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**Developers! Learn how to use the SharePoint Framework to customize and extend SharePoint**



# Andrew Connell

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## About Me

SharePoint developer  
SharePoint Framework (SPFx)  
Microsoft Teams

Microsoft Graph  
SharePoint Embedded  
Microsoft Azure

Microsoft MVP

Microsoft 365 Development



Founder, Voitanos

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# Agenda

## ❖ Introduction

- ✓ Why do we need the SharePoint Framework?
- ✓ What is the SharePoint Framework?

## ❖ SharePoint Framework

- ✓ Understanding the development toolchain
- ✓ Building client-side web parts
- ✓ Customize SharePoint's UX with SPFx extensions

## ❖ Intended Audience

- ✓ Web developers
- ✓ Traditional SharePoint developers
- ✓ No previous experience with “modern web development” required

# Introducing the SharePoint Framework

# Introducing the SharePoint Framework

- ❖ Provides full support for client-side customization
- ❖ Provides easy access to Microsoft 365 data
- ❖ Customizations run in current context
- ❖ Development experience embraces web development stack
- ❖ First Party & Third Party
- ❖ More:
  - Free email courses  
<https://www.voitanos.io/courses-sharepoint-framework/>
  - SPFx: WHAT/WHY/WHEN/WHO/WHERE/HOW  
<https://www.voitanos.io/series/spfx-5w1h/>

# Building SPFx experiences in Microsoft 365

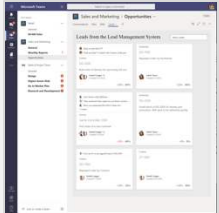
The easiest way to build your enterprise solutions for Microsoft Teams, Microsoft Viva, Outlook, Microsoft 365 app and SharePoint

## Microsoft Teams

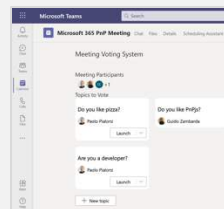
Personal Apps



Teams tabs



Meeting apps

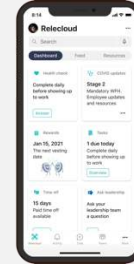


Messaging extensions



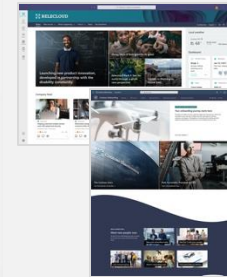
## Microsoft Viva

Cards

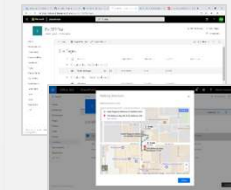


## SharePoint

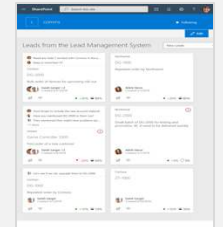
Web Parts



Extensions



App pages



Outlook and Microsoft 365 app (Office)

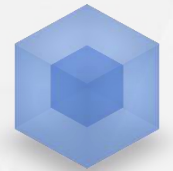
# SPFx Development Toolchain Overview

# Development Toolchain Overview

- ❖ Development environment
  - Local dev environment with minimal tools
  - Microsoft 365 Developer Tenant
  
- ❖ Developer toolchain
  - Node.js & NPM
  - Yeoman
  - Gulp
  - Webpack



# Development Toolchain Comparison



webpack  
MODULE BUNDLER



YEOMAN

# Focus on What You NEED to Know

- ❖ Get familiar with:
  - NPM
  - TypeScript
  
- ❖ Just install and forget about everything else:
  - Node.js (v18)
  - Yeoman (v5)
  - Gulp CLI (v3)

# Client-Side Web Parts

# Client-Side Web Parts

- ❖ Use in the “traditional” SharePoint sense
  - Page building blocks
- ❖ Single page apps (SPA)
- ❖ Microsoft Teams
  - Teams Tab
  - Personal App

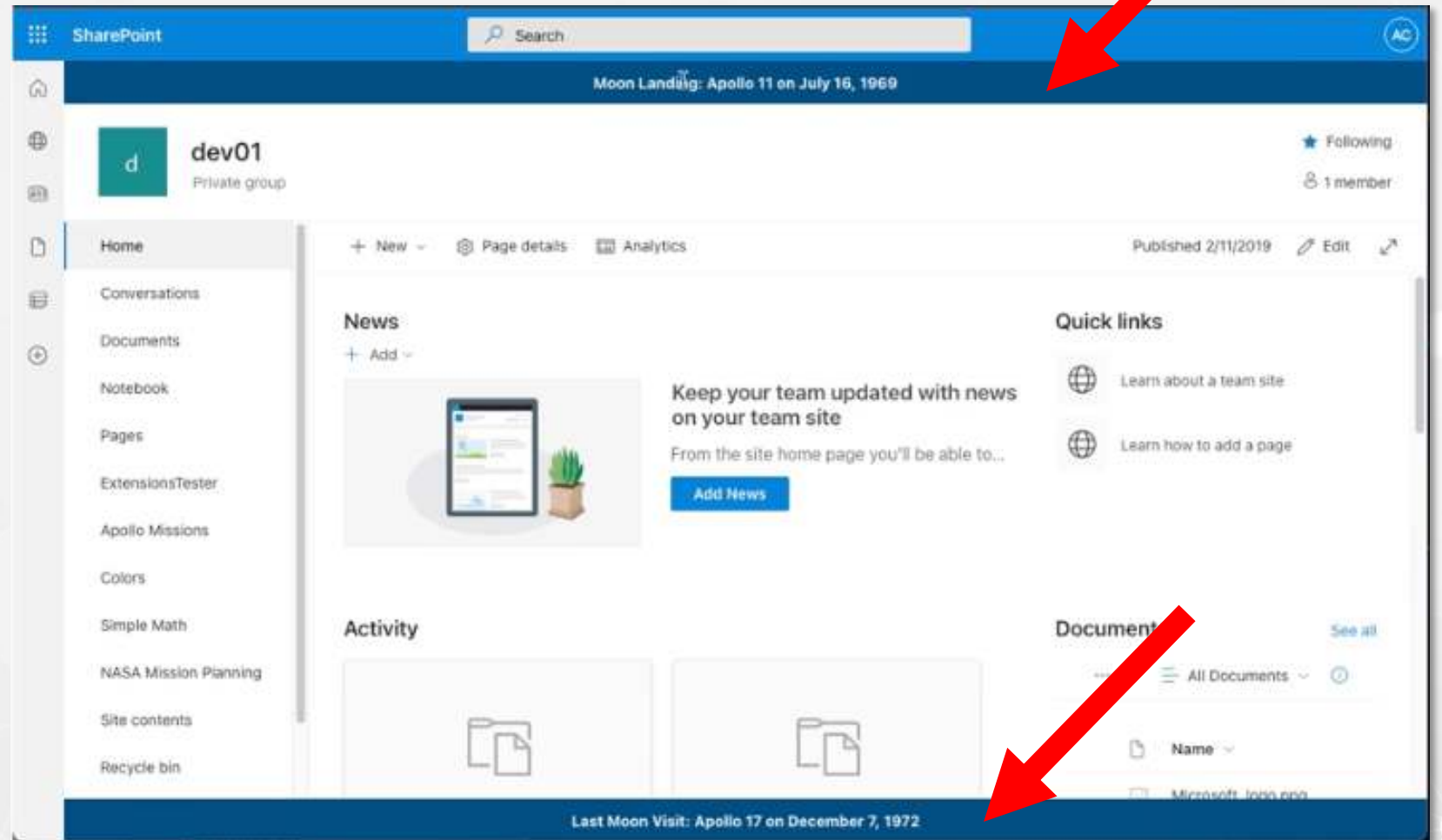
# UX Extensions

# SPFx Extensions

- ❖ Brings common pre-SPFx customizations to SPFx
  - Script link / delegate controls
  - Custom actions
  - JSLink
  
- ❖ Supported in:
  - SharePoint Online
  - SharePoint Server 2019
  - SharePoint Server Subscription Edition (SE)

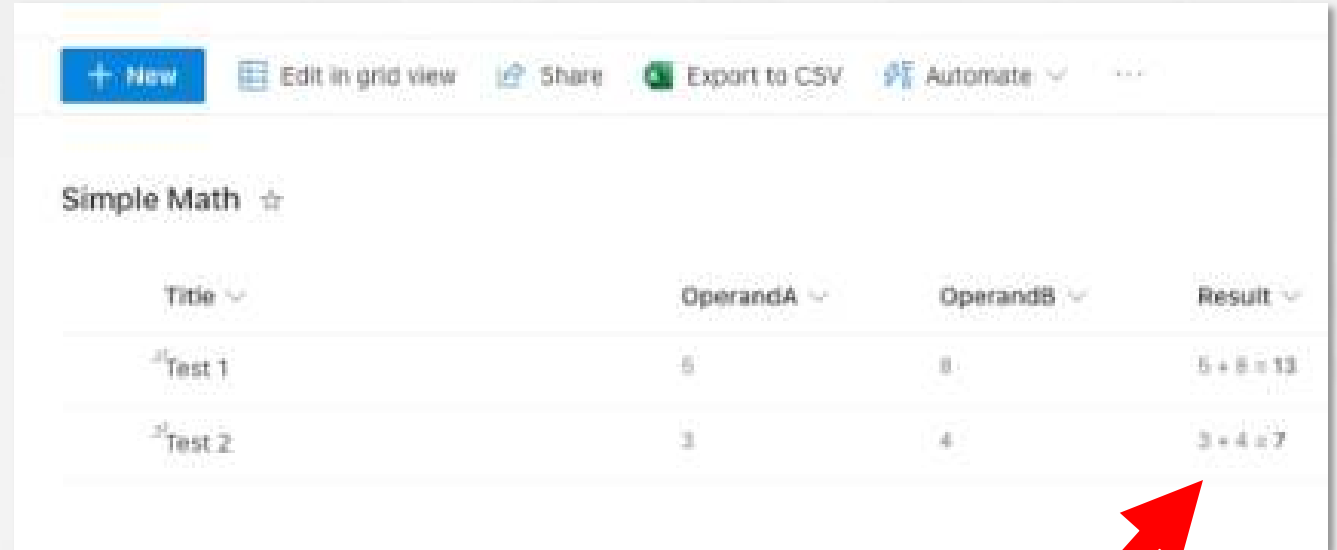
# Application Customizer

- ❖ Add script to a page
- ❖ Add HTML to well known Placeholder on the page
  - Top
  - Bottom



# Field Customizer

- ❖ Change rendering of a cell within a list
- ❖ Only supports read only presentation mode
- ❖ Only works in modern lists & libraries
- ❖ For classic lists & libraries, use JSLink



The screenshot shows a web application interface with a table titled "Simple Math". The table has four columns: "Title", "OperandA", "OperandB", and "Result". The "Result" column contains mathematical expressions and their results. A red arrow points to the "Result" column.

Title	OperandA	OperandB	Result
Test 1	5	8	$5 + 8 = 13$
Test 2	3	4	$3 + 4 = 7$



# Command Set

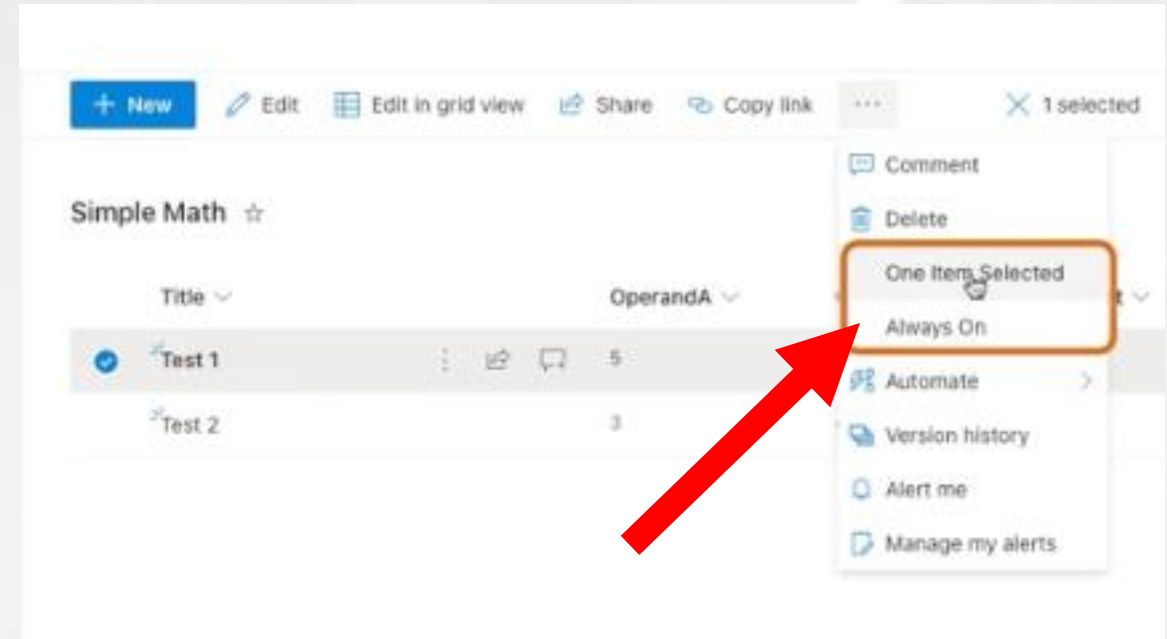
❖ Similar to custom actions

❖ Add buttons to lists & libraries

➤ Toolbar

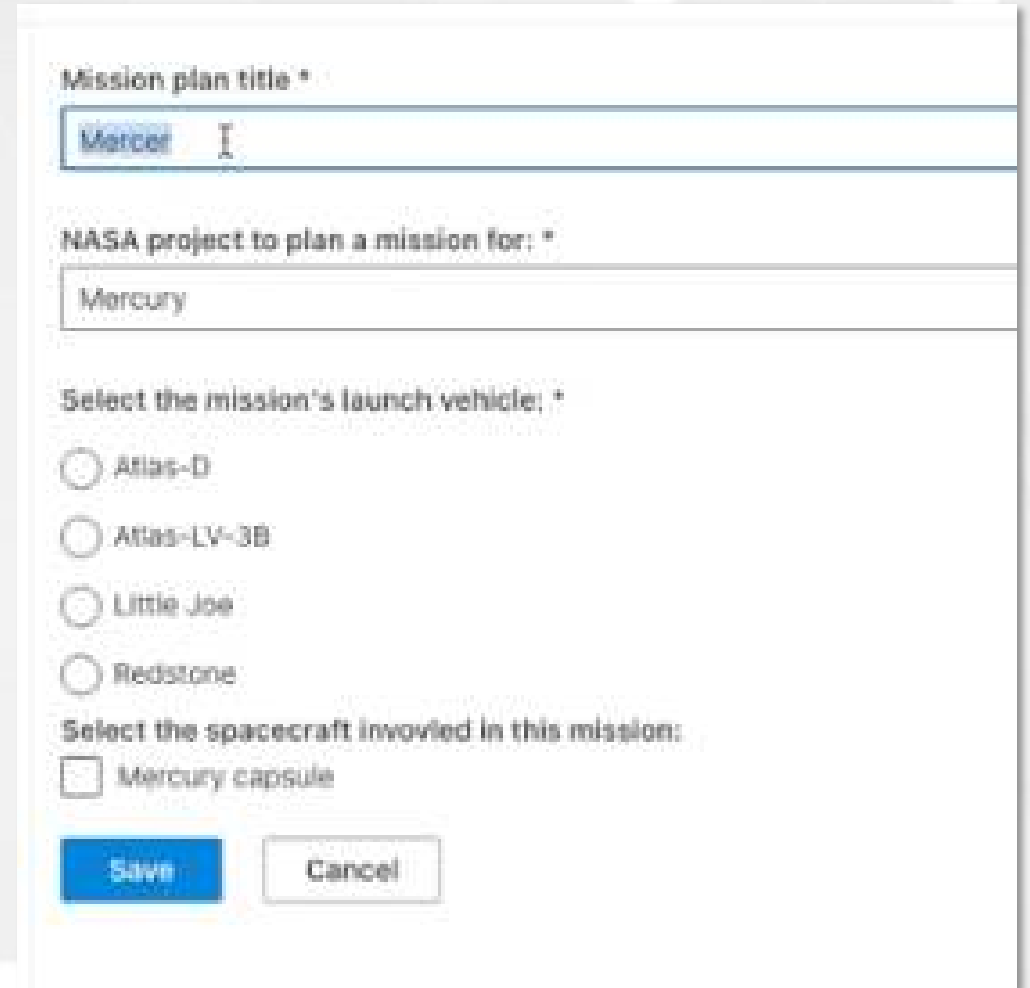
➤ Item context menu

❖ Specify conditions if command available when no / one / multiple items selected



# List Form Customizers

- ❖ Customize the new/edit/display form
- ❖ Alternative to using Power Apps to create custom list forms
- ❖ Developer is responsible for loading & saving updates for the list item
- ❖ Must manually install with SharePoint REST API



The screenshot shows a web form for creating a mission plan. It includes the following fields and controls:

- Mission plan title \***: A text input field containing the word "Mercury".
- NASA project to plan a mission for: \***: A dropdown menu with "Mercury" selected.
- Select the mission's launch vehicle: \***: A group of four radio buttons with the following options:
  - Atlas-D
  - Atlas-LV-3B
  - Little Joe
  - Redstone
- Select the spacecraft involved in this mission:**: A checkbox labeled "Mercury capsule".
- Buttons**: A blue "Save" button and a grey "Cancel" button.

# Tenant-Wide Scoped Deployment for Extensions

- ❖ Applies to:
  - Application customizers
  - List view command sets
- ❖ Controlled by tenant administrator
- ❖ Available in SharePoint Online

# Benefits of Tenant-Wide Deployments of Extensions

- ❖ Centralized control of which extensions are available across entire tenant
- ❖ Consistent end-user experience across all sites
- ❖ Consistent deployment across all sites
- ❖ Automatically enable functionality on newly created sites

# Adaptive Card Extensions

# Adaptive Card Extensions (ACEs)

- ❖ Interactive tiles for use in dashboards
- ❖ SharePoint, Viva Connections, & Viva Home
- ❖ Think widgets+ on iOS
- ❖ Founded on Adaptive Cards

The image shows a SharePoint interface with a search bar at the top. Below it is a card titled "NASA Apollo Missions" with a sub-card "[AS-506] Apollo 11". The sub-card contains the text: "First manned landing, in Tranquility Base, Sea of Tranquility. Surface EVA time: 2:31 hr. Samples returned: 47.51 pounds (21.55 kg) - Launch...". Below the text are two navigation arrows. To the right, an extension window is open, titled "[AS-506] Apollo 11". It features a circular image of an eagle on the moon with "APOLLO 11" text. The extension contains the following information: "First manned landing, in Tranquility Base, Sea of Tranquility. Surface EVA time: 2:31 hr. Samples returned: 47.51 pounds (21.55 kg)", "End Date: Thu Jul 24 1969", "Launch Date: Wed Jul 16 1969", and a "Mission Crew" section listing: Commander: Neil Armstrong, Pilot: Buzz Aldrin, Sr Pilot: Michael Collins, Command Module: Michael Collins, Pilot: Michael Collins, and Lunar Module Pilot: Buzz Aldrin. A "View Crew" button is at the bottom of the extension.

# Resources

## ❖ Articles

- SPFx Answers: what – why – when – who – where - how  
<https://www.voitanos.io/series/spfx-5w1h/>
- Definitive guides to SPFx for SharePoint Server on-premises (2016/2019/SE)  
<https://www.voitanos.io/series/definitive-guide-sharepoint-framework-sharepoint-server/>

## ❖ Free Courses

- Explore & Evaluate the SharePoint Framework  
<https://www.voitanos.io/ecourse-explore-evaluate-spfx/>
- Understand the SharePoint Framework Toolchain  
<https://www.voitanos.io/ecourse-explore-evaluate-spfx/>
- Mastering the SPFx – Starter Bundle  
<https://www.voitanos.io/course-master-sharepoint-framework/>