

Building React Components for SharePoint

Steve Pietrek

SharePoint Engage Conference

November 2-3, 2016

Steve Pietrek



**App Dev Practice Manager
SharePoint Application Architect
Front End Developer**

**Cardinal Solutions
Raleigh/Durham**

Contact

@spietrek
spietrek@cardinalsolutions.com

Presentation References

<https://github.com/spietrek/spengage2016>
<https://github.com/spietrek/sharepoint.react.components>

Agenda

SharePoint
Development

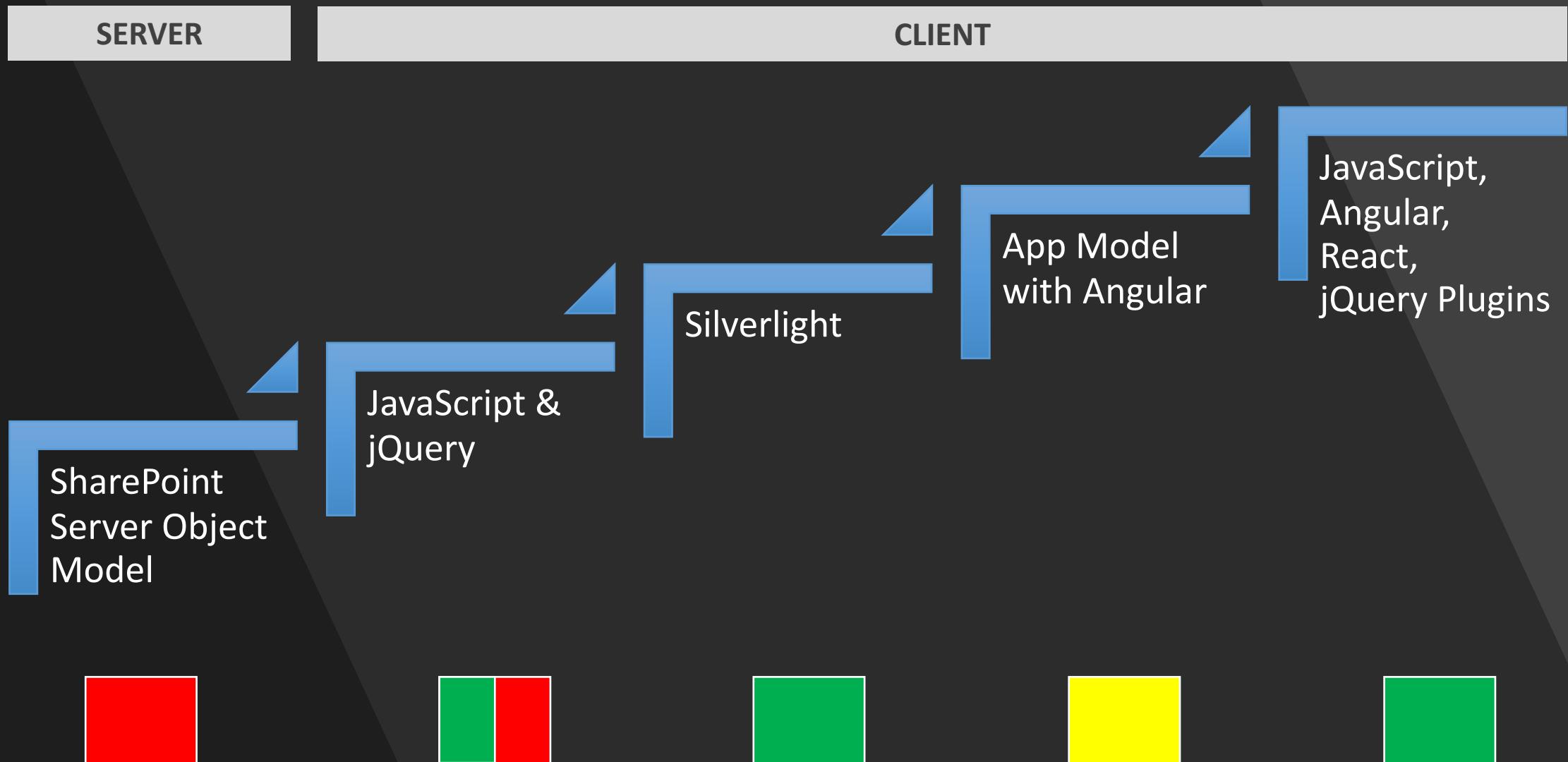
React
Overview

SharePoint
Framework

Office Fabric

SharePoint Development

My SharePoint Development Journey



Client-Side Development Advantages



Infrastructure

- Isolation & multitenant
- Runs in client browsers
- Reduces risk to farm
- Simplifies SharePoint upgrades
- Cloud ready

Developers

- Larger developer reach
- Use industry standards
- Use non-SharePoint technologies
- Lifecycle management
(development, deployment, versioning, upgrades)



HOME

HUMAN RESOURCES

DEPARTMENTS

PROJECTS

FORMS & POLICIES

SUPPORT

Enterprise Search



Meals To Go!

This past weekend, several families of our company joined together with 3,000 other volunteers to pack 600,000 meals that will be shipped to our friends and partners at the Topsy Foundation in South Africa.

[more >](#)

Events

Oct. 6**Q1 FY' 15 Earnings**

Cintas will conduct a live Webcast for Q1 FY' 15 Earnings

Oct. 20**Humanitarian Hall of Fame**

Humanitarian Hall of Fame. Honor

Nov. 2**IT Learning Center**

Neque porro quisquam est, qui dolorem ipsum

Nov. 17**HR Workways**

Ut enim ad minima veniam, quis nostrum poris

[more >](#)

Give Feedback

We need feedback on the new SharePoint Intranet! Please take this quick survey.

[take survey >](#)

Quick Links

[Employee Directory](#)[IT Requests](#)[Desktop Support](#)[Admin Requests](#)[HR Workways](#)[IT Learning Center](#)[Talent Management System](#)[Corporate Travel](#)

Weather

Tuesday, May 12, 2015
Cincinnati, OH

66° F



All Projects

Red Projects

Yellow Projects

Green Projects

Create Project

Admin



All Projects

 Filter results

Name	Overall	Budget	Resource	Schedule	Project Manager	Modified	Edit
alpha-chi	✗	⚠	✗	⚠	Maddie Pietrek	Jan 8, 2016 7:51:40 AM	
alpha-beta-omega	✗	✓	✗	✗	Laura Pietrek	Oct 19, 2015 1:59:14 PM	
alpha-omega	✗	✗	✗	⚠	Laura Pietrek	Jun 13, 2015 12:59:45 PM	
alpha-zeta	✗	✗	✓	✓	Laura Pietrek	Jun 13, 2015 11:10:06 AM	
alphas-violet	✗	⚠	✗	⚠	Pietrek	Jun 5, 2015 10:48:27 PM	
alpha-psi	✗	✗	✓	✗	Maddie Pietrek	Jun 5, 2015 10:32:54 PM	
Omega	✗	✓	✗	⚠	Steve Pietrek	Apr 14, 2015 12:44:37 PM	
zalir	✓	✓	✓	✓	Lenora Lula Owen	Apr 14, 2015 8:39:25 AM	
za	✓	✓	✓	✓	Harriett Elizabeth Fleming	Apr 14, 2015 8:39:25 AM	
valabiaza	✓	✓	✓	✓	Anne Emilie Mendoza	Apr 14, 2015 8:39:25 AM	

5 10 25 50

« 1 2 3 4 5 »

Page 1 of 11, of 107 entries



theName

Corporate

Departments

Training

Applications

Human Resources

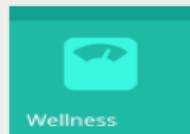
home > this would be the breadcrumb on secondary pages

search

people



My Training



Wellness



Yammer



Delve



Calendar



Weather



Video



One Drive

GPT Launches New Training Portal
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed facilisis leo ac venenatis more

Fidelity Plans
Fusce dapibus lorem eu lacus scelerisque, sed. more

Tools You Can Use
L'Pellentesque accumsan, ante et interdum consequa more

Holiday Schedule
Consectetur adipiscing elit. Sed facilisis leo ac venenatis more



[view all news](#)

My Teams



Learning and Development
Phasellus sed malesuada odio, at vehicula diam. Nam quis ex gravida, accumsan diam vel, cursus nibh.
[view the site](#)

Team Mason
Phasellus sed malesuada odio, at vehicula diam. Nam quis ex gravida, accumsan diam vel, cursus nibh.
[view the site](#)

3PI
Phasellus sed malesuada odio, at vehicula diam. Nam quis ex gravida, accumsan diam vel, cursus nibh.
[view the site](#)

My Projects



Learning and Development
Project is in red zone. Visit project site for all updates
[go to portal](#)

[View latest documents](#)

yammer time



What are you working on?

Nick Peters
To All company and Shelly Smith
Ok Mac users time for some testing. OneDrive for Business in preview http://blogs.office.com/2015/01/28/onedrive-business-comes-m... Shelly Smith #collaboration #storage

[Like](#) • [Reply](#) • [View Conversation](#) • 20 hours ago

 Yammer

Show 6 older replies (6 unread)

 It works! Thanks for the solution. Class aptent taciti sociosqu ad litora torquent per conubia nostra.
[Like](#) • [Reply](#) • [View Conversation](#) • 20 hours ago

 Write a reply...

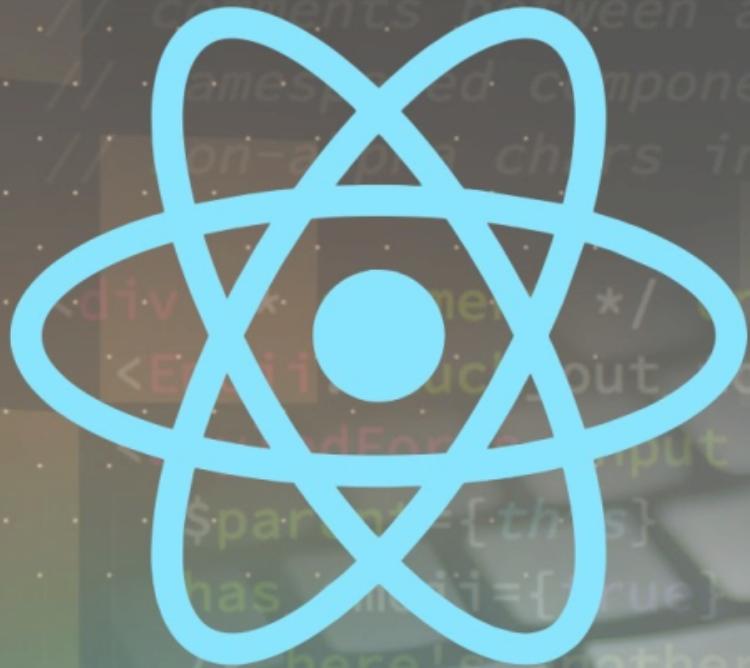
Nick Peters
To All company and Shelly Smith
Ok Mac users time for some testing. OneDrive for Business in preview http://blogs.office.com/2015/01/28/onedrive-business-comes-m... Shelly Smith #collaboration #storage

[Like](#) • [Reply](#) • [View Conversation](#) • 20 hours ago

React Overview

A JAVASCRIPT LIBRARY FOR BUILDING USER INTERFACES

FOCUSES ON
THE “VIEW” IN
MODEL VIEW
CONTROLLER



```
// comments between attributes,  
// namespaced components, and  
// non-alpha chars in tag/attribute name  
  
onClick>  
<div><!-- * --> onClick={this.onClick}  
<Editor></Editor><input  
$parent={this}  
hasError={true}>  
/* here's another comment */  
className='styled-input'  
</StyledForms.Input>  
</div>
```



React Key Concepts

Build
Components

Re-render,
Don't Mutate

Fast Virtual
DOM

Components

- Small, reusable widgets of your application
- UI layout and the UI logic are tightly coupled
- Can be individual or have a parent/child relationship
- Use state for storing data within the component
- Use props to pass data and events to a child component



Human Resources

Dep

Annual Employee Appreciation Celebration Planning is Underway!

[Click here to see some of the exciting events we have in store for you!](#)

News & Announcements



June 7, 2015

The Benefits of Blogging

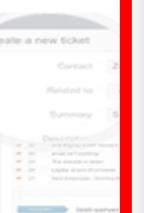
Blogging for business is not a new concept, but for many small businesses, especially service businesses, it can be an...



June 17, 2015

Flying Pig 5K Marathon

It's the largest weekend party in town, and you can be part of it! Whether you're a runner or walker, whether you want to...

[Read More.](#)

June 23, 2015

Automate Your Business

We are excited to announce a new help desk system that will make it easier for you to...

[Read More.](#)

12 Projects

Red Projects

!	Firetruck	→
!	Irongate	→

All Projects

	Bladerunner	→
A	Constantine	→
A	Excalibur	→
!	Firetruck	→
!	Irongate	→
	Kryptonite	→
	Mad Hatter	→
A	Moonshine	→
	Orion	→
A	Revolution	→
A	Sputnik	→
	Zircon	→

Props vs State

	prop	state
Can you use a plain JavaScript object to store data?	Yes	Yes
Can get initial value from parent Component?	Yes	Yes
Can be changed by parent Component?	Yes	No
Can set default values inside Component?	Yes	Yes
Can change inside Component?	No	Yes
Can set initial value for child Components?	Yes	Yes
Can change in child Components?	Yes	No
Does change trigger render event?	Yes	Yes

JSX

JSX

- Syntax extension to JavaScript
- Declarative description of the UI inline in JavaScript code
- Use inside if statements and for loops, assign to variables, accept as arguments, return from functions
- Wrap JavaScript expressions in {} to be used within an element
- Preprocessor translates syntax into plain JavaScript objects

```
render() {
  return (
    <div className="container">
      <Paper zDepth={5}>
        <List>
          <Subheader className="projectSubheading">Red Projects</Subheader>
          {this.props.projects
            .filter( row => row.status === "R")
            .map( (row, index) => (
              <ProjectListItem key={index} project={row} />
            )))
        </List>
        <Divider />
        <List>
          <Subheader className="projectSubheading">All Projects</Subheader>
          {this.props.projects
            .map( (row, index) => (
              <ProjectListItem key={index} project={row} />
            )))
        </List>
      </Paper>
    </div>
  );
}
```

Deployment Workflow

Local Test

- Build process
- Disable web security (--disable-web-security) errors in Chrome
- Functional testing

Upload Source Code to Document library

- Same folder structure as local environment
- Only the build files are needed
- Upload source code

SharePoint Deployment & Test

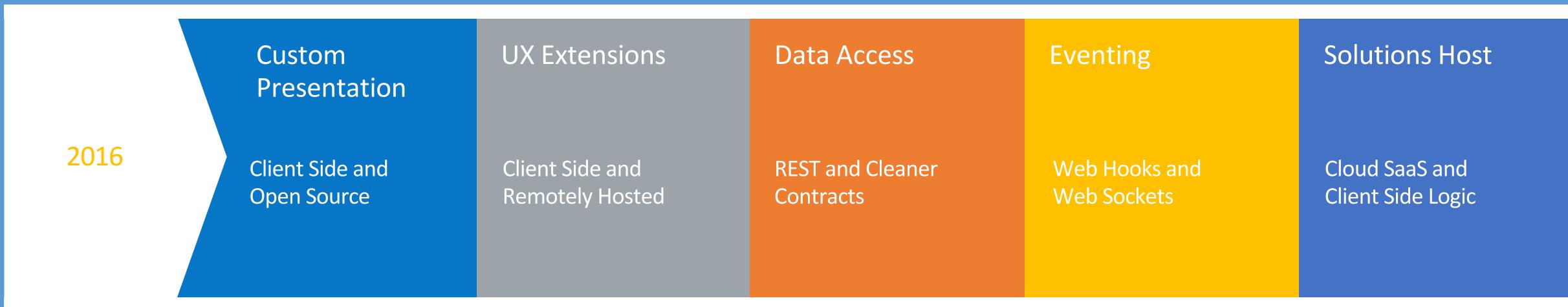
- Add Script Editor web part to Page
- Add markup
- Functional testing

Demo – SharePoint & React

SharePoint Framework

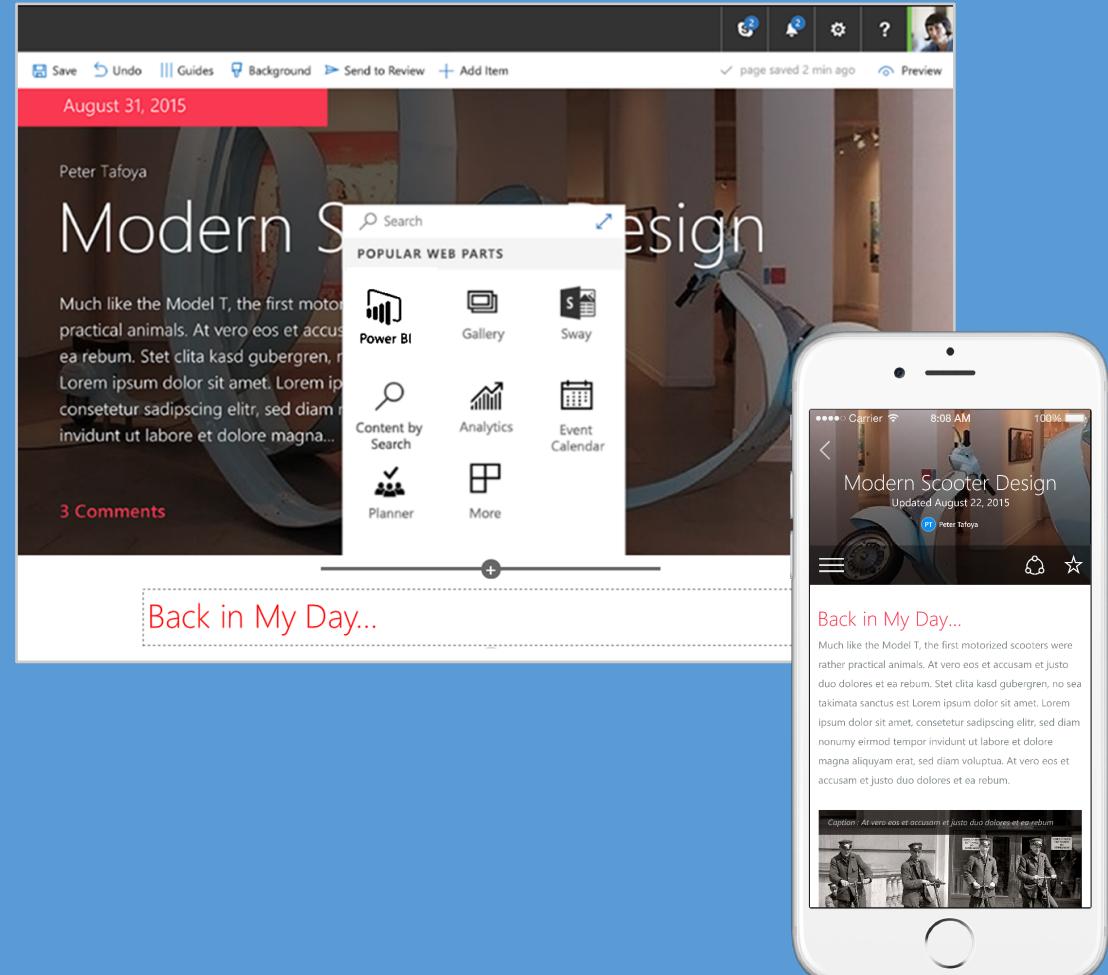
SharePoint Framework

- New Microsoft-recommended, client-side framework coming to SharePoint Online and SharePoint 2016
- Build applications using the latest JavaScript frameworks including Angular and React
- Use the latest tools: NodeJS, NPM, Gulp, Yeoman, TypeScript

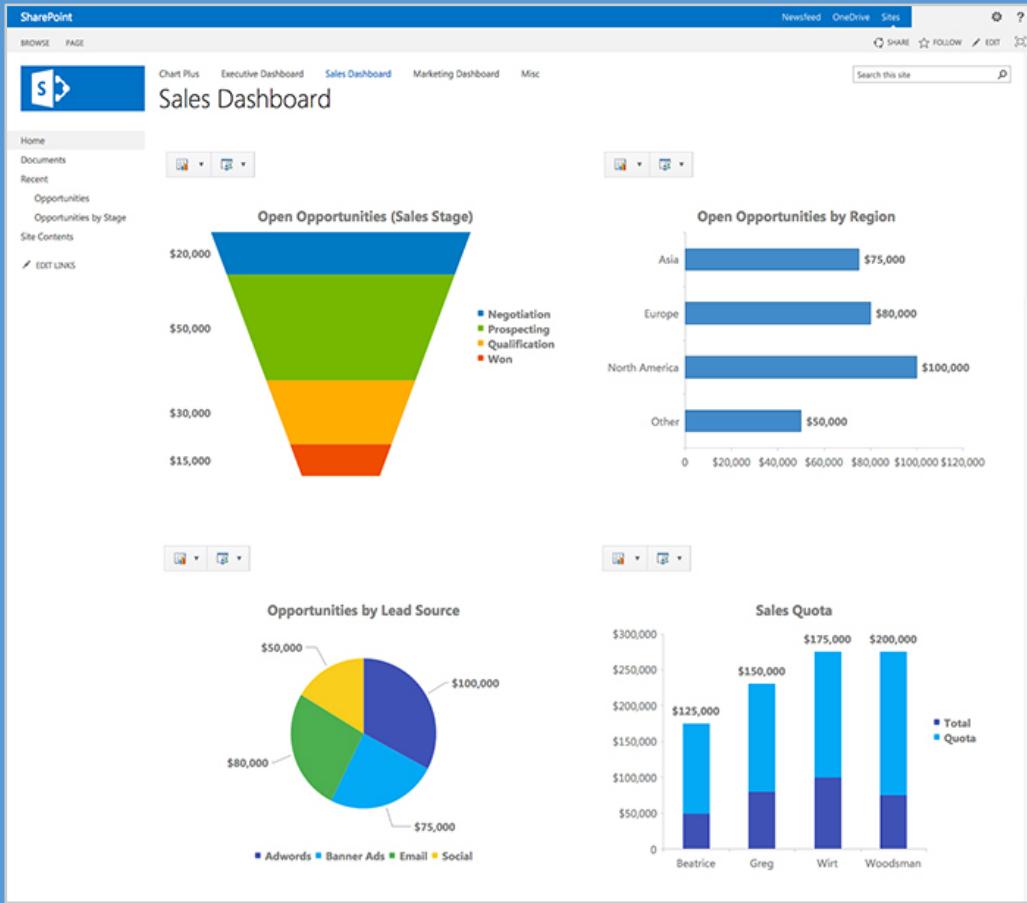


Scenarios

- Brand custom portals
- Build custom intranet portals
- Build custom web parts
- Build line of business applications



Client-Side Web Parts



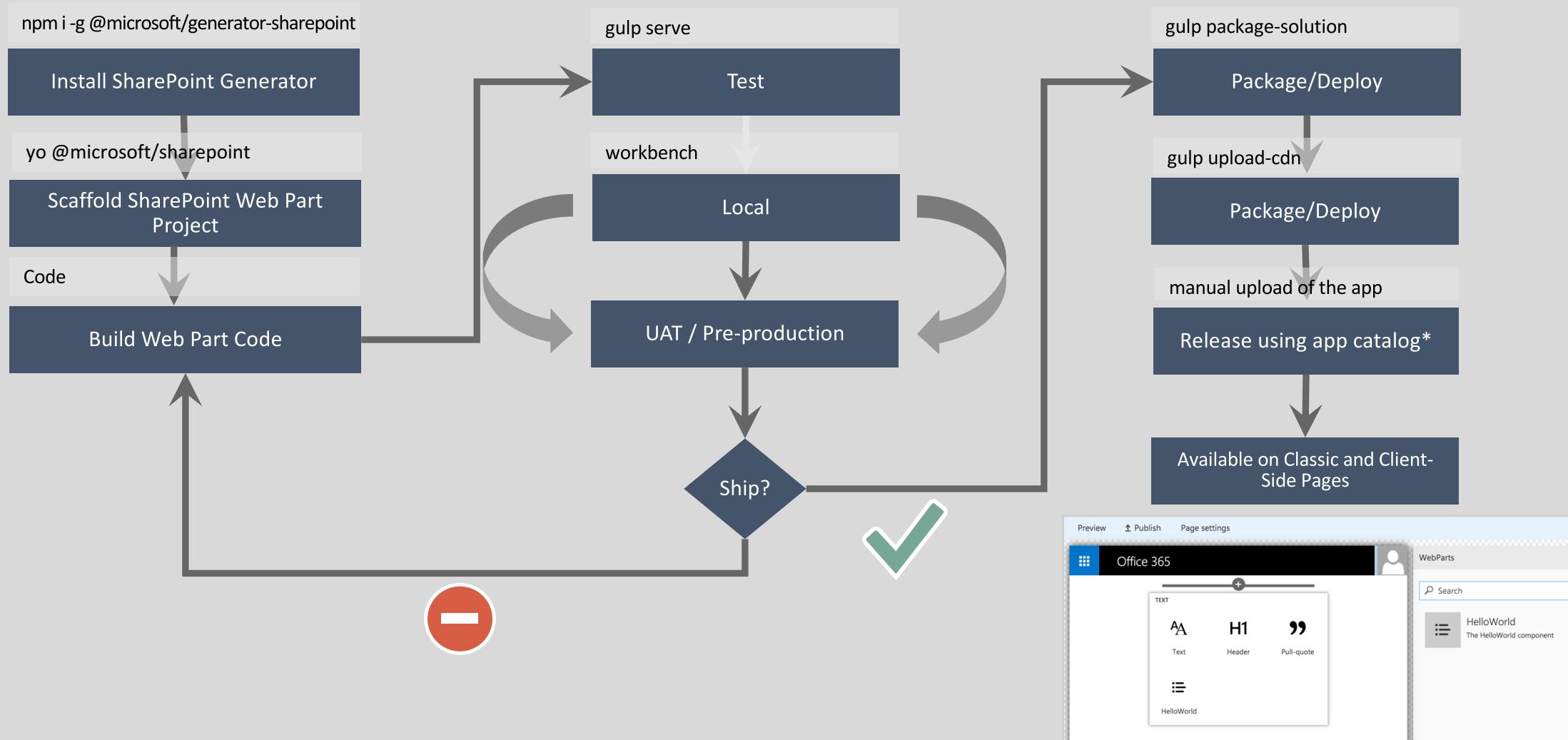
Web Part Value

- End users add functionality to SharePoint Experiences
- Configurable, reusable, purpose built components built by developers
- Framework for connecting related components
- Context aware

Client-side Web Parts remain Web Parts

- Built for the modern, JavaScript-driven web
- Can run directly inside a SharePoint page, new and existing
- Web framework agnostic
- Support both on-premises and Office 365

Client-side Web Part Build Flow



Demo – SharePoint Framework

Office Fabric

Office Fabric

- <http://dev.office.com/fabric>
- “The official front-end framework for building experiences that fit seamlessly into Office and Office 365”
- Language options: Vanilla JavaScript, ReactJS, and AngularJS
- Follows Material Design guidelines

The image shows three main sections of the Fabric design system. On the left, under 'Styles', there's a purple background featuring the letters 'Aa' and a color palette grid. In the center, under 'Icons', are three circular icons representing globe, document, and compass. On the right, under 'Components', is a screenshot of a user interface with various UI elements like navigation bars and content cards.

Styles	Icons	Components
Fabric gives you access to Segoe, Microsoft's official typeface, along with the color palette, type ramp, icons, and responsive grid for Office 365.	Fabric includes Office's official product icons. Fabric also provides a suite of product and document symbols, so you can use the same metaphors we use.	Components are the building blocks of your UI. Fabric has a variety of components, including navigation, commands, containers, and content.

Demo – Office Fabric

Resources

- React - <https://facebook.github.io/react/>
- Create React App -
<https://github.com/facebookincubator/create-react-app>
- axios - <https://github.com/mzabriskie/axios>
- SharePoint Framework -
<https://github.com/SharePoint/sp-dev-docs>
- Material-UI - <http://www.material-ui.com/#/>
- Material UI Icons - <https://material.io/icons/>
- Office Fabric - <https://dev.office.com/fabric>

High Priority Projects Snippet

```
<link href="/sites/projects/SiteCollectionDocuments/css/main.968ec085.css" rel="stylesheet">
<div id="appProjects"></div>
<script type="text/javascript" src="/sites/projects/SiteCollectionDocuments/js/main.f8b604ee.js"></script>
```