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The Mindful IT Company
Born **Digital** . Born **Agile**

A CXO'S
'DETAIL GUIDE'
TO EFFORTLESS
SHAREPOINT
MIGRATION &
MODERNIZATION
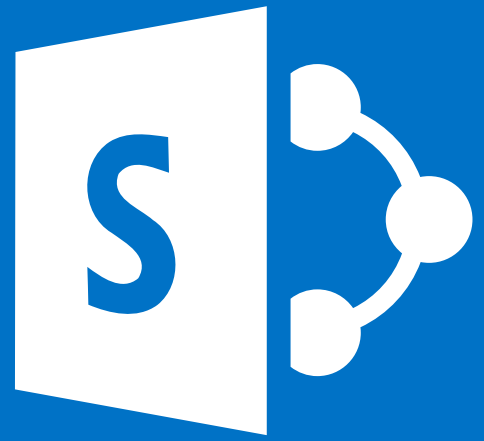
contents

01

INTRODUCTION

In the current dynamic and highly competitive environment, everything is going online, including the work environment. Physical servers that require manual effort for installations and patch updates are slowly becoming a thing of the past. Organizations are also under constant pressure to deliver greater value at lower costs. Less is more!

Decision makers are against the idea of progressively investing in additional hardware and IT professionals to run servers and services. In such a scenario, isn't it ideal for organizations to make a well-informed shift from the SharePoint classic On-Premises experience to the online version? It is not just the cost-based subscription but a host of other features such as 99.9% availability, ease of maintenance, lower latency and high bandwidth that are making SharePoint Online the preferred choice.

This whitepaper explains the key advantages that organizations can enjoy by migrating from SharePoint On-Premises to SharePoint Online and further by modernizing it. It also offers a detailed approach toward migration to help organizations embarking on this journey.

02
WHY MODERNIZE OR MAKE THE SHIFT TO SHAREPOINT ONLINE?

Organizations are moving over to SharePoint Online to leverage the modern user experience it offers through the latest Office 365 features. SharePoint Online is also evolving and improving constantly, giving users the provision to modernize.

There are a few key features that have been alluring organizations toward SharePoint Online, thus helping them embark on a new digital transformation journey.

MODERN EXPERIENCE

SharePoint's modern user interface (UI) has been designed from the ground up, ensuring it is mobile-device friendly. The online version has also addressed quite a few UI usability issues that existed in the classic On-Premises version, such as challenges with navigation, bulk editing and file sharing.

INTEGRATION WITH OTHER OFFICE 365 PRODUCTS

Microsoft Power Automate helps integrate SharePoint with other products such as Exchange, Teams, Groups and OneDrive. This also allows organizations to share and collaborate internally with colleagues, as well as with partners and customers.

MODERN SITE TEMPLATES

New Team site templates facilitate internal team conversations, document sharing, task/project management and more, while Communication site templates are designed to help broadcast relevant content (on projects, events, latest news, etc.) to employees. Hub sites connect to various site collections and receive data as shared themes, navigation and news roll-ups.

MODERN SEARCH

Out-of-the-box Search web parts in SharePoint Online are AI-enabled, offering results with greater relevance than those offered by classis web parts.

CUSTOMIZATION

SharePoint Framework (SPFx) delivers the platform required to develop custom solutions/web parts using a JavaScript framework such as Angular, React, Knockout and many other open-source tools.

INTEGRATION WITH OTHER PLATFORMS

Teams can leverage a wide range of standard connectors available under the Microsoft Power Platform (MPP) or build their own connectors to streamline data integration.

03
MIGRATION APPROACH

Typically, migration to SharePoint Online follows a four-step approach, beginning with system analysis, then moving onto pre-migration activities, followed by migration activities, and finally, validation.

SYSTEM STUDY

- Requirement validation with Business users
- UX Design Finalization
- Migration Strategy
- Migration Prioritization

PRE-MIGRATION ACTIVITIES

- Portal Categorization
- Components Redesigning
- Staging instance setup

MIGRATION ACTIVITIES

CONTENT MIGRATION

- Pre-Migration scripts execution
- Content movement to Production using Migration Tool

REDESIGN & DEVELOPMENT

- Components Developments using SPFx
- Search Configurations
- Web Jobs / Azure Function
- Responsive UI development

VALIDATION

- Application Verification
- Data Verification
- Responsive Tests
- Performance Validation

However, defining the migration approach would be based on parameters such as:

Existing version of SharePoint On-Premises: SP 2007, 2010, 2013 or 2016

Amount of customization and integration required

Content database size and data types

3.1 | System Analysis

3.1.1. Requirement Validation and Environment Study

Requirements Understanding

Discussions and meetings are conducted with business users to identify priorities, relevance and de-cluttering activities.

Inventory Finalization

A PowerShell script or migration tool is run to extract the inventory of subsites, pages, custom web parts, etc. Relevant reports are then extracted to fetch the out-of-the-box (OOTB) structure and content information. These reports will include objects such as sites and sub-sites, lists and libraries, lists with workflows, orphaned users, and the permission matrix.

Portal Usage

Migration tools or PowerShell scripts are also run to extract site usage reports and these reports are reviewed with business users.

3.1.2. Migration Strategy and Prioritization

Portal Categorization

Here, websites are broadly segregated as follows based on their level of customization:

Lift & Shift Sites
Web sites that typically have very limited customization such as a common master page branded throughout the portal, or no customization at all

Custom Sites
Websites developed using full-trust solutions consisting of server-side web parts, timer jobs, event receivers, forms and so on

Semi-customized Sites
Sites which require only branding changes

Migration Prioritization

Migration activities are then prioritized based on these parameters:

Lift & Shift websites
Those that can be moved online quickly and easily without the need to re-architect

Semi-customized Sites
Where a fair amount of customization may be required and sample content for these custom web sites is chosen to aid development in the online environment

Custom Sites
Where completely new development of the fully customized sites is required
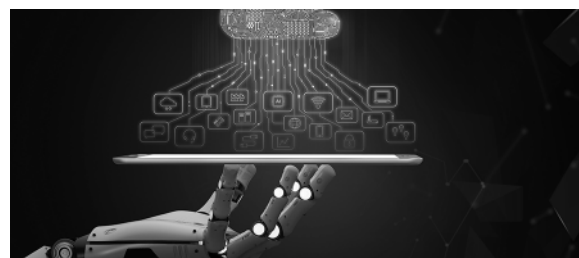
3.1.3.   Choose Migration Tool

Organizations embarking on the migration journey from SharePoint On-Premises to SharePoint Online will need to decide on the migration tool. The below table compares features of three popular migration tools: SharePoint Migration Tool, ShareGate, and Metalogix.

Features	Microsoft Tool (SharePoint Migration Tool or SPMT)	ShareGate	Metalogix
High-Level Features			
Copy Site Objects	No	Yes	Yes
Export from SharePoint	No	Yes	Yes
Copy SharePoint Content	No	Yes	Yes
Import Files to SharePoint	Yes	Yes	Yes
Bulk Migration	Yes, (only through CSV or JSON file)	Yes	Yes
Bulk Metadata Edit	No	Yes	Yes
Volume Limit	No	Yes	Yes
Schedule Migration	No	Yes	Yes
Run Multiple Instances	No	Yes	Yes
Site Migration			
Migrate Sites and Subsites	Yes	Yes	Yes
Merge Existing Sites	No	Yes	Yes
Promote Site to Site Collection	No	Yes	Yes
Migrate Term Store (aka Taxonomy)	No	Yes	Yes
Migrate Site Settings	No	Yes	Yes
Migrate Web Parts	No	Yes	Yes
Migrate Customized Views and Forms	No	Yes	Yes
Activate Features	No	Yes	Yes
Migrate Quick Launch	No	Yes	Yes
Migrate Site Navigation (Tree view)	No	Yes	Yes
Migrate Welcome Page	No	Yes	Yes

Features	Microsoft Tool (SharePoint Migration Tool or SPMT)	ShareGate	Metalogix
Site Migration			
Reassign Site Templates	No	Yes	Yes
Migrate List Settings	No	Yes	Yes
Migrate Site Content Types	No	Yes	Yes
Migrate Lists and Libraries	Yes, (only document libraries, lists)	Yes	Yes
Migrate Site Columns	No	Yes	Yes
Migrate Groups	No	Yes	Yes
Migrate Permission Levels	Yes	Yes	Yes
Migrate Users	Yes	Yes	Yes
Domain Migration for Users	No	Yes	Yes
Handle Orphaned Users	No	Yes	Yes
Migrate SharePoint Designer Workflows	No	Yes	Yes
Migrate Views	No	Yes	Yes
Rename Site or List	No	Yes	Yes
Migrate OOTB Workflows	No	Yes	Yes
Migrate Third-party Workflows	No	Yes	Yes
Migrate User Alerts	No	Yes	Yes
Item Level-based Migration for Attachments	No	Yes	Yes
Correct Links	No	Yes	Yes
Migrate Sites to a Different Template	No	Yes	Yes
Migrate Lists to a Different Template	No	Yes	Yes
Version Cleanup	No	Yes	Yes
Recognize Site Schema Changes	No	Yes	Yes

Features	Microsoft Tool (SharePoint Migration Tool or SPMT)	ShareGate	Metalogix
Content Migration			
Incremental Migration	Yes	Yes	Yes
Migrate SharePoint Documents	Yes	Yes	Yes
Migrate Document Sets	No	Yes	Yes
Copy List Attachments	No	Yes	Yes
Copy Content between Lists and Libraries	No	Yes	Yes
Copy Document Templates	No	Yes	Yes
Migrate InfoPath Forms	No	Yes	Yes
Map Folder Names to Metadata	No	Yes	Yes
Migrate Files and Folders	No	Yes	Yes
Preserve Version History	Yes	Yes	Yes
Preserve Created and Modified information	Yes	Yes	Yes
Preserve Approval Status	No	Yes	Yes
Preserve Office Document Properties	No	Yes	Yes
Preserve Web Parts	No	Yes	Yes
Enrich Metadata through Excel	No	Yes	Yes
Remap List Columns	No	Yes	Yes
Map Folders to Document Sets	No	Yes	Yes
Remap Content Types	No	Yes	Yes
Preserve PDF Properties	No	Yes	Yes
Preserve File System Permissions (NTFS)	Yes	Yes	Yes
Filter Content during Migration	Yes	Yes	Yes
Flatten Folder Hierarchy	No	Yes	Yes

Features	Microsoft Tool (SharePoint Migration Tool or SPMT)	ShareGate	Metalogix
Content Migration			
Preserve Lookup Values	No	Yes	Yes
Correct Links	No	Yes	Yes
Remap Permission Levels	No	Yes	Yes
Remap Users and Groups	Yes, users only	Yes	Yes
Convert Column Types	No	Yes	Yes
Auto-Create Terms in Taxonomy	No	Yes	Yes
Exclude Items from Migration	No	Yes	Yes
Replace Illegal Characters	No	Yes	Yes
Reporting			
Migration Report	Yes	Yes	Yes
Report Search	No	Yes	Yes
Save Migration Report to Excel	Yes	Yes	Yes
Compliance Reporting	No	Yes	Yes
Microsoft Best Practice Reports	No	Yes	Yes
Infrastructure Reports	No	Yes	Yes
Compare Elements Pre- and Post-migration	No	Yes	Yes
Supported Versions			
SharePoint Server 2007	No	Yes	Yes
SharePoint WSS 3.0	No	Yes	Yes
SharePoint Foundation	No	Yes	Yes
SharePoint WSS 2.0	No	Yes	Yes
SharePoint 2003	No	Yes	Yes

Features	Microsoft Tool (SharePoint Migration Tool or SPMT)	ShareGate	Metalogix
Supported Versions			
Office 365	Yes	Yes	Yes
SharePoint Enterprise 2010	No	Yes	Yes
SharePoint 2013	Yes	Yes	Yes
Support			
Email Support	FastTrack or paid MS	Yes	Yes
Online Demo/Videos	No	Yes	Yes
Online Documentation	Yes	Yes	Yes
Phone Support	FastTrack or paid MS	Yes	Yes
All-star Support Team	No	Yes	Yes
Licensing Model			
Install Licenses on Workstation	No	Yes	Yes
Costs and Fees			
Cost	Free Tool	Paid: Per-user License	Paid: Per-user License
Priced Per User (based on administrative user)	Free	Yes	Yes
Priced Per Server	Free	No	Yes
Usability and Interface			
Good Documentation	Yes	Yes	Yes
Downloadable Documentation	Yes	Yes	Yes
Online Documentation	Yes	Yes	Yes
Includes Tutorials	Yes	Yes	Yes
Product Information	Yes	Yes	Yes

3.2 | Pre-Migration Activities

3.2.1. Components Redesign and Feature Reuse

Custom components developed as full-trust solutions in SharePoint 2007 and subsequently moved to SharePoint 2013 On-Premises are not supported by Office 365. These components will need to be redeveloped using Microsoft Azure and Client Side Object Model (CSOM) available in Office 365.

This table offers a snapshot of component mapping while migrating from the existing system to SharePoint Online.

SharePoint 2013/2010/2007	SharePoint Online
Server-Side web parts	SPFx web parts, RESTful API
InfoPath web parts	SPFx web parts, RESTful API
Event receivers	Remote event receivers hosted in Azure, Azure Functions, Power Automate
Schedulers, timer jobs	Azure Web Jobs, Power Automate
Reports and dashboards	Power BI/Custom
Master page components	SPFx extensions for modern UI
Site templates	Modern templates, site provisioning with Azure Functions and Power Automate, PnP PowerShell
Workflow	Power Automate
Static pages	Modern Page
External system connectors	Logic Apps, Power Automate

3.2.2. Staging Instance Setup

Executing content migration during the staging instance setup phase ensures any required development is done before migration, and pre-requisite scripts from the staging server are run, confirming sanctity of production data. In this phase, backup from existing production is taken and restored to a staging setup to mirror production.

3.3 | Content Migration

3.3.1. Pre-migration Checklist Validation

Pre-migration reports help understand the entire environment structure along with data and supported features in both source and destination environments, and the below key validations before initiating migration will add value to the journey.

Inspect Checked-out Documents

These documents don't migrate automatically. The team working on content migration will need to generate a detailed report of all checked-out documents from the environment and reach out to all users to take necessary action against their documents.

Remove Orphan Users

Orphans are users who no longer have a valid Active Directory (AD) account and it is recommended to remove or replace these orphan users before the migration phase.

Lists/Libraries Exceeding the List View Threshold

The default List View Threshold is 5000 items for normal users and 20,000 items for administrators. Lists exceeding the List View Threshold will need to be identified.

URLs Exceeding the Length of 256 Characters

Items or documents exceeding 256 characters will need to be identified and their length reduced prior to migration.

Identify Items or Documents with Unrecognized Characters or Symbols

In case of a source environment that has been upgraded using any of the database attach methods prior to the current migration, characters and symbols in the old environment generally get converted into a non-readable format. Third-party tools will not be able to migrate such files. However, these tools do generate reports with discrepancies. The specific files will then need to be manually negotiated or custom code snippets will need to be developed using CSOM/JSOM.

Running Workflow

PowerShell scripts can be used on the staging environment to identify any running workflow instances, email-enabled libraries, and more. In instances with very few pages, custom components may be identified manually. These scripts will help identify an inventory of risk factors that may need to be dealt with before running migrations using the tool. In case of any running instances of workflows, they will need to be stopped or completed.

Email-enabled Libraries

As the email-enabled libraries feature is not available in SharePoint Online, this feature should be disabled before migration.
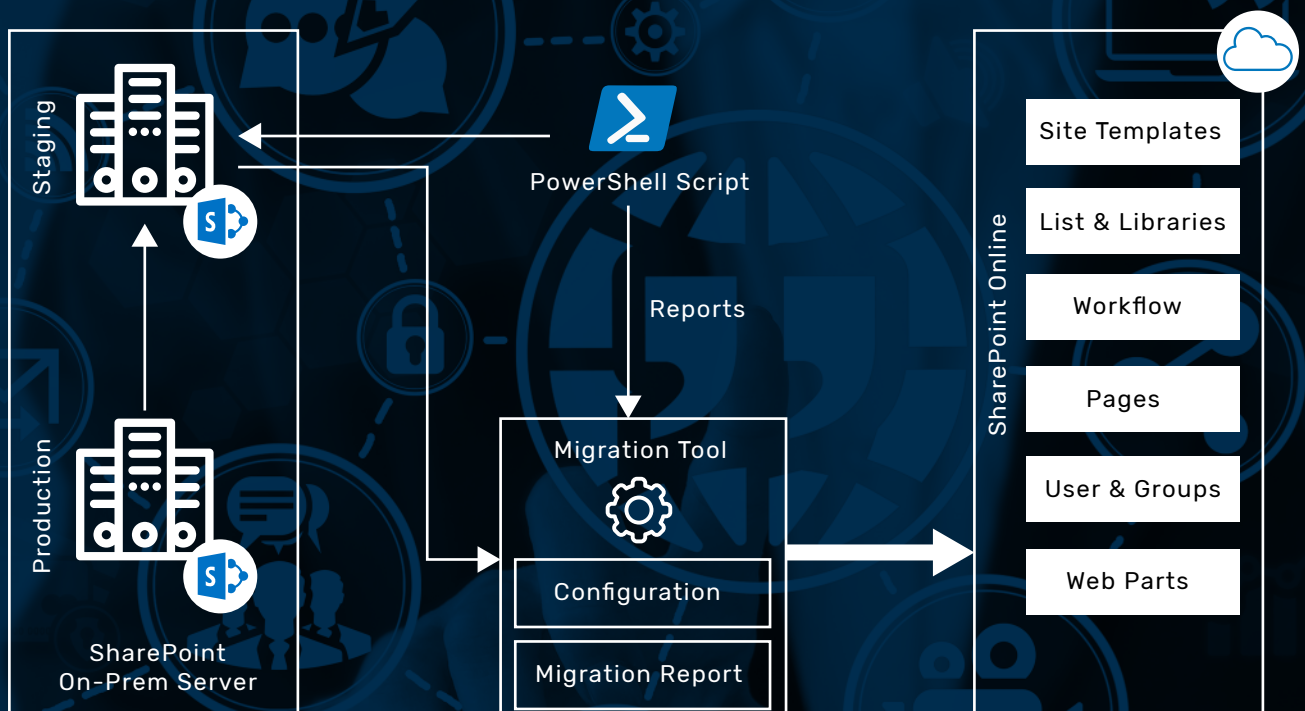
Here's the complete checklist that needs to be considered in the source as well as destination environment:

Source Environment	
Category	**Checklist**
Analysis and Inventories	Enumerate site collections and sites
	Find last-modified usage of sites
	Filter unused sites based on stakeholder requirement
	Enumerate lists and libraries
	Enumerate workflows
	Enumerate users and permissions
	Enumerate custom solutions
	User alerts
	Locate blocked file types
	Identify and remove orphaned users list
	Identify large lists or libraries
	Check retention policies (information rights management)
Pre-migration	Back up production data
	Ensure staging restoration (back up all data and test the restore)
	Ask users to check-in any document currently checked-out, including those that have never been checked in, and ensure the most recent version is migrated
	Close all running workflows

Destination Environment		
Category	**Checklist**	**Remarks**
Analysis and Inventories	Map destination architecture	Do the destination lists and libraries have the same structure and nomenclature? Third-party tools can be leveraged for migration, and otherwise, custom PowerShell scripts/CSOM have to be used to map the schema and migrate.
	Run several migration tests – pilot	Faster migration speed can be achieved during non-business hours and weekends.
	Highlight all existing unsupported and deprecated features in destination	Publishing features are not supported in Modern UI.
	Use achieved speed to extrapolate the overall time required for all sites	
	Sync user profile	
	Deactivate publishing features	

3.3.2. Migration

Pre-check Using Tool

Any migration tool may be used to connect the source (staging) and destination sites (online) and retrieve an inventory in the form of a pre-check report of all content and components present in the site.

Initial Migration

Each site collection needs to be migrated on the first run of the migration tool.	Extract the report and analyze reported errors. There could be issues with orphaned users, lookup columns customization, etc.	In case of large applications, run the migration in batches.	In case of custom applications, migrate an initial pilot batch as sample data for custom development, as required.

Resolve Errors By Re-running the Tool

Resolve errors such as orphaned users by mapping them to a system account and repeat the exercise several times until there are no errors.

Branding

In case of lift & shift sites, the customized branding features such as the master page and its related files need to be moved and applied. In case of custom sites, create them separately and move them during development.

Transform Existing Classic Site Pages into Modern Pages

Once classic pages are migrated, the below options may be considered to convert them into modern pages:

SharePoint UI
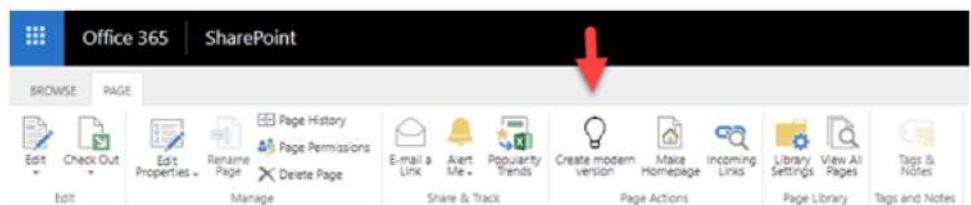
PowerShell/.Net Code API

In case of lift & shift sites, the customized branding features such as the master page and its related files need to be moved and applied. In case of custom sites,

3.4 | Validation – Post-Migration

Category	Checklist	Remarks
Analysis and Inventories	Analyze reports to ensure successful migration	Use a migration tool if it provides report generation, and otherwise, use PowerShell/CSOM scripts to generate the destination inventory report. This report should match the source system.
	Test/run all workflows	
	Randomly check user permissions	
	Ensure custom components are working fine	

3.5 | Best Practices

Enable Custom Scripts
By default, custom scripts are disabled on SharePoint, and this could remove source site functionalities such as list templates and solution gallery. Enable custom scripts during the migration activity to ensure all components are successfully migrated.

Activate Publishing Features
If the source site uses the publishing feature functionality, then it is important to enable it in the destination sites as well. Ensure it is activated at the site collection level and at the site level.

Replace Orphan Users with Active Users
While performing migration, it is advisable to replace orphan content users with active users, preferably with a service admin account. This will ensure the new active user is added in the list/document property.

Check-in Files
Make sure all files are checked-in in before migration. This will reduce the incremental migration burden as well as the number of errors.

Unblock File Types
If certain file types are blocked in the destination environment, then it will not be possible for the tools to migrate those files. Unblock such file types to ensure all files are migrated successfully.

Manually Migrate
Unsupported Files
Files that are not supported by third-party migration tools need to be migrated manually. Reserve this manual migration as the last action item in the process.

3.6 | Migration Challenges

Few enterprises are still skeptical about making the move to SharePoint Online and there could be hurdles during the migration journey too.

REGULATIONS

Regulations could come in the way of moving certain kinds of workloads to the Cloud.

FEAR OF DISRUPTION

Some organizations may be cautious due to heavy customizations and the fear of disrupting applications in the legacy SharePoint environment.

WORKFLOWS MIGRATION

Certain third-party tools are unable to migrate running workflows or pending tasks, and in such cases, all workflows need to be closed.

EMAIL-ENABLED LIBRARIES

Instances where emails may be triggered will need to be mitigated by disabling those

BRANDING FILES RESIDING IN FILE SYSTEM

There could be legacy applications developed over a decade ago, with a large portion of images, CSS and JS files residing in multiple hive folders due to the file system of the server. During migration over to the Cloud, these files will need to be manually moved to SharePoint lists and script to replace the relative references that were executed on staging.

04
MODERNIZATION

SharePoint Online uses the modern sites framework which mainly comprises two templates:

Team sites for team collaboration activities

Communication sites similar to classic publishing sites, but without the publishing infrastructure.

The modern UI provides a host of benefits such as follows when compared to the classic UI:

● It is responsive and mobile-ready.

● It uses the SharePoint Framework (SPFx) to add headers and footers which serves the purpose of master page for modern sites.

● Custom themes with color palette changes can be created and uploaded to the site.

● Modern library and list views are present in modern sites, offering enhanced OneDrive-like features.

● Users are able to switch between the modern and classic layout.

05
BENEFITS

SharePoint Online, which is the cloud-based version of the Microsoft SharePoint product, offers multiple benefits such as the following:

No on-premise infrastructure licensing and support costs	**Modernized and responsive UX**	**Implemented as per latest technology /features**	**Zero-downtime deployment**
Improvement in site rendering performance	**Better productivity**	**Seamless integration with Microsoft Office**	**Customizable UI**

06
THE WAY FORWARD

SharePoint Online is getting more powerful, yet friendlier with every new update and release. Its lean Cloud-based infrastructure and cost effectiveness has been making the migration toward SharePoint Online a desirable activity. Every business has unique objectives to achieve, and these objectives will play an important role in making a choice between the On-Premises server and SharePoint Online. The migration to SharePoint Online is a significant task, bringing in transformation in the way enterprises collaborate. Hence, it is not only important to choose the right migration tool but also the right partner to derive benefits from the transformation.
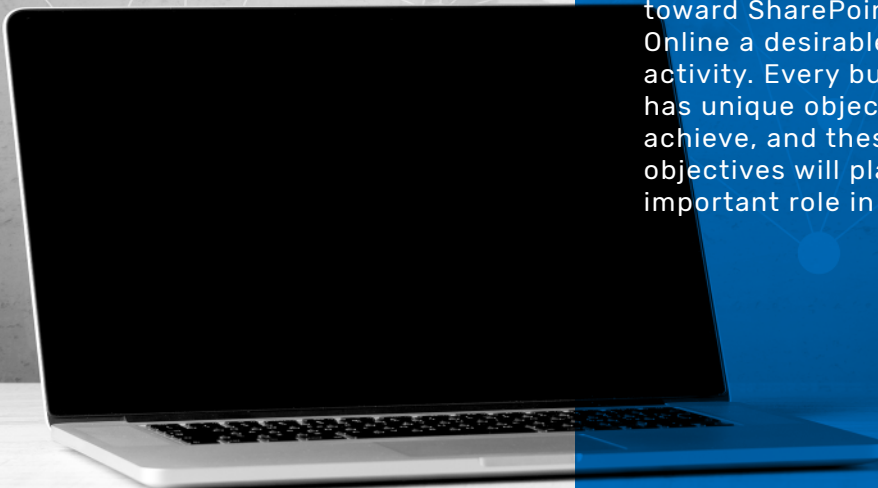
07

HAPPIEST MINDS
APPLICATION MODERIZATION

Happiest Minds follows a consulting approach to identify the right strategy for the Modernization and advices the customers accordingly.

Re-Host	Re-Write	Re-Imagine
Replace	Retire	Retain

Multichannel Enablement

Content & Document Migration

Federated Search

Conversational Interfaces for richer Interactions

Enterprise integration to bridge gaps between participating apps

Digital workspace with integration of other office 365 products such as One Drive, Microsoft team, Yammer

Redesigning Apps, Sites, Portals (Intranet/Internet) with latest technology

Automation deployment and platform monitoring

Customized performance and reliability engineering

08

ABOUT THE AUTHOR

Prasanta Barik is a Senior Architect at Happiest Minds with over 12 years of experience in designing and developing software solutions on Microsoft technologies such as SharePoint, Modern Workplace, Azure, Power Platform, and AI. He also possesses extensive experience in the consulting and pre-sales areas.

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