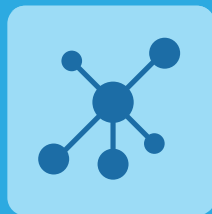


SharePoint Add-ins – A Brief Overview

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ABSTRACT

The SharePoint Development model has been constantly evolving over the last several years. In particular, the core philosophy behind SharePoint Development has changed. The SharePoint App Model or the Add-in has placed increased emphasis on increasing code scalability and decoupling the code from the SharePoint stack as much as possible. In line with this, code has been deliberately hosted outside SharePoint and communication with SharePoint would happen using Client side code, Rest APIs and other client libraries. The other advantage of decoupling the code is that it helps in moving towards a digital marketplace where each application has to be independent of each other. In recent years, Office Store has been growing rapidly and SharePoint Add-in can act as the perfect tool for small and large enterprises alike to launch their products in the digital marketplace.

Based on business needs, enterprises can choose from a couple of flavors of SharePoint Add-in. In this whitepaper, we take you through the pros and cons of using both the flavors which would ultimately help you to make an informed decision.



INTRODUCTION

The add-in model for SharePoint (formerly known as the 'App Model') is a major shift in development practices for Office 365 and SharePoint 2013.

Microsoft is strategically investing in cloud technologies and moving towards Software-as-a-Service and subscription based applications. SharePoint being Microsoft's flagship platform for content management, SharePoint Add-ins (previously named as SharePoint Apps) are a step towards achieving this goal.

SHAREPOINT ADD-IN

SharePoint Add-ins are self-contained extensions of SharePoint websites that we can create, and run without custom code on the SharePoint server. Being an independent entity, SharePoint Add-In brings a lot of flexibility.

- ✓ **Subscription based Application:** End user can Add/Remove applications as per need without affecting the core business.
- ✓ **Pay-as-you-go Facility:** Pay for application based on its usage.
- ✓ **Office 365 Compatible:** SharePoint Add-ins can be used to develop apps for both on premise and Office 365 environments.
- ✓ **Fast Go-to-market Capability:** Using NAPA and other browser based tools, simple SharePoint Add-in can be built rapidly to fulfill basic needs.
- ✓ **Portability / Maintenance / Easy Enhancements / Reusability:** These are some of the hidden built-in features that come along with SharePoint Add-Ins.

As per market trends, Office Store is a fast growing market segment and SharePoint Add-ins are tools for businesses to promote their products in the digital marketplace. The Office Store has provided a platform for small businesses to promote and sell their products as SharePoint Add-ins. For large enterprises, it has helped them to make their business to become 'Cloud-ready'.



SHAREPOINT DEPLOYMENT MODEL

SharePoint farm is an infrastructure intensive platform. Even though it provides a lot of Out-of-the-Box functionality, very often it has to be customized to suit specific business needs. Server side customization always comes with a risk of bad code bringing down the complete infrastructure. This is where Add-ins provide great extensibility by allowing customization of the system without affecting the hosting environment. Developers have 2 options to choose from, for deployment depending upon compatibility and external integrations.



SHAREPOINT HOSTED

All artifacts (JavaScript files/CSS/page layouts etc) in SharePoint Hosted Add-in get deployed to 'App Web', which is a separate web under the 'Hosted Web'. App web is on a sub-domain where the application resides. Whenever users request for the app, they get redirected to the page where the application resides and gets rendered in SharePoint inside an iFrame.

No server side code is allowed in SharePoint Hosted App which means we can only use JSOM / REST for development and not CSOM or Compiled code.

Typically, the development of SharePoint Add-ins necessitates the incorporation of data from various sources. However, for security reasons, there are protocols that prevent communication with more than one domain at a time. These security protocols are implemented in most browsers, making it difficult or impossible to accomplish client-side calls across domains.

Client-side communication is bound only to that domain. Since Add-in is deployed to a separate domain, cross-domain communication is a technical challenge if we need to access resources in Add-in web from Host web. SharePoint has a cross-domain library which is a client-side alternative in the form of JavaScript file (SP.RequestExecutor.js) that is hosted on the SharePoint website and can be referenced in remote add-in.



PROVIDER HOSTED

Provider Hosted Add-in can use all the components from SharePoint Hosted add-in. Apart from this, it has a remote component, like a separate web application, service or database which is not part of SharePoint Hosting. External component need not to be in Microsoft Stack. Any hosting framework can be used for the Provider.

If the remote component is implemented using .NET, then we can use SharePoint Client-Side Object Model (CSOM) to access SharePoint services and resources. For the remote component that is not based on .NET, there are REST/OData APIs which can be used. JSOM libraries cannot be used on remote page, but provider-hosted add-ins can have custom SharePoint pages in an add-in web and JavaScript on these pages can use the JSOM library.

Provider hosted Add-in has a special chrome control that can be used to provide remote pages in add-in, a SharePoint look and feel.

AUTHENTICATION & AUTHORIZATION

SharePoint Add-in must specify, through the add-in manifest file, the permissions an add-in needs to access SharePoint resources outside the add-in web (The add-in automatically has full control permission to the entire add-in web). When the add-in is designed to be launched from within SharePoint, the add-in installation infrastructure prompts the user who installs the add-in to grant or deny the needed permissions.

SharePoint Hosted Add-in uses 'signed-in' user privilege for Authentication and Authorization. It requests a specific set of permissions when they are installed. If the current user has the ability to grant the App those permissions, then the application can be installed. It uses the SharePoint inbuilt security and Add-in code runs under signed in user's context.

Provider Hosted App can be authenticated with ACS (Azure Access Control Servicer) OR digital certificate. One of the main questions in Provider Hosted Add-in is how will it be authorized to interact with SharePoint for its resources.

There are three options present for authorization in Provider-Hosted add-in



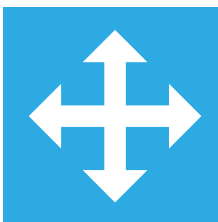
Low Trust:

It can register with ACS which will issue a token to the Add-in that will allow it to access the resources in SharePoint where it is installed. ACS will play the role of trusted token issuer in an OAuth 2.0 authentication flow. OAuth is required whenever we are calling SharePoint from a remotely hosted web application that can't use client-side code exclusively.



High Trust:

This type of trust is established using digital certificate. The high-trust system is primarily intended for add-ins whose remote components are hosted on premise.



Cross-Domain Library:

It lets users to interact with more than one domain from the remote components of add-in through a proxy. If client-side code and the permissions of a user who is signed into SharePoint are sufficient, the cross-domain library is a good option. The cross-domain library is also convenient whenever you are making remote calls through a firewall.

APP HOSTING OPTIONS

SHAREPOINT HOSTED

BEST SUITED FOR:

- Individual or team productivity app
- Business process automation with low to medium complexity business rules

BENEFITS:

- Reuse common SharePoint artifacts
- Automatic hosting in SharePoint
- Native SharePoint UX
- Runs on either on-premise or cloud

CONSIDERATION:

- Uses JavaScript for Custom Visualizations & logic
- Uses workflow for automation
- No server-side code is allowed
- App data stored in SharePoint lists
- Slower patch cycle

PROVIDER HOSTED

BEST SUITED FOR:

- Large robust Internet/enterprise-scale application
- Connecting existing sites to SharePoint

BENEFITS:

- Can execute server-side code
- Works with any existing web/on-premise servers
- Uses full power of Azure
- Runs on either on-premise or cloud

CONSIDERATION:

- More developer responsibility
- Requires upfront and on-going operational costs

ABOUT AUTHOR

Pallav Mathur is a Microsoft Certified SharePoint Expert (MCSE) at Nous Infosystems with over 10+ years of experience in Enterprise Social Collaboration technologies. He is responsible for conceptualizing and implementing solutions for clients across technologies such as SharePoint, MS CRM and .NET. Besides his work, Pallav is an avid traveller and he is currently settled in Atlanta, US.

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CONCLUSION:

In summary, SharePoint and Office 365 are here to stay. SharePoint is a service, just like Exchange or Salesforce or Outlook.com or GMAIL or GitHub. They want customers to think of it as a service that they can subscribe to. The On-premise offering will continue to be an integral part of enterprise environments since a large percentage of customers who bought into massive deployments are currently storing large volumes of data on premise. There are also very real challenges to migrating to the cloud including regulatory or legal challenges.

This is a great time to re-visit customized applications and code and move them away from SharePoint, thereby using SharePoint as a Product and not as a platform. Enterprises can get the best out of SharePoint by using Out-of-the-Box functionalities and configurations by building applications outside of SharePoint.

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