



TRƯỜNG ĐẠI HỌC CÔNG NGHỆ THÔNG TIN - ĐHQG-HCM
KHOA MẠNG MÁY TÍNH VÀ TRUYỀN THÔNG

WINDOWS ADMINISTRATION

QUẢN TRỊ MẠNG VÀ HỆ THỐNG
Networks and Systems Administration

MSc. Trần Thị Dung



- Overview
- Install Windows Server
- Basic configuration
- Service configuration

- The operating system for server
 - Windows Server 2012
 - Windows Server 2016
 - Windows Server 2019
 - Windows Server 2022

- **Directory services**

- Store, organize, and supply information about a network and its resources

- **Infrastructure services**

- Provide support services for network clients

- **Application services**

- Provide communication services, operating environments, or programming interfaces for specific applications

Directory Services

- Active Directory Certificate Services
- Active Directory Domain Services (AD DS)
- Active Directory Federation Services
- Active Directory Lightweight Directory Services (AD LDS)
- Active Directory Rights Management Services (AD RMS)

Infrastructure Services

- DHCP (Dynamic Host Configuration Protocol)
- DNS Server
- Hyper-V
- Network Policy and Access Services (NPAS)
- Health Registration Authority (HRA)
- Remote Access
- Volume Activation Services
- Windows Deployment Services (WDS)
- Windows Server Update Services (WSUS)

Application Services

- Application Server
- Fax Server
- File and Storage Services
- Print and Document Services
- Remote Desktop Services
- Web Server (IIS)

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Roles, Feature and Service

- **Role:** Define the primary function of a server
 - Example: Web Server (IIS)
- **Feature:** A smaller module, typically with a single purpose
 - Example: a management tool, extension, or optional component
- **Service:** Programs that run continuously in the background, waiting for a client to send a request

- Shares must be created in order for network users to be able to access the disks on the servers. You must determine:
 - What folders you will share
 - What names you will assign to the shares
 - What permissions you will grant users to the shares
 - What Offline Files settings you will use for the shares

Types of Folder Shares

- **Server Message Blocks (SMB)**

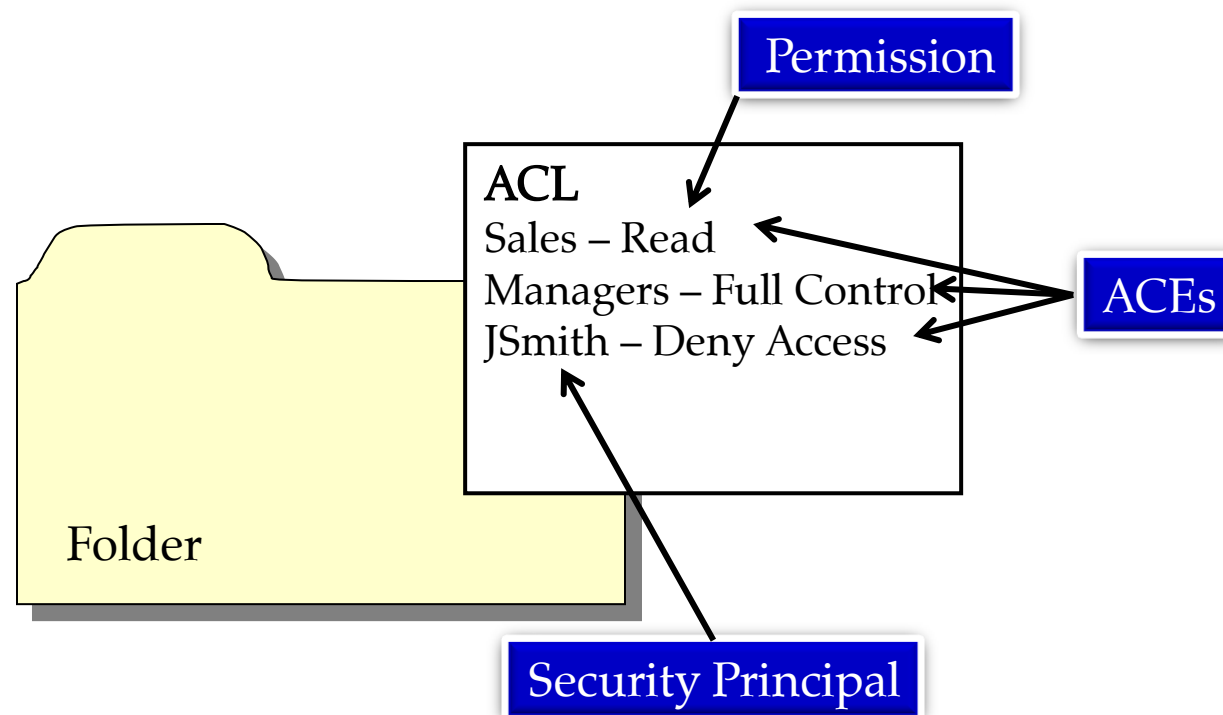
- The standard file-sharing protocol used by all versions of Windows.
- Requires the File Server role service.

- **Network File System (NFS)**

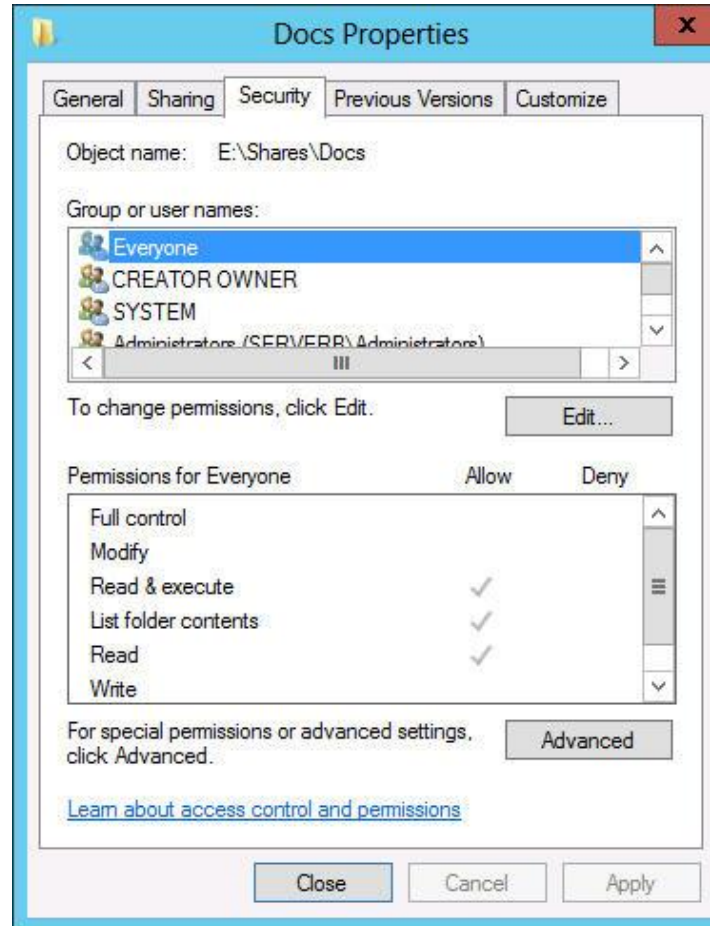
- The standard file sharing protocol used by most UNIX and Linux distributions.
- Requires the Server for NFS role service.

Permission

- Access Control List (ACL)
- Access Control Entries (ACEs)
- Security principal



Windows Permissions



Share Permissions

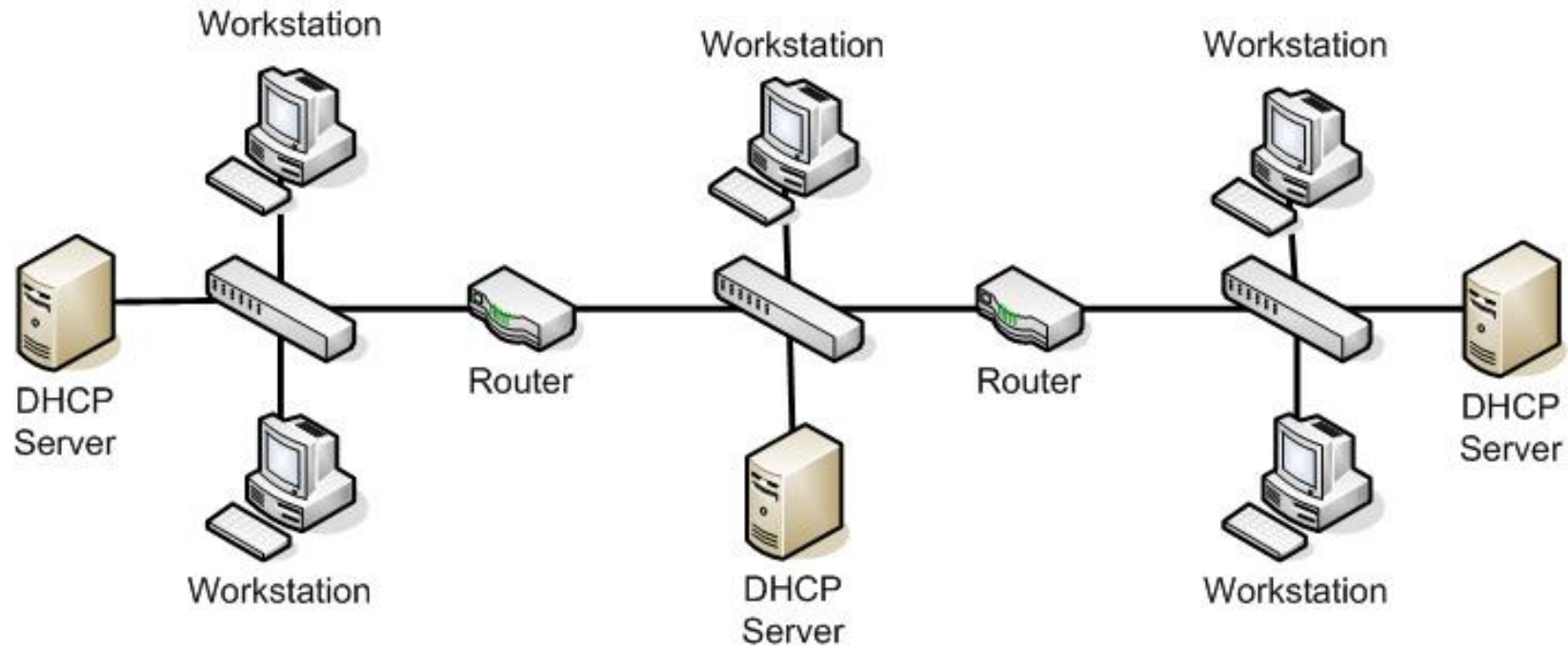
<i>Share permission</i>	<i>Allows or denies security principals the ability to:</i>
Full Control	Change file permissions. Take ownership of files. Perform all tasks allowed by the Change permission.
Change	Create folders. Add files to folders. Change data in files. Append data to files. Change file attributes. Delete folders and files. Perform all actions permitted by the Read permission.
Read	Display folder names, filenames, file data, and attributes. Execute program files. Access other folders within the shared folder.

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Service configuration

- DHCP server
- Web and DNS server
- Active Directory/Domain Controller

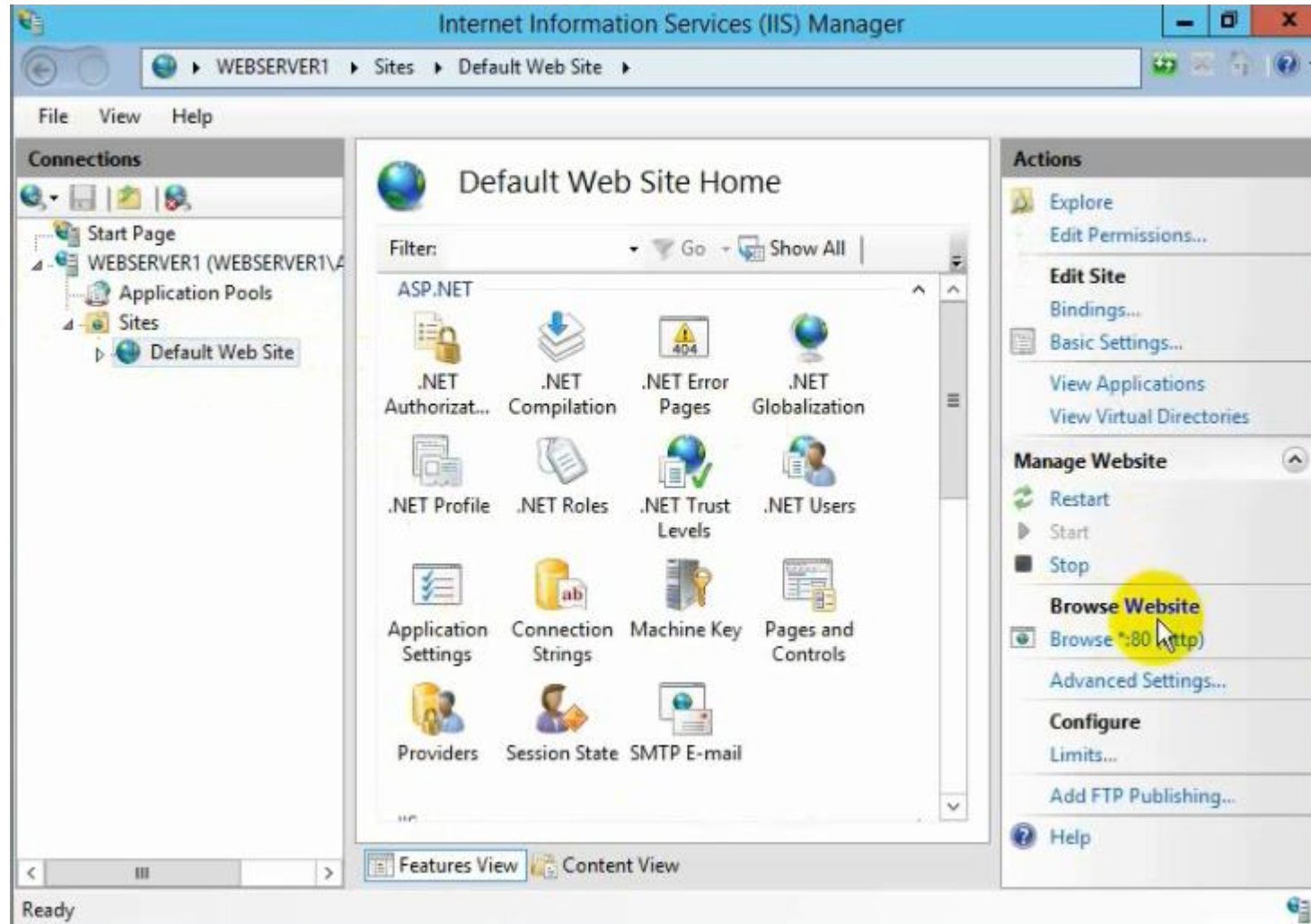
DHCP topology



Service configuration

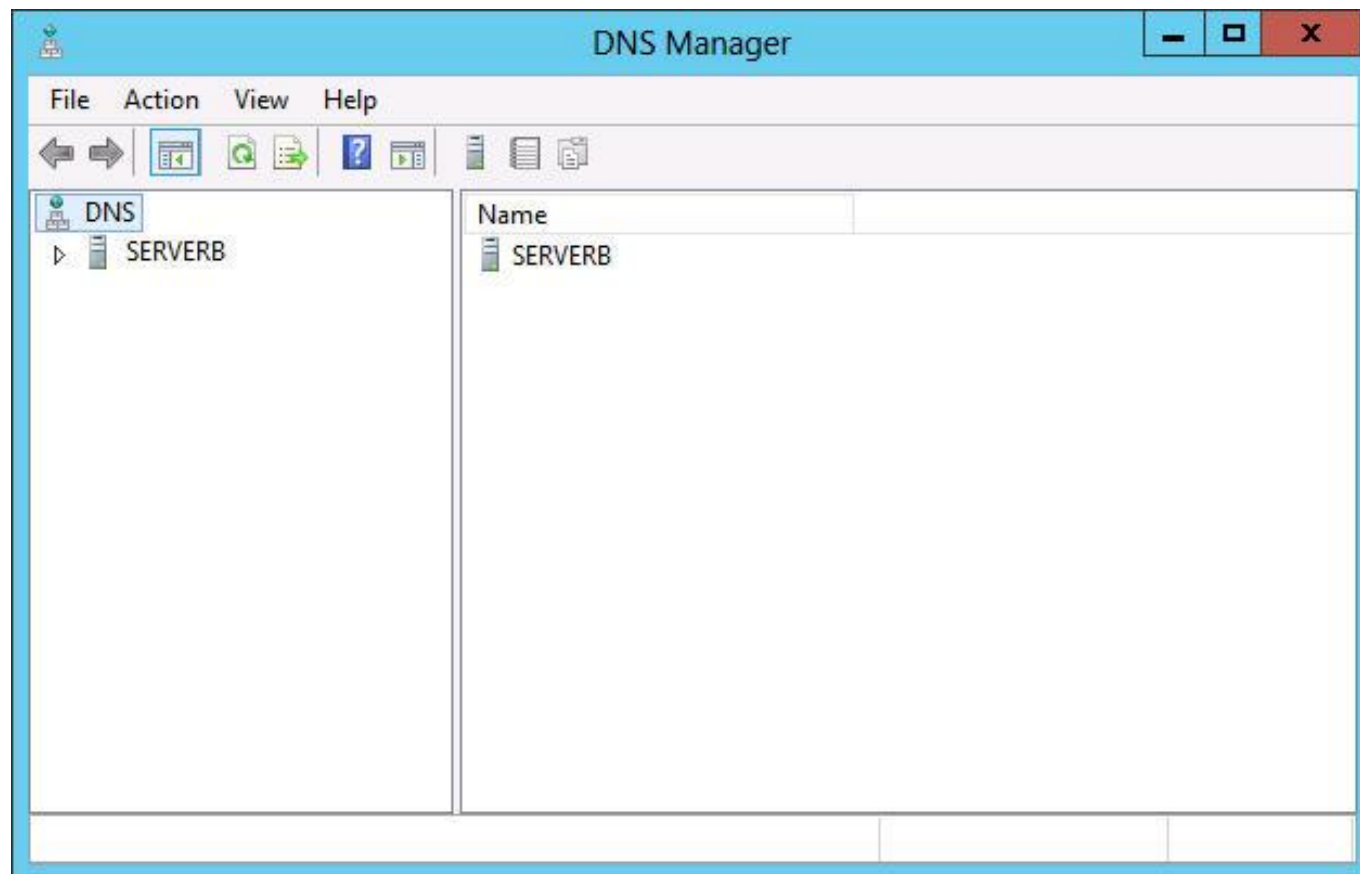
- DHCP server
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Webserver



- Install the DNS Server role, using the Add Roles and Features Wizard in Server Manager.
- Use the DNS Manager console to configure the DNS server's other capabilities.

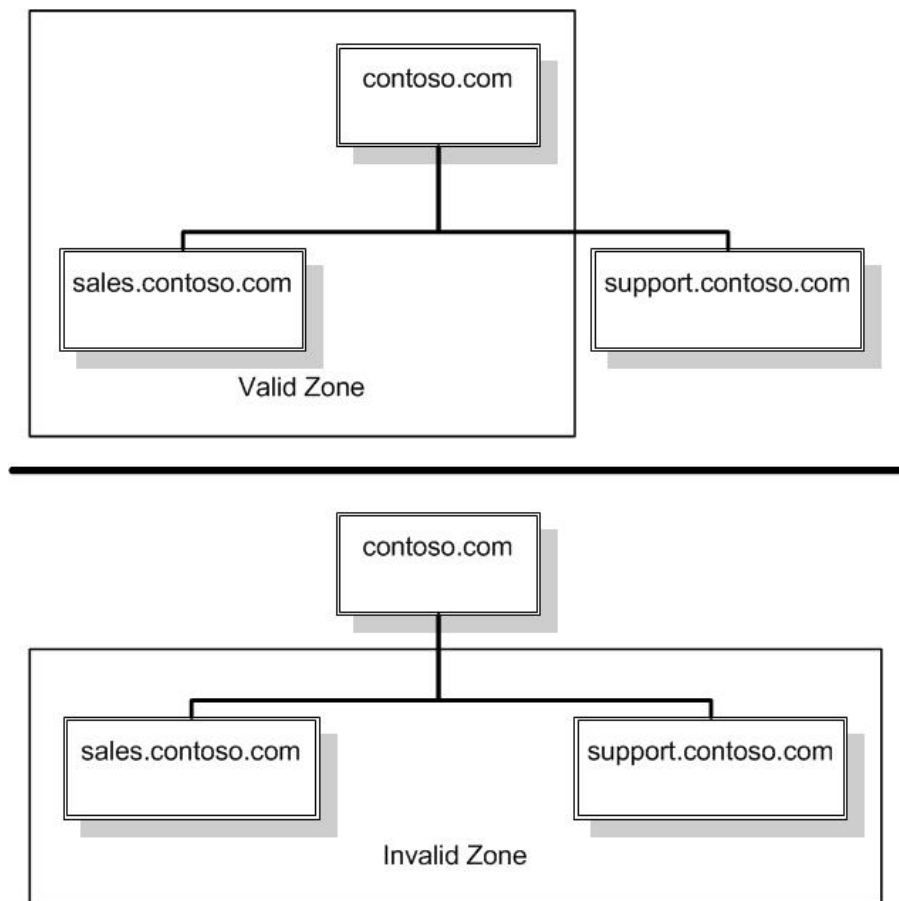
DNS Server



- A **zone** is an administrative entity you create on a DNS server to represent a discrete portion of the DNS namespace.
- Every zone consists of a zone database, which contains the resource records for the domains in that zone.

Creating Zones

- Valid zones must consist of contiguous domains



DNS Zones

- Forward Lookup Zone: creates A, NS, SOA, MX và CNAME record to convert name to IP
- Reverse Lookup Zone: create the record Pointer to convert an IP address into a DNS name.

Network services

- DHCP server
- DNS server
- Active Directory/Domain Controller

Introducing Active Directory

- A directory service is a repository of information about the resources—hardware, software, and human—that are connected to a network.
- Users, computers, and applications throughout the network can access the repository for a variety of purposes:
 - User authentication
 - Storage of configuration data
 - Accessing files and printers

Active Directory Domain Services (AD DS)

- AD DS is a directory service that enables administrators to create organizational divisions called domains
- A **domain** is a logical container of network components, hosted by at least one server designated as a **domain controller**.

Active Directory Functions

- **Authentication** is the process of verifying a user's identity by using:
 - Passwords
 - Smart cards
 - Biometrics (fingerprint scan)
- **Authorization** is the process of granting the user access only to the resources he or she is permitted to use by using:
 - ACLs and ACEs

Active Directory Objects

- An object is a distinct, named set of attributes or characteristics that represent a network resource.
- Common objects used within Active Directory:
 - Computers
 - Users
 - Groups
 - Printers

User Accounts

- A user account enables a user to log on to a computer and domain.

There are two types of user accounts: **Local user accounts**
Domain user accounts

Permissions

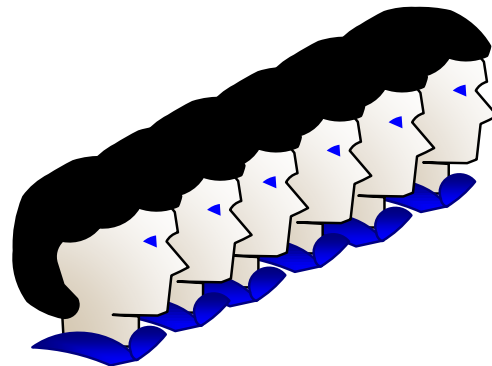
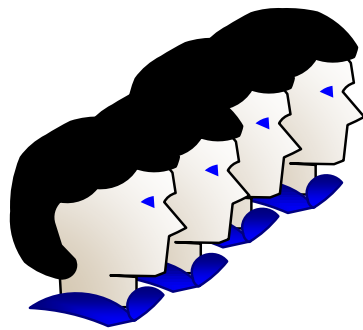
- A permission defines the type of access that is granted to an object (an object can be identified with a security identifier) or object attribute.

Computer Accounts

- Like user accounts, Windows computer accounts provide a means for authenticating and auditing a computer's access to a Windows network and access to domain resources.
- Each Windows computer to which you want to grant access must have a unique computer account.

Groups

- A group is a collection or list of user accounts or computer accounts.
- The advantage of using groups is that they simplify administration, especially when assigning rights and permissions.



Active Directory Management Tools

- The consoles to manage Active Directory are as follows:
 - Active Directory Users and Computers
 - Active Directory Domains and Trusts
 - Active Directory Sites and Services
 - Active Directory Administrative Center
 - Group Policy Management Console (GPMC)

Group Policies

- Group Policy is one of the most powerful features of Active Directory that controls the working environment for user accounts and computer accounts.
- Group Policy provides centralized management and configuration of operating systems, applications, and user settings in an Active Directory environment.

Apply Group Policies

- Group Policy can be set locally on a workstation or set at different levels (site, domain, or organizational unit) within Active Directory.
- Generally speaking, you will not find as many settings locally as you will at the site, domain, or OU level. When group policies are applied, they are applied in the following order:
 - Local
 - Site
 - Domain
 - OU