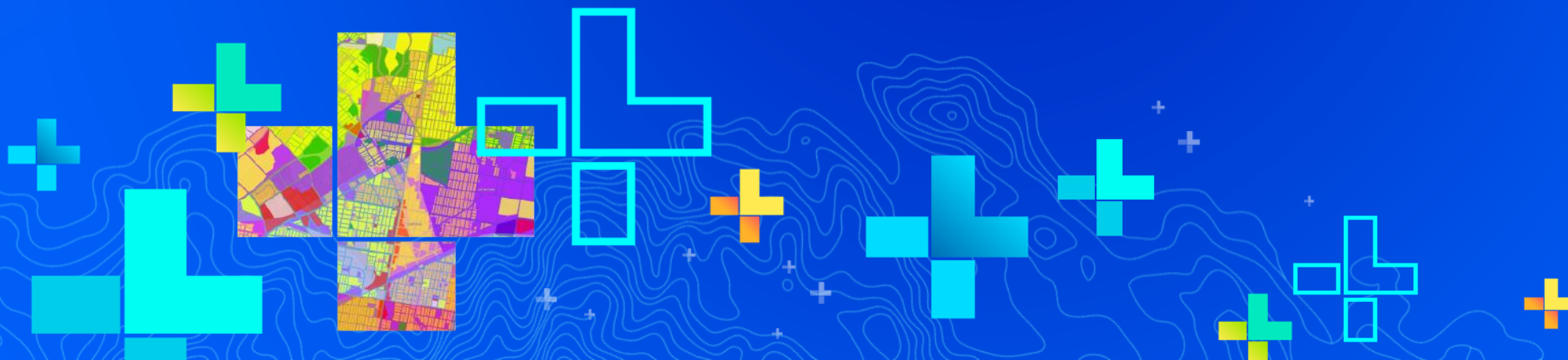




Web AppBuilder for ArcGIS: Customizing and Extending

Gavin Rehkemper

David Martinez



SEE
WHAT
OTHERS
CAN'T

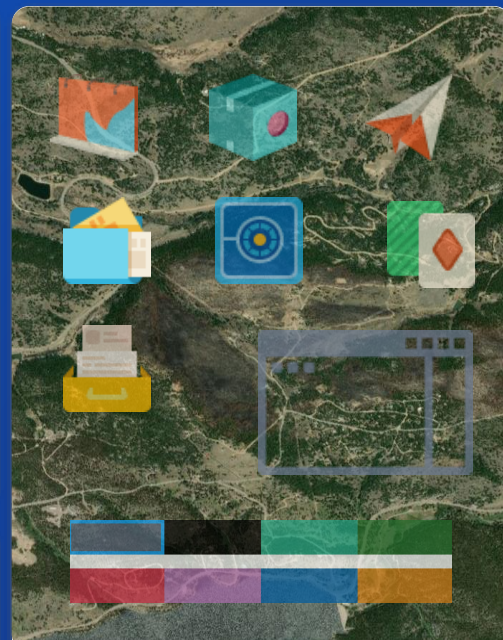




Introduction



David Martinez



Create a Theme



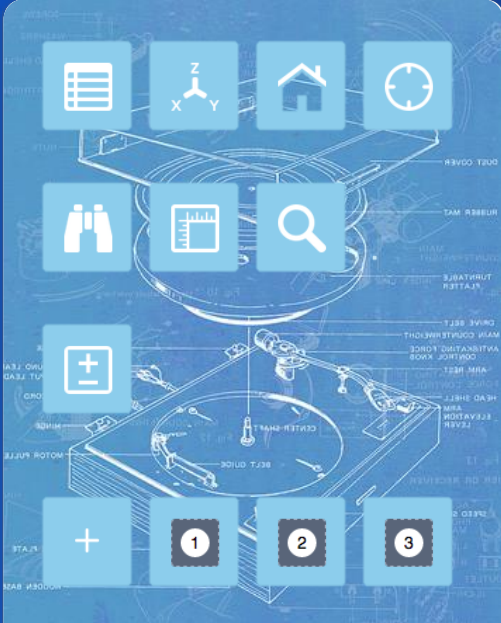
David Martinez



What's Coming



David Martinez



Create a Widget



Gavin Rehkemper



WAB Communities



Gavin Rehkemper



Q&A



David Martinez



Gavin Rehkemper

Introduction

Web AppBuilder for ArcGIS



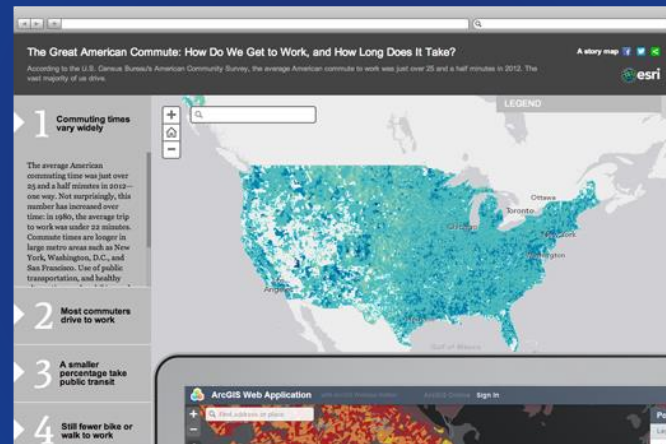
Building Web Apps for Your Organization

Using the ArcGIS API for JavaScript

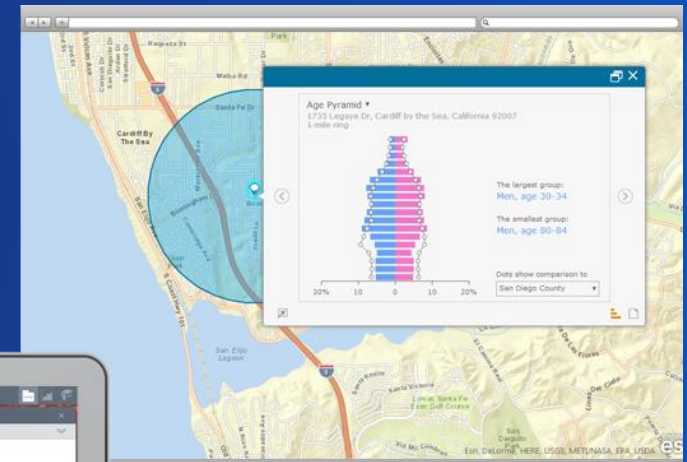
Samples



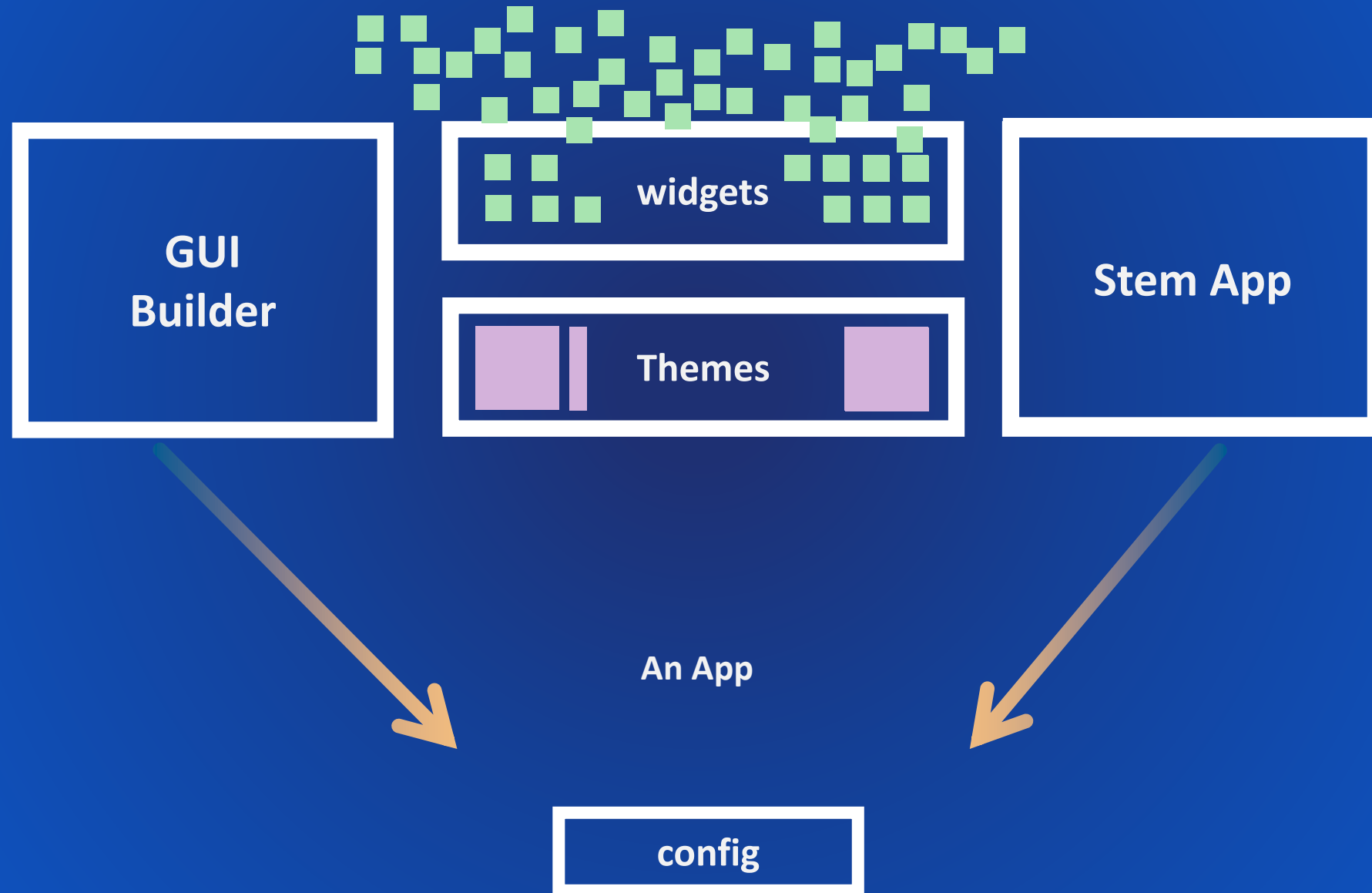
Configurable Apps & Builders



Widgets



Building an App



Access Type

38%
Private

16%
Shared

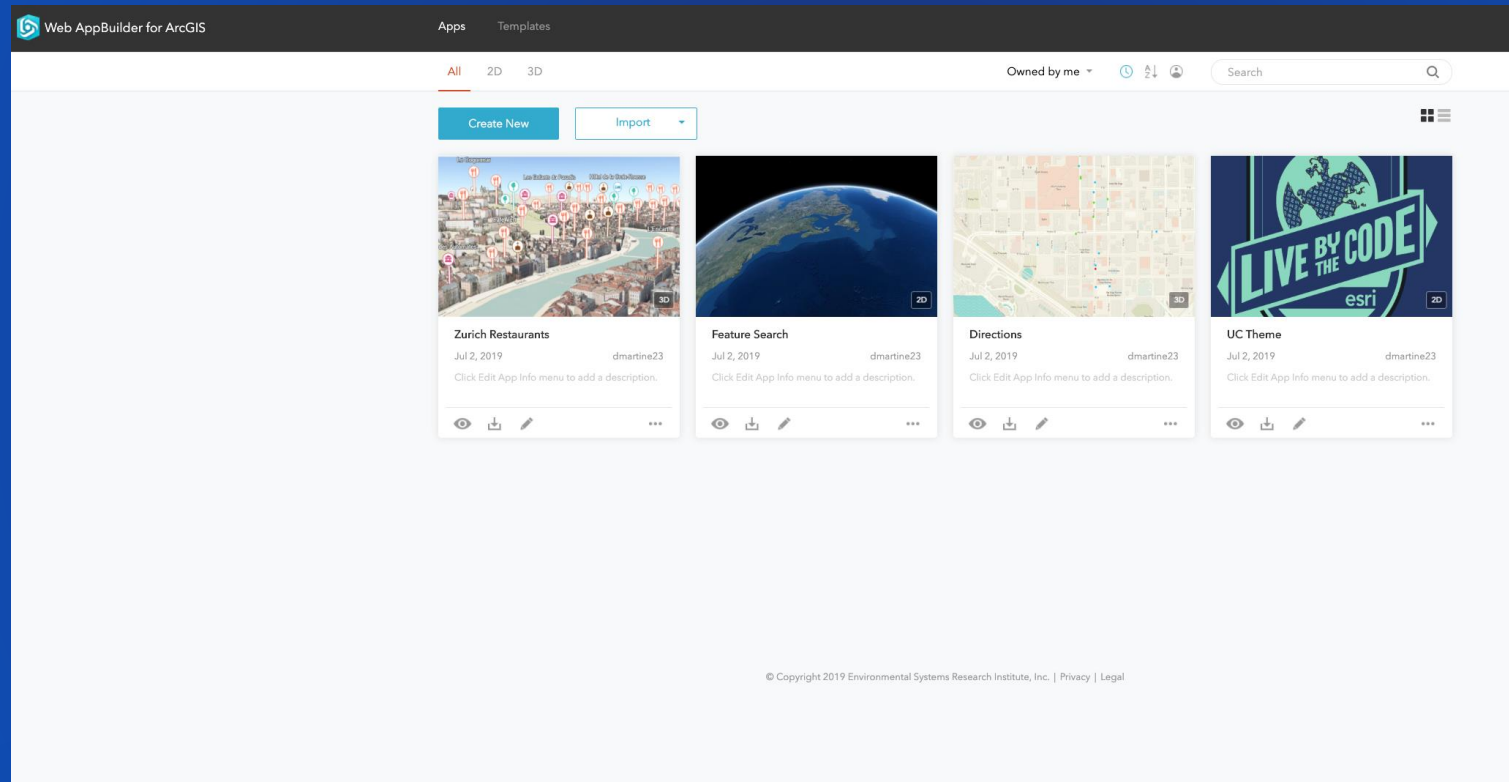
517,469
Total AppBuilder Apps

33%
Public

13%
Account



Web AppBuilder (Developer Edition)



Widget

- Execution at run time
- Configure-in, not cut/paste
- Self sufficient and distributable
- Need container, no coding block
- Has programming framework of container

Theme

- Applied at run time
- Configure-in, not modify css
- Need container
- Self sufficient and distributable
- Has programming framework of container

Widgets

Building blocks of apps



It's really just a web app

MyWidget.css

MyWidget.js

MyWidget.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <meta charset="utf-8">
5   <meta name="viewport" content="initial-scale=1, maximum-scale=1, user-scalable=no">
6   <title>Add a Legend to LayerList - 4.10</title>
7   <link rel="stylesheet" href="https://js.arcgis.com/4.10/esri/themes/dark/main.css">
8   <style>
9     html,
10    body,
11    #viewDiv {
12      padding: 0;
13      margin: 0;
14      height: 100%;
15      width: 100%;
16      overflow: hidden;
17    }
18  </style>
19  <script src="https://js.arcgis.com/4.10/"></script>
20  <script>
21    require([
22      "esri/WebMap",
23      "esri/views/MapView",
24      "esri/widgets/LayerList"
25    ], function(
26      WebMap, MapView, LayerList
27    ) {
28
29      const map = new WebMap({
30        portalItem: {
31          id: "d5dda743788a4b0688fe48f43ae7beb9"
32        }
33      });
34
35      // Add the map to a MapView
36      const view = new MapView({
37        container: "viewDiv",
38        map: map
39      });
40
41      // Add a Legend instance to the panel of a
42      // ListItem in a LayerList instance
43      const layerList = new LayerList({
44        view: view,
45        listItemCreatedFunction: function(event) {
46          const item = event.item;
47          if (item.layer.type !== "group") { // don't show Legend twice
48            item.panel = {
49              content: "legend",
50              open: true
51            };
52          }
53        }
54      });
55      view.ui.add(layerList, "top-right");
56
57    });
58  </script>
59  </head>
60  <body>
61    <div id="viewDiv"></div>
62  </body>
63 </html>
```

Inheriting from BaseWidget

```
define(['dojo/ base/declare', 'jimu/BaseWidget'],  
function(declare, BaseWidget){  
    var clazz = declare([BaseWidget], {  
    });  
    return clazz;  
});
```

A widget derived from the BaseWidget class

Dijit lifecycle

- postCreate
- startup
- ...



Widget events

- onOpen, onActive
- onClose, onDeActive



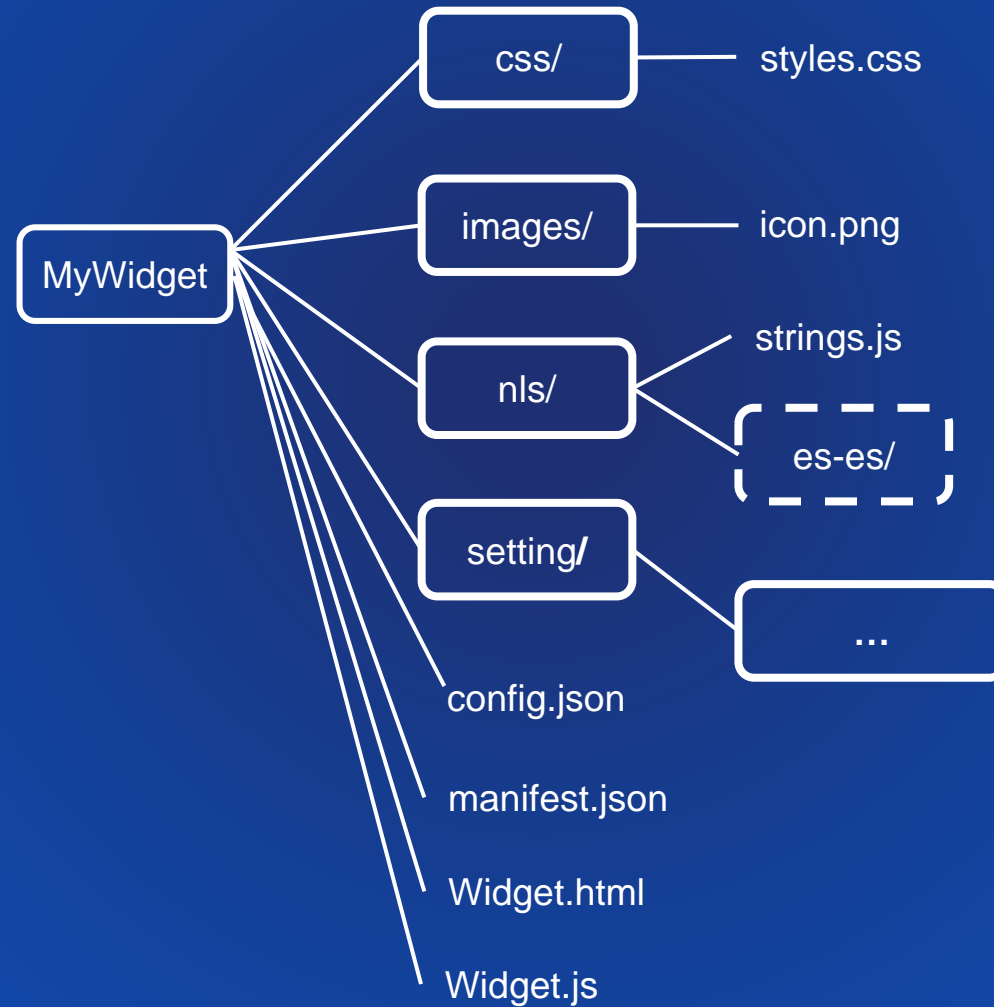
BaseWidget

- App properties (name, icon, localization)
- App config data
- Widget's config data
- Map object
- Widget state (open, closed, active...)
- Events (open/signIn)
- Widget communication

Your job?

- Widget UI (HTML/template)
- Widget config file (JSON)
- Widget styles (CSS)
- Localization
- Your unique business logic (JavaScript)

Conventions and Structure



Configure your custom widget inside the builder

Configure Directions

Directions

[Change widget icon](#) [Learn more about this widget](#)

Route URL:

Geocoder URL:

Travel modes URL:

Traffic layer URL:

Geocoder options

☒ Autocomplete

Maximum suggestions: Minimum characters:

Placeholder: Search delay:

Route options

Directions language: Directions length units:

Impedance attribute:

Preset stops

Start point: End point:

Barrier Layers

Point barriers:

Line barriers:

- Building a UI for the user:
 - Setting.js
 - Config info
 - getConfig, setConfig
 - Setting.html
 - Usual localization pattern
 - CSS

Getting Started

1. Download developer edition
2. Connect to organization or portal
3. **Copy** widget template
4. **Run** the builder
5. **Create** an app with your widget
6. **Build** your widget in the app

Create a New Widget



Theme

App in style with personality





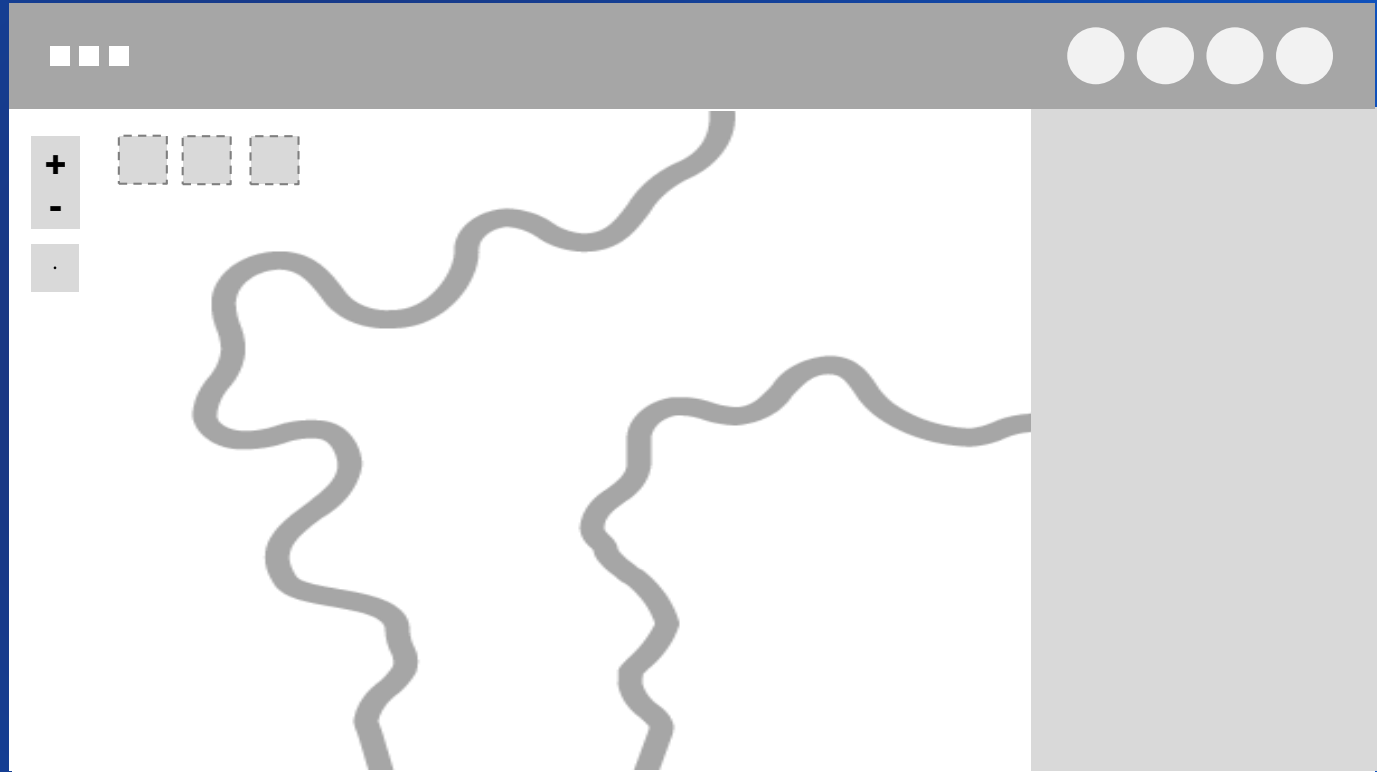
Theme is you

Major Components in a Theme

- **Layout**
- **Panel**
- **Style**
- **Controller**

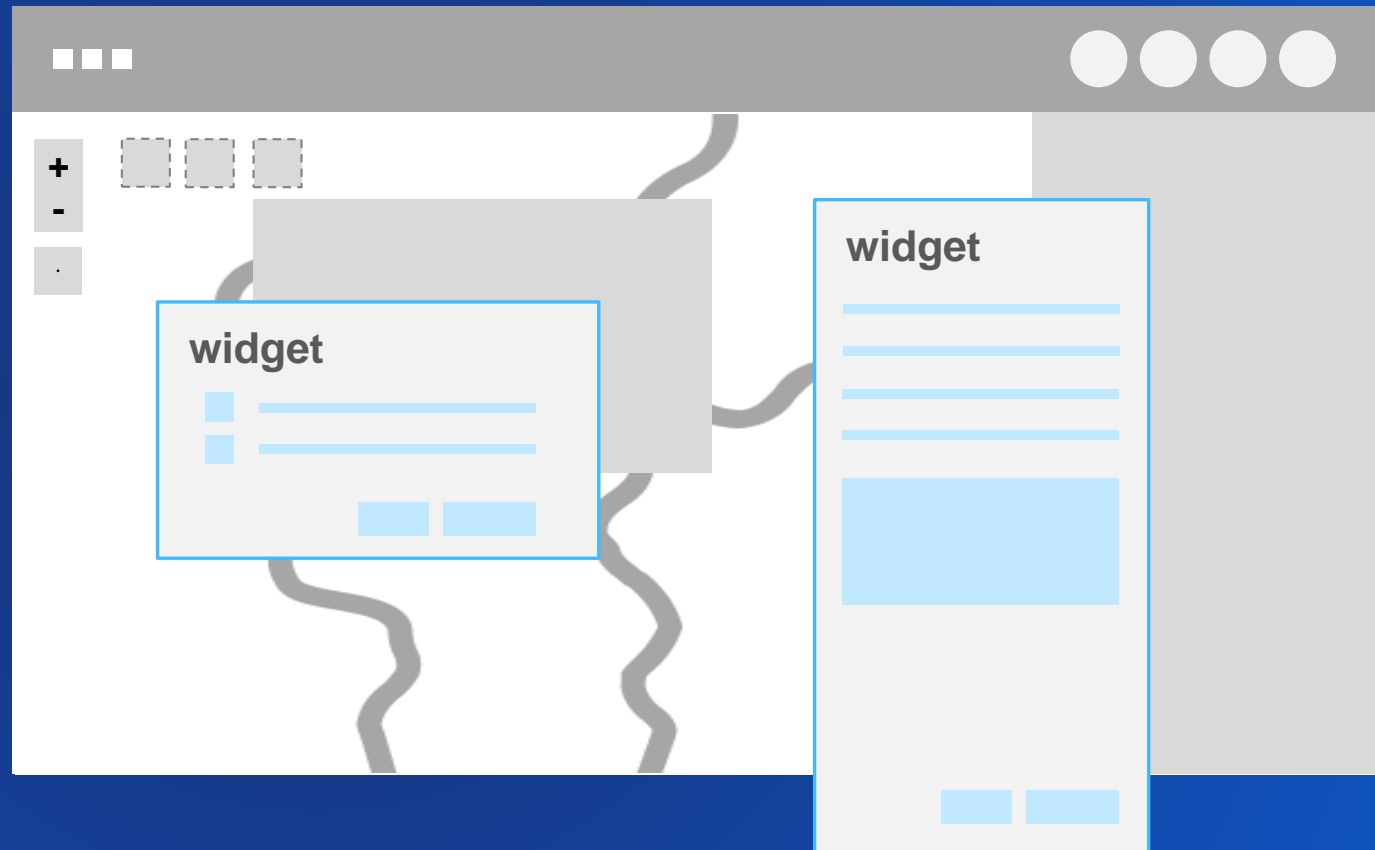
What Composes a Theme?

- **Layout**
- **Panel**
- **Style**
- **Controler**



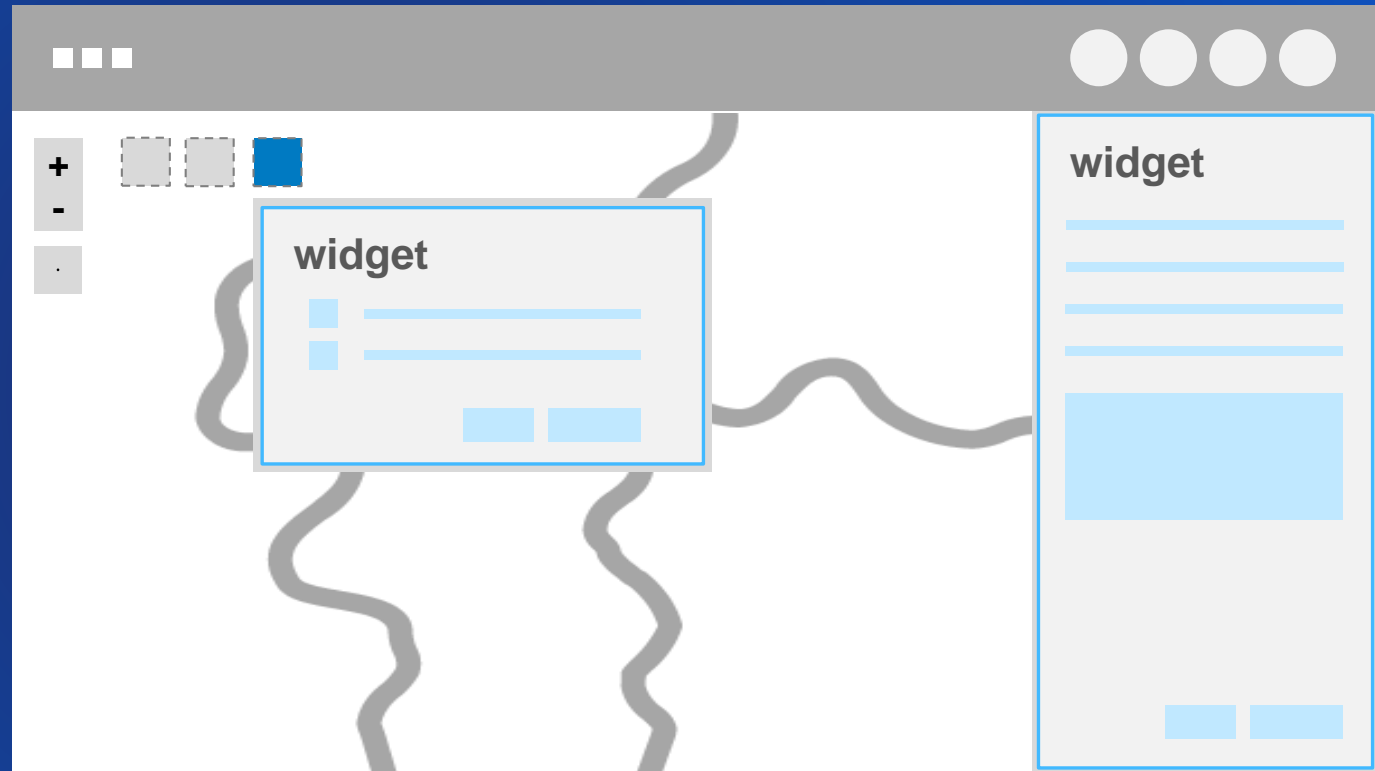
What Composes a Theme?

- Layout
- **Panel**
- Style
- Controller



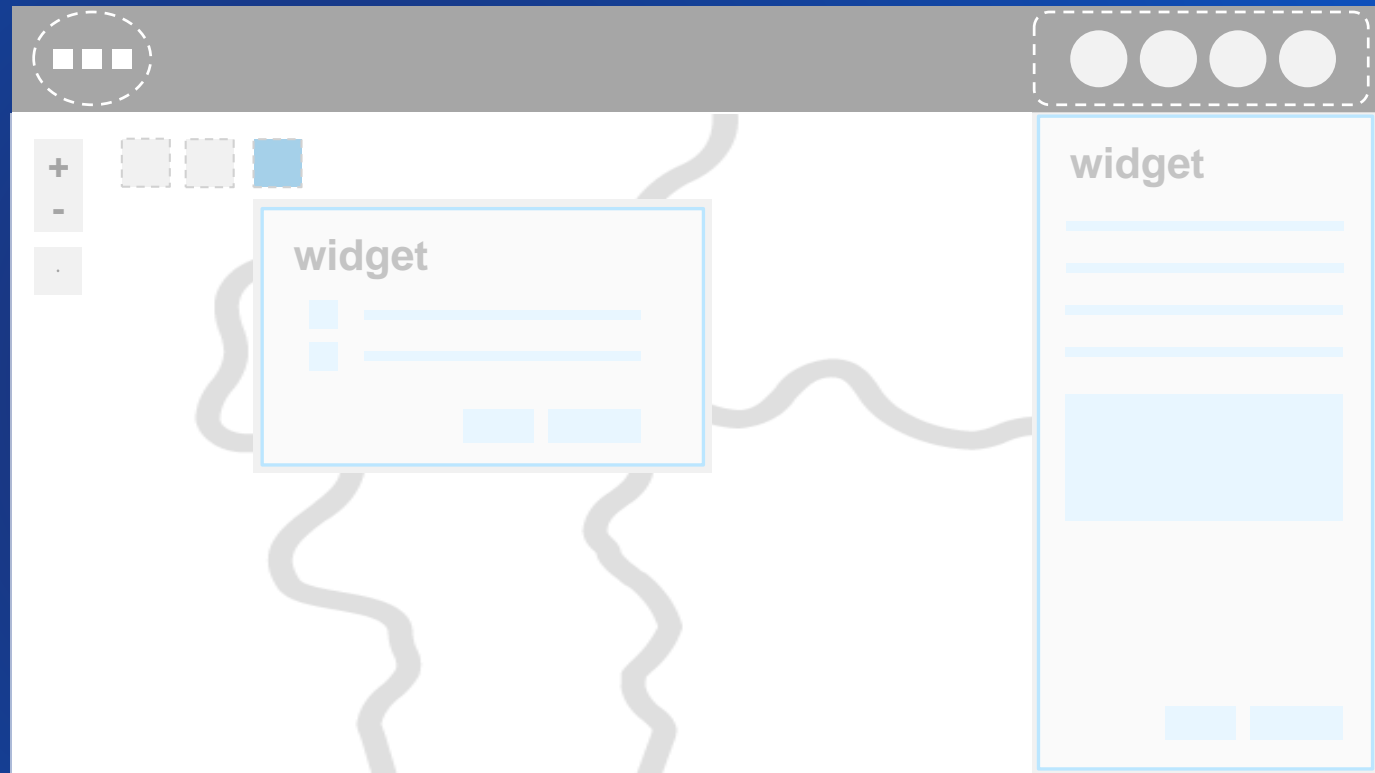
What Composes a Theme?

- Layout
- Panel
- **Style**
- Controller



What Composes a Theme?

- Layout
- Panel
- Style
- **Controller**



What Makes Up The WAB UI?



How UI Libraries Work In WAB:



Theme: common.css, style.css

Jimu: jimu.css, jimu-override.css, etc.

ArcGIS API for JavaScript: esri.css

Dojo dijit: claro.css

Compare to a Functional Widget

		Controller Widget	Functional Widget
Purpose		<ul style="list-style-type: none">Displays app informationDefines app behaviors, interactions, workflows, etc.	Provides one specific functionality to the app
Folder Structure		Very similar	
Manifest	isController	True	False
	isThemeWidget	True	False
	inPanel	Always false	May vary
	Others	Very similar	

Let's Create a New Theme

Community

For you and by you



Helpful Resources

Online help documentation

<http://doc.arcgis.com/en/web-appbuilder>

Developer Edition help documentation

<http://developers.arcgis.com/web-appbuilder>

Web AppBuilder for ArcGIS Geonet

<https://community.esri.com/community/gis/web-gis/web-appbuilder>



Other Online Resources

- Esri Solutions Widgets:
 - <https://github.com/Esri/solutions-webappbuilder-widgets>
- Lists of Widgets:
 - <http://codesharing.arcgis.com/>
 - <http://esri-es.github.io/Web-AppBuilder-Custom-Widgets/>
- Example widgets and theme shown today: <http://esriurl.com/wabUC2019>



What's Coming





“ArcGIS Experience Builder”

Experience Builder Key Features

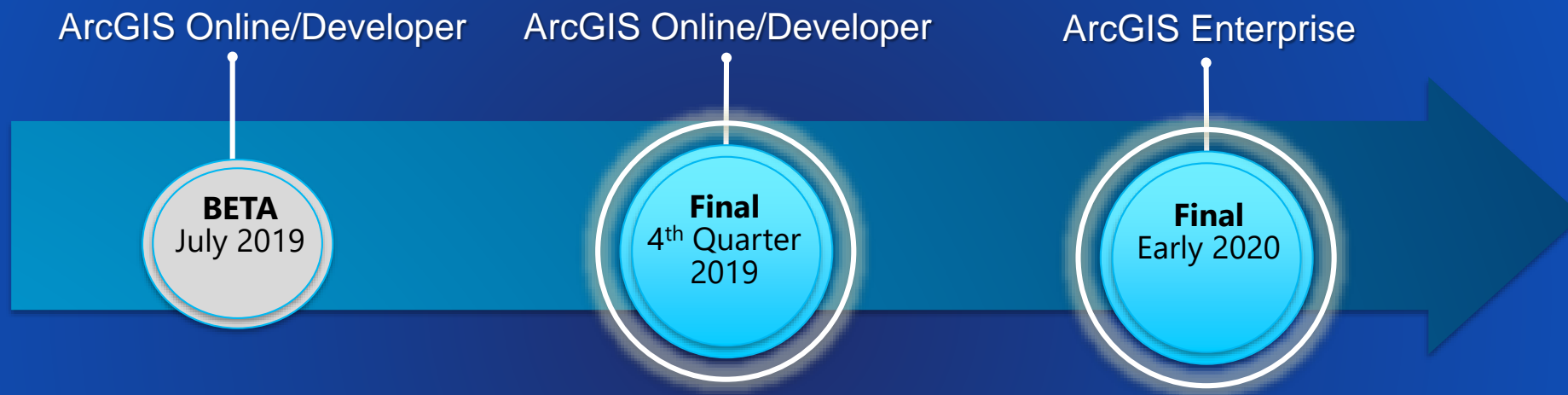
- GUI builder to configure web apps and web pages
- Extensible framework for creating widgets and templates
- Extensible framework for different development roles
 - Developers
 - Designer
 - Solution Developers
 - Domain Experts

Experience Key Features (Continued)

- Mobile friendly- The same web app or web page on mobile can be configured separately from desktop
- Supports Web Map/Web Scene and multiple maps
- Themes define the Typography and color
- Drag and drop functionality of widgets



Experience Builder Release Plan

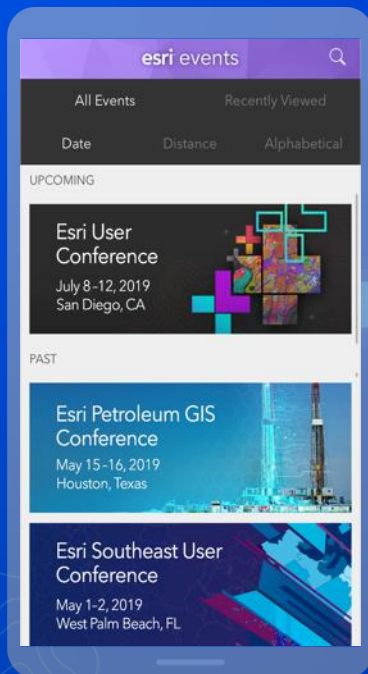


** Subject to change*

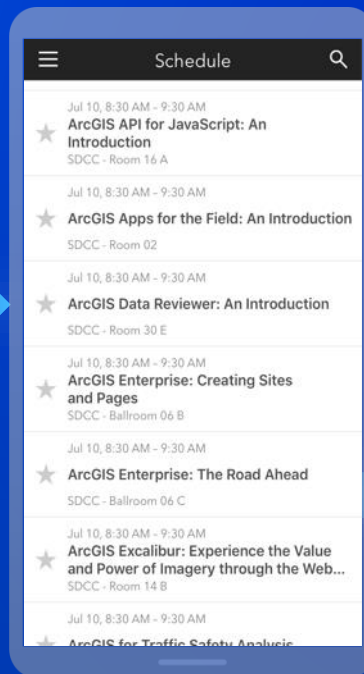
Questions?

Please Share Your Feedback in the App

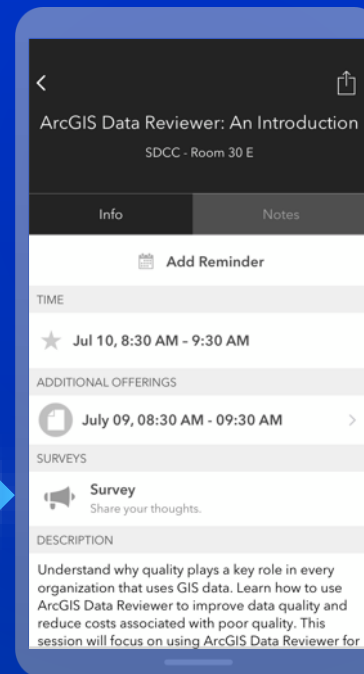
Download the Esri Events app and find your event



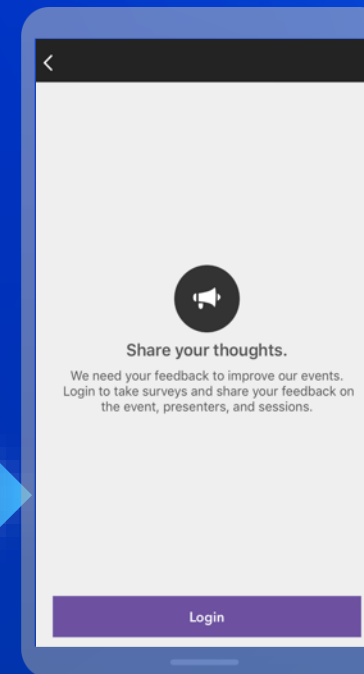
Select the session you attended



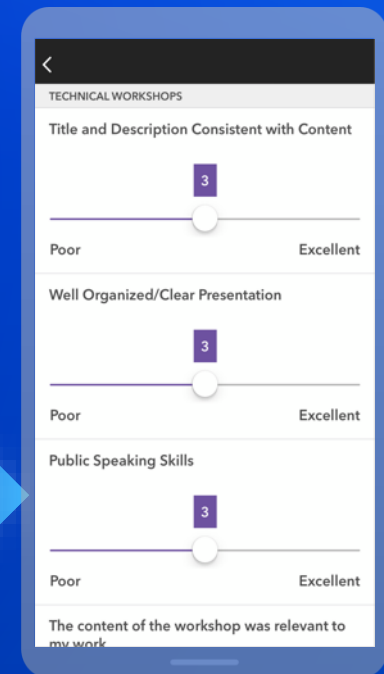
Scroll down to "Survey"



Log in to access the survey



Complete the survey and select "Submit"





esri

THE
SCIENCE
OF
WHERE