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LESSON PLAN

TestOut Hybrid Server Pro: Advanced - English 5.0.x

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1.0: Course Introduction

# 1.1: Course Introduction

This course is designed to prepare you to pass the TestOut Hybrid Server Pro: Advanced Exam and Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services Certification.

### Lecture Focus Questions:

* What are the course prerequisites?
* Which major topics are covered in the course?
* Which certifications and exams does this course prepare you for?

## Course Prerequisites

Before you take this course, you should have a basic understanding of computers. You should have:

* Networking experience
	+ Optional certifications:
		- TestOut Network Pro Exam
		- TestOut Hybrid Server Pro: Core Exam
		- CompTIA Network+ Certification
		- Microsoft AZ-800: Administering Windows Server Hybrid Core Infrastructure Certification
* Server administration experience
* Cloud experience

## TestOut Hybrid Server Pro: Advanced Exam

The TestOut Hybrid Server Pro: Advanced Exam is the second server exam of the TestOut Pro Server exams. This certification measures not only what you know, but also what you can do. It measures your ability to manage Windows Server in an on-premises, cloud, or hybrid configuration.

The TestOut Hybrid Server Pro: Advanced Exam addresses the following knowledge domains:

* Hybrid Infrastructure Administration
* Secure and Update Windows
* Backup and Disaster Recovery
* High Availability and Failover Cluster Management
* Troubleshoot Windows Servers

## Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services Certification

The Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services Certification is the second of two server exams. This exam measures your ability to deploy, package, secure, update, and configure Windows Server workloads using on-premises, hybrid, and cloud technologies. As a server hybrid systems admin, you'll need to know how to implement and manage on-premises and hybrid solutions such as identity, security, management, monitoring, networking, storage, high availability, and disaster recovery.

The Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services Certification addresses the following knowledge domains:

* Secure Windows Server on-premises and hybrid infrastructures
* Implement and manage Windows Server high availability
* Implement disaster recovery
* Migrate servers and workloads
* Monitor and troubleshoot Windows Server environments

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 1.1.1 Course Introduction
 | 3:28 |
| Total Video Time | 3:28 |

### Fact Sheets

* 1.1.2 Exam Objectives Facts

### Total Time

*About 9 minutes*

# 1.2: Windows and Azure Simulator Interface

### Lecture Focus Questions:

* What are some improvements made on Windows 11 compared to Windows 10?
* What is the Azure Portal?
* How is the Azure Portal accessed?
* Which feature in the Azure Portal can you use to help find specific functions?

In this section, you will learn to:

* Navigate the Azure Interface
* Navigate Windows 11
* Navigate the Windows Server Interface

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Server Manager | A Windows console used to provision and manage local and remote Windows-based servers. |
| Start menu | The menu that is accessed by clicking the Windows logo in the taskbar. This is typically the easiest way to access programs and features in Windows.  |
| Desktop | The working surface that displays icons used to access programs, files, applications, and file systems. The desktop is what you see when all programs and open folders are minimized. When installing an application, an icon is often added to the desktop.  |
| Azure Portal | A web-based platform used to access and manage Azure resources. To access the portal, open the Edge browser and go to https://portal.azure.com.  |
| Microsoft Authenticator app | A multi-factor authentication application that is provided by Microsoft. |
| Subscriptions | A container in Azure that holds a group of resources that are used and billed together.  |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 1.2.1 Navigate the Windows Client Interface
 | 6:33 |
| * 1.2.4 Navigate the Windows Server Interface
 | 3:33 |
| * 1.2.7 Navigate the Azure Interface
 | 7:10 |
| Total Video Time | 17:16 |

### Lab/Activity

* 1.2.3 Use the Windows Client Interface
* 1.2.6 Use the Windows Server Interface
* 1.2.9 Use the Azure Interface

### Fact Sheets

* 1.2.2 Navigate the Windows Client Interface Facts
* 1.2.5 Navigate the Windows Server Interface Facts
* 1.2.8 Azure Interface Facts

### Number of Exam Questions

10 questions

### Total Time

*About 79 minutes*

2.0: Secure Windows Servers

# 2.1: Malware Protection

### Lecture Focus Questions:

* What is malicious code?
* How can malware be detected?
* What is the suggested procedure for remediating a system with a malware infection?
* What is a hoax virus?
* What are the three types of scans that can be scheduled in Windows Security?

In this section, you will learn to:

* Manage Windows Security
* Configure Windows Security

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Malware | Software written to cause undesired results. A virus and adware are examples of malware. |
| Adware | Software that displays ads, usually associated with free programs. |
| Virus | Software that often causes systems to execute malicious code that can comprise system integrity. |
| Spyware | Software installed on a computer typically without the user's knowledge and transmits information about the user's computer activities back to the source. |
| Antimalware (anti-malware)  | A software program designed to prevent, detect, and remove malicious software (malware) on IT systems, as well as individual computing devices. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 2.1 Secure Windows * 2.1.2 Protect systems with Windows Defender for Endpoint
 |
|  |  |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 1.1 Secure Windows Server operating system* 1.1.1. Configure and manage Exploit Protection
* 1.1.2. Configure and manage Windows Defender Application Control
* 1.1.3. Configure and manage Windows Defender for Endpoint
* 1.1.4. Configure and manage Windows Defender Credential Guard1.1.5. Configure SmartScreen
* 1.3.2. Identify and remediate security issues on-premises servers and Azure IaaS VMs by using Azure Security Center

5.3. Troubleshoot Windows Server Virtual Machines in Azure* 5.3.2. Troubleshoot booting failures
 |
|  |  |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 2.1.1 Malware
 | 11:51 |
| * 2.1.3 Malware Protection
 | 11:23 |
| * 2.1.4 Manage Windows Security
 | 5:52 |
| * 2.1.8 Configure and Manage Microsoft Defender for Endpoint
 | 1:52 |
| Total Video Time | 30:58 |

### Lab/Activity

* 2.1.6 Configure Windows Security

### Fact Sheets

* 2.1.2 Malware Facts
* 2.1.5 Malware Protection Facts
* 2.1.7 Microsoft Defender Products Facts
* 2.1.9 Configure and Manage Microsoft Defender for Endpoint Facts

### Number of Exam Questions

10 questions

### Total Time

*About 73 minutes*

# 2.2: Windows Defender Exploit Guard

### Lecture Focus Questions:

* What is used to help reduce the attack surface of user apps?
* How do you prevent access to internet domains that may host malicious content?
* What is used to protect against malware by preventing changes within protected files?
* How can you mitigate exploit techniques used against an organization’s apps?

In this section, you will learn to:

* Use Windows Defender Exploit Guard
* Configure Windows Defender Exploit Guard

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 2.1 Secure Windows Server operating system* 2.1.1 Configure and manage Exploit Protection
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 1.1 Secure Windows Server operating system* 1.1.1 Configure and manage Exploit Protection
* 1.1.4. Configure and manage Windows Defender Credential Guard
* 1.1.5. Configure SmartScreen
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 2.2.1 Configure and Manage Exploit Protection
 | 1:31 |
| Total Video Time | 1:31 |

### Lab/Activity

* 2.2.3 Configure Windows Defender Exploit Guard

### Fact Sheets

* 2.2.2 Windows Defender Exploit Guard Facts

### Number of Exam Questions

10 questions

### Total Time

*About 29 minutes*

# 2.3: Windows Defender Application Control

### Lecture Focus Questions:

* Which feature determines the drivers and applications allowed to run on a Windows 10 client?
* How is AppLocker different from WDAC?

In this section, you will learn to:

* Use Windows Defender Application Control
* Configure Windows Defender Application Control

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Windows Defender Application Control (WDAC) | A Windows feature that restricts applications that users can run, restricts code that runs in the system code, and limits PowerShell scripts to only un using the COnstrained Language Mode. |
| App Locker | Provides admins control over which applications users can run on their client machines. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 2.1 Secure Windows * 2.1.3 Protect applications with Windows Defender Application Control
 |
|  |  |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 1.1 Secure Windows Server operating systems* 1.1.2 Configure and manage Windows Defender Application Control
 |
|  |  |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 2.3.1 Windows Defender Application Control
 | 6:08 |
| * 2.3.2 Using Windows Defender Application Control
 | 2:33 |
| Total Video Time | 8:41 |

### Lab/Activity

* 2.3.4 Configure Windows Defender Application Control

### Fact Sheets

* 2.3.3 Windows Defender Application Control Facts

### Number of Exam Questions

10 questions

### Total Time

*About 36 minutes*

# 2.4: Windows Defender Credential Guard

### Lecture Focus Questions:

* Which Windows feature is designed to protect user authentication credentials?
* How do you implement Credential Guard on a Windows system?

In this section, you will learn to:

* Use Windows Defender Credential Guard
* Configure Windows Defender Credential Guard

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Credential Guard | A virtualization-based isolation technology for Local Security Authority Subsystem Service (LSASS) that prevents attackers from stealing credentials. |
| Virtual Secure Mode (VSM)  | VSM provides added security to data stored in physical RAM. VSM is able to tag processes on the system as belonging to a virtual machine running within Hyper-V. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 2.2 Secure Active Directory user accounts * 2.2.1 Protect user credentials with Windows Defender Credential Guard
 |
|  |  |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 1.1 Secure Windows Server operating system * 1.1.4 Configure and manage Windows Defender Credential Guard
 |
|  |  |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 2.4.1 Windows Defender Credential Guard
 | 4:45 |
| * 2.4.2 Use Windows Credential Guard
 | 1:58 |
| Total Video Time | 6:43 |

### Lab/Activity

* 2.4.4 Configure Windows Defender Credential Guard

### Fact Sheets

* 2.4.3 Windows Defender Credential Guard Facts

### Number of Exam Questions

10 questions

### Total Time

*About 34 minutes*

# 2.5: Defender SmartScreen

### Lecture Focus Questions:

* How does Defender SmartScreen help to protect users from malicious websites?
* How can administrators use Defender SmartScreen to help prevent phishing and malware?
* What is reputation-based URL protection?

In this section, you will learn to:

* Configure SmartScreen

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| App Protection | A feature of Windows Defender SmartScreen that analyzing files by checking them against a listing of known malicious programs. |
| Site Protection | A feature of Windows Defender SmartScreen that analyzes websites by checking them against a listing of known malicious sites. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 2.1 Secure Windows * 2.1.4 Enable Windows Defender SmartScreen
 |
|  |  |
| Microsoft AZ-801: Configuring Windows Server Advanced Services | 1.1 Secure Windows operating system* 1.1.5 Configure SmartScreen
 |
|  |  |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 2.5.1 Defender SmartScreen
 | 1:43 |
| * 2.5.2 Configure SmartScreen
 | 2:11 |
| Total Video Time | 3:54 |

### Lab/Activity

* 2.5.4 Configure SmartScreen

### Fact Sheets

* 2.5.3 Defender SmartScreen Facts

### Number of Exam Questions

10 questions

### Total Time

*About 31 minutes*

3.0: Secure Windows Server with Active Directory and Group Policy

# 3.1: Secure Windows Servers with Group Policies

### Lecture Focus Questions:

* What two categories are Group Policy object settings divided into?
* What are some common Group Policy object settings that you should be familiar with?
* How can security baselines and tools help with the configuration process?

In this section, you will learn to:

* Implement operating system security by using Group Policies

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Policy | A set of configuration settings applied to users or computers.  |
| Group Policies | Policies that allow the administrator to apply multiple settings to multiple objects simultaneously within an Active Directory domain.  |
| Group Policy object (GPO) | A way to deploy per-user and per-computer settings on a Windows domain, such as password policies, account restrictions, firewall status, and so on.  |
| Security baseline  | Data comprised of recommended configuration settings or security controls required to safeguard a system. |
| Security Compliance Toolkit (SCT)  | A set of tools that allows network administrators to view, edit, test, store, apply, and manage Microsoft security baselines. |

This section helps you prepare for the following Certification Exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 2.1 Secure Windows* 2.1.5 Implement group security policies
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 1.1 Secure the Windows Server Operating System* 1.1.6 Implement operating system security by using Group Policies
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 3.1.1 Secure Windows Servers with Group Policies
 | 4:51 |
| * 3.1.2 Implement Operating System Security by Using Group Policies
 | 2:27 |
| Total Video Time | 7:18 |

### Fact Sheets

* 3.1.3 Secure Windows Servers with Group Policies Facts

### Number of Exam Questions

10 questions

### Total Time

*About 23 minutes*

# 3.2: Password Policies

### Lecture Focus Questions:

* Why would you want to configure password policies?
* What is the purpose of a fine-grained password?
* What three things constitute password types?

In this section, you will learn to:

* Configure password policies
* Configure Azure password protection
* Configure fine-grained password policies

Key terms for this section include the following:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Password | A way to authenticate users. It usually consists of one or more of the following: * Something you know (a string of characters or numbers)
* Something you are (biometrics: fingerprint or facial recognition)
* Something you have (a dongle or an authenticator)
 |
| Complexity requirements | Password requirements that are meant to discourage passwords that are too easy to guess or crack. This might include: * A minimum of three of the four types of special characters (lowercase letters, uppercase letters, numbers, or !, @, #, $, %, ^, &, \*).
* Forbidding the use of dictionary words or any part of the user's login identification.
* Passwords that are six characters or longer.
 |
| Group Policy | Where the IT admin sets the password rules and requirements that are enforced throughout the company. |
| Fine-grained password | A more restrictive password as requested by a business entity. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 2.2 Secure Active Directory user accounts* 2.2.2 Implement password policies
* 2.2.3 Implement password block lists
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 1.2. Secure a hybrid Active Directory (AD) infrastructure* 1.2.1. Configure password policies
* 1.2.2. Enable password block lists
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 3.2.1 Password Policies
 | 5:09 |
| * 3.2.2 Configure Password Policies
 | 2:11 |
| * 3.2.5 Password Block Lists
 | 6:06 |
| * 3.2.6 Configure Azure AD Password Protection
 | 2:04 |
| Total Video Time | 15:30 |

### Lab/Activity

* 3.2.4 Configure Password Policies
* 3.2.8 Configure Azure Password Protection
* 3.2.9 Configure Fine-Grained Password Policies

### Fact Sheets

* 3.2.3 Configure Password Policies Facts
* 3.2.7 Password Block Lists

### Number of Exam Questions

9 questions

### Total Time

*About 71 minutes*

# 3.3: User Rights Assignment and Protected Users

### Lecture Focus Questions:

* What is the difference between permissions and rights?
* What are the different types of user rights assignment policies?
* What are the different types of privileged accounts?

In this section, you will learn to:

* Identify privileged accounts and protected groups in Active Directory
* Configure and manage user rights to secure network resources

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Zero-Trust Policy | A policy designed to minimize uncertainty by assuming that a breach has occurred and using trust-by-exception and least privilege access for each resource. |
| Rights | The ability to perform actions on a computer, such as logging on, shutting down, backing up, and restoring.  |
| Permissions | The ability to access objects such as files, folders, and printers. |
| Privileged accounts | User accounts that have been granted high-level rights, privileges, and permissions.  |
| Protected Users group | A global security group with the goal of keeping users' credentials from being abused. |

This section helps you prepare for the following Certification Exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 2.1 Secure Active Directory User Accounts* 2.2.1 Protect user credentials with Windows Defender Credential Guard

2.2 Secure Active Directory User Accounts* 2.2.4 Deploy user rights policies
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 1.1 Secure the Windows Server Operating System * 1.1.6. Implement operating system security by using Group Policies

1.2. Secure a Hybrid Active Directory (AD) Infrastructure* 1.2.3. Manage Protected Users
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 3.3.1 User Rights
 | 8:12 |
| * 3.3.2 Manage User Rights
 | 8:42 |
| * 3.3.5 Manage Protected Users
 | 1:43 |
| Total Video Time | 18:37 |

### Lab/Activity

* 3.3.4 Configure User Rights
* 3.3.7 Configure Protected Users

### Fact Sheets

* 3.3.3 User Rights Facts
* 3.3.6 Protected Users

### Number of Exam Questions

10 questions

### Total Time

*About 63 minutes*

# 3.4: Audit Policies

### Lecture Focus Questions:

* What are some basic auditing policies that are available through Group Policy?
* What are some auditing tips to be aware of when configuring audit policies?

In this section, you will learn to:

* Configure audit policies
* Become familiar with nine basic audit policies configurable through Group Policy

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Account logon audit | A type of auditing that tracks when a user account tries to authenticate to a computer.  |
| Account management audit | A type of auditing that tracks changes to user and computer accounts and groups. |
| Directory service (DS) access audit | A type of auditing that tracks changes to Active Directory objects. |
| Object access audit | Audits that track access to files, folders, or printers. |
| Policy change audit | Audits that track changes to user rights, trust relationships, IPsec and Kerberos policies, or audit policies. |
| Privilege use audit | Audits that track when a user exercises a user right and when an administrator takes ownership of an object. |
| Process tracking audit | A type of auditing that records actions taken by applications.  |
| Logon audit | Audits that track logons or logoffs on the local system or when a network connection is made to the system.  |
| System audit | Audits events such as system shutdown, restart, or the starting of system services.  |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 2.1 Secure Windows * 2.1.5 Implement group security policies
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 1.1 Secure Windows Server operating system * 1.1.6 Implement operating system security by using Group Policies
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 3.4.1 Audit Policies
 | 7:44 |
| * 3.4.2 Configure Audit Policies
 | 8:53 |
| Total Video Time | 16:37 |

### Lab/Activity

* 3.4.4 Configure Audit Policies

### Fact Sheets

* 3.4.3 Audit Policy Facts

### Number of Exam Questions

9 questions

### Total Time

*About 43 minutes*

# 3.5: Security Options

### Lecture Focus Questions:

* What is privilege escalation? When should you use it?
* What are some tools used to implement and manage security options?
* How can you apply security policies to all your network devices?

In this section, you will learn to:

* Implement security policies
* Manage security options
* Use UAC

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| User Account Control (UAC) | UAC is a security tool for administrative privileges. |
| Group Policy Management Console (GPMC) | GPMC is a tool for managing group policies. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 2.1 Secure Windows * 2.1.5 Implement group security policies

2.2 Secure Active Directory user accounts* 2.2.5 Configure account security policy settings
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 1.1 Secure Windows Server operating system * 1.1.6 Implement operating system security by using Group Policies
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 3.5.1 Security Options
 | 9:19 |
| * 3.5.2 Configure Security Options
 | 4:27 |
| * 3.5.5 Configure User Account Control
 | 5:28 |
| Total Video Time | 19:14 |

### Lab/Activity

* 3.5.4 Configure Security Options
* 3.5.7 Enforce User Account Control

### Fact Sheets

* 3.5.3 Security Options Facts
* 3.5.6 User Account Control Facts

### Number of Exam Questions

10 questions

### Total Time

*About 64 minutes*

# 3.6: Secure a Hybrid Active Directory Infrastructure

### Lecture Focus Questions:

* What are some of the ways to physically protect domain controllers?
* What steps should you consider implementing when hardening a domain controller?
* How are authentication policies used with authentication policy silos?

In this section, you will learn to:

* Manage account security on a read-only domain controller (RODC)
* Harden domain controllers
* Configure authentication policies and silos

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Read-only domain controller (RODC)  | A read-only copy of the Active Directory Domain Service (AD DS) database that contains the accounts and users included in the writable domain controller. |
| Read-only domain controller filtered attribute set | An attribute to the RODC filtered attribute set that prevents it from replicating to other RODCs in the forest.  |
| Password Replication Policy  | Used to specify which accounts can authenticate through an RODC.  |
| Credential caching | Refers to storing user or computer account credentials, which are specific attributes linked to security principals. |
| Kerberos | A single sign-on authentication and authorization service that is based on a time-sensitive, ticket-granting system.  |
| Authentication policies  | Provides the ability to set certain conditions for a user to sign in to a computer, such as TGT lifetime and access control conditions.  |
| Authentication policy silos  | Provides a way to define high-privilege credentials between the user, computer, and managed service accounts.  |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 2.2 Secure Active Directory User Accounts* 2.2.7 Implement authentication policies and silos for administrative accounts

2.4 Secure domain controllers and VMs * 2.4.1 Harden domain controllers
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 1.2 Secure a Hybrid Active Directory (AD) Infrastructure * 1.2.4 Manage account security on a read-only domain controller (RODC)
* 1.2.5. Harden domain controllers
* 1.2.6 Configure authentication policies and silos
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 3.6.1 Secure Domain Controllers
 | 7:04 |
| * 3.6.2 Manage Account Security on a Read-Only Domain Controller
 | 4:11 |
| * 3.6.3 Harden Domain Controllers
 | 2:47 |
| * 3.6.6 Configure Authentication Policies Silos
 | 4:04 |
| Total Video Time | 18:06 |

### Lab/Activity

* 3.6.5 Harden Domain Controllers

### Fact Sheets

* 3.6.4 Secure Domain Controllers Facts
* 3.6.7 Authentication Policies Silos Facts

### Number of Exam Questions

10 questions

### Total Time

*About 51 minutes*

# 3.7: Secure Hybrid Active Directory Accounts

### Lecture Focus Questions:

* What are the benefits for the user of a hybrid identity?
* What are some security concerns and solutions when it comes to patch management?
* What does it mean to properly secure Active Directory?
* What are some common security misconfigurations to avoid?
* How can you use Microsoft Defender for Identity to secure Active Directory?

In this section, you will learn to:

* Properly patch systems
* Properly configure Active Directory servers
* Secure administrative hosts
* Apply the principle of least privilege
* Implement Microsoft Defender for Identity

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Patch management | The process of managing and applying updates to operating systems, software, drivers, and firmware to protect against emerging vulnerabilities. |
| Microsoft Defender for Identity | An Azure security tool that analyzes and monitors user activity across a network and creates a baseline for each user. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 2.2 Secure Active Directory user accounts * 2.2.5 Configure account security policy settings
* 2.2.6 Delegate administrative control

2.3 Secure Active Directory groups * 2.3.2 Manage Active Directory Administrator security groups

2.4 Secure domain controllers and VMs * 2.4.1 Harden domain controllers
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 1.2 Secure a hybrid Active Directory (AD) infrastructure * 1.2.7 - Restrict access to domain controllers
* 1.2.8 - Configure account security
* 1.2.9 - Manage AD built-in administrative groups
* 1.2.10 - Manage AD delegation
* 1.2.11 - Implement and manage Microsoft Defender for Identity
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 3.7.1 Active Directory Account Security
 | 7:32 |
| * 3.7.2 Restrict Access to Domain Controllers
 | 2:14 |
| * 3.7.3 Configure Account Security
 | 2:13 |
| * 3.7.4 Manage AD Delegation and Built-In Administrative Groups
 | 3:44 |
| * 3.7.6 Implement and Manage Microsoft Defender for Identity
 | 2:50 |
| Total Video Time | 18:33 |

### Lab/Activity

* 3.7.8 Manage AD Built-In Administrative Groups
* 3.7.9 Manage AD Delegation

### Fact Sheets

* 3.7.5 Active Directory Account Security
* 3.7.7 Microsoft Defender for Identity Facts

### Number of Exam Questions

10 questions

### Total Time

*About 63 minutes*

# 3.8: Resolve Security Issues by Using Azure Services

### Lecture Focus Questions:

* What is a SIEM system?
* What is a SOAR system?
* What is Microsoft Sentinel?
* What is Microsoft Defender for Cloud?
* When would you use Microsoft Sentinel or Microsoft Defender for Cloud?

In this section, you will learn to:

* Use Microsoft Sentinel
* Implement data connectors
* Use Microsoft Defender for Cloud
* Integrate Microsoft Sentinel and Microsoft Defender for Cloud

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Security Information and Event Management (SIEM) | A centralized software tool that gathers logs, events, and other information from network devices. |
| Security Orchestration Automation and Response (SOAR) | A centralized software tool that gathers logs, events, and other information from network devices and will respond to security threats automatically. |
| Microsoft Sentinel | Microsoft Azure's all in one SIEM and SOAR solution that will collect, detect, investigate, and respond to threats. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 2.4 Secure domain controllers and VMs * 2.4.2 Use Azure Sentinel to monitor physical and virtual servers

5.1 Troubleshoot Windows * 5.1.1 Troubleshoot connectivity in a hybrid environment
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 1.3 Identify and remediate Windows Server security issues by using Azure services * 1.3.1 - Monitor on-premises servers and Azure IaaS VMs by using Microsoft Sentinel
* 1.3.2 - Identify and remediate security issues with on-premises servers and Azure IaaS VMs by using Microsoft Defender for Cloud
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 3.8.1 Microsoft Sentinel
 | 6:45 |
| * 3.8.2 Use Microsoft Sentinel
 | 3:08 |
| * 3.8.4 Microsoft Defender for Cloud
 | 7:19 |
| * 3.8.5 Use Microsoft Defender for Cloud
 | 2:45 |
| Total Video Time | 19:57 |

### Fact Sheets

* 3.8.3 Microsoft Sentinel Facts
* 3.8.6 Microsoft Defender for Cloud Facts

### Number of Exam Questions

10 questions

### Total Time

*About 40 minutes*

4.0: Secure Windows Server Networking and Storage

# 4.1: Secure Windows Server Networking

### Lecture Focus Questions:

* How do you reduce a device's attack surface?
* Why should you only install software that you need?
* Which traffic characteristics can you specify with a firewall filtering rule?
* What is Microsoft Azure Backup Server (MABS)?
* How is a Recovery Services vault used to protect an organization's data?

In this section, you will learn to:

* Use Microsoft Defender Firewall
* Implement domain isolation
* Implement connection security rules
* Allow applications through the firewall
* Create network profiles

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Access Control Lists (ACLs) | Rules based on criteria such as source and destination IP addresses, ports, protocols, or services are defined to allow or deny each packet entry.  |
| Network Profiles | Firewall profiles created by Windows Defender Firewall to provide different levels of protection for domain, private, and public networks. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 2.1 Secure Windows * 2.1.2 Protect systems with Windows Defender for Endpoint
* 2.1.5 Implement group security policies

2.4 Secure domain controllers and VMs * 2.4.1 Harden domain controllers
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 1.4 Secure Windows Server networking * 1.4.1 - Manage Windows Defender Firewall
* 1.4.2 - Implement domain isolation
* 1.4.3 - Implement connection security rules
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 4.1.1 Windows Defender Firewall
 | 8:50 |
| * 4.1.2 Manage Windows Defender Firewall
 | 5:56 |
| * 4.1.3 Implement Domain Isolation
 | 2:13 |
| * 4.1.4 Implement Connection Security Rules
 | 2:28 |
| Total Video Time | 19:27 |

### Fact Sheets

* 4.1.5 Windows Defender Firewall and Security Rules

### Number of Exam Questions

10 questions

### Total Time

*About 35 minutes*

# 4.2: Secure Windows Server Storage (On-Premise)

### Lecture Focus Questions:

* What are the requirements for implementing and using BitLocker?
* What is a recovery key?
* What methods can you use to enable BitLocker?

In this section, you will learn to:

* Encrypt and decrypt data
* Use BitLocker
* Unlock protected drives

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Encrypting File System (EFS) | An encrypting method exclusive to the Windows OS. |
| BitLocker | An encrypting method for entire volumes. |
| Trusted Platform Module (TPM) chip | A chip built into the motherboard for generating and storing encryption keys. |
| Data Recovery Agent (DRA) | A special user account for encrypting and decrypting data. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 2.5 Implement storage security* 2.5.1 Encrypt storage with Windows BitLocker
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 1.5 Secure Windows Server storage * 1.5.1 Manage Windows BitLocker Drive Encryption (BitLocker)
* 1.5.2 Manage and recover encrypted volumes
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 4.2.1 BitLocker Drive Encryption and Recovery Keys
 | 7:56 |
| * 4.2.2 Manage Windows BitLocker Drive Encryption
 | 5:21 |
| * 4.2.3 Manage and Recover Encrypted Volumes
 | 4:31 |
| Total Video Time | 17:48 |

### Lab/Activity

* 4.2.5 Manage Windows BitLocker Drive Encryption

### Fact Sheets

* 4.2.4 BitLocker Drive Encryption and Recovery Keys Facts

### Number of Exam Questions

10 questions

### Total Time

*About 45 minutes*

# 4.3: Secure Windows Server Storage (Azure)

### Lecture Focus Questions:

* What is the difference between client-side encryption and server-side encryption?
* What are the different methods of encryption included in server-side encryption?
* How is Azure Key Vault used in storage encryption?

In this section, you will learn to:

* Enable storage encryption by using Azure Disk Encryption
* Manage disk encryption keys for IaaS virtual machines

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Azure Disk Encryption (ADE) | Provides volume encryption for the OS and data disks of Azure virtual machines (VMs). It is integrated with Azure Key Vault to help control and manage the disk encryption keys and secrets. |
| Client-side encryption | Encryption that is done locally and is performed before the data is received by the Resource Provider, Azure service, or application.  |
| Server-side encryption | Azure Resource Providers perform the encryption and decryption functions.  |
| Service-managed keys | A method in which the creation, storage, and service access of the encryption keys are managed by the service. |
| Customer-managed keys | The ability to use your own encryption key to protect data in a storage account. |
| Customer-managed keys in customer-controlled hardware | Utilizes the Host Your Own Key (HYOK) management model, which allows customers to generate, manage, and store their keys outside of Microsoft's control using locally preferred methods. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 2.5 Implement storage security* 2.5.3 Manage disk encryption keys in an IaaS VM environment
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 1.5 Secure Windows Server Storage * 1.5.3 Enable Storage Encryption by using Azure Disk Encryption
* 1.5.4 Manage Disk Encryption Keys for IaaS virtual machine
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 4.3.1 Azure Disk Encryption and Keys
 | 5:06 |
| * 4.3.2 Manage Disk Encryption Keys for IaaS Virtual Machines
 | 3:46 |
| Total Video Time | 8:52 |

### Lab/Activity

* 4.3.4 Creating Azure Key Vaults

### Fact Sheets

* 4.3.3 Azure Disk Encryption and Keys Facts

### Number of Exam Questions

10 questions

### Total Time

*About 36 minutes*

5.0: Clustering and High Availability

# 5.1: Network Load Balancing and High Availability

### Lecture Focus Questions:

* How do NLB clusters work?
* What is the difference between unicast and multicast NLB operating modes?
* What are port rules?
* What is the difference between SMB Direct and Multichannel?

In this section, you will learn to:

* Configure failover clusters
* Implement SMB Direct and Multichannel
* Manage network load balancing

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Network load balancing (NLB) | A technique used to improve network performance and provide fault tolerance. |
| Server Message Block (SMB) | A protocol that enables file sharing. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| Hybrid Server Pro: Advanced | 4.1 Configure failover clusters* 4.1.1 Configure a network load balancing cluster
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 2.1 Implement a Windows Server failover cluster * 2.1.6 Configure network adapters for failover clustering
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 5.1.1 Network Load Balancing Overview
 | 7:30 |
| * 5.1.2 Configure Network Adapters for Failover Clustering
 | 2:26 |
| * 5.1.3 Managing Network Load Balancing
 | 4:17 |
| * 5.1.5 SMB Direct and SMB Multichannel Overview
 | 5:26 |
| * 5.1.6 Enabling SMB Direct on RDMA
 | 1:08 |
| Total Video Time | 20:47 |

### Fact Sheets

* 5.1.4 Network Load Balancing Facts
* 5.1.7 SMB Direct and SMB Multichannel Facts

### Number of Exam Questions

10 questions

### Total Time

*About 41 minutes*

# 5.2: Implement Failover Clustering

### Lecture Focus Questions:

* What are the advantages of failover clustering?
* What are the hardware requirements for implementing a failover cluster?
* How can a witness disk be helpful to a failover cluster?
* When should a cluster validation tool be used?

In this section, you will learn to:

* Create a failover cluster
* Configure cluster storage
* Configure cluster quorum settings
* Add storage to a cluster

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Failover clustering | A server feature that increases network server availability and fault tolerance. |
| Failback | The process of returning client requests to the failed service or server when it comes back online. |
| Quorum | A consensus or majority. If there are enough cluster members still available to reach a consensus, the cluster can keep running. |

This section helps you prepare for the following Certification Exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 4.1 Configure failover clusters* 4.1.1 Configure a network load balancing cluster
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 2.1 Implement a Windows Server failover cluster * 2.1.6. Configure network adapters for failover clustering
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 5.2.1 Failover Clustering Overview
 | 8:52 |
| * 5.2.3 Create an On-Premises Windows Failover Cluster
 | 7:36 |
| * 5.2.4 Create an Azure Failover Cluster
 | 6:29 |
| * 5.2.5 Cluster Storage Options
 | 3:31 |
| * 5.2.6 Configure a Floating IP Address for The Cluster
 | 2:20 |
| Total Video Time | 28:48 |

### Lab/Activity

* 5.2.7 Create a Failover Cluster

### Fact Sheets

* 5.2.2 Failover Cluster Facts

### Number of Exam Questions

10 questions

### Total Time

*About 56 minutes*

# 5.3: Configuring Cluster Quorum

### Lecture Focus Questions:

* What is the main responsibility of a quorum?
* How can a witness be helpful to a quorum?
* What does load balancing do?

In this section, you will learn to:

* Implement load balancing
* Create a cloud witness
* Configure a witness on a cluster

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Witness | A witness is a server, file share, or other entity designated as a tiebreaker in a quorum. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 4.1 Configure failover clusters* 4.1.2 Create a failover cluster

4.2 Manage failover clusters* 4.2.3 Add storage to a cluster
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 2.1 Implement a Windows Server failover cluster * 2.1.1. Implement a failover cluster on-premises, hybrid, or cloud-only
* 2.1.2. Create a Windows failover cluster
* 2.1.4. Configure storage for failover clustering
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 5.3.2 Modify Quorum Options
 | 2:58 |
| * 5.3.3 Create an Azure Witness
 | 3:44 |
| * 5.3.4 Implement Load Balancing for The Failover Cluster
 | 2:01 |
| Total Video Time | 8:43 |

### Lab/Activity

* 5.3.5 Configure Cluster Settings in the Cloud
* 5.3.6 Configure Cluster Quorum Settings

### Fact Sheets

* 5.3.1 Quorum and Witness Facts

### Number of Exam Questions

10 questions

### Total Time

*About 48 minutes*

# 5.4: Cluster Role Management and Workloads

### Lecture Focus Questions:

* How can file sharing be helpful for a failover cluster?
* What are the advantages of using cluster sets?
* How can you use SMB Transparent Failover with clusters?
* What are the requirements to set up a cluster set?

In this section, you will learn to:

* Configure continuous availability with a file share cluster
* Configure failover roles
* Configure cluster sets

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Scale-Out File Server (SoFS) | A high availability technology that maximizes bandwidth. |
| Node Quarantine | A setting that stops a problematic node from rejoining the cluster. |
| Preferred owner | A specific node in the cluster that owns and runs a certain role. |
| Cluster set | Multiple clusters grouped together. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 4.1 Configure failover clusters* 4.1.5 Add a failover cluster role
* 4.1.6 Configure a failover cluster
* 4.1.7 Create a Scale-Out File Server

4.2 Manage failover clusters* 4.2.1 Manage a cluster workload
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 2.1 Implement a Windows Server failover cluster * 2.1.1. Implement a failover cluster on-premises, hybrid, or cloud-only
* 2.1.7. Configure cluster workload options
* 2.1.8. Configure cluster sets
* 2.1.9. Configure Scale-Out File Servers
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 5.4.1 Failover Cluster Role Configuration
 | 7:46 |
| * 5.4.2 Configuring Failover Roles and Settings
 | 1:51 |
| * 5.4.3 Configuring Continuously Available Shares
 | 3:08 |
| * 5.4.6 Configure Scale-Out File Servers
 | 1:56 |
| Total Video Time | 14:41 |

### Lab/Activity

* 5.4.4 Add a Failover Cluster Role
* 5.4.5 Configure Failover and Preference Settings

### Fact Sheets

* 5.4.7 Configure Cluster Workloads Facts

### Number of Exam Questions

10 questions

### Total Time

*About 54 minutes*

# 5.5: Manage Failover Clustering

### Lecture Focus Questions:

* What is a helpful tool for managing servers?
* How do you recover a failed node?
* Why should you test your failover process?

In this section, you will learn to:

* Set up Windows Admin Center to manage clusters
* Recover a failed node
* Test the failover process in a cluster
* Configure CAU and apply updates

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Windows Admin Center | A tool for managing servers. |
| Cluster-Aware Updating (CAU) | An automated feature for updating servers in a failover cluster. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 4.2 Manage failover clusters* 4.2.4 Use Windows Admin Center to manage failover clusters
* 4.2.5 Recover a failed node in the cluster
* 4.2.6 Upgrade the operating system for a node in the cluster
* 4.2.7 Initiate a workload failover
* 4.2.8 Install Windows updates on nodes in a cluster
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 2.2 Manage failover clustering * 2.2.1 Implement Cluster-Aware Updating
* 2.2.2 Recover a failed cluster node
* 2.2.3 Upgrade a node to Windows Server 2022
* 2.2.4 Failover workloads between nodes
* 2.2.5. Install Windows Updates on cluster nodes
* 2.2.6 Manage failover clusters using Windows Admin Center
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 5.5.1 Manage Failover Clustering
 | 7:58 |
| * 5.5.2 Implement Cluster-Aware Updating
 | 3:17 |
| * 5.5.3 Recover a Failed Cluster Node
 | 1:49 |
| * 5.5.4 Upgrade a Node to Windows Server 2022
 | 7:52 |
| * 5.5.5 Failover Workloads Between Nodes
 | 2:14 |
| * 5.5.6 Manage Failover Clusters Using Windows Admin Center
 | 2:36 |
| Total Video Time | 25:46 |

### Fact Sheets

* 5.5.7 Manage Failover Clustering Facts

### Number of Exam Questions

10 questions

### Total Time

*About 41 minutes*

# 5.6: Highly Available Storage Spaces

### Lecture Focus Questions:

* What are the basic components and configuration commands used in implementing Storage Spaces Direct (SSD)?
* What are some SSD resiliency types to consider when creating a storage pool?
* Are there any storage pool limitations?

In this section, you will learn to:

* Create a failover cluster using Storage Spaces Direct
* Upgrade a Storage Spaces Direct node
* Implement networking for Storage Spaces Direct
* Configure Storage Spaces Direct

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Storage Spaces Direct (SSD)  | A software-defined solution that allows a single storage pool to function as shared storage within a Windows cluster.  |
| Storage pools | A collection of space from multiple disk drives or other storage devices.  |
| Storage Spaces | Virtual disks that are created from available disk space in a pool.  |
| Primordial storage | A type of storage pool that contains unallocated disks that are connected to the server but are not assigned to a storage pool.  |
| Enclosure awareness | Provides an added level of fault tolerance in which each copy of data is associated with a particular JBOD (just a bunch of disks) enclosure.  |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 4.2 Manage failover clusters* 4.2.9 Configure and manage Storage Spaces Direct
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 2.3 Implement and manage Storage Spaces Direct * 2.3.1 Create a failover cluster using Storage Spaces Direct
* 2.3.2 Upgrade a Storage Spaces Direct node
* 2.3.3 Implement networking for Storage Spaces Direct
* 2.3.4 Configure Storage Spaces Direct
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 5.6.1 Storage Spaces Direct
 | 8:54 |
| * 5.6.2 Create a Failover Cluster Using Storage Spaces Direct
 | 3:07 |
| Total Video Time | 12:01 |

### Fact Sheets

* 5.6.3 Storage Spaces Direct Facts

### Number of Exam Questions

10 questions

### Total Time

*About 28 minutes*

6.0: Implement Disaster Recovery

# 6.1: Windows Server Backup

### Lecture Focus Questions:

* What are the benefits of the Recovery Services vault?
* What is the difference in an app-consistent and crash-consistent snapshot?
* When would you use the Microsoft Azure Recovery Services (MARS) agent?
* What is Microsoft Azure Backup Server (MABS)?
* How is a Recovery Services vault used to protect an organization's data?

In this section, you will learn to:

* Back up and restore files and folders to the ARS vault
* Create a backup policy
* Set up and use Azure Backup Server
* Use the Azure Recovery Services vault
* Use the Built-In backup agent

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Microsoft Azure Backup Server (MABS) | An Azure backup service that can be used to back up Azure VMs, physical servers, Windows and Linux clients, databases, and other on-premises workloads. |
| Microsoft Azure Recovery Services (MARS) agent | An backup solution used to back up VMs and on-premises machines which can be run using on-premises Windows machines. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 3.1 Backup Windows Servers * 3.1.1 Use Azure Recovery Services vault to backup files and folders
* 3.1.2 Create a new backup policy
* 3.1.3 Use the Built-in backup agent to backup Azure VMs
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 3.1 Manage backup and recovery for Windows Server * 3.1.1 Back up and restore files and folders to Azure Recovery Services vault
* 3.1.2 Install and manage Azure Backup Server
* 3.1.3 Back up and recover using Azure Backup Server
* 3.1.4 Manage backups in Azure Recovery Services vault
* 3.1.5 Create a backup policy
* 3.1.6 Configure backup for Azure Virtual Machines using the built-in backup agent
* 3.1.7. Recover a VM Using Temporary Snapshots

3.3. Protect Virtual Machines by Using Hyper-V Replicas* 3.3.1. Configure Hyper-V Hosts for Replication
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 6.1.1 Azure Recovery Services Vault
 | 4:25 |
| * 6.1.2 Back Up and Restore Files and Folders to ARS Vault
 | 7:26 |
| * 6.1.3 Create a Backup Policy
 | 4:15 |
| * 6.1.6 Azure Backup Server
 | 1:57 |
| * 6.1.7 Setup Azure Backup Server
 | 5:09 |
| * 6.1.8 Use Azure Backup Server
 | 5:15 |
| * 6.1.10 Azure Recovery Services Vault
 | 5:16 |
| * 6.1.13 Use the Built-In Backup Agent
 | 8:02 |
| Total Video Time | 41:45 |

### Lab/Activity

* 6.1.5 Create a Backup Policy
* 6.1.12 Azure Recovery Services Vault
* 6.1.15 Prepare On-Premises Infrastructure for Azure
* 6.1.16 Use the Built-In Backup Agent

### Fact Sheets

* 6.1.4 Azure Recovery Services Vault Facts
* 6.1.9 Azure Backup Server Facts
* 6.1.11 Azure Recovery Services Vault Facts
* 6.1.14 Use the Built-In Backup Agent Facts

### Number of Exam Questions

10 questions

### Total Time

*About 120 minutes*

# 6.2: Windows Server Recovery

### Lecture Focus Questions:

* What are the three main virtual machine recovery options?
* Which VM types can support a Cross Region Restore?

In this section, you will learn to:

* Recover a VM using temporary snapshots
* Recover VMs to new Azure virtual machines
* Restore a VM

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 3.2 Recover Windows servers* 3.2.1 Use the Azure Recovery Services vault to restore files and folders
* 3.2.2 Recover a VM from a snapshot
* 3.2.3 Recover a VM as a new Azure virtual machine
* 3.2.4 Restore a VM from backup
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 3.1 Manage backup and recovery for Windows Server* 3.1.7 Recover a VM using temporary snapshots
* 3.1.8 Recover VMs to new Azure virtual machines
* 3.1.9 Restore a VM
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 6.2.1 Virtual Machine Recovery Options
 | 1:57 |
| * 6.2.2 Recover a VM Using Temporary Snapshots
 | 4:39 |
| * 6.2.3 Recover VMs to New Azure Virtual Machines
 | 3:19 |
| * 6.2.4 Restore a VM
 | 5:24 |
| Total Video Time | 15:19 |

### Lab/Activity

* 6.2.6 Recover VMs To new Azure Virtual Machines

### Fact Sheets

* 6.2.5 Virtual Machine Recovery Options Facts

### Number of Exam Questions

10 questions

### Total Time

*About 43 minutes*

# 6.3: Azure Site Recovery

### Lecture Focus Questions:

* What is the difference between a failover and a failback?
* Why is failover testing an important part of a disaster recovery plan?

In this section, you will learn to:

* Configure a recovery plan

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Azure Site Recovery (ASR) | An Azure service that provides replication-based business continuity disaster recovery. |
| Replication-based business continuity disaster recovery (BCDR) | Disaster recovery that is designed to get a business back up and running quickly using a replicated recovery site. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 3.1 Backup Windows servers* 3.1.4 Modify a backup policy in the Azure Recovery Services vault

3.2 Recover Windows servers* 3.2.5 Create a recovery plan for Azure
* 3.2.6 Configure an on-premises VM for site recovery
* 3.2.7 Configure an Azure VM for site recovery

3.3 Replicate Windows Servers* 3.3.1 Configure VM replication offsite or for an Azure region
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 3.2 Implement disaster recovery by using Azure Site Recovery * 3.2.1 Configure Azure Site Recovery networking
* 3.2.2 Configure Site Recovery for on-premises VMs
* 3.2.3 Configure a recovery plan
* 3.2.4 Configure Site Recovery for Azure virtual machines
* 3.2.5 Implement VM replication to secondary datacenter or Azure region
* 3.2.6 Configure Azure Site Recovery policies
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 6.3.1 Azure Site Recovery
 | 1:45 |
| * 6.3.2 Azure Site Recovery Plan
 | 3:23 |
| * 6.3.3 Configure a Recovery Plan
 | 6:23 |
| * 6.3.4 Site Recovery for On-Premises VMs
 | 3:23 |
| * 6.3.5 Site Recovery for Azure Virtual Machines
 | 4:50 |
| * 6.3.6 VM Replication to Secondary Datacenter or Azure Region
 | 6:46 |
| * 6.3.7 Azure Site Recovery Policies
 | 3:32 |
| Total Video Time | 30:02 |

### Lab/Activity

* 6.3.9 Site Recovery for On-Premises VMs
* 6.3.10 Site Recovery for Azure Virtual Machines
* 6.3.11 VM Replication to Secondary Datacenter or Azure Region
* 6.3.12 Azure Site Recovery Policies

### Fact Sheets

* 6.3.8 Azure Site Recovery Facts

### Number of Exam Questions

10 questions

### Total Time

*About 94 minutes*

# 6.4: Azure Site Recovery Networking

### Lecture Focus Questions:

* Which service tags should be allowed when configuring Azure-to-Azure site replication?
* Which URLs should be allowed when configuring URL-based firewall proxy configurations?
* How do you select targets when configuring a failover?

In this section, you will learn:

* ASR networking for Azure-to-Azure replication
* ASR networking for on-premises-to-Azure replication

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Azure Service Tags | A block of code used to identify a group of Azure IP address prefixes. Service tags are used to build firewall rules for the IP Address group. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 3.2 Recover Windows servers* 3.2.6 Configure on-premises VMs for site recovery
* 3.2.7 Configure Azure VMs for site recovery

3.3 Replicate Windows servers* 3.3.1 Configure VM replication for an offsite or Azure region
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 3.2 Implement disaster recovery by using Azure Site Recovery* 3.2.1 Configure Azure Site Recovery networking
* 3.2.2 Configure Site Recovery for on-premises VMs
* 3.2.3 Configure a Recovery Plan
* 3.2.4 Configure Site Recovery for Azure virtual machines
* 3.2.5 Implement VM replication to secondary datacenter or Azure region
* 3.2.6 Configure Azure Site Recovery policies
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 6.4.1 ASR Networking
 | 2:44 |
| * 6.4.2 ASR Networking
 | 5:38 |
| Total Video Time | 8:22 |

### Fact Sheets

* 6.4.3 ASR Networking Facts

### Number of Exam Questions

10 questions

### Total Time

*About 24 minutes*

# 6.5: Hyper-V Replica

### Lecture Focus Questions:

* What are the prerequisites for deploying Hyper-V Replica?
* What happens in an unplanned failover?
* What is the main difference between a quick migration and a live migration?

In this section, you will learn to:

* Configure Hyper-V hosts for replication
* Manage Hyper-V Replica servers
* Configure VM replication
* Perform a failover

The key term for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Hyper-V Replica | An important part of the Hyper-V role. It contributes to a disaster recovery strategy by replicating virtual machines from one Hyper-V host to another to ensure workload availability.  |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 3.3 Replicate Windows servers* 3.3.1 Configure VM replication for an offsite or Azure region
* 3.3.2 Configure Hyper-V VM replication
* 3.3.3 Manage a Hyper-V Replica server
* 3.3.4 Fail over a VM
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 3.3 Protect virtual machines by using Hyper-V replicas* 3.3.1 Configure Hyper-V hosts for replication
* 3.3.2 Manage Hyper-V Replica servers
* 3.3.3 Configure VM replication
* 3.3.4 Perform a failover
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 6.5.1 Hyper-V Replica
 | 5:52 |
| * 6.5.2 Configure Hyper-V Hosts for Replication
 | 3:42 |
| * 6.5.3 Configure VM Replication
 | 3:08 |
| * 6.5.4 Perform a Failover
 | 5:45 |
| Total Video Time | 18:27 |

### Lab/Activity

* 6.5.6 Configure VM Replication
* 6.5.7 Perform a Failover
* 6.5.8 Perform a Reverse Replication
* 6.5.9 Perform a Test Failover
* 6.5.10 Perform a Planned Failover

### Fact Sheets

* 6.5.5 Hyper-V Replica Facts

### Number of Exam Questions

10 questions

### Total Time

*About 94 minutes*

7.0: Migrate Servers and Workloads

# 7.1: Migrate On-Premises Storage to On-Premises Servers or Azure

### Lecture Focus Questions:

* What role does Storage Migration Service (SMS) play in migrating file shares to Azure?
* What does an orchestrator server do during the migration project?
* Why is understanding dependencies important when migrating file servers?
* Why is it important for the destination server to assume the identity of the source server?
* Which operating systems can be migrated by Storage Migration Service?

In this section, you will learn to:

* Transfer data and file shares
* Cut over to a new server by using Storage Migration Service
* Use Storage Migration Service to migrate to Azure VMs
* Migrate to Azure file shares

Key terms for this section include the following:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Windows Admin Center | A remote management tool used to manage Windows servers on-premises, remotely, or in the Azure cloud. |
| Dependencies | Applications or processes that rely on other coded material to function. In storage migration, this refers to the source computer relying or being relied upon by another computer to function. |
| On-premises | The physical servers, virtual machines, or other items stored in a company's physical location. |
| Discretionary access control lists (DACLs) | The local NTFS permissions assigned to file shares. |
| File shares | Files stored on a server that is accessed by multiple people. |
| Identity assumption | When the destination server takes on the name and IP address of the source server. The old source server must be decommissioned to avoid name and IP conflicts. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced  | 1.2 Migrate on-premises to Azure* 1.2.1 Migrate file shares to Azure
* 1.2.4 Migrate virtual machine storage
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 4.1 Migrate on-premises storage to on-premises servers or Azure * + 4.1.1. Transfer data and share
	+ 4.1.2. Cut over to a new server by using Storage Migration Service
	+ 4.1.3. Use Storage Migration Service to migrate to Azure virtual machines
	+ 4.1.4. Migrate to Azure file shares
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 7.1.1 Storage Migration Service
 | 6:04 |
| * 7.1.2 Transfer Data and Share
 | 5:13 |
| * 7.1.3 Cut Over to a New Server Using Storage Migration Services
 | 6:58 |
| * 7.1.4 Use Storage Migration Service to Migrate to Azure VMs
 | 5:46 |
| * 7.1.6 Azure File Sync
 | 4:12 |
| * 7.1.7 Migrate to Azure File Shares
 | 10:35 |
| Total Video Time | 38:48 |

### Lab/Activity

* 7.1.9 Create Azure File Sync Service
* 7.1.10 Create Sync Groups
* 7.1.11 Create Server Endpoints

### Fact Sheets

* 7.1.5 Storage Migration Service Facts
* 7.1.8 Migrate to Azure File Shares Facts

### Number of Exam Questions

10 questions

### Total Time

*About 95 minutes*

# 7.2: Migrate On-Premises Servers to Azure

### Lecture Focus Questions:

* What role does the Azure Migration appliance play in server migration?
* What information does the Assessment Analysis provide?
* What is done during server pre-migration?
* In what server instances will Azure Server Migration Tool work?

In this section, you will learn to:

* Deploy and configure Azure Migrate appliance
* Migrate VM workloads to Azure IaaS
* Migrate physical workloads to Azure IaaS
* Migrate by using Azure Migrate

Key terms for this section include the following:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Azure Migrate: Discovery and Assessment Tool | Performs preliminary checks on source servers before migration. |
| Azure Migrate: Server Migration Tool | Performs the migration of the on-premises server to Azure. |
| Hosted VMs | Azure Migrate: Server Migration Tool will work on VMs hosted on ESXi, Hyper-V and other cloud platforms. |
| Azure Migrate appliance  | Performs discovery and assessment of physical or virtual machines.  |
| Azure Infrastructure as a Service (IaaS) | Provides resources traditionally found in on-premise networks e.g. servers, data stores and switches. Considered to be the basic layer of Azure Cloud. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 1.2 Migrate on-premises to Azure* 1.2.1 Migrate file shares to Azure
* 1.2.2 Migrate Hyper-V hosts to Azure
* 1.2.3 Migrate virtual machines
* 1.2.4 Migrate virtual machine storage
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 4.2. Migrate On-Premises Servers to Azure* 4.2.1. Deploy and Configure Azure Migrate appliance
* 4.2.2. Migrate VM Workloads to Azure IaaS
* 4.2.3. Migrate Physical Workloads to Azure IaaS
* 4.2.4. Migrate By Using Azure Migrate
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 7.2.1 Migrate On-Premises Servers to Azure
 | 4:30 |
| * 7.2.2 Deploy and Configure Azure Migrate Appliance
 | 5:12 |
| * 7.2.3 Migrate VM Workloads to Azure IaaS
 | 5:01 |
| * 7.2.4 Migrate Physical Workloads to Azure IaaS
 | 7:08 |
| * 7.2.5 Migrate by Using Azure Migrate
 | 5:28 |
| Total Video Time | 27:19 |

### Lab/Activity

* 7.2.7 Create an Azure Migrate Project
* 7.2.8 Migrate by Using Azure Migrate
* 7.2.9 Migrate a Server through Azure Migrate

### Fact Sheets

* 7.2.6 Migrate On-Premises Servers to Azure Facts

### Number of Exam Questions

10 questions

### Total Time

*About 79 minutes*

# 7.3: Migrate Previous Versions to Windows Server

### Lecture Focus Questions:

* How do pre-migration preparations differ between the source server and the destination server?
* What role do Windows Server Migration Tools play in the migration of server roles?
* Why would a systems admin want to migrate server roles on-premises?

In this section, you will learn to:

* Migrate Hyper-V hosts
* Migrate Hyper-V host storage

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Windows Server Migration Tools(MSMT) | A set of tools to facilitate the on-premises migration of different server roles. |
| Dynamic Host Configuration Protocol(DHCP) | The protocol that assigns IP addresses, subnet mask, default gateway, and DNS servers to computers that are not statically assigned. |
| Active Directory(AD) | The role in a Windows network that stores objects, organizational units, and security groups and defines access privileges. |
| On-premises | Servers and virtual host servers that are located in the same place as the company. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 1.2 Migrate on-premises to Azure* 1.2.1 Migrate file shares to Azure
* 1.2.2 Migrate Hyper-V hosts to Azure
* 1.2.3 Migrate virtual machines
* 1.2.4 Migrate virtual machine storage
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 4.3 Migrate workloads from previous versions to Windows Server 2022 * 4.3.1 Migrate Internet Information Services (IIS)
* 4.3.2 Migrate Hyper-V hosts
* 4.3.3 Migrate Remote Desktop Services (RDS) host servers
* 4.3.4 Migrate Dynamic Host Configuration Protocol (DHCP)
* 4.3.5 Migrate print servers
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 7.3.1 Windows Server Migration
 | 5:15 |
| * 7.3.2 Migrate Internet Information Services
 | 5:11 |
| * 7.3.3 Migrate Hyper-V Hosts
 | 4:00 |
| * 7.3.4 Migrate DHCP
 | 6:06 |
| * 7.3.5 Migrate Print Servers
 | 3:12 |
| Total Video Time | 23:44 |

### Lab/Activity

* 7.3.7 Migrate Hyper-V Hosts
* 7.3.8 Migrate Hyper-V Host Storage

### Fact Sheets

* 7.3.6 Windows Server Migration Facts

### Number of Exam Questions

10 questions

### Total Time

*About 63 minutes*

# 7.4: Migrate IIS Workloads to Azure

### Lecture Focus Questions:

* Why would a systems admin want to use containers?
* What kind of container does Windows Container Service utilize?
* What are the benefits of using Azure Kubernetes Service?

In this section, you will learn to:

* Migrate IIS workloads to Azure Web Apps
* Migrate IIS Workloads to containers

Key terms for this section include the following:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Container | Software that hosts an application and any dependencies it may need. Applications run quickly in containers. |
| Internet Information Services(IIS) | A flexible web server made by Microsoft for use on Windows Servers able to host anything on the web. |
| Azure Web Apps | A cloud computing platform for hosting websites. This is a Platform as a Service (PaaS). |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 4.4 Migrate IIS Workloads to Azure * 4.4.1 Migrate IIS Workloads to Azure Web Apps
* 4.4.2 Migrate IIS Workloads to containers
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 7.4.1 Migrate IIS Workloads to Azure
 | 4:50 |
| * 7.4.2 Migrate IIS Workloads to Azure Web Apps
 | 2:58 |
| * 7.4.4 Migrate Workloads to Containers
 | 3:30 |
| Total Video Time | 11:18 |

### Fact Sheets

* 7.4.3 Migrate IIS Workloads to Azure Web Apps Facts
* 7.4.5 Migrate Workloads to Containers Facts

### Number of Exam Questions

10 questions

### Total Time

*About 32 minutes*

# 7.5: Migrate an AD DS Infrastructure to Windows Server 2022 AD DS

### Lecture Focus Questions:

* What kind of application is Active Directory Migration Tool (ADMT)?
* How do you access ADMT?
* What objects would you expect to migrate using ADMT?
* What are some of the circumstances that call for migrating AD DS to a new AD forest?

In this section, you will learn to:

* Use the Active Directory Migration Tool
* Migrate to a new Active Directory forest
* Upgrade an existing forest

Key terms for this section include the following:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Active Directory Migration Tool | A desktop application used in migrating Active Directory Directory Services (AD DS). |
| Objects | Items stored inside of Active Directory including, users, computers, groups, and security groups. |
| Microsoft Management Console(MMC) | A management console used to perform many tasks in Windows operating systems. |
| Active Directory (AD) forest | The top level of AD for domain(s) tree(s). A forest can contain many domains; each domain tree contains organizational units, users, computers, and groups. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 4.5 Migrate an AD DS infrastructure to Windows Server 2022 AD DS * 4.5.1 Migrate AD DS objects, including users, groups, and Group Policies, using Active Directory Migration Tool
* 4.5.2 Migrate to a new Active Directory forest
* 4.5.3 Upgrade an existing forest
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 7.5.1 Migrate an AD DS Infrastructure
 | 9:28 |
| * 7.5.2 Use Active Directory Migration Tool
 | 1:50 |
| * 7.5.3 Migrate to a New Active Directory Forest
 | 8:29 |
| * 7.5.4 Upgrade an Existing Forest
 | 7:43 |
| Total Video Time | 27:30 |

### Fact Sheets

* 7.5.5 Migrate an AD DS Infrastructure Facts

### Number of Exam Questions

10 questions

### Total Time

*About 43 minutes*

8.0: Monitor and Troubleshoot Windows Server Environments

# 8.1: Windows System Events

### Lecture Focus Questions:

* How is Event Viewer helpful?
* What types of events can you find in a Windows event log?
* When would you need event subscriptions?

In this section, you will learn to:

* Manage event logs
* Create and configure data collector sets
* Set up event forwarding

The key term for this section includes:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Collector | A host that receives all log events. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 1.1 Perform administrative tasks * 1.1.1 Manage event logs
* 1.1.3 Collect data with Log Analytics Agents
* 1.1.4 Collect performance counters in Azure
* 1.1.6 Collect monitoring data from VMs using Azure Diagnostics Extension
* 1.1.7 Collect performance data from VMs using VM Insights

2.3 Secure Active Directory Groups* 2.3.1 Audit group policies
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 5.1 Monitor Windows Server by using Windows Server tools and Azure services * 5.1.1 Monitor Windows Server by using Performance Monitor
* 5.1.2 Create and configure Data Collector Sets
* 5.1.5 Manage event logs
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 8.1.1 Event Viewer
 | 5:22 |
| * 8.1.2 Manage Event Logs
 | 7:38 |
| * 8.1.5 Data Collector Sets
 | 5:48 |
| * 8.1.6 Create and Configure Data Collector Sets
 | 2:48 |
| Total Video Time | 21:36 |

### Lab/Activity

* 8.1.4 Manage Event Logs
* 8.1.8 Clear Audit Policies

### Fact Sheets

* 8.1.3 Manage Event Logs Facts
* 8.1.7 Data Collector Sets Facts

### Number of Exam Questions

10 questions

### Total Time

*About 66 minutes*

# 8.2: Windows Configuration Tools

### Lecture Focus Questions:

* What tools can you use to diagnose computer issues?
* What can you do using the System Configuration app?
* How can you view and manage services?
* How is the Task Scheduler app helpful?

In this section, you will learn to:

* Use troubleshooting tools
* Create and use management consoles
* Manage services
* Use Task Scheduler

The key term for this section includes:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| System Configuration (msconfig.exe) | System Configuration is an app that troubleshoots technical issues and optimizes the startup process. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 1.1 Perform administrative tasks * 1.1.2 Manage services
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 8.2.1 Viewing System Information
 | 4:32 |
| * 8.2.2 Using the System Configuration Utility
 | 5:05 |
| * 8.2.3 Configure and Manage Services
 | 5:38 |
| * 8.2.5 Use Management Consoles
 | 5:33 |
| Total Video Time | 20:48 |

### Lab/Activity

* 8.2.4 Manage Services

### Fact Sheets

* 8.2.6 System Configuration Tool Facts

### Number of Exam Questions

10 questions

### Total Time

*About 48 minutes*

# 8.3: Windows Performance Management

### Lecture Focus Questions:

* What tools can you use to monitor your Windows system's health?
* What are some functions of the Windows Performance Monitor?
* What is a counter?

In this section, you will learn to:

* Monitor system performance
* Monitor and troubleshoot Windows Server
* Manage processes

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Resource Monitor | Resource Monitor is a utility used to monitor Windows systems. |
| Process Explorer | Process Explorer is a utility used to manage processes. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 1.1 Perform Administrative Tasks * 1.1.1 Manage event logs
* 1.1.4 Collect performance counters in Azure
* 1.1.7 Collect performance data from VMs using VM Insights
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 5.1 Monitor Windows Server by using Windows Server tools and Azure services * 5.1.1 Monitor Windows Server by using Performance Monitor
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 8.3.1 Performance Monitoring
 | 9:52 |
| * 8.3.2 Use Performance Monitor
 | 5:47 |
| * 8.3.4 Resource Monitor and Process Explorer
 | 4:13 |
| * 8.3.5 Use Task Manager
 | 6:12 |
| * 8.3.7 Reliability Monitor and Action Center
 | 5:54 |
| * 8.3.8 Use Reliability Monitor
 | 2:56 |
| Total Video Time | 34:54 |

### Fact Sheets

* 8.3.3 Performance Monitor Facts
* 8.3.6 Resource Monitoring Tools Facts
* 8.3.9 Reliability Monitor and Action Center Facts

### Number of Exam Questions

10 questions

### Total Time

*About 60 minutes*

# 8.4: Windows Admin Center and System Insights

### Lecture Focus Questions:

* What are some features and advantages of WAC?
* How does System Insights work?
* What are some important guidelines for creating a DCR?

In this section, you will learn to:

* Monitor network resources
* Use WAC
* Use System Insights
* Create Azure Monitor Alerts

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Windows Admin Center (WAC) | WAC is a tool that collects and analyzes data. |
| Data Collection Rules (DCRs) | DCR is an Azure Monitor feature for data collection. |
| Action Group | Action Group is a collection of notification preferences. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 1.1 Perform Administrative Tasks* 1.1.1 Manage event logs
* 1.1.7 Collect performance data from VMs using VM Insights

4.2 Manage failover clusters* 4.2.4 Use Windows Admin Center to manage failover clusters
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 5.1 Monitor Windows Server by using Windows Server tools and Azure services * 5.1.1 Monitor Windows Server by using Performance Monitor
* 5.1.2 Create and configure Data Collector Sets
* 5.1.3 Monitor Servers and Configure alerts by using Windows Admin Center
* 5.1.4 Monitor by using System Insights
* 5.1.5 Manage event logs
* 5.1.6 Deploy Log Analytics Agents
* 5.1.7 Collect Performance Counters to Azure
* 5.1.8 Create alerts
* 5.1.9 Monitor Azure Virtual Machines by using Azure Diagnostics Extension
* 5.1.10 Monitor Azure Virtual Machines Performance by using VM Insights
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 8.4.1 Windows Admin Center and System Insights
 | 3:56 |
| * 8.4.2 Alerts with Windows Admin Center
 | 2:33 |
| * 8.4.3 Monitor by Using System Insights
 | 2:52 |
| Total Video Time | 9:21 |

### Fact Sheets

* 8.4.4 Windows Admin Center and System Insights Facts

### Number of Exam Questions

10 questions

### Total Time

*About 25 minutes*

# 8.5: Monitor Windows Server by Using Azure Services

### Lecture Focus Questions:

* What is the purpose of the Azure Monitor agent?
* What is an alert in Azure Monitor?
* How do I monitor Azure virtual machines with the Diagnostics extension?

In this section, you will learn to:

* Deploy the Log Analytics agent
* Collect performance counters in Azure
* Create alerts
* Monitor Azure virtual machines by using the Azure Diagnostics extension
* Monitor Azure virtual machine performance by using VM Insights

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Azure Monitor | A comprehensive monitoring solution for collecting, analyzing, and responding to data from cloud and on-premises environments.  |
| Azure Monitor agent | An agent that collects monitoring data from Azure's guest operating system and hybrid virtual machines. This agent delivers the data to Azure Monitor for use in various Azure services. |
| Log Analytics agent | A log agent that can be deployed on Azure IaaS VMs or Windows Server instances in hybrid environments. |
| Azure Diagnostics extension | An agent in Azure Monitor that collects monitoring data from Azure's guest operating system resources, including virtual machines. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 1.1 Perform administrative tasks* 1.1.6 Collect monitoring data from VMs using the Azure Diagnostics extension
* 1.1.7 Collect performance data from VMs using VM Insights
 |
| Microsoft AZ-800: Administering Windows Server Hybrid Core Infrastructure | 5.1 Monitor Windows Server by using Windows Server tools and Azure services * 5.1.6 Deploy Log Analytics agents
* 5.1.7 Collect performance counters to Azure
* 5.1.8 Create alerts
* 5.1.9 Monitor Azure virtual machines by using Azure Diagnostics extension
* 5.1.10 Monitor Azure virtual machine performance by using VM Insights
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 8.5.1 Azure Monitoring Services
 | 4:34 |
| * 8.5.2 Deploy Azure Monitor Agents
 | 4:22 |
| * 8.5.3 Collect Performance Counters to Azure
 | 2:36 |
| * 8.5.4 Create Alerts
 | 4:37 |
| * 8.5.5 Use Azure Diagnostics Extension
 | 2:06 |
| * 8.5.6 Use VM Insights
 | 1:56 |
| Total Video Time | 20:11 |

### Fact Sheets

* 8.5.7 Azure Monitoring Services Facts

### Number of Exam Questions

0 questions

### Total Time

*About 26 minutes*

# 8.6: Troubleshoot Windows Server On-Premises and Hybrid Networking

### Lecture Focus Questions:

* How is Azure Network Watcher used to monitor resources in an Azure virtual network?
* What are some command line tools you can use to diagnose common network connectivity issues?
* What are some of the ways to troubleshoot DNS and DHCP issues?

In this section, you will learn to:

* Implement an on-premises, hybrid, or cloud-only failover cluster
* Create a Windows failover cluster
* Configure storage for failover clustering
* Configure a floating IP address for a cluster

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| **ping** command | A cross-platform command line utility for testing IP packet transmission. |
| **traceroute/tracert** command | Diagnostic utilities that trace the route taken by a packet as it "hops" to the destination host on a remote network. (**tracert** is the Windows implementation, while **traceroute** is for Linux.) |
| Address Resolution Protocol (ARP) | A protocol used to display and modify the contents of a host's cache of IP-to-MAC address mappings. These are resolved by ARP replies. |
| **nslookup** command | A cross-platform command line utility for querying DNS resource records. |
| **ipconfig** command | A command line utility used to gather information about a Windows host's IP configuration. |
| **ifconfig** command | A deprecated Linux command line utility used to gather information about a network adapter's IP configuration (or to configure the network adapter itself). |
| **route** command | A cross-platform command line utility used to display and manage the routing table on a Windows or Linux host. |
| **netstat** command | A cross-platform command line utility used to show network information on a machine running TCP/IP (notably active connections and the routing table). |
| hostname | A human-readable name that identifies a network host. |
| Telnet | An application protocol that supports unsecure terminal emulation for remote host management.  |
| Secure Shell (SSH) | An application protocol that supports secure tunneling and remote terminal emulation and file copying.  |
| DNSPerf | An industry standard tool that measures the performance of a DNS server by sending a measured number of queries.  |
| Event Viewer | A Windows console related to viewing and exporting events in the Windows logging file format. |
| DNS recursion | When one DNS server communicates with several other DNS servers to track down an IP address and return it to the client.  |
| Azure Network Watcher | A utility that provides different tools for monitoring resources in an Azure virtual network. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Core | 5.1 Troubleshoot Windows * 5.1.1 Troubleshoot connectivity in a hybrid environment
* 4.1.4 Set up a floating IP address for a cluster

14.2 Manage failover clusters * 4.2.3 Add storage to a cluster

5.2 Troubleshoot virtual machines * 5.2.2 Troubleshoot connectivity with VMs
 |
| Microsoft AZ-800: Administering Windows Server Hybrid Core Infrastructure | 1.3 Identify and remediate Windows Server security issues by using Azure services * 1.3.2 Identify and remediate security issues with on-premises servers and Azure IaaS VMs by using Microsoft Defender for Cloud

4.3 Migrate workloads from previous versions to Windows Server 2022 * 4.3.4 Migrate Dynamic Host Configuration Protocol (DHCP)

5.2 Troubleshoot Windows Server on-premises and hybrid networking * 5.2.1 Troubleshoot hybrid network connectivity
* 5.2.2 Troubleshoot on-premises connectivity
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 8.6.1 Troubleshooting On-Premises Connectivity
 | 5:51 |
| * 8.6.2 Troubleshoot On-Premises Connectivity
 | 7:46 |
| * 8.6.5 Troubleshoot DHCP and DNS
 | 10:15 |
| * 8.6.8 Troubleshooting Hybrid Networking
 | 6:33 |
| * 8.6.9 Troubleshoot Hybrid Network Connectivity
 | 4:06 |
| Total Video Time | 34:31 |

### Lab/Activity

* 8.6.4 Troubleshoot On-Premises Connectivity
* 8.6.6 Troubleshoot On-Premises DHCP and DNS

### Fact Sheets

* 8.6.3 Troubleshoot On-Premises Connectivity Facts
* 8.6.7 Troubleshoot DHCP and DNS Facts
* 8.6.10 Troubleshoot Hybrid Network Connectivity Facts

### Number of Exam Questions

0 questions

### Total Time

*About 74 minutes*

# 8.7: Troubleshoot Windows Server Virtual Machines in Azure

### Lecture Focus Questions:

* Which Azure tools can you use to troubleshoot VM performance issues?
* How do you troubleshoot VM extension issues?
* What are some roles that storage disks can be assigned in an Azure cluster?
* How do you troubleshoot VM connection issues?

In this section, you will learn to:

* Troubleshoot VM performance issues
* Troubleshoot VM connection issues
* Troubleshoot extension issues

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Azure Disk Encryption (ADE) | An Azure encryption method that provides extra VM data protection. |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Advanced | 5.1 Troubleshoot Windows * 5.1.1 Troubleshoot connectivity in a Hybrid environment
* 5.1.2 Troubleshoot and resolve a boot failure

5.2 Troubleshoot virtual machines* 5.2.1 Troubleshoot VM performance
* 5.2.2 Troubleshoot connectivity with VMs
 |
| Microsoft AZ-801: Configuring Windows Server Hybrid Advanced Services | 5.3 Troubleshoot Windows Server virtual machines in Azure * 5.3.1 Troubleshoot deployment failures
* 5.3.2 Troubleshoot booting failures
* 5.3.3 Troubleshoot VM performance issues
* 5.3.4 Troubleshoot VM extension issues
* 5.3.5 Troubleshoot disk encryption issues
* 5.3.6 Troubleshoot storage
* 5.3.7 Troubleshoot VM connection issues
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 8.7.1 Troubleshoot Windows Server VMs in Azure
 | 7:25 |
| * 8.7.2 Troubleshoot Deployment Failures
 | 2:21 |
| * 8.7.3 Troubleshoot Booting Failures
 | 1:47 |
| * 8.7.4 Troubleshoot VM Performance Issues
 | 2:16 |
| * 8.7.5 Troubleshoot VM Extension Issues
 | 1:52 |
| * 8.7.6 Troubleshoot Disk Encryption Issues
 | 1:36 |
| * 8.7.7 Troubleshoot VM Connection Issues
 | 3:43 |
| Total Video Time | 21:00 |

### Lab/Activity

* 8.7.9 Troubleshoot Booting Failures

### Fact Sheets

* 8.7.8 Troubleshoot Windows Server VMs in Azure Facts

### Number of Exam Questions

10 questions

### Total Time

*About 48 minutes*

# 8.8: Troubleshoot Active Directory

### Lecture Focus Questions:

* What steps should you take to restore a removed object?
* What role do partitions play when it comes to AD replication?
* What are some of the different ways you can integrate the local AD into Azure?

In this section, you will learn to:

* Restore objects from the AD Recycle Bin
* Recover an Active Directory database using Directory Services Restore Mode
* Recover SYSVOL
* Troubleshoot Active Directory replication
* Troubleshoot hybrid authentication issues
* Troubleshoot on-premises Active Directory issues

The key terms for this section include:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Configuration | A partition that contains the AD Domain Services structure information for the entire forest, as well as information about the DHCP server authorization and AD Certificate Services and templates. |
| Schema | A partition that contains the definitions for all objects and attributes along with the rules for creating and manipulating them. |
| Application | A partition that stores the information for any application content within AD. |
| Domain | A partition that contains the information for all domain objects, including users, groups, OUs, and more.  |
| Multimaster replication | When any writable domain controller can make changes in AD and then replicate those changes to the other domain controllers. |
| Pull replication | A controller that makes a change and alerts other controllers. The pull replication is used to update their own databases. |
| Knowledge Consistency Checker (KCC) | What manages the replication paths between all domain controllers located at a specific site.  |
| Azure AD Connect | A tool that enables replication of data between the local AD and Azure AD and provides a wizard to help with setup and configuration.  |
| Azure AD Connect Health | A tool that monitors activity in Azure AD Connect and provides alerts if there are any synchronization issues.  |
| DCDiag | A command line utility that checks the health of the domain controllers. |
| **ntdsutil.exe**  | A cmdlet in Powershell that is used to defragment the database and perform a file integrity and semantic integrity check.  |

This section helps you prepare for the following certification exam objectives:

|  |  |
| --- | --- |
| **Exam** | **Objective** |
| TestOut Hybrid Server Pro: Core | 3.2 Recover Windows servers * 3.2.8 Restore objects from the Active Directory Recycle Bin

5.1 Troubleshoot Windows * 5.1.1 Troubleshoot connectivity in a hybrid environment
 |
| Microsoft AZ-800: Administering Windows Server Hybrid Core Infrastructure | 5.4 Troubleshoot Active Directory * 5.4.1 Restore objects from AD Recycle Bin
* 5.4.2 Recover Active Directory database using Directory Services Restore Mode
* 5.4.3 Recover SYSVOL
* 5.4.4 Troubleshoot Active Directory replication
* 5.4.5 Troubleshoot hybrid authentication issues
* 5.4.6 Troubleshoot on-premises Active Directory
 |

|  |  |
| --- | --- |
| Video/Demo | Time |
| * 8.8.1 Troubleshoot Active Directory
 | 9:18 |
| * 8.8.2 Restore Objects from AD Recycle Bin
 | 3:50 |
| * 8.8.3 Use Directory Services Restore Mode
 | 5:59 |
| * 8.8.4 Recover SYSVOL
 | 6:06 |
| * 8.8.5 Troubleshoot Active Directory Replication
 | 3:55 |
| * 8.8.6 Troubleshoot Hybrid Authentication Issues
 | 2:27 |
| * 8.8.7 Troubleshoot On-Premises Active Directory
 | 4:31 |
| Total Video Time | 36:06 |

### Fact Sheets

* 8.8.8 Troubleshoot Active Directory Facts

### Number of Exam Questions

10 questions

### Total Time

*About 52 minutes*

# Practice Exams

### A.0: TestOut Hybrid Server Pro: Advanced - Practice Exams

TestOut Hybrid Server Pro: Advanced Certification Practice Exam (14 questions)

### B.0: Microsoft Configuring Windows Server Hybrid Advanced Services AZ-801 - Practice Exams

Microsoft Configuring Windows Server Hybrid Advanced Services AZ-801 Certification Practice Exam (60 questions)

# Appendix A: Approximate Time for the Course

The total time for the LabSim for TestOut Hybrid Server Pro: Advanced course is approximately **36 hours**. Time is calculated by adding the approximate time for each section which is calculated using the following elements:

* Video/demo times
* Text Lessons (5 minutes assigned per text lesson)
* Simulations (12 minutes assigned per simulation)
* Questions (1 minute per question)

Additionally, there are approximately another **8 hours and 57 minutes** of Practice Test material at the end of the course.

The breakdown for this course is as follows:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Module** | **Sections** | **Time** | **Videos** | **Labs** | **Text** | **Exams** |
|  |  |  |  |  |  |  |
| **1.0: Course Introduction** |
|  1.1: Course Introduction | 9 | 4 | 0 | 5 | 0 |
|  1.2: Windows and Azure Simulator Interface | 79 | 18 | 36 | 15 | 10 |
| **Total** | **1:28** | **0:22** | **0:36** | **0:20** | **0:10** |
| **2.0: Secure Windows Servers** |
|  2.1: Malware Protection | 73 | 31 | 12 | 20 | 10 |
|  2.2: Windows Defender Exploit Guard | 29 | 2 | 12 | 5 | 10 |
|  2.3: Windows Defender Application Control | 36 | 9 | 12 | 5 | 10 |
|  2.4: Windows Defender Credential Guard | 34 | 7 | 12 | 5 | 10 |
|  2.5: Defender SmartScreen | 31 | 4 | 12 | 5 | 10 |
| **Total** | **3:23** | **0:53** | **1:00** | **0:40** | **0:50** |
| **3.0: Secure Windows Server with Active Directory and Group Policy** |
|  3.1: Secure Windows Servers with Group Policies | 23 | 8 | 0 | 5 | 10 |
|  3.2: Password Policies | 71 | 16 | 36 | 10 | 9 |
|  3.3: User Rights Assignment and Protected Users | 63 | 19 | 24 | 10 | 10 |
|  3.4: Audit Policies | 43 | 17 | 12 | 5 | 9 |
|  3.5: Security Options | 64 | 20 | 24 | 10 | 10 |
|  3.6: Secure a Hybrid Active Directory Infrastructure | 51 | 19 | 12 | 10 | 10 |
|  3.7: Secure Hybrid Active Directory Accounts | 63 | 19 | 24 | 10 | 10 |
|  3.8: Resolve Security Issues by Using Azure Services | 40 | 20 | 0 | 10 | 10 |
| **Total** | **6:58** | **2:18** | **2:12** | **1:10** | **1:18** |
| **4.0: Secure Windows Server Networking and Storage** |
|  4.1: Secure Windows Server Networking | 35 | 20 | 0 | 5 | 10 |
|  4.2: Secure Windows Server Storage (On-Premise) | 45 | 18 | 12 | 5 | 10 |
|  4.3: Secure Windows Server Storage (Azure) | 36 | 9 | 12 | 5 | 10 |
| **Total** | **1:56** | **0:47** | **0:24** | **0:15** | **0:30** |
| **5.0: Clustering and High Availability** |
|  5.1: Network Load Balancing and High Availability | 41 | 21 | 0 | 10 | 10 |
|  5.2: Implement Failover Clustering | 56 | 29 | 12 | 5 | 10 |
|  5.3: Configuring Cluster Quorum | 48 | 9 | 24 | 5 | 10 |
|  5.4: Cluster Role Management and Workloads | 54 | 15 | 24 | 5 | 10 |
|  5.5: Manage Failover Clustering | 41 | 26 | 0 | 5 | 10 |
|  5.6: Highly Available Storage Spaces | 28 | 13 | 0 | 5 | 10 |
| **Total** | **4:28** | **1:53** | **1:00** | **0:35** | **1:00** |
| **6.0: Implement Disaster Recovery** |
|  6.1: Windows Server Backup | 120 | 42 | 48 | 20 | 10 |
|  6.2: Windows Server Recovery | 43 | 16 | 12 | 5 | 10 |
|  6.3: Azure Site Recovery | 94 | 31 | 48 | 5 | 10 |
|  6.4: Azure Site Recovery Networking | 24 | 9 | 0 | 5 | 10 |
|  6.5: Hyper-V Replica | 94 | 19 | 60 | 5 | 10 |
| **Total** | **6:15** | **1:57** | **2:48** | **0:40** | **0:50** |
| **7.0: Migrate Servers and Workloads** |
|  7.1: Migrate On-Premises Storage to On-Premises Servers or Azure | 95 | 39 | 36 | 10 | 10 |
|  7.2: Migrate On-Premises Servers to Azure | 79 | 28 | 36 | 5 | 10 |
|  7.3: Migrate Previous Versions to Windows Server | 63 | 24 | 24 | 5 | 10 |
|  7.4: Migrate IIS Workloads to Azure | 32 | 12 | 0 | 10 | 10 |
|  7.5: Migrate an AD DS Infrastructure to Windows Server 2022 AD DS | 43 | 28 | 0 | 5 | 10 |
| **Total** | **5:12** | **2:11** | **1:36** | **0:35** | **0:50** |
| **8.0: Monitor and Troubleshoot Windows Server Environments** |
|  8.1: Windows System Events | 66 | 22 | 24 | 10 | 10 |
|  8.2: Windows Configuration Tools | 48 | 21 | 12 | 5 | 10 |
|  8.3: Windows Performance Management | 60 | 35 | 0 | 15 | 10 |
|  8.4: Windows Admin Center and System Insights | 25 | 10 | 0 | 5 | 10 |
|  8.5: Monitor Windows Server by Using Azure Services | 26 | 21 | 0 | 5 | 0 |
|  8.6: Troubleshoot Windows Server On-Premises and Hybrid Networking | 74 | 35 | 24 | 15 | 0 |
|  8.7: Troubleshoot Windows Server Virtual Machines in Azure | 48 | 21 | 12 | 5 | 10 |
|  8.8: Troubleshoot Active Directory | 52 | 37 | 0 | 5 | 10 |
| **Total** | **6:39** | **3:22** | **1:12** | **1:05** | **1:00** |
| **Total Course Time 36:00** |
| **Practice Exams** |
| **A.0: TestOut Hybrid Server Pro: Advanced - Practice Exams** | **Number of Questions** | **Time (hr:min)** |
| A.2 TestOut Hybrid Server Pro: Advanced Domain Review |  |  |
| A.2.1 Pro Domain 1: Hybrid Infrastructure Administration | 10 | 0:12 |
| A.2.2 Pro Domain 2: Secure and Update Windows | 19 | 0:12 |
| A.2.3 Pro Domain 3: Backup and Disaster Recovery | 14 | 0:12 |
| A.2.4 Pro Domain 4: High Availability and Failover Cluster Management | 5 | 0:12 |
| A.2.5 Pro Domain 5: Troubleshoot Windows Servers | 3 | 0:12 |
| A.3: TestOut Hybrid Server Pro: Advanced Certification Practice Exam | 14 | 2:00 |
| **Total** | **65** | **3:00** |
| **B.0: Microsoft Configuring Windows Server Hybrid Advanced Services AZ-801 - Practice Exams** | **Number of Questions** | **Time (hr:min)** |
| B.2 Microsoft Configuring Windows Server Hybrid Advanced Services AZ-801 Domain Review |  |  |
| B.2.1 AZ-801 Domain 1: Secure Windows Server on-premises and hybrid infrastructures | 20 | 0:12 |
| B.2.2 AZ-801 Domain 2: Implement and manage Windows Server high availability | 20 | 0:12 |
| B.2.3 AZ-801 Domain 3: Implement disaster recovery | 20 | 0:12 |
| B.2.4 AZ-801 Domain 4: Migrate servers and workloads | 20 | 0:12 |
| B.2.5 AZ-801 Domain 5: Monitor and troubleshoot Windows Server environments | 20 | 0:12 |
| **Total** | **100** | **1:00** |
| B.3 Microsoft Configuring Windows Server Hybrid Advanced Services AZ-801 Domain Review (All Questions) |  |  |
| B.3.1 AZ-801 Domain 1: Secure Windows Server on-premises and hybrid infrastructures | 166 | 1:56 |
| B.3.2 AZ-801 Domain 2: Implement and manage Windows Server high availability | 60 | 1:00 |
| B.3.3 AZ-801 Domain 3: Implement disaster recovery | 50 | 0:50 |
| B.3.4 AZ-801 Domain 4: Migrate servers and workloads | 50 | 0:50 |
| B.3.5 AZ-801 Domain 5: Monitor and troubleshoot Windows Server environments | 99 | 1:39 |
| **Total** | **424** | **6:17** |
| B.4: Microsoft Configuring Windows Server Hybrid Advanced Services AZ-801 Certification Practice Exam |  |  |
| **Total** | 60 | 1:40 |
| **Total Practice Exam Time 8:57** |
|  |  |  |
|  |