

# Global Solutions for SharePoint 2010 Products

## Key concepts

Global architecture refers to how Microsoft® SharePoint® Products and Technologies are deployed to meet the needs of users within a large region or around the world. This model presents several common global architectures based on geographic location of users and content.

Key concepts to consider include:

- Central site** — The location that hosts the majority of company data and employee computers. In many cases, a SharePoint solution that is deployed to a central site can serve the needs of users who are spread across a region or around the world.
- Regional sites** — Locations that host a subset of corporate data and employee computers that are connected by using a combination of LAN and WAN links. If your organization includes regional sites, you will have to decide how to include these locations in the overall global architecture. Several options are presented in this model.
- WAN performance** — If you have users spread across a large region or located around the world, performance considerations to factor into your planning include:
  - User response times** — The time it takes users to receive results from common SharePoint operations, including viewing a Web page, opening a document, and receiving results from queries.
  - Content crawl times** — The time it takes to crawl content across a WAN.

- Bandwidth and latency** — Results of bandwidth and latency tests for the previous versions of SharePoint Products and Technologies indicate that latency—more than bandwidth—affects WAN performance until bandwidth becomes restricted at 512 kilobits per second and lower. For example, a T1 line with a latency of 500 milliseconds provides about the same performance as a T3 line with the same amount of latency. For best performance over a WAN, we recommend that you target a bandwidth range of 3 megabits per second (Dual T1) or greater.
- Scope of enterprise search** — A key driver in architecture design is the breadth of results that you want to include in enterprise-wide search and how integrated you want the results to be. Along with the decision of how to deploy globally, you have to decide whether to crawl all content, federate to some content sources, or provide a more limited search scope that does not include all content in the organization.

## Single-farm solutions

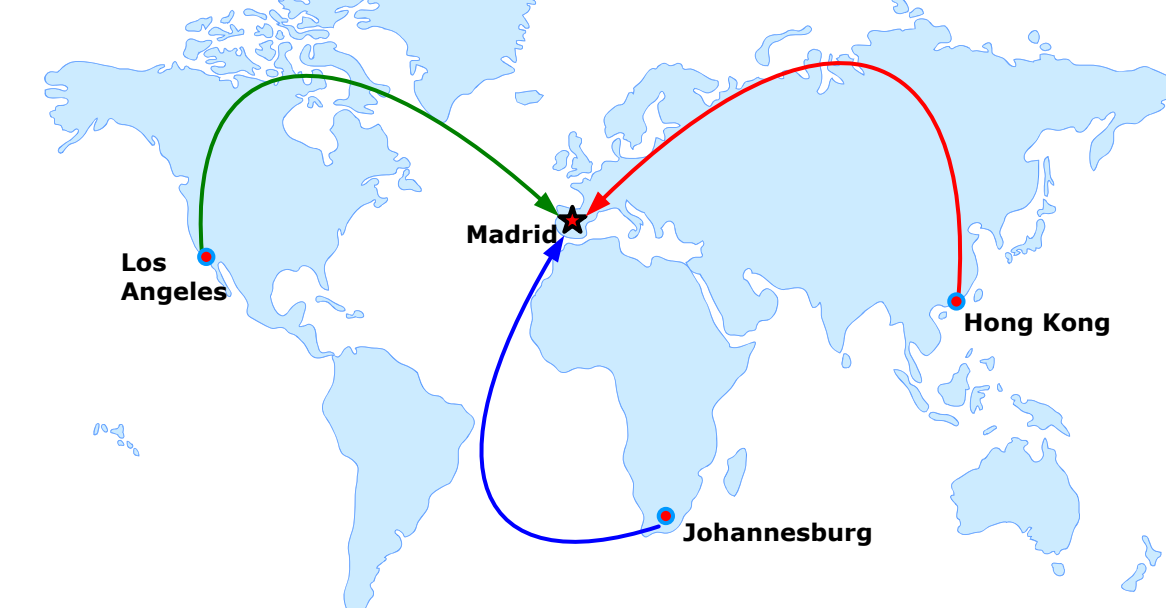
### Single region



Users and content are located within a single geographic region.

If users and content are contained within a single geographic region, you can deploy SharePoint Server 2010 in a central location and optimize sites and services based on the scale and capacity that you want to achieve at the central site.

### Central farm with users around the world



All SharePoint Server 2010 farm components and services are hosted at a central site. Users at remote sites access all sites and services across the WAN.

This solution is the recommended solution for environments in which bandwidths and latencies between WAN connections provide a reasonable user experience. This solution typically works well when work sites and users span a single continent. If you support users across low-bandwidth connections or users who are located on multiple continents, it is important to evaluate the bandwidth and latency combinations for these connections along with the expected use of SharePoint Server 2010 (page sizes, file sizes, and usage patterns) to gauge how well a central deployment will serve your organization.

If users are unable to use the sites and services because performance over the WAN is too slow, consider deploying multiple server farms to regional sites. However, before scaling beyond the central solution, evaluate the ways in which you can optimize a central solution to improve performance over the WAN.

## Client solutions for WAN environments

Several client solutions are available that can facilitate use of SharePoint 2010 Products across high-latency connections or in scenarios where connections are not always available. For more information, see the following article in TechNet: Client solutions for WAN environments.

### Client solutions for WAN environments

	Mobile views	Office Web Apps	Office 2010 Document Cache	Outlook 2010	SharePoint Workspace	SharePoint Workspace for Windows Phone 7	SharePoint Workspace and Groove Server
Slow network connections	✓	✓	✓	✓	✓	✓	✓
Working offline				✓	✓	✓	✓
Working with team members who are disconnected							✓

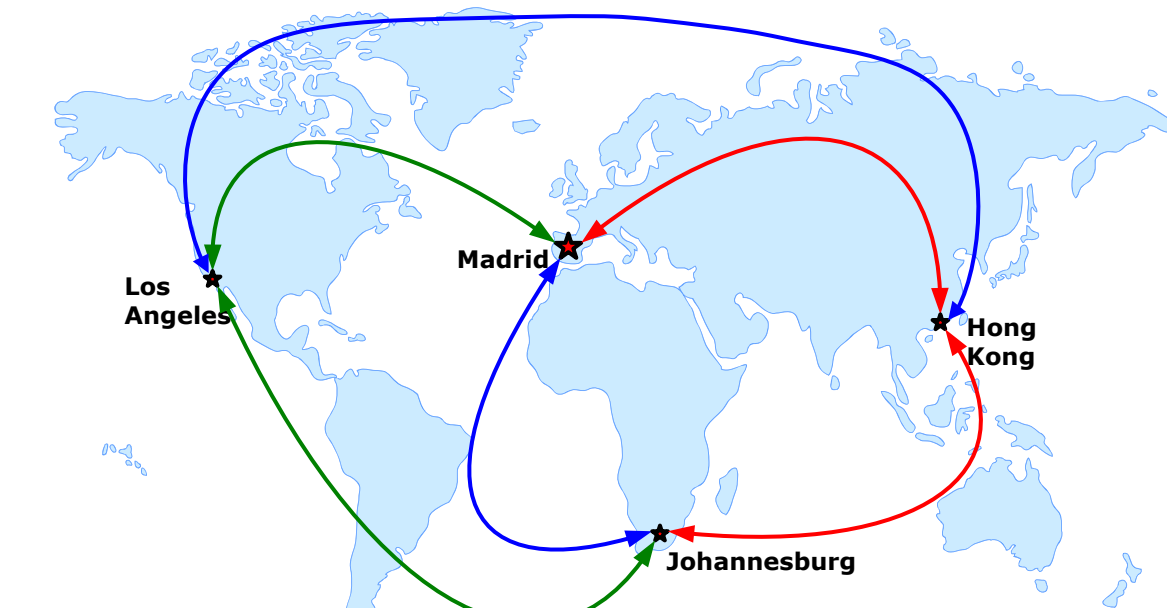
### Scope of client solutions

	Mobile views	Office Web Apps	Office 2010 Document Cache	Outlook 2010	SharePoint Workspace	SharePoint Workspace for Windows Phone 7	SharePoint Workspace and Groove Server
Document	✓	✓	✓	✓	✓	✓	✓
List	✓	✓		Limited*	Limited*	Limited*	Limited*
Library	✓	✓		✓	✓	✓	✓
Site	✓	✓		✓	✓	✓	✓
Site hierarchy	✓	✓		✓	✓	✓	✓

\*Limited — not all list types are supported

## Multi-farm solutions with example services architectures

### Central farm with regional SharePoint deployments



In addition to a central site, regional sites also run SharePoint Server 2010. Users collaborate with local teams on the local server farm. Users access all enterprise-wide features across the WAN.

Deploying SharePoint Server 2010 at regional sites is recommended if the performance of WAN connections makes it difficult for regional users to efficiently use the central site and you are unable to optimize the central solution to improve WAN performance to acceptable levels.

The central-with-regional-sites solution provides local access to services that regional users are likely to use most—for example, collaboration sites and My Sites. It also provides local search for local content. With this solution, you must decide how to incorporate regional content in search results. Options include crawling regional farms from the central farm, using search federation across farms, or not including all regional content in enterprise-wide search.

Deploying multiple farms increases the complexity and operations costs of the overall solution. This solution also requires greater organizational coordination to build effective governance of content that is authored in multiple geographic locations.

Services planning includes deciding which cross-farm services to share across WAN links.

Cross-farm services recommendations for WAN environments

Service application	Recommended for WAN environments?	Notes
Search	Yes	
Managed Metadata	Yes	
Business Data Connectivity	Depends on the BDC environment	After the data cache is populated, the WAN link is not needed. First-page browses are slow and might result in timeouts. Subsequent requests for cached data are faster.
User Profile	No	Currently, using the User Profile service application across WAN links is not supported. This service requires direct database access. For WAN environments, the User Profile Application Engine (UPRE) is recommended instead.
Secure Store Service	No	The Secure Store Service works across WAN links but is not recommended because it might negatively affect the performance of other services over a WAN link.
Web Analytics	No	

Additional guidance for specific service applications

- Search**
- Crawl or federate** — You can crawl content across WAN links from a central farm or federate search results to reduce the amount of content that is crawled by any one farm. Federated search allows you to send queries to multiple locations. Results from federated locations are displayed in a different Web Part. If you plan to use federation, decide on federation sources as part of the initial architecture. This will determine how much content remains for crawling. For more information, see the following model: Search Environment Planning for Microsoft SharePoint Server 2010.
  - Crawling over the WAN** — The search architecture is optimized for crawling over WAN connections. SharePoint Server 2010 provides the ability to configure separate crawler components to crawl content at remote locations. You can put these crawler components on separate crawl servers. Consequently, crawling over WAN connections can take place continuously without affecting the performance or time it takes to crawl other content.
- Business Data Connectivity**
- Place BDC service applications close to the data** — Consider the location of the source system (for example a database or Web service) that this service application is connected to. Place this service application on the farm that resides closest to the data that it consumes.
  - Farms can consume from multiple BDC service applications** — A Web application can consume multiple instances of the BCS service application. This means that multiple BCS service applications can be located on different farms (based on where the data resides) and globally deployed farms can connect to as many BDC service applications as necessary.

### Secure Store Service

- Keep credential stores close to the applications** — Deploy the Secure Store Service, as needed, to local farms to maintain credentials for applications that are used by the local farm or a group of farms in the same region, regardless of where users are located.
- Example** — An enterprise services farm can include the Secure Store Service that is used locally by the BCS instance on that farm.
- Example** — Other farms that are across WAN connections can each have a Secure Store Service that maintains credentials used by applications that are local to each farm.

### Services that cannot be deployed across farms

The following service applications cannot be deployed across farms under any circumstances: Access Services, Excel Services Application, PerformancePoint, State Service, Usage and Health Data Collection, Visio Graphics Service, Word Automation Services, Microsoft SharePoint Foundation Subscription Settings Service, Office Web Apps, Microsoft Project Server 2010.

### About this design sample

- The central farm (Madrid) provides the Search and Managed Metadata service applications and these are consumed by the regional farms.
- The Search service application is shared across the environment (from the central farm) and can be used in two ways:
  - The central farm can crawl regional farm content and provide enterprise-wide search results.
  - Regional administrators can configure Search to crawl regional content, as desired, to provide regionally scoped search results.
- Each farm hosts its own User Profile service application. In this scenario, profile data is shared by using the User Profile Replication Engine (UPRE).
- My Sites are hosted at the regional farms and My Site redirection ensures that users only have one My Site on the farm that is closest to their primary work location.
- The Business Data Connectivity service application is deployed on several of the farms and shared across farms as needed.
- The Secure Store service application is deployed to each farm.
- Each farm hosts all needed service applications that cannot be shared across farms (not shown).

### Other options

- If regionally scoped search results are desired, deploy the Search service application to regional farms to keep crawling local.
- Multiple instances of the Managed Metadata service application can be deployed and shared across farms, if needed.
- Published intranet content can be copied to regional sites for read-only, local availability.

### Central farm with many distributed SharePoint deployments



Regional sites operate autonomously from other regional sites. This solution includes a centralized portal site, but this solution is not optimized for collaboration across regional sites. Regional sites can take advantage of SharePoint Foundation 2010 instead of deploying SharePoint Server 2010.

This solution is recommended for organizations that have many offices distributed geographically, such as branch offices. This solution provides local access to collaboration sites at the regional office in addition to access to the central site. It also provides the ability to share content between a regional site and the central site.

With this solution, you must decide how unified the search experience is. You can provide enterprise-wide search in which the central site crawls content on each of the regional sites. Or you can provide a more limited experience. Be aware that if SharePoint Foundation 2010 is deployed at regional sites, search at regional sites is scoped to the site-collection level.

Services planning includes deciding which versions of SharePoint 2010 Products to deploy at distributed sites.

### Cross-farm services by product

Service application	SharePoint Foundation 2010	SharePoint Server 2010 Standard	SharePoint Server 2010 Enterprise
Search	✓	✓	✓
Managed Metadata	✓	✓	✓
Business Data Connectivity	✓	✓	✓
User Profile	✓	✓	✓
Secure Store Service	✓	✓	✓
Web Analytics	✓	✓	✓

### What is hosted for regional sites?

Service application	Central site hosts for regional sites	Regional sites with SharePoint Server	Regional sites with SharePoint Foundation
Published intranet content	✓	✓	✓
Aggregation of content developed at regional sites	✓	✓	✓
My Sites redirection and profile synchronization (requires SharePoint Server at regional sites)	✓	✓	✓
Team or division collaboration sites	✓	✓	✓
Read-only copy of published intranet content (optional)	✓	✓	✓
Farm-wide search for local content	✓	✓	✓
SharePoint Foundation search scoped to the site collection	✓	✓	✓

### About this design sample

- SharePoint Server 2010 is deployed at the central farm (Madrid).
- SharePoint Foundation 2010 is deployed at regional farms.
- The central farm Search service application crawls content at regional farms (represented by purple-dashed line) and provides enterprise-wide search to users who connect to the central farm for search.
- With SharePoint Foundation 2010, local-site-level scoped search is provided at regional farms.
- The Business Data Connectivity service application is shared across farms, as needed.

### Other options

- Deploy SharePoint Server 2010 to regional sites to provide:
  - Local My Sites.
  - Profile synchronization.
- Farm-wide search at regional sites. Query performance is optimized for local content while global search is provided as an option.

