3.2.4 Server Roles and Features Facts

Functionality and services are added to a server using the Add Roles and Features wizard. The software is categorized as follows:

- A *role* is a set of software features that provides a specific server function. Examples of roles include DNS Server, DHCP Server, File and Storage Services, and Print and Document Services.
- *Role services* are specific programs that provide the functions of a role. Role services are sub-components of a role. Some roles, like DNS Server, have a single role service. Other roles, like Print and Document Services, have multiple role services, such as the Distributed Scan Server and Internet Printing.
- A *feature* is a software program that is not directly related to a server role but adds functionality to the entire server. Features include management tools, communication protocols or clients, and clustering support.

  Roles, role services, and features can be added using the Add Roles and Features wizard. You remove an installed role, role service, or feature using the Remove Roles and Features wizard.

Commonly used server roles include:

Role	Description
Active Directory Domain Services (AD DS)	AD DS is a distributed database that stores and manages information about network resources, such as users and computers. The AD DS role: ▪ Helps administrators securely manage information. ▪ Facilitates resource sharing and collaboration between users. ▪ Is required for directory-enabled applications, such as Microsoft Exchange Server, and for applying technologies, such as Group Policy.
Active Directory Certificate Services (AD CS)	AD CS is an identity and access control feature that creates and manages public key certificates used in software security systems. The AD CS role: ▪ Provides customizable services for creating and managing public key certificates. ▪ Enhances security by binding the identity of a person, device, or service to a corresponding private key. ▪ Includes features that allow you to manage certificate enrollment and revocation in a variety of scalable environments.
DNS Server	The DNS service maps IP addresses to logical host names. DNS servers provide name resolution services, providing IP addresses for known host names or host names for known IP addresses. The Windows DNS service provides support for IPv6 addresses.
DHCP Server	The DHCP service provides IP addresses and other IP configuration information for network hosts. Host computers contact the DHCP server at startup to obtain an IP address, default gateway address, DNS server address, and other configuration information. The Windows DHCP service supports IPv6 addressing and configuration information.
File and Storage Services	File and Storage Services includes technologies that help you set up and manage file servers. This role is useful when users need access to the same files and applications or if centralized backup and file management are important to the organization. New features/functionality include: ▪ Storage Spaces and storage pools, which enable you to virtualize storage. ▪ Unified remote management of File and Storage Services in Server Manager, which enables you to remotely manage multiple file servers. ▪ Windows PowerShell cmdlets for File and Storage Services, which allow you to perform the majority of administration tasks for file and storage servers. By default, the File and Storage Services role is installed on Windows Server 2012 R2 and Windows Server 2016.
Hyper-V	The Windows Hyper-V hypervisor provides the layer of software necessary for the installation of virtual guest operating systems within virtual machines.
Print and Document Services	The Print and Document Services role provides the print management console that allows you to manage printers on multiple servers.

Network Policy and Access Services	Network Policy and Access Services, formerly Network Access Protection (NAP), are a collection of components that allow administrators to regulate network access or communication based on a computer's compliance with health requirement policies. Network Policy and Access Services give you the ability to restrict access for non-compliant computers and provide access to updates or health update resources to allow computers to become compliant.
Web Server (IIS)	Web Server (IIS) is the Web server service. Use IIS to host internal and external Web sites or services that communicate using HTTP and provide support for ASP.NET applications accessed through a Web browser. IIS is also used by many other roles to provide Web-based administration or access.
Windows Deployment Services (WDS)	Windows Deployment Services (WDS) is a disk imaging solution that you can use for remote deployment and automated installation of Microsoft Windows operating systems.
Windows Server Update Server	The WSUS server allows administrators to manage and distribute updates through a management console. A WSUS server can also be used to update other WSUS servers within the organization.

Commonly used server features include:

Features	Description
Failover Clustering	Failover clusters provide high availability and scalability to your network by grouping servers together into clusters.
Group Policy	Group Policy allows you to specify configurations for users and computers through Group Policy settings.
Network Load Balancing	By managing two or more servers as a single virtual cluster, Network Load Balancing (NLB) enhances the availability and scalability of Internet server applications such as those used on web, FTP, firewall, proxy, virtual private network (VPN), and other mission-critical servers.
BitLocker Drive Encryption	BitLocker Drive Encryption is a security feature that protects a server by encrypting the operating system volume and verifying the integrity of other startup components. BitLocker is also called full volume encryption.
Windows Server Backup	Windows Server Backup provides backup and recovery for Windows Server systems.

When Windows Server is installed, the source files for all server roles and features are installed on the server. *Features on Demand* is a feature in Windows Server that allows you to remove the source files of unneeded roles and features in order to conserve disk space. Features on Demand also allows you to re-install source files for roles and features that may have been removed. With Features on Demand, you can:

- Add or remove role and feature source files on a remote computer.
- Add feature files to or remove feature files from Windows image (WIM) files or offline virtual hard disks (VHDs) to create a custom Windows Server configuration.
- Remove feature files from running physical or virtual computers.
- Obtain the files to install from:
  - A shared folder that contains feature files and is available to the computer
  - Windows Update
  - Installation media