

October 10<sup>th</sup>, 2020

# Configure on Azure DevOps the continuous integration and delivery for SharePoint Framework

by Giuliano De Luca

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Office Development

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<https://www.youtube.com/GiulianoDeLuca>

[github.com/giuleon](https://github.com/giuleon)



[bit.ly/mayleobot](https://bit.ly/mayleobot)

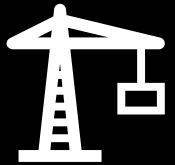




# AGENDA



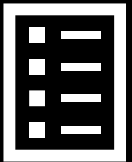
**Deploy Possibilities**



**Demo – Manual Release**



**ALM API**



**Demo – Automated Release**

cd collabdays | lisbon

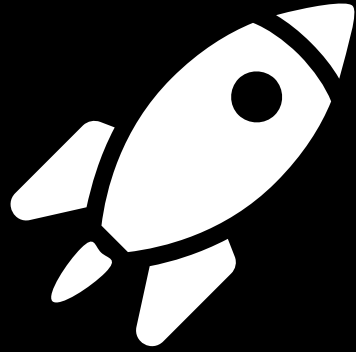
10 OCTOBER 2020

**GIULIANO DE LUCA**

INDEPENDENT,  
OFFICE DEVELOPMENT MVP

CONFIGURE ON AZURE DEVOPS  
THE CONTINUOUS INTEGRATION AND  
DELIVERY FOR SHAREPOINT FRAMEWORK

The banner features a background image of a historic stone castle with multiple towers and battlements, situated on a rocky outcrop overlooking the ocean. The sky is a mix of blue and orange, suggesting a sunset or sunrise. Overlaid on the left side of the banner is a portrait of a man with short dark hair, wearing a red shirt. To the right of the portrait, there is text identifying the event as 'cd collabdays | lisbon' on '10 OCTOBER 2020'. Below the portrait, the name 'GIULIANO DE LUCA' is written in blue, followed by 'INDEPENDENT, OFFICE DEVELOPMENT MVP' in black. On the far right, a text box contains the phrase 'CONFIGURE ON AZURE DEVOPS THE CONTINUOUS INTEGRATION AND DELIVERY FOR SHAREPOINT FRAMEWORK' in white capital letters.



# Deploy Possibilities

# SharePoint Framework (SPFx)

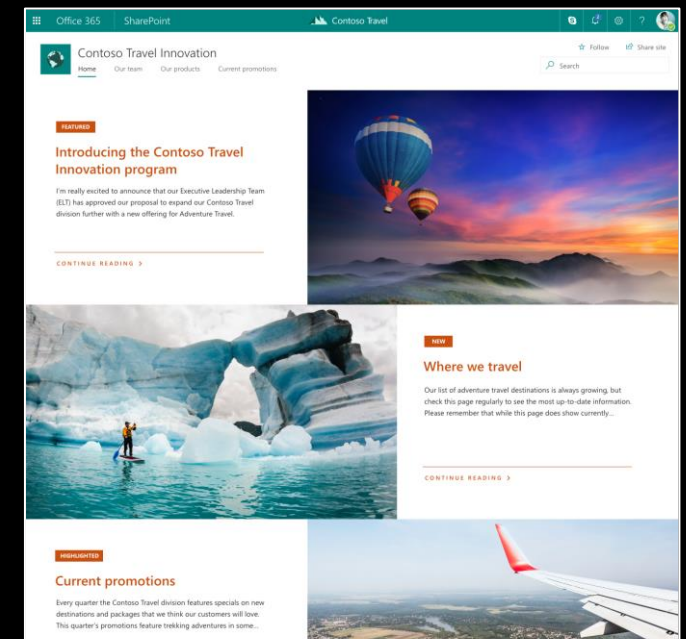
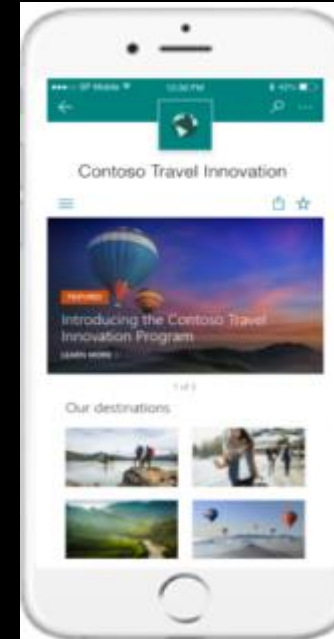
Modern client-side development

Lightweight web and mobile

Powers our own experiences

Backward compatible

Supports open source tools  
and JavaScript web frameworks



SharePoint Framework

Microsoft Graph

LOB Systems and Cloud Services

# Web Parts – Building Blocks of Page Design

## Rich Page Designer Experiences

SharePoint sites provide a consistent and personalized experience for users across a wide range of devices with enterprise mobility



Static + Dynamic

Simple IW experience to add to canvas



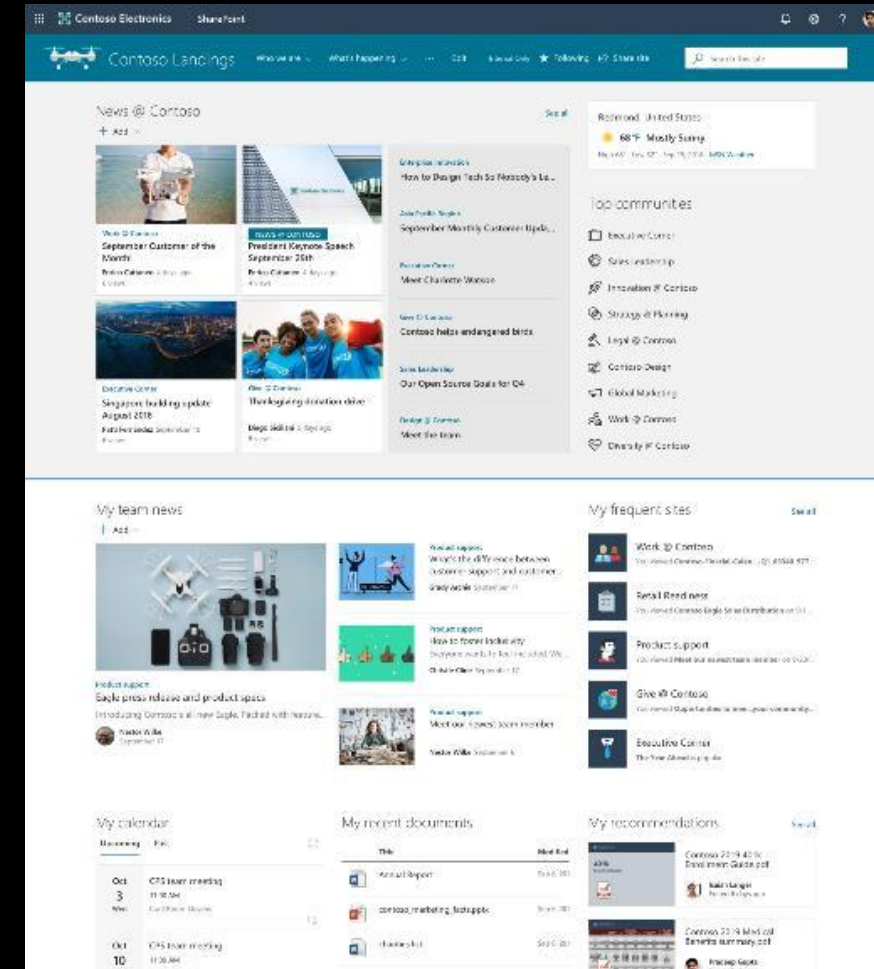
Simple

Simple interface to reduce complexity



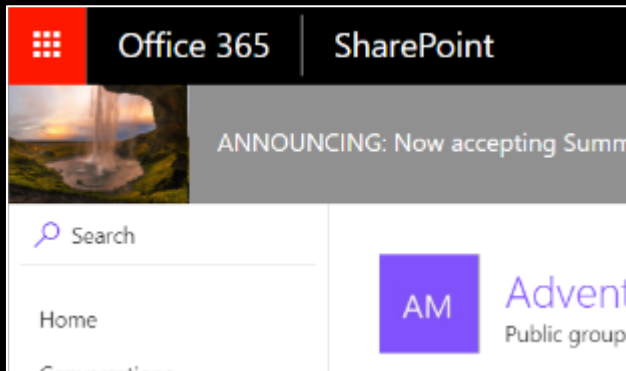
Powerful

Part to Part communications



# SharePoint Framework (SPFx) Extensions

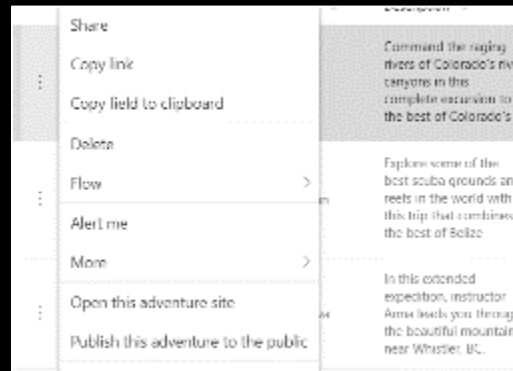
## Application customizer



Add script to modern pages

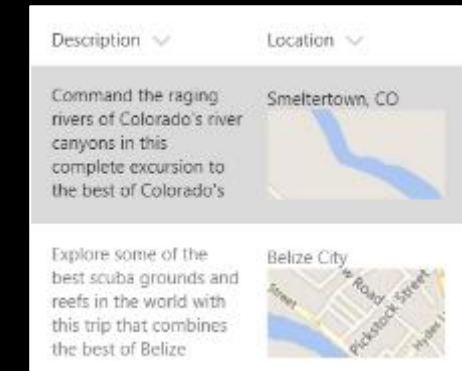
Adjust top and bottom sections of page with custom rendering

## Command set



Extend the modern list command surfaces with new actions

## Field customizer



Visualize data inside columns in the list view



# Repository

A repository should not contain:

- Passwords
- Certificates
- Connection Strings
- Tokens



# SPFx Development and Deployment

## Development

- Install Node Js
- Install Yeoman Generator
- Install SPFx Yeoman Generator
- Install Gulp

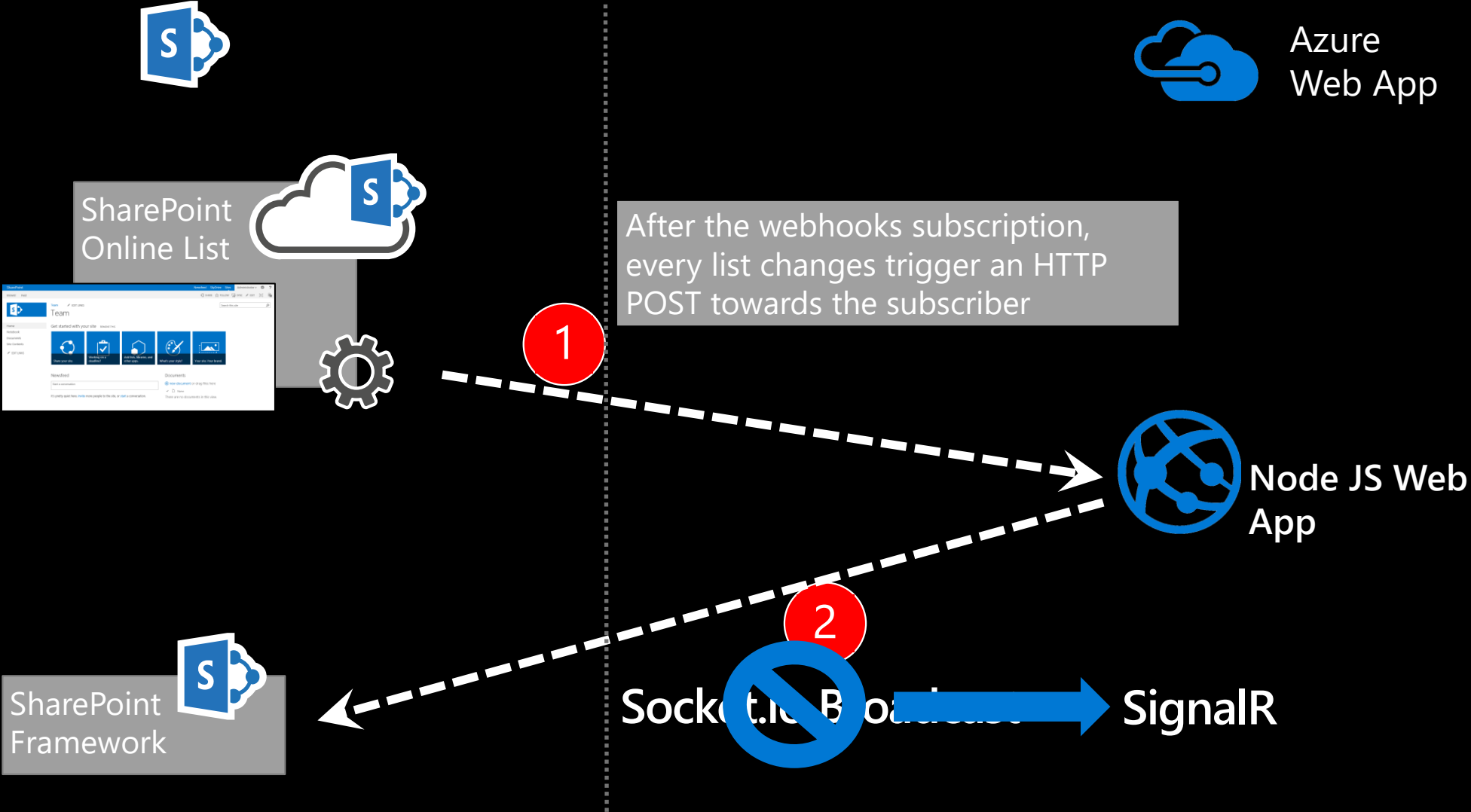
## Build

- Build  
`gulp build --ship`
- Bundle  
`gulp bundle --ship`
- Package Solution  
`gulp package-solution --ship`

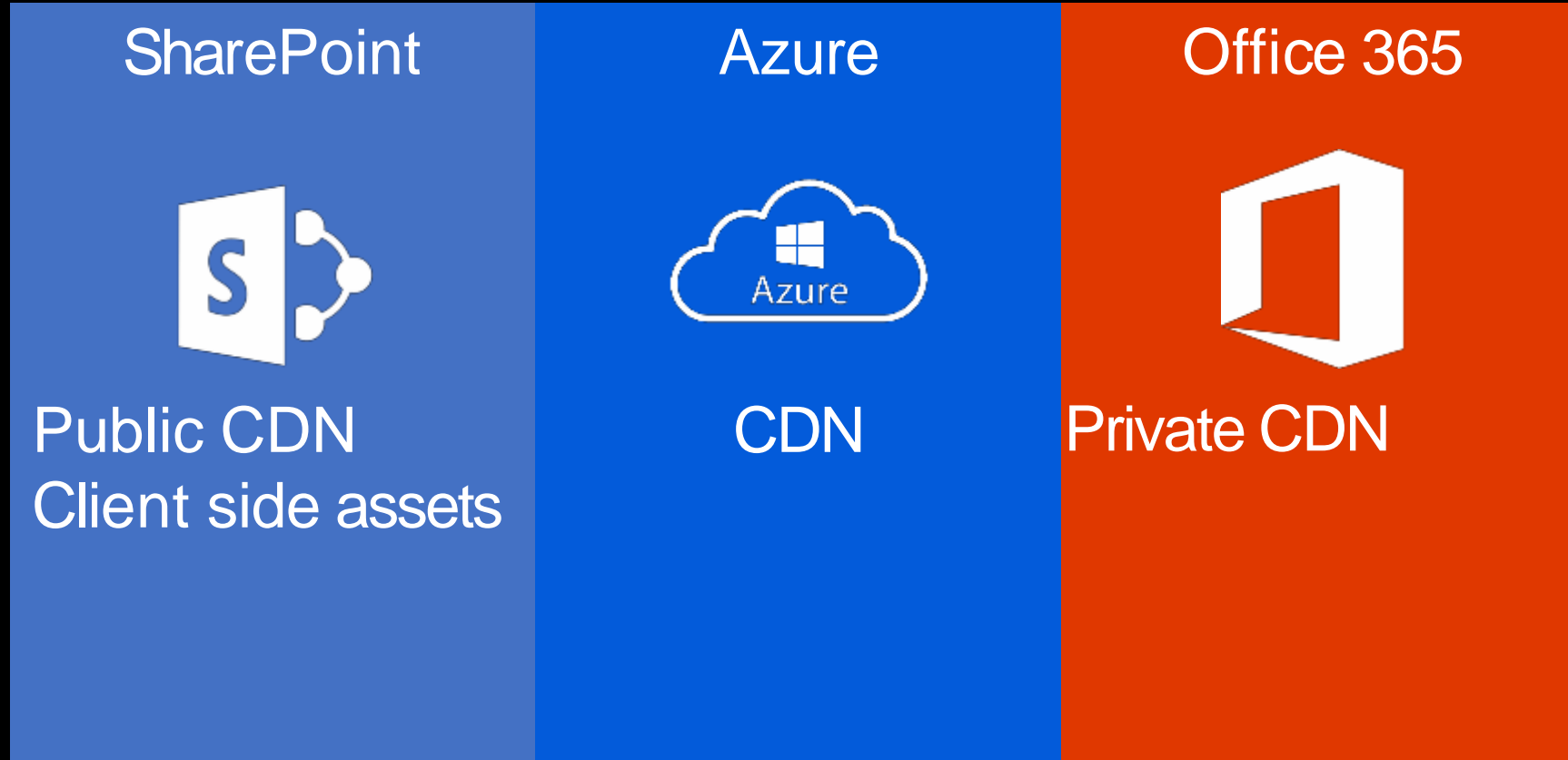
## Deployment

- Enable the App Collection Catalog on Site Collection(Optional & one time)
- Connect to App Catalog
- Upload/Deploy the \*.sppkg file in app catalog
- Install the SPFx App in app catalog

# Solution Architecture



# Deploy possibilities:





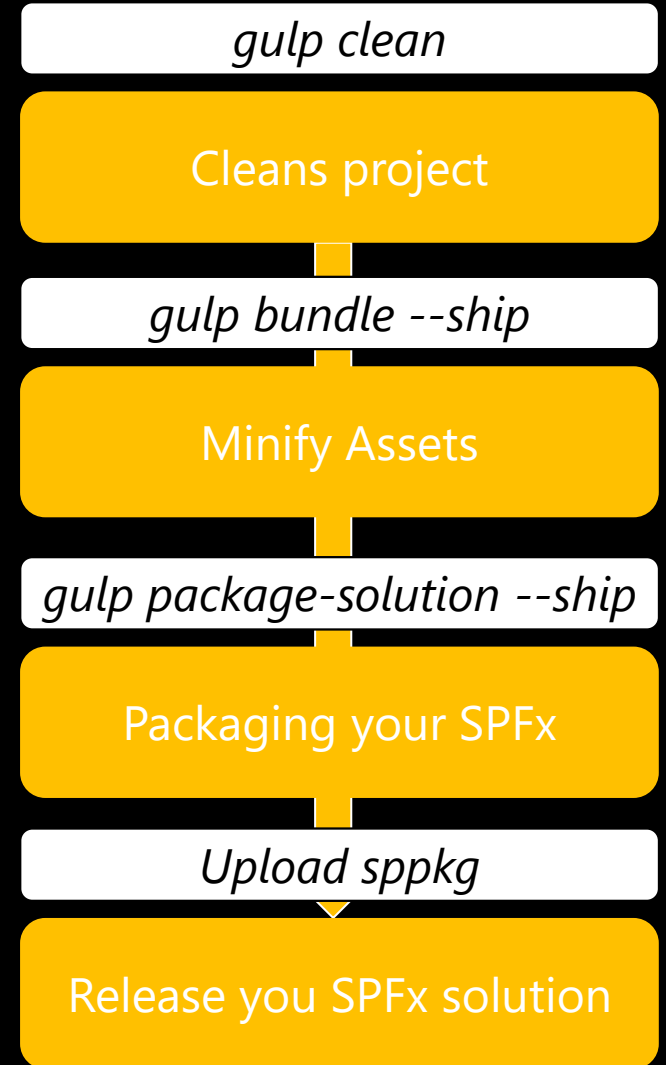
# Client side assets

Introduced in SPFx v1.4 to include static assets in .sppkg file

```
package-solution.json x
SPSBarcelona > config > package-solution.json > ...
1 {
2   "$schema": "https://developer.microsoft.com/json-schemas/spfx-build/package-solution.schema.json",
3   "solution": {
4     "name": "sps-barcelona-client-side-solution",
5     "id": "cb83289a-8091-4e0a-ab6c-b77390389a4c",
6     "version": "1.0.0.0",
7     "includeClientSideAssets": true
8   },
9   "paths": {
10     "zippedPackage": "solution/sps-barcelona.sppkg"
11   }
12 }
13
```

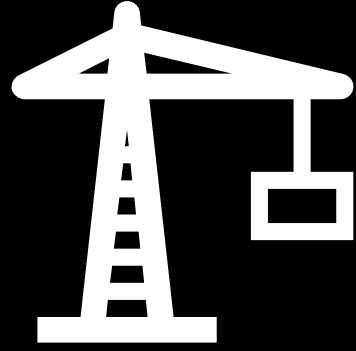
# Manual steps to ship your SPFx solution

1. Clean your solution  
`gulp clean`
2. Bundle your solution:  
`gulp bundle --ship`
3. Package your solution  
`gulp package-solution --ship`
4. Upload the sppkg file to  
distribute your solution site or  
tenant wide



▷ DEMO

Manual Release

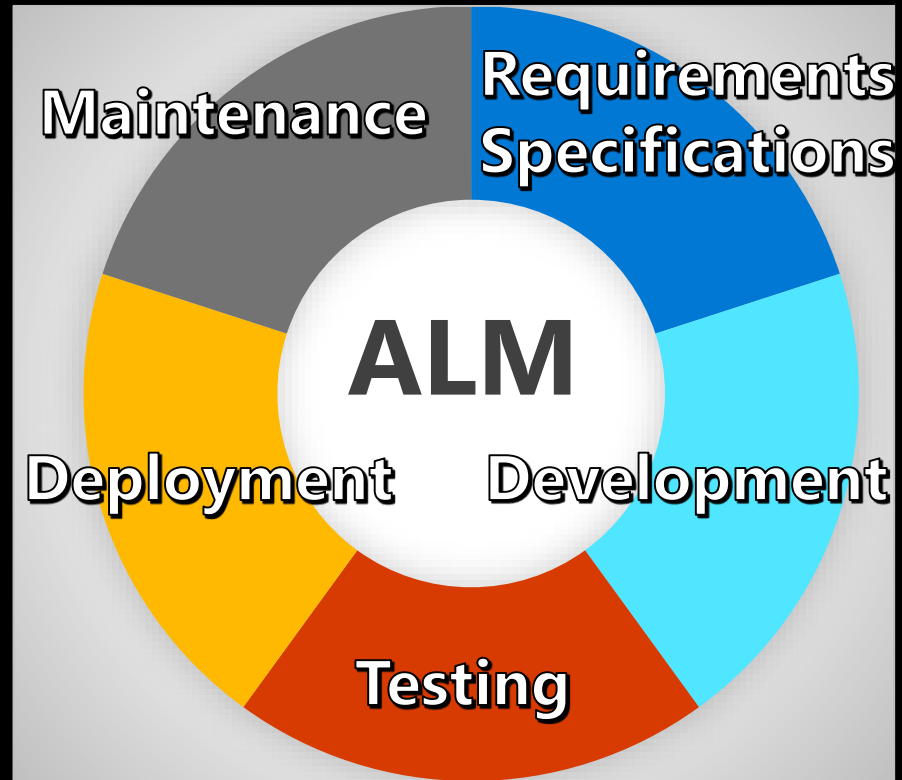


# Application Lifecycle Management API



# SharePoint Application Lifecycle Management API

API to manage the deployment of your SharePoint Framework solutions



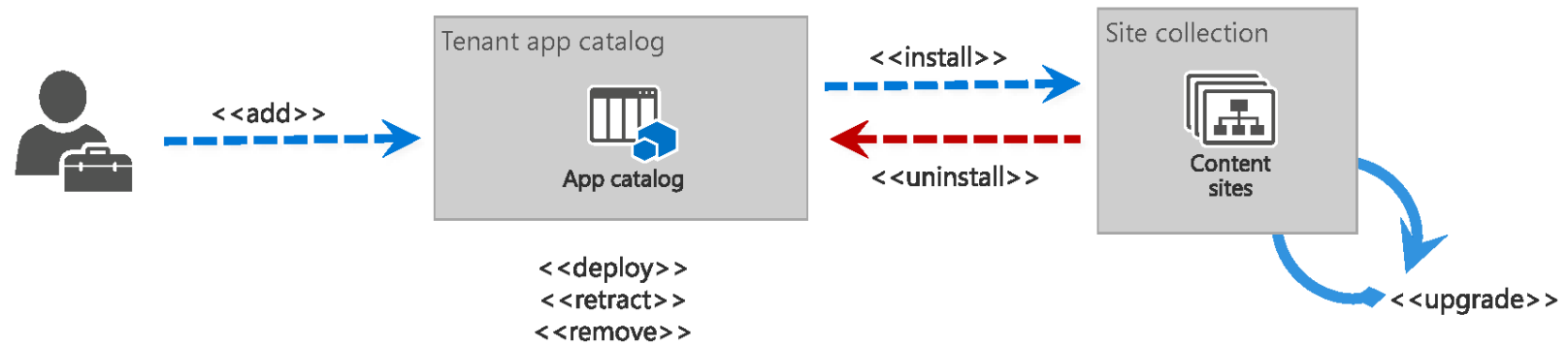
# Bullet list of most useful gulp command

Tasks	Purpose
<i>gulp serve</i>	Serving the local development environment (--nobrowser is optional)
<i>gulp build</i>	Builds the project (transpiling) → check "lib" folder
<i>gulp test</i>	Runs the unit tests if you have written any
<i>gulp bundle   gulp</i>	Build project in DEBUG mode → check "dist" folder
<i>gulp bundle --ship   gulp --ship</i>	Build project in SHIP mode / ready for distribution → check "temp" folder
<i>gulp package-solution</i>	Packages the DEBUG solution as an app package → check "sharepoint" folder
<i>gulp package-solution -ship</i>	Packages the production ready solution → check "sharepoint" folder
<i>gulp deploy-azure-storage</i>	Add the files to your Azure CDN
<i>gulp clean</i>	Cleans the project from build artifacts (remove previous builds)
<i>gulp trust-dev-cert</i>	Add a developer certificate to your client → necessary for local development
<i>gulp untrust-dev-cert</i>	

# ALM API

- Add SharePoint Framework solution or SharePoint Add-in to tenant or site collection app catalog.
- Remove SharePoint Framework solution or SharePoint Add-in from tenant or site collection app catalog.
- Enable SharePoint Framework solution or SharePoint Add-in to be available for installation in tenant or site collection app catalog.
- Disable SharePoint Framework solution or SharePoint Add-in not to be available for installation in tenant or site collection app catalog.
- Install SharePoint Framework solution or SharePoint Add-in from tenant or site collection app catalog to a site.
- Upgrade SharePoint Framework solution or SharePoint Add-in to a site, which has a newer version available in the tenant or site collection app catalog.
- Uninstall SharePoint Framework solution or SharePoint Add-in from the site.
- List all and get details about SharePoint Framework solutions or SharePoint Add-ins in the tenant or site collection app catalog.

## ALM APIs for SPFx solutions and add-ins





# ALM API - Summary of Operations

## ALM APIs – Supported operations

### Site level operations

#### REST API

#### PnP CSOM

#### PnP PowerShell

/\_api/web/tenantappcatalog/  
availableApps

AppManager.GetAvailable()

Get-PnPApp

/\_api/web/tenantappcatalog/  
availableApps/GetById("")

AppManager.GetAvailable(id)

Get-PnPApp -Identity

/\_api/web/tenantappcatalog/  
availableApps/GetById("")/Install

AppManager.Install()

Install-PnPApp

/\_api/web/tenantappcatalog/  
availableApps/GetById("")/Upgrade

AppManager.Upgrade()

Upgrade-PnPApp

/\_api/web/tenantappcatalog/  
availableApps/GetById("")/Uninstall

AppManager.Uninstall()

Uninstall-PnPApp

### App catalog operations

/\_api/web/tenantappcatalog/Add

AppManager.Add()

Add-PnPApp

/\_api/web/tenantappcatalog/  
availableApps/GetById("")/Deploy

AppManager.Deploy()

Publish-PnPApp

/\_api/web/tenantappcatalog/  
availableApps/GetById("")/Retract

AppManager.Retract()

Unpublish-PnPApp

/\_api/web/tenantappcatalog/  
availableApps/GetById("")/Remove

AppManager.Remove()

Remove-PnPApp

# Tenant-scoped solution deployment

```
λ yo @microsoft/sharepoint
```



```
Welcome to the  
SharePoint Client-side  
Solution Generator
```

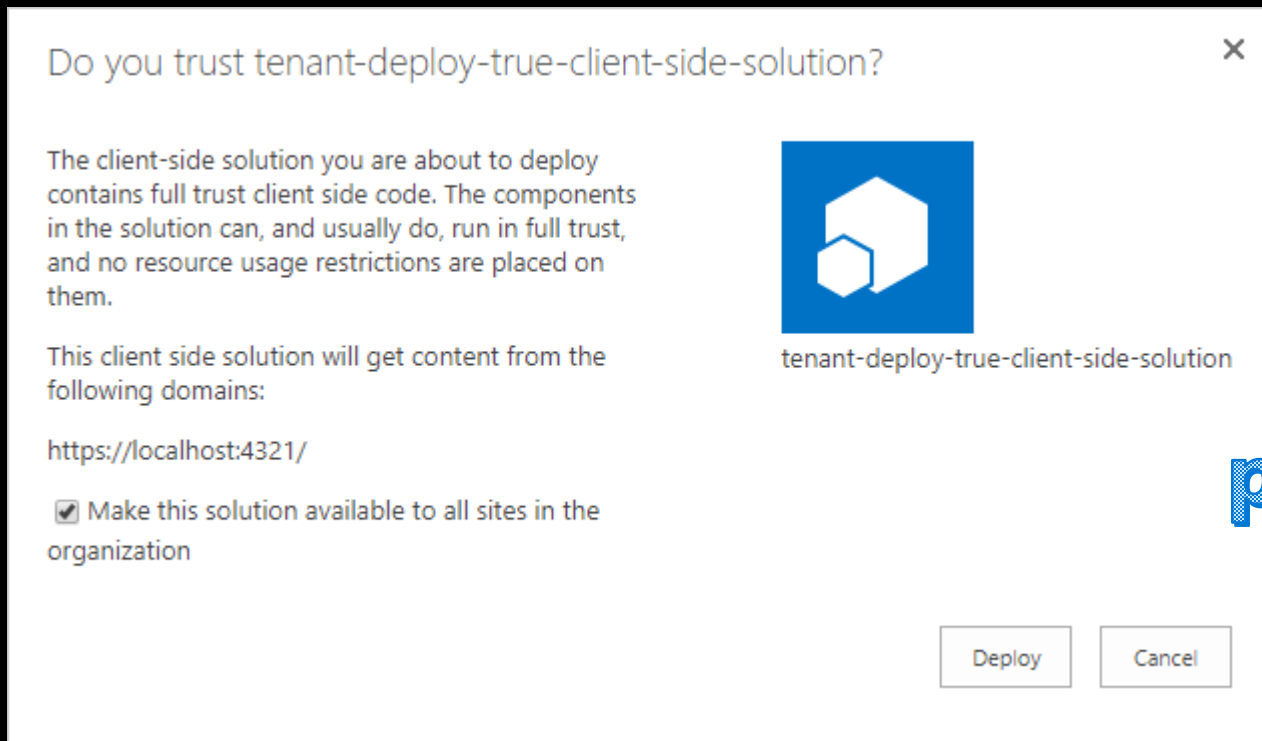
Let's create a new SharePoint solution.

? What is your solution name? auto-deploy

? Where do you want to place the files? Use the current folder

? Do you want to allow the tenant admin the choice of being able to deploy the solution to all sites immediately without running any feature deployment or adding apps in sites? (y/N)|

```
"solution": {
  "name": "tenant-deploy-client-side-solution",
  "id": "dd4feca4-6f7e-47f1-a0e2-97de8890e3fa",
  "version": "1.0.0.0",
  "skipFeatureDeployment": true
},
"paths": {
  "zippedPackage": "solution/tenant-deploy-true.sppkg«
}
```



**package-solution.json**

# Enable CDN in your Office 365 tenant

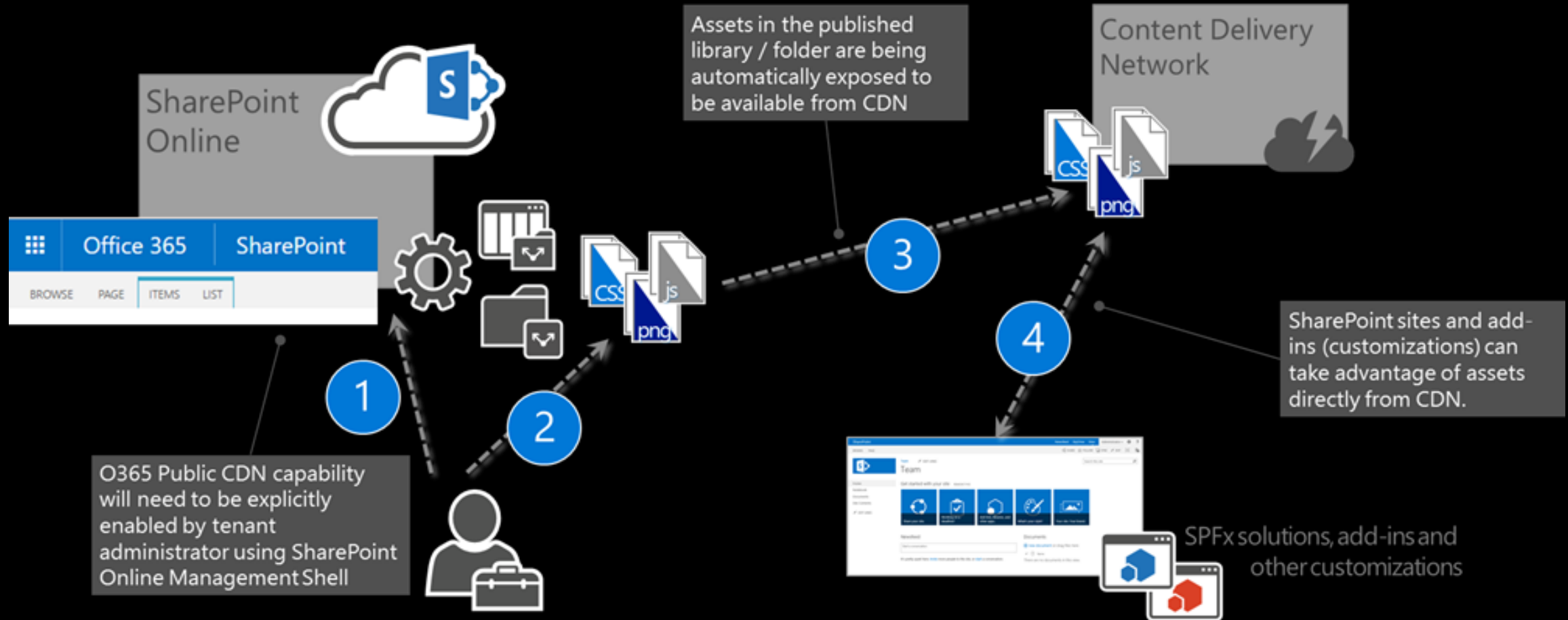
## What should I do to enable the SharePoint CDN?

- Connect-SPOService -Url <https://contoso-admin.sharepoint.com>
- Set-SPOTenantCdnEnabled -CdnType Public

```
Windows PowerShell
C:\> Connect-SPOService -Url https://sppnp-admin.sharepoint.com
C:\> Get-SPOTenantCdnOrigins -CdnType Public
*/MASTERPAGE
*/STYLE LIBRARY
*/CLIENTSIDEASSETS
C:\>
```



# Office 365 Public CDN



# SPFx CDN Configuration

## **write-manifests.json**

```
{  
  "$schema": "https://developer.microsoft.com/json-schemas/.....",  
  "cdnBasePath": "<!-- PATH TO CDN -->"  
}
```

## **package-solution.json**

```
{  
  "$schema": "https://developer.microsoft.com/json-schemas/.....",  
  "solution": {  
    "name": "app-extension-client-side-solution",  
    "id": "831b6fac-7668-46b4-96c6-e2ee35559287",  
    "version": "1.0.0.0",  
    "includeClientSideAssets": true, ...  
  }  
}
```

# Azure CDN



- Create an Azure Storage account
- Create a blob container
- Create a CDN profile
- Upload your assets

CDN profiles > Settings > Endpoints > Add an endpoint

### Add an endpoint

Allows configuring content delivery behavior and access.

**\* Name**  
spfxsamples ✓  
.azureedge.net

**\* Origin type**  
Storage ▼

**\* Origin hostname ⓘ**  
spfxsamples.blob.core.windows.net ▼

**Origin path ⓘ**  
/Path

**Origin host header ⓘ**  
spfxsamples.blob.core.windows.net

# SPFx CDN Configuration

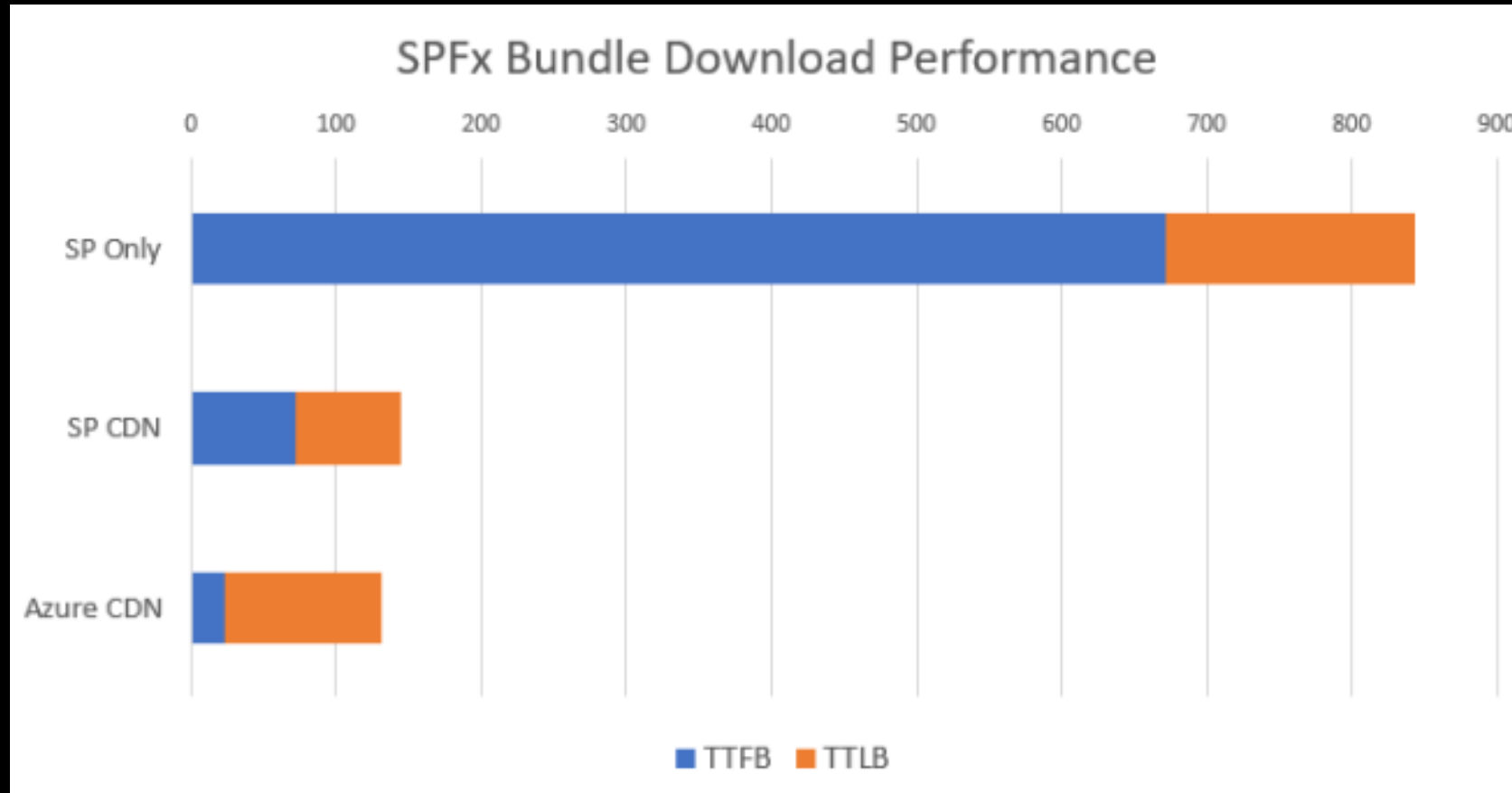
## **deploy-azure-storage.json**

```
{
  "$schema": "https://dev.office.com/json-schemas/.....",
  "workingDir": "./temp/deploy/",
  "account": "<!-- STORAGE ACCOUNT NAME -->",
  "container": "azurehosted-webpart",
  "accessKey": "<!-- ACCESS KEY -->"
}
```

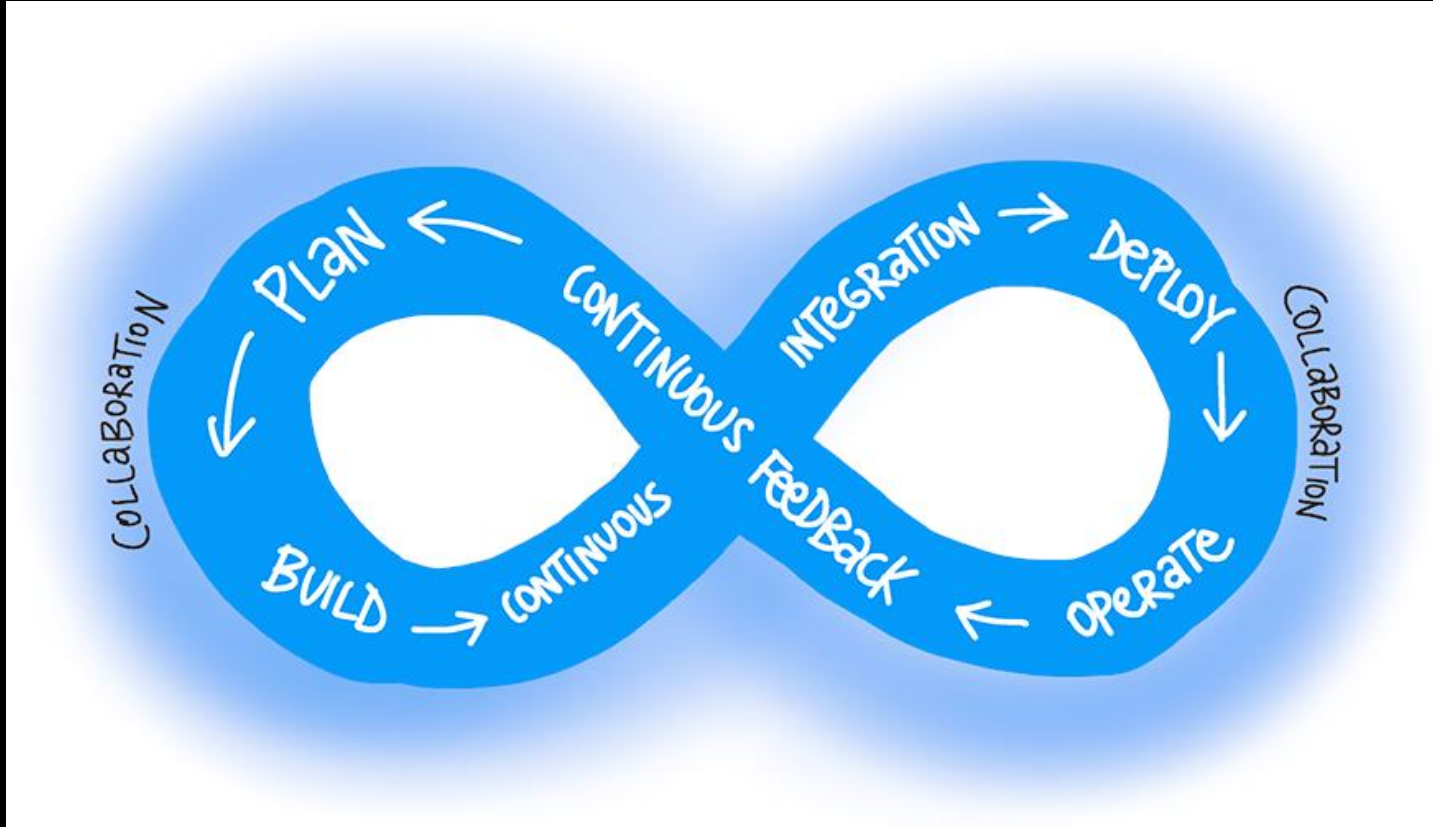
## **package-solution.json**

```
{
  "$schema": "https://developer.microsoft.com/json-schemas/....",
  "solution": {
    "name": "azurehosted-webpart-client-side-solution",
    "id": "a4e95ed1-d096-4573-8a57-d0cc3b52da6a",
    "version": "1.0.0.0",
    "includeClientSideAssets": false,
    "skipFeatureDeployment": true
  },
  "paths": {
    "zippedPackage": "solution/azurehosted-webpart.sppkg"
  }
}
```

# CDN Benchmarks



# DevOps

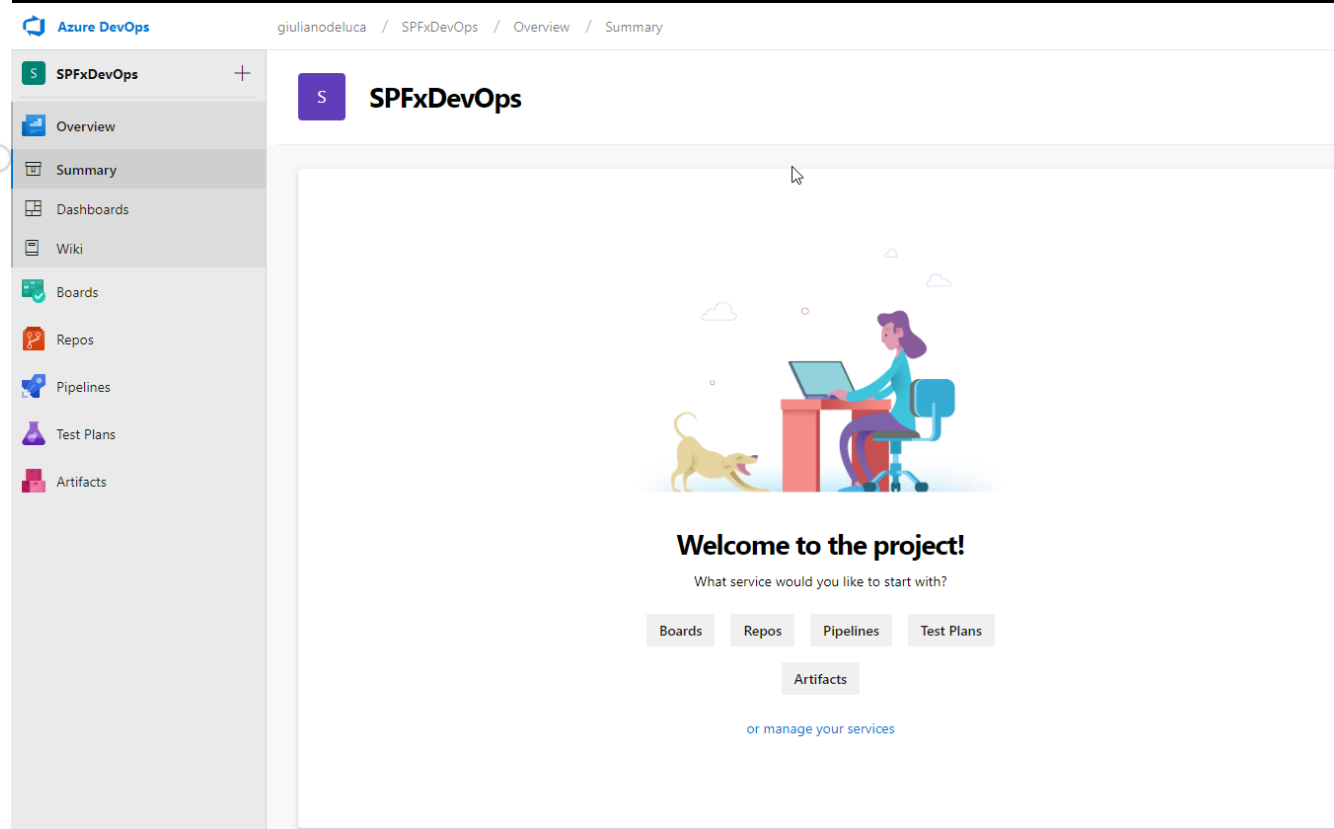


DevOps is the union of people, process, and products to enable continuous delivery of value to our end users.

– Donovan Brown

Essential DevOps practices include agile planning, continuous integration, continuous delivery, and monitoring of applications.

# VSTS => Azure DevOps



# Play with YAML

react-webhooks-realtime

Tasks Variables Triggers Options Retention History Save & queue Discard Summary Queue ...

Pipeline Build pipeline

Agent job

Get sources react-webhooks-realtime master

react-webhooks-realtime Agent job Run on agent

Use Node 10.x Node.js tool installer

npm install npm

Clean Bundle Gulp

Create Bundle Gulp

Package Solution Gulp

Copy Files to: \$(Build.ArtifactStagingDirectory)/ Copy files

Publish artifacts: drop Publish build artifacts

Copy to clipboard

Below is a clipboard-friendly view of your selection. To copy to the clipboard, either right-click and choose 'Copy' from the browser's context menu or press Ctrl+C. [more information about YAML builds]

```
pool:
  name: Azure Pipelines
steps:
- task: NodeTool@0
  displayName: 'Use Node 10.x'
  inputs:
    versionSpec: 10.x
- task: Npm@1
  displayName: 'npm install'
  inputs:
    verbose: false
- task: Gulp@0
  displayName: 'Clean Bundle'
```

Copy to clipboard

Parallelism



# Office 365 CLI

```
o365$ spo login https://m365x755181-admin.sharepoint.com

Logging in to SharePoint Online at https://m365x755181-admin.sharepoint.com...

To sign in, use a web browser to open the page https://aka.ms/devicelogin and enter the code CQT56TFVB to authenticate.
DONE
Retrieving tenant admin site information...
DONE
Successfully logged in to https://m365x755181-admin.sharepoint.com

o365$ spo tenant cdn get
Retrieving status of Public CDN...
Public CDN at https://m365x755181-admin.sharepoint.com is enabled
o365$ spo tenant cdn origin list
Retrieving configured origins for Public CDN...
Configured origins:
*/MASTERPAGE
*/STYLE LIBRARY
*/CLIENTSIDEASSETS
o365$ exit
```




<https://pnp.github.io/office365-cli/>


Using the Office 365 CLI, you can manage your Microsoft Office 365 tenant and SharePoint Framework projects on any platform. No matter if you are on Windows, macOS or Linux, using Bash, Cmdr or PowerShell, using the Office 365 CLI you can configure Office 365, manage SharePoint Framework projects and build automation scripts.

Essential DevOps practices include agile planning, continuous integration, continuous delivery, and monitoring of applications.


# PnP Powershell

 PowerShell Gallery

Packages Publish Statistics Documentation

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VSTS.DeploySPFxToAppCatalog 1.1

Automated Package Solution's Deployment for SharePoint Framework in the App Catalog


Script that allow to automate the deployment of an SPFx solution

Installation Options

Install Script Azure Automation Manual Download

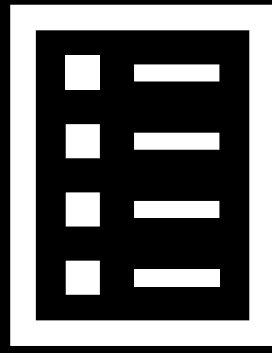
Copy and Paste the following command to install this package using PowerShellGet [More Info](#)

PS> Install-Script -Name VSTS.DeploySPFxToAppCatalog



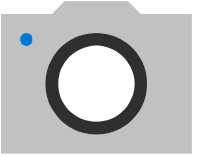
▷ DEMO

SPFx – Automated Release



# Conclusion

# Resources



## Microsoft Graph quick starts

[developer.microsoft.com/en-us/graph/get-started](https://developer.microsoft.com/en-us/graph/get-started)



## Graph Explorer

[developer.microsoft.com/en-us/graph/graph-explorer](https://developer.microsoft.com/en-us/graph/graph-explorer)



## Microsoft Graph developer docs

[docs.microsoft.com/en-us/graph/](https://docs.microsoft.com/en-us/graph/)



## Build apps for Microsoft Teams

<https://docs.microsoft.com/en-us/microsoftteams/platform/overview>



## Microsoft Graph - partner examples

[developer.microsoft.com/en-us/graph/partners](https://developer.microsoft.com/en-us/graph/partners)



## SharePoint Framework – Get started

[developer.microsoft.com/en-us/graph/partners](https://developer.microsoft.com/en-us/graph/partners)

## Let's Connect:



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<https://www.linkedin.com/in/delucagiuliano>

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