**Chapter 1**

1. The role of a Server Operating System
2. Centralized Management of:
   1. Users
   2. Files
   3. Backups
3. Server HARDWARE is intended for its use
   1. Redundant power supplies, hard drives
   2. Designed to run at high power/high PCU usage all day 24/7/365
   3. All parts tested to run with each other
4. Desktop OS: up to 10 connections (including local user)
   1. Server OS: nearly unlimited
5. Network OS (NOS)
   1. File and Printer Sharing (Desktop as well)
   2. Web Server (Desktop as well)
   3. Router and Remote Access (Desktop as well)
   4. Domain Name System
   5. DHCP
   6. FTP (Desktop as well)
   7. Active Directory
   8. Distributed File System
   9. Fax Server
6. Server: Client Access License (CAL)
   1. Must be purchased for each user you want to connect to the server
7. Server Editions
8. Server 2008 Standard
   * 1. Most companies will use this
9. Server 2008 Enterprise
   * 1. Better for large companies with higher use
10. Server 2008 Datacenter
    * 1. Sold only with a Datacenter Server
11. Web Server 2008
    * 1. Standard with just a web server (not all the roles)

Server Core mode? Windows server MINUS a GUI

1. Windows Server 2008 Core Technologies

Some of many technologies Windows Server 2008 is built:

* New Technology File System
* Active Directory
* Microsoft Management Console
* Disk Management
* File and print sharing
* Windows networking
* Internet information Services

**NTFS**

Introduced in Windows NT

Reliable, flexible, and scalable

FAT/FAT32 could not do:

* native support for long filenames
* file and older permissions
* support for large files and volumes
* reliability
* compression
* encryption

Capability to set user and group permissions on both folders and files

**Active Directory**

Microsoft’s “Directory Services”

* Single point of administration

- Users

- Permissions

- sharing

DNS

Policies

**Microsoft Management Console**

Is your friend

* Allows you to administer nearly every setting on a Windows Server

Workgroup model:

“Peer to Peer”

(Usually) No server.

10 Computers or less.

Distributed administration.

Stand alone server

Domain model:

“Client/Server”

Server.

2 Computers or more.

Centralized administration.

Active Directory “member server”

Domain Controller (runs the Active Directory)

**Network Interface**

Connects computer to network

**Network Protocol**

Rules for connecting to a network

**Protocol:** Set of rules

**Network Protocol**

Rules for connecting to a network

**Network Client Software**

Request things from a server

“Client for Microsoft Networks”

**Network Server Software**

Server has it installed to SHARE resources

File and printer sharing for Microsoft networks

**Internet information services –** Enterprise level web server

**AD (Active Directory) Certificate Services**

VPN

Smart Cards

HTTPS

**AD DS (Domain Services)**

Domain Controller

* DNS
* Security
* Policies
* DHCP
* Users & Passwords

**Application Server**

.NET Server

SQL Server (database)

**DHCP Server**

Assigns IP addresses to computers

**DNS Server**

IP Address <-> Friendly name

**Fax Server**

Manages faxes

**File Services**

**Hyper-V**

Server quality virtual PC

**Network Policy and Access Services**

RRAS – Allows dialup WAN access

VPN

NAP – Network Access Protection [checks the “Security center” before allowing RRAS or VPN]

**Print Services**

Allows people to print (connects printer to server)

**IIS (Internet Information Services) [Web Server]**

**WDS** – Windows Deployment Services

Push System Images (WIM)

**Server Core**

Windows server MINUS the GUI (explorer.exe)

* Better performance
* AD DS
* AD LDS (Lightweight DS)
* DHCP Server
* DNS
* File Services
* Print Server
* Streaming Media
* IIS
* Hyper-V

**Terminal Services**

Remote Desktop – like apps for multiple users

**Chapter 2**

**Server 2008 Installation**

CPU Architecture

Intel 386 (First server)

Intel Xeon  
AMD Opteron

# of processors

Desktop = 2

Server = 4 plus

32 bit vs 64 bits

Bit = binary digit

**Disk Subsystem**

Desktops Server

**PATA/IDE SCSI (Small Computer Systems Interface)**

**SATA**

**Hot add**  
While server is turned on…  
 add a HD, RAM, or CPU

**Hot replace**While server is turned on…  
 replace the HD, RAM, or CPU

**Hot spare**While server is turned on…  
 a HD installed in a spare slot automatically takes over for a failed one

**Naming the server**

Mail  
Files  
Apps

**IP Address**

Static versus dynamic

Static: Any server requiring connections to JUST an IP address  
DNS, web, THE FIRST SERVER IN ACTIVE DIRECTORY

Dynamic: anything that you can handle through DNS

**Time zone is a CRITICAL task**

GMT/UT  
Greenwhich Mean Time / Universal Time “Zulu”

**Server Roles**

DHCP, DNS  
AD DC RODC

Multiple server

* Excessive load
* Fault tolerance
* Crash tolerance
* Remote Offices
* Failover Clustering

**Upgrading**

Server 03 -> 08  
32 bit -> 32 bit  
64 bit -> 64 bit  
server 03/08 Standard -> Server 08 Enterprise  
Datacenter 03 -> Datacenter 08

**Server Core**

Windows that doesn’t do windows

* Secondary Domain Controller
* Branch Office Server
* Virtual Machine
* DNS, DHCP, Web Servers

**Hyper-V**Applications Apps Apps Apps AppsServer 2008 VM VM VM VMHypervisor (Hyper-V Supervisor)   
Hardware (AMD-V or Intel-VT 64-bit)

Why use VM?  
Isolate Crashes!  
COST!  
Management

Why not?  
Performance  
Hardware Failure

**Sprawl**

Main purpose of VM: Training, Testing, Development

Snapshot

Like System Restore for VMs