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Proven Practices for Upgrading or Migrating to Microsoft® SharePoint® 2013

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Introduction

Microsoft SharePoint 2013 will transform the way organizations are connecting their knowledge workers, business processes, and enterprise-wide content worldwide. With new features including enhanced document management capabilities around sharing and contributing content, vastly improved social features, a new app model and marketplace, and a overhauled search experience for discovery, 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 social collaboration.

Before organizations make the jump to Microsoft's latest platform release, there are major points to take into consideration. A move to SharePoint 2013 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 2013 – 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 2013, the different methods available for migration, key considerations for each, as well as proven practices and available tools to help make the move to Microsoft's latest platform release with minimal business disruption.

SharePoint 2013 Requirements

The move to SharePoint 2013 from previous versions of SharePoint will require several important upgrades with regard to hardware, operating systems, and databases in addition to the actual software upgrade of SharePoint. Microsoft has also provided a pre-upgrade checker that will identify any potential issues that may exist before moving to the new platform.

Hardware Requirements

SharePoint 2013 servers require a minimum of 8 GB RAM and 4 64-bit cores to operate for small environments and 16 GB RAM and 8 64-bit cores for medium environments. All servers in the SharePoint 2013 farm must physically reside in the same data center.

Operating System Requirements

SharePoint 2013 will only run on a 64-bit edition of Windows Server 2008 R2 Service Pack 1 (SP1) or Windows Server 2012 operating system. This is required on all servers that will be running on SharePoint 2013. 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.

Other points to consider include:

- Organizations that are currently running Microsoft Office SharePoint Server (MOSS) 2007 on Windows Server 2003 and intend to upgrade to SharePoint 2013 must have a sufficient number of Windows Server licenses for deployment on the newer operating system.
- In order to more easily discover and address any potential migration or upgrade issues, Microsoft does not recommend upgrading/migrating to Windows Server 2008 R2 SP1 or Windows Server 2012 and SharePoint 2013 simultaneously.
- Organizations can combine migration to 64-bit hardware with migration to Windows Server 2008 R2 SP1 or Windows Server 2012.

Database Requirements

SharePoint 2013 requires its database server to be a 64-bit version of either Microsoft SQL Server 2008 R2 SP1 or Microsoft SQL Server 2012

Key considerations include:

- Organizations that are currently using SQL Server 2000 with MOSS 2007 must upgrade to one of the aforementioned versions before upgrading to SharePoint 2013.
- In order to more easily pinpoint and succinctly address any potential migration or upgrade issues, Microsoft does not recommend migrating to 64-bit SQL Server while upgrading to SharePoint 2013.

SharePoint 2013 Upgrade Options

For organizations already utilizing a previous version of SharePoint – be it SharePoint Portal Server 2003, MOSS 2007, or SharePoint 2010 – there are two main options for moving to SharePoint 2013: 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 certain 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 2013 deployment. Depending on the business objective, requirements for SharePoint 2013's physical and information architecture may fundamentally change. For instance, if MOSS 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 2013, 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 2013, then tools supporting a granular migration approach – allowing for re-architecture in tandem with migration or simply moving content into the desired destination architecture – could be a requirement, which is not unsupported in the upgrade methods discussed in the following section.

Options for migrating and moving content from other legacy systems to SharePoint 2013 will be discussed in an upcoming section of this paper, but for now, we will examine the various upgrade options available.

There are four main options that organizations may use to upgrade to SharePoint 2013, such as:

1. In-place upgrade from MOSS 2007 to SharePoint 2010, then database attach upgrade to SharePoint 2013
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 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 2010 or SharePoint Foundation on the same hardware they utilized for MOSS 2007 or WSS v3 deployments, then upgrade in a fixed order the content and settings in the server farm as part of a single process . For Microsoft-recommended instructions on 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).

With SharePoint 2013, there is no way to perform an in-place upgrade from SharePoint 2010 to SharePoint 2013 as there was in a MOSS 2007 to SharePoint 2010 upgrade. However, some organizations may consider in-place upgrades to move from MOSS 2007 to SharePoint 2010 first, then performing a database attach from SharePoint 2010 to SharePoint 2013.

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 to complete.

Database Attach Upgrade

This method upgrades the environment's *content* 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, and multiple farms can be combined into one farm. For step-by-step upgrade instructions on performing a database attach upgrade, visit [http://technet.microsoft.com/en-us/library/cc263299\(v=office.15\).aspx](http://technet.microsoft.com/en-us/library/cc263299(v=office.15).aspx) .

Please note that you cannot execute a database attach upgrade from SPS 2003 or MOSS 2007 to SharePoint 2013. Organizations that are upgrading from SPS 2003 would have to attach three separate times, as they would need to attach the SPS 2003 database to a MOSS 2007 farm, attach that upgraded database to a SharePoint 2010 farm, and then attach that upgraded database to a SharePoint 2013 farm.

Benefits	Challenges
Can upgrade multiple content databases concurrently, resulting in a faster overall	Server settings, farm settings, and customizations are not upgraded – they must be manually transferred.

upgrade than an in-place upgrade.	Missing customizations result in loss of functionality or issues with end-user experience. They can also block the ability to attach a database.
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 2013 farm, transfer all of 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 which, 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\(v=office.15\).aspx](http://technet.microsoft.com/en-us/library/cc262483(v=office.15).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.
Upgrades 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 involves a server administrator first 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 the content upgraded. An in-place upgrade will update the farm and settings, at which point organizations can then 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
Preserves and upgrades 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 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.

Upgrade Considerations

The five methods noted for upgrading from previous versions of SharePoint to SharePoint 2013 assume that 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 2010, then to SharePoint 2013)

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 – that is, backups and custom element creation

	Post-upgrade steps required – that is, 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 2013 Migration Options

The second option for moving content into SharePoint 2013 is through migration. Typically, there are two methods by which an organization can perform a migration to SharePoint, be it from previous releases of the platform or from other legacy content repositories:

1. User-Powered Manual Migration
2. Migration via a Third-Party Solution

For organizations considering a migration, there are several important questions to consider before making any final decisions, including:

- How much content needs to be migrated?
- How much downtime is acceptable?
- 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 security settings acceptable?

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 of 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 that supports granular migration.
Document Libraries with more than 250,000 documents in the root of the document library will lengthen upgrade/migration times, and could fail.	Use folders to break up large document libraries or data subsets to manage library size. For example, if 250,000 documents are divided into 125 folders, it should upgrade more easily.

User-Powered Manual Migration

This migration method starts with the SharePoint administrator installing the new version of SharePoint 2013 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 knowledgeable worker with extreme familiarity with SharePoint who 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 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
	Migrates 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 2013 on separate hardware or a separate farm. The difference is that instead of utilizing power users for manual migration of content, the content and users are ported over to SharePoint 2013 using a third-party tool.

The steps necessary for migrating from legacy content repositories onto SharePoint 2013 with a third-party tool are similar to the ones necessary for migrating from prior SharePoint releases, including:

1. Build a “vanilla” SharePoint 2013 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-server environments to large, distributed farms	Granular migration	Costs associated with purchasing additional software
	Retains all metadata	
	Virtually no downtime	Requires a new server farm
	Applicable to non-SharePoint repositories	

Consider AvePoint’s ***DocAve Migrator for SharePoint***, which enables organizations to conduct full-fidelity content migration at the item, subsite, or site level, as well as the opportunity to map legacy content metadata into SharePoint 2013 Managed Metadata. DocAve Migrator also offers a direct migration from SPS 2003 or MOSS 2007 environments to SharePoint 2013, which is unavailable using Microsoft’s native upgrade methods. Companies wishing to migrate content from legacy content repositories can also do so with DocAve, as it supports the following sources:

- 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

Now, let’s take a look at the process an organization would take to migrate to SharePoint 2013, and where DocAve Migrator for SharePoint can help optimize the move:

Migration Process	DocAve Advantage
Build a “vanilla” SharePoint 2013 farm	<p>DocAve Migrator utilizes organizations’ existing infrastructure from a single, Web-based interface. Job configuration and administration can be easily performed through a centralized management console, enabling administrators to access the console interface from anywhere and perform any migrate task remotely if necessary.</p>
Install a third-party tool	
Map all permissions, configurations, and other customizations from SPS 2003 or MOSS 2007 or SharePoint 2010 farm to SharePoint 2013	<p>DocAve Migrator automatically moves content from legacy source SharePoint instances to their mapped elements in SharePoint 2013. 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.</p> <p>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 2013.</p>
Perform the migration – either full or incremental	<p>DocAve Migrator offers the following features for organizations wishing to have control over the method and timing of migration:</p> <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 2013. Live SharePoint content can be selectively chosen to cutover to the SharePoint 2013 farm instantly, or scheduled in order to minimize the impact on the SharePoint environment. • Reuse existing backups of existing SharePoint environments to upgrade to SharePoint 2013. Administrators then will not have to recreate source content selection, minimizing the migration effort.

<p>Ensure the proper transfer of data, configurations, and permissions</p>	<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 roll back to the 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 errors.
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Migrating vs. Connecting

Organizations with content located in other legacy systems such as Lotus Notes or EMC Documentum have other options for moving to SharePoint 2013 besides migration. 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. Developers can bulk create custom applications for streaming documents, audio files, and video clips in selected SharePoint locations with *DocAve Connector Software Development Kit*.

When organizations are faced with the decision to either migrate legacy content directly onto SharePoint 2013 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 are not available in SharePoint?
Maintenance costs	Costs can include the hardware that is used for the legacy system, the cost of licensing and 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, purchase migration tools, and train end-users on how to use SharePoint 2013.

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 of SharePoint 2013 adoption, migrating content into SharePoint 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 according to business needs, which allows for platform co-existence	Requires the purchase of an additional third-party 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 2013

SharePoint 2013 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 2013 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 2013 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 2013 architecture, and upgrade requirements.

While Microsoft offers several native methods for upgrading to SharePoint 2013, 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.

About AvePoint

AvePoint is a global technology company and proven software leader. Since its founding in 2001, AvePoint has become the world's largest provider of enterprise-class governance and infrastructure management solutions for enterprise social collaboration platforms. AvePoint helps more than 10,000 customers – including many Fortune 500 companies and government agencies – meet their specific business objectives utilizing the SharePoint platform. AvePoint, Inc. is headquartered and maintains its principal operational center in Jersey City, NJ, with wholly owned operational centers in the USA, Canada, Australia, South Africa, United Kingdom, France, Germany, Netherlands, Switzerland, Japan, Singapore, and China. AvePoint is a Depth Managed Microsoft Gold Certified Portals and Collaboration Partner and Gold Certified ISV Partner as well as a US Government GSA provider via strategic partnerships.