
WRK505

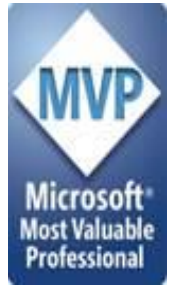
Electronic Forms and Alternative SharePoint App Approaches

December 10, 2019

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- President Toronto SharePoint User Group

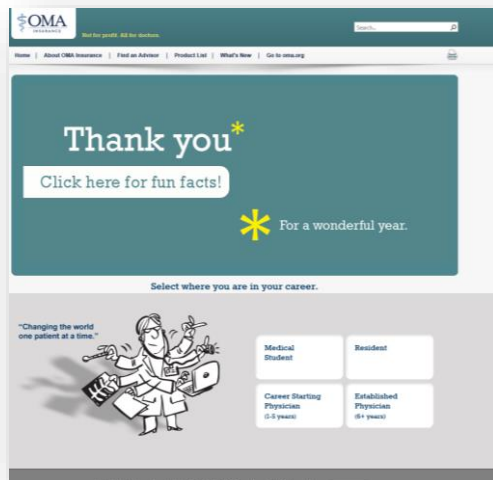


Agenda

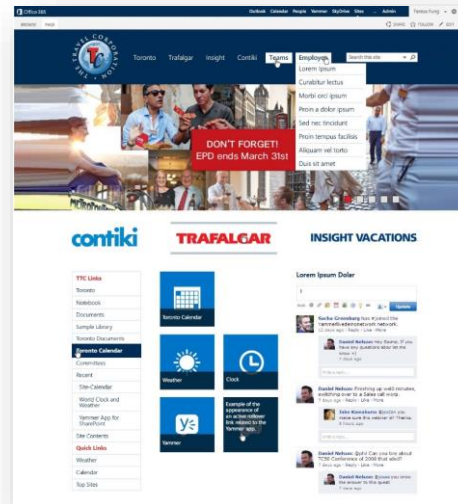
- Introductions
- Overview of Envision IT
- SharePoint Development Background
- Alternative App Models
- Client-Side Code Only
- Visual Studio WebAPI Projects
- Questions / Next Steps

Envision IT

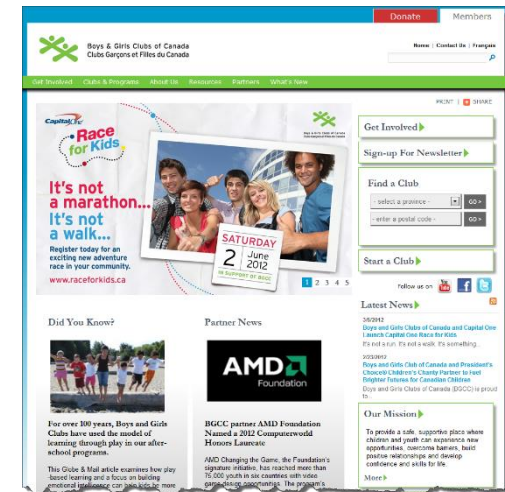
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December 9 - 13, 2019
Chicago, IL

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Session	Date Time	Location	Presentation
WRK505 - Developing Custom Connectors and HTML Forms for the Microsoft Power Platform Workshop	Tuesday 9:00 AM - 12:30 PM	Room 103A	Presentation Part One Presentation Part Two
OFF105 - Office 365 External Sharing	Wednesday 4:20 - 5:30 PM	Room 105A	Presentation
AZR202 - Developing Custom Connectors and HTML Forms for the Microsoft Power Platform AZR304 - Provisioning and Templating Automation for Modern Sites, Office 365 Groups, and Teams	Thursday 1:20 - 2:30 PM Friday 2:20 - 3:30 PM	Room 103D Room 103D	Presentation

Office 365 Developer Subscription

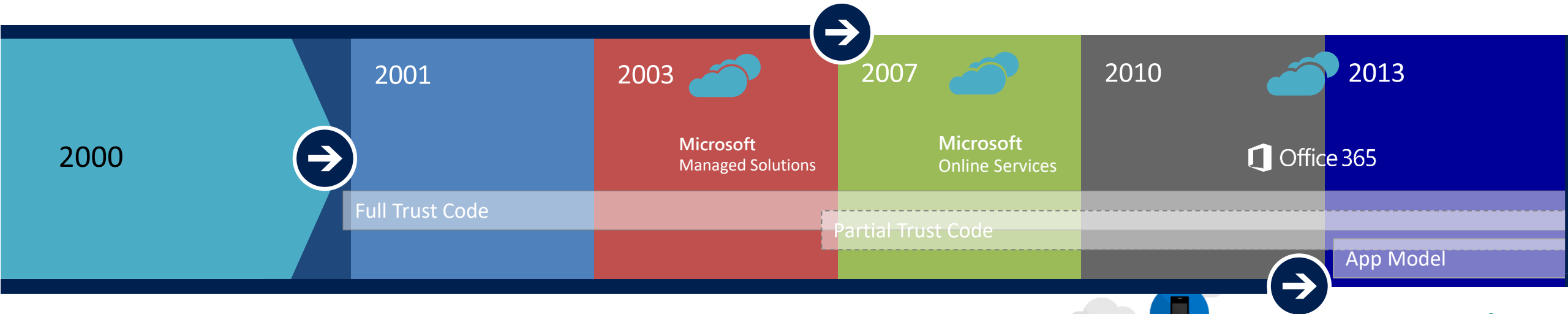


- Free, renewable 90-day Microsoft 365 E5 developer subscription
- Includes 25 user licenses for development purposes
- Sample data packs to populate your subscription

<https://developer.microsoft.com/en-us/office/dev-program>

SharePoint Development Background

Accelerating web development



Sources:

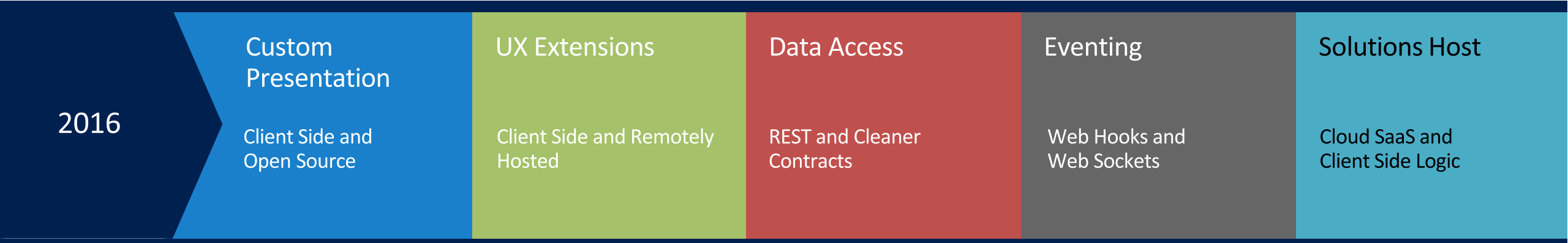
1. 451 Research, Hosting and Cloud Study, 2014



72%

of customers are leveraging cloud for their applications—from pilots to production apps¹

Accelerating web development - SPFx



Alternative App Models

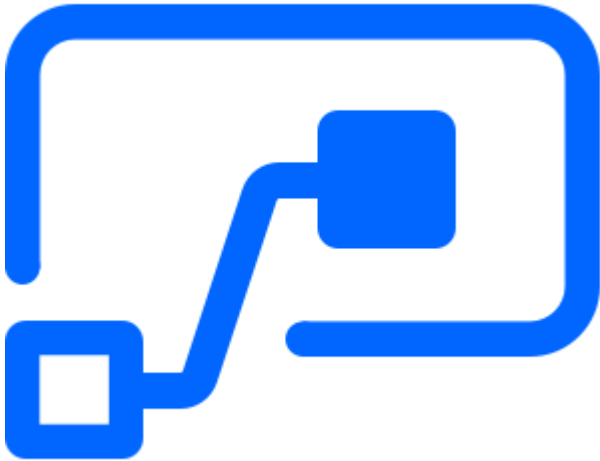
Checklist for an Ideal App Model

- No iFrames
- No wildcard DNS domains
- No code on the SharePoint Server
- Great user experience
- Standard development model
- Ability to run with elevated permissions
- Integrate with more than just SharePoint
- Development can be done locally

Suggested Forms Options

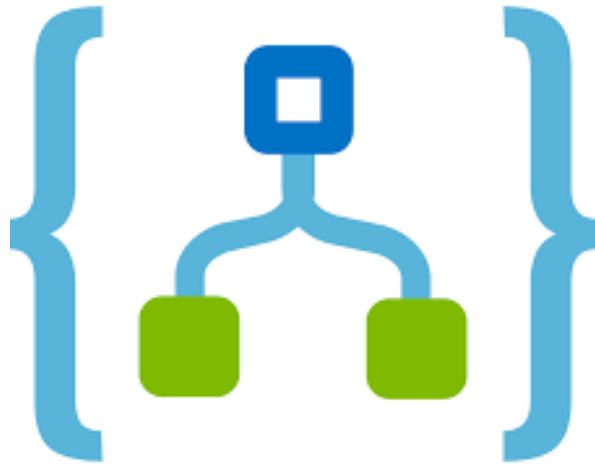
- Microsoft Forms and Forms Pro
- Power Apps forms and apps
- Adaptive cards with input forms
- An SPFx and React form that dynamically generates its fields based on a SharePoint content type
- An interactive, responsive HTML form built with Bootstrap and standard HTML 5 that posts to a Flow workflow

Power Automate (Flow)



- Create automated workflows between your favorite apps and services to get notifications, synchronize files, collect data, and more
- Supports both Microsoft and third party apps
- Custom connectors can connect to any system

Azure Logic Apps



- Platform underneath Power Automate
- Same designer
- Slightly different set of actions
 - No pre-built approval
- Visual Studio integration

Power Automate vs. Logic Apps

Power Automate

- Simpler for citizen developers
- Using standard connectors leverages built-in Office 365 licensing
- Premium and custom connectors need premium licensing
- <https://flow.microsoft.com/en-us/pricing/>

Logic Apps

- Azure portal and Visual Studio and be daunting
- Uses the same connectors
- Pay per action executed can be much cheaper
- <https://azure.microsoft.com/en-us/pricing/details/logic-apps/>

Microsoft Forms



- Easily create surveys, quizzes, and polls
- Free to use
- Forms Pro premium version adds additional features

Lab One – Microsoft Forms

- Create a simple Microsoft Form
- Follow the example on <https://www.extranetusermanager.com/test-drive>
- Features utilized
 - Field types – choice, text
 - Required vs. optional fields
 - Multiple options
 - Branching
 - Branding

PowerApps

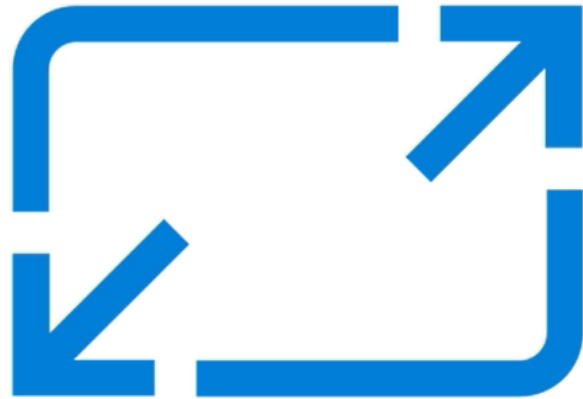


- Build apps for mobile, desktop, or responsive web
- Hundreds of connectors that can be extended with custom connectors

Lab Two – PowerApps

- Simple list
 - Title
 - Choice Column
 - Choice 2 Details
- Simple formula to hide / show Choice 2 Details field
 - Visible = If(DataCardValue2.Selected.Value = "Choice 2", true, false)

Adaptive Cards



- <https://adaptivecards.io/>
- Conversation Bots
- Microsoft Teams
- Outlook Actionable Messages

Lab Three – Adaptive Cards

- <https://blog.petercarson.ca/posts/adaptive-cards-outlook-actionable-messages-lab-notes>
- Flow generates the Outlook Actionable Message
- Approval process built using a Logic App
- Uses an HTTP trigger
- <https://github.com/petercarson/adaptive-card-approval>

Lab Four - Responsive HTML Form

- <https://blog.petercarson.ca/posts/responsive-html-form-lab-notes>
- Event registration form writing to a SharePoint list
- Form POSTs to either the SharePoint list or a Logic App
- <https://github.com/petercarson/form-post-to-sharepoint>
- <https://github.com/petercarson/form-post-to-flow>

Pentecostal Assembly of Canada Pension Portal

- SharePoint 2013 portal for current and retired staff
- Address and Banking Information update forms
 - Write to SharePoint lists
 - List columns define the form fields
 - Workflow used to secure submissions
 - Built with jQuery and SharePoint REST APIs
- Pension Calculator
 - Calculates annual benefits payable at retirement
 - Knockout model uses values entered by user

Pension Member

[Annual Benefits Statement](#)

[Contribution History](#)

[T4As](#)

[Address Update](#)

[Banking Information Update](#)

[Retirement Options](#)

[Pension Calculator](#)

Address Update

Fields marked with an asterisk (*) are required. If a required field is not applicable to you, enter "n/a".

Full Name *

Employee ID *

Effective Date *

Address 1 *

Address 2

City *

Province *

Postal Code *

Country *

Email Address

Telephone Number



Banking Information Update

Fields marked with an asterisk (*) are required.

Full Name *

Employee ID *

Name of Financial Institution *

Branch Transit Number *

Institution Number *

Account Number *

Pension Member

Annual Benefits Statement

Contribution History

T4As

Address Update

Banking Information Update

Retirement Options

Pension Calculator

Pension Calculator

Annual Benefit Statement Contributions

Please refer to the Annual Accrued Pension to Date section on your most recent Annual Benefit Statement

Pension from Contributions

Pension from Enhancements (All Years)

Start Contribution Year

Member Contributions per Year

Employer Contributions per Year

Projected Annual Pension

Payable at Age

Number of Years to Age

Month of birth

Total Projected Annual Benefit Payable at age 65:
Monthly Pension:

Note: For pension calculations below age 65, annual benefit payable is reduced by 0.5% for every month prior to age 65.

Run with Elevated Permissions?

- Do users have rights to do everything they need to do in SharePoint?
- Read, add, and edit rights to SharePoint
- Column level security
- Custom business rules
- Not all the code should run in JavaScript
- Need somewhere else
- Not allowed on the SharePoint server

Visual Studio WebAPI Projects

- Part of ASP.NET 4.5
- Full .NET functionality – typically C#
- Can deploy on premises or in Azure
- Can cheat and deploy to SharePoint WFEs
- Makes authentication easier
- Some work to move to another environment

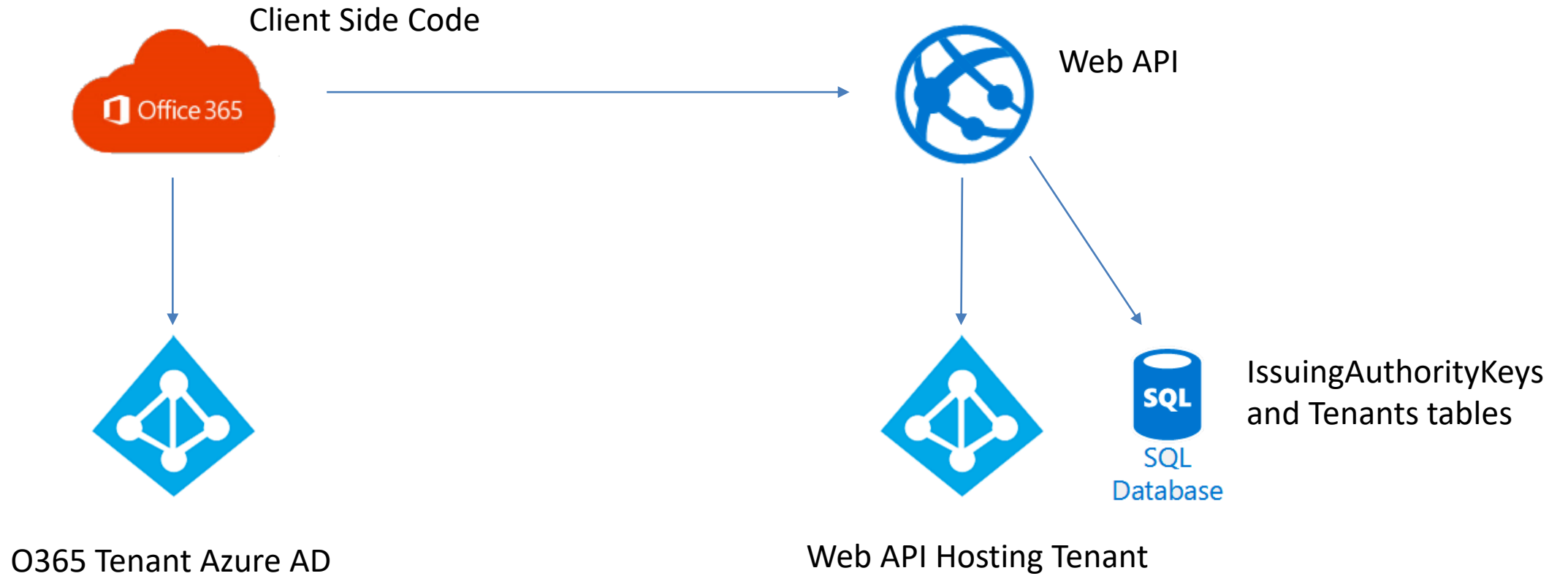
WebAPI Authentication

- Can be anonymous
 - Very useful for anonymous form submits
 - Simplifies permissions in SharePoint
- Leverage SharePoint or Windows authentication
 - Deploy as an IIS application under SharePoint, or on an internal IIS server
 - Can access the user's SharePoint or Windows identity
 - Use that to access SharePoint, or can still run with elevated permissions
- Leverage Windows authentication
 - Deploy as an IIS application on an internal IIS server
 - Can access the user's Windows identity
- Azure Active Directory
 - Ideal for Office 365
 - Register your API as an Azure App
 - Call from Office 365 and have access to the user identity

Creating a new Web API project

- Leveraging Azure AD for authentication
- Need the Web API and a local form for development
- Swagger and Swashbuckler for documenting the API
- Setup Organizational Authentication with Azure AD
- Configure CORS for cross-site scripting

Azure Configuration



Envision IT Leave Request

- Vacation, sick days, bereavement, jury duty, etc.
- Tracks the allocation and accrual period
- Leverages AD Manager property
- Enforces security
 - Users don't have direct access to SharePoint lists
 - Permissions are managed in the REST API
 - Users can see their requests
 - Managers can see their reports
 - HR Administrators can see all requests
- Supports Office 365



Home EDIT LINKS

RequestForm

Recent

Tasks

SOR

VacationRequests

VacationAllocation

Workflow Tasks

Request Form

Site Contents

Recycle Bin

EDIT LINKS

Request Type

Staff Member

Manager

Start Date

End Date

Comments

Status Draft

Created On

Total Business Days

Available Vacation Days 3

Search this site

Save Request

Request History

County of Simcoe

- Derived from Envision IT Leave Request
- On premises SharePoint 2013
- Integrated with SAP HRIS
- REST API
 - Allocations from SAP
 - Manager reporting structure
 - Writing requests to SharePoint
 - Pushing approved requests back into SAP
- Nintex workflow
 - Drives the approval process

Employee

Peter Carson

Manager

Choose...

Start Date 04/28/20



End Date 04/29/20

**Multiple Days****Absence type**

Choose...

*Only one absence type is allowed per range***Comments****Status****Draft****Available Time Off**

Type	Hours
Vacation	20
Float	10
Banked Overtime	0
Sick Carried to Vacation	40
Banked Stat	5.5

Available Hours

Date	Work hours	Notes
04/27/2016	7	VAC
04/28/2016	7	
Total Available Hours	14	

[Save Request](#)**Request History**

Type of Leave	Start Date	End Date	Hours	Status	Manager to Approve	Last Action
No items to display						

0 items per page

Azure Logic Apps as a Web API

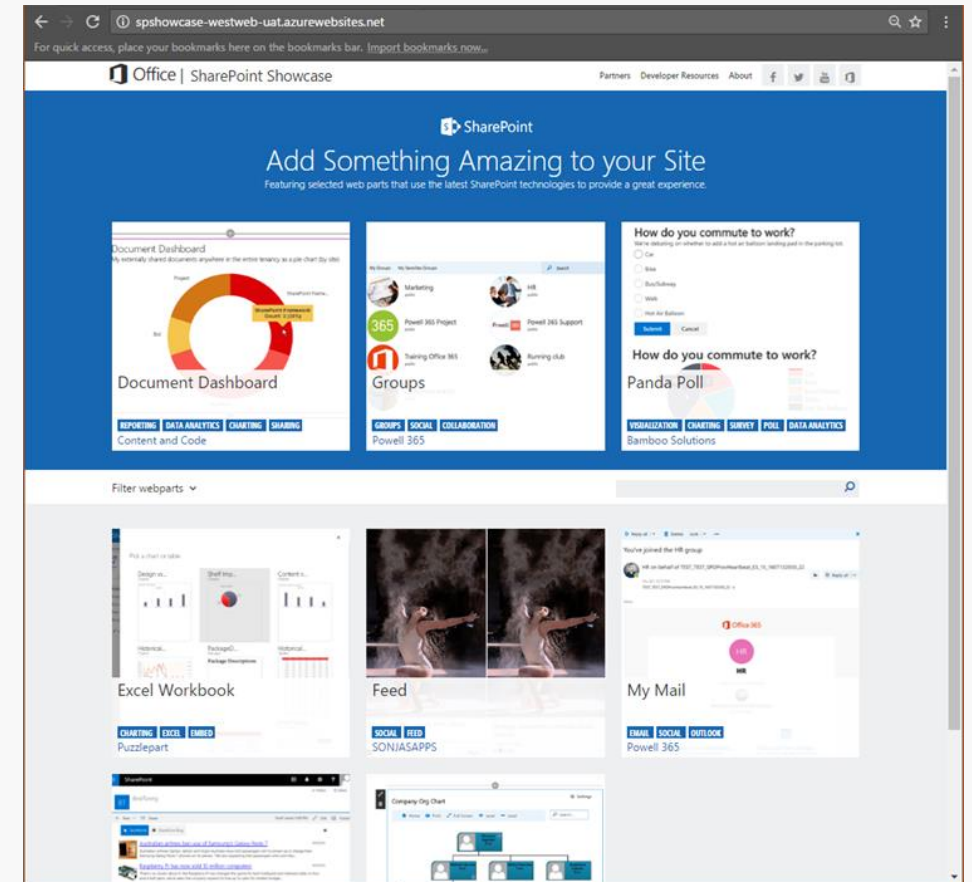
- Doesn't replace GET methods – not a synchronous call
- Works for PUT (update all), PATCH (update select fields) or POST (add new)
- Simpler to create and deploy
- Strict business rules can be enforced here

The SharePoint Framework

Why did we need SPFx?

New Tech? Another thing?

- We saw what developers were doing in SharePoint
- We knew we needed to refresh the UI
- Responsive Design is now expected
- iFrame ... love it or hate it

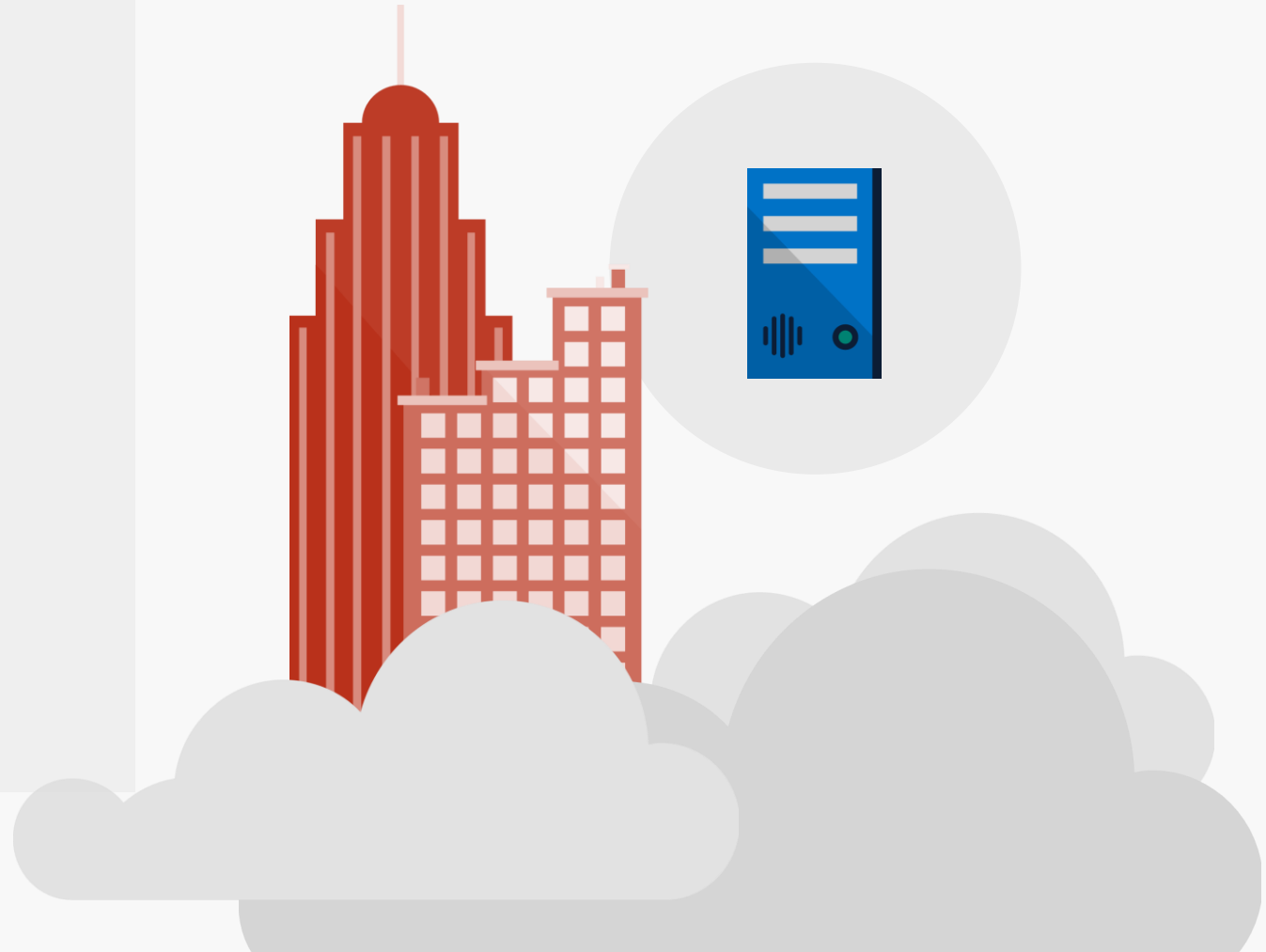


SharePoint extensibility principles

Build long-term, value-added services

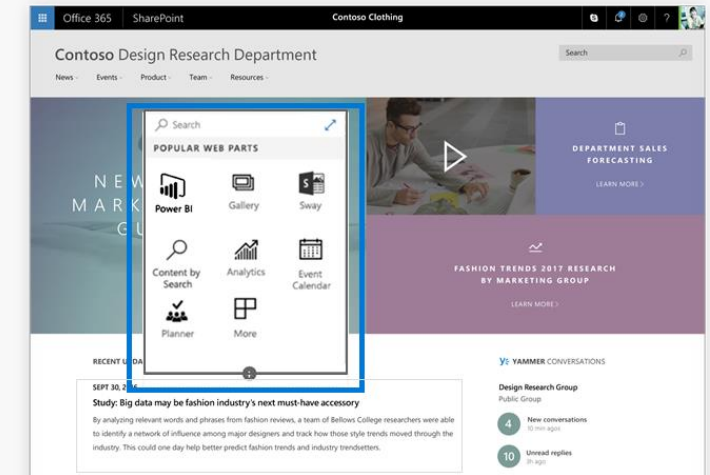
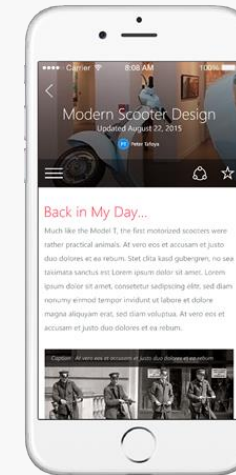
Principles

- Modern client-side development
- Lightweight web and mobile
- Powers our own experiences
- Backward compatible
- Supports open source tools and JavaScript web frameworks







Scenarios

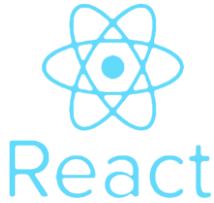




- Building custom Web Parts
 - Building vertical focused applications
 - Integrating with external systems
- Enhancing the out of the box experience
 - Branding custom portals
 - Building custom Intranet Portals







Supporting Frameworks

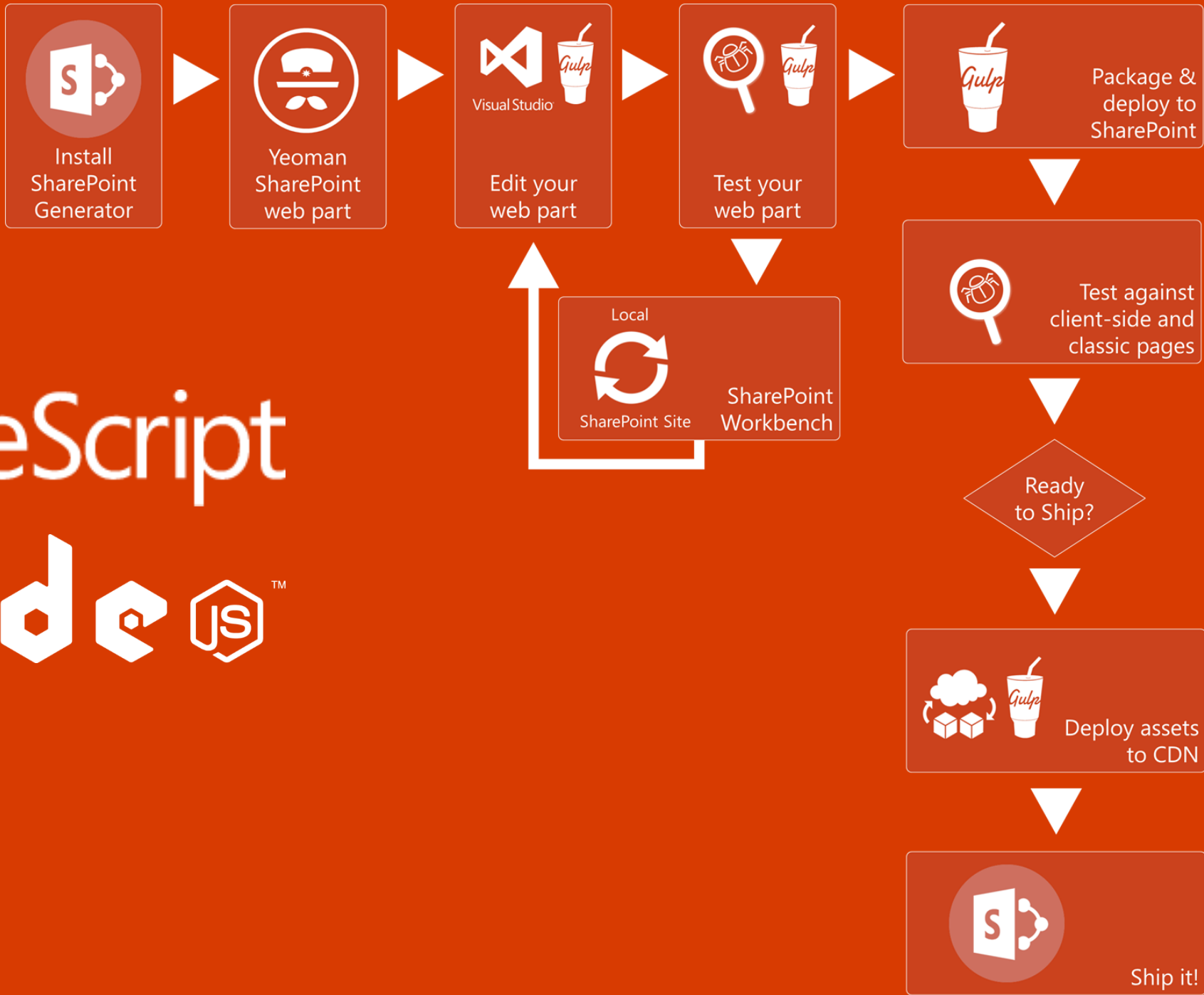
	Node.js® is a JavaScript runtime	https://nodejs.org
	Node.js' package ecosystem, npm, is the largest ecosystem of open source libraries in the world	https://www.npmjs.com/
 YEOMAN	The web's scaffolding tool for modern webapps Used to generate webpart projects	http://yeoman.io/
	JavaScript task runner to automate build tasks	http://gulpjs.com/
TypeScript	Typed superset of JavaScript that compiles to plain JavaScript. Any browser. Any host. Any OS. Open source.	https://www.typescriptlang.org/

Additional Frameworks

 <p>React</p>	Open source JavaScript library created by Facebook for building user interfaces	https://facebook.github.io/react/
 <p>Bootstrap</p>	Bootstrap is the most popular HTML, CSS, and JS framework for developing responsive, mobile first projects on the web	http://getbootstrap.com/
 <p>{less}</p>	Less is a CSS pre-processor. It extends the CSS language, adding features to make it more maintainable, themeable and extendable	http://lesscss.org/
 <p>jQuery</p>	Write less, do more. jQuery is a fast, small, and feature-rich JavaScript library	https://jquery.com/
 <p>handlebars</p>	Handlebars is a templating engine to convert datasets into HTML	http://handlebarsjs.com/

Additional Frameworks

	Simplified dynamic JavaScript UIs with the Model-View-View Model (MVVM)	http://knockoutjs.com/
	Single page apps built with the Model-View-Controller (MVC)	https://angularjs.org/
 Visual Studio	Visual Studio WebAPIs	http://www.asp.net/web-api
	Swagger is to REST as WSDL is to SOAP Define your API in Swagger	http://swagger.io/
	Adds Swagger to a .NET WebAPI project	https://www.nuget.org/packages/Swashbuckle



TypeScript

node JS™

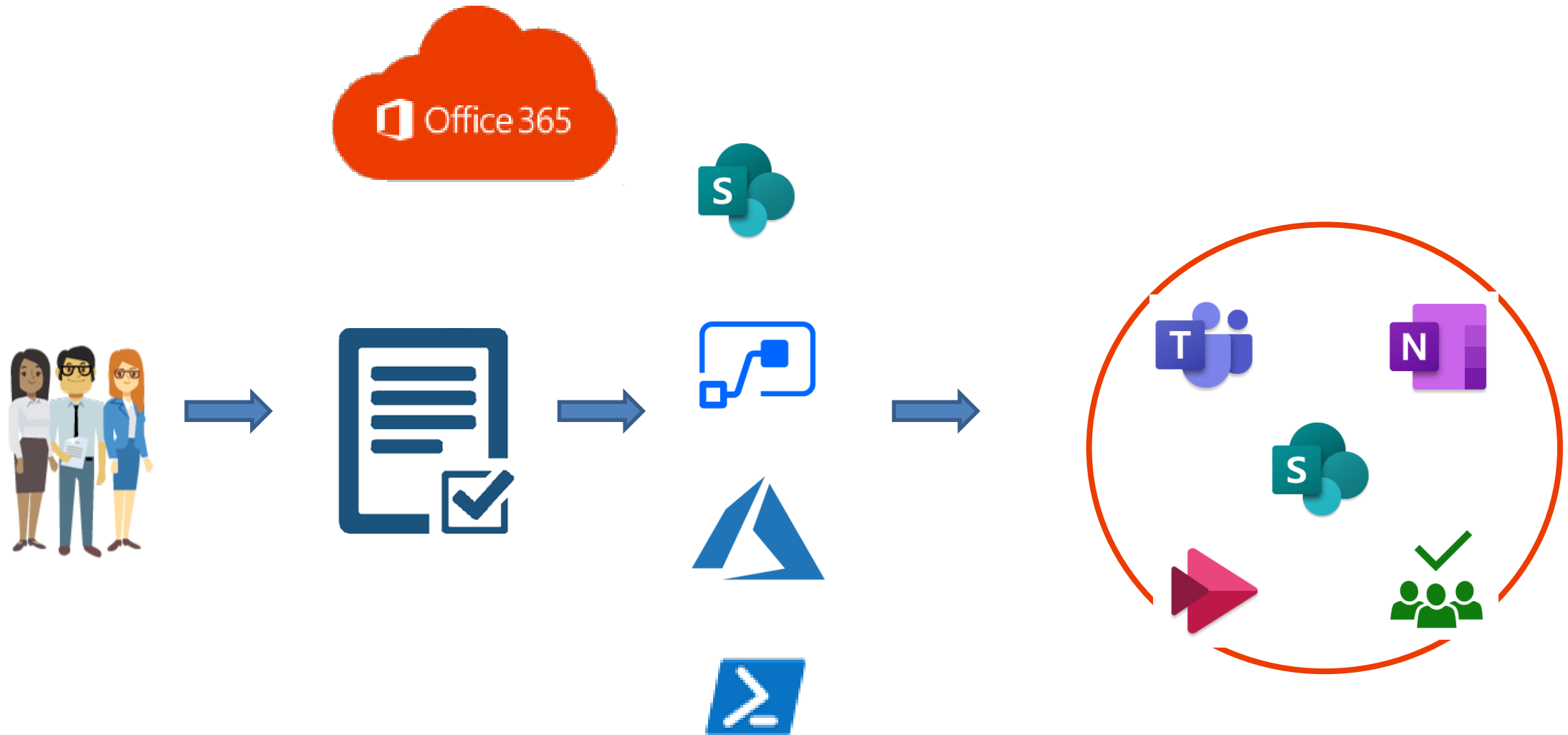
Getting Started with SharePoint Framework

- <https://github.com/SharePoint/sp-dev-docs/wiki>
- [Setup your Office 365 Developer Tenant](#)
- [Setup your Machine](#)
- [Go build your first web part](#)
- <https://dev.office.com/sharepoint/docs/spfx/enterprise-guidance>

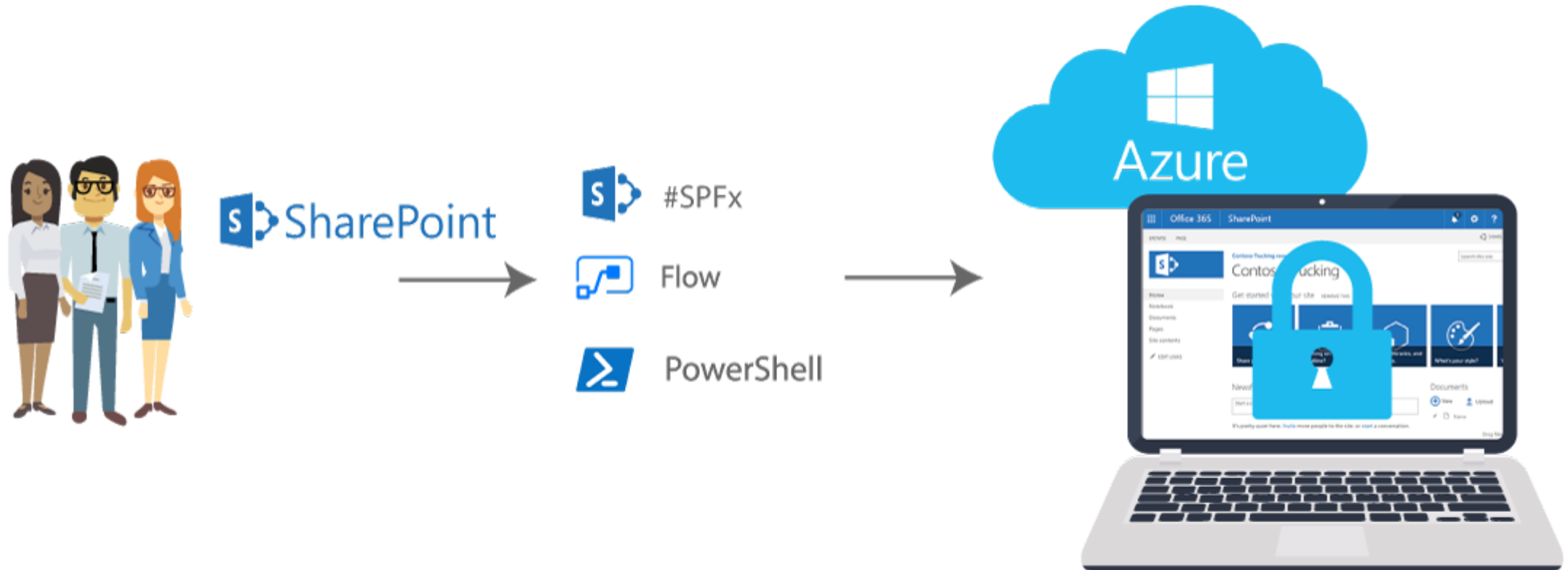
SharePoint Patterns & Practices Links

- <http://dev.office.com/patterns-and-practices>
- <https://github.com/sharepoint>
- <http://aka.ms/SPPnP-Videos>
- <http://aka.ms/SPPnP-Docs>

Team, Channel, Group, and Site Provisioning



Supporting Technologies



Solution Overview

- SharePoint list is used to track existing sites and new site requests
- SPFx webpart form used to enter requests
- Microsoft Flow is triggered when new requests are added
- Approval workflow can be part of this
- Azure Automation is used to run the PowerShell scripts and create the SharePoint site, Microsoft Team, EUM Group, and wire everything together

Request Form

Site Request

Division *
Temporary Demos

Site Template *
Modern Team Site

Title *

Purpose

Alias

Public Group
 Yes





Create Team
 Yes

Submit Cancel

- Supports multiple different templates
- Form fields are dynamically generated based on template content types
- Easy to add or change fields on the form – no programming required

Sites List Web Part

Sites

 Private Group - No Approvals This group is private and is not shown on the list page of all public groups. To join the group you need the invitation URL. Joining a group is done immediately with no approvals required.	 Private Group with Approval This group is private and is not shown on the list page of all public groups. To join the group you need the invitation URL. Joining a group submits a request for approval before you are added to the group.	 Public Group - No Approval This is a Public Group that anyone can join. It does not require approval.	 Public Group with Approval This is a Public Group that anyone can request to join. The user will be notified via email once the request has been approved.
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Demo Sites

[Private Group - No Approvals](#)
[Private Group with Approval](#)
[Public Group - No Approval](#)
[Public Group with Approval](#)

All Sites

A B C E F H I K L M N O P R S T V W

[About Us](#)
[Annual reports](#)


- Displays Sites from the Sites list
- Filters down to sites under a Parent URL
- Different views
 - Tile
 - List
 - A – Z List

Project Documentation

- Source code is available on GitHub at <https://github.com/petercarson/eum-sites/tree/V2>
- Full consolidated whitepaper with step by step instructions <https://www.extranetusermanager.com/resources/articles/site-provisioning-whitepaper-v2>

<http://eum.co/resources/events>

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