Topologies for SharePoint Server 2010

Physical servers, service applications and components, and services on server

Overview

The traditional three-tier roles of a Microsoft® SharePoint® Server 2010 farm can be deployed *on a single server* or *many servers*. The three-tier roles include:

- Web server role
- Application server role
- Database server role

In a small farm, server roles can be combined onto one or two servers. For example, the Web server and application server roles can be combined on a single server or onto two or more servers to achieve redundancy.

Service applications

Service applications are services that are shared across sites within a farm (for example, Search and Excel Calculation Services). Some service applications can be shared across multiple farms.

Service applications are deployed to the application server tier. Some services include multiple components and deployment of these components require planning. For example:

- The Search service application includes multiple application components and multiple databases.
- The People service application includes multiple databases.

Each service application is associated with at least one service on the Services on Server page in Central Administration.

Services on server

The Services on Server page in Central Administration lists services that are started or stopped on specific servers in the farm:

- Some of these services are associated with service applications. You deploy service applications by starting the associated services on the desired server computers.
- Some of these services are not associated with service applications.

This model lists these services and indicates which server roles the services are recommended for.

Note: Search components for the query and crawl roles are deployed to servers using the Search service application pages in Central Administration, not the Services on Server page.

Scaling out a farm with server groups

In SharePoint Server 2010, the number of services and corresponding databases is greater than previous releases. The recommendation for scaling out a farm is to group services or databases with similar performance characteristics onto dedicated servers and then scale out the servers as a group.

For example, group all client-related services onto one or two servers and then add servers to this group as needed to satisfy user demand for these services. In some cases, you might need to create a dedicated server group for a single service, such as Excel Calculation Services or Search.

This model groups service applications and related components (for example, databases) into several different logical groupings that can be used as a starting point. In large environments, the specific groups that evolve for a farm depends on the specific demands for each service.

Note: *Server groups* is a planning concept. This term and concept is not found in Central Administration.

Server roles

Web server

- Host Web pages, Web services, and Web Parts that are necessary to process requests served by the farm.
- Direct requests to the appropriate application servers.
- This role is necessary for farms that include other SharePoint Server 2010 capabilities. In dedicated search service farms, this role is not necessary because Web servers at remote farms contact query servers directly.
- In small farms, this role can be shared on a server with the query role.

Application server roles

Application server roles are associated with services that can be deployed to a physical computer.

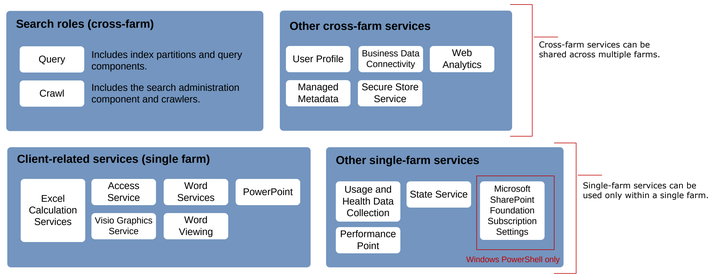
- Each service represents a separate application service that can potentially reside on a dedicated application server.
- Services with similar usage and performance characteristics can be grouped on a server and scaled out onto multiple servers together. For example, client-related services can be combined into a service group.
- After deployment, look for services that consume a disproportionate amount of resources and consider placing these services on dedicated hardware.

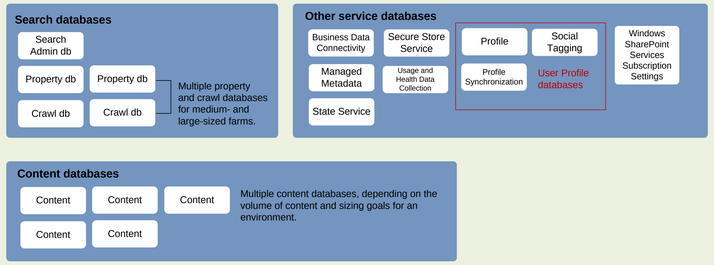
Database server

In a small-farm environment, all databases can be deployed to a single server. In larger environments, group databases by roles and deploy these to multiple database servers.

Components for service applications

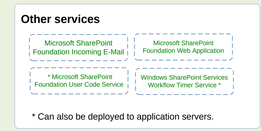
None.

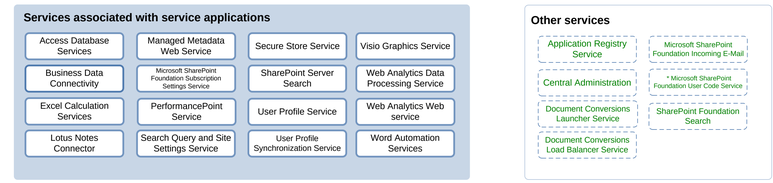




Services on server

Services listed in this row are recommended for Web servers.





Small to medium topology examples

Limited deployments

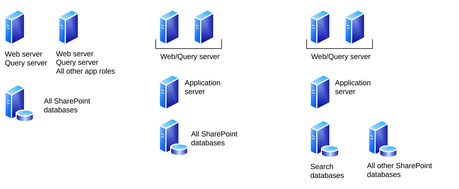
Limited deployments

Description: Evaluation environments and production environments for limited numbers of users.

Small farm topologies

Small multi-purpose SharePoint Server 2010 topologies

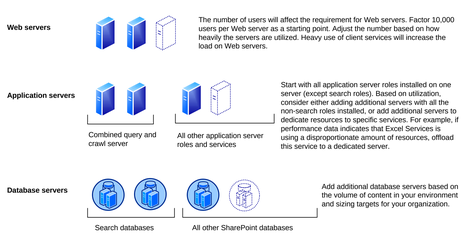
Description: Small farm architectures serve a larger number of users and scale out based on how heavily services are used. Due to the greater number of services, including client Web applications, more requests per user are expected in the new version compared with the old version.



Medium farm architectures

Medium topologies

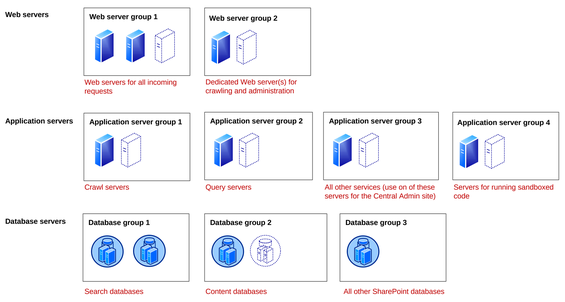
The medium server farm illustrated is scaled for search to serve approximately 40 million items. Beyond this search scale, the recommendation is to deploy a dedicated search farm. Scale out all other servers based on the utilization of other services within the farm and the volume of content the farm will host.



Large farm examples

Topologies with server groups

The recommendation for scaling out a large farm is to group services or databases with similar performance characteristics onto dedicated servers and then scale out the servers as a group. The following topology illustrates a practical example of this concept. The red text lists one possible way to build server groups.



Detailed service guidance

This table lists the services that appear on the Services on Server page in Central Administration and provides additional topology guidance, if it applies. Note that search service application components are deployed to servers by using the search administration page, not the Services on Server page.

Service	Is this service associated with a service application?	Server recommendation	Additional information
Access Database Services	Yes	Application server	
Application Registry Service	No	Application server	Backward compatibility version of the Business Data Catalog service.
Business Data Connectivity	Yes	Application server	
Central Administration	No	Application server	This service runs the Central Administration site.
Document Conversions Launcher Service	No	Application server	Schedules and initiates the document conversions on a server.
Document Conversions Load Balancer Service	No	Application server	Balances document conversion requests from across the server farm. Each Web application can only have one load balancer registered with it at a time.
Excel Calculation Services	Yes	Application server	
Lotus Notes Connector	Yes — Search	Application server — Start this service on the index server.	This service is required to crawl content from Lotus Notes Domino Servers.
Managed Metadata Web Service	Yes	Application server	
Microsoft SharePoint Foundation Incoming E-Mail	No	Web server or application server	Typically, this service runs on a Web server. If you need to isolate this service, you can start it on an application server.
Microsoft SharePoint Foundation Subscription Settings Service	Yes Note: This service application is deployed only by using Windows PowerShell.	Web server or application server — In hosting environments, this service is typically started on one or more application servers.	Start this service if you have deployed service applications in multitenant mode or if the farm includes sites using site subscriptions. This service stores settings and configuration data for tenants in a multitenant environment. After it is started, Web applications consume this service automatically.
Microsoft SharePoint Foundation User Code Service	No	Web server or application server — Start this service on computers in the farm that run sandboxed code. This can include Web servers and application servers.	This service runs code deployed as part of a sandboxed solution in a remote, rights-restricted process and measures the server resources used during execution against a site collection-scoped, daily quota.
Microsoft SharePoint Foundation Web Application	No	Web server — Ensure that this service is started on all Web servers in a farm. Stop this service on application servers.	This service provides Web server functionality. It is started by default on Web servers.
Microsoft SharePoint Foundation Workflow Timer Service	No	Web server	This service is automatically configured to run on all Web servers in a farm.
PerformancePoint Service	Yes	Application server	
Search Query and Site Settings Service	Yes — Search	Application server — Start this service on all query servers in a farm. However, if it becomes memory intensive, consider moving this service to a dedicated computer to free up memory for query processing.	Load balances queries across query servers. Also detects farm-level changes to the search service and puts these in the Search Admin database.
Secure Store Service	Yes	Application server	
SharePoint Foundation Search	No	In a SharePoint Foundation farm, start this service on the search server. In a SharePoint Server farm, this service is only needed to search online Help. Start the service on any server in the farm.	This service provides search in a SharePoint Foundation farm. For SharePoint Server farms, this service is only used to search online Help. Start this service only on one computer.
SharePoint Server Search	Yes — Search	Automatically configured to run on the appropriate computers.	This service cannot be stopped or started from the Services on Server page.
User Profile Service	Yes	Application server	
User Profile Synchronization Service	Yes	Application server	
Visio Graphics Service	Yes	Application server	
Web Analytics Data Processing Service	Yes — Web Analytics	Application server	
Web Analytics Web service	Yes — Web Analytics	Application server	
Word Automation Services	Yes	Application server	Performs automated bulk document conversions. When actively converting, this service will fully utilize one CPU for each worker process (configured in Central Administration). If the service is started on multiple servers, a job will be shared across all the servers.

© 2010 Microsoft Corporation. All rights reserved. To send feedback about this documentation, please write to us at ITSPdocs@microsoft.com.