



Modernizing Enterprise  
Content Management with  
Microsoft Content Services

White paper



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## Executive summary

Content is the most critical digital asset for every organization, embodying its knowledge and processes. How content is created, managed, and shared—and how users collaborate with that content—has gone through a drastic evolution from traditional enterprise content management (ECM) to dynamic content services.

Microsoft SharePoint Online and OneDrive for Business (henceforth referred to as SharePoint and OneDrive) enable content services with great "content velocity," where the content picks up speed and value as it is created, edited, and reused—becoming more useful over time. SharePoint supports over 270 different content types including video and photos. This white paper showcases the enhanced and tightly integrated capabilities of SharePoint and OneDrive that empower individuals, teams, and organizations to intelligently and securely discover, share, and collaborate—transforming how enterprise organizations interact with and manage growing volumes of content.

Industry analysts recognize that the term enterprise content management no longer reflects market dynamics or the organizational needs for content in digital businesses. For application leaders, this means casting aside previous notions and rethinking technology approaches.<sup>1</sup> "Content services" is a better definition, incorporating broader business content functions, including applications, platforms, and components. According to industry experts, "Business content drives the day-to-day workplace experience. Business content typically originates inside the enterprise, but the growing need to work with external stakeholders — customers, partners, regulators, and citizens — is changing how EA pros assess vendors and prioritize requirements."<sup>2</sup>

A 2016 study by Nucleus Research<sup>3</sup> reports that 4.3 percent of gross domestic product (GDP) is lost in the U.S. on productivity as users search for existing content. At the same time, nearly 3.6 percent of GDP is spent on re-creating content users can't find. A typical company with revenues of \$1 billion could expect to lose approximately \$43 million in productivity in time spent on searches and about \$36 million in productivity in time spent re-creating documents. In addition, the study found that the proper use of a content services system such as SharePoint and OneDrive can save as much as \$9.8 million annually for an organization with 1,000 users.

SharePoint and OneDrive enable modern content services that transform the lifecycle of content. By using the full capabilities of Microsoft Office 365, organizations can extend these content services to Microsoft Exchange, Skype for Business, Yammer, Microsoft Teams, Microsoft Planner, and many more, allowing content to be found, consumed, and governed across all of Office 365. These capabilities are brought to the user through the intuitive and familiar interface of the Microsoft Office Suite. Governance and security policies are simple, intelligent, and automated to help protect content in all phases of the content lifecycle.

And our innovations have drawn notice. In 2017, Microsoft was recognized as a Leader in the Gartner Magic Quadrant for Content Services Platforms, and as a Leader in the Forrester Business Content Services Wave for 2017. Let's take a deeper look.

## Traditional enterprise content management

In traditional ECM, users created content freely—but after "publishing," content moved to permanent silos, preventing broad user access. These ECM solutions were based on what AIIM defined as "Systems of

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<sup>1</sup> Gartner. "Reinventing ECM: Introducing Content Services Platforms and Applications." December 2016.

<sup>2</sup> Forrester. "The Forrester Wave: Enterprise Content Management – Business Content Services, Q2 2017." April 2017.

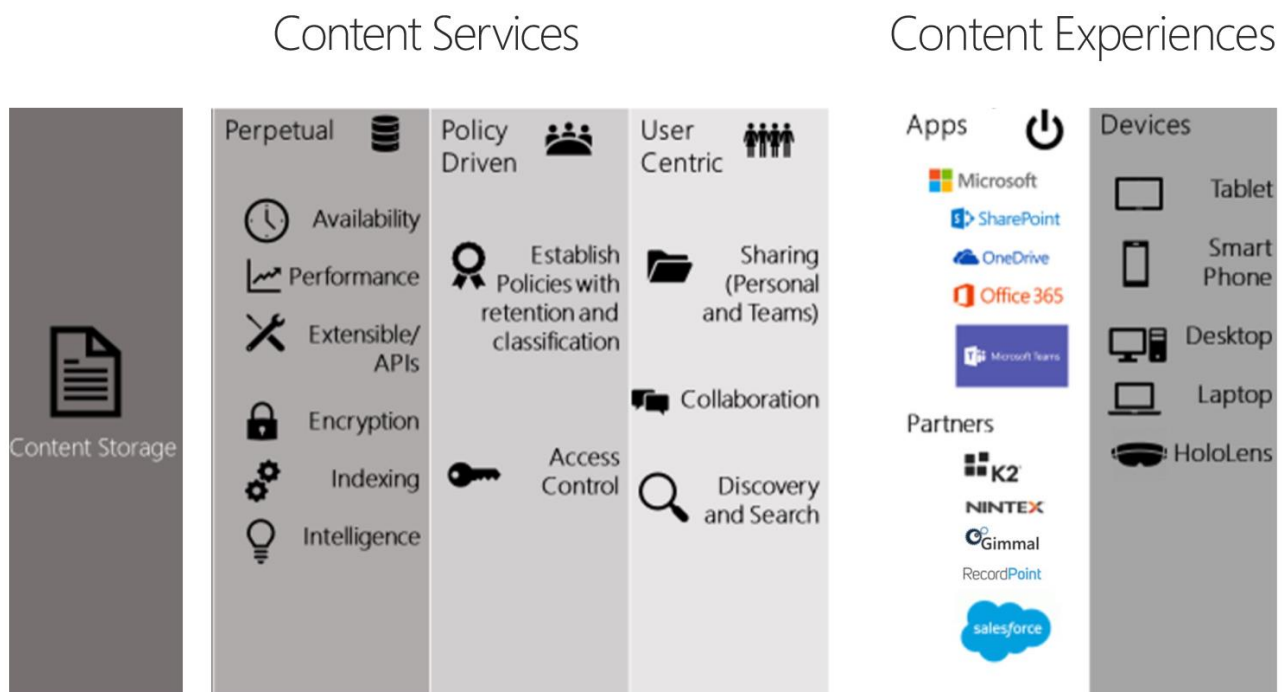
<sup>3</sup> Nucleus Research. "Content Bloat Drains Productivity by 8 percent." June 2016

Record”<sup>3</sup> to provide control throughout the capture, store, manage, deliver, and archive phases of the content lifecycle. ECM was not designed for people who work with content daily, but for those who need to record the content.

## Modern approach to content services

Shaping and controlling content from creation to final disposition means many different things. It is time to reflect the changes in how today’s content is created, shared, sustained, and reused. Content services represents the next wave in ECM—a more focused suite of empowered capabilities than traditional ECM.

Content services is people-centric, allowing for personal management (copy, move, tag with metadata) and organizational management (knowledge management, record retention, information lifecycle management). Policies and security protect content at all phases of its life. Content services should supply business value throughout a lifecycle, instead of after-the-fact management of dormant assets.



**Figure a.** Content Services and Experiences

Content services exposes information and files through intrinsic platform capabilities, IT policies, and user-oriented actions, extending information to many apps and devices to support business-centric outcomes, such as:

- Accuracy
- Team formulation and extension
- Process acceleration
- Asset protection and control
- Insights and innovation

<sup>3</sup> AIIM. “ECM at the Crossroads.” May 2013

- Risk mitigation

## Content services

Content services is as much about creation as it is about consumption. Today, most information is found in dynamic documents that are created and edited many times during their lifespans. With **content velocity**, information picks up speed and relevance as it's created, edited, and reused, becoming more valuable over time instead of becoming a dormant archive. It's an evergreen cycle of authoring, collaboration, control, and reuse.

The four pillars of content services are:

- **Harvest.** Content shouldn't be saved, stored, and managed to fill up storage space. Content exists to support a future business purpose, such as providing information on a related decision or seeding the next cycle of content creation.
- **Create.** Content velocity requires documents to be managed from the moment they're created. SharePoint and OneDrive allow you to create content using new tools such as Office Lens, or existing tools like Office, to easily publish content to team sites or group members. Content types ensure that content is shaped by templates, with rich metadata and governance policies.
- **Coordinate.** Structure your teamwork with co-authoring, metadata, groups, taxonomy, Microsoft Flow, and PowerApps. In addition to working together, managed metadata provides a centralized way to tag and classify information and structure libraries. You can tag content and customize the view from the library home screen, so you don't need multiple clicks to open a property-editing window.
- **Protect.** You can manage compliance and reduce risk with information lifecycle governance, including information architecture, auditing, rights management, records and retention labels, and eDiscovery.



**Figure b.** Content Services Lifecycle

## Harvest

Traditional ECM often concludes with document disposal or retention. But as noted earlier, content exists to support a future business purpose, and users must be able to find it quickly when needed.

In typical enterprises, discoverable content exists in multiple places, and Office 365 searches across Exchange, SharePoint, Skype for Business, and OneDrive to surface content quickly and easily.

## Discover insights

SharePoint provides tools to discover relevant content across the organization.

## Amplify content visibility

- **Microsoft Graph-powered recommendations.** SharePoint includes a modernized team site experience with an engaging home page personalized by the intelligence of Graph—surfacing documents and insights designed to make your business more productive. The activity on your SharePoint home page provides insight into what’s happening—and who’s doing what—throughout your team site.
- **Microsoft Delve.** Delve discovers new, relevant information based on the people and content you interact with. It helps users discover the information that’s likely to be useful to them when they need it. Users don’t need to remember the title of a document or where it’s stored—Delve suggests

documents based on machine learning about your work patterns and the patterns of your teams and sites.

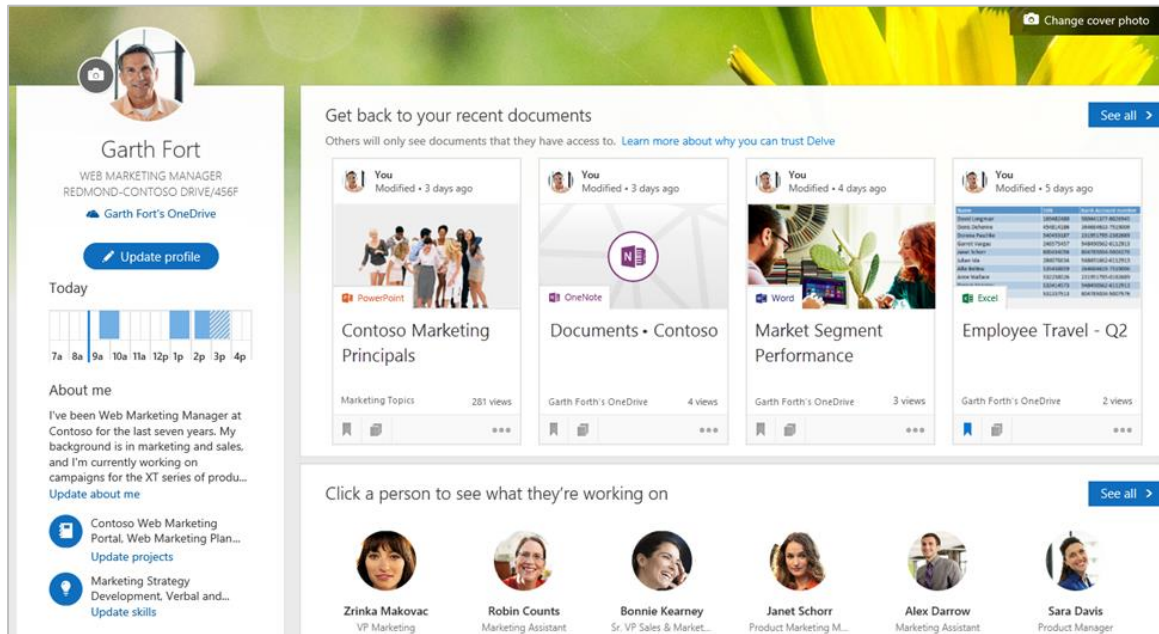


Figure c. Microsoft Delve

- **SharePoint and OneDrive activity reports.** SharePoint and OneDrive activity reports provide a holistic view of how your users collaborate. You can use the report to see which users are active on SharePoint and engaged with team files. You can also see which users sync documents back to their local machines, and whether they share documents internally or externally.
- **Search.** With cloud hybrid search, content is crawled in place (on-premises and cloud) and combined in the Office 365 search index. When users enter a query, they get security-trimmed search results from the Office 365 search index, so they see results from both on-premises and Office 365 content.

## Create

SharePoint and OneDrive enable better ways to build new content and organize for records management, productivity, and governance.

Create content that's inherently managed

- **Content types.** A SharePoint content type defines a related set of documents. The item might be a contract, presentation, policy, list, or folder. A content type associates this item with key metadata or other information, such as a template or retention policy. You can specify the following attributes for each content type:
  - Workflows
  - Information management policies
  - Document template
  - Document conversions
  - Templates

- **Team news.** Team news helps you keep up with and broadcast key events and accomplishments. You can use team news for trip reports, best practices, project updates, highlights of new documents and content, welcoming a new team member, sharing team goals, and celebrating milestones. You can easily and quickly create beautiful posts that are showcased on your team’s home page.
- **Attention views.** Attention views support provide visual cues for when content is missing, metadata is required, or that there are actions you need to take on a file. You can focus on specific groups and documents and apply bulk updates with one tap.

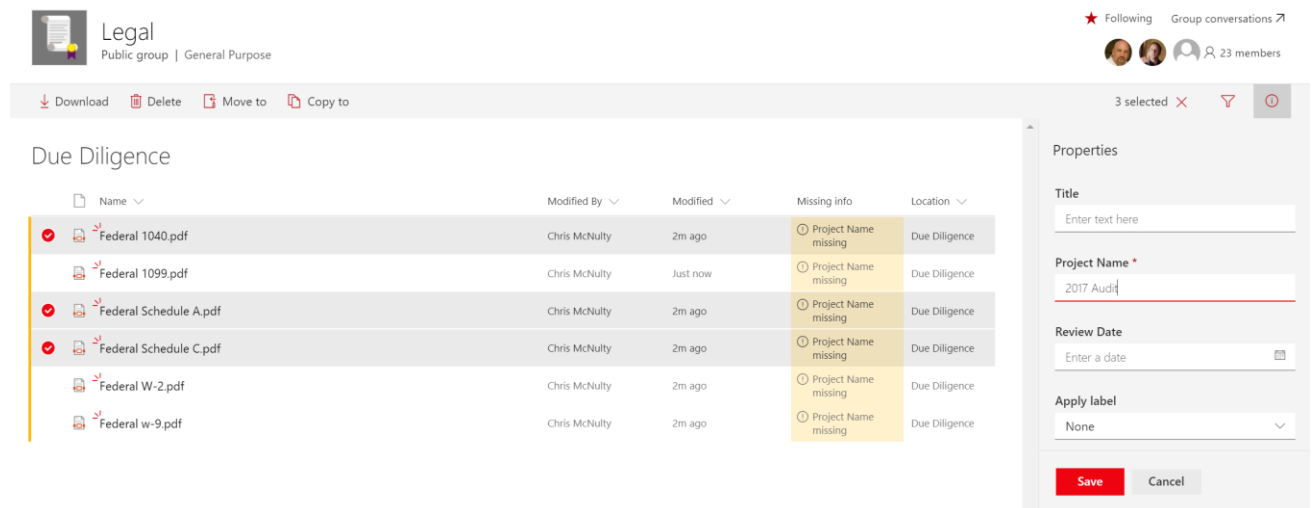


Figure d - Attention views with bulk updates to missing metadata

## Capture content in real time

- **OneDrive mobile app.** OneDrive provides a place in the cloud where you can sync and access Office 365 file content. The OneDrive mobile app enables you to upload and share files, such as documents, OneNote notebooks, photos, videos, and music.
- **Office Lens.** Office Lens digitizes notes from whiteboards; captures documents and business cards; and trims and enhances images to makes them readable. You can use Office Lens to save images to OneDrive and OneNote, or convert images to PDF, Word, and PowerPoint.

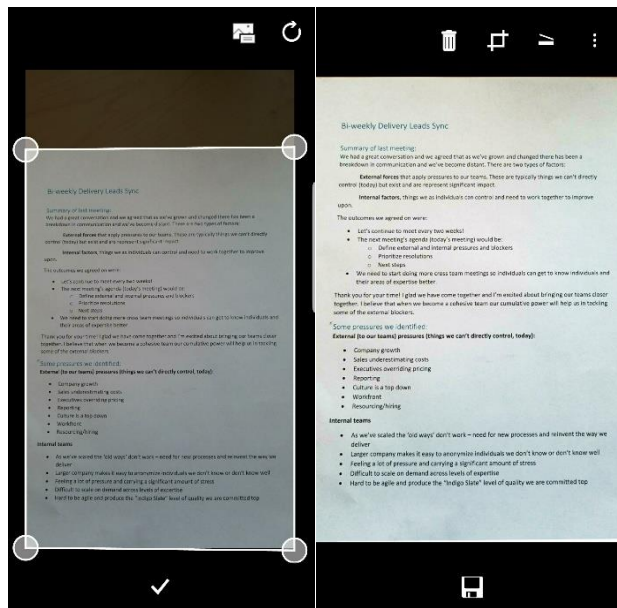


Figure e. Office Lens

- **Copying or moving content from OneDrive to your team site, and vice versa.** When you select a file in OneDrive, you can copy directly to SharePoint, and vice versa. You can copy from OneDrive to SharePoint, from SharePoint to OneDrive, from one location on a SharePoint site to another, or from one SharePoint site to another.

Work with content anywhere, on any device

- **Office integration.** Inside Office clients, the "Backstage view" (or the File tab) allows users to see document properties. If the document is from a SharePoint document library, they can also view and edit the SharePoint metadata associated with the file. If versioning is enabled, they can check-in the document or discard the checkout. And in Word 2016 for Windows, you can edit SharePoint metadata directly from the Ribbon menu.
- **SharePoint mobile.** This app enables you to access your team site activity and lists, view profiles, and search. You can also view and create Team News. The app connects to SharePoint, SharePoint Server 2013, and SharePoint Server 2016.

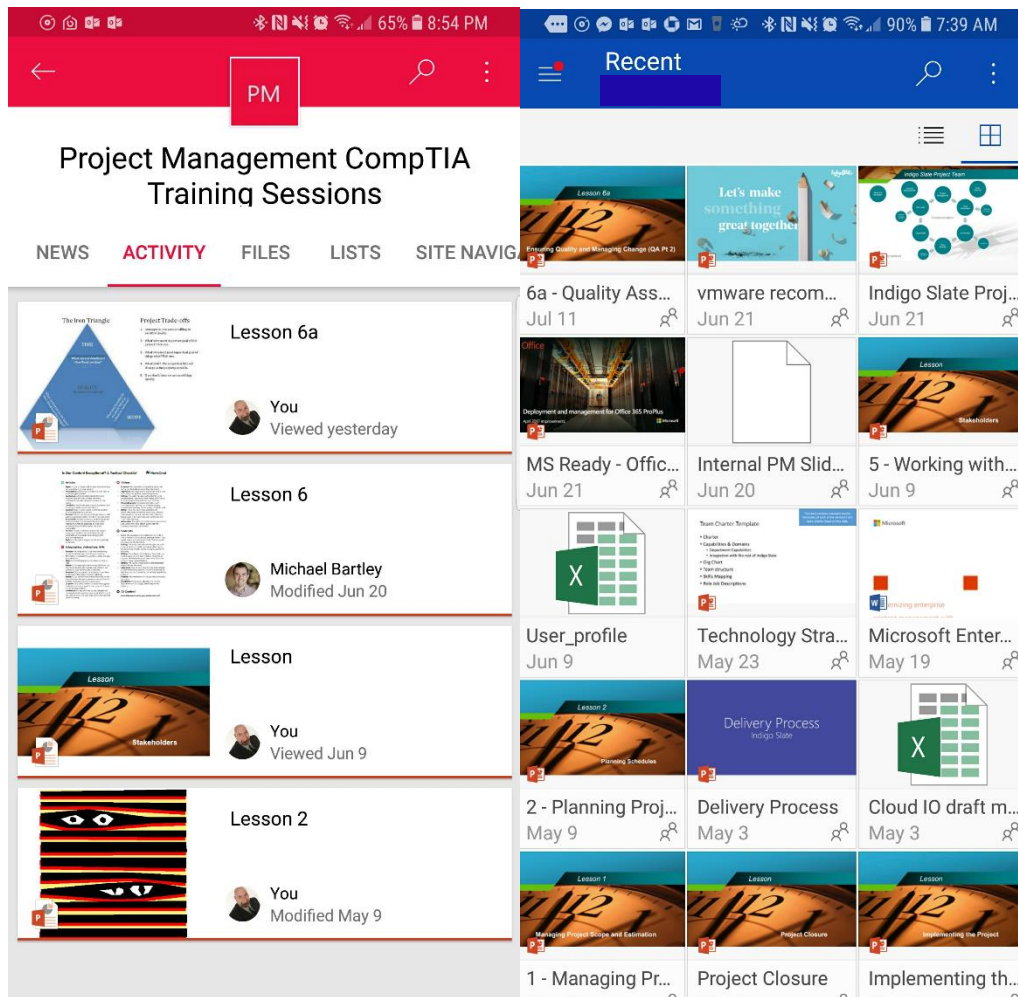


Figure f. SharePoint Mobile Client and OneDrive Mobile Client

- OneDrive client.** The OneDrive client has been enhanced to synchronize SharePoint team sites to Windows and Mac—including files in Teams, Office 365 Groups, and OneDrive. It also provides On-Demand Sync, which allows you to see all files, synced or not, locally on Mac and Windows.

## Coordinate

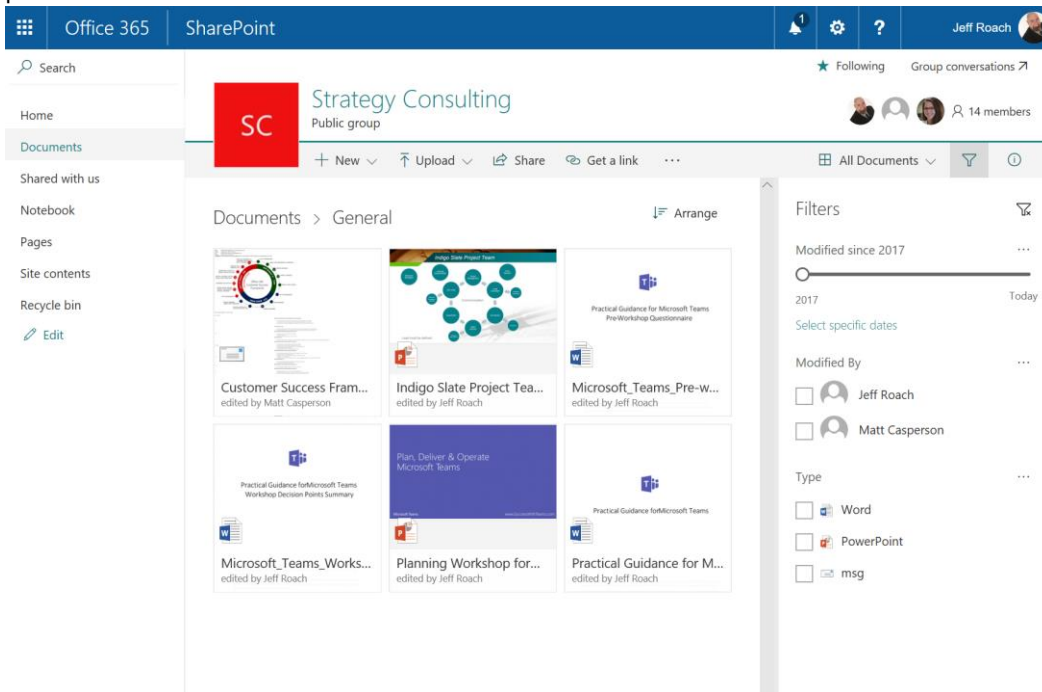
Office 365, powered by SharePoint and OneDrive, is where everyone you work with—both inside and outside of your organization—comes together in real time to get work done. This means creating and sharing content with the same familiar Office tools they use every day, in addition to third-party tools like the Adobe suite, AutoCAD, and more. SharePoint makes file storage and document collaboration more people-centric, with industry-leading mobile apps and improved mobile access to content, people, and applications.

SharePoint content, both on-premises and in the cloud, has long been maintained in a classic information hierarchy of site collections, sites, and libraries, however, SharePoint also participates as part of a relational hierarchy to a range of sites and other collaboration elements of Office 365, bound together by group membership.

Content in SharePoint is maintained in document libraries, making it easy to structure graphically rich dynamic views. The SharePoint managed metadata service (MMS) provides a centralized way to tag and classify information to define a custom hierarchy of metadata tags.

## Share content with colleagues

- **Document libraries.** The document library is a secure location to create, share, and organize team files. It's designed to bring consistency for working on files throughout Office 365 while maintaining the full power of SharePoint document libraries.



*Figure g. Modern Document Library*

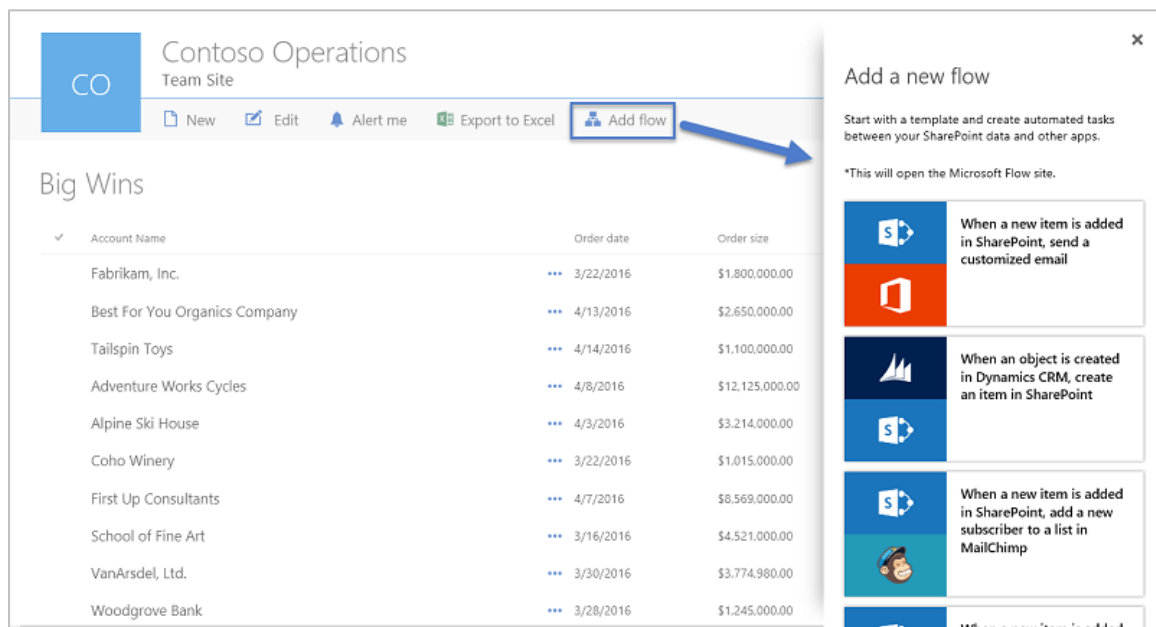
- **Properties.** Metadata navigation in large lists and libraries makes it easier for users to find content through intelligent filtering or by using a navigation tree.
  - **Views.** You can create a view and add columns to the list or library to enable more flexible sorting, grouping, and filtering—for example, people might want to see only documents that apply to their department or sort a list by project number.
  - **File viewing.** Thumbnails show previews of documents, images, and videos.
  - **Pin to top.** You can highlight important files, folders, or links in a document library in SharePoint by pinning them to the top of the library
  - **Predictive indexing and queries.** SharePoint libraries apply automatic indexes to optimize working with huge sets of content without worrying about performance bottlenecks or administrative headaches.
- **Send cloud attachments with Outlook.** Cloud attachments are references to files stored in SharePoint and OneDrive. Outlook attaches the file as a live link, which reduces message size while preventing information bleed off to email. With SharePoint, you get a similar ability to share files as Outlook attachments.
  - **Share files internally and externally.** The files you store on SharePoint are usually available to everyone who has permissions to the site, but you can also share links to specific files and folders with people who need to access the content but aren't team members.

## Create content together in real time

- **Collaboration.** Multiple people can work together on a Word document, Excel spreadsheet, or PowerPoint presentation. Office includes tools such as comments, change tracking, and the ability to see where everyone is and what they're typing—as though they're typing on your device.

## Automate approvals and content processes

- **Automate your processes with Microsoft Flow.** You can benefit greatly by connecting your data in SharePoint to other data sources. Flow is now integrated directly into SharePoint lists and libraries. Simply click **Add flow**, and then select a flow template from a panel. Use integrated review flows or create custom flows to build custom review and publishing processes for your document lists and libraries.



**Figure h.** Adding Flow in SharePoint

- **Versioning.** Versioning is enabled in libraries, so you can track and manage information as it evolves. You can look at earlier versions and recover them as necessary or retain multiple versions for legal reasons or audit purposes. For sensitive information, it can be important to have only the official version available to users. To accomplish this, you can require approval for an item or file before it becomes visible to most site users.

## Collaborate beyond the document

- **Team and Group calendars.** These calendars keep your team in sync by sharing everyone's meetings, project milestones, and vacation time using Office 365 Groups and Exchange integration. You can use Outlook to view a calendar from an Office 365 Group side-by-side or overlaid with an Outlook calendar allowing a tabular or combined view.
- **Planner.** Planner makes it easy for your team to create new plans, organize and assign tasks, share files, chat about what you're working on, and get updates on progress. It offers a simple, highly visual way to organize teamwork.
- **Yammer.** Connecting with people and information across your organization, breaking down silos, sharing best practices and creating engaged communities. Yammer enables collaboration, knowledge sharing, and engagement across and beyond your company.

- **Conversations in Microsoft Teams.** Teams provides a single place for open and seamless persistent chat. It brings together your team’s conversations, meetings, files, and notes. You can create different chat channels for the team based on work streams or topics. Teams provides built-in access to SharePoint, OneNote, and Skype for Business. Teams uses content services to surface content for collaboration while maintaining organization control. As an example, within a Team chat, someone attaches a document within the session—that document still resides in the document library for that SharePoint Team Site.

## Protect

SharePoint builds on a long tradition of supporting information lifecycle governance, records management, and eDiscovery. Newer capabilities, developed as part of our ongoing engagement with the entire Office 365 suite, as well as integration of recent technologies like Adallom and Equivio, include:

- **Office 365 records management and retention.** This new capability offered across Exchange, Skype, OneDrive, and SharePoint allows an administrator to centrally define a policy label in the Security & Compliance Center to enforce document retention and deletion policies, including those based on external events such as project closure, payment receipt, or manual review. Labels can be set through code, default settings, or user actions, and can be auto-applied based on sensitive information types or keywords. Here are the key attributes of record declaration with Office 365 labeling:
  - **Unique** – Every file in SharePoint is branded with a permanent, non-alterable document ID.
  - **Variable** – Multiple record categories can be defined as separate labels and applied by appropriate user roles, or through automation or default values.
  - **Immutable** – Moving beyond retention, a “record” label brands the content as unalterable throughout the lifespan of the policy.
  - **Transferable** – Only appropriate compliance roles can move or transfer records once declared.
  - **Controlled destruction** – Content labeled as a record cannot be deleted, and users are advised that the deletion is blocked by policy. Automated document destruction is enforced by retention policy and generates a fully auditable activity log in the Office 365 Security & Compliance Center.

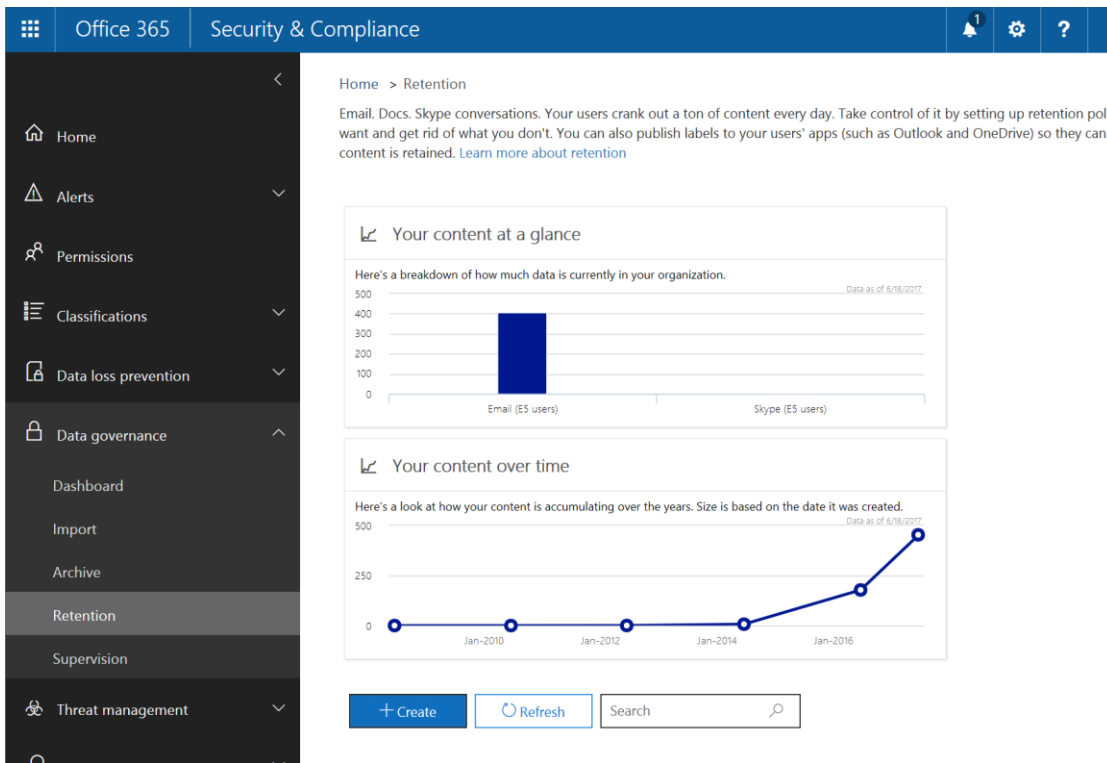


Figure i. Security and Compliance Center

- **Information rights management.** Files can be encrypted with Microsoft Azure Information Protection/Rights Management Service and can still be used at supported endpoints, including browsers, rich clients, and mobile Office clients. You can even sync encrypted files from SharePoint and OneDrive to your local computer for offline access. By requiring decryption on each access, files can be freely copied while still limiting actions inside each file. Finally, revoking a key instantly renders all copies unreadable, even if they have been distributed outside Office 365.
- **Data loss prevention (DLP).** The Security & Compliance Center provides a central location for defining policies for 82 predefined information types or creating other custom information types. When these types are detected, users can be advised about the policy or even automatically blocked from sharing or distributing based on the dynamic policy definition.
- **Auditing.** When combined with unified auditing in hybrid deployments of SharePoint 2016, Office 365 can provide integrated logging of user and administrative actions on content for both on-premises and cloud-based SharePoint and OneDrive locations.
- **Conditional access policies.** These policies can control or prevent access to content based on data sensitivity, user location or device. For example, access can be blocked from certain countries or limited to read-only views on personally owned devices.

## Support privacy and compliance

- **Office 365 Security & Compliance Center.** The Security & Compliance Center is designed to help you meet your organization's legal, regulatory, and technical standards for content security and data use. You can manage eDiscovery searches and holds, access for mobile devices, and more.
- **Customer Lockbox.** Customer Lockbox gives you control over your content. In the rare instances when a Microsoft engineer needs access to your content to resolve an issue, you retain control and visibility.

- **Customer key.** By default, Microsoft manages your tenant encryption key. You might want to manage your own tenant key to comply with regulations specific to your organization.

For more information, see the white paper [File security in SharePoint and OneDrive for Business](#).

## Architecture

Some of the largest organizations keep virtually all enterprise content in SharePoint, OneDrive, and Office 365—and Microsoft has expanded capacity to stay ahead of demand. You can store up to 12.5 exabytes (or 30 trillion items) per tenant, 25 TB per site collection, and files up to 15 GB. Microsoft's content services platform is available in 40 regions globally and offers built-in redundancy with constant replication of data across geographically separate datacenters. We also offer multi-geo tenant services distributed across multiple datacenters for compliance with data residency requirements.

Depending upon the requirements, SharePoint can be deployed in four fundamental models.

- **SharePoint on-premises** – You plan, deploy, maintain, and customize your SharePoint environment in an environment completely managed and maintained by your organization including hardware, software, security, updates and patches.
- **SharePoint Hybrid** – Cloud-first doesn't mean cloud-only, Microsoft brings the cloud to your business empowering your users with the latest in Office 365 innovation enriching traditional on premises workloads with cloud capabilities. You can even share a common taxonomy and content types across SharePoint Online, as well as on-premise deployments of SharePoint Server 2013 and SharePoint Server 2016.
- **SharePoint Online and OneDrive** – SharePoint is always up to date, but you are responsible for managing SharePoint itself. SharePoint Online and OneDrive are Microsoft managed cloud-based infrastructure that brings comprehensive, most secure cloud productivity and communication offerings.
- **SharePoint in Azure/IaaS** – You extend or migrate your on-premises environment into Microsoft Azure Infrastructure as a Service (IaaS) for production, disaster recovery, and dev/test SharePoint Server 2016 farms.

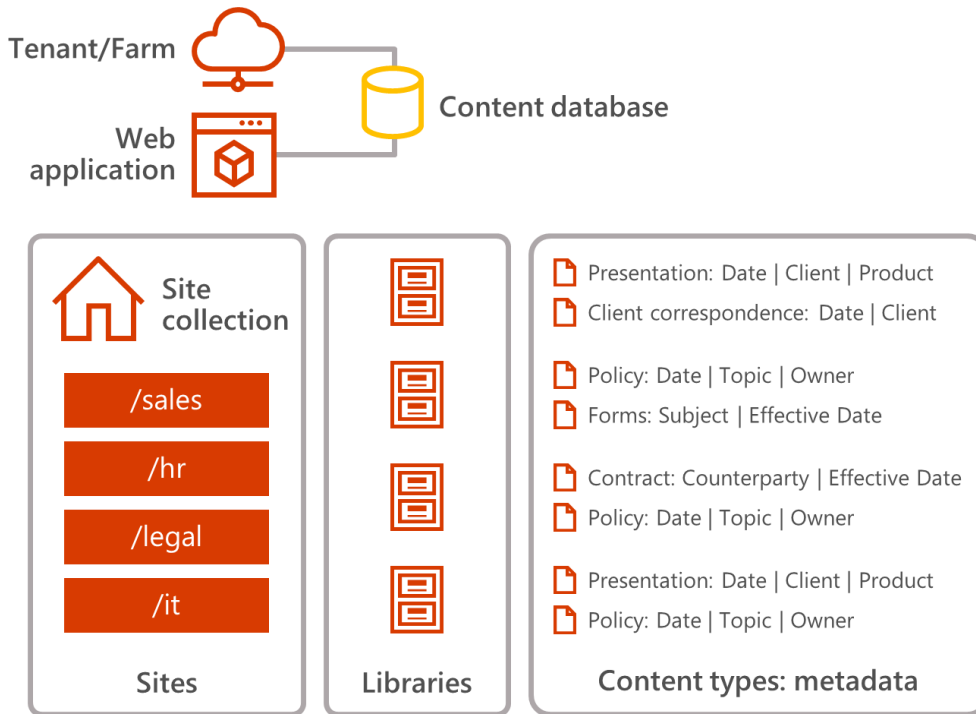


Figure j. Information Architecture in SharePoint

## SharePoint/Office 365 Information Architecture

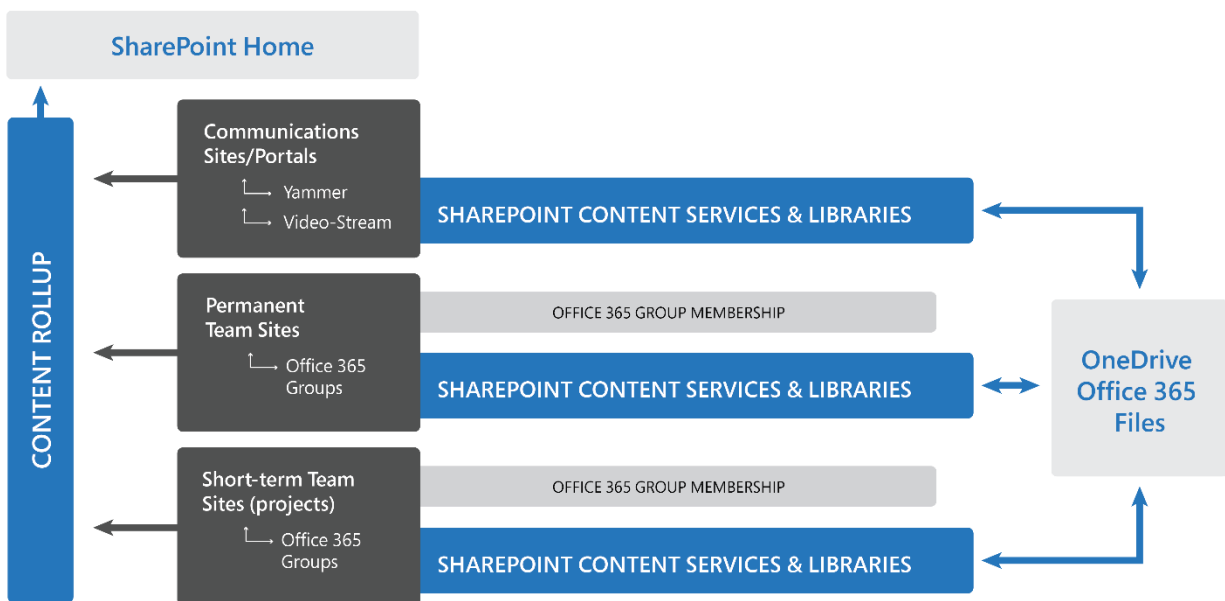


Figure k. Information Architectural Site Map

## Summary

Microsoft provides end-to-end content services. SharePoint and OneDrive give you enriched capabilities for creation, collaboration, protection, and harvesting of content to provide intelligent information use.

SharePoint and OneDrive provide industry-leading content services with the scale, governance, and protection that organizations require, and your organization most likely already has access to SharePoint through your Office 365 subscription or Enterprise Agreement.

You can now adopt SharePoint and OneDrive more efficiently with Microsoft FastTrack, a program in which Microsoft specialists work with you remotely to get your Office 365 environment ready to use, and plan rollout and usage within your organization. Microsoft experts also work with you to drive usage of SharePoint and migrate data from a variety of on-premises and cloud sources.

## Calls to action

Check out these resources to inform your migration to the modern content services platform built on SharePoint and OneDrive.

### Learn

- [SharePoint videos and tutorials](#)
- [SharePoint hybrid sites and search](#)
- [Use SharePoint Online as a B2B extranet solution](#)
- [Plan hybrid OneDrive for Business](#)

### Plan

- [SharePoint planning guide for Office 365 for Business](#)
- [Technical diagrams for SharePoint 2016](#)
- [SharePoint hybrid sites and search](#)

### Try

- [Register for an Office 365 trial](#)

### Sign up

- [SharePoint plans & pricing](#)

## References

[Install and configure SharePoint Server 2016](#)

[SharePoint Server 2016](#)

[New and improved features in SharePoint Server 2016](#)

[Discover enterprise content management \(ECM\) powered by SharePoint Hybrid in SharePoint Server 2016](#)

# Analyst Research

- [SharePoint Evaluated as a Leader in The Forrester Wave™: Enterprise Content Management—Business Content Services, Q2 2017](#) (with link to full Forrester report)
- [Microsoft SharePoint Evaluated as a Leader in Gartner Content Services Magic Quadrant, October 2017](#) (with link to full Gartner report)