

**70-290: MCSE Guide to Managing  
a Microsoft Windows Server 2003  
Environment, Enhanced**

**Chapter 1:  
Introduction to Windows  
Server 2003**

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**Objectives**

- Differentiate between the different editions of Windows Server 2003
- Explain Windows Server 2003 network models and server roles
- Identify concepts relating to Windows Server 2003 network management and maintenance
- Explain Windows Server 2003 Active Directory concepts

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**Windows Server 2003 Network  
Administration Goals**

- To ensure that network resources such as files, folders, and printers are available to users
- To secure the network so that available resources are only accessible to users who have been granted the proper permissions

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## Windows Server 2003 Editions

- Multiple versions of Windows Server 2003 exist
- Each version is defined to meet the need of a certain market segment
- Versions Include:
  - Standard Edition
  - Enterprise Edition
  - Datacenter Edition
  - Web Edition

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## Standard Edition

- Designed for everyday needs of small to medium businesses or as a departmental server for larger organizations
- Provides file and print services, secure Internet connectivity, centralized management of network resources
- Logical upgrade path for Windows 2000 Server
- Can be used as a domain controller, member server, or standalone server

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## Standard Edition (continued)

Table 1-1 Windows Server 2003, Standard Edition, system requirements and feature support

Specification/Feature	Value
Minimum CPU speed	133 MHz
Recommended minimum CPU speed	550 MHz
Minimum RAM	128 MB
Recommended minimum RAM	256 MB
Maximum RAM supported	4 GB
Multiprocessor support	Up to 4 CPUs
Operating system disk space requirements	1.5 GB Free space
Clustering support	None
Itanium support	None
Active Directory support	Domain controller, Member server
Supported upgrades	Windows NT 4.0 Server (SP5), Windows NT 4.0 Terminal Server Edition (SP5), Windows 2000 Server

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## Enterprise Edition

- Generally used for medium to large businesses
- Designed for organizations that require better performance, reliability, and availability than Standard Edition provides
- Provides support for mission-critical applications
- Available in both 32 and 64-bit editions

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## Enterprise Edition (continued)

Table 1-2 Windows Server 2003, Enterprise Edition, system requirements and feature support

Specification/Feature	Value
Minimum CPU speed	133 MHz (x86), 733 MHz (Itanium)
Recommended minimum CPU speed	733 MHz
Minimum RAM	128 MB
Recommended minimum RAM	256 MB
Maximum RAM supported	32 GB (x86), 64 GB (Itanium)
Multiprocessor support	Up to 8 CPUs
Operating system disk space requirements	1.5 GB (x86), 2.0 GB (Itanium)
Clustering support	Up to 8 nodes

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## Enterprise Edition (continued)

Specification/Feature	Value
Itanium support	Yes
Active Directory support	Domain controller, Member server
Supported upgrades (x86 only)	Windows NT 4.0 Server (SP5), Windows NT 4.0 Terminal Server Edition (SP5), Windows NT 4.0 Enterprise Edition (SP5), Windows 2000 Server, Windows 2000 Advanced Server, Windows Server 2003 Standard Edition

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## Datacenter Edition

- Designed for mission-critical applications, very large databases, and information access that requires the highest levels of availability
- Can only be obtained from Original Equipment Manufacturers (OEMs)

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## Datacenter Edition Continued

Table 1-3 Windows Server 2003, Datacenter Edition, system requirements and feature support

Specification/Feature	Value
Minimum CPU speed	400 MHz (x86), 733 MHz (Itanium)
Recommended minimum CPU speed	733 MHz
Minimum RAM	512 MB
Recommended minimum RAM	1 GB
Maximum RAM supported	64 GB (x86), 512 GB (Itanium)
Multiprocessor support	Minimum 8 CPUs required, Maximum 32 CPUs supported (x86), Maximum 64 CPUs supported (Itanium)
Operating system disk space requirements	1.5 GB (x86), 2.0 GB (Itanium)
Clustering support	Up to 8 nodes
Itanium support	Yes
Active Directory support	Domain controller, Member server
Supported upgrades (x86 only)	Windows 2000 Datacenter Server

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## Web Edition

- Lower-cost edition
- Designed for hosting and deploying Web services and applications
- Meant for small to large companies or departments that develop and/or deploy Web services

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## Web Edition (continued)

Table 1-4 Windows Server 2003, Web Edition, system requirements and feature support

Specification/Feature	Value
Minimum CPU speed	133 MHz
Recommended minimum CPU speed	550 MHz
Minimum RAM	128 MB
Recommended minimum RAM	256 MB
Maximum RAM supported	2 GB
Multiprocessor support	Up to 2 CPUs
Operating system disk space requirements	1.5 GB
Clustering support	None
Itanium support	None
Active Directory support	Member server only
Supported upgrades	None

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## Windows Networking Concepts Overview

- Two different security models used in Windows environments
  - Workgroup
  - Domain
- Three roles for a Windows Server 2003 system in a network
  - Standalone server
  - Member server
  - Domain controller

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## Workgroups

- A workgroup is a logical group of computers
  - Decentralized security and administration
  - Authentication provided by a local account database – Security Accounts Manager (SAM)
- Limitations
  - Users need unique accounts on each workstation
  - Users manage their own accounts (security issues)
  - Not very scalable

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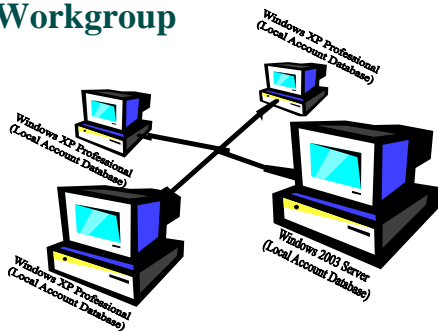
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## Workgroup



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## Domains

- A domain is a logical group of computers
  - Characterized by centralized authentication and administration
  - Authentication provided through centralized Active Directory
  - Active Directory database can be physically distributed across domain controllers
  - Requires at least one system configured as a domain controller

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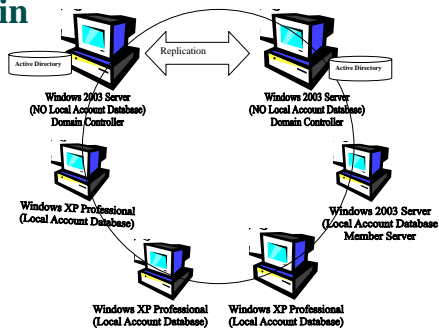
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## Domain



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## Member Servers

- A member server
  - Has an account in a domain
  - Is not configured as a domain controller
  - Typically used for file, print, application, and host network services
  - All 4 Windows Server 2003 Editions can be configured as member servers

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## Domain Controllers

- Explicitly configured to store a copy of Active Directory
- Service user authentication requests
- Service queries about domain objects
- May be a dedicated server but is not required to be

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## Network Management and Maintenance Overview

- Five major focus areas of administrative tasks
  - Managing and maintaining physical and logical devices
  - Managing users, computers, and groups
  - Managing and maintaining access to resources
  - Managing and maintaining a server environment
  - Managing and implementing disaster recovery

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## Managing and Maintaining Physical and Logical Devices

- Network administrator responsibilities include:
  - Installing and configuring hardware devices
  - Managing server disks
  - Monitoring and managing performance
- Tools include
  - Control panel applets
  - Device Manager
  - Disk Defragmenter

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## Managing Users, Computers, and Groups

- User accounts
  - Creation, maintenance, passwords
- Group accounts
  - Assign network rights and permissions to multiple users
  - Support e-mail distribution lists
- Computer accounts
  - Active Directory tools and utilities used to create and maintain computer accounts

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## Managing and Maintaining Access to Resources

- Server 2003 resources are made available to network users via a technique known as **sharing**
- Sharing setup
  - Through Windows Explorer interface and Computer Management administrative tool
- Methods to Secure Resources
  - Shared folder and NTFS permissions
- Terminal services
  - Allows a user to connect to a central server and access applications as though working from the server's desktop
  - Allows access from desktops running different operating systems

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## Managing and Maintaining a Server Environment

- Covers a wide variety of tasks including:
  - Managing server licensing
  - Managing patches and software updates
  - Managing Web servers
  - Managing printers, print queues, disk quotas
- A wide variety of tools are available including:
  - Event Viewer and System Monitor
  - Software Update Services
  - Microsoft Management Console

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## Managing and Implementing Disaster Recovery

- Main component of disaster recovery is system backup
- Backup tool provided is Windows Backup
  - Different types of backup
  - Automated scheduling of backups
  - Back up critical system state information
  - Automated system Recovery
  - Shadow Copies of Shared Folders

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## Introduction to Windows Server 2003 Active Directory

- Provides the following services
  - Central point for storing and managing network objects
  - Central point for administration of objects and resources
  - Logon and authentication services
  - Delegation of administration

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## Introduction to Windows Server 2003 Active Directory Continued

- Stored on domain controllers in the network
- Changes made to any Active Directory will be replicated across all domain controllers
  - Multimaster replication
  - Fault tolerance for domain controller failure
- Uses Domain Name Service (DNS) conventions for network resources

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## Active Directory Objects

- An **object** represents a network resource such as a user, group, computer, or printer
- Objects have attributes depending on object type
- Objects are searchable by attributes

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## Active Directory Schema

- Schema defines the set of possible objects for entire Active Directory structure
- Only one schema for a given Active Directory, replicated across domain controllers
- Two main definitions
  - Object classes
  - Attributes

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## Active Directory Logical Components

- Components include:
  - Domains
  - Organizational units
  - Trees and forests
  - A global catalog

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## Domains and Organizational Units

- Domain
  - Logically structured organization of objects that share a common database
  - Has a unique name
  - Is organized in hierarchical levels
  - Has an Active Directory replicated across its domain controllers
- Organizational unit (OU)
  - A logical container used to organize domain objects
  - Makes it easy to locate and manage objects
  - Allows you to apply **Group Policy** settings
  - Allows delegation of administrative control

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## An Active Directory Domain



Figure 1-14 An Active Directory domain and OU structure

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## Active Directory Tree



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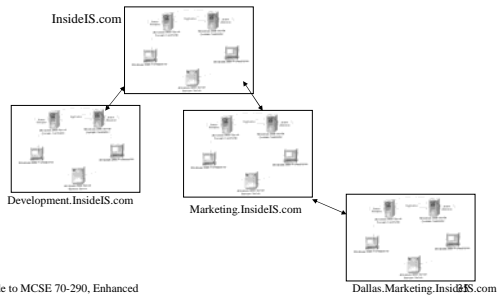
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## Tree: InsideIS.com



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Dallas.Marketing.InsideIS.com

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## Active Directory Forest



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## Trees and Forests

- Sometimes necessary to create multiple domains within an organization
- First Active Directory domain is the **forest root domain**
- A **tree** is a hierarchical collection of domains that share a contiguous DNS naming structure
- A **forest** is a collection of trees that do not share a contiguous DNS naming structure
- **Transitive trust** relationships exist among domains in trees and, optionally, in and across forests

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## Global Catalog

- An index and partial replica of most frequently used objects and attributes of an Active Directory
- Replicated to any server in a forest configured to be a global catalog server

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## Global Catalog (continued)

- Enable users to find Active Directory information
- Supply authentication services when a user logs on from another domain
- Respond to directory lookup requests from Exchange 2000 and other applications

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## An Active Directory Forest

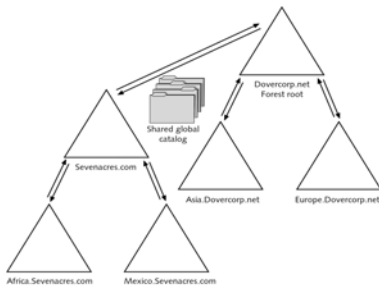


Figure 1-16 Creating an Active Directory forest

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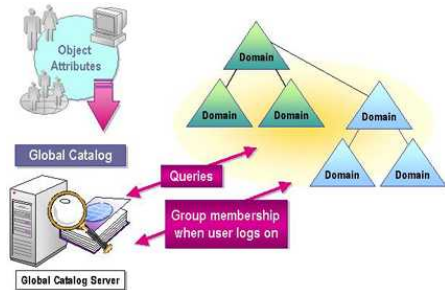
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## An Active Directory Forest




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## Active Directory Communications Standards

- The **Lightweight Directory Access Protocol (LDAP)** is used to query or update Active Directory database directly
- LDAP follows convention using naming paths with two components
  - Distinguished name: the unique name of an object in Active Directory
  - Relative distinguished name: the portion of a distinguished name that is unique within the context of its container

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## Site Link

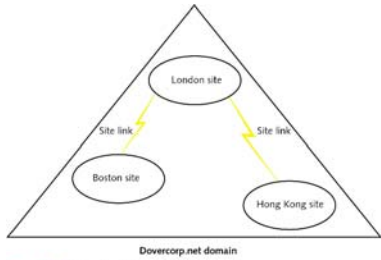


Figure 1-17 The site structure of Dovercorp.net

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## Active Directory Physical Structure

- Physical structure distinct from logical structure
- Important to consider the effect of Active Directory traffic and authentication requests on physical resources
- A **site** is a combination of 1+ Internet Protocol (IP) subnets connected by a high-speed connection
- A **site link** is a configurable object that represents a connection between sites

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## Summary

- Windows Server 2003 network administration goals:
  - Make network resources available to users as permitted
  - Secure the network from unauthorized access
- Four editions of Windows Server 2003 with different features and costs
- Two network security models with three possible server roles

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## Summary (continued)

- Five broad categories of network administration tasks in a Windows Server 2003 environment
- Native directory service is Active Directory
  - Objects and schema
  - Domains, organizational units and controllers
  - Trees and forests
  - Sites and site links

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