Configuring Windows Server Hybrid Advanced Services (AZ-801T00)

COURSE OVERVIEW

This course teaches IT Professionals to configure advanced Windows Server services using on-premises, hybrid, and cloud technologies. The course teaches IT Professionals how to leverage the hybrid capabilities of Azure, how to migrate virtual and physical server workloads to Azure IaaS, and how to secure Azure VMs running Windows Server. The course also teaches IT Professionals how to perform tasks related to high availability, troubleshooting, and disaster recovery. The course highlights administrative tools and technologies including Windows Admin Center, PowerShell, Azure Arc, Azure Automation Update Management, Microsoft Defender for Identity, Azure Security Center, Azure Migrate, and Azure Monitor.

WHO WILL BENEFIT FROM THIS COURSE?

This four-day course is intended for Windows Server Hybrid Administrators who have experience working with Windows Server and want to extend the capabilities of their on-premises environments by combining on-premises and hybrid technologies. Windows Server Hybrid Administrators who already implement and manage on-premises core technologies want to secure and protect their environments, migrate virtual and physical workloads to Azure Iaas, enable a highly available, fully redundant environment, and perform monitoring and troubleshooting.

PREREQUISITES

Before attending this course, students must have:

- Experience with managing Windows Server operating system and Windows Server workloads in on-premises scenarios, including AD DS, DNS, DFS, Hyper-V, and File and Storage Services
- Experience with common Windows Server management tools (implied in the first prerequisite).
- Basic knowledge of core Microsoft compute, storage, networking, and virtualization technologies (implied in the first prerequisite).
- Experience and an understanding of core networking technologies such as IP addressing, name resolution, and Dynamic Host Configuration Protocol (DHCP)
- Experience working with and an understanding of Microsoft Hyper-V and basic server virtualization concepts
- An awareness of basic security best practices
- Basic understanding of security-related technologies (firewalls, encryption, multi-factor authentication, SIEM/SOAR).
- Basic knowledge of on-premises resiliency Windows Server-based compute and storage technologies (Failover Clustering, Storage Spaces).
- Basic experience with implementing and managing IaaS services in Microsoft Azure

- Basic knowledge of Azure Active Directory
- Experience working hands-on with Windows client operating systems such as Windows 10 or Windows 11
- Basic experience with Windows PowerShell

An understanding of the following concepts as related to Windows Server technologies:

- High availability and disaster recovery
- Automation
- Monitoring
- Troubleshooting

COURSE OBJECTIVES

Students will learn to:

- Secure Windows Server user accounts
- Hardening Windows Server
- Windows Server update management
- Secure Windows Server DNS
- Implement Windows Server IaaS VM network security
- Audit the security of Windows Server IaaS Virtual Machines
- Manage Azure updates
- Create and implement application allowlists with adaptive application control
- Configure BitLocker disk encryption for Windows IaaS Virtual Machines
- Implement change tracking and file integrity monitoring for Windows IaaS VMs
- Introduction to Cluster Shared Volumes
- Implement Windows Server failover clustering
- Implement high availability of Windows Server VMs
- Implement Windows Server File Server high availability
- Implement scale and high availability with Windows Server VM
- Implement Hyper-V Replica
- Protect your on-premises infrastructure from disasters with Azure Site Recovery
- Implement hybrid backup and recovery with Windows Server IaaS
- Protect your Azure infrastructure with Azure Site Recovery
- Protect your virtual machines by using Azure Backup
- Active Directory Domain Services migration
- Migrate file server workloads using Storage Migration Service
- Migrate Windows Server roles
- Migrate on-premises Windows Server instances to Azure IaaS virtual machines
- Upgrade and migrate Windows Server IaaS virtual machines
- Containerize and migrate ASP.NET applications to Azure App Service
- Monitor Windows Server performance
- Manage and monitor Windows Server event logs
- Implement Windows Server auditing and diagnostics
- Troubleshoot Active Directory

- Monitor Windows Server IaaS Virtual Machines and hybrid instances
- Monitor the health of your Azure virtual machine by using Azure Metrics Explorer and metric alerts
- Monitor performance of virtual machines by using Azure Monitor VM Insights
- Troubleshoot on-premises and hybrid networking
- Troubleshoot Windows Server Virtual Machines in Azure

COURSE OUTLINE

Module 1: Secure Windows Server user accounts

- Configure and manage user accounts to limit security threats across an organization
- Apply Protected Users settings, policies, and authentication silos to protect highly privileged user accounts
- Describe and configure Windows Defender Credential Guard.
- Configure Group Policy to block the use of NTLM for authentication

Module 2: Hardening Windows Server

- Manage local administrator passwords using Local Administrator Password Solution
- Limit administrative access to Privileged Access Workstations (PAWs)
- Explain how to secure domain controllers from being compromised
- Describe how to use the Microsoft Security Compliance Toolkit to harden servers
- Secure SMB traffic using SMB encryption

Module 3: Windows Server update management

- Describe the role of Windows Server Update Services (WSUS)
- Describe the WSUS update management process
- Deploy updates with WSUS

Module 4: Secure Windows Server DNS

- Describe split-horizon DNS and explain how to implement it.
- Create DNS policies.
- Implement DNS policies.
- Describe the options for protecting the DNS server role.
- Implement DNS security.

Module 5: Implement Windows Server IaaS VM network security

- Implement Network Security Groups (NSGs) with Windows Server IaaS VMs.
- Implement adaptive network hardening.
- Implement Azure Firewall.
- Implement Windows Defender Firewall in Windows Server IaaS VMs.
- Choose an appropriate filtering solution.
- Capture network traffic with Network Watcher.

Module 6: Audit the security of Windows Server IaaS Virtual Machines

- Describe Azure Security Center.
- Enable Azure Security Center in hybrid environments.
- Onboard Windows Server computers to Azure Security Center.
- Implement and assess security policies.

- Describe Azure Sentinel.
- Implement SIEM and SOAR.
- Protect your resources with Azure Security Center.

Module 7: Manage Azure updates

- Describe Azure updates.
- Enable Update Management.
- Deploy updates.
- Review an update assessment.
- Manage updates for your Azure VMs.

Module 8: Create and implement application allow lists with adaptive application control

- Enable Adaptive application controls.
- Implement adaptive application control policies.

Module 9: Configure BitLocker disk encryption for Windows IaaS Virtual Machines

- Describe Azure Disk Encryption.
- Configure Key Vault to support Azure Disk Encryption.
- Explain how to encrypt Azure IaaS VM hard disks.
- Back up and recover encrypted data from IaaS VM hard disks.

Module 10: Implement change tracking and file integrity monitoring for Windows IaaS VMs

- Implement Change Tracking and Inventory
- Manage Change Tracking and Inventory
- Manage tracked files
- Implement File Integrity Monitoring
- Select and monitor entities
- Use File Integrity Monitoring

Module 11: Introduction to Cluster Shared Volumes

- Describe the functionality of CSV.
- Describe the architecture and components of CSV.
- Implement CSV.

Module 12: Implement Windows Server failover clustering

- Describe Windows Server failover clustering.
- Implement Windows Server failover clustering.
- Manage Windows Server failover clustering.
- Implement stretch clusters.
- Describe cluster sets.

Module 13: Implement high availability of Windows Server VMs

- Describe the Hyper-V high availability options.
- Describe Hyper-V VMs load balancing.
- Implement Hyper-V VMs live migration.
- Implement Hyper-V VMs storage migration.

Module 14: Implement Windows Server File Server high availability

- Provide a high-level overview of Windows Server File Server high-availability options.
- Describe the characteristics of and high-level implementation steps for Cluster Shared Volumes (CSV).
- Describe the characteristics of and high-level implementation steps for Scale-Out File Server (SOFS).
- Describe the characteristics of and high-level implementation steps for Storage Replica.

Module 15: Implement scale and high availability with Windows Server VM

- Describe virtual machine scale sets.
- Implement scaling.
- Implement load-balancing virtual machines.
- Implement Azure Site Recovery.

Module 16: Implement Hyper-V Replica

- Describe Hyper-V Replica, the prerequisites for its use, and its high-level architecture and components.
- Describe Hyper-V Replica usage scenarios, available replication settings, and security considerations.
- Configure Hyper-V Replica settings, health monitoring, and failover options.
- Implement Hyper-V Replica.
- Describe extended replication.
- Describe Site Recovery.
- Implement Site Recovery.

Module 17: Protect your on-premises infrastructure from disasters with Azure Site Recovery

- Identify the features and protection capabilities Azure Site Recovery provides to on-premises infrastructure
- Identify the requirements for enabling protection of on-premises infrastructure

Module 18: Implement hybrid backup and recovery with Windows Server IaaS

- Describe Azure Backup.
- Implement Recovery Vaults.
- Implement Azure Backup policies.
- Recover Windows IaaS VMs.
- Perform file and folder recovery.
- Perform backup and recovery of on-premises workloads.
- Explain how to manage Azure VM backups with Azure Backup.

Module 19: Protect your Azure infrastructure with Azure Site Recovery

- Protect Azure virtual machines with Azure Site Recovery
- Run a disaster recovery drill to validate protection
- Failover and failback your virtual machines

Module 20: Protect your virtual machines by using Azure Backup

- Identify the scenarios for which Azure Backup provides backup and restore capabilities
- Back up and restore an Azure virtual machine

Module 21: Active Directory Domain Services migration

- Compare upgrading an AD DS forest and migrating to a new AD DS forest
- Describe how to upgrade an existing AD DS forest
- Describe how to migrate to a new AD DS forest
- Describe Active Directory Migration Tool (ADMT)

Module 22: Migrate file server workloads using Storage Migration Service

- Describe Storage Migration Service and its usage scenarios
- Identify the requirements for using Storage Migration Service
- Describe how to migrate a server with storage migration
- List the considerations for using Storage Migration Service

Module 23: Migrate Windows Server roles

- Describe the Windows Server Migration Tools
- Use the migration tools to migrate specific Windows Server roles

Module 24: Migrate on-premises Windows Server instances to Azure IaaS virtual machines

- Plan your migration.
- Describe Azure Migrate.
- Migrate server workloads using Windows Server Migration Tools.
- Assess physical servers with Azure Migrate.
- Migrate on-premises servers to Azure.

Module 25: Upgrade and migrate Windows Server IaaS virtual machines

- Describe Windows Server IaaS migration.
- Explain how to migrate workloads using Windows Server Migration tools.
- Describe storage migration.
- Migrate file servers by using the Storage Migration Service.

Module 26: Containerize and migrate ASP.NET applications to Azure App Service

- Discover and containerize your ASP.NET app running on Windows machines using Azure Migrate: App Containerization.
- Build a container image for your ASP.NET application.
- Deploy your containerized application to Azure App Service using Azure Migrate: App Containerization.

Module 27: Monitor Windows Server performance

- Use built-in tools in Windows Server to monitor server performance
- Understand the fundamentals of server performance tuning

Module 28: Manage and monitor Windows Server event logs

- Describe event logs
- Use Server Manager and Windows Admin Center to - Review event logs
- Implement custom views
- Configure an event subscription

Module 29: Implement Windows Server auditing and diagnostics

- Audit Windows Server events
- Configure Windows Server to record diagnostic information

Module 30: Troubleshoot Active Directory

- Recover the AD DS database, objects in AD DS, and SYSVOL
- Troubleshoot AD DS replication
- Troubleshoot Hybrid authentication issues

Module 31: Monitor Windows Server IaaS Virtual Machines and hybrid instances

- Enable Azure Monitor for VMs.
- Monitor an Azure VM with Azure Monitor.
- Enable Azure Monitor in hybrid scenarios.
- Collect data from a Windows computer in a hybrid environment.
- Integrate Azure Monitor with Microsoft Operations Manager.

Module 32: Monitor the health of your Azure virtual machine by using Azure Metrics Explorer and metric alerts

- Identify metrics and diagnostic data that you can collect for virtual machines
- Configure monitoring for a virtual machine
- Use monitoring data to diagnose problems

Module 33: Monitor performance of virtual machines by using Azure Monitor VM Insights

- Evaluate Azure Monitor Logs and Azure Monitor VM Insights.
- Configure a Log Analytics workspace.
- Build queries from the Heartbeat and Insights Metrics tables.

Module 34: Troubleshoot on-premises and hybrid networking

- Diagnose DHCP and DNS problems in on-premises contexts
- Diagnose IP configuration and routing problems
- Implement Packet Monitor to help diagnose network problems
- Use Azure Network Watcher to troubleshoot Microsoft Azure virtual networks

Module 35: Troubleshoot Windows Server Virtual Machines in Azure

- Troubleshoot VM deployment and extension issues
- Troubleshoot VM startup and performance issues
- Troubleshoot VM storage and encryption issues
- Troubleshoot connectivity to VMs

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