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SharePoint Survival Guide

Planning Your Road Map to the Future of SharePoint

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Imagine you are driving cross-country from Seattle to Boston. You cross Lake Washington in a classic “boxy but good” Volvo® 200 series. As you drive down the interstate, somehow the manufacturer upgrades your car so that by the time you roll into Copley Square, you find yourself driving a brand-new S90 sedan. At no point could you stop driving: 99.9% uptime was required. A steering wheel in Spokane, a motor in Madison, a chassis in Chicago — all replaced without even stopping for gas.

It seems crazy, but this is exactly what is happening to SharePoint® team collaboration software. Microsoft is taking us all on a journey from the web and PC world to a new era of cloud and devices. It is really the only option — or to be left to rust away in a junkyard with the likes of Lotus Notes® and Plumtree Portal.

SharePoint Online is making good progress and approaching Cleveland, with SharePoint 2016 trailing somewhere around Spokane. But we are all going to this new era sooner or later. And even if the road is rough in places, for most enterprises it will be easier to buckle up and hang on than to switch to a whole new ride.

This whitepaper will help IT decision-makers navigate the twists and turns of this great transition and prepare for the changes ahead. Older SharePoint investments may be at risk; this paper will advise you on how to turn that around starting now. It is even possible to customize SharePoint today in a way that will continue to work in the future.

How we got here

In 2010, SharePoint technology was riding high. On its 10th anniversary, it had become a \$1.3 billion business for Microsoft with 100 million users spanning 78% of Fortune 500 companies.¹ And though Microsoft had dipped its toes into the cloud, the emphasis remained on premises, where SharePoint 2010 worked well.

Yet over the next few years, it seemed SharePoint had peaked, and its future was uncertain. Articles claiming that SharePoint either was or was not dead legitimized a question that had never been asked before. The doubt began at the SharePoint Conference in 2012, when rumors circulated that SharePoint 2013 would be the last on-premise version of the product. Microsoft was pushing customers to the cloud — hard — and most customers were not ready to move. Other events followed:

- Microsoft purchased Yammer, a cloud-based social network, and distanced itself from SharePoint's built-in social capabilities.
- SharePoint 2013 (and 2016) was still designed with a large screen, keyboard and mouse in mind, instead of a mobile-friendly responsive user interface.
- Microsoft replaced SharePoint's personal My Sites with OneDrive® for Business and swapped out SharePoint's user profile page for Delve®. The new Office 365® Groups included OneDrive but no SharePoint site.
- Jeff Teper, who had led SharePoint development since its inception, took over corporate strategy for all of Microsoft and left the product to new management.
- InfoPath®, a tool used to develop forms for SharePoint, was deprecated, and its planned replacement hit a dead end before it even shipped, leaving no viable forms offering for SharePoint.
- The visual web page editor was removed from SharePoint Designer 2013, and then Microsoft announced there would be no future updates for the product.
- Sandboxed solutions, the new development model introduced in SharePoint 2010, were deprecated in 2013; Microsoft later recanted and announced that only the ability to run code in sandboxed solutions had ended. A new development model (the app or add-in model) was introduced to replace sandboxed solutions; it required a complete rewrite of most applications and was better suited for storefront purchases than enterprise development.

Fast-forward to the summer of 2016, and the fog has lifted, revealing a promising road ahead for SharePoint. Jeff Teper is back in the driver's seat, and Microsoft has announced a fleet of new technology that fills most of these gaps and adds a number of modern features ready for a "cloud and device" world. The big turning point was Microsoft's Future of SharePoint event on May 4, 2016, and the momentum has continued with a number of additional advances announced at the Microsoft Ignite™ conference in September.

It seems that, rather than driving SharePoint into the ground, Microsoft has chosen to upgrade the software to make it as relevant now as it ever was. This is a bold and unusual approach, and it looks like it is going to work.

Cloud architecture

Enterprise cloud computing has reached a tipping point; in 2016, running in the cloud is the new default answer. Many businesses that said they would "never ever" move to the cloud are beginning the transition. These are companies in highly regulated industries such as healthcare, life sciences, financial services and defense. The changes in direction tend to be sudden and come from the top, sometimes as an unwelcome surprise to many in IT.

SharePoint Online is growing dramatically, but most enterprises still run on-premise versions as well. Sometimes they maintain servers on premises for their most sensitive content, but the more common reason is the same one that has always driven enterprises to run multiple versions of SharePoint: migration hassles related to customizing the product. That includes SharePoint components from third parties, such as web parts and tools installed long ago and forgotten. The migration challenge is even bigger than an on-premise version upgrade since most SharePoint customizations and add-on products were installed directly onto SharePoint servers, and that is a nonstarter in multitenant environments such as Office 365.

A positive side effect of all this retooling is it allows Microsoft to combine and blend its services in new ways that can really help users be more productive. For example, Office 365 Groups combine features of SharePoint, Exchange, OneNote and Planner to provide a rich collaboration environment for teams. That kind of integration would be very difficult on premises, where there are too many variations in product versions to make that level of integration viable. Microsoft has taken it a step further by providing connectors that integrate other cloud services such as Trello® and Slack® with Office 365 Groups, so notifications from these apps appear in the group inbox to keep the team in sync.

Microsoft® Flow and PowerApps are two more examples where capabilities are not just moving to the cloud; the cloud architecture enables a level of flexibility and integration that was generally very expensive to set up on premises. These new Microsoft offerings provide workflow and forms not just within SharePoint, but across many cloud products, such as Exchange and even non-Microsoft products such as Dropbox®, Salesforce® and Slack.

Microsoft is also developing a common API across all of its Office 365 products, the Microsoft Graph. Over time, products like Exchange and SharePoint may begin to blend and become a collection of microservices rather than discrete server products.

The move to cloud architecture is even coming on premises. To an end user, SharePoint 2016 looks a lot like SharePoint 2013; most of the difference is under the hood. Microsoft backported many of the changes it made to host SharePoint Online into the on-premise product, making it easier to patch and upgrade, and providing improved hybrid options.

Should I stay or should I go (to the cloud)?

A study by Forrester Research claims a 162% average return on investment for customers moving to Office 365, with just a seven-month period to realize this payback.² This was due to reduced infrastructure, licensing and support costs, among other things.

In addition to IT cost savings, end users can realize productivity benefits. According to the study, road warriors can save up to an hour a day by using these cloud-ready offerings instead of connecting to the corporate network in order to get work done. It is likely that savings and productivity gains will be significant. This is the main driver for the move to the cloud.

Another big motivation is to address the problem of “shadow IT,” where employees turn to consumer-oriented cloud services rather than work with their company’s on-premise infrastructure. Employees want that productivity boost. Instead of booting a laptop, connecting to a virtual private network and then waiting for an often-slow website or application to open, the cloud allows them to simply tap on their phones to accomplish the same task. Shadow IT presents compliance and security risks, and the most effective way to eliminate it is to offer parity with the commercial services employees like best. To help enterprises assess the problem, Microsoft introduced Office 365 Advanced Security Management, which can detect the use of more than 1,000 consumer apps and websites often associated with shadow IT.³

Still, there are some good reasons for an enterprise to keep all or part of SharePoint on premises. The most common, regulatory and compliance concerns, is fading at a rapid pace. An article in CIO magazine asserted that “not only are certain public cloud providers paying more attention to helping customers achieve compliance, but the regulatory agencies and standards bodies have recognized the value and popularity of cloud services. New guidelines and compliance updates are spelling out safe use of the cloud.”⁴ This is especially true in markets like the United States, where data sovereignty issues are less prevalent. If this is the reason to stay on premises, it is probably a temporary one.

Another reason is because the enterprise has third-party or custom-built “farm solutions,” in which code runs directly on SharePoint servers; that will not fly in a multitenant environment such as Office 365. A common strategy here is to migrate gradually to the cloud, weaning away from these solutions or replacing them with cloud-ready alternatives. That is why hybrid solutions are so popular.

Some organizations have no immediate reason to change but may consider moving to the cloud when they are ready for a SharePoint upgrade. SharePoint upgrades are really more like migrations; the process involves setting up a whole new infrastructure and then migrating the content and customizations. When the time comes, a migration to the cloud should be a strong consideration. The added cost of replacing customizations that are not cloud-ready is offset by the reduced infrastructure cost. And, since SharePoint Online is continually upgraded, it should be the last migration needed.

Hybrid vs. full migration

	SharePoint 2016	SharePoint 2013 SP1	SharePoint 2007–2010
OneDrive for Business	My Sites on premises are replaced with OneDrive for Business in the cloud.	My Sites on premises are replaced with OneDrive for Business in the cloud.	
Hybrid search	Provides unified search for Office 365 and on premises, including file shares and other on-premise content.	Provides unified search for Office 365 and on premises, including file shares and other on-premise content.	SharePoint 2007 and 2010 can be crawled by a SharePoint 2013 or 2016 farm and included in a hybrid search configuration.
Hybrid sites	Users can follow SharePoint 2016 and SharePoint online sites and see them consolidated in a single list.		
App launcher	The SharePoint 2016 app launcher (the “waffle” menu in the upper-left corner) will include links to SharePoint Online if hybrid sites are configured.		

Microsoft markets its Office 365 extranet as a hybrid feature, but actually, it is not. Although this capability is very useful and is often a reason to get started with SharePoint Online, it is the same whether or not there is a SharePoint farm on-site.

Conspicuous in its absence from the hybrid options is any way to synchronize SharePoint’s content structure between Office 365 and on premises. For example, enterprises would benefit greatly from a common set of managed metadata, site columns and content types across all environments. This has been possible on premises since SharePoint 2010 by sharing the Managed Metadata service across farms, but there is no such capability in the cloud. As a workaround, enterprises can synchronize this information manually using remote timer jobs or by updating both environments consistently using scripting.

- If your organization is not ready for the cloud, be prepared for the future. Avoid customizations and third-party products that are not cloud-ready, and limit or at least start to track the use of features that will not work in Office 365, such as raising the list view threshold or running server-side code in SharePoint.
- Give Microsoft Cloud App Security a test drive to see how much shadow IT use is going on in your organization.
- Consider a cloud pilot based on an extranet or other new workload. It is a good way to start and get experience.
- Consider a hybrid environment as a way to transition to the cloud, but realize it will be yet another environment to manage. Consider plans to turn off the on-premise environment when conditions allow.

Mobile experiences

The move to the cloud is only half of the journey: The new generation is about cloud and devices, after all. Microsoft finally got over its singular focus on Windows® and, in addition to updating its Office clients on Macintosh®, now supports Office on Apple® iOS® and Android™ devices. Microsoft cleverly requires an Office 365 license to unlock all of the features in these mobile applications.

The company has been working on improved mobile experiences for SharePoint as well.

- **Modern team sites** were demonstrated at the Microsoft Ignite conference, sporting a mobile-ready look and feel. They are based on a new, mobile-friendly page and web part model called the SharePoint Framework. To ease the transition, it will be possible to mix new and old pages in a site and to use the new web parts on classic SharePoint pages.
- **NextGen Portals** use SharePoint behind the scenes, but instead of using SharePoint's aging page model, Microsoft developed modern, mobile-ready websites from scratch. As a result, they work great on almost any mobile device. Office 365 Video, a secured video site for the enterprise, and Delve, the intelligent replacement for My Sites, are both NextGen Portals. This design sometimes makes sense in an enterprise as well; Microsoft provides access to the APIs necessary to build your own.
- **Mobile SharePoint apps** are available for Apple iOS and Android; these show a summary of sites, people and links in the enterprise. Some screens use a mobile browser to view SharePoint pages. In that case, the user experience will be greatly improved by having a responsive SharePoint site. Microsoft is working on that, too.
- **New document library and list pages** are mobile-ready but are missing a few features. For example, metadata navigation and custom menu or ribbon commands written in JavaScript® do not currently work in the modern User Interface (UI). For the time being, Microsoft's response is to turn the modern library and list UI off; this is a checkbox in Office 365 SharePoint Administration.

While the best mobile experience is in Office 365, it is still possible to open SharePoint 2013 and 2016 to mobile users. The mobile applications will work with SharePoint on premises; this generally requires exposing SharePoint on the internet. And Microsoft has announced the new SharePoint Framework will be available as a feature pack for SharePoint 2016, so that will be available with on-premise hosting as well.

- Check out the new SharePoint app and try the new document library and NextGen Portals from your mobile device. You may be surprised at how well they work.
- The new SharePoint app came to Apple phones first; this is clearly the new preferred platform. Consider adopting iPhone devices for yourself and your enterprise.
- If you are on premises, open the firewall to allow mobile apps and browsers in, and consider Microsoft Intune® mobile device management to ensure it stays secure.
- If you are planning a SharePoint upgrade on premises, consider SharePoint 2016 so you can add the promised feature packs, including the new, mobile-friendly SharePoint Framework.

Is it safe to customize SharePoint?

There has always been a school of thought that customizing SharePoint is a bad idea. Certainly, anyone who avoided customizing SharePoint on premises now has a much easier migration path to Office 365. Yet the business case for customizing SharePoint remains strong, since it is often possible to develop collaborative applications based on SharePoint at a fraction of the cost and time to market required when starting from scratch.

There is a range of options here:

The biggest problem by far is that any customization in the latter category, which runs code on the SharePoint server, cannot be done in Office 365. Almost all third-party products released before 2013 were written that way, and until mid-2012, Microsoft encouraged enterprise customers to use the same approach. As a result, many companies that customized SharePoint have incurred technical debt that will have to be addressed if they want to move to the cloud.

Microsoft has made clear it will continue to release SharePoint for use on premises, and that it will be possible to run these traditional farm solutions on premises. For many enterprises, farm solutions will keep at least some SharePoint on premises.

Another traditional risk is that customizations, or the content they created, will not work in a new version of SharePoint. A major source of problems is Microsoft's Feature Framework, which leads to orphaned objects and content that is forever dependent on the feature that created it. From 2007 to 2014, Microsoft told customers to use the Feature Framework when customizing SharePoint; that changed in 2015 on the advice of the Office patterns and practices team.

Approach	How powerful is it?	How future-proof is it?
Out of the box — configure built-in features using a web browser or remote API.	It is great when what you want to do aligns well with built-in SharePoint features; projects hit a wall when they try to go beyond that.	There are few worries about continuing to use these features (unless specifically deprecated by Microsoft) – however, not all of them will be supported in the new modern UI.
Configure — use a SharePoint configuration tool to develop in a RAD environment, such as InfoPath or SharePoint Designer.	This is great for allowing nondevelopers to do amazing things.	These configuration tools are an endangered species, with Microsoft deprecating InfoPath and SharePoint Designer, and guiding users to stop using sandboxed solutions, which underlie the design manager.
Extend — modify the UI of the built-in features, such as using display templates or XSLT to change the rendering of a web part.	Each type of extension is intended to do one thing, such as customize search results or render form fields.	Most of these extension points will not be available in modern pages and sites.
Custom (client-side) — develop completely custom features using client-side code running outside SharePoint. Examples include client-side widgets and the SharePoint add-in model.	This option is very powerful; it allows customization within SharePoint pages using JavaScript, or completely new user experiences in external websites and native applications — but it requires a developer.	If written carefully, this is the most future-proof both on premises and in the cloud, since SharePoint APIs are pretty stable and Microsoft generally maintains backward compatibility.
Custom (server-side) — develop completely custom features that run directly on SharePoint servers; these are called farm solutions.	Nearly unlimited power is available; you can add or modify anything and even bypass security ... but it requires a developer.	This does not work in the cloud; if written carefully, these solutions are safe as long as you are willing to stay on premises.

At this point, customization naysayers who used SharePoint purely out of the box may be feeling pretty good about their choice. But in many ways, the full potential of SharePoint is only available with at least some customization.

- Intranets can be branded and tailored to the needs and culture of the enterprise.
- Collaboration can be structured for convenience and managed for compliance.
- Search can be tightly integrated with an enterprise information architecture.
- Line-of-business systems can become collaborative through integration with SharePoint sites and data.

Although many SharePoint customizations may be locked in the past by a requirement to run on the SharePoint server, new options have emerged that are cloud-ready and are less likely to cause upgrade hassles in the future.

The safe way to customize SharePoint

In 2013, Microsoft introduced SharePoint apps, now called SharePoint add-ins. With the add-in model, code runs outside SharePoint, either in the web browser or in an external website.

The add-in model is optimized for use as a storefront, where unknown and largely untrusted developers are writing the add-ins. It is not ideal for enterprise scenarios where it is more typical for the enterprise to push the customization out centrally, and the code is generally trusted to be free of scams and malware since it comes from a trusted source. As a result, some enterprise developers started to develop their own app models based on running code directly on SharePoint pages. This was eventually encouraged as part of the Office Developer Patterns and Practices (PnP) program.

These development models have two important things in common:

- They run in a web browser.
- They access SharePoint only via its APIs.

That makes it possible to port code between them — and to other, future technologies, such as the SharePoint Framework. And it means SharePoint content is loosely coupled to the application that created it, avoiding the problems of the Feature Framework.

- Get to know the Office Developer PnP. They are intended to guide you toward the future of SharePoint and away from upgrade problems when the product is customized. And, the PnP program includes a rich set of tools for putting the team's advice into action.
- Ask third-party vendors if their code works in Office 365, even if you are staying on premises. This indicates if they are upgrading their products with more modern development techniques, and it will make you ready for the cloud should your enterprise decide it is time to transition. Avoid third-party products that make use of sandboxed solutions, even if they are no-code solutions.

Pages and web parts

Web parts and even whole web pages, such as forms, can be developed with minimal risk of future disruption. The key is to isolate the solution code and UI from the SharePoint packaging; the core solution should depend only on the web browser and on SharePoint or other cloud APIs. With a little forethought, the same code can be packaged as a SharePoint-hosted add-in, or run directly on a SharePoint page by editing the page or using a content editor web part.

This pattern is not new; it has been used by cloud services for years. The idea is to develop self-contained little HTML and JavaScript programs; these are sometimes called widgets or embeds. If you have ever copied a bit of HTML to display a Twitter® feed, an embedded YouTube™ video or a weather forecast, then you have used a widget. Place the widget in the SharePoint development surface du jour, and off you go. There is even a JavaScript library, the Widget Wrangler, that makes it easy to write this kind of solution using modern JavaScript frameworks such as Angular or Knockout.

An example of this is Microsurvey, which runs natively in a content editor web part, in a SharePoint add-in and in the forthcoming SharePoint Framework. This kind of solution works on premises, in Office 365 and, with a little repackaging, in any of the SharePoint development models. It is also possible to host the widget code centrally in a SharePoint site or content delivery network, for example. This allows updating all copies of the widget by updating the centrally hosted content rather than updating each site collection, as is the case for other development models.

- Develop web parts, pages and forms as widgets that can work directly on SharePoint or in SharePoint add-ins and can be ported to the new SharePoint Framework.
- Consider developing mobile-friendly, responsive web parts and forms.
- Start tooling up on the technologies needed for the SharePoint Framework. Foremost among them are TypeScript and the SharePoint REST API or JavaScript Object Model (JSOM). Learning to develop with gulp and web pack is a good idea as well.

Forms and workflows

SharePoint is a great collaboration tool, and often enterprises want to provide a structure to the collaboration. Forms and workflows are the workhorses in this space: Someone fills in a form, and a workflow routes it through the appropriate steps to get the job done. Employees like this kind of self-service approach, and it saves money by organizing the work for everyone involved. Sometimes documents are the subject of the workflow. For example, a contract approval or renewal might be orchestrated by a SharePoint workflow.

Yet Microsoft has thrown its forms and workflow future into doubt by deprecating both its forms package, InfoPath, and its primary workflow designer, SharePoint Designer. Both products continue to work in SharePoint 2016 and online, and InfoPath will be supported through 2023 per Microsoft's Lifecycle Support Policy.

Microsoft has recently introduced new applications that will fill some of the gaps left by InfoPath and SharePoint Designer workflows: PowerApps™ and Microsoft Flow. Both are cloud-based and can work with data in much more than SharePoint; popular services such as Salesforce, Dropbox and Slack are also accessible, as are Office 365 Outlook®, Excel® and Microsoft Dynamics® CRM Online.

Flow is Microsoft's answer to the popular If This Then That (IFTTT) consumer platform that allows the creation of "recipes" that automate operations across cloud services, such as copying files between services or sending a notification when content changes. The recipes are called templates in Microsoft Flow. The actions and cloud services are more oriented to an enterprise than a consumer, but there are a lot of similarities. Flow is based on Azure® Logic Apps, and a SharePoint connector is in preview, suggesting this may be an approach for custom SharePoint workflows in the long term.

At the time of this writing, Flow is not complete enough to replace SharePoint workflows, and Microsoft has not positioned it as a replacement. SharePoint workflows can have more complex logic and have

more ways to integrate with SharePoint content. Flows currently cannot be exported and imported, or decoupled from the user who created them, making them difficult to test in a staging environment before placing them into production. These shortcomings would need to be addressed before Flow could realistically replace SharePoint workflows.

Meanwhile, SharePoint's built-in workflows continue to work the same as ever, and custom workflows can still be developed with SharePoint Designer 2013 or Visual Studio®. In addition, third-party workflow vendors such as K2 and Nintex have offerings for both Office 365 and on premises.

In practice, most forms and workflow projects benefit from keeping workflows very simple. For example, a workflow that routes a form through a complex network of people in different roles tends to be inflexible, and business users find themselves working around it rather than being helped. It may be better to have a workflow that, like the concept of IFTTT, just moves the work to the next step. That means workflows do not run for a long time, making it easier to upgrade or migrate them. It also means the workflow does not have to account for every possible exception, such as when the boss is on vacation or a vice president waives a step due to unusual circumstances. Short-running, simple workflows are generally the way to go because they are more robust and flexible in daily use.

This opens the possibility to a relatively future-proof approach of JavaScript forms based on widgets, or even using InfoPath if they are easy to rewrite. These can be coupled with very simple workflows that can easily be replaced if needed. If these options do not meet the need, a third-party product may be the best way to ensure your forms and workflow solutions do not hit a dead end.

- Check out Microsoft Flow. If it does not meet all of your needs today, it may still be useful when coupled with SharePoint workflows.
- Check out PowerApps as well. They are limited for now but may be useful for some needs. If they do not fit the bill, consider developing forms using HTML and JavaScript.
- Avoid modifying the built-in forms and views in SharePoint, which may change over time. JSLink is a reasonable way to do that, but Microsoft has been quiet on its future. The safest path is to build whole pages based on responsive HTML and JavaScript (or, better, TypeScript).

Branding

Enterprises love to brand SharePoint, and why not? An intranet is the employee's view of the enterprise, and it is important for it to convey the company's brand, culture and values.

The traditional way to brand SharePoint is to customize its master page(s). A master page provides the background for SharePoint pages, including navigation, styling and other features. Microsoft has cautioned against changing the master page in Office 365 since it might hide new features from end users. For example, when Microsoft added the app launcher to SharePoint Online, it changed the default master page in Office 365. If an enterprise had customized the master page, it would not get the change, and its users would not get the app launcher.

There is a workaround to this issue, and that is to merge changes from the SharePoint Online master pages into your custom master page over time. Modifying the master page is not a problem per se; it is more of an ongoing tax.

Another problem with master pages is they do not work in modern SharePoint pages, such as in modern team sites or the new document library and list pages. Branding options for these pages have yet to be revealed by Microsoft.

For these reasons, many enterprises may want to consider a lighter touch to branding, especially on team collaboration sites, which will get the biggest benefit from the modern SharePoint pages. Lighter weight options include:

- Changing the page's appearance with cascading style sheets (Microsoft has not provided a way to do this with modern SharePoint pages.)
- Using SharePoint themes or composed looks (Microsoft has not provided a way to do this with modern SharePoint pages.)
- Using Office 365 themes, which are limited to color changes, logo placement and a couple of other things, and affect only the "suite bar" at the top
- Take a light touch to branding, especially on collaboration sites, since it will likely be thrown away when moving to modern team sites.
- If you want a highly branded site, go for it, but take mobile users into account. Consider developing the UI outside SharePoint.
- Realize that changing the master page in Office 365 is an ongoing commitment to keeping it in sync with Microsoft. Watch for changes regularly in a First Release tenant and prepare for changes before they hit your production environment.

SharePoint as a Service

An approach that goes beyond customizing SharePoint is to build the site UI outside of SharePoint and use SharePoint as a content management service (see Figure 1). This is the same approach Microsoft uses for its NextGen Portals.

The site can be developed using any web technology, although single sign-on to SharePoint is easier with Microsoft technologies such as ASP.NET MVC and Web API. This allows much smaller, modern and responsive web pages than is possible building on SharePoint's classic page model, without any restrictions on branding or web technologies. This approach also makes the application immune to changes in the SharePoint UI. However, it is not well suited to collaboration scenarios and works best in publishing and business applications. Content authors and data curators simply edit the content in SharePoint, and end users see the branded web site.

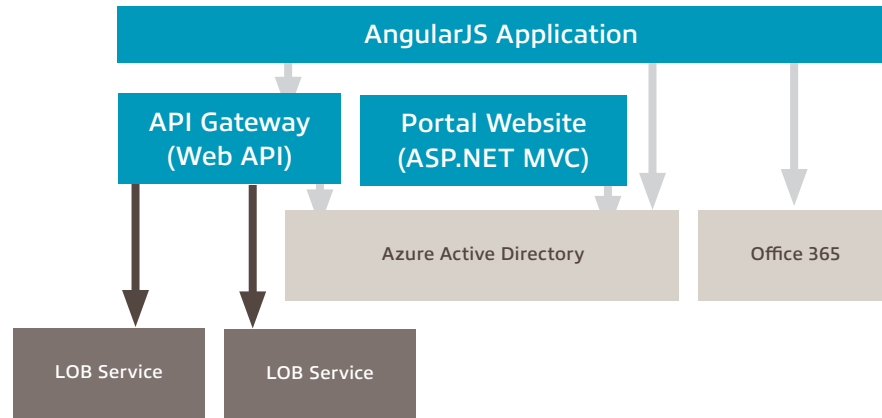


Figure 1. Application using SharePoint Online as a Service

- Instead of only viewing SharePoint as a platform, where SharePoint pages render other business information, consider using SharePoint as a Service and bringing SharePoint content into your business applications.
- For complete control over branding and user experience, build a custom website backed by SharePoint content. SharePoint's built-in content management is useful as a place to author and edit content.

Line-of-Business (LOB) integration

Options for integrating LOB systems have grown during recent years. Business connectivity services was the traditional approach and is still available for OData and Azure SQL data sources in Office 365. This approach works well for rows and columns of data and allows bringing data into external lists and columns in SharePoint.

SharePoint provider-hosted add-ins is another method to introduce LOB data into SharePoint, and it works both online and on premises. However, it has some limitations, such as the need to run web parts in IFrames, which makes it a challenge to develop mobile-friendly, responsive websites.

The modern approach to SharePoint LOB integration is to access the LOB system from the web browser using Cross-Origin Resource Sharing (CORS). It is possible to host a Web API in Azure or on premises that makes LOB data available to authenticated users. In this way, the web service controls access to the LOB system and can limit access to only what is needed to make the website work. This is generally more secure and efficient.

These methods can be helpful when porting custom web parts from server-based installations to the cloud. Often the business and data access layers can be ported wholesale to a Web API, and only the UI needs to be updated to make it work in SharePoint Online. With provider-hosted add-ins, it is sometimes possible to port the entire UI as well by translating web parts into ASP.NET controls and hosting them outside SharePoint.

Timer jobs and background processes

Another traditional SharePoint customization is the timer job — a background job that runs periodically to curate SharePoint sites and content. Typical uses include automated provisioning of sites, setting permissions and policies on sites, lists and libraries, customized site expiration and cleanup activities. When SharePoint's built-in settings do not meet the business needs, a timer job can save the day.

Timer jobs are still possible with the new programming model; they just run outside SharePoint. Traditional timer jobs that run on the SharePoint farm are not possible in Office 365 and can create upgrade hassles when used on premises. The solution is simple:

- Switch from using the server API to using the client API. In SharePoint 2013, 2016 and SharePoint Online, the Client-Side Object Model (CSOM) has most, if not all, of the features a typical timer job needs.
- Move the code out of SharePoint and into a Windows scheduled task (on a separate server or servers) or an Azure web job.

These solutions can be a simple PowerShell™ script or can become quite complex. The PnP team provides a remote timer job framework that can accelerate development of multithreaded timer jobs that iterate over SharePoint site collections in a SharePoint Online tenant.

SharePoint modernization scenarios

This section will consider typical scenarios for enterprises that want to modernize their SharePoint experience.

Migrating to Office 365

In an ideal world, migrating from SharePoint to Office 365 could not be easier. Microsoft will even do it for you; its Office 365 Import service will copy file shares and SharePoint documents over the internet or on hard drives to SharePoint Online.

However, older versions of SharePoint, customizations and changes to the SharePoint configuration (such as the list view threshold and number of lookup columns) can cause a migration to fail. And, while moving documents is a good start, there is more to SharePoint than just documents.

An Office 365 migration generally begins with an assessment of the on-premise environment. Things to look for include:

- Customizations that will not work online, such as SharePoint farm solutions or coded sandboxed solutions.
- Older versions of SharePoint that cannot be migrated directly
- Large lists that may hit the list view threshold in Office 365, and lists that may have too many lookup columns for Office 365
- Custom workflows
- External lists and columns that work differently in Office 365
- Amount and nature of content

Any issues identified need to be resolved before the migration, or the affected site(s) may need to stay on premises. This can be as simple as cleaning old data out of a large list or as complex as rewriting a custom application. Once any issues have been remediated, a third-party migration tool such as Sharegate® or Metalogix® Content Matrix is typically used to move the data.

- Start your migration with an assessment to identify possible trouble spots.
- If you have bulk file content, consider the Office 365 Import service as an easy approach.
- For complex migrations, consider hiring a qualified systems integrator to help.

Building a SharePoint intranet

With a new page model coming to SharePoint, what is the best strategy for an enterprise that wants to build or modernize a SharePoint intranet right now?

The initial version of modern websites and pages do not permit any real branding in a single column layout. Options will continue to be limited for a while. For that reason, it makes sense to develop complex websites either outside SharePoint or on traditional SharePoint sites, and to make the code as portable as possible.

Modern team sites include a news feature that may seem appropriate for publishing, but be aware these are limited to the team site and a single roll-up of news for the teams a user is a member of. The current architecture will not accommodate the needs of a publishing intranet. This is a cool feature, but it is still immature and lacks the ability to edit pages in draft mode, to brand pages, etc.

A popular option remains the development of a SharePoint intranet on classic SharePoint publishing sites. Pages can be edited right in place, and the mobile experience can be greatly improved using Cascading Style Sheets (CSS) and possibly a responsive master page and page layouts. Some of the out-of-the-box web parts can be styled for use in a responsive design, but others may require alternate versions that work well on small screens. In this case, by using the widget approach, the web parts can be ported to the SharePoint Framework in the future.

For complete creative control, the SharePoint as a Service option is the strongest. Since the UI runs outside SharePoint, there are virtually no UI limitations. It is also easy to bring in content from other services both inside and outside Office 365, and to integrate LOB applications.

A cottage industry of intranet-in-a-box vendors has emerged for SharePoint and SharePoint Online; these include Akumina, Powell 365 and Wizdom. These products can be good choices if they meet your needs right out of the box, but do not imagine that customizing them will necessarily be easier than customizing SharePoint directly. This kind of platform is great for a quick do-over, but it may turn into technical debt if the vendor does not follow best practices.

Here are some questions to ask intranet-in-a-box vendors:

- Does your product work on premises and in Office 365? Ask for a demo of both, even if you have no plan to move to the cloud, and beware of companies with two completely different products and unclear migration steps between them.
- How does your product work on mobile devices and with the new SharePoint and Office mobile apps?
- Can I take advantage of the new SharePoint Framework and modern SharePoint pages with your product?
- How does your product affect SharePoint content and permissions? For example, do I need to manage settings or permissions in two places (in the product and in SharePoint)? If I add a column to a SharePoint list or library, what is required to show it in the product UI?
- Does your product change the SharePoint master page or page layouts? If so, how do you manage changes in the Office 365 master page?
- Does your product make use of sandboxed solutions? (They have been deprecated; avoid them.)
- Does your product make use of the SharePoint add-in model? (That is a fine thing, but if you are on premises, make sure your infrastructure is set up for SharePoint add-ins.)

- For greater adoption, make intranets mobile-ready by developing with responsive design and making them available to employees over the internet.
- Waiting for the SharePoint Framework or other new user experiences may take a while. Microsoft is more likely to ship ready-made intranets at first, like the NextGen Portals, than something you can fully customize in the short term.
- For a truly future-proof intranet, consider using SharePoint as a Service and developing the UI outside SharePoint. For faster time to market, build a responsive solution on top of the classic SharePoint UI, but ensure custom code used for web parts and single-page applications follows best practices so it can be ported to the SharePoint Framework later.
- Beware of intranet-in-a-box vendors who claim they will solve all of your business problems. Ask questions and expect that what you see is what you will get.

Collaboration

SharePoint remains the industry powerhouse for collaborative workspaces. For customers using Office 365, Microsoft has announced modern team sites will be integrated with Office 365 Groups, so a team can share an Exchange mailbox and calendar, a Planner board and a modern SharePoint team site.

SharePoint's integration with Microsoft Office is unparalleled, and it has rich compliance features such as retention schedules, records management, e-discovery and legal holds. Ease of use continues to improve with each version and is even better for organizations that can take advantage of the new modern document library and list pages.

If all you need is standard, out-of-the-box site collections and you want to let an administrator create

them manually, SharePoint Online has exactly that capability. However, most enterprises have more complex needs.

Traditionally in SharePoint, it has been possible to click a link called “Save Site as Template” to take a snapshot of a SharePoint site, then stamp out carbon copies for individual projects, communities, etc. Microsoft removed this link from Office 365 and, generally, it is not a good idea to try to cheat and save your site as a template anyway by accessing the hidden page to do it. These templates are actually called Web Templates, and they are based on the onerous Feature Framework, which has been implicated in many upgrade hassles.

Instead, Microsoft recommends using the CSOM to construct SharePoint sites. This is a little like creating a ship in a bottle; instead of working within SharePoint, a program outside SharePoint sends commands to add each mast and yard. The program might be a PowerShell script running on your desktop, or a remote timer job running in an Azure web job.

It is not as hard as it sounds; the PnP team has developed an extensive [PowerShell library](#) for this purpose. There are commands to create lists and libraries, columns, content types and pretty much anything you would need, including the ability to add and remove web parts on pages. Using this library, it is possible to automate the building of consistent collaboration sites. The PowerShell can either be run manually or as part of a remote timer job that creates sites when a request is approved in a simple workflow.

For collaboration sites, it is best to take a light touch to branding to allow easy switching to the modern pages and SharePoint Framework when it becomes available. Where possible, develop customizations as widgets to allow easy porting to the new page model.

- If you are using SharePoint on premises, consider a hybrid environment, where team sites can be connected with Office 365 Groups.
- Evaluate the new document library UI in a First Release tenant, and consider your strategy for rollout and training. Note that some features, such as custom menu and ribbon commands, do not work yet; if you use them, you will probably need to stay with the classic library and list views until this is fixed.
- If you want more than a standard team or project site, assemble collaboration sites using a remote API with PowerShell, or use a remote timer job, or both.
- Use remote timer jobs and future-proof widget-based web parts and forms to add convenience and compliance features to your collaboration site.

Enterprise social and Office 365 Groups

Since Microsoft acquired Yammer in 2012, there has been confusion about the company's enterprise social strategy. SharePoint 2013 shipped with a new set of social features that were overshadowed by Yammer almost from the day they were launched.

Then, in 2014, Microsoft revealed Office 365 Groups. They are not exactly social networking, but they do provide most of the same features as Yammer® would for a group of people. Members of each share an inbox, calendar, document library, OneNote notebook and planning tool, as well as an Azure Active Directory® group that can be used to secure other content and applications. Microsoft also announced that each Office 365 group will get a SharePoint site in the near future.

Another relevant technology is the Office Graph, the service that backs the Office 365 Delve site and the new Office 365 My Sites. The Office Graph is based on search and machine learning and is very effective at finding relevant people and content. In a way, Delve complements Office 365 Groups as a way to discover relevant people and information within the enterprise. The Office Graph indexes content in SharePoint and elsewhere in Office 365, and it gathers signals, such as a person reading or editing a document, attending a meeting or making a Skype® for Business call. From this, it connects people, documents and other Office 365 content. Since people are such an important part of the Office Graph, it has a social quality, yet it does not require active participation or another inbox.

Many enterprises wonder if they should use SharePoint's built-in activity feed, Yammer or Office 365 Groups as a basis for enterprise social networking. All are readily available, though the activity feed should be used with caution. Microsoft retired social tags and notes from the activity feed and seems to have a death wish for the technology.

- If users need an all-in-one experience focused mainly on conversations, use Yammer. A Yammer feed can be placed on a SharePoint page using Yammer Embed.
- If users want a broader collaboration experience that includes messages, shared notes and documents, then use Office 365 Groups.
- If you are looking for tight integration with SharePoint document management and collaboration sites, SharePoint's built-in social feed remains the most well-integrated option, albeit with some risk of it being deprecated.

SharePoint extranets

Extranets are a great way to start into modern SharePoint technology. Office 365 makes extranets easy by allowing external users to be invited, although it is kind of an all-or-nothing affair. Site owners can invite anyone they want, or no external users at all; this is fine for most organizations but may be an issue in highly regulated environments where external users need to be vetted by a compliance officer, for example.

Extranets are usually a blend of publishing and collaboration. Publishing allows an enterprise to communicate privately with customers and vendors, providing inside information that is not generally

available to the public. Some enterprises provide information such as analysis and knowledge bases on their extranets as a perk to their business partners, and as a way to monitor their interests. Collaborative workspaces provide a place for document sharing and other collaboration between business partners. A well-designed extranet can serve as an economic moat for customers, who find it an invaluable resource.

The same general approaches apply to extranet publishing and collaboration as to intranets and collaboration sites. Publishing sites can be made responsive, and collaboration sites are already becoming more mobile-friendly. The key is in writing any custom forms, web parts or other site features to run in the browser, with an eye to working in the forthcoming SharePoint Framework.

- Consider starting your Office 365 deployment with an extranet. The external user feature makes it much easier than it would be on premises, and it is a new and very useful workload for many enterprises.
- A good extranet has some amount of publishing to provide information to partners, and collaboration to allow secure document exchanges and information sharing. It also may include alerts or reminders to draw users back into the extranet.
- Extranets can be used to measure partner or customer engagement and, when designed to add a lot of value, can help lock in customers who do not want to give up access to the site.

OneDrive for Business

OneDrive for Business is a replacement for SharePoint's personal My Sites that reduces them to the most popular feature: a person sharing files within the enterprise. The idea is to entice employees to stop using consumer file-sharing services by providing a similar service that is managed and sanctioned by the enterprise. This will not work, of course, if SharePoint is locked behind corporate firewalls; users expect the unfettered access they enjoy with services such as consumer OneDrive, DropBox, and Google Docs™. In Office 365, this is not a problem.

Until recently, however, the OneDrive for Business client program (based on groove.exe) was pretty much broken, as acknowledged at Microsoft Ignite 2015. A new OneDrive client has been introduced, which works well with both consumer OneDrive and OneDrive for Business. Initially, the program still did not allow synchronizing SharePoint document libraries, which is a key use case. At the conference, Microsoft announced the fix for this is in preview and will be generally available soon.

OneDrive for Business is a great alternative to public file-sharing services because it is secure and managed by the enterprise. Functionally, at this point, it is as easy as any of the major consumer file-sharing offerings. It may be a good place to migrate personal file shares as well. However, be aware that some scenarios such as Microsoft Access® databases may still require traditional file shares to work properly.

- Use OneDrive for Business as a sanctioned alternative to consumer file-sharing services.
- Consider the Office 365 Import service as an easy way to migrate file shares and on-premise SharePoint documents to OneDrive for Business.

Conclusion

After all these years, SharePoint is back in the race and going strong. SharePoint has the advantage of being a mature product with a huge and healthy ecosystem, so even though it has changes ahead, it is still a better option for most organizations than starting with a new, less complete offering.

Microsoft is determined to make SharePoint a success in the cloud and device era, and to continue to support SharePoint on premises and in hybrid scenarios.

About the author

BlueMetal, an Insight company, is an interactive design and technology architecture consulting firm that solves the most challenging business and technical problems facing our clients. We leverage lean engineering methodology, DevOps process, microservice architecture and cloud platforms to deliver mission-critical and business-transformative Software as a Service (SaaS) solutions.

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