

Proven Practices for Upgrading or Migrating to Microsoft SharePoint Server 2010



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Introduction

Microsoft SharePoint Server 2010 is already transforming the way organizations are connecting their knowledge workers, business processes, and enterprise-wide content worldwide. With new features including enhanced scalability, vastly improved records management, enterprise-level metadata, content type hubs, content organization, and simplified application development, the platform is firmly positioning itself as the ideal technology for organizations to launch vital initiatives – including enterprise content management, web content management, and company-wide collaboration.

Before organizations make the jump to Microsoft's latest platform release, there are major points to take into consideration. A move to SharePoint Server 2010 means organizations will have to upgrade various portions of their operating systems and databases. There are also considerations for the different ways in which organizations can make the jump to SharePoint Server 2010 – be it through upgrade, migration, or exposing content from various legacy systems without migrating the content directly into SharePoint via connection.

In the coming pages, we will explain the requirements necessary for deploying SharePoint Server 2010, the different methods available for migration, key considerations for each, as well as proven practices, available tools to help make the move to Microsoft's latest platform release with minimal business disruption.

About AvePoint

AvePoint is a global technology company and software innovator headquartered in the United States. Since its founding in 2001, AvePoint has become the world's largest provider of infrastructure management software solutions for Microsoft SharePoint Products and Technologies. Propelled by the world's largest SharePoint-exclusive research & development team, AvePoint is the premier provider for EPG, SMB, Mid-Market and Government organizations demanding the most powerful and flexible infrastructure management solutions for their SharePoint environments and assets. AvePoint's award-winning DocAve Software Platform is recognized as the industry standard for comprehensive and scalable SharePoint backup and recovery, administration, replication, migration, archiving, deployment management, reporting, storage optimization, and content lifecycle management.

AvePoint is headquartered and maintains its principle engineering center in Jersey City, NJ, with wholly owned sales and engineering centers in the USA - San Jose, Los Angeles, Seattle, Chicago, Washington DC, Houston, Boston; Ontario, Canada; Melbourne, Australia; London, United Kingdom; Munich, Germany; Johannesburg, South Africa; Tokyo, Japan; Singapore; and China - Beijing, Changchun, Dalian. AvePoint's global team, fortified by an expansive network of certified partners, helps more than 6,000 enterprise customers – including many Fortune 500 companies and government agencies – to protect, manage, optimize, and integrate their mission-critical SharePoint environments. AvePoint is a Depth Managed Gold Certified Microsoft Partner and GSA provider.

SharePoint Server 2010 Requirements

The move to SharePoint Server 2010 from previous versions of SharePoint will require several important upgrades with regard to hardware, operating systems, databases, in addition to the actual software upgrade of SharePoint. Microsoft has also provided a pre-upgrade checker to identify any potential issues before moving to the new platform.

Hardware Requirements

SharePoint Server 2010 will only run on a 64-bit edition of Windows Server 2008 R2 or Windows Server 2008 with Service Pack 2 (SP2) operating system. This is required on any servers that will be running on SharePoint Server 2010. This migration to 64-bit servers must take place before any upgrade or migration occurs, as Microsoft does not recommend upgrading the servers and software concurrently.

Operating System Requirements

SharePoint Server 2010, as noted earlier, must run on a 64-bit version of Windows Server 2008 R2 or Windows Server 2008 SP2.

Other points to consider include:

- Organizations currently running MOSS 2007 on Windows Server 2003, and intend to upgrade to SharePoint Server 2010, **must** have a sufficient number of Windows Server licenses for deploying on the newer operating system.
- Microsoft **does not** recommend upgrading/migrating to Windows Server 2008 or Windows Server 2008 R2 at the same time as upgrading to SharePoint Server 2010.
- Organizations **can combine** migration to 64-bit hardware with migration to Windows Server 2008 or Windows Server 2008 R2.

Database Requirements

SharePoint Server 2010 requires its database server to be a 64-bit version of one of the following:

- Microsoft SQL Server 2008 R2
- SQL Server 2008 with Service Pack 1 and Cumulative Update 2
- SQL Server 2005 with SP3 and Cumulative Update 3

Key considerations include:

- Organizations currently using SQL Server 2000 **must** upgrade to one of the aforementioned versions before upgrading to SharePoint Server 2010.
- Microsoft **does not** recommend migrating to 64-bit SQL Server while upgrading to SharePoint Server 2010, in order to more easily pinpoint and succinctly address any potential migration or upgrade issues.

Pre-Upgrade Checker

With MOSS 2007 deployments, Microsoft offered a pre-upgrade checker – a command-line tool via STSADM (STSADM.exe –o preupgradecheck) – to help find any potential issues for upgrade. The table on Page 4 outlines the information administrators receive when running this tool.

Information Available with the Pre-Upgrade Checker	A list of all servers and components in the farm, and whether the servers meet the hardware and operating system requirements for an upgrade to SharePoint Server 2010.
	The alternate access mapping URLs that are being used in the farm.
	A list of all site definitions, site templates, features, and language packs currently installed in the farm.
	Any unsupported customizations in the farm, such as database schema modifications.
	Any database orphans or site orphans in the farm.
	Any missing or invalid farm configuration settings, including invalid host names or service accounts.
	Whether databases meet upgrade requirements – such as the databases must be set to read/write, as well as ensuring any databases and site collections stored in Windows Internal Database are no larger than 4 GB.

For organizations already utilizing a previous version of SharePoint – be it SharePoint Server 2003 or MOSS 2007 – there are two main options for moving to SharePoint Server 2010: upgrade or migration. An upgrade involves using natively available tools from Microsoft, while a migration requires the use of a tool from a third-party vendor.

In that vein, it is important to mention that important considerations must be taken into account when deciding whether upgrading or migrating is most appropriate for your organization. The key is to first determine the business objective for the SharePoint Server 2010 deployment. Depending on the business objective, requirements for SharePoint 2010's physical and information architecture may fundamentally change. For instance, if Microsoft Office SharePoint Server 2007 is in use today as a collaboration platform with various team sites but your organization wishes to launch enterprise content management and application development initiatives in SharePoint Server 2010, the architecture will need to be evaluated to determine if it can currently scale to support the new requirements. If re-architecting SharePoint is a goal for the move to SharePoint Server 2010, then tools supporting a granular migration approach – allowing for re-architecture on the fly or simply move content into the desired destination architecture – could be a requirement, which is not unsupported in the upgrade methods discussed in the following section.

We will discuss options for migrating and moving content from other legacy systems to SharePoint Server 2010 in an upcoming section of this paper but, for now, we will examine the various upgrade options available.

SharePoint Server 2010 Upgrade Options

There are five main options organizations may use to upgrade to SharePoint Server 2010, such as:

1. In-place upgrade
2. Database attach upgrade (parallel upgrade)
3. Hybrid Approach One: Read-only databases
4. Hybrid Approach Two: Detach databases
5. Any combination of methods 1-4

Organizations deciding that the upgrade approach is best for them must then determine which upgrade method is best, taking into account their business objectives and current SharePoint (or content management system) architecture. Other questions that organizations must answer before choosing an upgrade option include:

- How much downtime is acceptable to day-to-day business operations?
- Are there any requirements for upgrading farm or server configurations?
- Are there any customizations that will also be required on the SharePoint Server 2010 farm?

Now, let's examine each of the upgrade methods – complete with their benefits and potential consequences.

In-Place Upgrade

This method requires organizations to install SharePoint Server 2010 or SharePoint Foundation on the same hardware they utilized for MOSS 2007 or WSS v3 deployments, then upgrade the content and settings in the server farm as part of a single process, in a fixed order. For Microsoft-recommended instructions for performing this upgrade, please visit: [http://technet.microsoft.com/en-us/library/cc263447\(office.14\).aspx](http://technet.microsoft.com/en-us/library/cc263447(office.14).aspx).

Benefits	Challenges
Farm-wide settings are preserved and upgraded.	Servers and farms are offline while the upgrade is in progress.
Customizations are available in the environment post-upgrade, though manual steps may be required to upgrade or rework them.	The upgrade proceeds continuously, meaning that the content databases are upgraded sequentially and can take a long period of time.

Database Attach Upgrade

This method upgrades the *content* for the environment on a separate farm. The databases can be upgraded in any order, or even simultaneously. While each database is being upgraded, though, the content in that database *will not* be available to users. This method is quicker than the in-place upgrade method, as multiple databases can be upgraded in parallel, as well as can combine multiple farms into one farm. For a step-by-step

upgrade for performing a database attach upgrade, visit: [http://technet.microsoft.com/en-us/library/cc263447\(office.14\).aspx](http://technet.microsoft.com/en-us/library/cc263447(office.14).aspx).

Benefits	Challenges
Can Upgrade multiple content databases concurrently, resulting in a faster overall upgrade than an in-place upgrade.	Server settings, farm settings and customizations are not upgraded – they must be manually transferred. Missing customizations result in loss of functionality or issues with end-user experience.
Can be used to combine multiple farms into one farm.	Organizations must plan for time and network bandwidth to copy the databases. Direct access to database servers is required.

Hybrid Approach One: Read-Only Databases with Database Attach

For this upgrade, administrators must set up and configure a new SharePoint Server 2010 farm, and transfer all the customizations to the new farm and test the environment. This approach enables administrators to provide read-only access to content for end-users during the upgrade process. Essentially, the databases must be set to read-only while the upgrade progresses on another farm and, in theory, reduces perceived downtime for end-users. For more details on what this upgrade method entails, please visit: <http://technet.microsoft.com/en-us/library/cc262483.aspx>.

Benefits	Challenges
Minimal downtime for end-users, as content is still accessible in read-only mode.	Server settings, farm settings, and customizations are not upgraded – they must be manually transferred.
Faster than an in-place upgrade because multiple databases can be upgraded concurrently.	Loss of functionality and end-user experience due to missing customizations.
Upgrade hardware in addition to software.	Must plan for time and resources to copy databases; requires direct access to database servers.

Hybrid Approach Two: In-Place with Detached Databases

This approach first involves a server administrator taking the original SharePoint farm offline, then detaching the content databases from that farm. Then, an in-place upgrade must be executed on the original farm servers, services, and configuration database. Finally, the content databases must be attached to the original farm and upgrade the content. An in-place upgrade will update the farm and settings, and then organizations can detach and upgrade multiple databases in parallel (either on the same farm or a separate farm). For more information, please visit: <http://technet.microsoft.com/en-us/library/cc262483.aspx>.

Benefits	Challenges
Preserve and upgrade farm-wide settings.	Allocate enough time and network bandwidth to copy databases over the network.
Customizations are available after upgrade, however they may need to be reworked to be compatible with SharePoint Server 2010.	Loss of time and network bandwidth could lead to end-user experience issues.
Faster than an in-place upgrade, because multiple databases can be updated at once.	Requires direct access to database servers.

Additional Hybrid Upgrade Option

As previously mentioned, organizations can also use any combination of methods one through four. For example, organizations can conduct an alternate access mapping URL redirection with a database attach

approach. This method temporarily redirects users to an existing farm while upgrading the content on a new farm.

Upgrade Considerations

The five methods noted for upgrading from previous versions of SharePoint to SharePoint Server 2010 assume organizations have already conducted the steps necessary to ensure their hardware, operating systems, and databases are already up-to-date and ready to support Microsoft's latest platform release. If not, then there are other actions that must take place prior to any upgrade method.

Additional steps are required if organizations are ...	Upgrading from a 32-bit to a 64-bit edition of SQL Server
	Upgrading from a 32-bit operating system to a 64-bit operating system
	Upgrading an environment utilizing forms-based authentication
	Upgrading very large databases
	Upgrading from SPS 2003 (requires upgrade to MOSS 2007 via database attach, then on to SharePoint Server 2010)

Consequently, there are also time and space requirements that must be determined before deciding on an upgrade approach.

Time Allocation Considerations	Overall database size; number of SharePoint objects
	Hardware
	Pre-upgrade steps required – i.e. backups and custom element creation
	Post-upgrade steps required – i.e. verifying sites, creating service applications, conducting people/search crawls
Database Space Considerations	Temporary databases and data restructuring
	Upgrade log files
	Transaction log files for the databases

SharePoint Server 2010 Migration Options

The second option for moving content into SharePoint Server 2010 from previous releases of the platform is to utilize a third-party migration solution. AvePoint's **DocAve Migrator for SharePoint** enables organizations to conduct full-fidelity content migration at the item, subsite, or site level. DocAve Migrator also offers a direct migration from SharePoint Portal Server 2001 or SPS 2003 environments to SharePoint Server 2010, unavailable using Microsoft's native upgrade methods.

Now, let's take a look at the process an organization would take to migrate to SharePoint Server 2010, and where DocAve Migrator for SharePoint can help optimize the move:

Migration Process	DocAve Advantage
Build a vanilla SharePoint Server 2010 farm	DocAve Migrator utilizes organizations' existing infrastructure from a single, Web-based interface. Job configuration and administration can easily be performed through a centralized management console, enabling administrators to access the console interface from anywhere and perform any migrate task remotely if necessary.
Install a third-party tool	
Map all permissions, configurations, and other customizations from SPS 2003 or MOSS 2007 farm to SharePoint Server 2010	DocAve Migrator automatically moves content from legacy source SharePoint instances to their mapped elements in SharePoint Server 2010. Critical information is kept intact, so no data is lost during the transfer. All folder structures, document properties, metadata, permissions, and access control are retained with full-fidelity. DocAve's Pre-Migration Scanner detects and notifies administrators of any illegal characters, user permissions, user names, user domains, and other legacy elements that must be mapped in order to migrate successfully into SharePoint Server 2010.
Perform the migration – either full or incremental	DocAve Migrator offers the following features for organizations wishing to have control over the method and timing of migration: <ul style="list-style-type: none"> • Granular or bulk content migration as well as flexible job scheduling ensures administrators can plan migration jobs according to their specific business needs, thereby reducing the impact on functioning production environments. • Live Migration offers an on-the-fly, drag-and-drop process for transferring data to SharePoint Server 2010. Live SharePoint content can be selectively chosen to cutover to the SharePoint Server 2010 farm instantly, or scheduled in order to minimize the impact on the SharePoint

	<p>environment.</p> <ul style="list-style-type: none"> • Reuse existing backups of existing SharePoint environments to upgrade to SharePoint Server 2010. Administrators then will not have to recreate source content selection, minimizing effort required for migration.
Ensure the proper transfer of data, configurations, and permissions	<p>DocAve Migrator offers the following features to ensure proper transfer:</p> <ul style="list-style-type: none"> • Maintain platform co-existence with Incremental migration approach to ensure proper transfer of all SharePoint content, configurations, and users before redirecting users to the new platform • Reorganize or create new folders upon migration to clean up existing clutter. • Rollback Capability enables administrators to rollback to its existing SharePoint product environment if the scheduled job does not meet the organization’s specific needs. This way, the migration process can be reassessed to ensure a properly executed migration task with minimal error.
Roll out farm to end-users	

Organizations with content located in other legacy systems – such as Lotus Notes or EMC Documentum – have other options for moving to SharePoint Server 2010. First, they can **connect** via a third-party tool such as **DocAve Connector for SharePoint**, which presents and manages all legacy file- and cloud-based content – including large media files and documents – via SharePoint without the need for import. We will further examine the connection option side-by-side with migration in a later section of this white paper.

Second, companies can **migrate** the legacy content and data onto SharePoint Server 2010. In this scenario, organizations can manually download all content from the legacy system and then upload it onto SharePoint.. For organizations considering a migration, there are several important questions they must ask of themselves before making any final decisions, including:

- How much content needs to be migrated?
- How much downtime can be tolerated?
- How many customizations are currently in use?
- Can we migrate in a scaled/phased approach, or must it be a “big bang” migration?
- Can we engage other members to assist in the process and arrange for proper training?
- What are the minimal requirements for this migration?
- Can non-SharePoint related assets be properly mapped into SharePoint?
- Is loss of metadata and securities acceptable?

Before delving into migration strategies available for organizations wishing to migrate legacy content onto SharePoint Server 2010, the table below outlines some proven practices for optimizing the migration process.

Proven Practice	Practical Application
Estimate the time required for data processing.	Perform a test migration of a limited section of data, then review the log files. Please note that this will not include all the steps that must be performed both pre- and post-migration.
Databases larger than 100 GB can take a long time to upgrade and make it more difficult to recover if the upgrade doesn’t complete successfully.	Divide database and folder structures into small data sets before running the migration. If a large database cannot be divided, reconsider the upgrade approach and choose one supporting granular migration.
Document Libraries with more than 250,000 documents in the root of the document library will lengthen upgrade/migration times, and	Use folders to break up large document libraries or data subsets to manage library size. For example, if the 250,000 documents are divided into 125 folders, it should upgrade

could fail.	more easily.
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User-Powered Manual Migration

This migration method starts with the SharePoint administrator installing the new version of SharePoint Server 2010 on separate hardware or a separate farm. Then, Power Users are tasked with manually creating content. For the purpose of this white paper, a power user is defined as a knowledge worker with extreme familiarity with SharePoint, and has either full control or design permissions for the site they will be charged with managing. In order to most effectively engage Power Users in a content migration, the following best practices are necessary:

- **Create a dedicated Power Users group** in the form of a SharePoint Site, so that all Power Users can share best practices and lessons learned with one another.
- **Provide expensive training on SharePoint** to all Power Users.
- **Request Power Users to Migrate Content**, as they should be empowered and proactive about proper content migration and administration.
- **Request Power Users to train new SharePoint users** on how to properly use their specific sites – provide training materials, videos, and other learning devices to new users to lower the total cost of ownership for this type of IT training.

Now, let's review the proper situation, benefits, and potential consequences for a user-powered manual migration:

Best For ...	Benefits	Challenges
Environments retaining ample amounts of outdated information	Puts Power Users in charge to recreate and manage sites	Manual, resource-intensive process
	Migrate relevant content to avoid import of old data	Requires willing participants and intensive training
Moving to new hardware or new architecture	Completely retains old environment	Requires additional steps to retain original URLs
	Virtually no downtime, requiring user switch to new environment	Requires new server farm and additional SQL Server storage space for new content

Migration with a Third-Party Tool

In this method, a SharePoint administrator will install the new version of SharePoint Server 2010 on separate hardware or a separate farm. The change is that, instead of then utilizing Power Users for the manual migration of content, the content and users are ported over to SharePoint Server 2010 using a third-party tool.

The steps necessary for migrating from legacy content repositories onto SharePoint Server 2010 with a third-party tool are similar to the ones necessary for migrating from prior SharePoint releases, including:

1. Build a vanilla SharePoint Server 2010 farm
2. Install the third-party migration tool
3. Map all permissions, configurations, and other customizations from legacy repositories
4. Perform the migration
5. Ensure the proper transfer of data, configurations, and permissions
6. Roll out farm to end-users

Now, let's review the best scenario to utilize this method, as well as the requisite benefits and consequences involved:

Best For ...	Benefits	Challenges
Any size environment, from single-	Granular migration	Costs associated with purchasing additional software
	Retains all metadata	

server environments to large, distributed farms	Virtually no downtime	Requires a new server farm
	Applicable to non-SharePoint repositories	

DocAve Migrator delivers the same features – including full-fidelity migration as well as automated transfer of all content onto SharePoint – it did when we discussed its advantages for organizations upgrading from a prior SharePoint release to the new platform.

DocAve's supported migration sources from legacy systems include:

- Exchange Public Folders
- File Systems
- Network File Shares
- Documentum eRoom v6.0 and above
- EMC Documentum v6.5 and above
- Lotus Notes v6.5 and above
- Open Text Livelink 9.5 and above
- Open Text Vignette v7.x and above
- Oracle Stellent v7.x and above
- Any HTTP/HTTPS-accessible web content

Migrating vs. Connecting

When organizations are faced with the decision to either migrate legacy content directly onto SharePoint Server 2010 or to connect the content with a third-party tool, there are three important considerations:

Value-add of Legacy System	Are legacy systems providing functionalities, features, or capabilities that one cannot receive with SharePoint?
Maintenance Costs	This can include the hardware that is used for the legacy system, the cost of licensing, support, as well as personnel to maintain the system.
Migration Costs	Throughout the migration process, it is important to note how much it will cost to undergo major interruptions to business, purchasing migration tools, then training end-users on how to use SharePoint Server 2010.

Here are the main differences organizations experience when either migrating or connecting content:

Migration	Connection
Data is available in SharePoint	Data is available through SharePoint
Data is moved into SharePoint	Data is left in source (legacy) systems
SharePoint replaces the legacy system	Gives legacy system second life by increasing its value
Burden of storage is on SharePoint	Burden of storage is on legacy system
Changes are saved in SharePoint	Changes are propagated back to the source system
Migrate and decommission	Connect and forget

As with all methods to adopt SharePoint Server 2010, migrating content into SharePoint also has its benefits and consequences. Even though DocAve Migrator empowers administrators to migrate according to its specific business needs and offers numerous features to expedite, automate, and streamline the process, third-party costs are still associated with the software purchase. Below is a breakdown of pros and cons for migration via a third-party tool like DocAve.

Benefits	Challenges
Enables administrators to migrate granularly	Requires the purchase of an additional third-party

according to business needs, which allows for platform co-existence	solution
Allows for minimal interruption to end-user productivity	Requires additional disk/RAM space on SharePoint servers
Complete preservation of metadata, content, and configurations	Requires new server farm
If folder structures are not up to organizational standards, administrators can re-architect them on-demand during migration	A pre-migration assessment should be performed in order to conduct a proper migration – even if a third-party tool is in use – so additional time must be taken into account

Optimizing the Jump to SharePoint Server 2010

SharePoint Server 2010 is primed to revolutionize the way companies do business, and it is no surprise that many organizations worldwide are considering making the jump to the new platform. However, there are many points that must be taken into consideration before making the final decision.

First, it is essential to know the business objective for the SharePoint Server 2010 deployment – and which subsequent features and functionality will be utilized most – as this is critical to proper planning. After determining the business purpose, organizations then must ensure they have the proper hardware, operating systems, and databases necessary for deploying a SharePoint Server 2010 environment. Once the proper requirements are in place, it is then important to consider whether to upgrade or migrate, depending on available processes based on allowable downtime, manual steps involved, business objectives or desired SharePoint 2010 architecture, and upgrade requirements.

While Microsoft offers several native methods for upgrading to SharePoint Server 2010, consider AvePoint's DocAve Migrator for SharePoint in order to provide a complete and efficient, yet flexible migration to Microsoft's latest platform release, offering minimal interruption to end-user productivity.

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