1.1.2 Windows Server Facts

A Windows system can fulfill different roles on a network depending upon how the system and network are deployed. The following table describes three common network models that are commonly used with Windows systems:

Model	Description
Stand-alone	In the stand-alone model: • Each host functions independently. • Communication takes place using a commonly available public network, such as the Internet. • The hosts are not connected by a local area network.

Workgroup	The workgroup model is based on peer-to-peer networking. In the workgroup model:
	
	• None of the hosts in a workgroup have a specific role.
	   • All hosts can function as both workstation and server.
	   • All hosts in a workgroup can both provide network services and consume network services.
	• The hosts are linked together by some type of local network connection.
	• Hosts in the same workgroup can access shared resources on other hosts.
	
	Drawbacks of the workgroup model include:
	
	• Lack of scalability
	• Lack of centralized configuration control
	• Lack of centralized authentication
	• Lack of centrally applied security settings
	• Complex data backup process

Client-server	In the client-server model, each host has a specific role in the network:
	
	• Servers provide services such as file storage, authentication, email, and printing. A server may even be configured as a hypervisor, which allows the server to run multiple virtual machines.Virtual machines can be used as single-purpose servers, such as for hosting enterprise applications that might be incompatible with other enterprise applications.
	• Clients request services from servers.
	
	The client-server model is known as *domain networking* in a Windows environment. Key domain networking facts include the following:
	
	• Domain networking uses the concept of security principals, which are entities such as users and computers.
	• A Windows domain is a collection of security principals that share a central authentication database called Active Directory.
	• The Active Directory database is located on one or more servers in the domain.
	   • The servers hosting the Active Directory database are called *domain controllers*.
	   • Hosts must run a supported version of the Windows operating system to join a domain.
	   • The distinguished domain name is composed of the domain name with its DNS context.
	• Domains are much more efficient and scalable than workgroups due to a centralized management structure and function.
	   • Objects represent resources, such as users and computers.
	   • Objects are used to define the security attributes, such as access, availability, and use limitations within the domain.
	   • Objects can be organized in container objects.
	   • An *organization unit* (OU) is a container object type used to logically organize network resources and simplify administration.
	
	In the past, domains were implemented and managed on the local area network (LAN). Microsoft has since introduced a service called *Azure AD* that hosts the domain in the Internet cloud instead of on the local network.
	
	Drawbacks of the client-server model include the following:
	
	• Increased implementation cost due to specialized hardware and software requirements
	• Increased planning time required for implementation
	• Increased implementation complexity
	• Increased knowledge required to manage the implementation