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Shattering SharePoint Storage Limitations

By Paul LaPorte
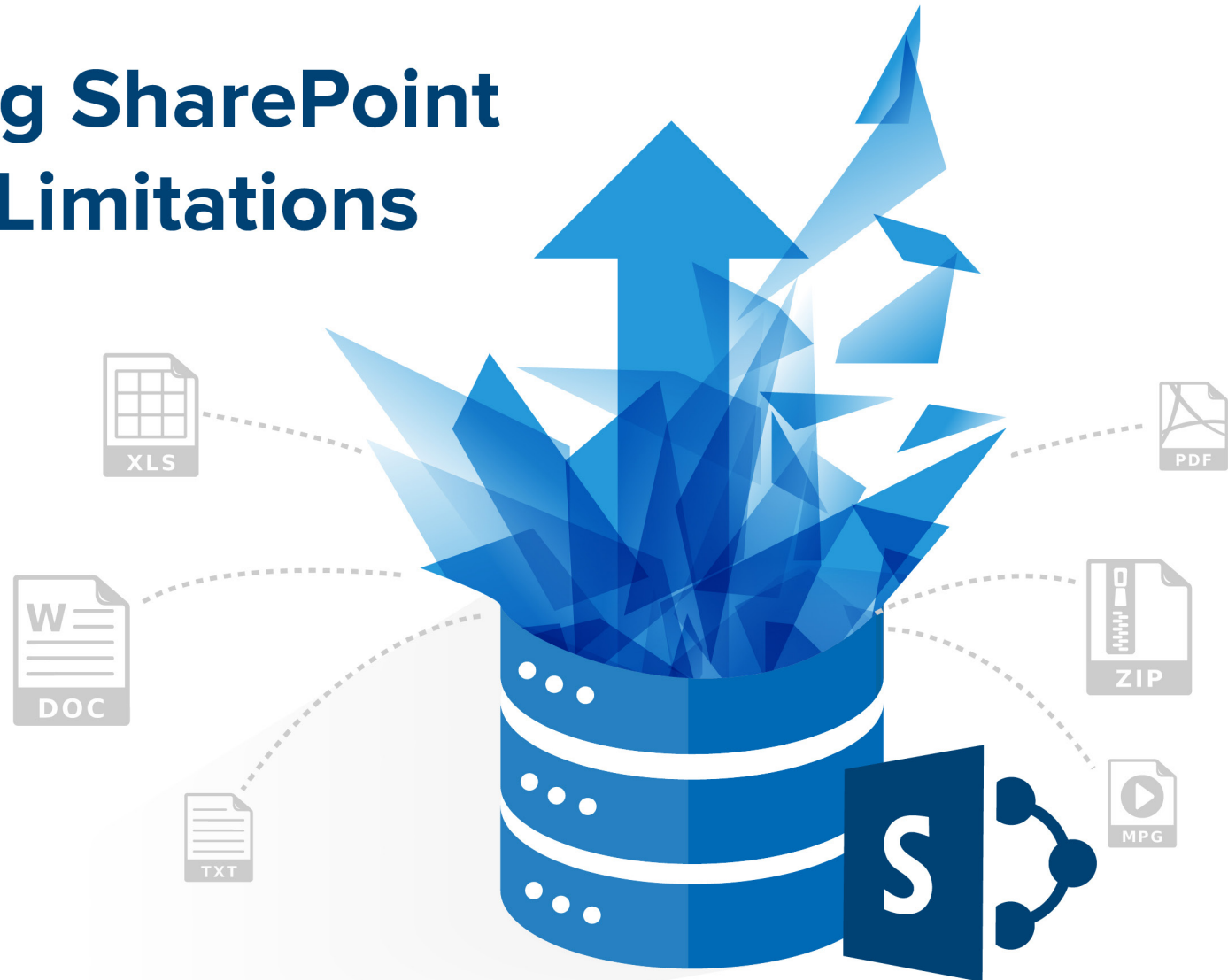
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INTRODUCTION

SharePoint has evolved into a juggernaut. Content is growing at an exponential rate and employees are increasingly dependent on it as a mission-critical tool, creating a complex application environment for administrators to manage.

Furthermore, as SharePoint hits maturity, storage-related limitations start to appear and become more prevalent. In this eBook, we will examine these limitations, take a deep dive into some of the most common among them, and discuss a solutions approach.

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BACKGROUND CONCEPTS

BACKUP WINDOW
The time period required to complete a backup procedure, often in a particular time slot when it is most suitable to backup data, applications or a system.

RECOVERY POINT OBJECTIVE (RPO)
The maximum tolerable period in which data might be lost from SharePoint due to an incident.

BLOB
Binary Large Object. SharePoint content consists of structured data (metadata) and unstructured data (BLOBs). BLOBs are the binary representation of a file stored in SQL Server (content database). BLOBs are immutable - they are created and deleted, but never updated.

RECOVERY TIME OBJECTIVE (RTO)
The targeted duration of time within which a business process must be restored after a disaster or disruption. For SharePoint, there may be multiple RTOs set for different types of disruption events. For example, lost or corrupt items, deleted sites, hardware failures, a full farm crash, or partial restore of most critical content.

EXTERNALIZING CONTENT
Moving unstructured content from SharePoint's native SQL database to different external content storage locations for performance and cost reasons. Externalized content remains under the management and control of SharePoint.

SERVICE LEVEL AGREEMENT
A document describing the level of service expected by business owners from the SharePoint administrator, laying out the metrics by which that service is measured.

LEARNING OBJECTIVES

In this eBook, you'll learn about the origins of SharePoint storage problems, the technical and business limitations associated with storage issues, and how you can shatter those limitations to achieve a high performing and well-tuned SharePoint environment.

WHAT CREATES STORAGE PROBLEMS

SHAREPOINT STORAGE LIMITATIONS

SHATTERING LIMITATIONS

WHAT DO YOU DO NEXT?

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SHAREPOINT STORAGE PROBLEMS

Each SharePoint deployment undergoes multiple content growth phases at it matures. This all starts with the initial deployment and content import.

Typically, an initial deployment begins at a department level or with a limited audience, whereby specific content assets are earmarked for incorporation into SharePoint. Once this hurdle is successfully cleared, a broader rollout usually occurs involving other departments and users, resulting in more use and larger content databases. A third content growth wave is reached once the entire organization adopts SharePoint. Multiple new categories of content are now moved into

SharePoint for centralized management and collaboration. Having achieved deployment maturity, SharePoint content continues to grow at a rate of 70-100 percent each year.

SHAREPOINT CONTENT: THEN AND NOW

Such rapid content growth leads to ever larger SharePoint farms. These farms inevitably hit their storage limits, a problem that cannot be solved with traditional out-of-the-box tools or approaches (something we'll explore further in this eBook).

As your content environment grows, new tools or architectures need to be introduced to successfully manage the challenges that accompany larger or more mission-critical content environments.

SHAREPOINT FARM GROWTH

2011 – Average SharePoint Content = 200 GB
- Small – 52 GB, 9M items*
- Medium – 356 GB, 43M items*
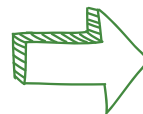- Large – 797 GB, 103M items*

2014 – Average SharePoint Content = 1 TB
2017 – Estimate SharePoint Content = 5 TB
- Based on continued 70 percent growth rate

* http://technet.microsoft.com/en-us/library/gg750251(v=office.14).aspx

SHAREPOINT DOCUMENTED LIMITATIONS

2007
9 PAGES

2010
18 PAGES

**2013**
25 PAGES!
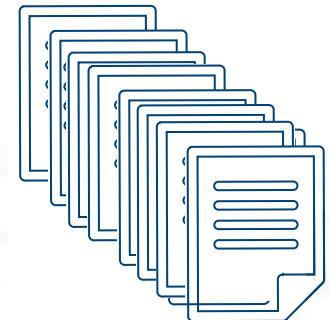
Source: Technet.Microsoft.com

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LIMITATION LANDSCAPE

When most administrators think of SharePoint storage limitations, they naturally think of the technical challenges posed by content growth, such as SharePoint barriers and recommended limits, volume of content to be backed up, or bandwidth connectivity. But SharePoint's storage limitations extend beyond IT to the entire organization as a whole giving rise to very real business challenges.

These business challenges are thrust upon administrators who are expected to solve them using technology and ingenuity. These include finding ways to meet an aggressive Recovery Point Objective (RPO), a compliance mandate, or a business pivot to the cloud.
Let's further break down these challenges and limitations and the internal and external factors that drive them:
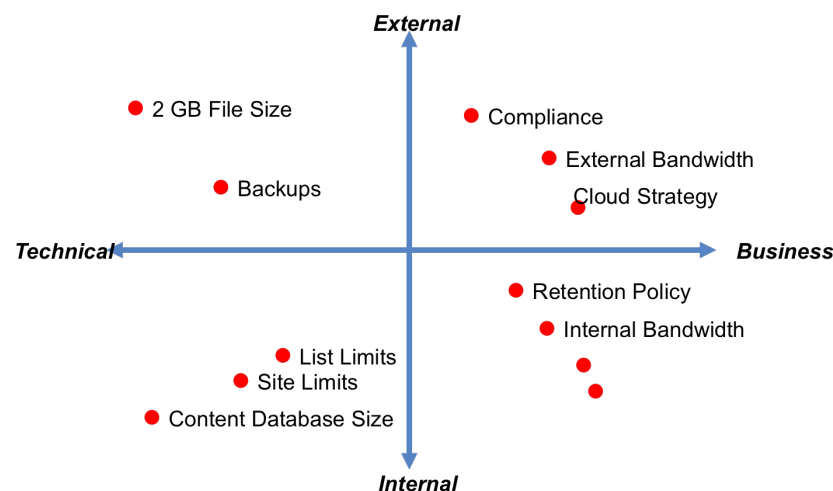
INTERNAL LIMITS are those you have some influence over. For example, you can help mold an RPO or chose to go beyond recommended content database limits.

EXTERNALLY IMPOSED CHALLENGES are issues you have to deal with and find the best solution to the meet the need. For example, a two gigabit (GB) file limit is a technical limit imposed by the SQL Server architecture. Another common challenge is regulatory compliance. In order to meet a regulatory requirement to archive content for auditability, new technology or approaches are needed, such as finding a way to move content to a WORM drive – Write Once, Read Many – so the content stands up to a legal inquiry or audit.

External

- 2 GB File Size
- Compliance
- External Bandwidth
- Cloud Strategy
- Backups

Technical ← → **Business**

- Retention Policy
- Internal Bandwidth
- List Limits
- Site Limits
- Content Database Size

Internal

EXPLORING THE LIMITATION LANDSCAPE

To better understand the storage limitations inherent in SharePoint; we'll explore several challenges that span both the technical and business arenas in more detail. These limitations will be examined in terms of the nature of the problem and the impact. We'll also recommend remedies for the limitations, shedding new light on how these challenges are perceived.

KEY LIMITATIONS EXPLORED INCLUDE:

LIMITATION	CONTROL	DRIVER
Content Database Size	internal	technical
Large File Types	external	technical
Backups	external	technical
Recovery Point Objective	internal	business
Recovery Time Objective	internal	business
Retention Policy	internal	business
Compliance	external	business
Cloud Strategy	external	business

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CONTENT DB SIZE

One of the first limitations that SharePoint administrators encounter is that of content database size. Content databases can start at a reasonable size, but over time get larger and more bloated as new content is added – impacting performance and responsiveness.

It's a problem that hasn't gone unnoticed. Microsoft has studied the issue and issued recommendations on database size limits. In SharePoint 2007, this recommendation was a scant 100 GB. Subsequently, the recommendation was raised to 200 GB for SharePoint 2010 and 2013[1] . While doubling the previous recommendation, the soft limit is insufficient for most organizational needs, as my own research has shown.

Over the past year, I have interviewed more than 1,500 organizations about their SharePoint usage trends. The

THERE ARE MANY CONTRIBUTING FACTORS TO THIS SLOW DOWN, INCLUDING:

• **Insufficient Input/Output Operations Per Second (IOPS)**
• **Efficiency of the API between SQL Server and SharePoint**
• **And, as more content enters the database, more users compete to access documents at the same time.**

research found that more than 70 percent of SharePoint administrators report having at least one content database greater than 200 GB, a percentage that continues to rise.

Despite Microsoft's recommended best practices, organizations inevitably find that their databases get too large for a given environment, architecture, and technical design limits – a problem

that dramatically impacts SharePoint performance and end user satisfaction. It's no surprise that managing performance issues impacted by content database size is reported as a top priority for many administrators.

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[1]The good news is that Microsoft's suggested 200 GB limit is, in fact, a soft limit. It's literally a best practice recommendation and technical workarounds are available. It's up to the administrator to decide whether he or she chooses to adhere to the limit or not.

Folder Document Library View
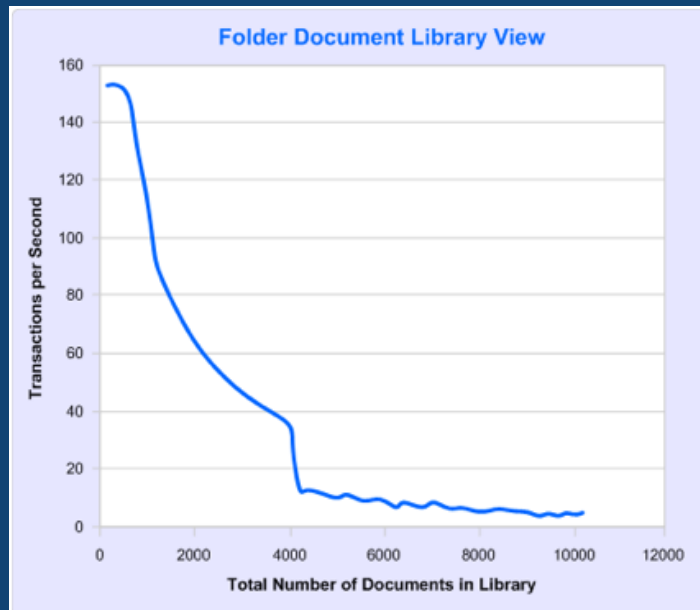
MICROSOFT PROVIDED EXAMPLE OF PERFORMANCE DEGRADATION IN SHAREPOINT 2007 WITH INCREASING NUMBER OF FILES

2013 and 2010: 200 GB
 *4 TB limit under certain situations with
  high performance Hardware
2007:   100 GB

IMPACT

Large SharePoint content databases (SQL) cause performance degradation, bloat, and users abandoning in mass in favor of Box and other non-sanctioned storage

LARGE FILE TYPES

Another technical limit frequently encountered with SharePoint storage is the two GB size limit for an individual file. Unlike the soft content database size limit, the file size limit in SharePoint is a hard one – SQL Server is simply not capable of storing files larger than two GB*. As such, this limit is categorized as an externally imposed limit. As long as SQL Server is used to store the BLOB, or unstructured portion of a content record, administrators have no flexibility to change the limit or circumnavigate it.

Though two GB may seem like an unusually large file, many file types are predisposed to exceed this threshold. High-definition video formats, such as Blu-ray and 4K, exceed two GB. A single Blu-ray movie found in any home movie DVD collection runs about five GB. 4K videos can routinely be larger than one terabyte (TB). As videos become more mainstream in business, the large file size limit impacts more and more SharePoint organizations.

In addition to video, many industries rely on different types of large files to support engineering and architectural applications, deliver entertainment, capture surveillance footage, and store medical scans.

Without successfully overcoming large file size limitations, these firms are excluded from using SharePoint for critical content.
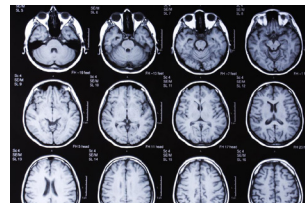
5 GB

30 GB

40 GB

VARIABLE

*SharePoint 2016 changes the 2 GB file size limit to 10 GB. This change allows larger files to live in SharePoint, stored within the SQL database, but creates additional performance degradation when accessing those large files due to I/O constraints – a difficult tradeoff for administrators to manage.
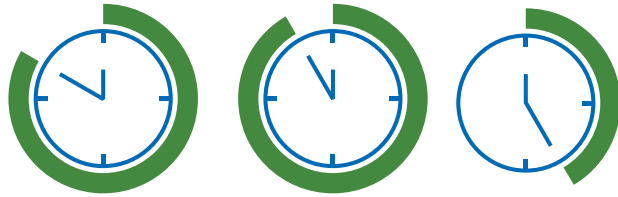
BACKUPS

Taking backups is an activity most IT professionals would just as soon do without. There is no satisfaction. There is no discernable result or benefit. It's like paying for homeowners insurance. You hope you never need it and you think about what else you could do with the money, but ultimately it is necessary.

Why is it necessary? Because recovery is a matter of "when", not "if". And you can't recover without good backups. Backing up and securing data is a responsibility that floats around many parts of an organization, primarily because no one wants to own it. As such, it can be internally controlled by a SharePoint administrator or externally controlled, usually by the infrastructure team.

Externally controlled backups present several challenges. First, the backed-up files are primarily used for disaster recovery rather than operational recovery (yet SharePoint administrators face far more operational recovery scenarios than true disaster recovery scenarios). Furthermore, during the backup process, each application and database is treated in the same way, ignoring the unique needs of each application administrator. Finally, these generic backups lead to ineffective and limited recovery capabilities.

To achieve backups more in line with the needs of SharePoint recovery, SharePoint administrators must take control of their own backups to achieve better operational recovery capabilities, such as granular, item-level recovery without affecting more recent content changes.

Another common problem that SharePoint administrators face is backup duration.

Backup duration is dictated by many factors, including the volume of content, hardware used, APIs available for access, and the available bandwidth and distance between the primary and backup location. The first two attributes (content and hardware) tend to be the biggest factors in backup duration and performance, since traditional backups occur onsite over a local area network. In this scenario, content is backed up at a slow pace and rarely with any application-specific intelligence. This entails long backups, often without much value to many recovery scenarios.

As organizations move storage and backup to the cloud, other factors begin to impact backup performance. For example, APIs are a common cause of performance problems. The APIs used to move content into Office 365, whether directly or via Azure for local staging, is more robust and faster than the APIs used to move content out of Office 365. This creates bottlenecks when running external backups of Office 365 content – dramatically increasing the time to backup compared with on-premises backups. In addition, WAN speeds and distance between content and target backup locations further degrade backup speeds.

By way of example, on premise backups using SharePoint out-of-the-box backup options achieve average speeds of approximately one TB per eight hours. That same backup out of Office 365 would typically take days based on currently reported customer speeds. The more content that's stored in SharePoint, the longer the backup.

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As most of us work with some combination of these non-controlled, limiting factors, backup is classified as an external limitation or challenge for SharePoint administrators. Fortunately, below are a few tactical ways that administrators can react or respond to these external factors:

Choose the backup frequency.
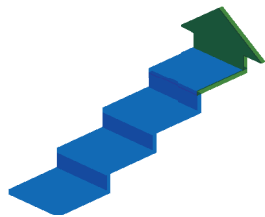
Take fewer full backups versus incremental or differential backups.

Choose to backup high value content on a more frequent basis, in effect giving that content proportionally more resource allocation.

Replicate high value content in real time.

Despite these remedies, as we consistently state throughout this eBook, as the volume of SharePoint content grows, the more problematic administration becomes. For backups, this invariably means that the total volume to be backed up exceeds backup limits and windows, resulting in incomplete or broken backup files that will fail when a recovery is needed. A new approach may be necessary to ensure backup limitations don't derail your business.
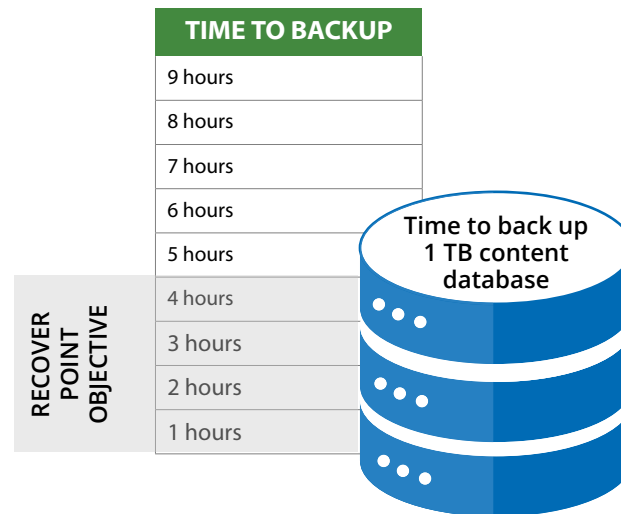
Figure 1. Theoretical Backup Windows for Cloud Backup

Network Speed	50 Mbps	100 Mbps	500 Mbps	1 Gbps	10 Gbps
Theoretical Effective Throughput (80% of Line Speed)	5 MB/sec	10 MB/sec	48 MB/sec	96 MB/sec	954 MB/sec
Backup Data Size	**Implied Backup Window**				
10GB	35.0 min	17.4 min	3.5 min	1.7 min	0.2 min
100GB	5.8 hrs	2.9 hrs	34.7 min	17.4 min	1.7 min
500GB	1.2 days	14.5 hrs	2.9 hrs	1.4 hrs	8.7 min
1TB	2.4 days	1.2 days	5.8 hrs	2.9 hrs	17.5 min
10TB	24.3 days	12.1 days	2.4 days	1.2 days	2.9 hrs

Source: Gartner (February 2014)

RECOVERY POINT OBJECTIVE

A Recovery Point Objective (RPO) is a key performance indicator established by the organization. The RPO enables IT administrators to measure potential and actual data loss against a set threshold determined to be acceptable by all stakeholders, including the administrator.

An RPO is defined as the maximum tolerable time period in which data might be lost due to a failure or outage of any kind. For example, a four hour RPO means that when an outage occurs, it is considered tolerable by the organization to lose accumulated work or content changes up to four hours. Any greater data or content loss is considered unacceptable. Therefore, SharePoint content must be backed at least every four hours or there is potential for greater than acceptable data loss. RPOs are related to backups and drive backup architectural and strategy considerations.

TIME TO BACKUP
9 hours
8 hours
7 hours
6 hours
5 hours
4 hours
3 hours
2 hours
1 hours

RECOVER POINT OBJECTIVE

Time to back up 1 TB content database

RPOs are different for every organization and heavily depend on how mission-critical SharePoint is considered to the organization. Ongoing customer and market interviews have identified four to eight hours as the most frequently used RPO range. As SharePoint becomes more central to an organization's activities, the RPO trends to a smaller, less forgiving number. Yet, as RPOs shrink and content grows,

backup durations increase over time. And, at some point, backups take longer than RPOs – a tipping point that drives serious adjustment to the way we manage and approach backup.

Revisiting the backup statistic from the previous page, if one TB of on-premises content requires eight hours to backup, and the accompanying RPO is four hours, then this situation is well beyond the tipping point and necessitates administrators to rethink how to overcome the related backup and RPO limitations.

Mission Critical SharePoint Organizations Require More Aggressive Recover Point Objectives (RPO)

RECOVERY TIME OBJECTIVE

Recovery Time Objective (RTO) is similar to RPO, in that it is a key performance indicator established by the organization. The RTO enables IT administrators to measure the time to recover from an outage or event against a mutually agreed upon limit acceptable to the organization.

An RTO is defined as the maximum tolerable time an application or content can be unavailable. For example, a four hour RTO means that when an outage occurs, the problem must be resolved and the application or content returned to a usable state by the end users within that RTO window. Any further period of application or content unavailability is considered unacceptable.

Further complicating matters (given the wide range of events that can occur in SharePoint), is that there are many potential RTO scenarios. For example, full farm recovery represents a severe scenario and requires more time to correct than a granular document recovery. While establishing multiple RTOs may seem excessive or make managing an account challenging,

doing so gives the administrator greater flexibility to plan and respond accordingly. This flexibility provides for better alignment of resources and capabilities to deal with the many limitations that accompany different technical issues.

Finally, key to many recovery efforts is the recovery of content. The larger the backup file, the longer the recovery time. It's important to note that content volume and storage approaches also factor into the many limitations that administrators must contend with.

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RETENTION POLICY

Not all organizational content is of equal value.

Some content items, such as a company event flyer, have value for a large number of people but for a very short period of time. Other content items may have fewer users, but more importance and longevity, such as financial spreadsheets and HR documents.

To help manage cost and risk many organizations establish content retention policies. These policies help IT determine how long content should be made available in some form based on its potential value (or risk) to an organization. Unfortunately, SharePoint fails to

recognize that not all content is created equal. Neither does it allow for multiple retention policies. Natively, SharePoint gives administrators only one choice – store all content items as equal on SQL Server, or delete the item. This binary decision is severely limiting and forces content to be either prematurely deleted or unnecessarily maintained.

Aside from limitation issues such as content database size, backup duration, and service level agreements (RTO and RPO), it becomes very expensive and difficult to manage content indefinitely in SharePoint (SQL Server licenses and SAN hardware are two of the most expensive areas under the remit of SharePoint administrators).

And, regardless of the number of storage tiers available to an administrator, it would be virtually impossible to manually manage individual content items in any sized-SharePoint environment without the benefit of multiple retention policies. Checking for such things as frequency of use and last access date, then deciding where to store items, would be time-consuming and costly.

A better way of managing content lifecycle would be to automatically enforce a retention policy combined with multiple storage tiers, to maximize adherence while freeing administrators to work on higher value tasks.

COMPLIANCE

Compliance requirements are mandates outside of the control of any administrator. Similar to retention policies, they dictate what and how content and the context of that content is maintained. Unlike retention policies, however, compliance requirements serve the needs of other stakeholders, typically the public, not the organization itself.

Compliance requirements are designed to protect the public in various ways and provide benchmarks and methods for auditing and investigating an organization in the event of suspected wrong doing. To support this goal, content is often required to be retained and available to an authoritative entity ranging from months to years, or even indefinitely.

These imposed limitations dictate the need for long term storage, often times stored in a way that cannot be manipulated. Third party solutions must be employed to address these requirements. For example:

- Multiple storage tiers (SAN, NAS, CAS, cloud) to keep compliance costs in check.
- WORM (Write Once, Read Many) drives to preserve original document or data form.
- Archiving to take content out of circulation, but maintain auditable access if needed.

SQL Server does not provide the capabilities to support many compliance requirements, which is why compliance is identified here as an external business limitation. SharePoint administrators must adjust the architecture to support a growing set of compliance limitations as public opinion, the government and courts continue to shape the compliance landscape.

CLOUD STRATEGY

Moving to the cloud can be a wonderful thing. But the cloud has also redefined and set new limitations on how we store, manage and secure content.

Cloud strategies and justifications are driving an ever increasing number of SharePoint initiatives. These initiatives are often agreed upon without administrator input. As a result, the overall change required in operations, processes and expectations can place unexpected or undesirable limits on the business – exactly the opposite of the goal.

When moving to the cloud, it's critical that these limitations are evaluated during the decision-making process.

Why is that?

Opting to place content – often the crown jewels of an organization – in a new location, outside the well understood on-premises model, presents unique challenges. When implementing Office 365, for example, administrators must decide what to do with file servers. These frequently contain information targeted for management and/or discoverability in SharePoint, and are often best left in place. Furthermore, backing up content in the cloud (as we discussed earlier) presents new challenges for an organization. Growing use of OneDrive and other enterprise file synchronization and sharing (EFSS) services also diversifies where content can get stored.

Regardless of the path your organization takes to the cloud, unchartered territory and limitations lie ahead. Be prepared to ask questions, particularly around how processes and expectations may change.

WHAT THESE LIMITATIONS HAVE IN COMMON

You've no doubt noticed a common thread as we've reviewed SharePoint's storage limitations – content. As content grows and becomes more critical to an organization, removing these limitations becomes imperative.

A common element that drives the majority of SharePoint's content issues stems from BLOBs. BLOBs, or Binary Large Objects, are the unstructured portions of a content record. Whereas, the structured data or metadata component of a content record describes the BLOB: who created the file, when it was created, what type of file is it, and many other descriptive attributes. From an end user perspective, BLOBs represent the content that they care about – essentially, the documents, images and spreadsheets that allow them to do their jobs.

BLOBs can be quite large, which in itself is not a problem. However, SharePoint stores content (and the associated BLOBs) in SQL Server, a relational database designed to process many small sets of text data, such as a financial transaction or customer records. This kind of content is text-centric and small compared to BLOBs.

Why the disparity in SharePoint's database architecture?

SQL Server was chosen as the database for SharePoint content during a time when SharePoint itself was deliberately targeted at smaller collaboration environments, such as a department. In these environments, content was often text-based with only small images. SQL Server performed admirably for these environments. But as content creation exploded, SQL Server performance suffered. In short, BLOBs put a serious

dent in the SharePoint architecture. This problem remains and continues to grow in significance, resulting in the limitation landscape discussed.

With BLOBs identified as the central root of content and storage problems, one approach to address these limitations holistically is to solve the BLOB problem.

> **BLOB=Binary Large Object**
> **BLOB= binary representation of a file stored in SQL Server (Content database)**

> **SharePoint content consists of structured data (metadata) and unstructured data (BLOBs)**

> **BLOBs are immutable**
> **BLOBs are created and deleted but never updated**

SHAREPOINT STORAGE INNOVATION

BLOBs are the primary issue impacting performance throughout SharePoint. However, BLOBs are the lynchpin of SharePoint content; eliminating them is not an option. It is possible, however, to remove the performance bottleneck that BLOBs create.

Other than the out-of-the-box architecture that requires that BLOBs are stored in SQL Server, there is no hard and fast reason to leave BLOBs in a relational database that is optimized for a different purpose.

Early adopters of SharePoint quickly discovered the need for an alternative approach to storing BLOBs. At the time, file servers were the natural choice. After all, BLOBs are files and file servers were developed to serve these unstructured objects in an efficient and effective manner. The approach of moving BLOBs from SQL Server to file servers is called BLOB externalization.

Externalization is not a new concept. Large-scale content management solutions built on FileNet, IBM Content

Manager, Documentum, and others stored BLOBs on file systems as opposed to a database. This approach facilitated compression, encryption, HSM, and other capabilities that were traditionally lacking in out-of-the-box SharePoint.

However, file servers predate SharePoint and while they were great at storing BLOBs, they fell short in their support for key SharePoint features such as collaboration, ease-of-discovery, etc. As such, the market demanded an innovation that would merge SharePoint and file servers to create a more scalable and high performing environment, while preserving the collaboration, search, management, and security capabilities of SharePoint.

BLOB EXTERNALIZATION

In response to demand, Metalogix StoragePoint was the first commercial grade SharePoint BLOB externalization solution brought to market. Launched originally to support SharePoint 2007, StoragePoint quickly delivered much needed relief for storage-related issues.

In fact, all of the storage limitations described in this eBook are addressed by externalizing BLOBs. Let's examine the mechanics of BLOB externalization for some additional insights.

BLOBS can use up to 95 percent of the space in a content database. If you were to move BLOBs out of a one TB SQL Server database through externalization, the database size can be reduced to 50 GB (remaining five percent of one TB), making search and backup a lot faster compared to a one TB database. This technique also allows administrators to stay within recommended SharePoint and SQL Server database limits with ease. In addition, smaller databases enable administrators to achieve target RPO and RTO times. As file servers are not inherently limited on file size, you've effectively removed the two GB file size limit.

Once BLOBs are stored outside SharePoint, administrators can choose where to store BLOBs within a tiered storage environment, including a mixture of SAN, NAS, CAS and cloud storage. This provides the flexibility necessary to fulfill archive, retention and compliance requirements unique to your organization. When combined with an automatic rules engine for managing content, such as in StoragePoint, an administrator has the power to easily manage all content storage strategy requirements.
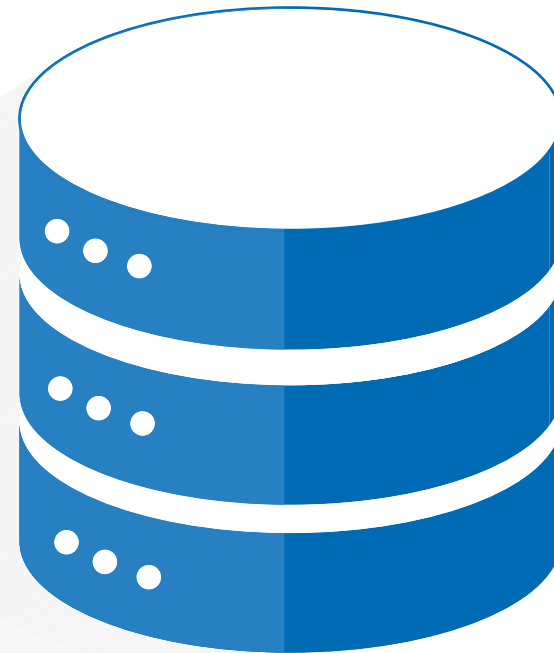
BLOB EXTERNALIZATION

Makes Content Databases Really Small

TIME TO BACKUP
9 hours
8 hours
7 hours
6 hours
5 hours
4 hours
3 hours
2 hours
1 hours

RECOVERY POINT OBJECTIVE

1 TB CONTENT DATABASE SHRINKS TO 50 GB

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SHATTERING LIMITATIONS RECAP

Content Database Size •·····················>   Reduce content DBs by up to 95 percent

Two GB File Limit •·····················>   Any file size allowed

Backups, RTOs, RPOs •·····················>   Lightning-fast backups, meet RPOs, RTOs, with no user impact

Retention and Compliance •···············>   Meet compliance mandates for speed, type and duration

Cloud •·······························>   Enable cloud initiatives as your organization embraces them

STORAGEPOINT
#1 SHAREPOINT STORAGE EXTERNALIZATION

metadata   content

SQL

SQL

SAN   NAS   CAS

SharePoint Content Database (**Before**)

SharePoint Content Database (**After**)

Active   **Near-active**   **Archive**

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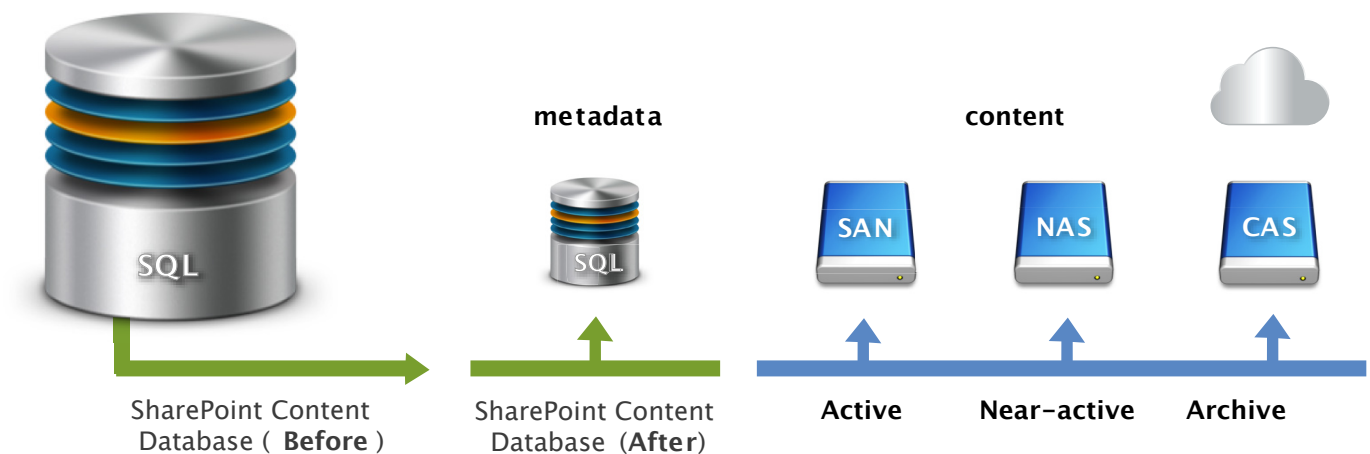
PERFORMANCE BENCHMARK LEADER

Metalogix StoragePoint has delivered performance and cost advantages for three generations of SharePoint users. By moving BLOBs out of SQL Server and onto storage of your choosing, you receive maximum value from your SharePoint investment.

Uploading and downloading documents is quicker, most notably when performing bulk operations. Much of this is due to the fact that BLOBS can be streamed to and from the file system instead of chunking them in and out of the database. In addition, because I/O is not wasted on moving BLOBs in and out of SQL databases on the SQL tier, SQL Server resources are freed up to execute queries and perform transactional I/O. Instead, the I/O is all done on the web tier, which is more easily and economically scaled out. StoragePoint also compresses (Zip/Deflate) and encrypts (256-bit AES) the content in the test results and is still more than 50 percent faster. Turn the compression off and it jumps up to 100-200 percent faster.

STORAGEPOINT VOLUME TEST RESULTS						
Document Count	Content Database Size (KB)		Percent Smaller	Import Rate (Docs/Hour)		Percent Faster
	StoragePoint Off	StoragePoint On		StoragePoint Off	StoragePoint On	
10,000	2,316,480	60,608	97.4	219,872	334,205	52
100,000	24,222,106	760,832	96.9	204,743	320,837	56.7
1,000,000	230,571,200	7,193,231	96.9	176,079	284,420	61.5
2,500,000	481,226,980	14,928,064	96.9	163,753	275,887	68.6

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NEXT STEPS
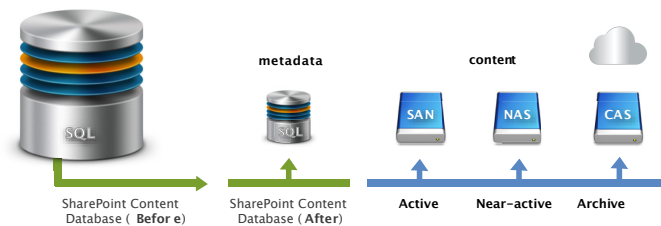
DOWNLOAD FREE STORAGE ANALYSIS TOOL

- Storage Express automatically analyzes your SharePoint content environment to identify value you would gain from externalization

DOWNLOAD FREE TRIAL SOLUTIONS

- SharePoint Backup
- StoragePoint

www.metalogix.com/Downloads.aspx

SOLUTIONS IN THIS BOOK

STORAGEPOINT

Improve SharePoint Performance and Optimize Storage for Content Databases

- Externalize BLOBs to reduce Content Databases by up to 98 percent.
- Externalized content is automatically and continually backed up, enabling aggressive RPOs.
- Store content where you want: On any storage device or any cloud.
- Speed back-ups by up to 50x -- taking minutes, not hours or days.
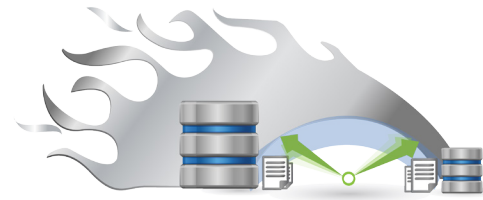
SHAREPOINT BACKUP

Lightning-Fast Backup and Restore for SharePoint

- Protects entire SharePoint farm and content.
- Create backups in minutes, instead of hours or days, even from multi-terabyte environments.
- Granular restore: Quickly restore only items needed.
- Maximum backup and recovery performance when combined with StoragePoint.

CHECK OUT ANOTHER HELPFUL EBOOK

Metalogix
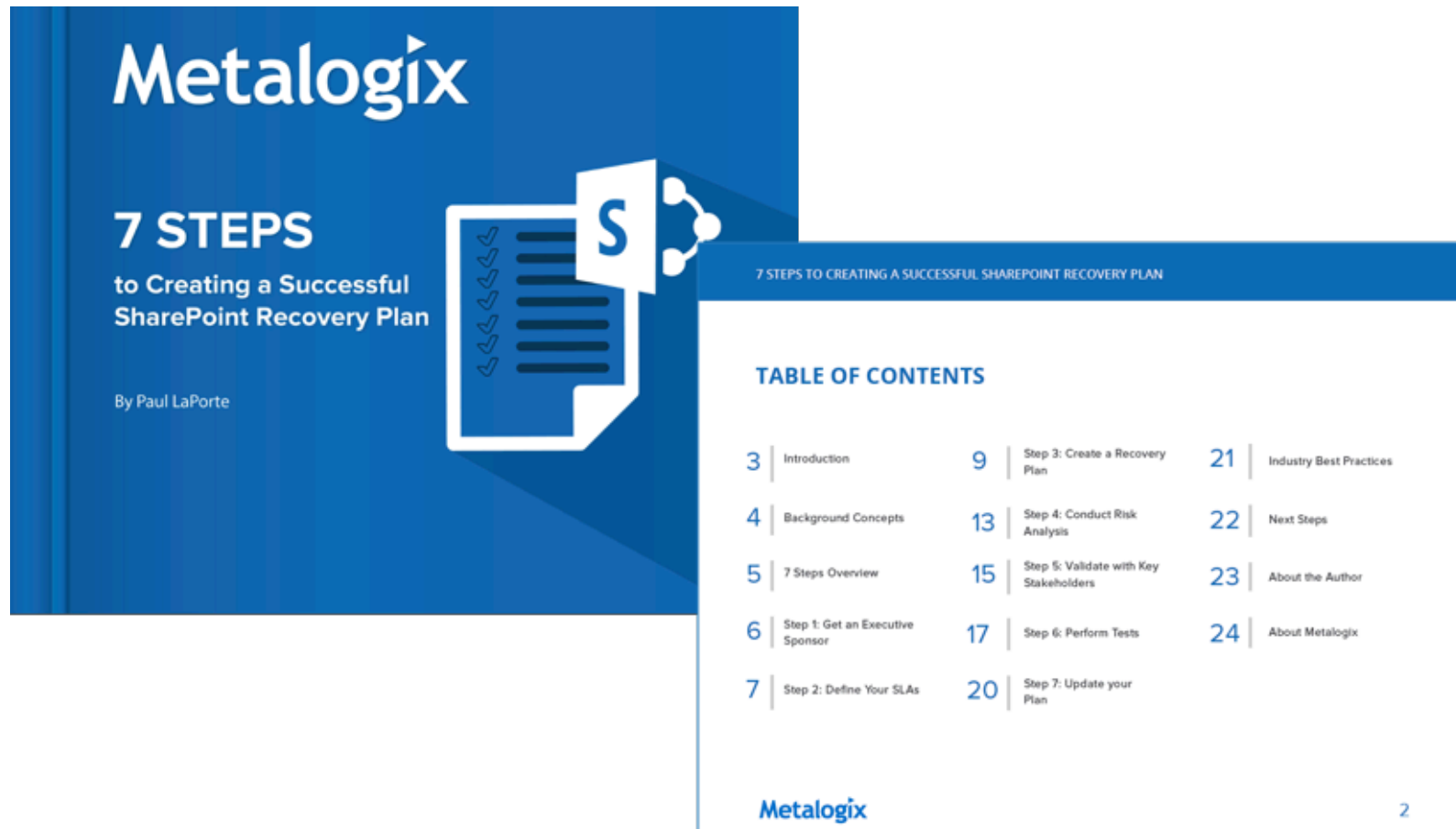
ABOUT THE AUTHOR

Paul LaPorte

Paul is a veteran technologist with deep experience in SaaS, cloud, security, business continuity and disaster recovery. Paul led product efforts for email, security and disaster recovery technology leaders.

Previously, Paul was the founder of Continuity Research, a research and consulting firm in the business continuity space. Paul was a researcher, event speaker and consultant, advising and providing services to F100 clients. Engagements included primary research, business analysis and helping define RPO, RTO and SLA targets for mission critical applications and operating environments.
Paul was a founding member and senior executive of Evergreen Assurance (now part of Dell), a pioneer in real-time disaster recovery for mission

critical applications, including Microsoft Exchange.

Paul was the Global Manager for SaaS, Cloud and Hybrid solutions at Proofpoint (NASDAQ: PFPT), a leader in cloud-based solutions for threat protection, compliance, governance, and secure communication. While at Proofpoint, Paul started the SaaS business, leading product and marketing efforts for the full line of SaaS and Cloud solutions.

Paul is co-author of RBS®, Backup and Archiving for Dummies®, SharePoint 2013 Edition, published by John Wiley & Sons.

Currently, Paul is Director of Product Management at Metalogix.

Metalogix

ABOUT METALOGIX

Metalogix is the premier provider of management software to move, manage and secure content for Office 365, SharePoint, OneDrive for Business, Exchange, and other leading enterprise collaboration content management platforms in the cloud, on-premises and in hybrid environments. Over 20,000 clients rely on Metalogix and the industry's highest rated LIVE 24x7 support to enhance the use, performance and security of content collaboration.

Metalogix is a Microsoft Gold Partner, an EMC Select Partner, a GSA provider and a multi-year honoree on the Inc. 500|5000 fastest growing company list as well as the prestigious NorthFace ScoreBoard Award for World Class Excellence in Customer Service.