Microsoft
iT Showcase

Deploying SharePoint Portal Server 2003
Shared Services at Microsoft

Deploying Enterprise Search, Notification, Audience
Targeting and User Profile Services Using
SharePoint Portal Server 2003

Published: February 2004

Abstract

CUSTOMER READY. This twenty-five slide technical presentation, published February 2004, describes how Microsoft deployed Microsoft SharePoint™ Portal Server 2003 Shared Services in the intranet. As part of the effort to improve collaboration and information productivity, Microsoft IT and the Knowledge Network Group deployed common services that ship with SharePoint Products and Technologies and apply to Web sites and portals across the enterprise. Common interfaces for search, content notifications, audience definitions and user profiles are an integral part of the Microsoft intranet home page, Microsoft Web. In addition, team sites and portals across the enterprise can use these services. This paper describes the user experience with these services, details about the Microsoft implementation, how employees benefit from these services, and best practices for enterprise deployments.

Introduction

This presentation is for Microsoft customers who are deploying or evaluating Microsoft® Office SharePoint™ Portal Server 2003 for their intranet portal infrastructure and need to support multiple portal sites. The Microsoft experience documented in this white paper is also relevant to medium and large sized organizations considering the deployment of SharePoint Portal Server 2003 portal sites in a server farm configuration.

SharePoint Portal Server 2003 Shared Services is a set of centrally managed, highly scalable, core portal services designed to be re-used across multiple portal sites and multi-server farm configurations. A Shared Services environment provides the following portal services to portal sites within a server farm:

- Enterprise indexing, search and retrieval services
- Self-service, centrally managed notifications services
- Audience definition services to support content targeting
- User profile creation and management services
- Single sign-on services

The Microsoft Knowledge Network Group (KNG) worked in conjunction with the Microsoft information technology group (Microsoft IT) to deploy Shared Services to address the following needs:

- Support a large, world-wide intranet portal infrastructure consisting of a central intranet portal site and hundreds of business division, product group, regional and subsidiary portal sites.
- Help Microsoft employees to find and retrieve relevant information and knowledge more efficiently regardless of where they begin their search on the intranet.
- The key business benefits gained by Microsoft with this deployment of Shared Services included:
- Ability to avoid costs by deploying and managing a set of common portal services for hundreds of intranet portal sites in three regional data centers.
- Improved employee productivity by making it easier for them to find and retrieve task-relevant knowledge and information.
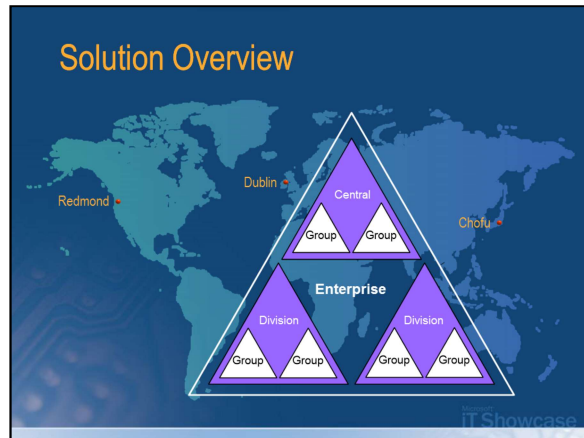
Solution Overview

Situation

With a large and growing number of disconnected intranet portal sites, Microsoft needed to provide world-wide employees with a consistent intranet experience to help them find and retrieve relevant information more efficiently.

Solution

Microsoft deployed SharePoint Portal Server 2003 Shared Services, a set of centrally managed, highly scalable, core portal services designed for use across multiple portal sites and portal server farms.

Solution Overview

Solution Overview

The Microsoft Knowledge Network Group (KNG) started working with pre-release versions of SharePoint Portal Server 2003 to a deploy Shared Services, a set of centrally managed, highly scalable, core portal services designed for use across multiple portal sites and a variety of server farm configurations.

Core portal services in Shared Services include:

- Enterprise indexing, search and retrieval
- Self-serve, centrally managed notifications
- Audience definition services to support content targeting
- User profile creation and management
- Single sign-on

Note: *Because virtually all Microsoft line-of-business applications support Windows authentication, Microsoft uses Active Directory® directory services so that users do not require separate user accounts and passwords. For this reason, Microsoft does not use single sign-on services.*

The goals of the project were to (i) create an integrated infrastructure that would significantly reduce the costs associated with the deployment and management of core portal services across the large and growing number of local and international portal sites at Microsoft and (ii) improve employee productivity by making it easier for them to find and retrieve task-relevant knowledge and information.
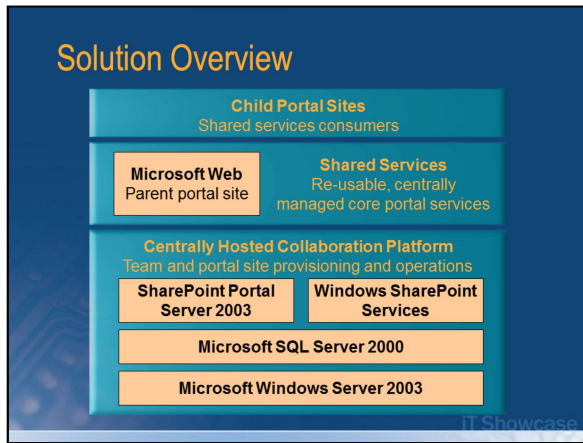
The needs that Microsoft addressed with Shared Services were:

- Technical requirements of a large, world-wide intranet portal infrastructure consisting of a central intranet portal site and hundreds of business division, product group, regional and subsidiary portal sites.

- Desire to help Microsoft employees work efficiently and productively by providing them with an intranet portal experience that is consistent around the world.

This presentation explores these requirements and problem areas, describes the way the Microsoft team

organized the project and deployed the solution, and relates the business benefits gained and lessons learned from this project.

A shared services infrastructure can be deployed in a single central location or, in a multi-national organization like Microsoft, multiple shared services farms can be deployed globally. The slide shows three shared services farms that that include central, division, and group portals.

Solution Overview

Child Portal Sites
Shared services consumers

Microsoft Web
Parent portal site

Shared Services
Re-usable, centrally
managed core portal services

Centrally Hosted Collaboration Platform
Team and portal site provisioning and operations

SharePoint Portal Server 2003

Windows SharePoint Services

Microsoft SQL Server 2000

Microsoft Windows Server 2003

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Architecture

Shared Services is one part of the overall Microsoft world-wide intranet solution. The Microsoft internal intranet solution includes the following components: Shared Services, the centrally hosted collaboration platform, Microsoft Windows® Server™ 2003, Microsoft SQL Server™ 2000, Windows SharePoint Services, and Microsoft Office SharePoint Portal Server 2003. This slide illustrates how these components comprise the intranet solution.
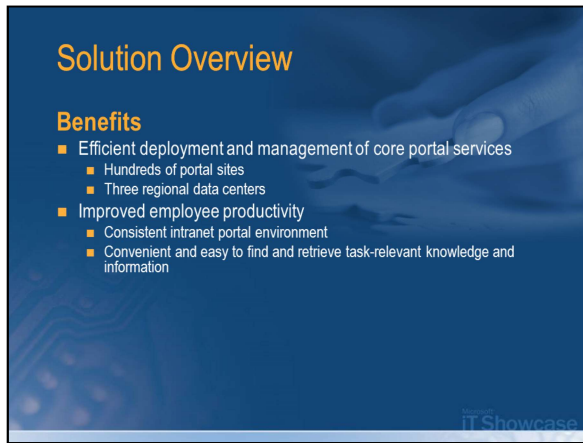
Solution Overview

Benefits

- Efficient deployment and management of core portal services for hundreds of intranet portal sites hosted in three regional data centers

- Improved employee productivity with use of a consistent intranet portal environment that made it convenient and easy for employees to find and retrieve task-relevant knowledge and information

Products and Technology

- Microsoft Office SharePoint Portal Server 2003
- Microsoft Windows Server 2003
- Windows SharePoint Services
- Microsoft SQL Server 2000
- Microsoft Office System 2003
- Microsoft internal tools for taxonomy management and Best Bets and URL cataloging

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Situation

- Several hundred intranet portal sites and growing
- Costly site-by-site deployment and management
  - Increased hardware and network requirements
  - Additional deployment and management effort
- Difficulties finding and retrieving the "right" information
- Challenges locating people and what they know
- Inability to easily search and navigate the intranet

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Situation

Microsoft had deployed several hundred intranet portal sites to support the worldwide needs of its business divisions, product groups, geographic regions and subsidiaries; and expected this number to grow.

Site-by-site deployment and management of portal services to a large number of portal sites can be difficult and expensive. Deployment of portal services on a site-by-site basis can increase hardware requirements for each site in terms of processing, memory and storage capacity. Additional effort is also required to individually configure and manage server hardware and software components. Last, costs are further compounded by network bandwidth and remote processing needed to support portal services such as content indexing.

At Microsoft, many groups had deployed their own Microsoft SharePoint Portal Server 2001 servers to host portal sites, team collaboration sites and document management libraries. In addition, SharePoint Portal Server 2001 enabled a personal dashboard site to be created for each workspace user – potentially one in every SharePoint Portal Server 2001 workspace the user had access to. There was neither organization of nor connection between the sites; they were simply additional Web sites on the Microsoft intranet. This resulted in duplicated deployment and management efforts, inefficient use of server processing and storage resources, excessive network traffic as each server indexed its own set of intranet sites.

In addition, Microsoft found in a survey of intranet users that productivity was hindered for employees because they lacked a common means to organize, search and navigate the many intranet sites in use in the company. Specific problems included:

- Difficulties employees experienced in finding and retrieving the "right" information
- Challenges for intranet users to locate people and understand what they know
- Inability to easily navigate the intranet and develop a familiar sense of "place"

SharePoint Portal Server 2003 Shared Services provided Microsoft IT with a more cost effective means to deploy portal services and provided Microsoft employees with a better quality of intranet experience, world-wide.

Project Team Members

Knowledge Network Group

The mission of the Knowledge Network Group (KNG) is to help employees work more efficiently and effectively by providing them with the means for easy access, exchange and use of relevant information and knowledge. The group adopted a three-prong strategy involving architecture, prescriptive guidance and leadership.

KNG is responsible for delivering a knowledge architecture and intranet architecture based on core schemas, vocabularies and categories. Their goal is to enable a seamless experience for employees who are looking for information and knowledge on the intranet. KNG is also responsible for providing a corporate taxonomy and managing it on a collaborative basis by working through the Microsoft internal Taxonomy Board.

Microsoft Information Technology Group

Microsoft Information Technology Group (Microsoft IT) is responsible for driving global operations and delivering information technology services to the entire Microsoft organization. The group directs all activities related to running and maintaining Microsoft information systems world-wide: technology infrastructure, corporate and marketing information systems including production, distribution, and other key internal systems. Microsoft IT works to provide a world-class utility and excellence in business operations through leadership in the design and integration of company strategies, processes and architecture.

Microsoft IT provides a full range of services including server and end-user support, telecommunications management, network operations and information security. This role includes managing connectivity for more than 300,000 personal computers worldwide. Microsoft IT ensures that more than 55,000 employees, 20,000 contractors and vendors in more than 400 Microsoft locations are able to access corporate network services and resources twenty four hours a day, seven days a week from around the world.

Because the primary business of Microsoft is software design, Microsoft IT has a second responsibility that is unique among global providers. In addition to running the IT utility for Microsoft, Microsoft IT is an early adopter of company technologies, responsible for testing and deploying Microsoft products such as SharePoint Products and Technologies, Windows Server™ 2003, and Exchange Server 2003, before the products are released to customers. This process is known by those within Microsoft as "eating our own dog food."

Project Team Roles and Resources

The core members of the team that implemented and deployed Microsoft Web 6.0 included: one manager, for the whole team, who had budget responsibility, one lead program manager who reported to the manager and held responsibility for the program management and development teams and for their coordination, three program managers with individual responsibility for each of (i) search, (ii) people, audiences, user profiles, and taxonomy, and (iii) personal sites and custom Web Parts, and a small development team consisting of five full-time employees and outside talent with a budget of $100,000 US for work outsourced over a 3 month period.

Additional Partners and Stakeholders

Other stakeholders in the design, development and operation of Microsoft Web included: managers responsible for strategic and fiscal results, process owners responsible for efficient and effective delivery of business results, internal portal owners and administrators, and Microsoft product groups that design and develop enterprise communications and collaboration software products.
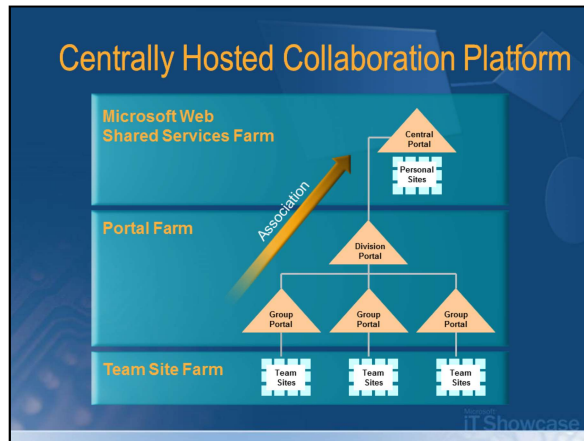
Centrally Hosted Collaboration Platform

To meet Microsoft requirements, Microsoft IT created a collaboration platform for portal and team sites based on Windows Server 2003, Microsoft SQL Server, Windows SharePoint Services and SharePoint Portal Server 2003. The platform was made available for rapid creation of team collaboration sites and, when there was business justification, new portal sites. The centrally hosted collaboration platform was designed to enable site administrators to create and manage large numbers of team and portal sites as individual Web sites.

KNG and Microsoft IT designed the platform with three types of server configurations: a team site server farm, a portal site server farm, and a third server farm configuration that hosted the Microsoft Web portal site and provided Shared Services to the other portal sites. The portal site farm provided front-end servers for SharePoint Portal Server 2003 portal sites. For data storage, the portal and team site farms each hosted their own a storage area network (SAN). The Shared Services farm was hosted in the Redmond, Washington data center and provided a set of centrally managed, highly scalable, core portal services designed for re-use across multiple portal sites and multiple server farms. The core portal services included search, notifications, audience targeting and user profiles. Two additional Shared Services farms were deployed in remote data centers: one in each of the European and Asian-Pacific regions.

Shared services were offered within regions and based on the following criteria:

- Team sites were linked with the appropriate group division portal, or Microsoft Web central portal site.
- Within a region, portals consumed services from the regional Shared Services parent portal site. The hierarchy of portal sites defined the search scopes within a region.

Deploying Search Shared Services

- Administrator Benefits
  - Lower barriers-to-deployment
  - Reduced duplication of effort
  - Reduced hardware, storage, computing capacity and network costs
- Used by over 250 Microsoft intranet portal sites
  - Including 16 non-SharePoint Portal Server 2003 sites

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Search Service

The Shared Services infrastructure provides a robust capability for users to conduct broad searches of the organization for information, and people in addition to targeted searches within a particular portal site or team site.

The first step in deployment for this service was the design of a content indexing strategy, as well as creation and configuration of content sources, source groups and search scopes in SharePoint Portal Server 2003.

The second step was integration of the existing internal Best Bets database, management tools and URL cataloging service (UCS). Originally developed to support earlier versions of Microsoft Web, these tools are used to manage Best Bets based through a workflow process and to import these Best Bet keywords and URLs into SharePoint Portal Server using Web services.

Shared Services Search provides efficiency benefits to Microsoft both in terms of resources saved during deployment, ongoing operations and the improved employee search experience. Historically, many Web sites at Microsoft have created their own search solutions. By adopting Shared Services Search, these sites have seen efficiency gains by not having to configure, deploy and manage their own search solutions. At the same time, the corporate network load has been reduced by not having many servers crawling and indexing the same content sources multiple times.

To use Shared Services Search, portal site administrators need to ensure a number of conditions exist:

- A Shared Services content indexing account must be able to index all of the content on the portal site.
- The name and descriptive information for the portal site should be current before the site is configured to use Shared Services so that the information appears correctly in the parent portal Site Directory.

The SharePoint Portal Server administration page is used to create local search scopes. These enhance the capacity by Shared Services to use centrally managed source groups, index catalogs and content sources.

Administrators of portal sites that use Shared Services Search benefit from the following:

- Barriers-to-deployment are lowered because each site does not need to configure and deploy its own search catalogs.
- Reduced duplication of effort saves resources for SharePoint site teams in terms of time, money, network bandwidth, storage and computing capacity.
- Easy deployment, management and upgrading of systems when using a single centralized solution.

Shared Services Search is currently used by over 250 portal sites including more than 16 Microsoft intranet portal sites that are not part of the central collaboration platform. These sites include: Human Resources, Sales Information, the Business Productivity Group and Product Support Services.
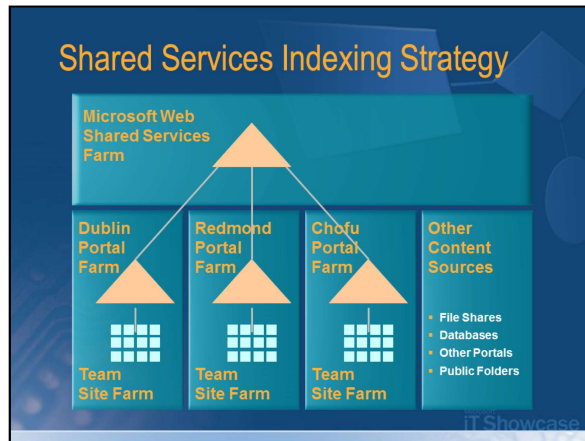
Shared Services Indexing Strategy

Microsoft IT deployed a central Shared Services server farm which provided search capabilities across the entire intranet for the organization. The Shared Services farm hosts one set of index servers. The full-text and keyword indices created on the central index servers support searches initiated from the central portal site, Microsoft Web and any other site that consumes search services offered by the Microsoft Web central portal site. The slide illustrates that the index servers in the Shared Services farm crawl the content in each of the portal farms, as well as other sources of information available through the Microsoft intranet.

In addition, the parent portal in each regional portal farm creates an independent index that is used to answer queries that originate from each farm. This allows portals in each farm to produce search results that exclude results from other portal farms and content sources.

Because results from searches of both the parent portal site (Microsoft Web) and child portal sites are provided by SharePoint Portal Server, Microsoft employees experienced a common and consistent search interface regardless of their location within Microsoft or their need to search for information on the Microsoft intranet.
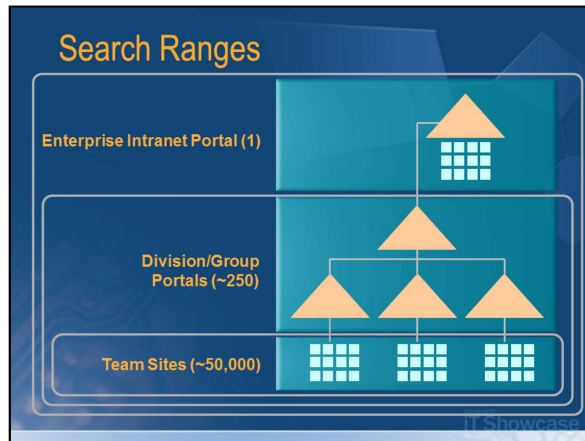
Search Ranges

By combining the search capabilities of SharePoint Portal Server and Windows SharePoint Services, Microsoft employees were able to control the range of their search:

■ **Enterprise**. Users visit the search page for the central portal to conduct an enterprise-wide search for information from across all content and team sites. The central farm for Shared Services regularly crawls both the central and regional content to create comprehensive indexes that include content, user profiles and information for a site directory. In addition, these servers index other content for inclusion in the results of an enterprise-wide search. Enterprise search is based on categories and subjects internal or specific to the company.

■ **Division and group**. Portal administrators can associate group portals located in one region with a division portal located in the central Redmond data facility. Search within a single group portal provides results for that portal, other portals associated with it, and any team site associated with those portals.

■ **Site**. Users can conduct searches of team site content.

This slide describes the way in which search relates to the design of the hosted collaboration platform and to other content sources on the intranet.

By default, team sites and personal sites that are associated with a portal site are automatically included in search indices and site directories. Even if the owner of a team site decides not to have it indexed for searching, the name of the site appears on the site directory.

Metadata Tagging

```
Metadata Tagging

<html>
<head>
<title>my document title</title>
<META name="author" content="John Doe">
<META name="description" content="My
  description">
<META name="keywords" content="SharePoint,
  portals, shared">
</head>
<body>
...
</body>
</html>
```

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Metadata Tagging

KNG encourages site administrators to tag the key attributes of content, such as title, author and related description. Tags significantly increase the accuracy of search efforts because the attributes correspond with the title, author and description properties in Office documents as well as the HTML META tags in Web pages. For example:

```
<html>

<head>

<title>my document title</title>

<META name="author" content="John Doe">

<META name="description" content="My document description">

<META name="keywords" content="SharePoint, portals, shared">

</head>

<body>

...

</body>

</html>
```

When the author property is set, items returned in search results will trace back to particular authors through links to the author's My Site personal site. This makes it easy for users of an intranet to discover potentially relevant knowledge available on the author's Web site in addition to more obvious search results.

Web sites are automatically considered for indexing when they are created using the site creation or site registration forms and are added to the appropriate search source group.

To maintain the quality of search results, Microsoft uses the following criteria when reviewing the list of sites included in search:

- The business purpose and relevance of a site
- Timeliness of content: ideally, the content of a site is less than one year old. Sites with older content are considered on a case-by-case basis with inclusion depending on the subject area, product or initiative for which the site was originally targeted

Deploying Notifications Shared Services

- Microsoft deployed the shared notification "as is"
  - Without any custom development
- Employees can view and manage alerts from their default My Site personal site
- Microsoft Office Outlook 2003
  - Can receive email notifications for alerts
  - Can view all portal and team site alerts from Outlook 2003 Rules and Notifications dialog box

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Notification Service

Notifications in Microsoft Office SharePoint Portal Server 2003 build on the concept of subscriptions in Microsoft SharePoint Portal Server 2001. Microsoft deployed this shared service "out of the box" without any custom development.

Users can request an alert about content changes on any site so that they are immediately aware of updates without actively searching for them.

> *Note:* *In a multiple portal farm configuration, users can view and manage alerts generated within their local portal farm from their My Alerts page available in their personal sites.*

The portal site sends an alert to individuals whenever changes are made to the content for which they requested notification. Users can view their alerts on the portal site or receive them in e-mail messages. Furthermore, users can specify the frequency of e-mail alerts: immediate, daily or weekly.

In addition, Microsoft Office Outlook® 2003 users can view all of their portal and team site alerts from one place: the Outlook Rules and Notifications dialog box.

Deploying Audiences Shared Services

- Rule-based definitions of an audience allowed Microsoft portal administrators to target content to users based on user specific properties
  - User profile properties
  - Organizational structure
  - Active Directory groups
- Key Benefit
  - Easy for Microsoft portal administrators to use Active Directory to create audiences from existing distribution lists

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Audience Targeting Service

Rule-based definitions of an audience allow portal administrators to target content to users based on the values of properties that are contained in user profiles, the reporting structure of the organization, and Active Directory groups to which users belong. Administrators can publish both Web Parts, reusable components of a site that contain Web-based information, as well as content appropriate for one or more specific audiences.

This service makes it easy for Microsoft portal site administrators to use Active Directory to create audiences from existing distribution lists. Shared services in each region provide the audience feature to group and division portals. One example is the portal site for the Xbox® video game system product team. The site uses Shared Services and the audience targeting service to make distinct content available to different employees depending on whether the person works for the Xbox product group or not.

Deploying User Profiles Shared Services

- User profiles are used by search services to help locate people and what they know
- Properties updated weekly from the Active Directory
  - Employee names, phone numbers, office locations and a link to their My Site personal site
- Key Benefits
  - Users do not have to manually update their user profiles
  - Profile information is up-to-date and search results are more accurate

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User Profile Service

When someone searches for employees within their organization, user profiles are used by search services to provide results that include employee names, phone numbers, office locations, record of documents with they have worked (honoring content permissions), and a link to their personal Web site. Data in a profile is updated on a weekly basis with fresh data imported from the Active Directory. The resulting benefit is that users do not have to manually update their user profiles. The user profile information is up-to-date and when searching for people, the results are more accurate.

Three user profile properties added by Microsoft were: MS Region, MS Role and MS Organization. These properties make it easy and fast for employees to search for and locate people within a particular geographic region, role or part of the organization. The vocabulary used to populate the custom properties of MS Region and MS Organization was based on the Microsoft corporate taxonomy. The values for MS Role are based on the title taxonomy used by Microsoft Human Resources.

Although not technically part of the Microsoft Shared Services deployment, Microsoft Web has two features that make special use of user profiles. First, the People Finder Web Part on the portal home page makes it easy for employees to quickly locate people in the company. It has a single field for entering search terms and returns a list of people whose user profiles match the search terms. Clicking on one of the search results displays the public view of My Site for that person. This Web Part was developed with Microsoft Visual Studio® .Net, ASP.NET and SharePoint Portal Server Search service.

The second notable feature is the Upload Picture Wizard which enables a user to obtain their picture from the identification card photo library on a secure basis and upload it as the picture displayed in the public view of their user profile. This photograph makes it easy for people visiting a personal site to learn or visually confirm the appearance of the site owner.

Finally, the SharePoint Portal Server Search function automatically includes user profiles in the portal site search scope. If the search term is a name or e-mail address, any exact matches are displayed at the top of the list of search results and marked with a star.
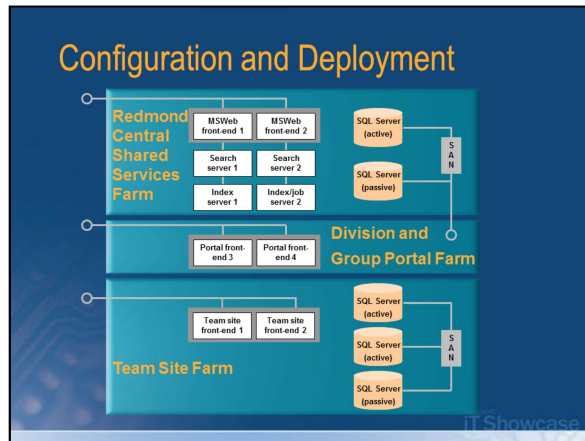
Configuration and Deployment

Microsoft IT staff paid particular attention to the configuration and deployment of server farms on which Shared Services were to be used. The full architecture includes a number of division portals and additional group portals associated with each of the division portals.

The centrally hosted collaboration platform hosts team sites and portals in a central content repository that is built on top of a Storage Area Network (SAN). The SAN provides up to 3.6 terabytes of database capacity in each farm. The portal and Shared Services farm in each region is an independent SharePoint Portal Server installation.

The three regional data centers support the platform because they offer the best regional connectivity, high bandwidth, and capacity to support the SAN hardware. These regions are closely aligned with the management hierarchy within Microsoft.

Redmond Central Data Center

Microsoft invested in advanced SAN technology to manage storage for the collaboration platform. This decision affected many other decisions including, in particular, the design of SQL Server 2000 installations that attach to the SAN.

This slide shows the server farm architecture of the Redmond data center. This architecture supports the needs of Microsoft Web as the central portal site at Microsoft, in addition to serving as a Shared Services parent portal site.

The data center infrastructure was designed as a clustered, high capacity and scalable system. Windows Network Load Balancing service was used on front-end servers to handle a high volume of traffic and to make further additions of servers straightforward.

The front-end Web servers store the ASP.NET Web Part assemblies and server logs, as well as ASP.NET code and application program interfaces (APIs) for Windows SharePoint Services. Front-end servers retrieve information from the configuration and content databases through SQL Server clusters that store data in the SAN. There is no interaction between the index servers and the front-end Web servers in this configuration.

Each region stores content databases on an Enterprise Virtual Array (EVA) storage area network (SAN) with mirror database drives to provide a maximum usable database capacity of 3.6 terabytes. The SAN uses a redundant gigabit Ethernet to connect with the Web front-end servers. And with the exception of the SAN hardware, all of the servers use configurations approved for Microsoft data centers. The regional data center IT staff had installed and managed the hardware.

Redmond Shared Services Farm: Server Configurations

- Two back–end SQL Server computers with quad 1.5 GHz processors, 3.8 GB RAM, and 206 GB HD
- HSV110 EVA SAN with 412 GB
- Two Web front–end servers with dual 1.4 GHz processors, and 1.25 GB RAM
- Two search servers with dual 2.4 GHz processors, 2 GB RAM, and 200 GB HD
- Two index servers with dual 2.4 GHz processors, 2 GB RAM, and 100 GB HD
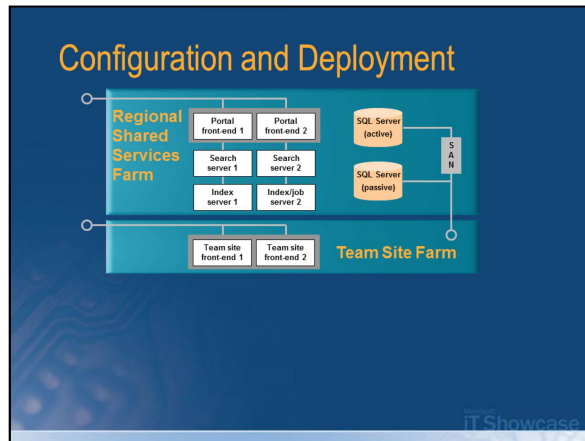
Regional Data Centers

Each data center has a Shared Services farm to provide services within each region and, through association with the central Shared Services, provide these services on a global basis. Because the demand for Shared Services in the Dublin and Chofu regions is lower than in Redmond, the front-end servers are included in the Shared Services farm at Redmond. This slide illustrates the servers deployed in the regional data centers in Chofu and Dublin.

Because there's a relatively small number of users located outside of Redmond, the project team configured the Dublin and Chofu data centers with two-node SQL Active/Active Passive clusters smaller than the one found in Redmond. A primary node was set up to host all content and configuration databases. The passive node was configured to take over the load in case of failure. SQL Server 2000 was installed on each node with storage in the fiber-attached EVA SAN enclosure.

The requirements are identical one region to the next, except that the SAN storage is larger for Dublin than for Chofu.

Regional Shared Services Farm: Server Configurations

- HSV110 EVA SAN with 1.2 TB in Dublin and 412 GB in Chofu (these SANs include storage for team sites)
- Two Web front–end servers with dual 1.4 GHz processors, and 1.25 GB RAM
- Two search servers with dual 2.4 GHz processors, 2.5 GB RAM, and 200 GB HD
- Two index servers with dual 2.4 GHz processors, 2.5 GB RAM, and 100 GB HD

Business Benefits

The key business benefits gained by Microsoft through the deployment of SharePoint Portal Server 2003 Shared Services included:

- Employees experienced improved productivity when they received a convenient and consistent intranet portal experience that made it easier for them to find and retrieve task-relevant knowledge and information.

- Systems administrators gained the ability to effectively and easily support a large world-wide intranet portal infrastructure consisting of a central intranet portal site and hundreds of business division, product group, regional and subsidiary portal sites deployed in three regional data centers

Group and Division Portals

Administrators of portal sites can take advantage of Shared Services that are common across a company. In general, use of services across an enterprise can reduce training costs and help desk calls. Furthermore, a Shared Services infrastructure avoids duplication of services for each portal. Network traffic created by a centralized indexing service is less than traffic created by numerous SharePoint Portal Server installations that independently crawl content.

One example of the way in which Shared Services solve a business problem relates to the definition of search scopes for the collaboration platform. For example, if a group with content in one regional data center wants content and a portal hosted in that region, but also need it included in the search scope of a division portal hosted in a central data server, then they can associate it with a parent division portal and still include it in both the regional search and the divisional search for the organization.

Enterprise Services

The advantage of a deploying a common set of core portal services across Microsoft includes:

- Better decisions are made across the company when relevant information is easy for employees to find using enterprise search capabilities.

- Information workers are able to focus on business issues while Microsoft IT reduces costs for common portal services.

- Economies of scale are created for KNG and Microsoft IT because Shared Services enable them to implement shared best practices from a single central location and offer common high volume services across the global enterprise.

IT Benefits

- Fewer servers needed to be deployed
  - Lower hardware costs
  - Lower deployment costs
  - Increased server processor and server utilization
  - Reduced management costs
- Improved service level agreements

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IT Benefits

Microsoft IT benefited from the deployment of SharePoint Portal Server 2003 Shared Services by:

- Deploying fewer servers to support shared services on a central platform than would otherwise be required with a distributed approach. Fewer central servers results in lower hardware costs, lower deployment costs, increased server processor and storage utilization, reduced server management costs and improved service level agreements.

- Maintaining fewer index servers supporting fewer search servers avoids increased network load and provides more consistent service levels.

- Centralizing search configuration including content sources and search scopes so that they are less costly to administer from the central parent portal site.

Lessons Learned

- Involve business leaders in the requirements and design processes
  - Results in faster decisions and encourages greater company-wide acceptance
- Differentiate the Need for a Team vs. a Portal Site
  - Previous SharePoint Portal Server 2001 site owners assumed they continued to need a portal site
  - Team site document collaboration features often reduced the need for a site will full portal functionality
- Operational and security considerations

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Lessons Learned

Portal Hierarchy

At Microsoft, one team is responsible for managing the central portal site, Microsoft Web, while Microsoft IT provides the management and support for Windows servers and the centrally hosted collaboration platform. Only selected information from group and division level portals appears on Microsoft Web. While the strategy for Microsoft is to roll up division level portals directly into Microsoft Web, other models may be appropriate depending on an organization's approach or objectives. Based on Microsoft experience, it is important to involve business leaders in the process of designing the relationship between enterprise portals. It results in faster decisions and encourages greater company-wide acceptance.

The portal hierarchy also affects search scope. Because groups and divisions are important for organizing Microsoft, it makes sense that users can search related sites from the division portal.

Differentiating the Need for a Team Site Versus a Portal

Because groups at Microsoft previously needed a SharePoint Portal Server 2001 portal to get certain collaboration features, they assumed they also needed a portal in SharePoint Portal Server 2003. However, because document collaboration features were present for team sites using Windows SharePoint Services, many teams were successful using team sites without full portal functionality. Portals were allocated instead to larger groups and divisions that required search across related sites, audience targeting, topics, and Site Directory.

Operational Considerations

Organizations should consider the following before providing or using Shared Services:

- Farms providing and using Shared Services must conform to the following:
  - Run the same version of SharePoint Portal Server using the same language.
  - Must not be separated by a firewall. Both server farms must be on the intranet, on the extranet, or in a perimeter network (also known as DMZ, demilitarized zone, and screened subnet).
  - Must belong to the same domain or trusted domain.
- Back up the server farm before and after configuring it to provide or use Shared Services. After the server farm has been configured for Shared Services, the operation cannot be undone.
- Some services and scheduled tasks in a server farm need to be turned off before the server farm is set up to use Shared Services.
- After configuring a server farm to provide Shared Services, all other portal sites on that server farm become child portal sites. A child portal site can never be changed into a parent portal site

Security Considerations

- The portal site application pool for the server farm using Shared Services is, by default, a member of the "db_owner database role" in SQL Server on the profile, component settings, and content databases for the parent portal site.
- The configuration database administration account for the server farm using Shared Services is a member of the db_owner database role in SQL Server on the configuration database for the server farm providing Shared Services.

Summary

SharePoint Portal Server 2003 Shared Services is a set of centrally managed, highly scalable, core portal services designed to be re-used across multiple portal sites and multiple-server server farm configurations. Core portal services used by Microsoft include:

- Enterprise indexing, search and retrieval services
- Self-service, centrally managed notification services
- Audience-based content targeting capabilities
- User profile creation and management

With a large and growing number of stand-alone intranet portal sites, Microsoft wanted to provide a consistent intranet experience that would help Microsoft employees, world-wide, to work efficiently and productively.

The Microsoft Knowledge Network Group worked in conjunction with the Microsoft Information Technology group to deploy Shared Services on a central basis to address the problems found when operating hundreds of portal sites in Microsoft:

- Need to support a large, world-wide intranet portal infrastructure consisting of a central intranet portal site and hundreds of business division, product group, regional and subsidiary portal sites. The central deployment and management of Shared Services enabled the initial configuration and subsequent changes to be made once and re-used across the shared services environment.

- Desire to help Microsoft employees find and retrieve relevant information and knowledge more efficiently regardless of where they began their search on the intranet.

The key business benefits gained by Microsoft through the deployment of SharePoint Portal Server 2003 Shared Services included an enhanced quality of experience for employees and improved productivity for both intranet users and systems administrators.

Summary

"Before shared services we provided search to one portal at a time—a one-to-one relationship. Now with shared services the KNG team has a one-to-many relationship. We can deploy services to hundreds of portals by deploying the service just once."

Mary Lee Kennedy, Director
Knowledge Network Group
Microsoft Corporation

For More Information

- Additional content on Microsoft IT deployments and best practices can be found on http://www.microsoft.com.
  - TechNet:
    http://www.microsoft.com/technet/itshowcase
  - Case Study Resources:
    http://www.microsoft.com/resources/casestudies
  - E-mail IT Showcase:
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Appendix

These appendix slides include additional information
about SharePoint Portal Server 2003 Shared Services.

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These appendix slides include additional information about SharePoint Portal Server 2003 Shared Services.

Understanding SharePoint Portal Server 2003 Shared Services

To fully understand the Microsoft deployment of SharePoint Portal Server 2003 Shared Services, it is important to understand SharePoint Portal Server's server farm and Shared Services design and configuration options. Readers already familiar with this technology may choose can skip to the Solution section which specifically addresses the Microsoft internal deployment of shared services.

SharePoint Portal Server 2003 is the scalable portal server platform that connects people, teams and information across business processes. SharePoint Portal Server solutions facilitate end-to-end collaboration by enabling aggregation and organization of information, and the ability to search for it.

SharePoint Portal Server 2003 Shared Services includes a key set of portal services:

- Enterprise indexing, search and retrieval
- Self-service, centrally managed notifications
- Audience definition services to support content targeting
- User profile creation and management
- Single sign-on

SharePoint Portal Server 2003 Shared Services are an important consideration for medium and large sized organizations with multiple portal sites who want to reduce deployment, management, network and server costs.

To understand how Shared Services can be used, it is important to understand how SharePoint Portal Server 2003 can be deployed in a server farm configuration.

SharePoint Portal Server 2003 Server Farms

Earlier versions of SharePoint Portal Server supported a limited number of portal sites (workspaces) per server. In addition, each server was capable of supporting a relatively small number of users.

To address these issues, SharePoint Portal Server 2003 takes advantage of the substantially increased scalability, performance, stability and security offered by Windows Server 2003 and the Microsoft .NET Framework. More specifically, SharePoint Portal Server 2003 was designed to scale from a single server up to a data center supporting numerous large server farms capable of supporting up to one million user accounts and several million documents.

Terminology

- **Parent Portal Site**
  - The portal site that provides the services is the parent portal site
  - Only one portal site in a server farm can provide Shared Services
- **Child Portal Site**
  - Server farm that uses Shared Services is a child server farm
  - Each child server farm site is a child portal site
  - Child portal site is any portal site that uses Shared Services from a parent portal site

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Parent Portal Site

The portal site that provides the services is the parent portal site. Only one portal site in a server farm can provide Shared Services.

Child Portal Site

The server farm that uses Shared Services is the child server farm. Each portal site on that server farm is a child portal site. A child portal site is any portal site that uses Shared Services from a parent portal site.

When a portal site is configured to provide Shared Services, all other portal sites on the server farm become child portal sites. Any additional portal sites that created in the server farm automatically become child portal sites.

Search Shared Service

- Indexing and search services, databases or related files that provide search functionality
- Parent portal site provides search services to other (child) portal sites
  - Can provide search services to sites in other portal farms
- Portal search scope is created to include the portal and all associated portals plus associated team sites
  - Helps provide more relevant search results than searching the entire corporate intranet

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Search

The search component consists of indexing and search services, databases or related files that provide search functionality. The parent portal site provides search services to other (child) portal sites in that server farm. In addition, the parent portal site can provide search services to portal sites in other portal farms. A portal search scope is created to include the portal and all associated portals plus associated team sites. This helps provide more relevant search results than searching the entire corporate intranet. For example, a tester looking for a test plan for a particular product can search on that product group's portal and avoid being inundated with test plans from all past releases and other product group's test plans.

Notifications Shared Service

- Help users track changes to content that is relevant to their everyday work
- Shared services in each region alert users about changes in a site or document to which they had subscribed for such services
- Subscriptions are listed within a user's personal sites
  - Users can manage their content and related alerts centrally

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Notifications

Notification services help users track changes to content that is relevant to their everyday work. Users can choose to receive alerts for the following types of items: search queries, portal areas, files, lists, document libraries, and individual's user profiles. Shared services in each region alert users about changes in a site or document to which they had subscribed for such services. These subscriptions are listed within a user's personal site so that they can manage their content and related alerts within their region and by location

Audience Targeting Shared Service

- Custom-defined groups of people to whom content is targeted
- Parent portal site administrators define audiences
- Based on user profiles and other Active Directory information such as security and distribution groups

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Audience Targeting

An audience is a custom-defined group of people to whom content is targeted based on their membership in that group. Parent portal site administrators define audiences based on data in user profiles and other Active Directory information such as the security or distribution group to which a user belongs. The content displayed on a site can change for a user browsing through it, based on their inclusion in an audience. For example, an audience could be created for the product development group in a company based on the Title property in a user profile. The audience definition can then be applied to a portal area. This would enable one set of area listings to be displayed for software developers and a different set for the rest of the users.

User Profiles Shared Service

- Organizes and displays properties related to a person
- Properties are selected by parent portal site administrator
- Parent portal site shares information from its profile database with child portal sites
  - Imports and synchronizes information from Active Directory
- Key benefit is that all references to a particular person point to a single place

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User Profiles

A user profile organizes and displays properties related to an individual. The specific properties are selected by the administrator of a parent portal site. When user profiles are shared, a parent portal site shares information from its profile database with child portal sites. SharePoint Portal Server 2003 offers the capacity to import and synchronize information about people from Active Directory into a profile that provides three views: a personal view that only the user who owns it can see; an edit view for that owner to update optional items; and a public view that can be seen by all users. User profile information appears by default in the public view of a user's My Site personal site. A key benefit is that all references to a particular person point to a single place regardless of the portal site or team sites they use.

Single Sign-on Shared Service

- Authentication process that permits a person to enter one name and password to use a variety of applications
- Microsoft does not use single sign-on services
  - Virtually all Microsoft line-of-business applications support Windows authentication
  - Microsoft users do not require separate user accounts and passwords

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Single Sign-on Service

Single sign-on is a SharePoint Point Portal Server 2003 shared service that permits a person to enter one name and password to use a variety of applications. The single sign-on feature is used for integrating back office systems and line-of-business applications that require a separate credentials database.

Shared Services Benefits

- Consolidation of resources and reduction of server and network resources
  - Common indexing and search, notifications, audience targeting and user profile services are provided and managed from a single parent portal site
- Child portal sites use Shared Services provided by a parent portal site

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Benefits of Deploying Shared Services

In a typical organization, there may be multiple deployments of SharePoint Portal Server 2003. Each portal site can store user profiles, conduct search and indexing, and provide notifications. When an organization has multiple portal servers deployed, it becomes expensive to deploy each portal site with all of the services, because many of the services are common to all portal sites. The cost of managing portal services on each individual portal site increases as the number of portal sites increase. To consolidate resources and reduce server and network resources, the common indexing and search, notifications, audience targeting and user profile services can be provided and managed from a single parent portal site. Child portal sites use the Shared Services provided by the parent portal site.