Solution Assessment Report



Final Report

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Contoso Corporation

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1. Executive Summary

This document represents the first in a two part series of artifacts generated as part of the PnP Transformation process. Recorded here are the findings following an analyses of Contoso’s use of SharePoint and the customizations need to satisfy the business requirements of Contoso’s.

Contoso’s corporate users utilize SharePoint primarily for document storage and collaboration using Team Sites, Project Sites, Document Centers and Personal OneDrive for Business libraries. Historically Contoso had customized these sites more heavily with a unique look and feel as well as strict metadata collection. However, the recent trend has been to embrace more of the out-of-box experience in an effort to minimize investment costs and maximize the return value of the platform. Contoso has localized the customizations to the administrative site or those deemed mandatory for security and compliance governance.

Contoso wanted to reduce the invasiveness and extent of the customization. This will result in immediate cost reductions and functionality benefits. However, in moving to the next version of the Office 365, we will address the effects of the previous customizations in the form of data migration. We will discuss this more during the Solution Design phase.

We approached the Contoso’s Solution Assessment from multiple angles. The primary purpose of the assessment is to analyze how the future Office 365 environment can be comply with the current business and technical requirements. As part of the assessment, Contoso’s has clarified the SharePoint vision. We have recorded this as a guidance for roadmap planning.

1. Vision for SharePoint

The following vision statements define the high-level principles of the Contoso SharePoint Vision: Cloud ready, Agility for business, Cost efficiency and Customize for business value.

* 1. Cloud ready

Contoso will develop all solutions and functionalities so that they can support them in both the private and public clouds. This provides flexibility with the hosting platform and deployments are not bound to a single platform in the future.

Customizations developed for Contoso platform should be in line with the SharePoint product roadmap to ensure agility for the deployments. By using the app model as the customization pattern, Contoso can apply changes to sites without the constant need of IT personnel to perform detailed testing.

* 1. Agility for business

App model will result in faster deployments. All projects should aim to minimize complexity, concentrate on the primary objectives, and then offer the actual business functionality in the simplest possible way.

App model supports deployments of new sites and elements to site collections without any downtime. This model reduces the service or maintenance windows.

* 1. Cost efficiency

Minimize the unnecessary complexity involved with customizations if they do not provide direct business value. Use out of box features as far as possible.

Each required function should be evaluated against the value gained and the cost associated with the development and maintenance phase.

Minimize on-premises investments in SharePoint and gradually eliminate the need for the on-premises deployments in favor of cloud options.

* 1. Customize for business value

Each customization and project should have a clear business case (ROI) taking into account short and long-term costs associated with development, training and maintenance.

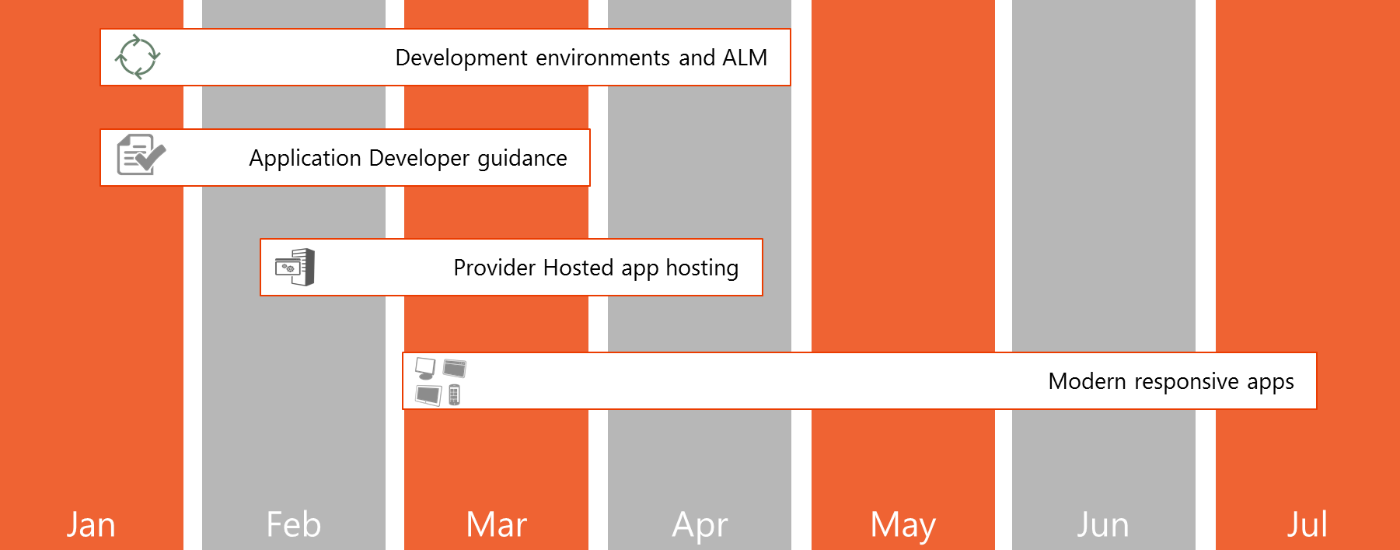
Out-of-the-box functionalities should always hold priority and customization should only occur if out of the box functionalities or apps from public market place cannot provide similar functionality.

Use the app model whenever possible to minimize operational impact of the customizations and to provide flexibility with the hosting options.

1. High Level Roadmap

The following picture defines the high-level schedule for the individual supporting work streams in the Contoso SharePoint environment based on current information.

These schedules are high-level estimates on the time frame:



More detailed phasing and area content is available in the next chapters.

1. Current environment and challenges

The Contoso SharePoint environment follows a complex development process, which is causing significant costs in the short and long term. The overall environment consists of several different SharePoint environments, which Contoso maintains and manages individually on top of the application life cycle management activities.

Based on discussions, one of the key concerns is that Contoso is the centralized hub for vendors working in this environment, which means that Contoso has to perform the required coordination and task management. This has resulted in a situation where Contoso has outsourced the SharePoint development to 3rd party vendors, but at the same time Contoso needs to have highly skilled SharePoint resources available for overall coordination of the operation and customization activities.

With all the incoming change requests, maintenance of the infrastructure is turning out to be a costly proposition.



Currently all source code is stored in centralized TFS farm located in the Contoso corporate network. This means that on-site connectivity is simple, but outside access to TFS requires specific VPN connectivity to the corporate network. This VPN requirement means that each vendor working with Contoso will require access to Contoso network, to access the source code.

Contoso also manages assigned partners in addition to the OS and solution patching.



1. Future recommended architecture

We recommend that he future model is more non-Contoso centric where Contoso gets the development, testing and application life cycle management as a service from third party vendor, without taking actual ownership of the environment and coordination.

This model would provide Contoso a way to focus on actual functionality and business requirement coordination, rather than ownership of the environments.

There could still be a need for occasional training or test environments for Contoso staff, hence, Contoso needs to adopt agile farm provisioning only for the given time period or by providing Contoso staff access to farms owned by 3rd party vendors.



Since Contoso has a growing number of vendors who might require TFS access, the more suitable and cost efficient option for TFS hosting is to use the TFS online.

In this setup, external partners can access the same source code as Contoso employees as long as they have Internet connectivity. Similar to an on-premises TFS installation, TFS service supports not only source code, but also task management, test execution and continuous builds.



* 1. Provider hosted app hosting

Provider hosted environments are required for running complex operations with the app model approach. This environment consists of two to three Windows 2008 R2 or Windows 2012 servers, which are load balanced and have the web role enabled on them.

Actual provider hosted applications are asp.net applications, which can connect back to the SharePoint side on behalf of the user to perform any required actions.

Contoso can use the same environment for Intranet and Internet facing sites, depending on the network routing.

The illustration below shows the overall architecture with Intranet and Internet platforms sharing the same provider hosted applications. Provider hosted environments can be running either in the private cloud or in the Windows Azure as IAAS or PAAS service, as long as server side code has network level access to the SharePoint deployment.



Remote connectivity between the provider hosted apps and SharePoint farms is secured by Azure ACS registration or certification level authentication on each SharePoint farm.

1. SharePoint Assessment Report

The **Contoso** brand represents a suite of technology capabilities that Contoso has made available to its corporate users. Among those capabilities are portals, document repositories (shared & personal) and collaboration (including social features). Today SharePoint Server 2013 provides the platform for document storage and collaboration using Microsoft’s Office 365 cloud subscription.

As mentioned previously, Contoso’s move to Office 365 will result in a number of benefits. However, part of changes required to achieve the Office 365 environment includes eliminating customizations that require modification of the Windows Server file system artifacts, including .NET assemblies, ASP.NET pages, configuration xml, registry changes, and any other file artifacts. SharePoint refers these customizations as Full Trust Code (or FTC).

To become compatible with Office 365 the ultimate goal will be to transform those customizations into more modern solutions based on SharePoint’s new Cloud App Model (or CAM). In CAM, customizations that integrate with SharePoint (beyond that which SharePoint allows through supported configuration) continue to do so, however special code and other supporting artifacts reside externally – executing within the browser or another hosting environment such as Microsoft Azure.

This section reviews the requirements leading to those customizations then analyzes the concerns and possible alternatives to achieve the same effects.

To begin, Contoso’s overarching principals in delivering this to its users include:

* Leverage out-of-box functionality whenever possible to minimize investment and maximize value from ongoing innovation in the O365 cloud platform.
* Make the system discoverable with minimal user training.
* Allow the users to make intuitive choices based on the consistency built into the platform and customizations.
* Adhere to security and compliance guidelines put forth by communication, security and compliance teams at Contoso.
  1. FTC solutions analyzed

The table below itemizes the SharePoint solution packages reviewed and the functionality each provides. Subsequent sections break down the functionality into general capabilities and examine the business drivers for each of those capabilities and an analysis of the customization supporting each.

|  |  |
| --- | --- |
| Solution (.wsp) | Features |
| **Contoso.SharePoint.Branding.wsp** | * Adds User profile information on the header of the master page * Adds custom controls and custom navigation to the master page * Creates the custom Contoso footer * Deploys the custom master page and page layouts |
| **Contoso.SharePoint.Provisioning.wsp** | * Allows creation of sites through an electronic form. * Prevents the creation of sub sites through the UI * Hides “Sites and Workspaces“ * Hides “Manage Site Features” |
| **Contoso.SharePoint.DocRetention.wsp** | * Sends notification emails when policies are due for revision. * Deletes records that are more than 7 years old. * Log actions taken on expiring documents for audit purposes. * Kicks off a IMP workflow when the document expires * Discovers content in electronic format (websites, documents, emails) |
| **Contoso.SharePoint.EventReceivers.wsp** | * List Event Receivers * Web creation and deletion events * Feature Receivers |
| **Contoso.SharePoint.SafetyNews.wsp** | * Displays news related to safety incidents * User can choose to see safety incidents even from other units/departments * Mobile views of safety incidents |
| **Contoso.SharePoint.NewsAlerts.wsp** | * Timer job to send notification emails to Contoso Staff in the event of a major incident. |

* 1. Branding

Branding refers to the aspects of Contoso’s customizations that relate to a site’s look and feel; however, we apply the branding elements during the provisioning operation.

* + 1. Customer requirements

Contoso has decided that it will achieve the site branding requirements using a custom theme and alternate stylesheet file without modifying the masterpage. Contoso will get rid of all custom web controls (Share price, world clock, weather, emergency information, image rotator etc). This functionality will be implemented using SharePoint apps where necessary. This will minimize the cost of ownership and maximize the value added by current and future enhancements in the platform.

Dynamic elements based on User profile are to be generated using JavaScript.

However, there still exists some system requirements to store commonly used files and artifacts, such as JavaScript (.JS), XML, images (.JPG, .PNG, .GIF).

* + 1. Considerations and workarounds

The decision to not replace or modify master pages will benefit in the future by averting a cumbersome process of recreating side-by-side master pages and re-linking existing sites with new master pages.

Contoso can meet the site branding needs by using an Office 365 theme. Composed looks allow the use of a custom theme. [SP Color tool](http://www.google.co.nz/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CB0QFjAA&url=http://www.microsoft.com/en-nz/download/details.aspx?id%3D38182&ei=yQMjVe_oDYiM8QWIpYD4CA&usg=AFQjCNGTMvi7slCdTXtdkpBA8-nDV2rEmQ&sig2=YAttyS3eCY5io7EtZiBEaw) allows you to create a custom theme. For additional branding needs, alternate CSS file with the out of the box master page may be considered.

Currently in FTC, **files and artifacts** are created as single-instance by including them within the FEATURES directory or as Template Files in the SharePoint solution manifest. Contoso ghosted these files into many Collaboration or Personal sites during feature activation. Without FTC, this is no longer possible and hence Contoso can adopt another approach to allow single instance storage of dependent files and artifacts.

Note: We assume here that single instance storage of dependent files is preferable due to the ease of updating and maintenance. However, it is also possible to duplicate each file into the content of each site where it is necessary.

Yammer can meet Contoso’s social requirements.

Contoso can add Yammer embedded code on the home page layout of every department site.

The Yammer feed will add a personal touch to the site.

OOTB SharePoint global navigation can replace custom navigation. Stylesheet on top of SharePoint’s default global navigation can build dynamic menus.

The mysites could use the out of box SharePoint features since Microsoft is bringing new features in Office 365 rapidly. Out of box site allows the users to make use of the new capabilities (like Delve).

* 1. Provisioning

Provisioning is the process creating, securing and configuring site with functional difference. Contoso uses a custom provisioning process to adhere to its policies and procedures. Branding section above describes the tailoring of a site’s look and feel.

* + 1. Customer requirements

Each Contoso can acquire additional Team Sites for shared business use. Users request Sites electronically and their creation is contingent on a number of logistical, legal and policy guidelines including:

* Preventing users from creating sites from the user interface.
* Preventing the users from using certain site templates
* Allowing users to create sub sites through electronic requests
* Implementing security around the sites so that they are visible only to the requestor
* Allow auto activation of some site features during site provision
* My Sites should be set to expire after one year

Once created site owners are empowered and restricted in the following ways:

* Owners are granted Full Control to the requested site, however not Site Collection Administrator
* Users cannot create sites may not be directly from user interface.
* Additional lists may be created, from an approved subset of available SharePoint list types
* Owners of Document Center sites are prohibited from creating any additional lists by Contoso policy
* Users are restricted from using certain settings (ex: Site Collection Features, Site Features). System administrator can bypass this restriction for maintenance.
  + 1. Considerations and workarounds

Contoso’s maintains a central administrative site, called the Contoso SharePoint Framework. The site collection is the foundation for provisioning, compliance and some records management activities (see 3.5 below).

Provisioning in particular utilizes a custom list definition encompassing custom content types, custom forms and workflows utilizing a coded workflow activity. Retracting the associated WSPs would render the provisioning system inoperable because of the missing file dependencies of the site columns, content types, new/edit forms, the list definition itself and the .NET assembly.

SharePoint maintains a permanent link between the database object and the XML Element declaration files used to instantiate them – In SharePoint we term it “**ghosting**”. This term, which is popular when referring to ASPX pages, also applies to some XML Element declarations.

In some cases un-ghosting can severe that relationship, which has the effect of duplicating the file-based structure into the database where SharePoint going forward can retrieve it. Examples of items that can be un-ghosted include **Site** **Columns and Content Types**. Unfortunately, **List Definitions** (aka <ListTemplate>) do not behave as such and instead Contoso will have to copy the list data to another compatible list (based on a standard list type), before removing the original list and ultimately retracting the **Contoso.SharePoint.Provisioning.wsp** containing the <ListTemplate>.

SharePoint Administrator create Site Collections. Sub-site creation is using a SharePoint **Timer Job**. If this timer job remains part of the transformed solution it would have to be implemented remotely in some external server/service, such as an on-premises Windows Server, or perhaps in Azure as a scheduled Web Job. The implementation can remain in C# procedural code; however, Contoso can remove the dependency on the SharePoint Server API by the equivalent SharePoint Client Object Model (CSOM). Additionally, Contoso will need a trusted service account because there would be no concept of “Elevated Privileges” in the external hosting environment. Preferably, in scenarios that require “Elevated Privileges”, we recommend the use Application Only Permissions

**Feature Stapling** performs supplemental provisioning steps, where SharePoint automatically activates a feature upon successful creation of a specified site type. Custom Stapling is not available in Office 365 therefore additional provisioning logic will give way to one of two areas. For Collaboration sites, Contoso can add provisioning to the **scheduled process**, which creates the site. Contoso can provision new sites or delete old ones through a centralized **batch process or an Azure web job**; or by means of JavaScript injected in a common landing page. This landing page can utilize a **hidden Provider Hosted App** to asynchronously access the personal site and perform the necessary provisioning steps.

**Web Parts** also exist for page redirection and Administrative Edit forms for additional information on modern implementation options for Web Parts. Contoso can use a **Custom Action** using a **ScriptBlock** or **ScriptLink** to achieve redirection.

* 1. Event Handling
     1. Customer requirements

**Event Receivers** provide additional custom processing when a Site, Web, List or Item is affected. Event handling handles security after a site gets provisioned or deleted. Event receivers have also been used to auto-update the metadata of a document uploads. Contoso creates site columns and content types using feature receivers.

* + 1. Considerations and workarounds

Contoso will need to adopt an alternate approach to replace traditional event handling. A remote event receiver is like a traditional event receiver in SharePoint.  Whenever an event occurs, such as a “list is deleted” or a “list item is added”, the code registers itself with SharePoint.  You register a remote endpoint by providing a URL to a service.

Remote event receivers are done by means of Web services that listen for events to occur. Instead of running code on the SP server, web service handles the event when the app fires. By registering a remote end-point, one can invoke either a one-way or two-way event receiver.

|  |  |
| --- | --- |
|  | **Additional Information** |
| *Following article has more information about remote event receivers*   * [Remote Event Receivers in SP2013](https://msdn.microsoft.com/en-us/library/office/dn456315.aspx) | |

* 1. Records Management

Record Management refers to the aspects of compliance that relate to special treatment of information based on importance, confidentiality or retention.

* + 1. Customer requirements
* Documents stored in shared sites which are seven (7) years or older, regardless of the type, undergo an automatic disposition process. Contoso does this for both legal compliance as well as farm capacity management.
* Site assets and items in the Style Library folder are site-rendering artifacts and Contoso treats them differently.
* A user or administrator receives a list of expiring documents through notifications.
* Information Policy management workflows are kicked off when a document expires.
* Expiring documents may be …
  + reassigned to another owner
  + renewed, thus resetting their expiration window
  + ignored
  + manually deleted if appropriate
* Contoso wants to log the action taken on an expiring document.
* Contoso should chose Standard SharePoint content types and site columns over custom to minimize the impact on end user’s productivity and increase adoption.
* Currently considering using the SharePoint Record Center functionally in order to create a robust File Plan and will likely use the eDiscovery capabilities of Office 365.
  + 1. Considerations and workarounds

Choice of standard content types for document storage will pay off during migration to Office 365, as those content types do not need to be systematically “un-ghosted” by an update utility prior to deactivating the corresponding features and removing the solutions from the farm.

**Information Management Policy** kicks off workflow with several custom **Workflow Activities** that processes the expiring document. These activates are not compatible with Office 365 in their current form, however the business logic could be factored to one or more **oData Web Services** called by the new Workflow Manager’s **Call HTTP Web Service** action. Although SharePoint 2013 backwards compatible with 2010 workflows, the Call HTTP Web Service action is only available with new workflows built with SharePoint 2013 declarative workflows.

This approach might involve some rework.

* 1. Safety News

Contoso is very particular about Safety at Workplace.

Contoso logs all safety incidents reported at various units into the Safety List for the specific site. Every site has safety news displayed on the homepage through a safety web part.

In addition to showing the safety incidents for the unit/department, the webpart can also pull safety incidents from other departments if required through webpart configuration.

The staff receives a notification email in the event of a major safety incident.

* + 1. Customer Requirements

Contoso wants:

1. Employees should receive regular safety updates on their department site.
2. Ability to surface safety incidents that occur in other departments
3. Email Notification for major incidents.
4. Staff should also be able to view the safety news on mobile devices.
5. Allow users to like and share the news article with colleagues.
   * 1. Considerations and Workarounds

Contoso has designed Safety Rollups on site landing pages using the Site Data Queries to fetch data from multiple sites within the “Contoso Intranet” site collection. Contoso can simulate this functionality by creating a Safety Yammer group and adding the Yammer embedded code on the homepage of every department sites.

Major safety incidents may be raised using Yammer announcements. Yammer natively sends a notification to the company staff upon creation of a new announcement.

Yammer has a mobile app that can generate mobile views without any additional effort.

* 1. UX Components

Any remaining aspect of the end user’s experience with SharePoint that has not been discussed in previous sections is recorded here as a UX component.

* + 1. Customer requirements

The experience of shared collaboration, storage and personal sites remains largely unaffected, except for the customizations necessary to support compliance and other operational/administrative mandates.

Contoso cannot use the delegate and custom web controls (Share price, world clock, weather, emergency information, image rotator etc) as is in the App model. Contoso can however use alternate options as suggested below:

* + 1. Considerations and workarounds

Dynamic page rendering takes place in the browser using delegate controls and client-side JavaScript and HTML injection. SharePoint hosts Delegate controls in the file system and hence we cannot use them to intervene in ASP.NET page rendering pipeline. Alternatively, Contoso can inject JavaScript and HTML by utilizing host-web custom User Actions with ScriptBlocks or ScriptLinks. (See 3.3.2 above)

**Web Parts**, **Server Controls** and **User Controls** are all similar in that they ultimately derive from an ASP.NET “Control” though each may be used for a slightly different purpose (in/out-zone, delegate controls, etc.). All of which constitute FTC and cannot migrate to Office 365 without a transformation. Some possible approaches include:

* SharePoint App Part – often suitable for web parts, offering larger chunks of functionality presented in the main content area of a page.
* HTML injection – may apply to smaller controls, which present only small informational windows or clickable links (ex: server controls).
* Out-of-box – advances in SharePoint 2013 (ex: Content Search web part) may obviate the need for a custom web part.

# 3rd Party Software

Software not written by, or otherwise written through contract for, Contoso’s is considered 3rd Party software. Although we did not review the actual code and artifacts, we quantified the business purpose and benefit of the software, to assist Contoso in planning an alternative approach to achieve a similar benefit.

* 1. Skill Finder

The custom webpart provided by Tailspin allow users to search for their colleagues based on their past projects, years of experience, subject of expertise.

* + 1. Customer requirements
* Ability to search staff members based on their skill and years of experience.
* Also provides SharePoint social features for collaboration
* The search results display the contact details and work location.
* Users can leave messages for the person of interest.
  + 1. Considerations and workarounds

Contoso can achieve **Skill finder** features through out of the box content search web parts using SharePoint People search with custom display templates and custom stylesheet.

Content search web parts and display templates surface SharePoint data in a presentable manner using HTML and JavaScript. People search also provides Lync integration and hence allow users to leave instant messages for the person they are looking for.

* 1. Location Finder

Contoso works with their sales partner FabriKam and have to search for FabriKam locations to get information on sales volume and demand. The location information is stored in a SharePoint list. A custom search webpart can query the data from the list.

* + 1. Customer requirements
* Ability to search FabriKam location by entering the Zip Code.
* Ability to view sales figures.
  + 1. Considerations and workarounds

**Contoso can achieve Location Finder features through out of the box content search webparts with custom display templates and custom stylesheet.**

**Content search webpart can query the list data and surface it in the same way as it does presently.**

* 1. Content Migrator

Contoso uses a Migration tool provided by Wingtip that allows them to migrate content from one SharePoint site or farm to another. However, the tool requires an installation on Web Front End servers in every farm. Hence, tool will not work in Office 365.

* + 1. Customer requirements
* Ability to migrate data/documents from one list to another.
* Ability to migrate data across test and production farms
* Ability to migrate data from file system
* Operational and administrative assistance
  + 1. Considerations and workarounds

Migration helper solution cannot be transformed since it requires installation on SharePoint farm. Contoso needs to evaluate other third party offerings that can be installed on a client machine and make use of SharePoint web service to migrate data.

* 1. Web Analytics

Contoso uses a Web Analytics solution provided by Adventure Works. It lets Contoso monitor the popular content and areas or sites that are no longer used. Contoso reviews the data each month during the Governance meeting.

* + 1. Customer requirements
* Discovers keywords, phrases and the most clicked-on results.
* Provides the session history of all SharePoint users.
* Provides information on popular content.
* Requires a custom JavaScript on master page.
  + 1. Considerations and workarounds

Adventure Works analytics is implemented through HTML injection of JavaSript into the master page through a Delegate Control. Custom delegate controls are not compatible with Office 365, however a similar JS injection can be accomplished through a custom User Action, either through a ScriptBlock or ScriptLink.