Web AppBuilder for ArcGIS: Creating Custom Widgets and Themes

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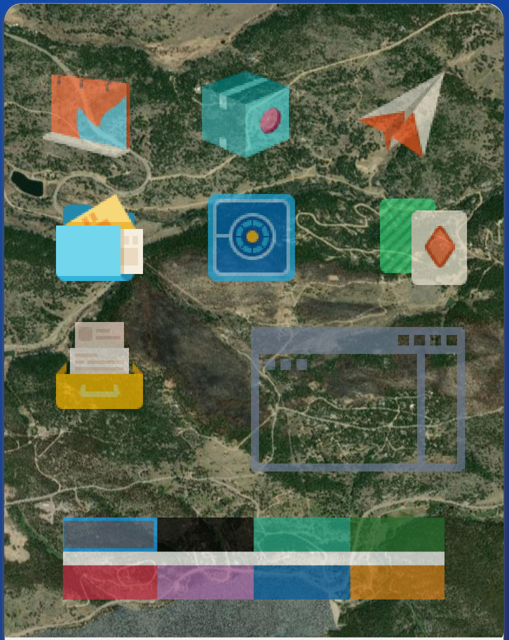
ESRI EUROPEAN DEVELOPER SUMMIT

esri

Introduction

Create a Widget



Create a Theme

WAB Communities

Q&A

Introduction

Web AppBuilder for ArcGIS

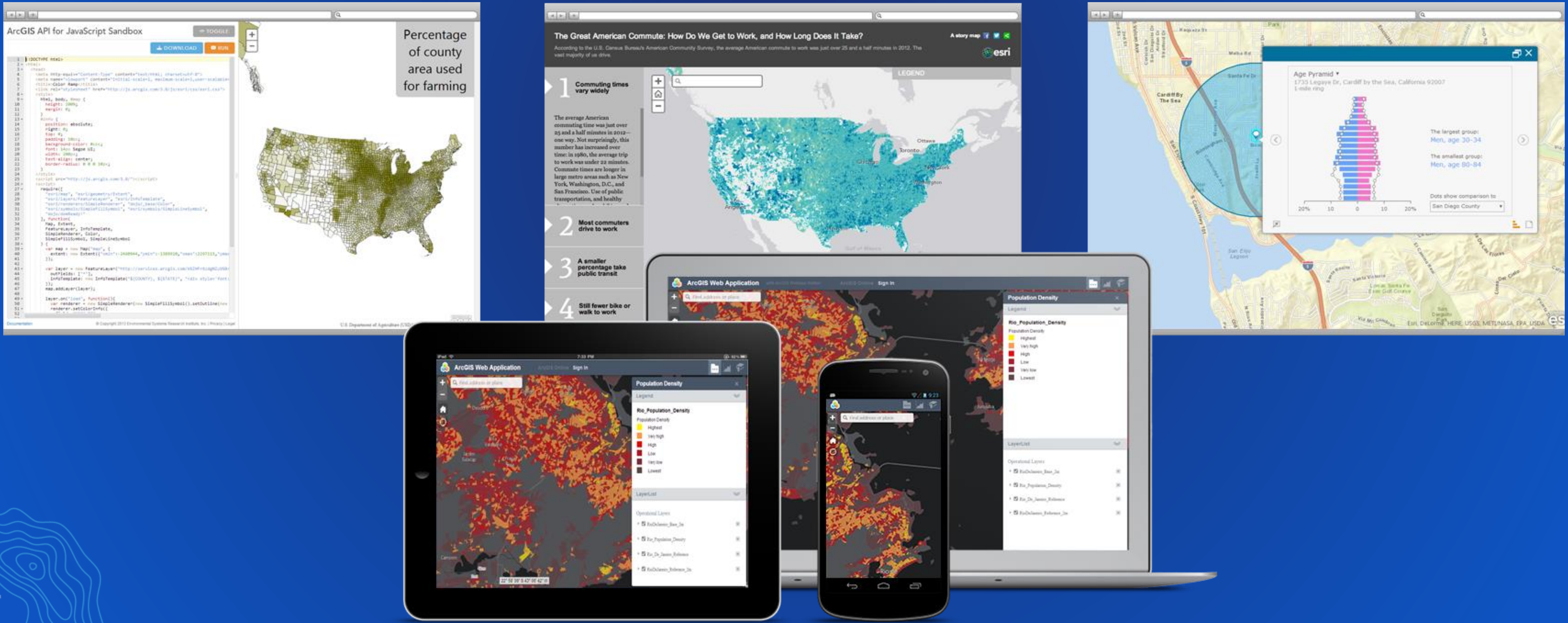
Building Web Apps for Your Organization

Using the ArcGIS API for JavaScript

Samples

Configurable Apps **& Builders**

Widgets



ArcGIS API for JavaScript Sandbox

Percentage of county area used for farming

The Great American Commute: How Do We Get to Work, and How Long Does It Take?

According to the U.S. Census Bureau's American Community Survey, the average American commute to work was just over 25 and a half minutes in 2012. The vast majority of us drive.

1 Commuting times vary widely

The average American commuting time was just over 25 and a half minutes in 2012—one way. Not surprisingly, this number has increased over time: in 1980, the average trip to work was under 22 minutes. Commute times are longer in large metro areas such as New York, Washington, D.C., and San Francisco. Use of public transportation, and healthy

2 Most commuters drive to work

3 A smaller percentage take public transit

4 Still fewer bike or walk to work

Age Pyramid

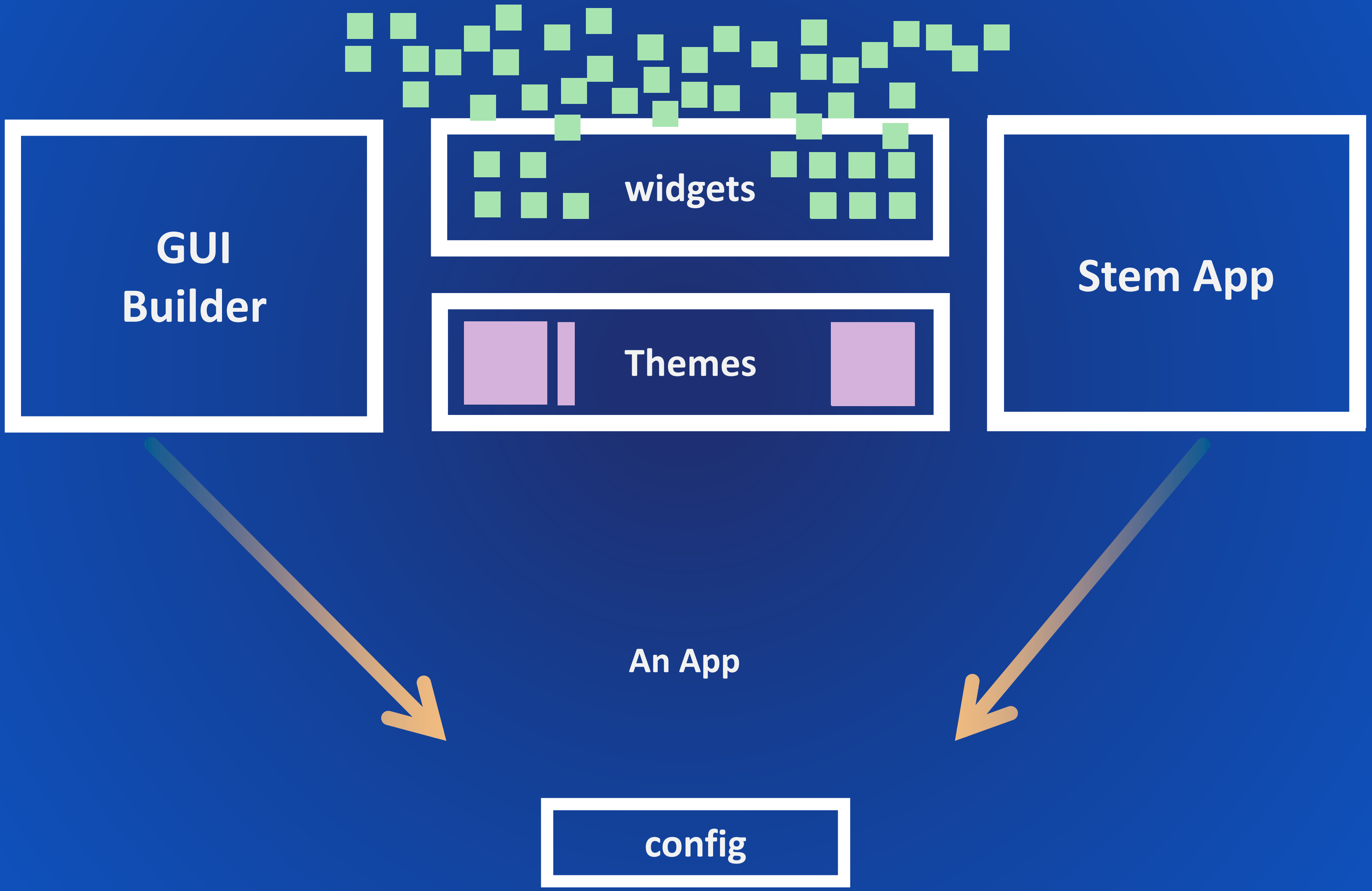
1735 Legaye Dr, Cardiff by the Sea, California 92007
1-mile ring

The largest group:
Men, age 30-34

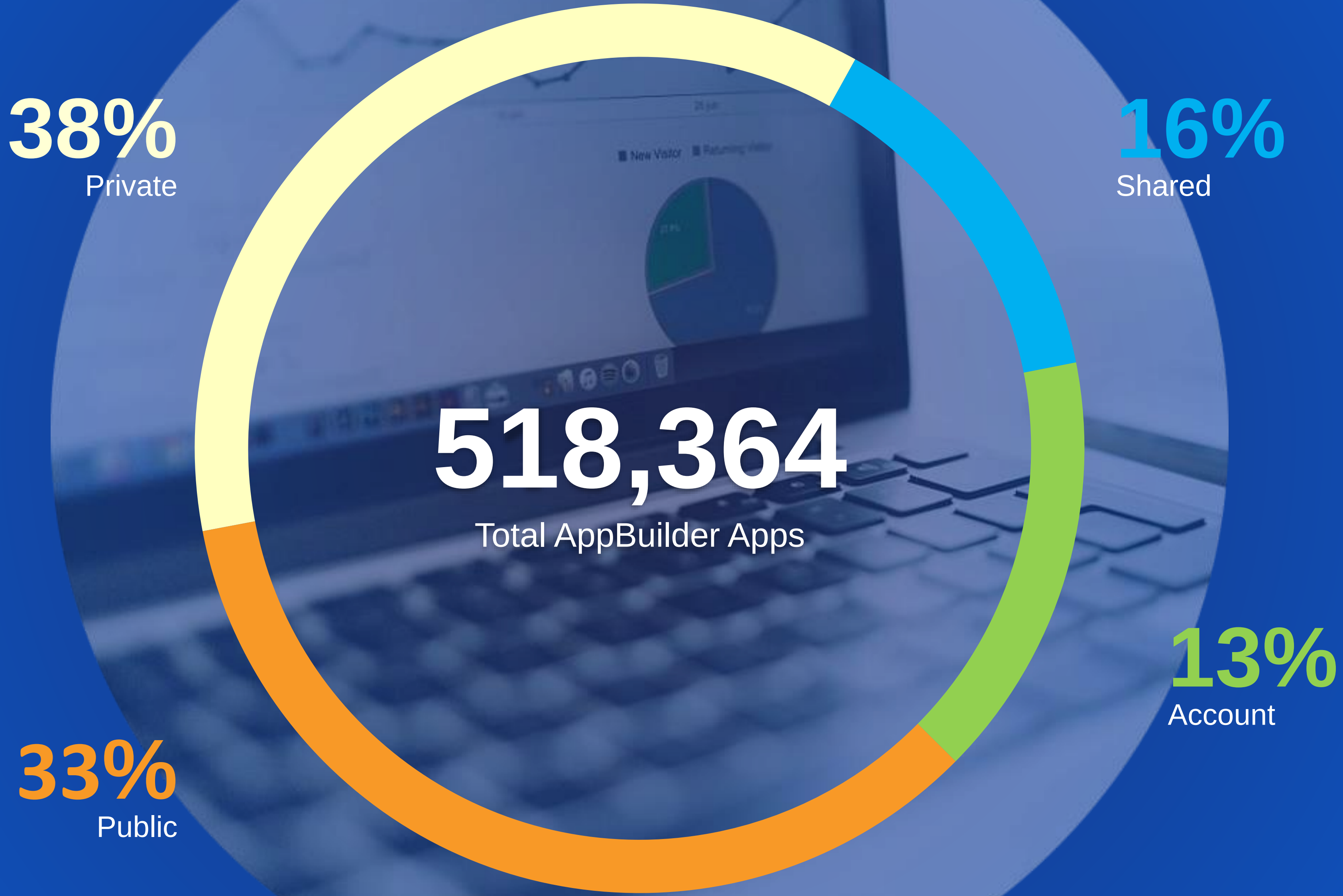
The smallest group:
Men, age 80-84

Dots show comparison to: San Diego County

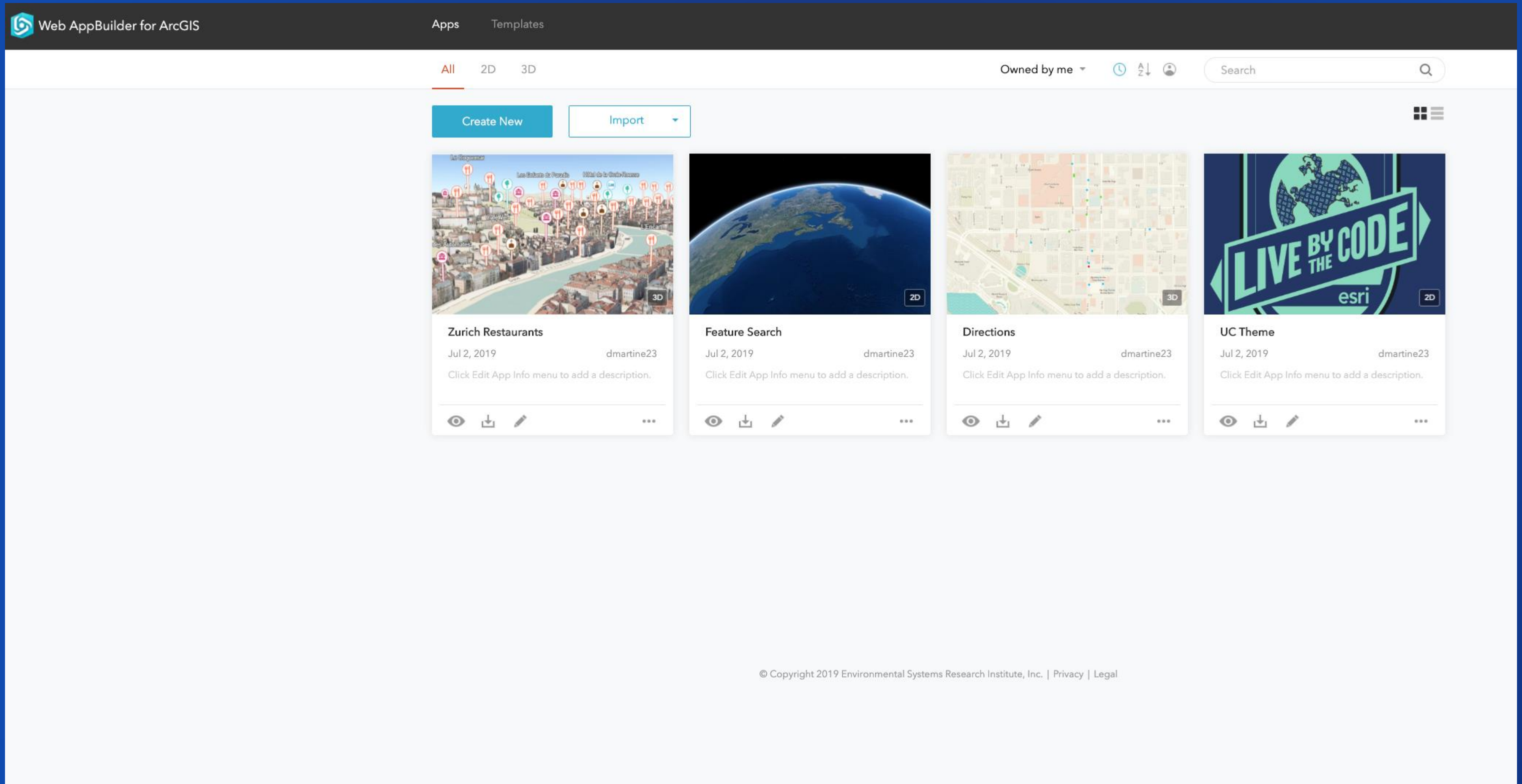
Building an App



Access Type


38%
Private
16%
Shared
518,364
Total AppBuilder Apps
13%
Account
33%
Public

Web AppBuilder (Developer Edition)



Zurich Restaurants
Jul 2, 2019 dmartine23
Click Edit App Info menu to add a description.

Feature Search
Jul 2, 2019 dmartine23
Click Edit App Info menu to add a description.

Directions
Jul 2, 2019 dmartine23
Click Edit App Info menu to add a description.

UC Theme
Jul 2, 2019 dmartine23
Click Edit App Info menu to add a description.

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Widget

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

Theme

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

Widgets

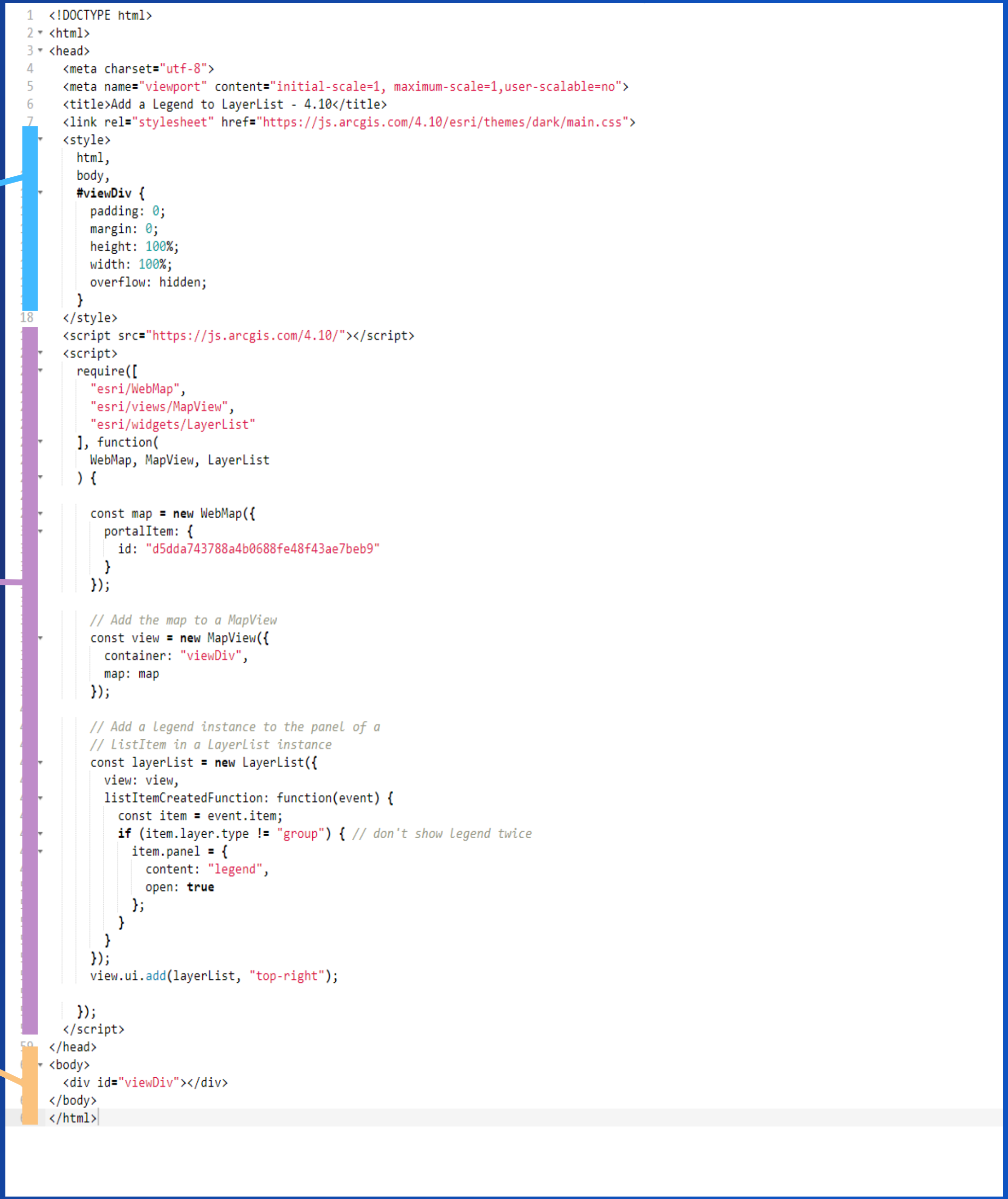
Building blocks of apps

It’s really just a web app

MyWidget.css

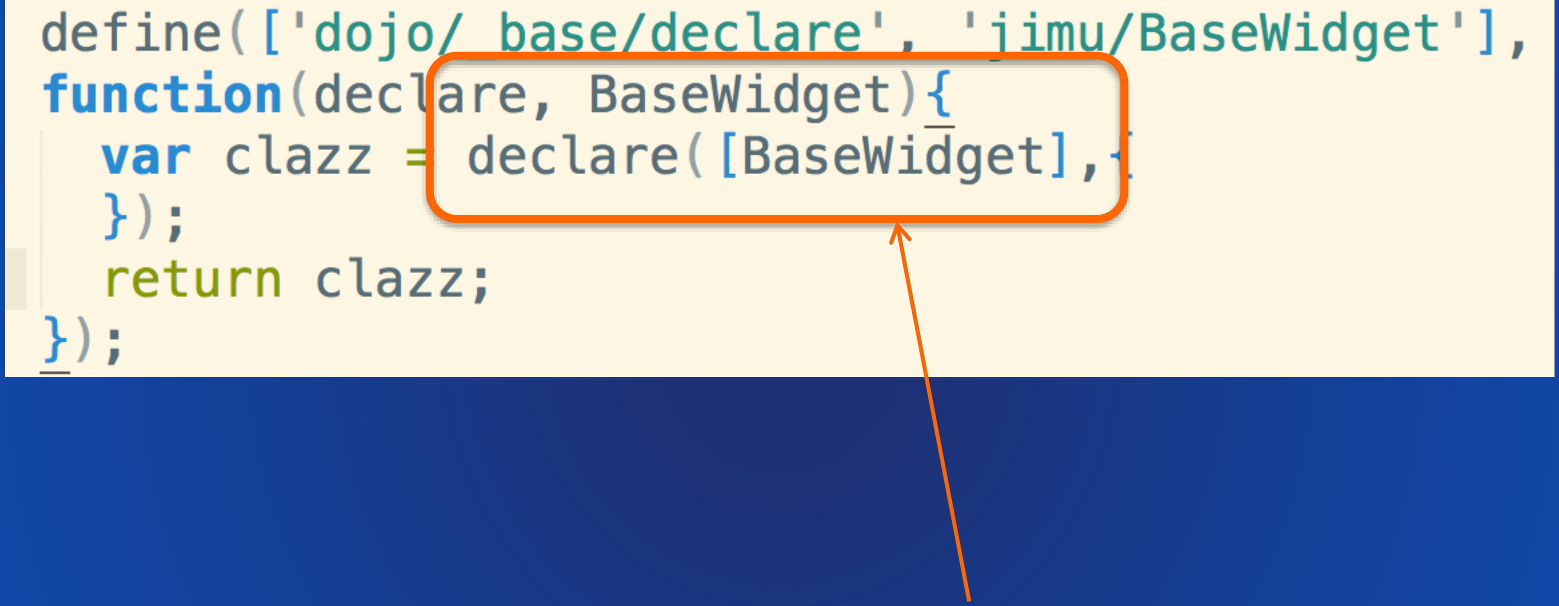
MyWidget.js

MyWidget.html



```
<!DOCTYPE html>
<html>
<head>
  <meta charset="utf-8">
  <meta name="viewport" content="initial-scale=1, maximum-scale=1,user-scalable=no">
  <title>Add a Legend to LayerList - 4.10</title>
  <link rel="stylesheet" href="https://js.arcgis.com/4.10/esri/themes/dark/main.css">
  <style>
    html,
    body,
    #viewDiv {
      padding: 0;
      margin: 0;
      height: 100%;
      width: 100%;
      overflow: hidden;
    }
  </style>
  <script src="https://js.arcgis.com/4.10/"></script>
  <script>
    require([
      "esri/WebMap",
      "esri/views/MapView",
      "esri/widgets/LayerList"
    ], function(
      WebMap, MapView, LayerList
    ) {

      const map = new WebMap({
        portalItem: {
          id: "d5dda743788a4b0688fe48f43ae7beb9"
        }
      });

      // Add the map to a MapView
      const view = new MapView({
        container: "viewDiv",
        map: map
      });

      // Add a legend instance to the panel of a
      // ListItem in a LayerList instance
      const layerList = new LayerList({
        view: view,
        listItemCreatedFunction: function(event) {
          const item = event.item;
          if (item.layer.type != "group") { // don't show legend twice
            item.panel = {
              content: "legend",
              open: true
            };
          }
        }
      });
      view.ui.add(layerList, "top-right");

    });
  </script>
</head>
<body>
  <div id="viewDiv"></div>
</body>
</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

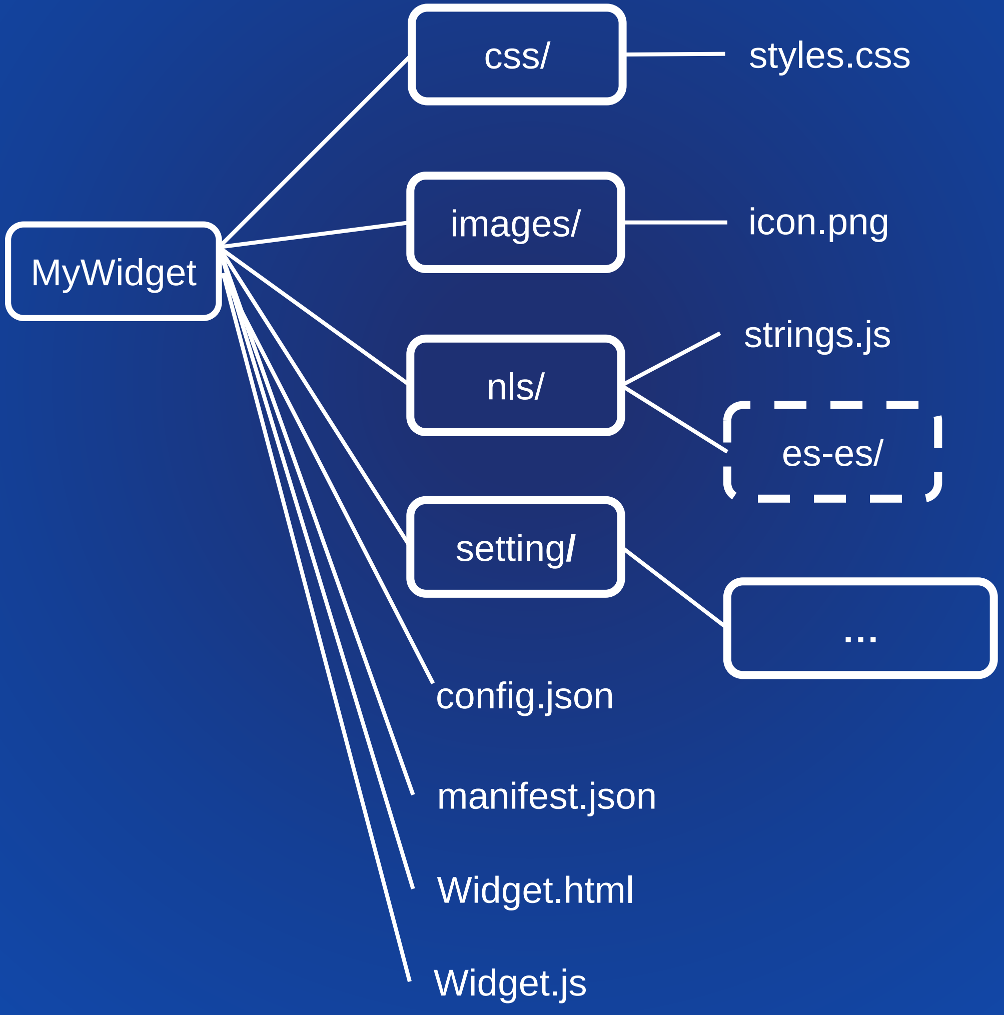
BaseWidget

- 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)

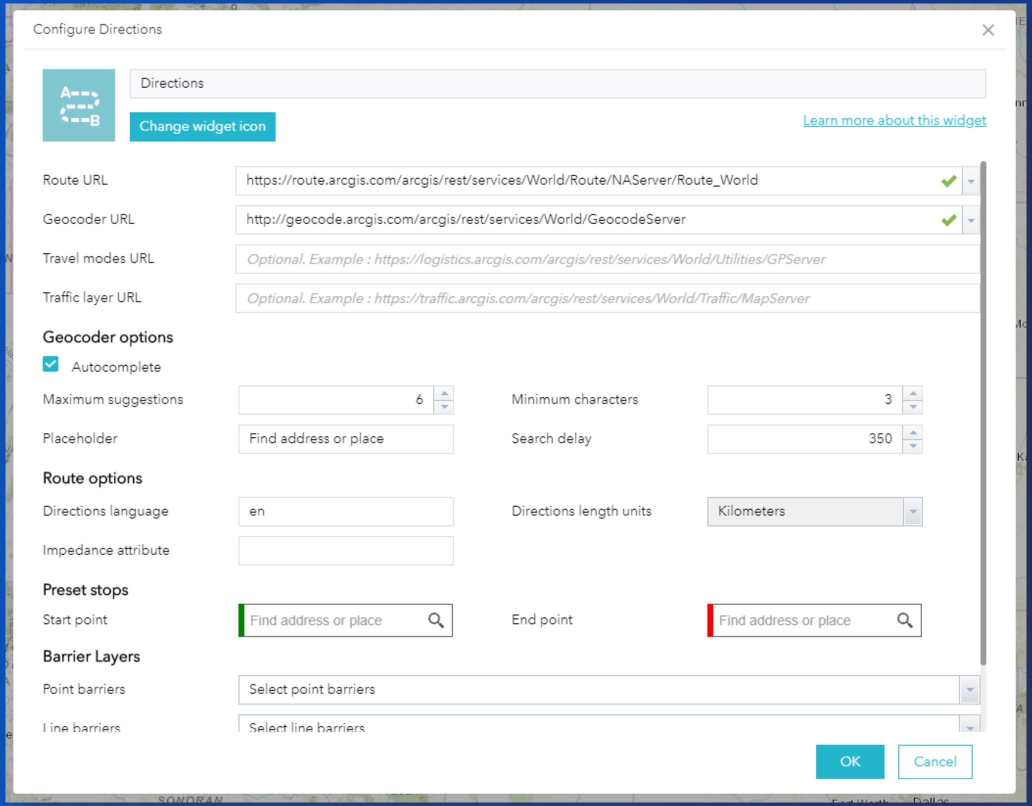
Conventions and Structure



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

Configure your custom widget inside the builder



Configure Directions

Directions

Change widget icon

Learn more about this widget

Route URL: https://route.arcgis.com/arcgis/rest/services/World/Route/NAServer/Route_World ✓

Geocoder URL: http://geocode.arcgis.com/arcgis/rest/services/World/GeocodeServer ✓

Travel modes URL: Optional. Example : https://logistics.arcgis.com/arcgis/rest/services/World/Utilities/GPServer

Traffic layer URL: Optional. Example : https://traffic.arcgis.com/arcgis/rest/services/World/Traffic/MapServer

Geocoder options

☑ Autocomplete

Maximum suggestions: 6 — Minimum characters: 3

Placeholder: Find address or place — Search delay: 350

Route options

Directions language: en — Directions length units: Kilometers

Impedance attribute:

Preset stops

Start point: Find address or place — End point: Find address or place

Barrier Layers

Point barriers: Select point barriers

Line barriers: Select line barriers

OK Cancel

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

Create a New Widget

Theme

App in style with personality

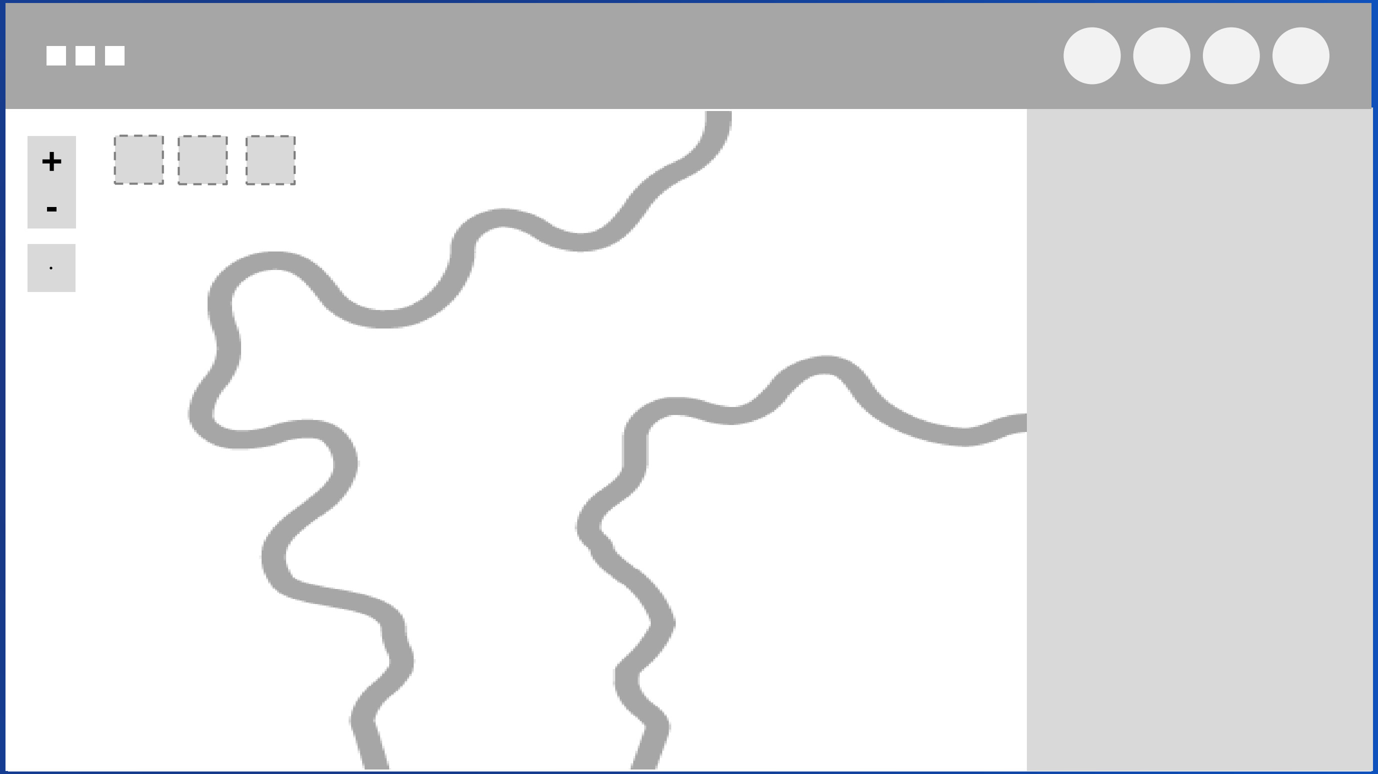
Theme is you

Major Components in a Theme

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

What Composes a Theme?

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



What Composes a Theme?

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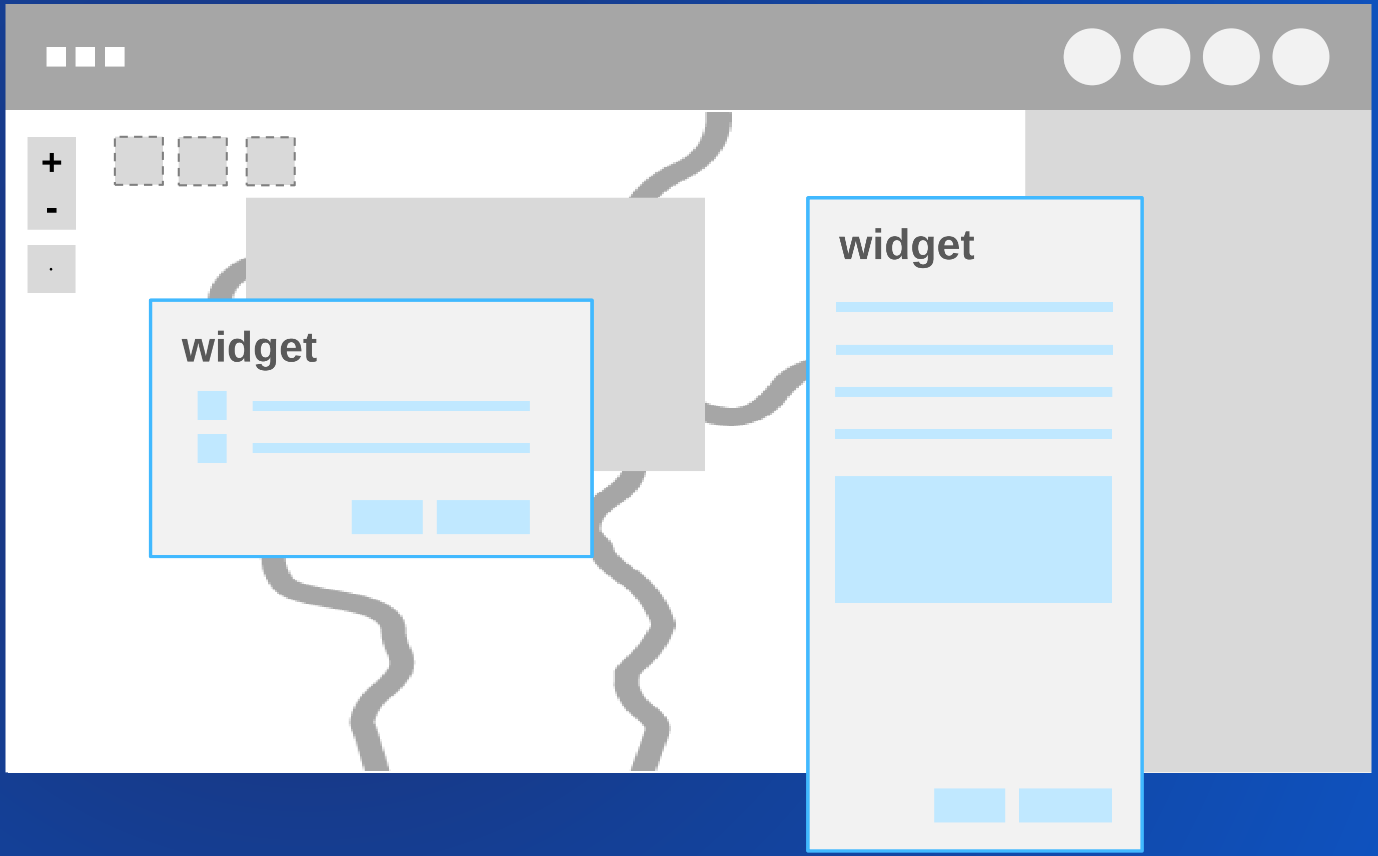
- Style
- Controller



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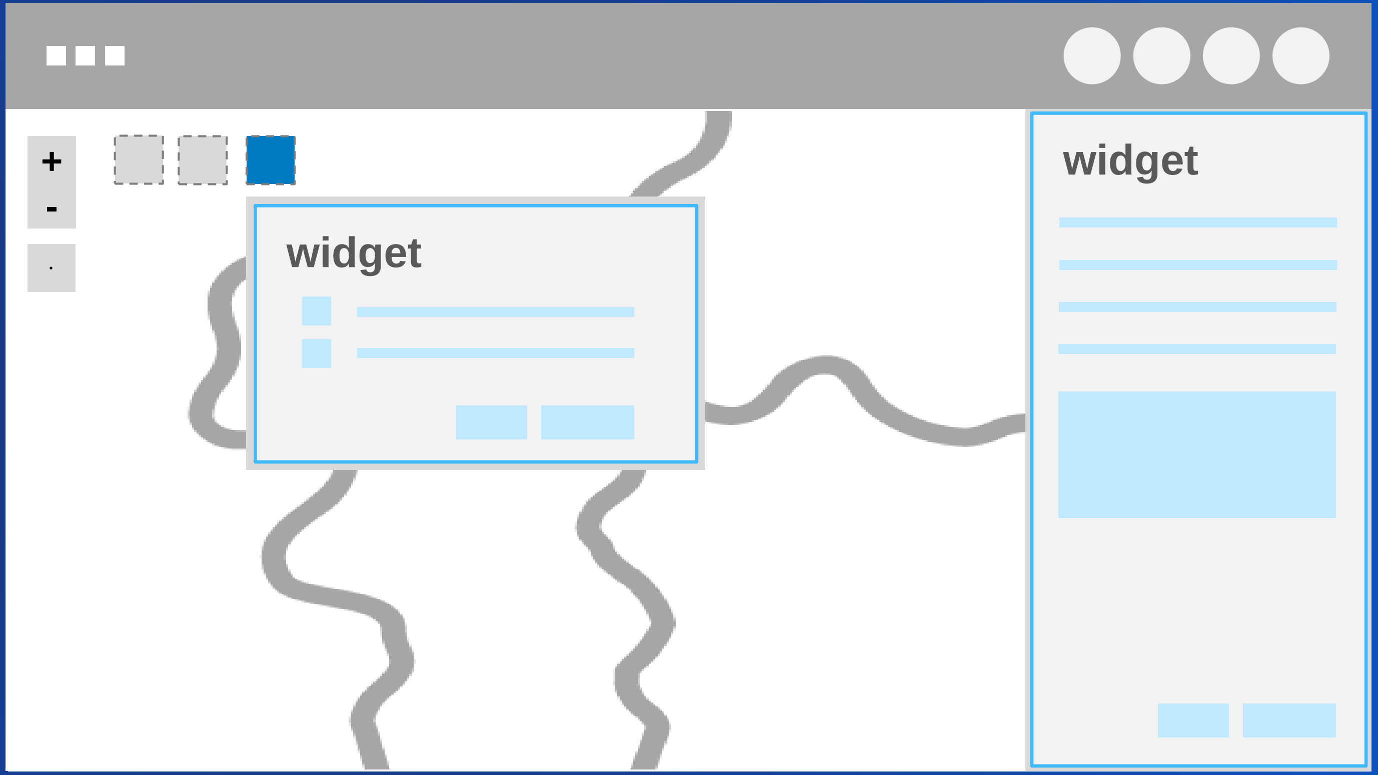

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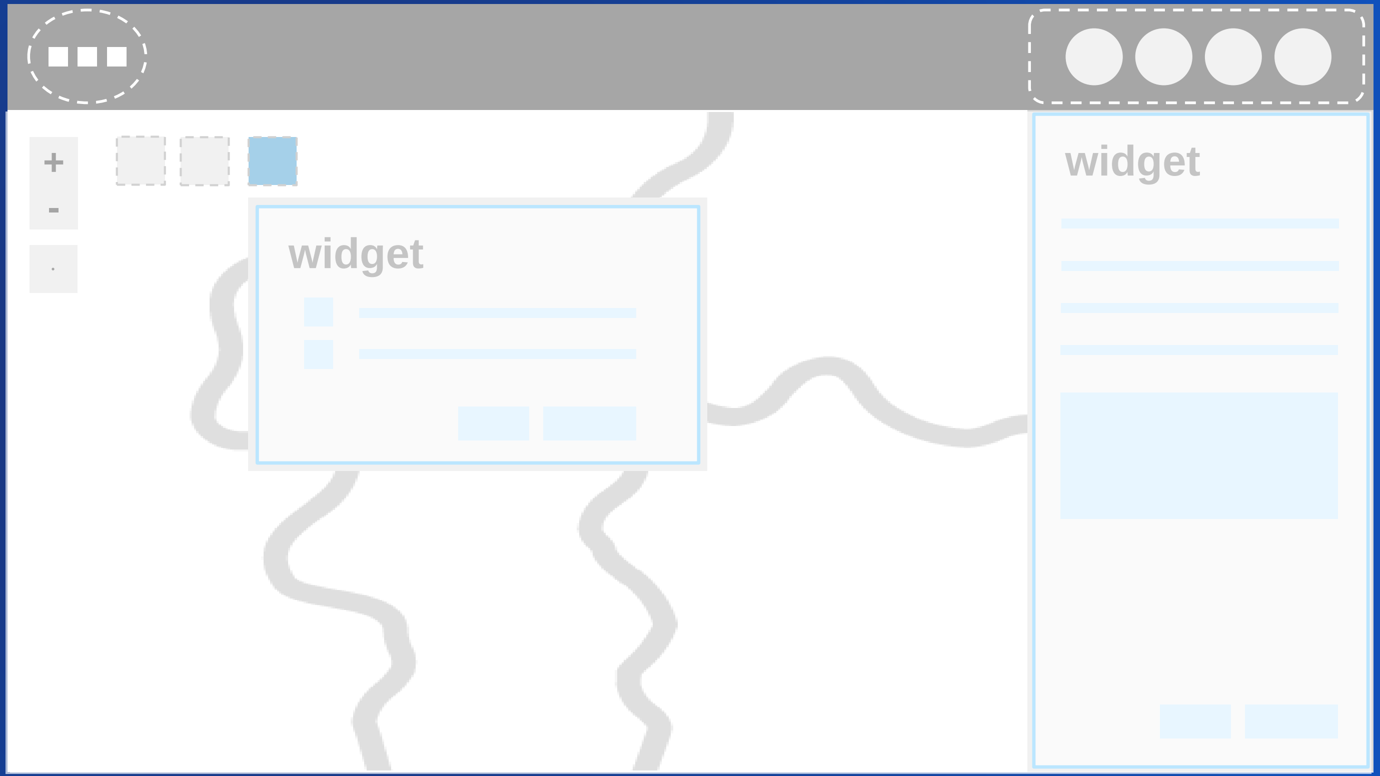
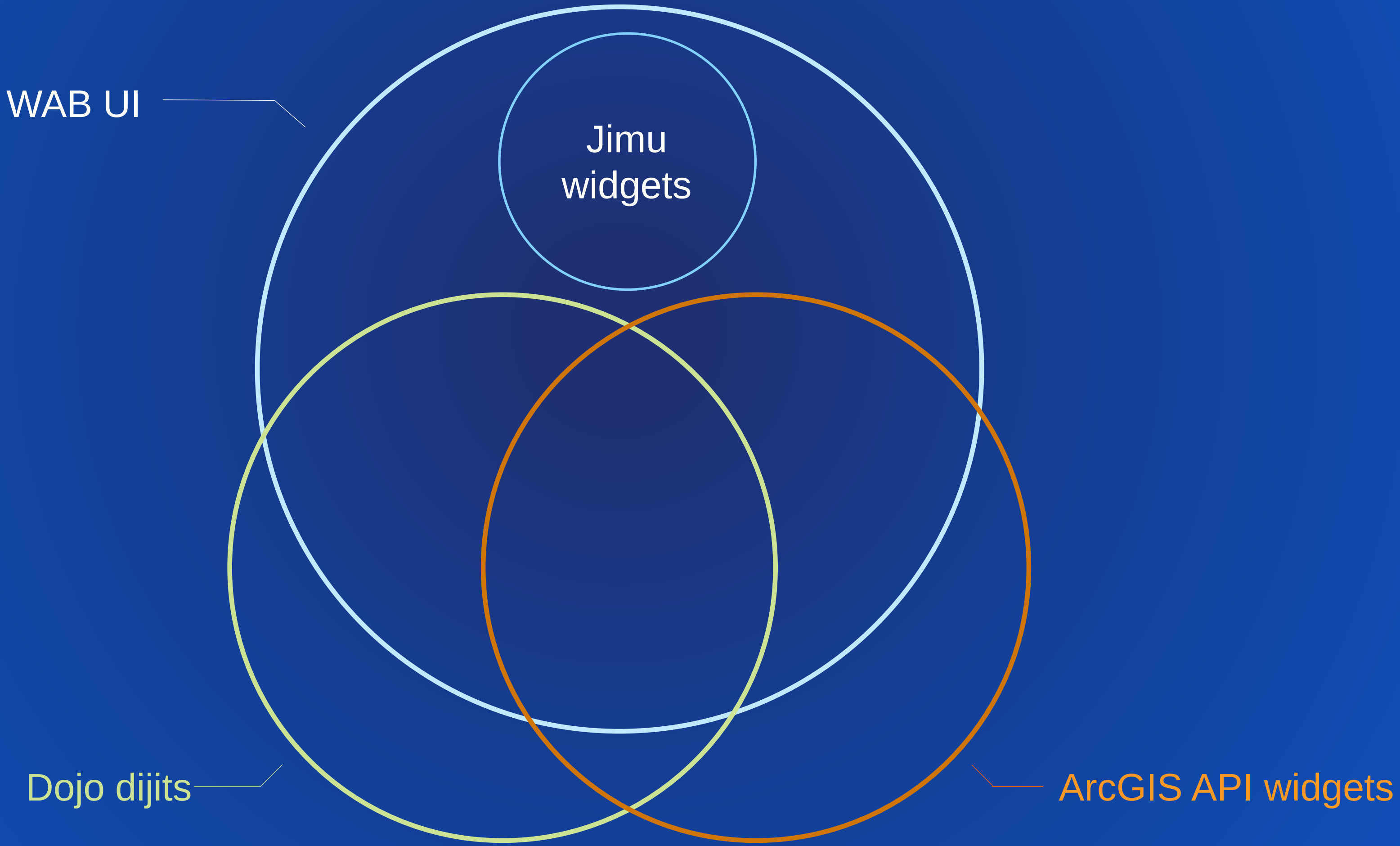
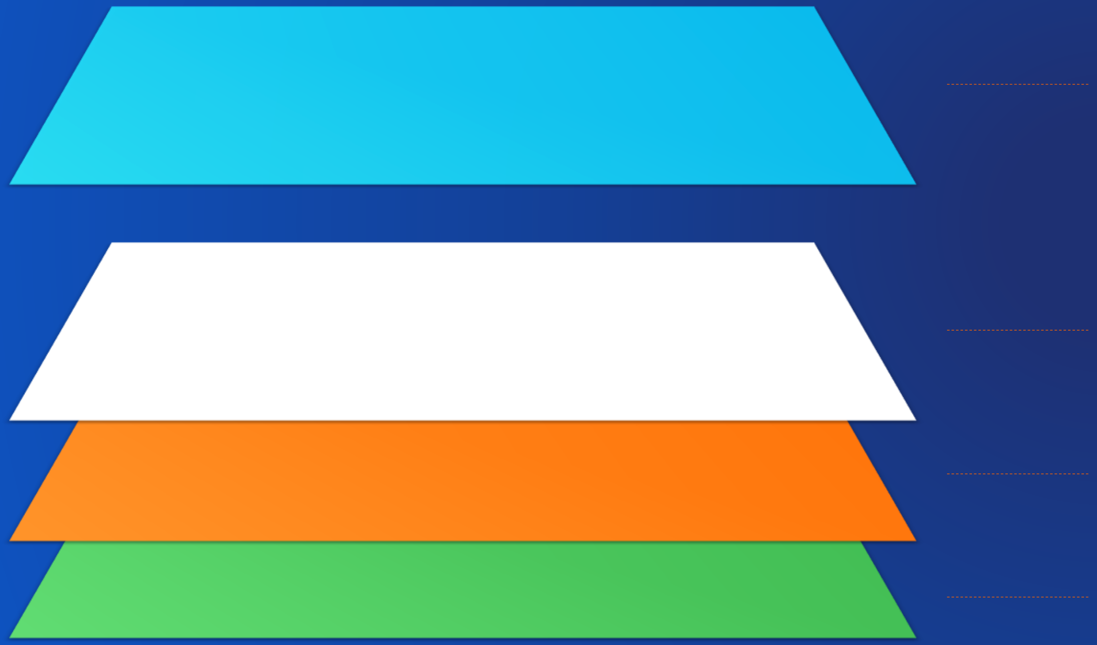


What Makes Up The WAB UI?



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 dijits: claro.css

Compare to a Functional Widget

		Controller Widget	Functional Widget
Purpose		• Displays app information • Defines 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

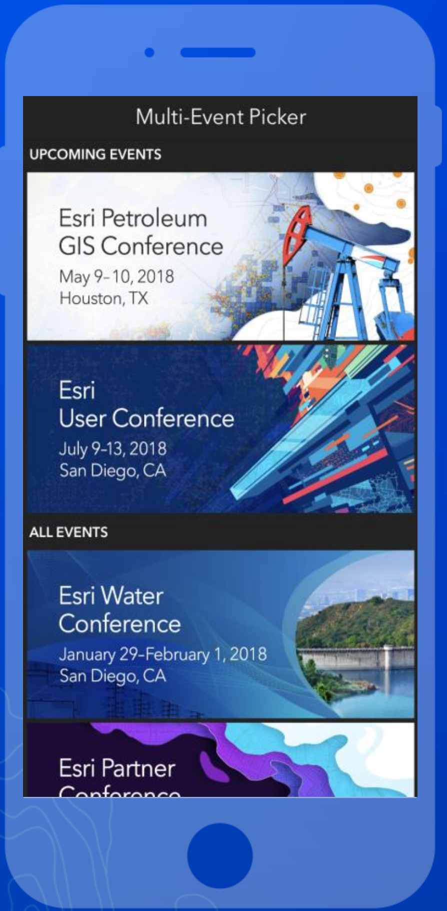
Web AppBuilder for ArcGIS Geonet
https://community.esri.com/community/gis/web-gis/web-appbuilder

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: (need to update)

Questions?

Please Take Survey on the App



Multi-Event Picker

UPCOMING EVENTS

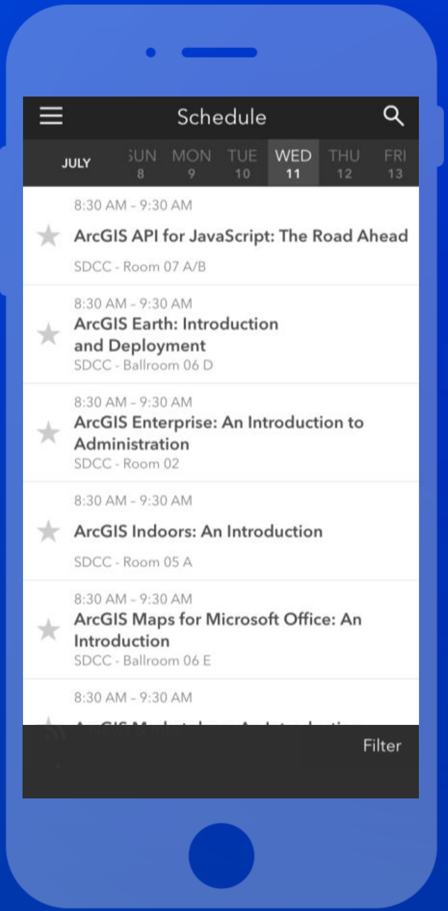
Esri Petroleum GIS Conference
May 9–10, 2018
Houston, TX

Esri User Conference
July 9-13, 2018
San Diego, CA

ALL EVENTS

Esri Water Conference
January 29-February 1, 2018
San Diego, CA

Esri Partner Conference



Schedule

JULY SUN 8 MON 9 TUE 10 WED 11 THU 12 FRI 13

8:30 AM - 9:30 AM
ArcGIS API for JavaScript: The Road Ahead
SDCC - Room 07 A/B

8:30 AM - 9:30 AM
ArcGIS Earth: Introduction and Deployment
SDCC - Ballroom 06 D

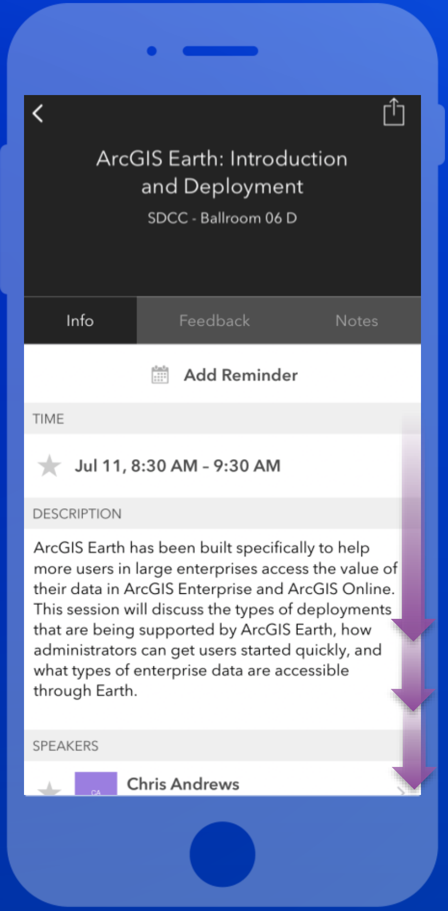
8:30 AM - 9:30 AM
ArcGIS Enterprise: An Introduction to Administration
SDCC - Room 02

8:30 AM - 9:30 AM
ArcGIS Indoors: An Introduction
SDCC - Room 05 A

8:30 AM - 9:30 AM
ArcGIS Maps for Microsoft Office: An Introduction
SDCC - Ballroom 06 E

8:30 AM - 9:30 AM

Filter



ArcGIS Earth: Introduction and Deployment
SDCC - Ballroom 06 D

Info | Feedback | Notes

Add Reminder

TIME

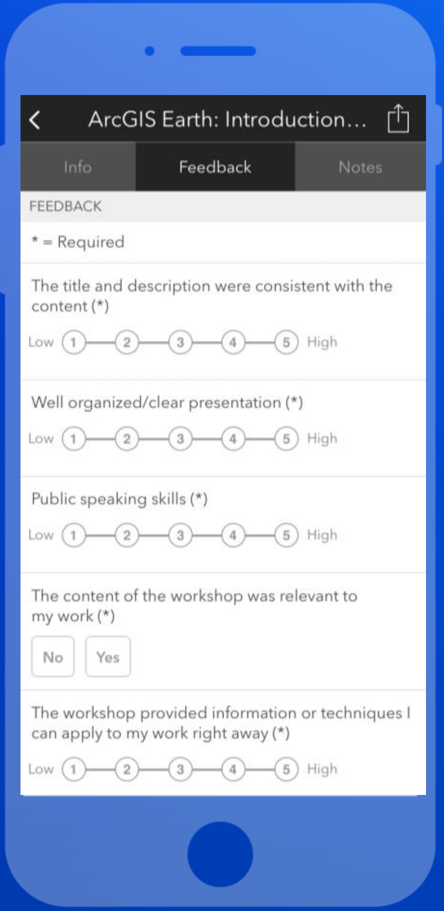
Jul 11, 8:30 AM - 9:30 AM

DESCRIPTION

ArcGIS Earth has been built specifically to help more users in large enterprises access the value of their data in ArcGIS Enterprise and ArcGIS Online. This session will discuss the types of deployments that are being supported by ArcGIS Earth, how administrators can get users started quickly, and what types of enterprise data are accessible through Earth.

SPEAKERS

Chris Andrews



ArcGIS Earth: Introduction…

Info | Feedback | Notes

FEEDBACK

* = Required

The title and description were consistent with the content (*)
Low ① ② ③ ④ ⑤ High

Well organized/clear presentation (*)
Low ① ② ③ ④ ⑤ High

Public speaking skills (*)
Low ① ② ③ ④ ⑤ High

The content of the workshop was relevant to my work (*)
No Yes

The workshop provided information or techniques I can apply to my work right away (*)
Low ① ② ③ ④ ⑤ High

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THE SCIENCE OF WHERE