9.4.4 Virtualization Implementation Facts

The following table describes a few of the many ways you can implement virtualization.

Implementation	Description
Virtual Servers	With virtual servers, multiple instances of a server operating system are run on a single physical computer. You can migrate servers on older hardware to newer computers or add virtual servers to computers with extra unused hardware resources.

Virtual Desktops	Virtual desktop (also known as a virtual desktop interface [VDI]) strategies include:
	▪ Making multiple desktops available on the same local workstation host. This implementation is very useful when you are testing an application on multiple platforms.
	▪ Implementing multiple desktops on one physical server host and allowing all end users to access those virtual desktops remotely.
	  ▪ All of the user desktops are provided as virtual machines from one hypervisor.
	  ▪ The user desktops can be low-end workstations that connect remotely to the hypervisor and run the desktop.

Virtual Networks	Virtual networks allow virtual servers and desktops to communicate with each other. Using the host operating system, virtual networks can allow communication to network devices out on the physical network. The following are possible components of virtual networks:
	▪ Virtual switches allow multiple virtual servers and desktops to communicate on virtual network segments and the physical network. Virtual switches are often configured in the hypervisor.
	▪ Virtual network adapters are created and assigned to a desktop or server in the hypervisor.
	  ▪ Multiple network adapters can be assigned to a single virtual machine.
	  ▪ Each network adapter has its own MAC address.
	  ▪ Each network adapter is configured to connect to only one network at a time (a virtual network or the physical network, but not both).

Offsite Virtual Networks	Offsite virtual networks allow you to move business-critical networking and other IT-related components to another physical location. This implementation requires minimal hardware at the physical site. Examples of offsite virtual networks include:
	▪ An offsite datacenter, where a contracted vendor manages the hardware and software to provide the virtual network that is accessed by the end users
	▪ A virtual PBX, where a virtual phone system handles call routing, voicemail, and conference calling.
	  ▪ A PBX is typically implemented as dedicated hardware within an organization and can be quite expensive.
	  ▪ A virtual PBX takes calls internally at the service provider's site and routes them to the correct employee on the contracted site.

Network as a Service (NaaS)	Like an offsite virtual network, all NaaS servers and desktops are virtualized and managed by a contracted third party. ▪ NaaS virtualizes the entire network infrastructure. No physical wiring is needed because the network infrastructure is virtual and the network is run at the service provider's site. ▪ A basic network is implemented on the contracted site in order to get out to the service provider's site. ▪ Typically, all network administration tasks are handled by the service provider.