Module 12: Installation, Storage, and Compute with Windows Server

1.What two options are provided in the type of installation window during Windows Server 2016 installation?

Ans- Installation Type Options:

During the Windows Server 2016 installation, you are presented with two installation options:

- Windows Server 2016 Standard/Datacenter (Server Core Installation): This option installs a minimal environment without the graphical user interface (GUI). You manage the server through command-line interface (CLI) tools. It has a smaller footprint and reduced attack surface.
- Windows Server 2016 Standard/Datacenter (Server with Desktop Experience): This option installs the full GUI, providing a familiar desktop environment for managing the server.

1. Write the step How to configure server step by step?

1.Initial Setup:

- Connect the server to power and network.
- Boot the server and complete the initial setup (language, time zone, keyboard).
- Set a strong administrator password.
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2.Network Configuration:

- Configure the server's IP address, subnet mask, gateway, and DNS server addresses. Static IP addresses are usually preferred for servers.

3. Server Roles and Features:

- Use Server Manager to install the necessary server roles (e.g., Active Directory Domain Services, DNS Server, Web Server) and features (e.g., .NET Framework).

4. Role-Specific Configuration:

- Each role will have its own configuration steps. For example, setting up Active Directory involves promoting the server to a domain controller. A web server requires configuring websites and virtual directories.

2. What are the Pre installation tasks?

- Hardware Requirements: Verify that your hardware meets the minimum and recommended system requirements for the desired version of Windows Server.
- Software Compatibility: Ensure that any applications you plan to run on the server are compatible with Windows Server.
- Licensing: Obtain the necessary licenses for Windows Server and any other software you plan to install.
- Planning: Plan your server's role, network configuration, and storage requirements.
- Backup: If upgrading, back up your existing server data.

3. What are the Post installation tasks?

- Install Updates: Install all available Windows updates.
- Configure Server Roles and Features: Install and configure the necessary server roles and features.
- Network Configuration: Verify and finalize network settings.
- Security Hardening: Implement security best practices.
- Driver Updates: Update hardware drivers.
- Documentation: Document your server configuration.

5.What is the standard upgrade path for Windows Server?

Ans - The standard upgrade path typically involves upgrading from one version of Windows Server to a newer version (e.g., Windows Server 2012 R2 to Windows Server 2016 or Windows Server 2019). In-place upgrades are often possible, but it's crucial to check compatibility and follow Microsoft's upgrade guidance. Sometimes, a clean install is recommended.

6. What is the Physical structure of AD?

- Domain Controllers: Servers that store the directory database and authenticate users and computers.
- Database: The actual directory database where information about objects (users, computers, groups) is stored.
- Log Files: Files that track changes to the directory.

7. What is the Logical components of Active Directory?

- Domains: The core unit of Active Directory. A domain is a logical grouping of objects.
- Organizational Units (OUs): Containers within a domain that allow you to organize objects into a hierarchical structure. OUs simplify administration and allow you to apply group policies to specific sets of objects.
- Users: Accounts for individuals who access the network.
- Groups: Collections of user accounts that simplify assigning permissions.
- Computers: Accounts for computers that are part of the domain.

8. What is the Full form Of LDAP?

Ans- LDAP stands for Lightweight Directory Access Protocol.

9. What is the location of the AD database?

Ans - The Active Directory database is typically located in the %SystemRoot%\NTDS folder on a domain controller.

10. What is child DC?

Ans - A child DC (child domain controller) is a domain controller in a child domain. Child domains are subdomains of a parent domain. Child DCs store a copy of the directory database for their respective domain and handle authentication and authorization requests for that domain.

11. Explain the term forest in AD

Ans - In Active Directory, a forest is the top-level logical container. It represents the complete directory structure and contains one or more domains. All domains in a forest share a common schema, a common global catalog and trust relationships between each other.

12. What is Active Directory?

Active Directory is a directory service developed by Microsoft that stores information about objects on a network and makes this information easily accessible to users and administrators. It's essentially a centralized database and set of services that manage users, computers, groups, and other network resources.

13. When you create an Active Directory domain, what's the name of the default user account? ● Superuser ● Root ● Username ● Administrator

Ans - When you create an Active Directory domain, the default user account that is created is Administrator.

14. AD domain provides which of the following advantages? Check all that apply.

● Centralized authentication ● More detailed logging ● Centralized management with GPOs

Ans - the following advantages:

- Centralized authentication: Users authenticate once to the domain and can then access resources throughout the network without having to re-enter their credentials.
- More detailed logging: Active Directory provides robust auditing and logging capabilities, which can be used to track user activity and identify potential security issues.
- Centralized management with GPOs: Group Policy Objects (GPOs) allow administrators to manage user and computer settings centrally, making it easier to enforce security policies and configure desktops.

15. What are the minimum hardware requirements for installing Windows Server 2016?

Ans-

- Processor: 1.4 GHz 64-bit processor (Intel Itanium-based processors are *not* supported)
- RAM: 2 GB (4 GB recommended for production and even more if you're using features like Hyper-V)
- Disk Space: 40 GB (This is a *minimum*. Consider more, especially if installing roles like Exchange or SQL Server.)
- Network Adapter: Gigabit Ethernet adapter (10 Gigabit or faster is recommended for many server roles)
- Optical Drive: DVD drive (if installing from media)
- Display: Monitor capable of at least 800 x 600 resolution

16. Explain the different editions of Windows Server 2016 and their features.

- Datacenter: The premium edition, designed for large enterprises and data centers. Includes advanced features like:
  - Shielded Virtual Machines
  - Storage Spaces Direct
  - Network Controller
  - Replication
- Standard: A good choice for small to medium-sized businesses. Offers core server functionality but with some limitations compared to Datacenter:
  - Limited Virtualization Rights (fewer VMs allowed)
  - Fewer advanced storage features
- Essentials: For very small businesses with up to 25 users and 50 devices. Streamlined management and integrated cloud services. Has limitations on server roles and features.
- Hyper-V Server: A standalone product designed solely for running the Hyper-V virtualization role.

17. Walk through the steps of installing Windows Server 2016 using GUI mode.

- Boot from Installation Media: Insert the Windows Server 2016 installation DVD or USB drive and boot your server from it.
- Language and Keyboard: Select your preferred language, time, and keyboard layout.
- Install Now: Click "Install now."
- Select Edition: Choose the Windows Server 2016 edition you purchased (e.g., Datacenter or Standard). Critically, select the "... with Desktop Experience" option. This is essential for the GUI.
- Accept License Terms: Read and accept the license terms.
- Installation Type: Select "Custom: Install Windows only (advanced)." This option gives you control over partitioning.
- Select Partition: Choose the partition where you want to install Windows Server 2016. You can create, format, or delete partitions here if needed. Be *very* careful with this step!
- Installation Process: Windows will now copy files and install the operating system. This process will take some time.
- Initial Configuration: After the installation completes, the server will restart. You'll be prompted to set a strong administrator password.
- Log in: Log in using the newly created administrator account. You should be greeted with the Server Manager dashboard.

18. How do you configure network settings during Windows Server 2016 installation?

- Command-Line Proficiency: You *must* be comfortable with the Windows command line and PowerShell.
- PowerShell is Essential: PowerShell is the primary tool for managing Server Core. Learn the basic cmdlets.
- Remote Management: Plan to manage the server remotely. This is much more efficient than working directly at the console.
- Security: Server Core's reduced footprint and lack of a GUI make it more secure. However, you still need to follow security best practices.

19. Explain the process of promoting a Windows Server to a domain controller.

Ans – Done in lab.

20. Discuss the steps involved in upgrading from a previous version of Windows Server to Windows Server 2016.

Ans -

- Boot from Installation Media: Boot the server from the Windows Server 2016 installation media.
- Choose Installation Options: Select the language, time, and keyboard layout.
- Install Now: Click "Install now."
- Select Edition: Choose the desired edition of Windows Server 2016.
- Accept License Terms: Accept the license terms.
- Installation Type: Select "Custom: Install Windows only (advanced)."
- Select Partition: Choose the partition where you want to install Windows Server 2016. You may need to format or delete existing partitions.
- Installation Process: Windows will now copy files and install the operating system.
- Post-Installation Tasks: After the installation is complete, perform the following tasks:
- Install Windows Updates.
- Install server roles and features.
- Install applications.
- Restore data from your backup.
- Configure server settings.
- Test the server thoroughly.

21. What is Active Directory Domain Services (AD DS), and what are its key components?

- Ans- Active Directory Domain Services (AD DS) is the core directory service in Windows Server that manages users, computers, groups, and other network resources. It provides a centralized authentication and authorization system, making it easier to manage and secure a network.
- Key Components of AD DS:
- **Domains**: The fundamental unit of AD DS. A domain is a logical grouping of objects that share the same directory database and security policies. It's identified by a DNS name.
- **Domain Controllers**: Servers that store the AD DS database and provide authentication and authorization services. Every domain has at least one domain controller. In larger networks, multiple domain controllers are used for redundancy and performance.
- **Organizational Units:** Containers within a domain that allow you to organize objects into a hierarchical structure. OUs make it easier to manage objects and apply Group Policy settings to specific groups of users or computers.
- **Users:** Accounts for individuals who access the network. Each user has a unique username and password.
- **Groups:** Collections of user accounts. Groups simplify the process of assigning permissions to multiple users at once.
- **Computers**: Accounts for computers that are part of the domain.
- **Group Policy**: A feature that allows administrators to define and enforce policies for users and computers. Group Policy can be used to configure desktop settings, security settings, software installations, and more.

22. How do you create a new Active Directory user account in Windows Server ?

Ans – done in lab.

23. Explain the process of creating and managing Group Policy Objects (GPOs) in Windows Server 2016 or 2019.

Ans – done in lab.

24. What are Organizational Units (OUs) in Active Directory, and how do you use them?

- Ans- Organizational Units (OUs) are containers within an Active Directory domain that allow you to organize users, computers, groups, and other objects into a hierarchical structure. Think of them as folders within Active Directory that provide a way to group and manage objects more effectively.

  Why Use OUs :-
- OUs are essential for several reasons:
- Delegation of Administration: You can delegate administrative control over specific OUs to different users or groups. For example, you could allow the Help Desk team to manage user accounts in the "Sales" OU but not in the "Executives" OU. This granular control is crucial for managing larger environments.
- Group Policy Application: OUs are the primary target for applying Group Policy Objects (GPOs). You can link a GPO to an OU to apply specific settings to all the users and computers within that OU. This is the most common and powerful use of OUs. For instance, you might have a GPO that sets specific desktop settings for users in the "Marketing" OU.
- Simplified Management: By organizing objects into OUs, you can simplify management tasks. Instead of having to manage hundreds of individual user accounts, you can manage them in logical groups based on department, location, or other criteria.

25. Describe the process of delegating administrative privileges in Active Directory.

Ans –

1. Planning Your Delegation Strategy:

Before you start delegating permissions, it's essential to plan your strategy. Consider the following:

- What tasks need to be delegated? Identify the specific administrative tasks that need to be performed by non-administrative users. Examples include resetting passwords, creating user accounts, managing group memberships, or managing specific OUs.
- Who needs the permissions? Determine which users or groups need these elevated privileges. Create groups specifically for delegated permissions to simplify management.
- Scope of delegation: Decide the scope of the delegation. Will the permissions apply to the entire domain, a specific OU, or individual objects? Delegating at the OU level is generally recommended.

- Least Privilege: Grant only the *minimum* necessary permissions required to perform the specified tasks. Avoid granting excessive privileges.

2. Using the Delegation Wizard:

The easiest way to delegate permissions is using the Delegation Wizard in Active Directory Users and Computers.

1. Open Active Directory Users and Computers:
   - Click Start, type "Active Directory Users and Computers," and press Enter.
   - Or, open Server Manager, go to Tools, and select "Active Directory Users and Computers."
2. Navigate to the Object: In the left pane, navigate to the domain, OU, or specific object (user, computer, group) where you want to delegate permissions.
3. Delegate Control:
   - Right-click on the object (domain, OU, or object) and select "Delegate Control..."
4. Select Users or Groups:
   - Click "Add..." to select the users or groups to whom you want to delegate permissions.
   - Click "OK."
5. Choose Common Tasks or Custom Tasks:
   - Common Tasks: The wizard provides a list of common administrative tasks (e.g., "Reset user passwords," "Create, delete, and manage user accounts," "Manage group membership"). Select the appropriate tasks. This is the easiest option for common scenarios.
   - Custom Tasks: For more granular control, select "Create a custom task to delegate." This option allows you to specify the exact permissions you want to grant.
6. Configure Custom Permissions (if selected):
   - If you chose "Custom Tasks," you'll be presented with a list of permissions. Here, you can select specific permissions, such as:
     - Full Control: Grants all permissions (use with extreme caution).
     - Read all properties: Allows viewing all object attributes.
     - Write all properties: Allows modifying all object attributes.
     - Create all child objects: Allows creating new objects within the container.
     - Delete all child objects: Allows deleting objects within the container.
     - Specific permissions for individual object attributes (e.g., "Write userAccountControl").
7. Finish: Review your selections and click "Finish" to delegate the permissions.