

# MOC On-Demand: Installation, Storage, and Compute with Windows Server 2016 (20740) H6LA6S

<b>HPE course number</b>	H6LA6S
<b>Course length</b>	11 Hours
<b>Delivery mode</b>	On-Demand
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This course is designed primarily for IT professionals who have some experience with Windows Server. It covers content for professionals who will be responsible for managing storage and compute by using Windows Server 2016, and need to understand the scenarios, requirements, and usage of storage and compute options that are available and applicable to Windows Server 2016.

## Why HPE Education Services?

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## Order details

- MS Order-ID: Q4P-00406
- MOD Duration: 180 days
- Digital MOC included

## Audience

This course is intended for IT professionals who have some experience working with Windows Server, and who are looking for a course to update their knowledge and skills related to storage and compute technologies in Windows Server 2016.

## Prerequisites

Candidates suitable for this course would be:

- Windows Server administrators who are relatively new to Windows Server administration and related technologies, and who want to learn more about the storage and compute features in Windows Server 2016

- IT professionals with general IT knowledge who are looking to gain knowledge about Windows Server, especially around storage and compute technologies in Windows Server 2016
- The secondary audience for this course are IT professionals looking to take the Microsoft 70-740 certification exam, Installation, Storage and Compute with Windows Server 2016

## Course objectives

After completing this course, students will be able to:

- Prepare and install Nano Server, a Server Core installation, and plan a server upgrade and migration strategy
- Describe the various storage options, including partition table formats, basic and dynamic disks, file systems, virtual hard disks, and drive hardware, and explain how to manage disks and volumes
- Describe enterprise storage solutions, and select the appropriate solution for a given situation
- Implement and manage storage spaces and Data Deduplication
- Install and configure Microsoft Hyper-V, and configure virtual machines

\*Realize Technology Value with Training, IDC Infographic 2037, Sponsored by HPE, October 2017

- Deploy, configure, and manage Windows and Hyper-V containers
- Describe the high availability and disaster recovery technologies in Windows Server 2016
- Plan, create, and manage a failover cluster
- Implement failover clustering for Hyper-V virtual machines
- Configure a Network Load Balancing (NLB) cluster, and plan for an NLB implementation
- Create and manage deployment images
- Manage, monitor, and maintain virtual machine installations

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## Detailed On-Demand outline

<b>Module 1: Installing, Upgrading, and Migrating Servers and Workloads</b>	This module explains how to prepare and install Nano Server and Server Core. This module also describes how to upgrade and migrate server roles and workloads. Finally, this module explains how to choose an activation model based on your environment characteristics.	<ul style="list-style-type: none"> <li>• Introducing Windows Server 2016</li> <li>• Preparing and installing Nano Server and Server Core</li> <li>• Preparing for upgrades and migrations</li> <li>• Migrating server roles and workloads</li> <li>• Windows Server activation models</li> </ul>
<b>Module 2: Configuring Local Storage</b>	This module details how to manage disks and volumes in Windows Server 2016.	<ul style="list-style-type: none"> <li>• Managing disks in Windows Server 2016</li> <li>• Managing volumes in Windows Server 2016</li> </ul>
<b>Module 3: Implementing Enterprise Storage Solutions</b>	This module describes the direct-attached storage (DAS), network-attached storage (NAS), and storage area networks (SANs). It also helps you understand Microsoft Internet Storage Name Service (iSNS) Server, data center bridging, and Multipath I/O (MPIO). Additionally, this module also compares Fibre Channel, Internet Small Computer System Interface (iSCSI), and Fibre Channel over Ethernet (FCoE), and describes how to configure sharing in Windows Server 2016.	<ul style="list-style-type: none"> <li>• Overview of direct-attached storage, network-attached storage, and storage area networks</li> <li>• Comparing Fibre Channel, iSCSI, and FCoE</li> <li>• Understanding iSNS, data centre bridging, and MPIO</li> <li>• Configuring sharing in Windows Server 2016</li> </ul>
<b>Module 4: Implementing Storage Spaces and Data Deduplication</b>	This module explains how to implement and manage storage spaces. This module also explains how to implement data deduplication	<ul style="list-style-type: none"> <li>• Implementing storage spaces</li> <li>• Managing Storage spaces</li> <li>• Implementing Data Deduplication</li> </ul>
<b>Module 5: Installing and Configuring Hyper-V and Virtual machines</b>	This module provides an overview of Hyper-V. This module also explains how to configure, manage, and install Hyper-V.	<ul style="list-style-type: none"> <li>• Overview of Hyper-V</li> <li>• Installing Hyper-V</li> <li>• Configuring storage on Hyper-V host servers</li> <li>• Configuring networking on Hyper-V host servers</li> <li>• Configuring Hyper-V virtual machines</li> <li>• Managing Hyper-V virtual machine</li> </ul>
<b>Module 6: Deploying and Managing Windows Server and Hyper-V Containers</b>	This module provides an overview of containers in Windows Server 2016. It also explains how to deploy, install, configure, and manage containers in Windows Server 2016.	<ul style="list-style-type: none"> <li>• Overview of containers in Windows Server 2016</li> <li>• Deploying Windows Server and Hyper-V containers</li> <li>• Installing, configuring, and managing containers</li> </ul>
<b>Module 7: Overview of High Availability and Disaster Recovery</b>	This module provides an overview of high availability, business continuity, and disaster recovery. It further outlines how to plan high availability and disaster recovery solutions. Additionally, in this module you will learn how to back up and restore the Windows Server 2016 operating system and data by using Windows Server Backup. Finally, you will learn about Windows Server 2016 high availability with failover clustering.	<ul style="list-style-type: none"> <li>• Defining levels of availability</li> <li>• Planning high availability and disaster recovery solutions with Hyper-V virtual machines</li> <li>• Backing up and restoring the Windows Server 2016 operating system and data by using Windows Server B</li> <li>• High availability with failover clustering in Windows Server 2016</li> </ul>
<b>Module 8: Implementing and Managing Failover Clustering</b>	This module explains how to plan, create, configure, maintain, and troubleshoot a failover cluster. This module also explains how to implement site high availability with stretch clustering.	<ul style="list-style-type: none"> <li>• Planning a failover cluster</li> <li>• Creating and configuring a new failover cluster</li> <li>• Maintaining a failover cluster</li> <li>• Troubleshooting a failover cluster</li> <li>• Implementing site high availability with stretch clustering</li> </ul>

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<b>Module 9: Implementing Failover Clustering for Hyper-V Virtual Machines</b>	This module describes integrating Hyper-V virtual machines in a clustered environment. It also explains how to implement and maintain Hyper-V virtual machines on failover clusters. Additionally, this module also teaches how to configure network health protection.	<ul style="list-style-type: none"><li>• Overview of integrating Hyper-V in Windows Server 2016 with failover clustering</li><li>• Implementing and maintaining Hyper-V virtual machines on failover clusters</li><li>• Key features for virtual machines in a clustered environment</li></ul>
<b>Module 10: Implementing Network Load Balancing</b>	This module provides an overview of NLB clusters. It also explains how to plan and configure an NLB cluster implementation.	<ul style="list-style-type: none"><li>• Overview of NLB clusters</li><li>• Configuring an NLB cluster</li><li>• Planning an NLB implementation</li></ul>
<b>Module 11: Creating and Managing Deployment Images</b>	This module provides an introduction to deployment images. It also explains how to create and manage deployment images by using the Microsoft Deployment Toolkit (MDT). Additionally, it describes how to evaluate an organization's requirements for server virtualization.	<ul style="list-style-type: none"><li>• Introduction to deployment images</li><li>• Creating and managing deployment images by using MDT</li><li>• Virtual machine environments for different workloads</li></ul>
<b>Module 12: Managing, Monitoring, and Maintaining Virtual Machine Installations</b>	This module provides an overview on WSUS and explains the deployment options. It explains how to update the management process with WSUS, and how to use Performance Monitor. Additionally, this module also provides an overview of PowerShell Desired State Configuration (DSC) and Windows Server 2016 monitoring tools. Finally, this module describes how to use Performance Monitor and monitor Event Logs.	<ul style="list-style-type: none"><li>• WSUS overview and deployment options</li><li>• Update management process with WSUS</li><li>• Overview of PowerShell DSC</li><li>• Overview of Windows Server 2016 monitoring tools</li><li>• Using Performance Monitor</li><li>• Monitoring Event Logs</li></ul>

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## Detailed On-Demand Lab outline

<b>Lab 1: Installing and Configuring Nano Server</b>	<ul style="list-style-type: none"> <li>Implementing Nano Server</li> <li>Completing post-installation tasks on the Nano Server</li> </ul>	<ul style="list-style-type: none"> <li>Performing remote management</li> </ul>
<b>Lab 2: Managing Disks and Volumes in Windows Server 2016</b>	<ul style="list-style-type: none"> <li>Creating and managing virtual hard disks by using Windows PowerShell</li> <li>Converting virtual hard disks from .vhd to .vhdx</li> </ul>	<ul style="list-style-type: none"> <li>Resizing a volume</li> </ul>
<b>Lab 3: Planning and Configuring Storage Technologies and Components</b>	<ul style="list-style-type: none"> <li>Planning storage requirements</li> <li>Configuring iSCSI storage</li> </ul>	<ul style="list-style-type: none"> <li>Configuring and managing the share infrastructure</li> </ul>
<b>Lab 4-a: Implementing Storage Spaces</b>	<ul style="list-style-type: none"> <li>Creating a storage space</li> </ul>	<ul style="list-style-type: none"> <li>Enabling and configuring storage tiering</li> </ul>
<b>Lab 4-b: Implementing Data Deduplication</b>	<ul style="list-style-type: none"> <li>Installing data deduplication</li> </ul>	<ul style="list-style-type: none"> <li>Configuring data deduplication</li> </ul>
<b>Lab 5: Installing and Configuring Hyper-V</b>	<ul style="list-style-type: none"> <li>Installing the Hyper-V server role</li> <li>Configuring Hyper-V settings</li> </ul>	<ul style="list-style-type: none"> <li>Creating and configuring a virtual machine</li> <li>Managing a virtual machine by using PowerShell Direct</li> </ul>
<b>Lab 6: Installing and Configuring Containers</b>	<ul style="list-style-type: none"> <li>Installing and configuring Windows Server containers by using Windows PowerShell</li> </ul>	<ul style="list-style-type: none"> <li>Installing and configuring Windows Server containers by using Docker</li> </ul>
<b>Lab 7: Planning and Implementing a High Availability and Disaster Recovery Solution</b>	<ul style="list-style-type: none"> <li>Determining the appropriate high availability and disaster recovery solution</li> <li>Implementing storage migration</li> </ul>	<ul style="list-style-type: none"> <li>Implementing Hyper-V Replica</li> </ul>
<b>Lab 8-a: Implementing a Failover Cluster</b>	<ul style="list-style-type: none"> <li>Creating a failover cluster</li> </ul>	<ul style="list-style-type: none"> <li>Verifying quorum settings and adding a node</li> </ul>
<b>Lab 8-b: Managing a Failover Cluster</b>	<ul style="list-style-type: none"> <li>Evicting a node and verifying quorum settings</li> <li>Changing the quorum from Disk Witness to File Share Witness, and defining node voting</li> </ul>	<ul style="list-style-type: none"> <li>Adding and removing disks from the cluster</li> </ul>
<b>Lab 9: Implementing Failover Clustering with Hyper-V</b>	<ul style="list-style-type: none"> <li>Configuring a failover cluster for Hyper-V</li> </ul>	<ul style="list-style-type: none"> <li>Configuring a highly available virtual machine</li> </ul>
<b>Lab 10: Implementing an NLB Cluster</b>	<ul style="list-style-type: none"> <li>Implementing an NLB cluster</li> <li>Configuring and managing the NLB cluster</li> </ul>	<ul style="list-style-type: none"> <li>Validating high availability for the NLB cluster</li> </ul>
<b>Lab 11: Using MDT to Deploy Windows Server 2016</b>	<ul style="list-style-type: none"> <li>Installing and configuring MDT</li> </ul>	<ul style="list-style-type: none"> <li>Creating and deploying an image</li> </ul>
<b>Lab 12-a: Implementing WSUS and Deploying updates</b>	<ul style="list-style-type: none"> <li>Implementing WSUS</li> <li>Configuring update settings</li> </ul>	<ul style="list-style-type: none"> <li>Approving and deploying an update by using WSUS</li> </ul>
<b>Lab 12-b: Monitoring and Troubleshooting Windows Server 2016</b>	<ul style="list-style-type: none"> <li>Establishing a performance baseline</li> <li>Identifying the source of a performance problem</li> </ul>	<ul style="list-style-type: none"> <li>Viewing and configuring centralized event logs</li> </ul>

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