HDTC Training Center

Provide

Technical proposal of the Training program

Implementing a Software-Defined Data Center

Course Overview:

provide learners with a comprehensive understanding of creating and managing a modern datacenter environment using virtualization technologies and services. It covers the essentials of Server virtualization, including the setup and management of a Hyper-V environment, and extends into the realms of the Software-defined datacenter by discussing components like storage, network fabric, and cloud technologies. Through hands-on lessons, participants learn to implement and configure Microsoft's System Center 2016 Virtual Machine Manager (VMM), manage the storage and networking fabric, and create and administer virtual machines and services efficiently. The course also delves into advanced topics like Hyper-V Replica, Azure Site Recovery, and integration with System Center Operations Manager for infrastructure monitoring. Additionally, it addresses data protection for virtualized environments using Data Protection Manager (DPM).

General Objective:

The Implementing a Software-Defined Data Center course equips learners with vital skills to manage and implement virtualization technologies within Microsoft's server environments, focusing on Hyper-V, System Center 2016, and Azure

Program Objectives:

By the end of this program, participants will be able to:

- Understand the fundamentals of Microsoft server virtualization and the software-defined datacenter, extending virtualization to the cloud.
- Install, configure, and manage the Hyper-V role, including creating and managing virtual machines, virtual hard disks, and virtual switches.
- Implement and maintain failover clustering with Hyper-V to ensure high availability and disaster recovery.
- Gain proficiency in installing and managing System Center 2016 Virtual Machine Manager (VMM), adding hosts, and managing host groups.
- Manage storage and updates for the datacenter fabric, including implementing a storage infrastructure and managing storage quality of service (QoS) policies.
- Configure and manage the VMM library, profiles, and templates to streamline the deployment and management of virtual machines.
- Acquire skills in managing the networking fabric within VMM, including Software-Defined Networking and Network Controller deployment.
- Create, clone, and manage virtual machines using VMM, and understand virtual machine management tasks.
- Learn to create and manage clouds in VMM, define user roles, and implement private clouds for organizational use.
- Monitor and report on the virtualization infrastructure using System Center Operations Manager, integrating it with VMM for comprehensive oversight.

- Implement and manage Hyper-V Replica and Azure Site Recovery for business continuity and disaster recovery planning.
- Protect virtualization infrastructure using Data Protection Manager (DPM), including configuring backup and restoration of virtual machines..

Program Outlines:

Module 1: Introduction to server virtualization

- Overview of Microsoft Virtualization
- Introduction to the software-defined datacenter
- Extending virtualization to the cloud
- Selecting the appropriate virtualization method
- Creating Azure virtual machines

Module 2: Overview of Hyper-V virtualization

- Installing and configuring the Hyper-V role
- Creating and managing virtual hard disks and virtual machines
- Creating and using Hyper-V virtual switches
- Implementing failover clustering with Hyper-V
- Installing and configuring the Hyper-V server role
- Creating a Nano Server virtual machine
- Configuring virtual machines and virtual hard disks
- Creating a Hyper-V failover cluster
- Managing a Hyper-V failover cluster

Module 3: Installing and configuring System Center 2016 Virtual Machine Manager

- Overview of System Center 2016 VMM
- Installing System Center 2016 VMM
- Adding hosts and managing host groups
- Installing and configuring System Center 2016
- Managing hosts and host groups

- Managing an Azure subscription by using VMM

Module 4: Managing storage fabric and fabric updates

- Overview of server virtualization storage technologies
- Managing storage fabric
- Managing fabric updates
- Implementing a storage infrastructure
- Creating a file server cluster and a storage QoS policy
- Managing fabric updates

Module 5: Configuring and managing the Virtual Machine Manager library and library objects

- Overview of the VMM library
- Preparing Windows for deployment in VMM
- Working with profiles
- Working with virtual machine templates
- Configuring and managing a VMM library
- Creating a Windows image for the VMM library
- Creating and managing profiles and templates

Module 6: Managing the networking fabric

- Networking concepts in VMM
- Managing Software-Defined Networking
- Understanding network function virtualization
- Associating virtual network adapters of Hyper-V hosts
- Deploying Network Controller
- Configuring Hyper-V Network Virtualization
- Provisioning and testing tenant virtual machine networks

Module 7: Creating and managing virtual machines by using Virtual Machine Manager

- Virtual machine management tasks
- Creating, cloning, and converting virtual machines
- Creating a virtual machine and modifying its properties
- Creating and managing checkpoints
- Cloning and migrating a virtual machine

Module 8: Managing clouds in System Center 2016 Virtual Machine Manager

- Introduction to clouds
- Creating and managing a cloud
- Creating user roles in VMM
- Creating a private cloud
- Creating user roles

Module 9: Managing services in Virtual Machine Manager

- Overview of services in VMM
- Creating and managing services in VMM
- Creating a service template
- Deploying a service and updating service template
- Scaling out service and updating the service

Module 10: Monitoring a virtualization infrastructure by using System Center Operations Manager

- Operations Manager architecture and security
- Using Operations Manager for monitoring and reporting
- Integrating Operations Manager with VMM and DPM

- Implementing the Operations Manager agents
- Integrating Operations Manager with VMM

Module 11: Implementing and managing Hyper-V Replica and Azure Site Recovery

- Implementing and managing Hyper-V Replica
- Implementing and managing Azure Site Recovery
- Configuring and Managing Hyper-V Replica
- Configuring and Managing Azure Site Recovery

Module 12: Protecting a virtualization infrastructure by using Data Protection Manager

- Overview of backup and restore options for virtual machines
- Configuring and managing DPM for virtualization infrastructure protection
- Configuring a DPM server and installing DPM protection agents
- Creating and configuring protection groups
- Recovering VMs and other data
- Providing online protection with DPM

Target Audience:

- IT Infrastructure Engineers
- System Administrators
- Data Center Architects
- Cloud Solutions Architects
- Virtualization Specialists
- Network Administrators
- IT Operations Managers

- IT Professionals with an interest in Microsoft Virtualization and Data Center solutions
- Technical Consultants involved in designing and deploying virtualized environments
- Disaster Recovery and Business Continuity Planners
- Storage Administrators
- Systems Engineers focused on enterprise virtualization and data center optimization
- IT Managers looking to implement or manage a software-defined data center environment
- Professionals seeking to learn about Hyper-V and System Center capabilities
- Technical Support Staff who maintain and troubleshoot virtualization infrastructure

Training methods:

- Technology-Based Learning.
- Simulation in Training.
- On-the-job guidance.
- Trainer-Led Training.
- Work Teams and Roles.
- Films and Videos.
- Case Studies and Workshops.