

DEVELOPING SHAREPOINT FRAMEWORK SOLUTIONS FOR THE ENTERPRISE

Eric Shupps



EUROPEAN COLLABORATION SUMMIT 2019

WIESBADEN/GERMANY, MAY 27-29 2019 WWW.COLABSUMMIT.EU



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2. RATE THE SESSIONS THAT YOU HAVE ATTENDED

3. WIN ONE OF THE 4 C64-MINIS



www.collabsummit.eu/app

♥ DIAMOND AND PLATINUM SPONSORS ♥



FireStart

ShareGate:



Quadrotech





Eric Shupps

Office Servers & Services MVP



@eshupps



www.sharepointcowboy.com



sharepointcowboy



slideshare.net/eshupps



linkedin.com/in/eshupps



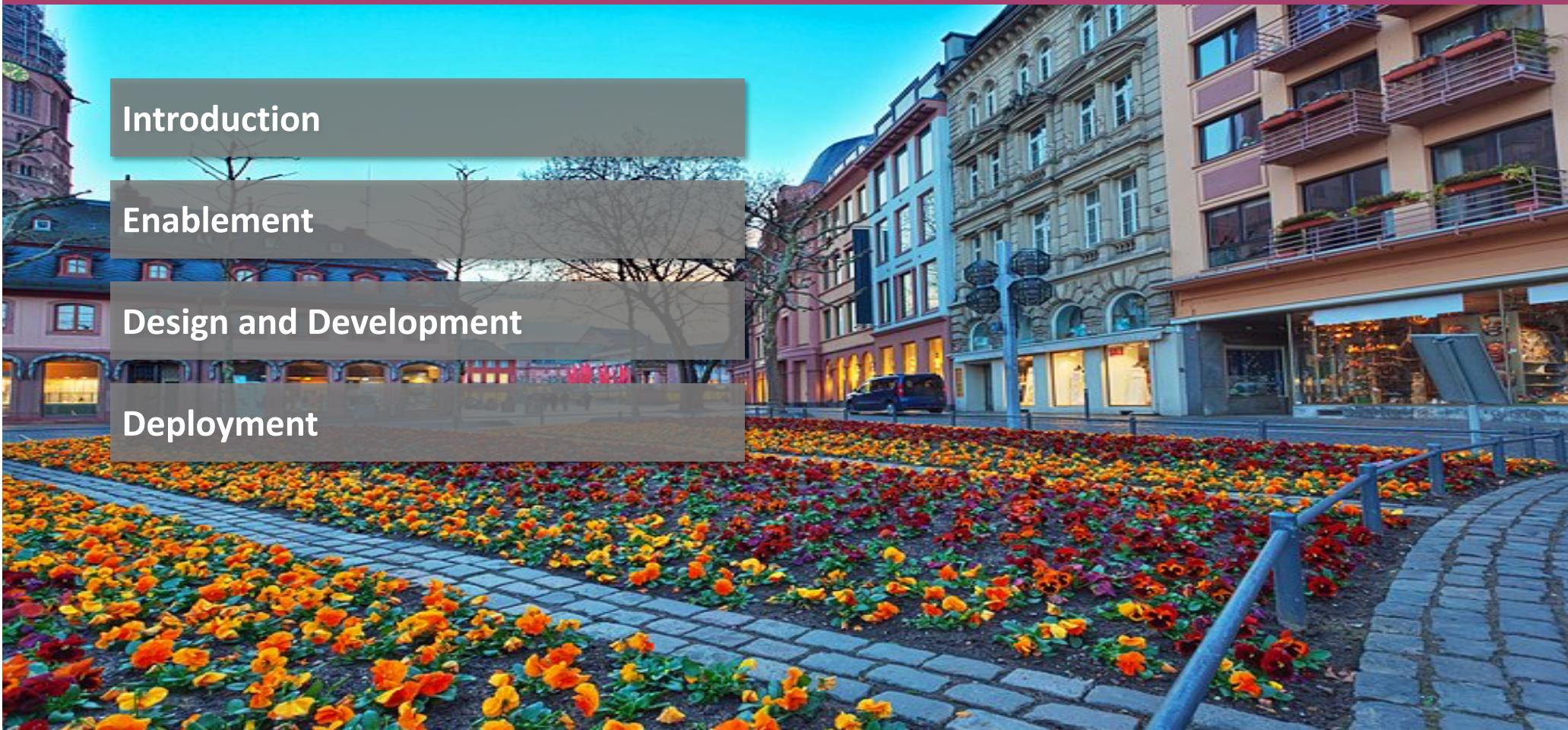
Agenda

Introduction

Enablement

Design and Development

Deployment





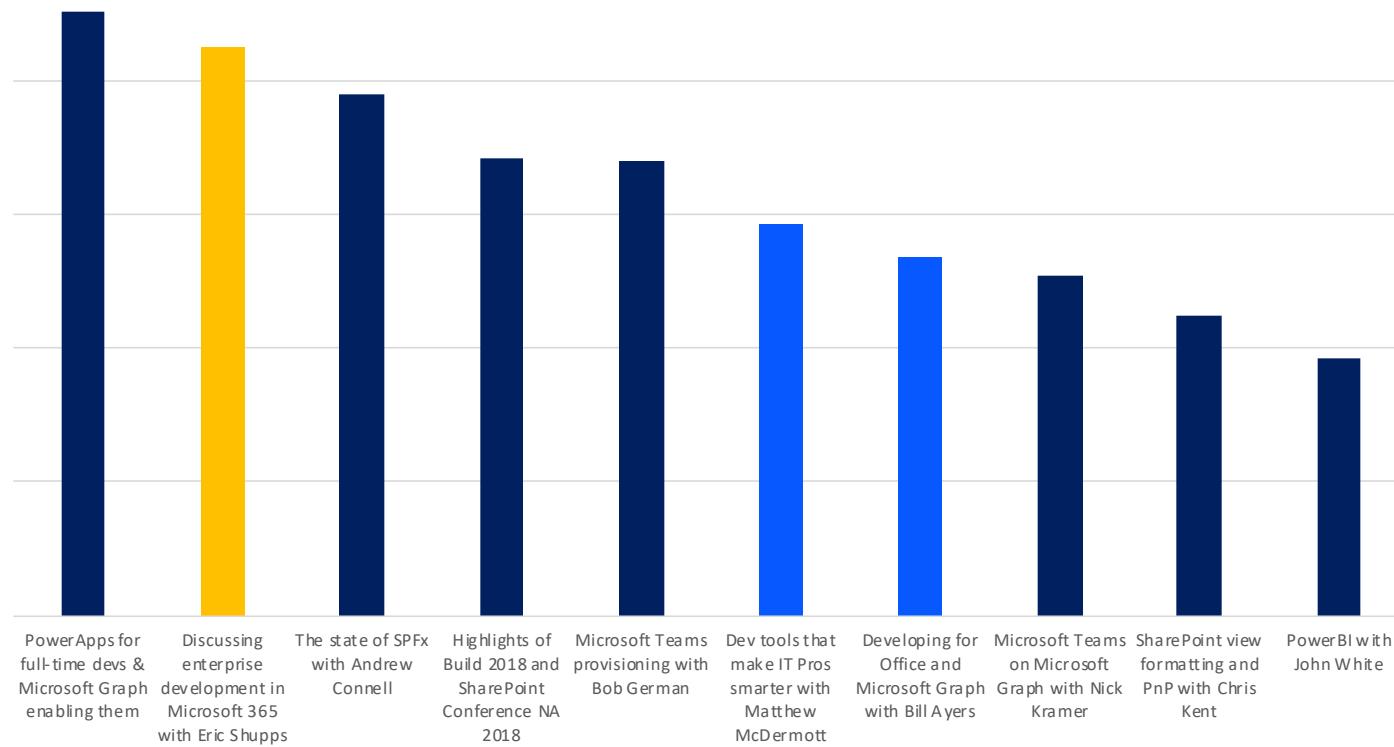
INTRODUCTION

Enterprises are fueling the SPFx rocket



M365 Dev Podcast – Top 10 Episode Downloads (Apr 2018 – Apr 2019)

<http://www.m365devpodcast.com>



Models



Full Trust

Coverage

Capability

Integration

Familiarity

Add-Ins

Contextual

PHA/SHA

Extensibility

Framework

X-Platform

Customizations

Modern

Azure

Flexible

SSO

Multi-Tenant

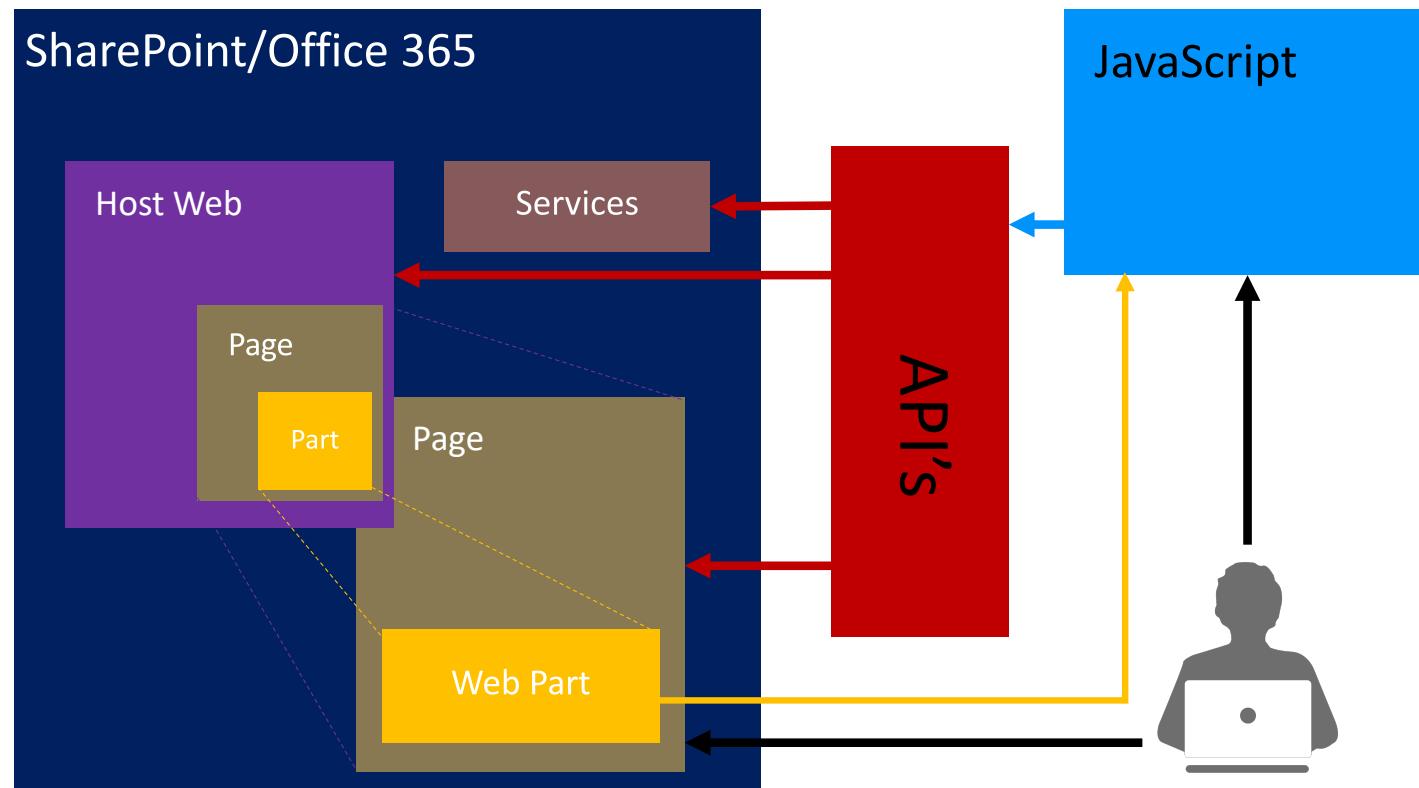
Deployment

Purpose



- Provide a “pages and parts” customization mechanism that addresses gaps in the add-in model
- Regain the contextual functionality of web parts
- Give customers the ability to create integrated modern page experiences in the cloud
- Transition to a completely client-side execution model within the core page flow
- Extend out-of-the-box elements, including menus, list items and branding

Architecture



Enterprise Challenges



- Vision
- Team skills
- Tools acquisition
- Solution design, re-design and migration
- Legacy dependencies
- Cloud integration
- Collaborative development
- Vendor support
- Platform and version disparities
- Automated lifecycle management (DevOps)



ENABLEMENT



Legacy

Framework

Windows Server
IIS
ASP.NET
SharePoint Server

Languages and API's

.NET (C#/VB)
SharePoint Server OM
CAML/XOML

Tools

- Visual Studio

Modern



Framework

Browser

Server

Mobile

Languages and API's

HTML, JavaScript (JQuery, Knockout, Angular, React, etc.)

CSOM, JSOM, REST, Office JS, Graph, OAuth

C#, VB, Java, PHP, Python, Ruby, Others

Tools

Visual Studio

VS Code

IDE of choice

Toolchain



TypeScript - JavaScript superset w/ typed objects, classes & extension methods



Node.js - Web server and component packaging extensions



NPM – Packaging and module management utility



Gulp – Task runner and build automation



Yeoman – Project scaffolding generator



CDN – Content delivery network (or location) for hosting source files



React – JavaScript library of UI components

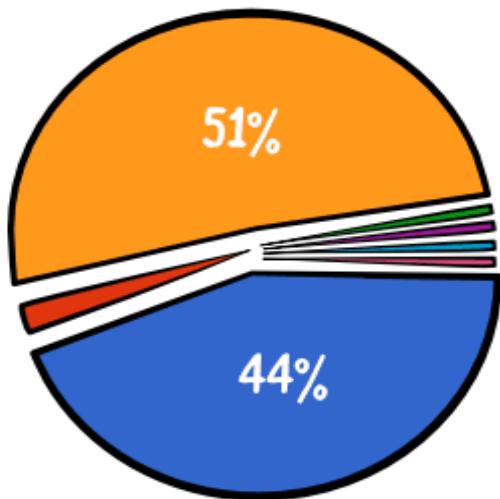


Office Fabric – Office-centric set of React UI components

Skills Acquisition



HOW DID YOU LEARN THE BASICS OF PROGRAMMING/COMPUTER SCIENCE



- DEGREE AT COLLEGE/UNIVERSITY
- INTENSIVE BOOT CAMP
- SELF TAUGHT
- I WAS A TINKERER AS A KID (OF 12), THEN EVENTUALLY COLLEGE. SO MY ANSWER WOULD BE BOTH SELF-TAUGHT AND COLLEGE
- BOOKS AND ONLINE VIDEOS
- ONE CLASS FRESHMAN YEAR IN SCHOOL. THEN SELF TAUGHT.
- MY PARENTS

Source: raywenderlich.com

Machine Configuration



- **Windows**

- Node.js
- NPM
- Gulp
- GitHub
- Yeoman Generator
- VS Code (or other)
- NVM (optional)
- **Visual Studio Extension**

- **Mac**

- Node.js
- NPM
- Gulp
- GitHub
- Yeoman Generator
- Homebrew (optional)
- NVM (optional)
- VS Code (or other)

Platform Configuration



- Developer Sites
- Workbench
- Corporate Catalog
 - Site collection app catalog
- Content Delivery Network (or accessible file location)
- Apps (On-Premises)

Vision



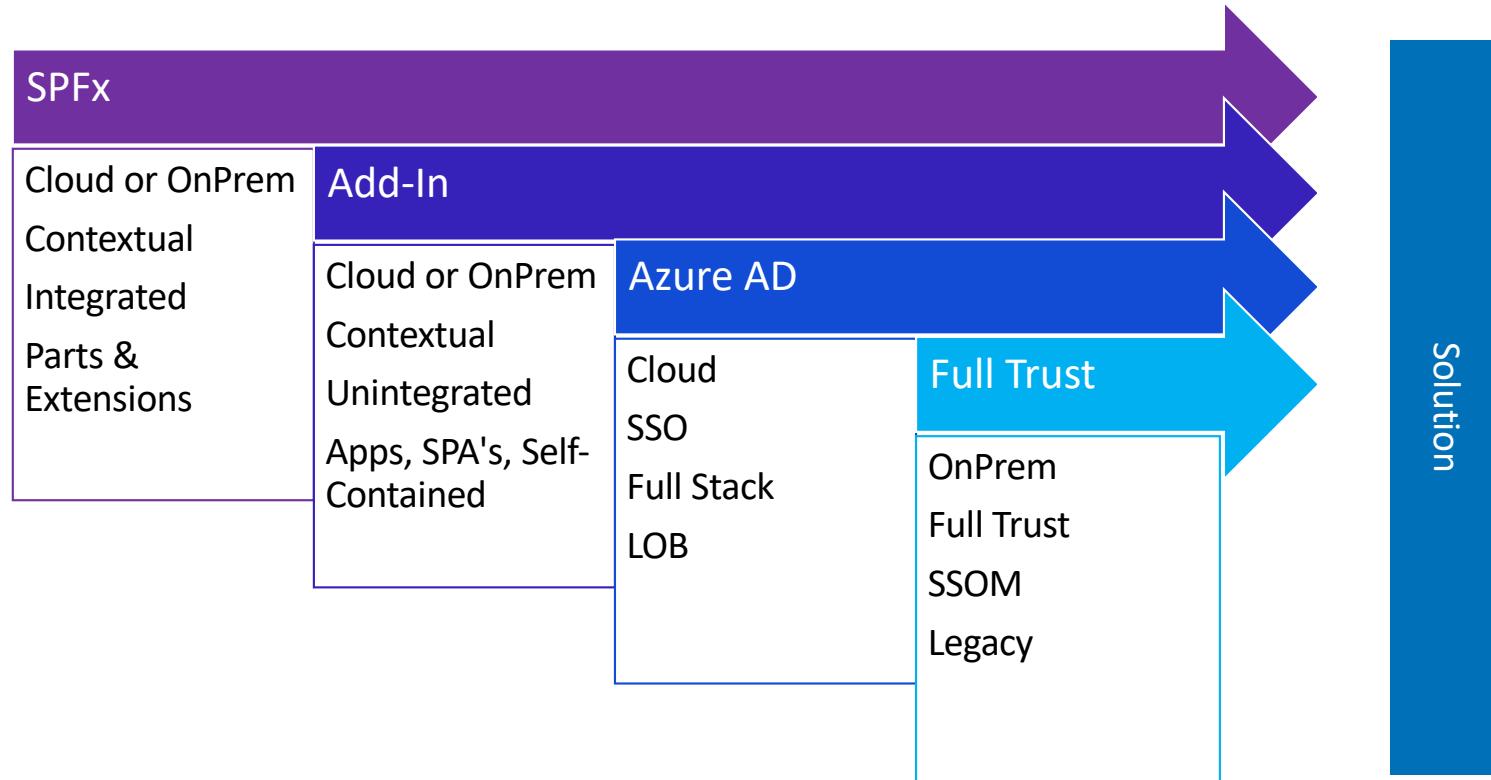
- Why do we have to learn yet another development model?
- How long is this one going to last?
- We're Microsoft developers, why do we have to learn all this Node stuff?
- Why can't I use Visual Studio?
- What the heck is this Git stuff?
- TypeScript? What what the [bleep] is that?
- My code goes where?
- Command line? Seriously? What year is this?



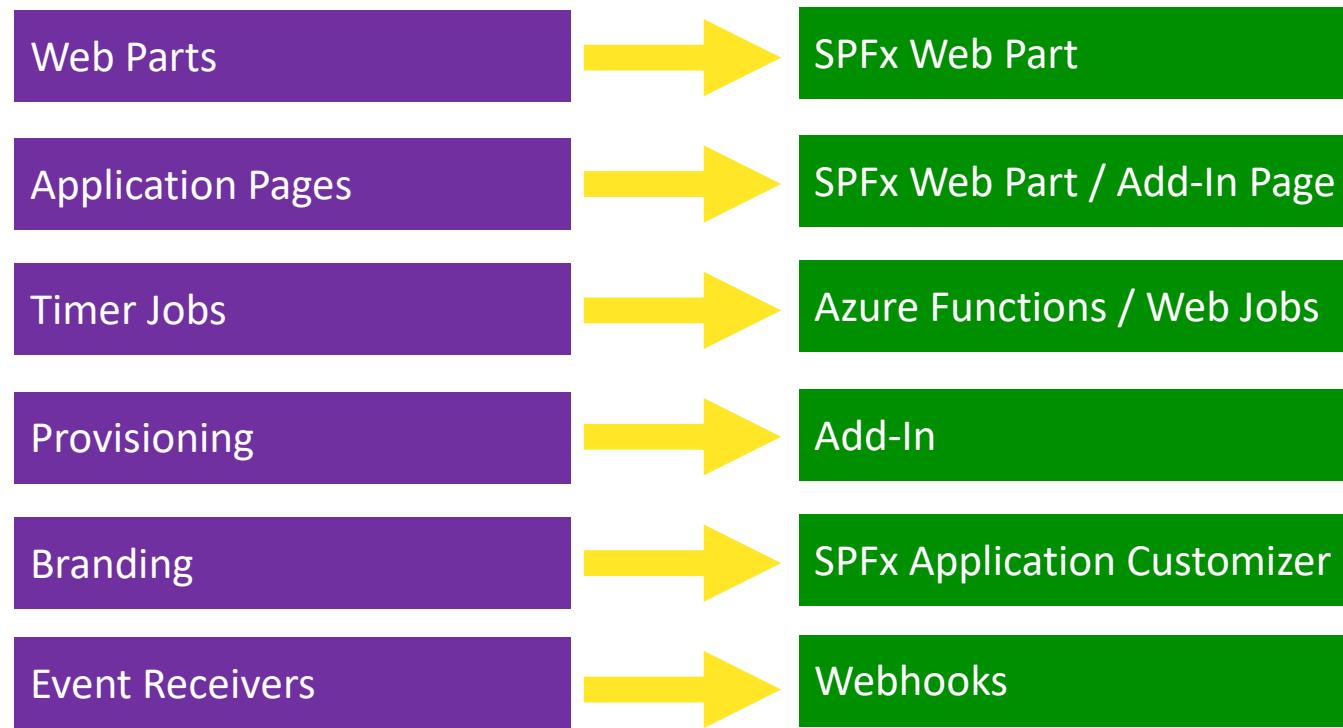
DESIGN AND DEVELOPMENT



Models



Legacy Redesign

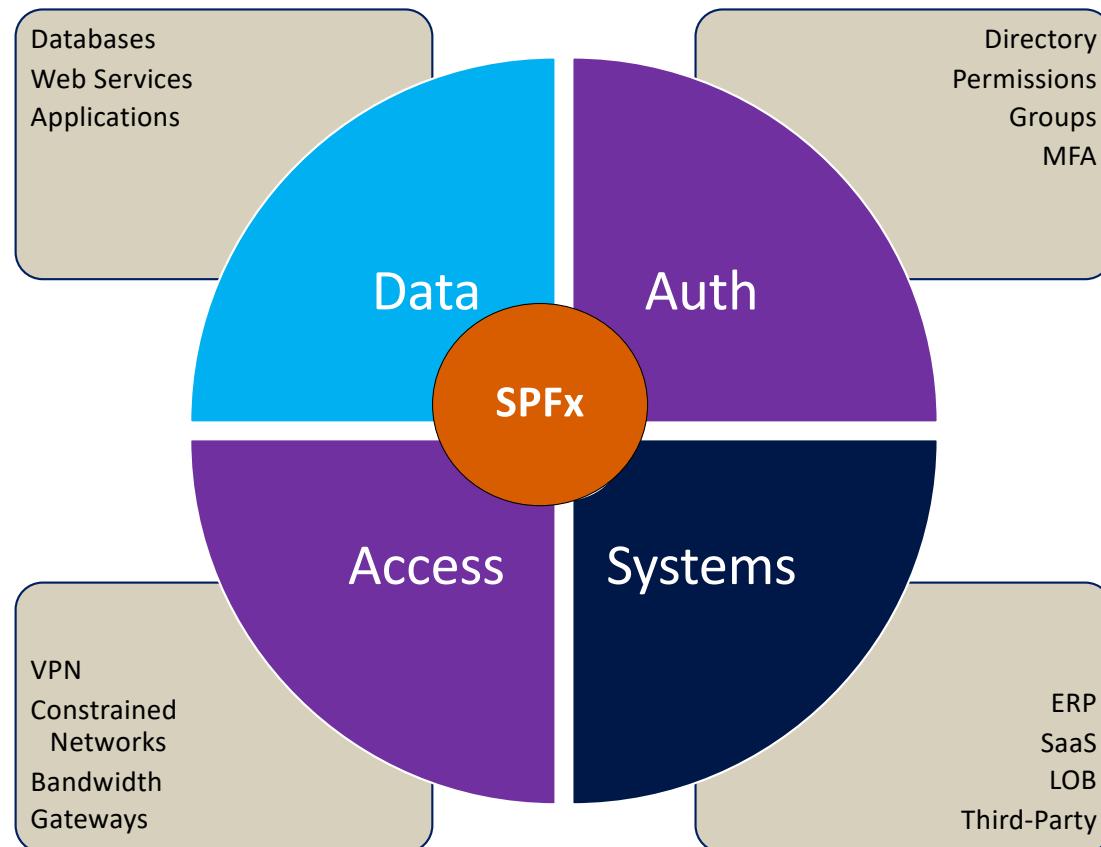


Solution Components



Web Part	Application Customizer	Command Set	Field Customizer
<ul style="list-style-type: none">• In-context page component• Customizable property pane• Connectable• Scope: Page	<ul style="list-style-type: none">• Script injection onto pages• Defined DOM element identifiers• Scope: Site	<ul style="list-style-type: none">• Modify list and item menus• Custom dialogs• Scope: List	<ul style="list-style-type: none">• Change display options for field elements• Scope: List
Add-Ins		Azure	

Legacy Dependencies





Vendor Support

- Visual Studio
 - .NET
 - VB/C#
- TFS/VSTS/Azure DevOps
 - Azure
 - VS Code
 - TypeScript
- Yeoman Generator
- SharePoint/0365
- Node
 - NPM
 - Gulp
 - NVM
- JavaScript
 - React
 - Knockout
- Yeoman
 - PnP

Security



If you want authenticated code, with verified dependencies, signed and supported by reputable entities, with legally binding commercial licensing agreements...

...THAT DOG WON'T HUNT!



Gary Bernhardt
@garybernhardt

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An NPM package with 2,000,000 weekly downloads had malicious code injected into it. No one knows what the malicious code does yet.



I don't know what to say. · Issue #116 · dominictarr...

EDIT 26/11/2018: Am I affected?: If you are using anything crypto-currency related, then maybe. As discovered by @maths22, the target seems to have b...
github.com

9:44 AM - 26 Nov 2018

2,829 Retweets 3,200 Likes



73

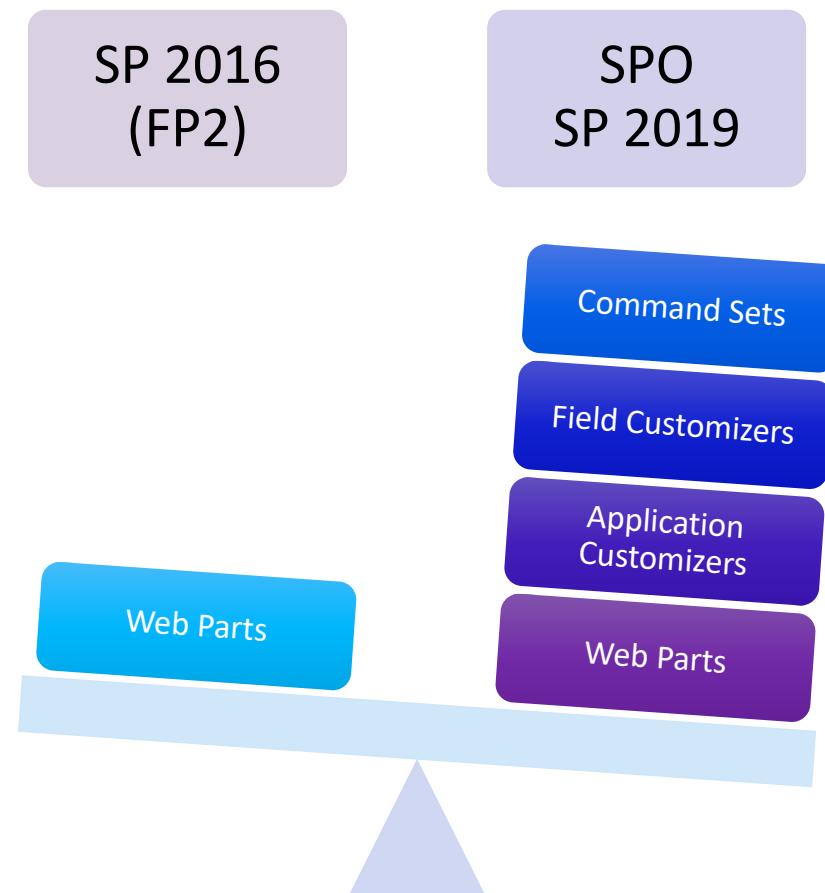
2.8K

3.2K



LIFECYCLE MANAGEMENT

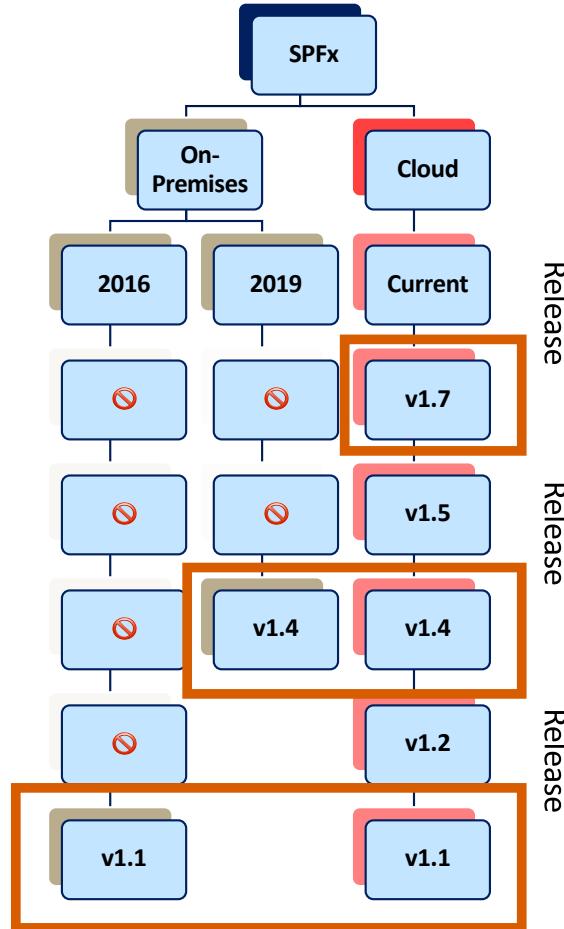
Interoperability





Version Management

- Define feature support baseline
- Branch solutions according to baseline or target environment
- Leverage common utility classes and libraries wherever possible
- Apply local updates only to master, resolve dependencies, branch from master





Updates

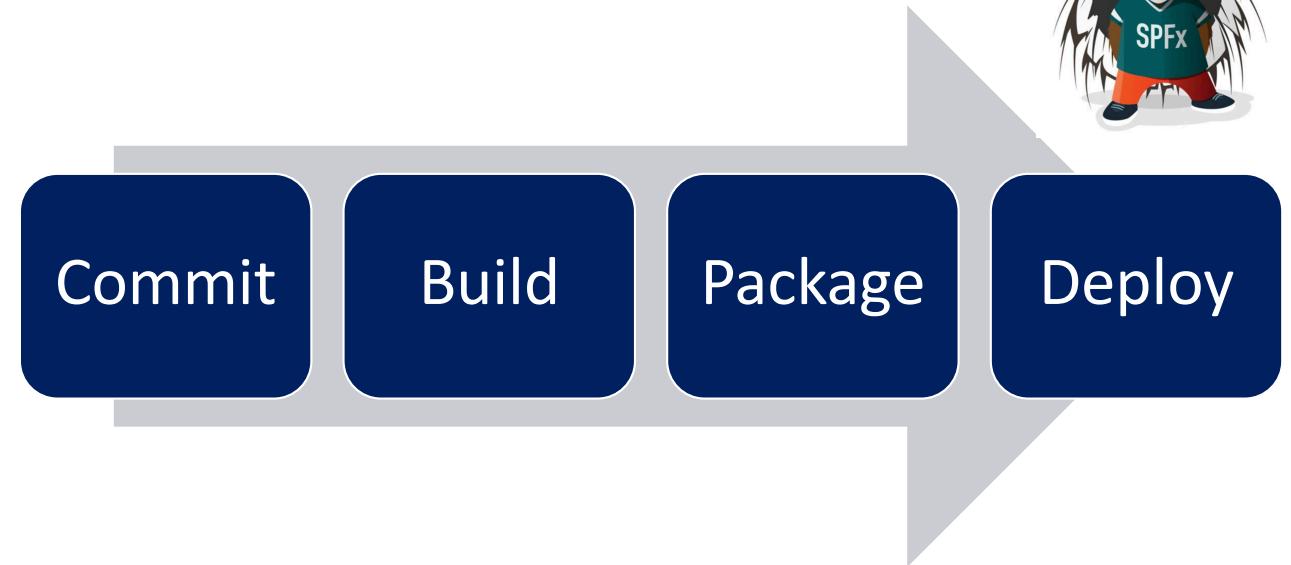
- Local vs. Global
- npm outdated
- npm install package@version –save
- o365 spfx project upgrade –toVersion [version]

Package	Current	Wanted	Latest	Location
@microsoft/sp-build-web	1.4.1	1.7.0	1.7.0	sp-fx-components-demo
@microsoft/decorators	1.3.0	1.3.4	1.7.0	sp-fx-components-demo
@microsoft/generator-sharepoint	1.4.1	1.7.0	1.7.0	sp-fx-components-demo
@microsoft/sp-application-base	1.3.0	1.3.0	1.7.0	sp-fx-components-demo
@microsoft/sp-build-web	1.4.1	1.7.0	1.7.0	sp-fx-components-demo
@microsoft/sp-core-library	1.3.0	1.3.4	1.7.0	sp-fx-components-demo
@microsoft/sp-dialog	1.3.0	1.7.0	1.7.0	sp-fx-components-demo
@microsoft/sp-listview-extensibility	1.3.0	1.7.0	1.7.0	sp-fx-components-demo
@microsoft/sp-lodash-subset	1.3.0	1.3.4	1.7.0	sp-fx-components-demo
@microsoft/sp-module-interfaces	1.3.0	1.3.4	1.7.0	sp-fx-components-demo
@microsoft/sp-webpart-base	1.3.4	1.3.4	1.7.0	sp-fx-components-demo
@microsoft/sp-webpart-workbench	1.3.0	1.3.4	1.7.0	sp-fx-components-demo
@types/chai	3.5.2	3.5.2	4.1.7	sp-fx-components-demo
@types/mocha	2.2.43	2.2.48	5.2.5	sp-fx-components-demo
@types/webpack-env	1.13.2	1.13.6	1.13.6	sp-fx-components-demo

Automated Lifecycle Management



- IDE integration with DevOps tooling and services
- Optimization of build dependencies (npm install)
- Controlled build pipeline
- Package configuration (dev, test, staging, production)
- Environment targeting
- Versioned deployment





DEPLOYMENT



Packaging

- Output of build tasks is a package file (similar to classic WSP)
- Controlled by `package-solution.json` file in project
- All assets packaged into `.sppkg` file if “`includeClientSideAssets`” = true.
- Use “`skipFeatureDeployment`” for tenant-wide deployment
- If CDN enabled, hosting of assets is automatic (otherwise served from App Catalog site collection)
 - Change behavior by setting “`includeClientSideAssets`” = false

```
1  {
2    "$schema": "https://dev.office.com/json-schemas/spfx-build/package-solution.schema.json",
3    "solution": {
4      "name": "sp-tech-con-demo-client-side-solution",
5      "id": "59925c70-5785-4087-94de-61b9bb1a8689",
6      "version": "1.0.0.0",
7      "includeClientSideAssets": true
8    },
9    "paths": {
10      "zippedPackage": "solution/sp-tech-con-demo.sppkg"
11    }
12  }
13
```



Packaging Commands

- `gulp bundle --ship`
- `gulp package-solution --ship`

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

MacBook-Pro-2:sptechondemo Eric$ gulp bundle --ship
Build target: SHIP
[14:26:18] Using gulpfile ~/Dev/sptechondemo/gulpfile.js
[14:26:19] Starting gulp
[14:26:19] Starting 'bundle'...
[14:26:19] Starting subtask 'configure-sp-build-rig'...
[14:26:19] Finished subtask 'configure-sp-build-rig' after 6.25 ms
[14:26:19] Starting subtask 'pre-copy'...
[14:26:19] Finished subtask 'pre-copy' after 7.98 ms
[14:26:19] Starting subtask 'copy-static-assets'...
[14:26:19] Starting subtask 'sass'...
[14:26:20] Finished subtask 'copy-static-assets' after 972 ms
[14:26:20] Finished subtask 'sass' after 961 ms
[14:26:20] Starting subtask 'tslint'...
[14:26:21] Starting subtask 'typescript'...
[14:26:21] [typescript] TypeScript version: 2.4.2
[14:26:21] Finished subtask 'tslint' after 1.29 s
[14:26:21] Finished subtask 'typescript' after 2.13 s
[14:26:21] Starting subtask 'ts-npm-lint'...
[14:26:21] Finished subtask 'ts-npm-lint' after 56 ms
[14:26:21] Starting subtask 'api-extractor'...
[14:26:21] Finished subtask 'api-extractor' after 505 µs
[14:26:21] Starting subtask 'post-copy'...
[14:26:21] Finished subtask 'post-copy' after 226 µs
[14:26:21] Starting subtask 'collectLocalizedResources'...
[14:26:21] Finished subtask 'collectLocalizedResources' after 6.78 ms
[14:26:21] Starting subtask 'configure-webpack'...
[14:26:21] Finished subtask 'configure-webpack' after 279 ms
[14:26:21] Starting subtask 'webpack'...
(node:2313) DeprecationWarning: loaderUtils.parseQuery() received a non-string value which
parseQuery() will be replaced with getOptions() in the next major version of loader-utils.
[14:26:21] Finished subtask 'webpack' after 944 ms
[14:26:21] Starting subtask 'configure-webpack-external-bundling'...
[14:26:21] Finished subtask 'configure-webpack-external-bundling' after 915 µs
[14:26:21] Starting subtask 'copy-assets'...
[14:26:21] Finished subtask 'copy-assets' after 20 ms
[14:26:21] Starting subtask 'write-manifests'...
[14:26:21] Finished subtask 'write-manifests' after 262 ms
[14:26:21] Finished 'bundle' after 5.43 s
[14:26:21] ======[ Finished ]=====
[14:26:21] Project sp-tech-con-demo version: 0.0.1
[14:26:21] Build tools version: 3.0.5
[14:26:21] Node version: v7.7.4
[14:26:21] Total duration: 8.48 s
MacBook-Pro-2:sptechondemo Eric$
```

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL 1: bash

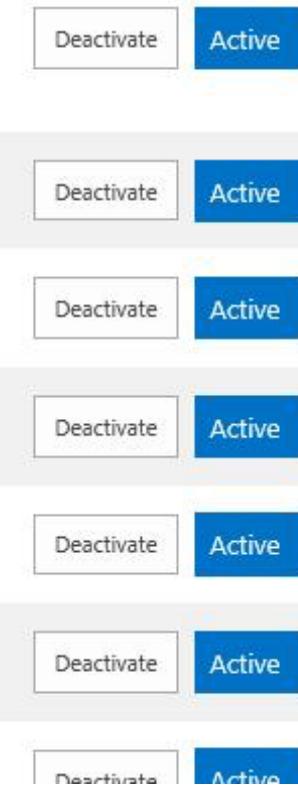
MacBook-Pro-2:sptechondemo Eric$ gulp package-solution --ship
Build target: SHIP
[14:29:07] Using gulpfile ~/Dev/sptechondemo/gulpfile.js
[14:29:07] Starting 'package-solution'...
[14:29:07] Starting subtask 'configure-sp-build-rig'...
[14:29:07] Finished subtask 'configure-sp-build-rig' after 6.05 ms
[14:29:07] Starting subtask 'package-solution'...
[14:29:07] [package-solution] Found manifest: /Users/Eric/Dev/sptechondemo/temp/deploy/b1fe38ef-f312-45e2-a
151-8d0cdc26a30e.json
[14:29:07] Verifying configuration...
[14:29:07] Done!
[14:29:07] Normalizing solution information...
[14:29:07] Attempting creating component definitions for (1) manifests
[14:29:07] Created component definitions for (1) manifests
config.solution.features not set! Instead generating a feature for each component.
[14:29:07] Creating feature for MySuperCool...
[14:29:07] Done!
[14:29:07] Reading custom Feature XML...
[14:29:07] Done!
[14:29:07] Validating App Package...
[14:29:07] Done!
[14:29:07] Reading resources...
[14:29:07] Done!
[14:29:07] Reading Sharepoint Assets & Creating XML...
[14:29:07] Done!
[14:29:07] Writing solution XML to sharepoint/solution/debug...
[14:29:07] Cleaning sharepoint/solution/debug...
[14:29:07] Created file: sharepoint/solution/debug/_rels/AppManifest.xml.rels
[14:29:07] Created file: sharepoint/solution/debug/AppManifest.xml
[14:29:07] Created file: sharepoint/solution/debug/feature_b1fe38ef-f312-45e2-a151-8d0cdc26a30e.xml
[14:29:07] Created file: sharepoint/solution/debug/_rels/feature_b1fe38ef-f312-45e2-a151-8d0cdc26a30e.xml.r
els
[14:29:07] Created file: sharepoint/solution/debug/Content_Types.xml
[14:29:07] Created file: sharepoint/solution/debug/b1fe38ef-f312-45e2-a151-8d0cdc26a30e/WebPart_b1fe38ef-f
312-45e2-a151-8d0cdc26a30e.xml
[14:29:07] Created file: sharepoint/solution/debug/feature_b1fe38ef-f312-45e2-a151-8d0cdc26a30e.xml.config.
xml
[14:29:07] Created file: sharepoint/solution/debug/_rels/.rels
[14:29:07] Created file: sharepoint/solution/sp-tech-con-demo.sppkg
[14:29:07] Done!
[14:29:07] ALL DONE!
[14:29:07] Finished subtask 'package-solution' after 65 ms
[14:29:07] Finished 'package-solution' after 73 ms
[14:29:08] ======[ Finished ]=====
[14:29:08] Project sp-tech-con-demo version: 0.0.1
[14:29:08] Build tools version: 3.0.5
[14:29:08] Node version: v7.7.4
[14:29:08] Total duration: 2.92 s
MacBook-Pro-2:sptechondemo Eric$
```

Feature Framework



- Declarative assets can be deployed to sites as part of an SPFx project
 - Fields
 - Site Columns
 - Content Types
 - List Instances
- Uses the same “Elements” structure as legacy solution packages
- Assets are provisioned when solution (“app”) is installed
 - ...and retracted when it’s removed!

Status



Office 365 CDN



- Enables delivery of SPFx assets from an O365 library
 - Supports CSS, EOT, GIF, ICO, JPEG, JS, MAP, PNG, SVG, TTF and WOFF extensions
 - Requires */CLIENTSIDEASSETS origin*
 - Automatically places assets into correct locations for tenant-wide accessibility
-
- * Introduced in SPFx v1.4; If enabled previously, disable and re-enable. Not compatible with on-premises SP 2016 FP2.



CDN Commands

- Set-SPOTenantCdnEnabled -CdnType Public
- Get-SPOTenantCdnEnabled
- Get-SPOTenantCdnOrigins
- Get-SPOTenantCdnPolicies

D:\>
D:\>
D:\> Set-SPOTenantCdnEnabled -CdnType Public
WARNING: This is a feature built on a 3rd party application with privacy and compliance standards that differ from the commitments outlined by the Microsoft Office365 Trust Center. Any data cached through this service does not conform to the Microsoft Data Processing Terms (DPT) and is outside of the Microsoft Office365 Trust Center compliance boundaries.
Confirm
Are you sure you want to perform this action?
Performing the operation "Enable Tenant CDN" on target "Public CDN".
[Y] Yes [A] Yes to All [N] No to All [S] Suspend [?] Help (default is "Y"): Y
WARNING: Files of type CSS,EOT,GIF,ICO,JPEG,JPG,JS,MAP,PNG,SVG,TTF,WOFF stored in the locations configured to serve as Public CDN origins will now also be served and cached in Content Delivery Network (CDN). Such content will then be accessible by everyone anonymously not monitored nor governed by Microsoft content policies.
Public CDN enabled locations:
*/MASTERPAGE
*/STYLE LIBRARY
*/CLIENTSIDEASSETS (configuration pending)

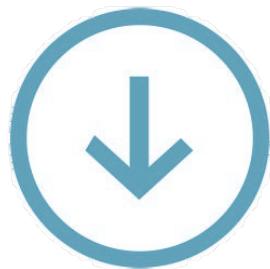
- NOTE: Provisioning can take 20+ minutes to complete

Visual Studio Extension



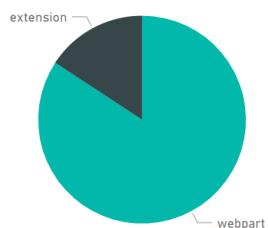
- Custom Visual Studio **VSIX project** and item templates
- Parameters and settings configured in Windows Forms
- Overlays but **does not replace** the native **Yeoman Generator** for SharePoint Framework
- Ability to customize command line for advanced usage scenarios
- Automated project scaffolding with standard VS and MS Build file structures
- One-click **F5** debug experience plus integration with the Task Runner Explorer

VS Extension Usage

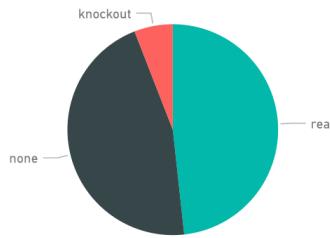


13k

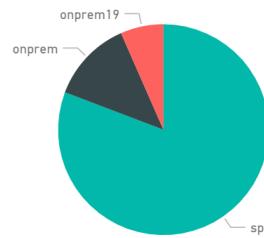
itemCount by componentType



itemCount by framework



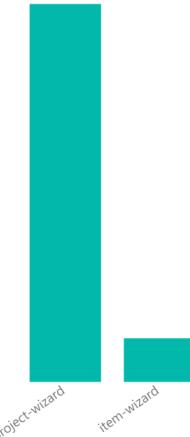
itemCount by environment



itemCount by country



itemCount by eventName



DEMO

SPFx ALM with Azure DevOps

Gated check-in that triggers automated build and deployment activities

Resources



- **Slides:** <http://www.slideshare.net/eshupps>
- **Code:** <https://www.github.com/eshupps>
- **Samples:** <https://github.com/SharePoint/sp-dev-fx-extensions/tree/master/samples>
- **Docs:** <https://docs.microsoft.com/en-us/sharepoint/dev/spfx/sharepoint-framework-overview>
- **Web Part Examples:** <https://github.com/SharePoint/sp-dev-fx-webparts>
- **Extension Examples:** <https://github.com/SharePoint/sp-dev-fx-extensions>
- **Visual Studio Extension:** <http://bit.ly/2Uoz2q7>



thank you



questions?

