# Microsoft® SharePoint® Products and Technologies Server Farm Architecture

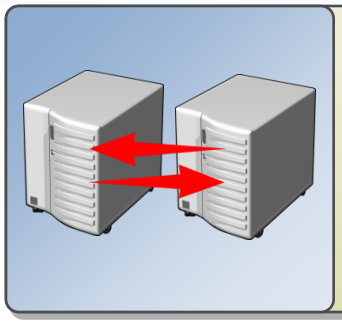
# Overview

- Server Farms
- Office SharePoint Server 2007 Server Farm Topology
- Deploying Windows SharePoint Services 3.0 and Office SharePoint Server 2007 Farms

# Lesson 1: Server Farms

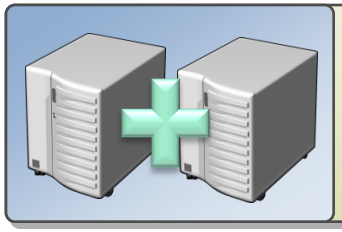
- What Is a Server Farm?
- Scaling Solutions with Server Farms
- Increasing Solution Availability with Server Farms
- Increasing Flexibility and Manageability with Server Farms

# What Is a Server Farm?



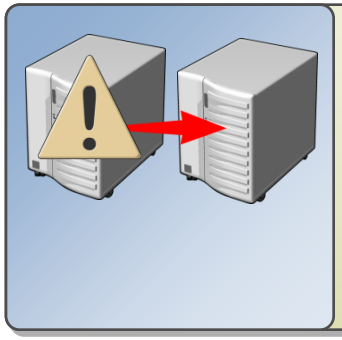
## Load balancing

- Two or more networked servers providing a single role or service group to the farm
- Distribute load across multiple servers



## Scalability

- Scale server role out by adding additional servers as needed



## Fault tolerance

- Farm solution continues to service requests in the event of an outage of single server if the role is load-balanced

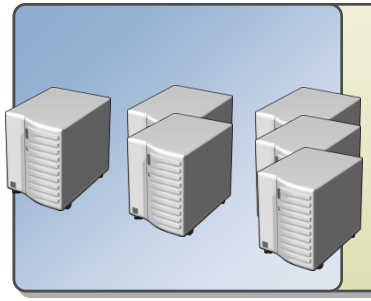
# Scaling Solutions with Server Farms

| | |
|---|---|
| **Physical bottlenecks** | Four primary physical resources used in a Web farm:<br>• Temporary Memory (RAM)<br>• Processor (CPU)<br>• Disk Access (Disk I/O Read/Write),<br>• Network Performance (Network and NICs) |
| **Scaling up** | Increase farm performance by upgrading memory, processors, and/or disks in a single server |
| **Scaling out** | Add additional servers to a topology tier/server role in order to distribute and share the workload |

# Increasing Availability with Server Farms

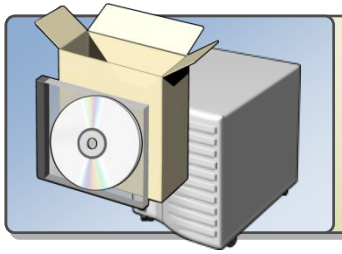
| Requirement | Issues and options |
| --- | --- |
| **Load balancing** | • Why load balance?<br>• Hardware or software load balancing? |
| **Redundancy** | • Multiple servers for a single role<br>• Some server roles cannot be redundant |
| **Farm Database Availability** | • Mirroring<br>• Clustering<br>• Failover |

# Increasing Flexibility and Manageability with Server Farms



## Incremental expansion

- Easier to add additional servers (do not need to remove server)
- Diminishing return of improvement when scaling up



## Managing Upgrades

- Server can be removed from farm and upgraded

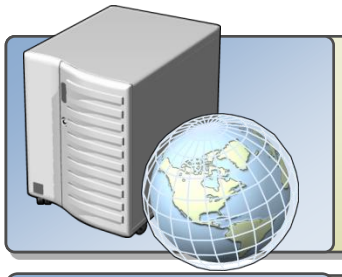
## Delegated administration

- Farm Administrators, Server Administrators, and DBAs

# Lesson 2: Office SharePoint Server 2007 Server Farm Topology

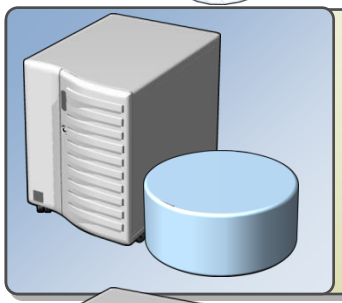
- Windows SharePoint Services 3.0 Server Roles
- Office SharePoint Server 2007 Server Roles
- Shared Service Provider Architecture
- Server Role Requirements
- Typical Server Layouts
- Multiple Shared Services Providers in a Farm
- Sharing SSPs between Farms

# Windows SharePoint Services 3.0 Server Roles



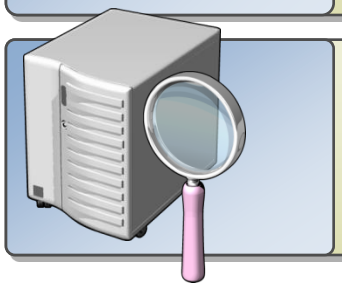
## Web Front-End servers (WFE)

- Provides services and processing of ASP.Net pages, database access, etc. for user requests



## Database servers (SQL 2000/2005)

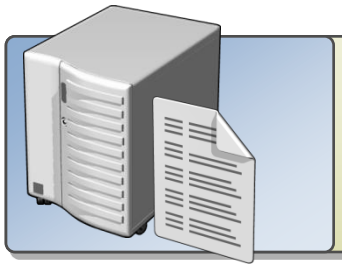
- Stores information about the farm, all SharePoint content, SSP configuration, etc. (Makes it possible to scale to multiple WFE servers)



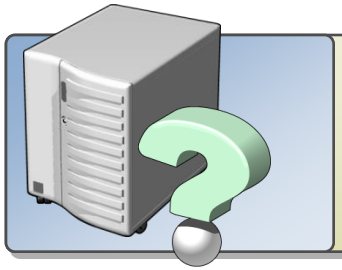
## Search servers (WSS Query + Index)

- Indexes WSS Content DB, creates search index, and

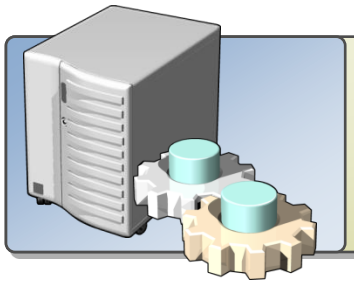
# Office SharePoint Server 2007 Server Roles



Index servers (One per SSP)

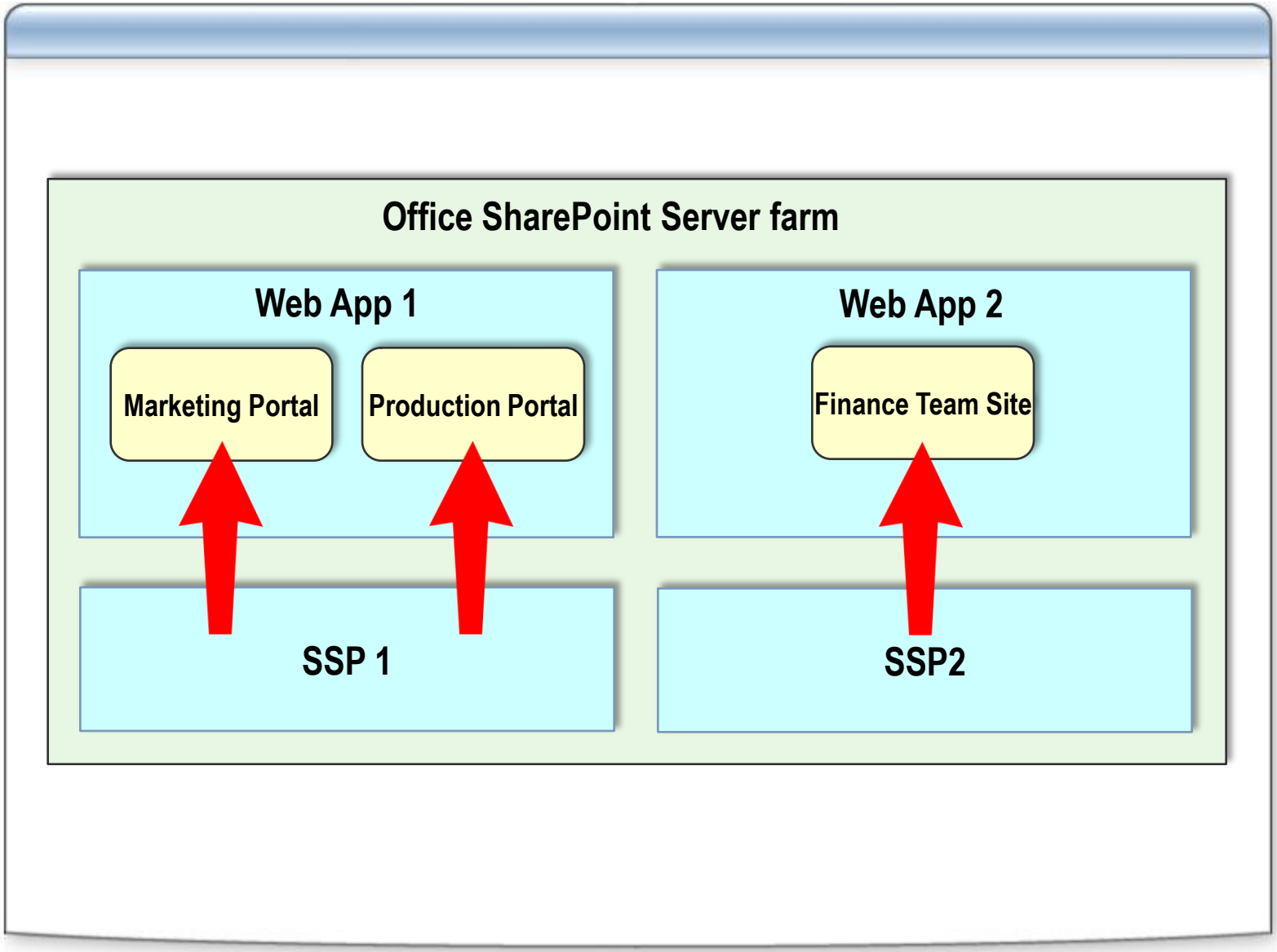


Query servers (Scaling in MOSS)



Other application servers (Excel, SSP, etc.)

# Shared Service Provider Architecture



# Web Front-End Server Requirements

## Specific issues for WFE servers:

- Use consistent platform for all WFE servers (x64 or x86)
- Ensure .NET Framework 3.0 is installed
- Ensure ASP.NET 2.0 is enabled
- Most likely performance issue is network or memory bottleneck depending on configuration and scenario

# Database Server Requirements

## Specific issues for database servers:

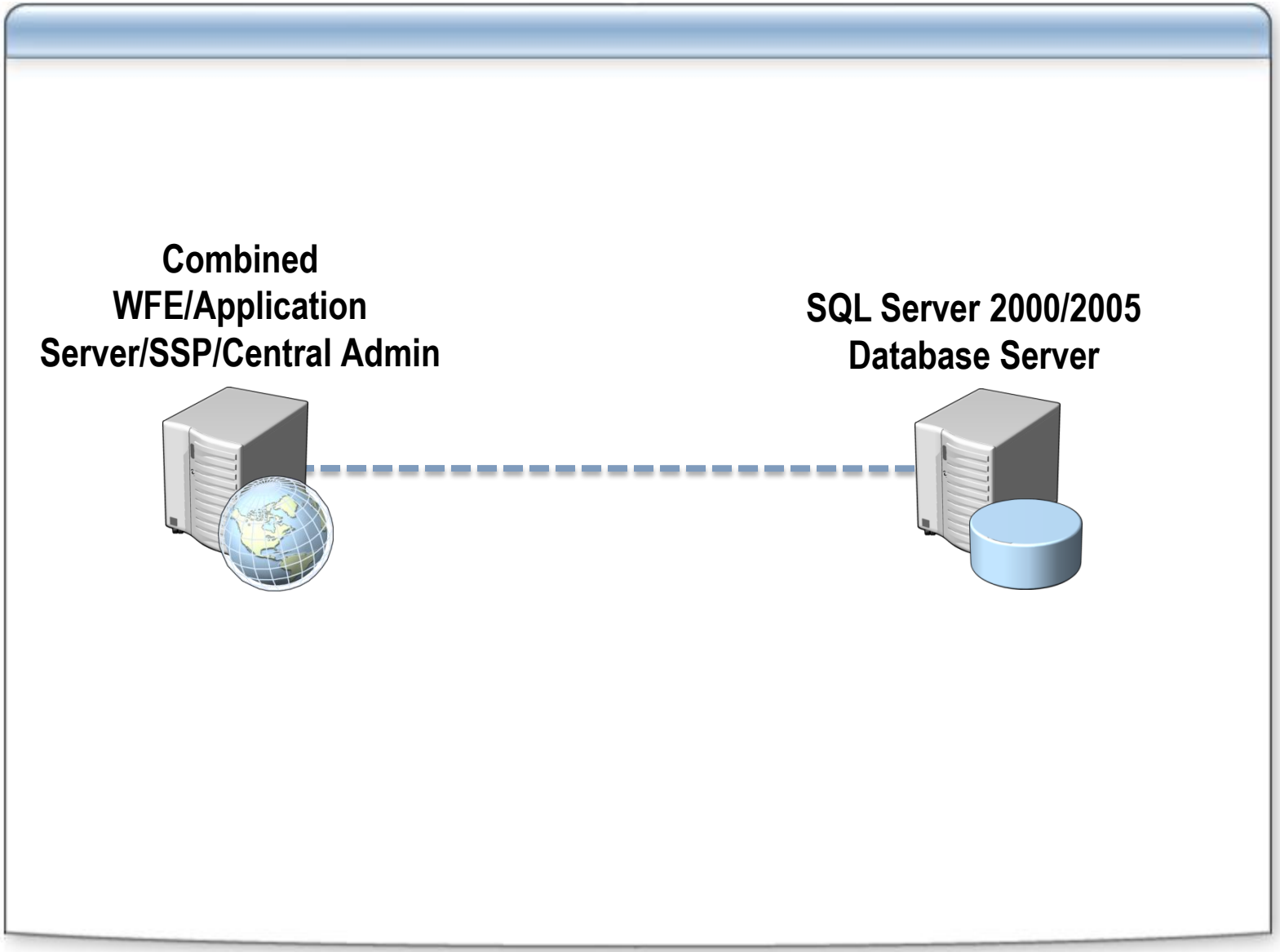
- Use RAID arrays to protect your data (remember that this will affect the amount of disk space required)
- Calculate required disk space carefully
- Most likely performance issue is Disk I/O bottleneck
  - Add RAM to DB servers to store “Read” operations in memory, thereby lessening load on DB Server
  - Segment Site Collections and Web Applications to multiple Content Databases
  - Manage size of Content DBs
  - Use Caching techniques discussed in Module 7

# Application Server Requirements

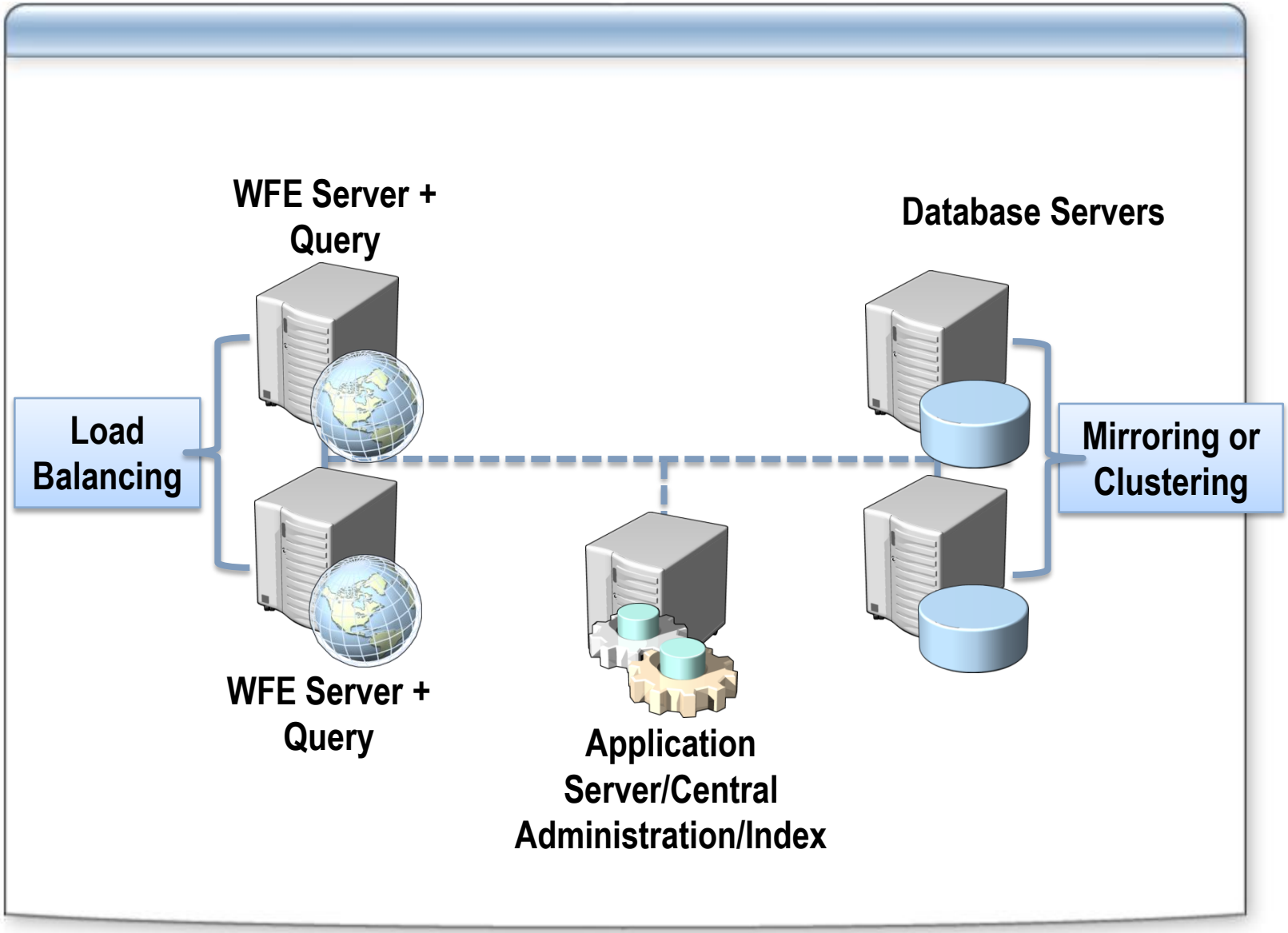
## Specific issues for application servers:

- Same hardware requirements as WFE servers
- Index server role is highly processor intensive
  - Each individual Index is created by one and only one Index Server (scale Index server up, not out)
- Query server role can be highly memory intensive and requires disk space to store a copy of the index
- Excel Services can be processor and memory intensive depending on scenario

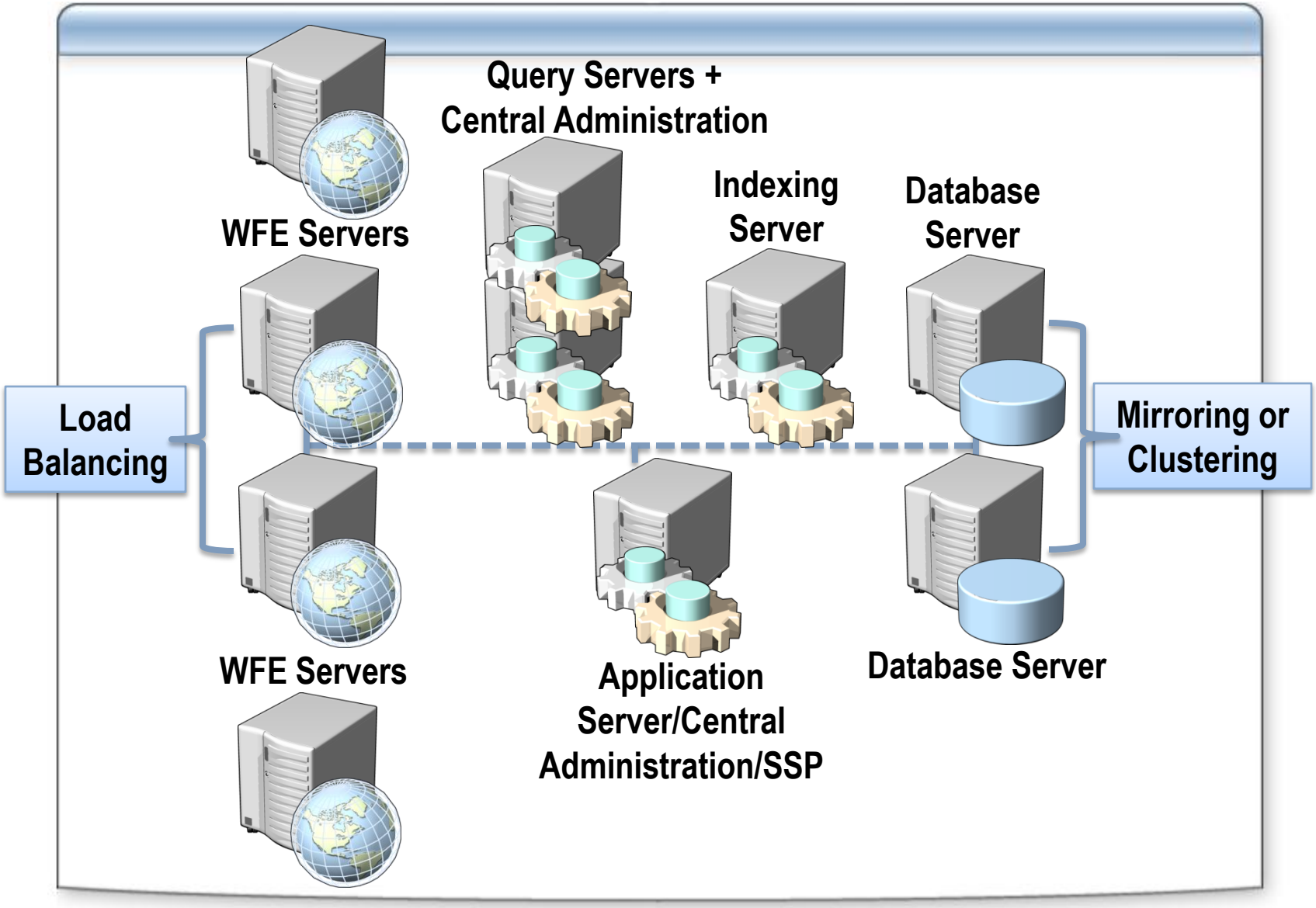
# Typical Server Layouts for Small Deployments



# Typical Server Layouts for Medium Deployments



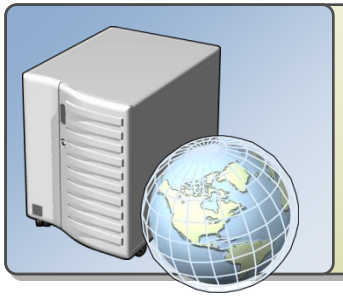
# Typical Server Layouts for Large Deployments



# Lesson 3: Deploying Windows SharePoint Services 3.0 and Office SharePoint Server 2007 Farms

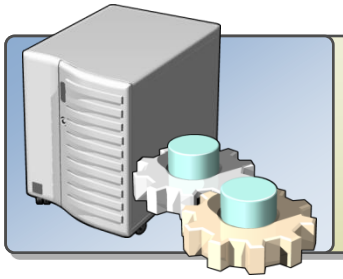
- Preparing Servers
- Order of Installation
- Performing the Deployment
- Scripted Installs

# Preparing Servers

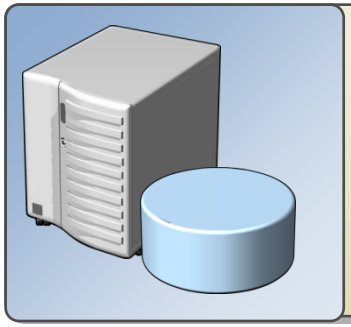


## Web Front-End servers

- Install and configure IIS 6.0
- Install .NET Framework 3.0
- Enable ASP.NET 2.0



## Application servers



## Database servers

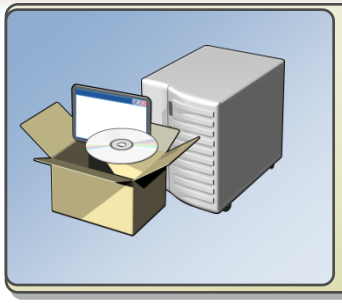
- SQL Server 2000 or SQL Server 2005 with current Service Pack
- Configure SQL Server surface area settings (Accept Remote Connections; Use both TCP/IP & Named Pipes

# Order of Installation

**Install Office SharePoint Server roles in the following order:**

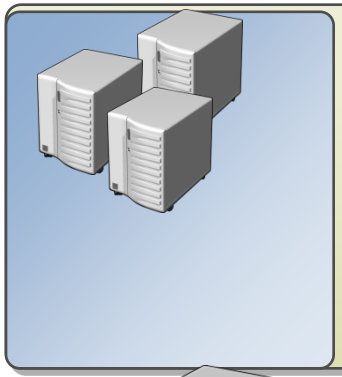
1. The application server that will host Central Admin
2. Every WFE server
3. The Index server
4. The Query servers
5. Any other Application servers

# Performing the Deployment



## Installing the first server

- Database server name, configuration database name, server farm account, port number & authentication for the Central Administration Web Application

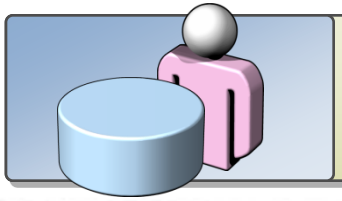


## Adding servers to the farm

- Run the SharePoint Products and Technologies Configuration Wizard to join an existing server farm
- DB server that hosts the configuration database; configuration database name, and account to connect to database

## Moving the Central Administration site

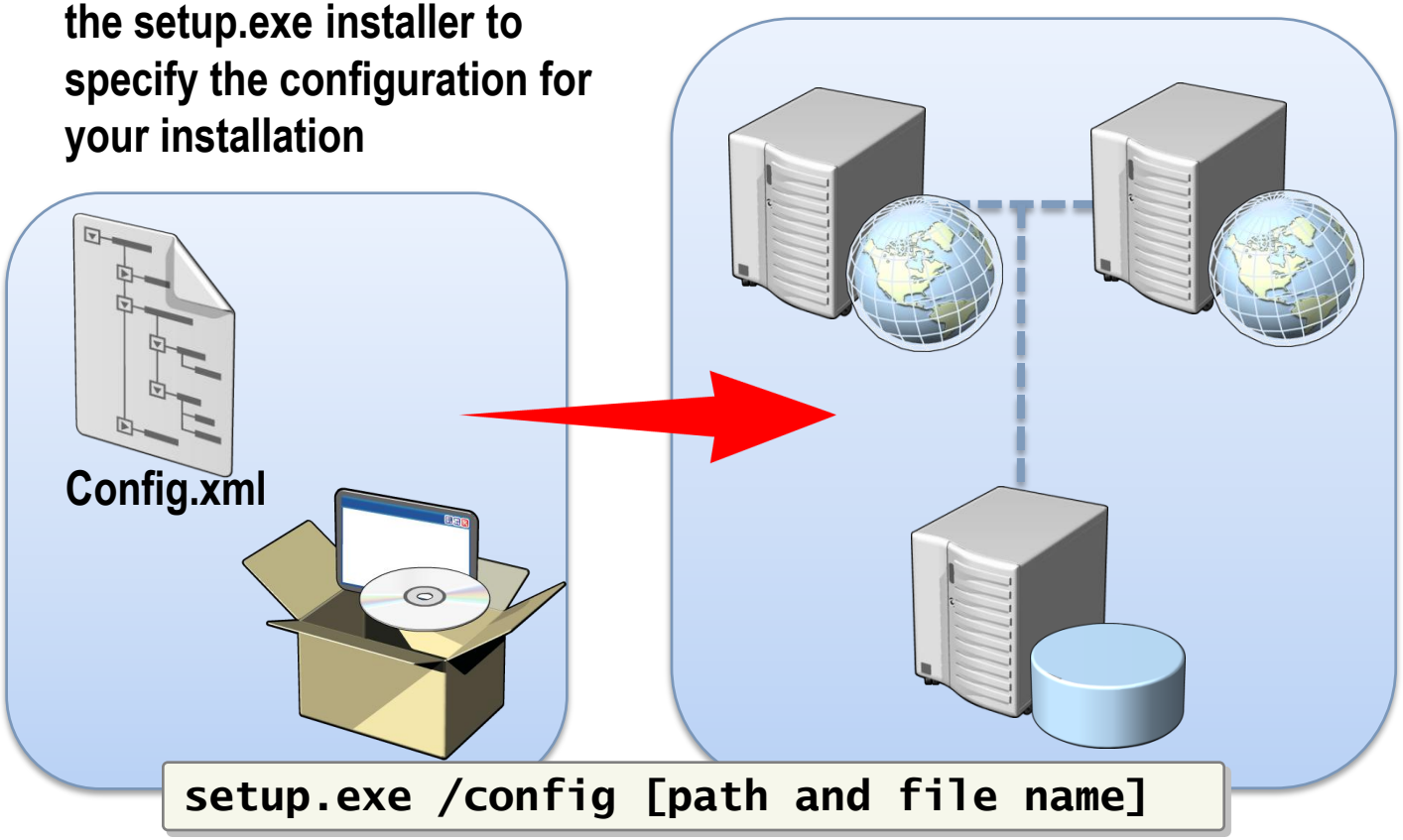
- Configuration Wizard or STSADM.exe



## DBA-created databases

# Scripted Installs

- Config.xml file together with the setup.exe installer to specify the configuration for your installation



# Review

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- Deploying Windows SharePoint Server 3.0 and Office SharePoint Server 2007 Farms