface
  - Customising bridged, NAT and host-only virtual networks
  - Invoking vendor-specific tools to enhance functionality
  - Creating environments for support, testing and training
  - Administering virtual servers remotely
  - Scripting administrative tasks
  - Performing physical to virtual machine migration
  - Examining effects of CPU resource allocation
  - Installing and managing ESX Server
  - Importing and managing Hyper-V based VMs

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## Course 170 Outline

### Virtualisation Concepts

#### Overview of virtual machines

- Defining virtual machines (servers and workstations)
- Advantages of deploying VMs

#### Virtual machine products

- VMware Workstation
- Server
- ESX
- Microsoft Virtual PC
- Hyper-V
- Other alternatives

### Creating Virtual Machines

#### Comparing workstation products

- Functionality
- Performance
- Contrasting Windows and Linux hosts

#### Abstracting hardware

- Partitioning shared resources
- Accessing raw and virtual discs
- Virtualising CPU and memory resources

#### Deploying virtual workstation software

- Planning for automatic installations
- Designing virtual networks
- Bridged, NAT and host-only networking
- Controlling guest OS access

#### Building guest operating systems

- Allocating host resources
- Configuring virtual hard drives
- Enhancing VMs using virtualisation tools
- Managing peripheral devices
- Mapping to floppy and CD images

### Exploiting Virtual Workstation

#### Functionality

#### Creating support platforms

- Ready multiple operating systems
- Managing display modes
- Suspending and resuming virtual workstations

#### Expanding application support

- Extending legacy application life
- Widening platform options
- Resolving version conflicts

#### Constructing a test environment

- Accessing host files
- Taking and restoring snapshots

#### Developing training environments

- Protecting guest operating systems
- Exploiting non-persistent discs

### Partitioning Servers

#### Establishing requirements

- Justifying server virtualisation
- Partitioning via hardware and software
- Recognising server functionality needs

#### Choosing virtual server hosts

- Evaluating performance and features
- Considering security implications

#### Executing Server VMs

- Working in interactive mode
- Implementing headless operation

#### Managing virtual servers remotely

- Exploiting remote management consoles
- Connecting to the Web interfaces
- Securing remote management

#### Deploying virtual servers

- Automating tasks via scripting
- Migrating physical to virtual servers
- Optimising performance
- Accessing Storage Area Networks (SANs)

#### Clustering virtual machines

- Distributing workloads via network load balancing (NLB)
- Establishing fault tolerance by utilising clustering services

### Data Center Virtualisation with ESX

#### Building the architecture

- Examining ESX architecture
- Planning and configuration

#### Leveraging ESX features

- Networking with vSwitches and port groups
- Optimising resource utilisation

#### Managing Microsoft Hyper-V

#### Maintaining virtual machines

- Contrasting Hyper-V and ESX architecture
- Implementing remote management tools

#### Securing virtual machine deployments

- Implementing permissions
- Reducing attack surface with Server Core