Web AppBuilder for ArcGIS

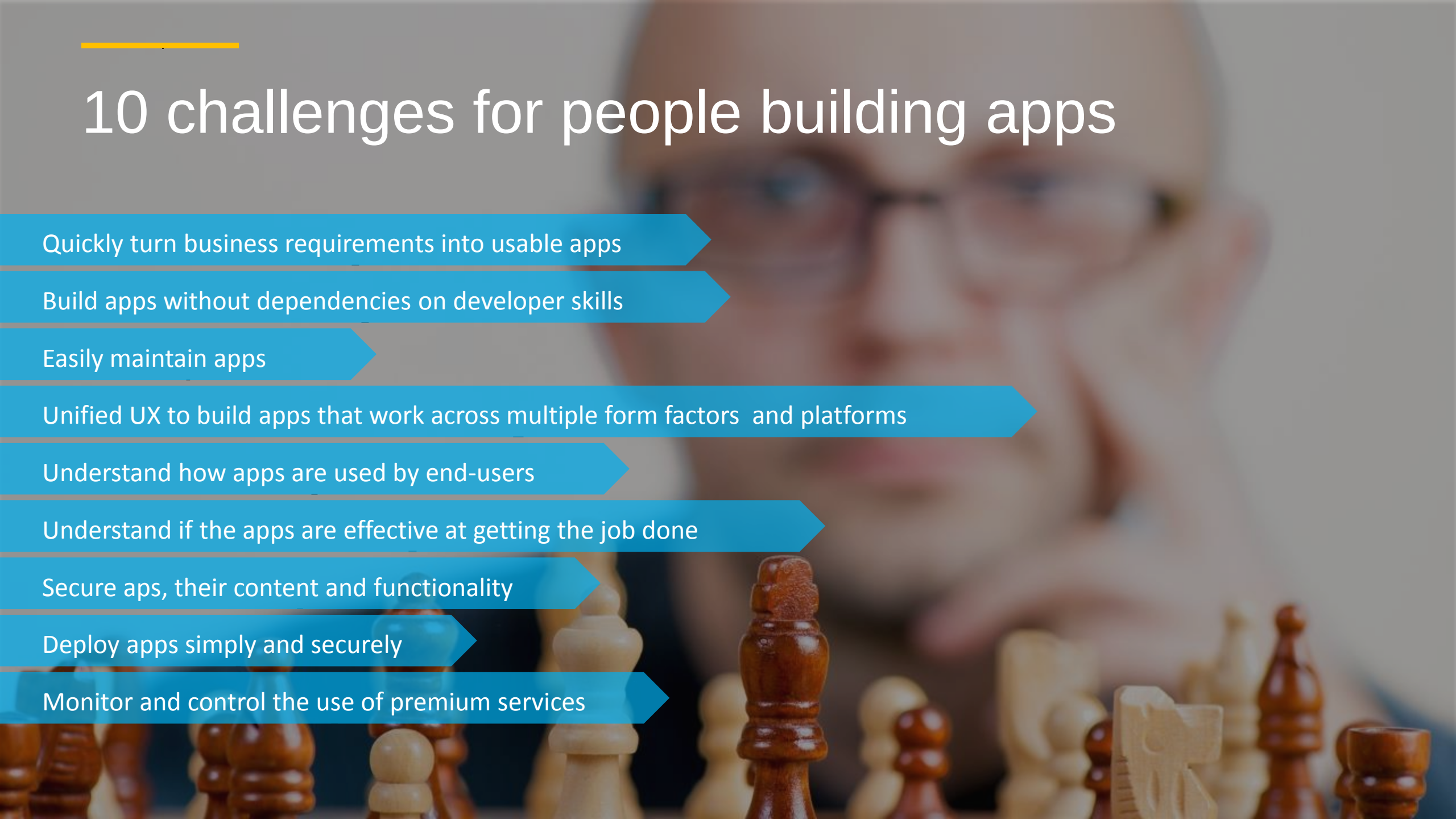
Customization and Extension

Moxie Zhang
@theMoxie

Julie Powell
@JuliePowellGIS

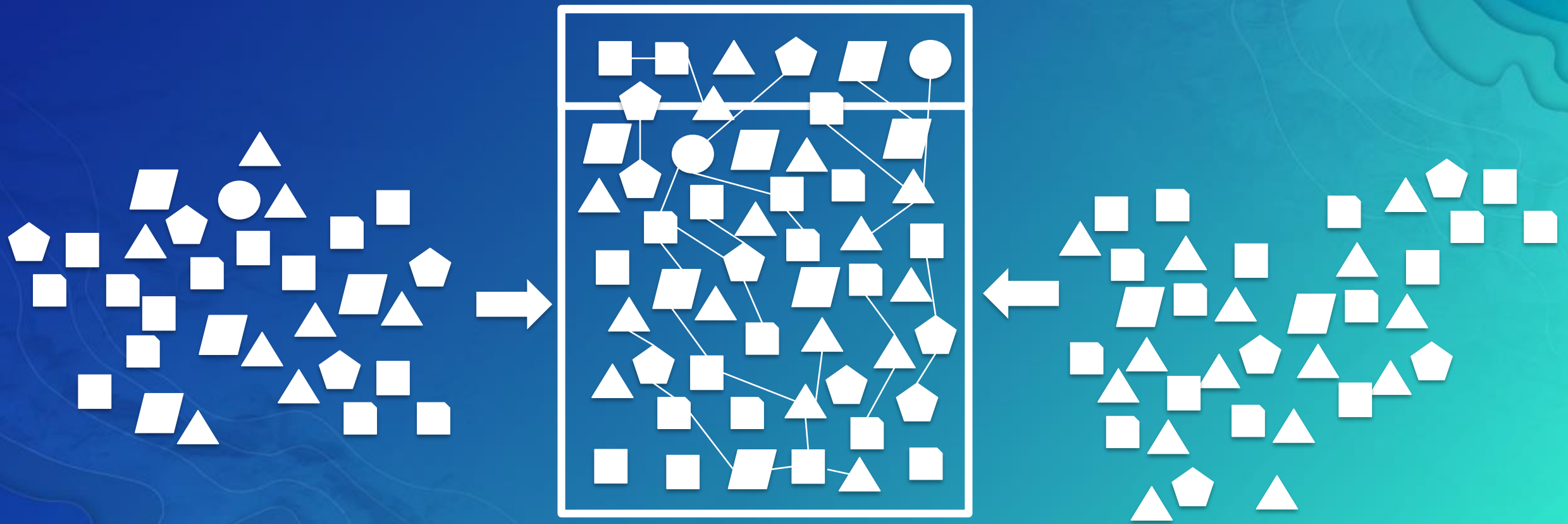
Let’s talk about App Creation

10 challenges for people building apps

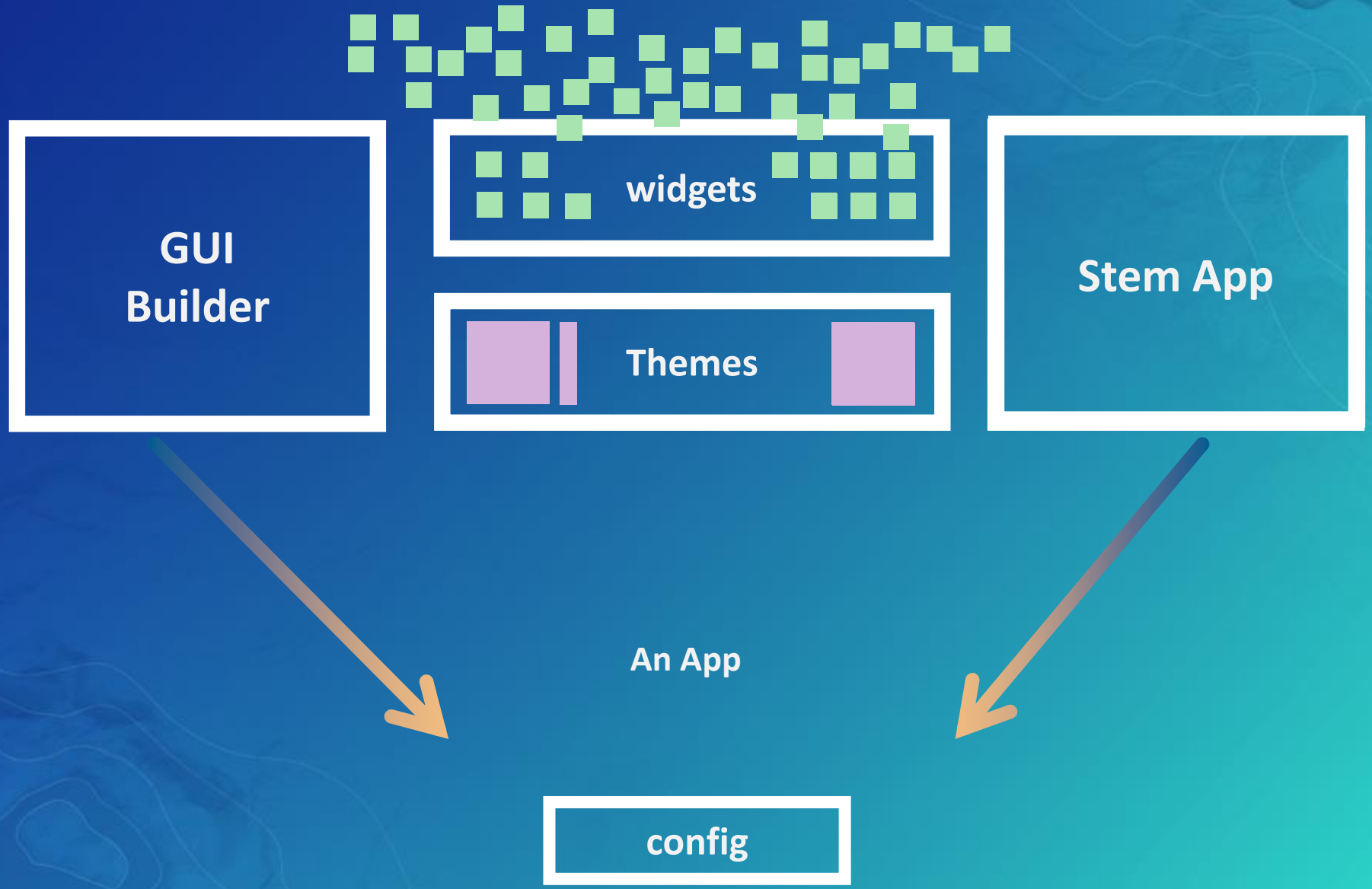


- Quickly turn business requirements into usable apps
- Build apps without dependencies on developer skills
- Easily maintain apps
- Unified UX to build apps that work across multiple form factors and platforms
- Understand how apps are used by end-users
- Understand if the apps are effective at getting the job done
- Secure aps, their content and functionality
- Deploy apps simply and securely
- Monitor and control the use of premium services

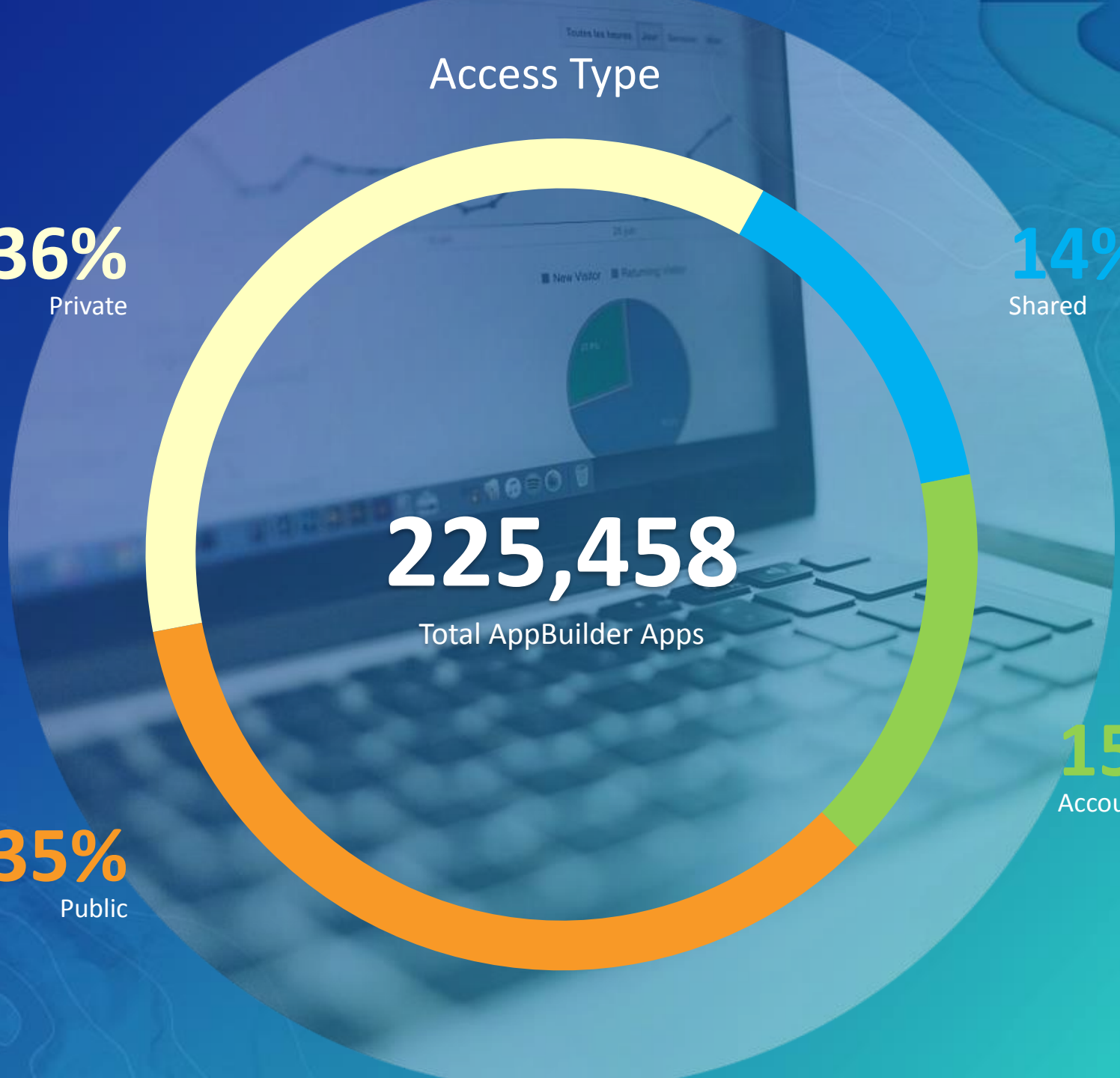
A Traditional way to Build an App



A different way to Build an App



Access Type



36%
Private

14%
Shared

225,458
Total AppBuilder Apps

15%
Account

35%
Public

App has changed…

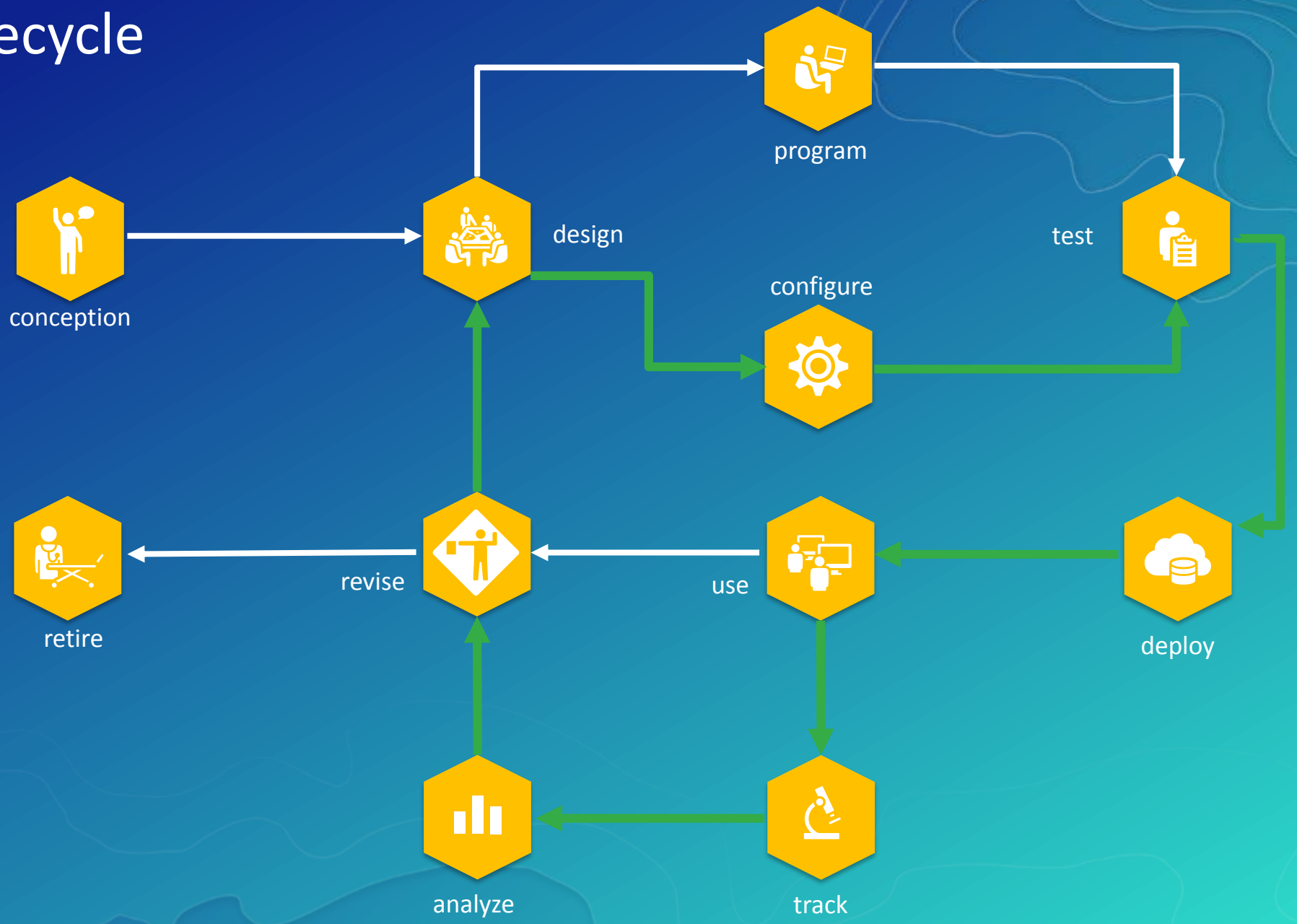
App Lifecycle is complex

Apps are data

Apps are disposable

Apps are a conduit to understand your users

App Lifecycle



Builder

simply, app creation made easier

Introduction

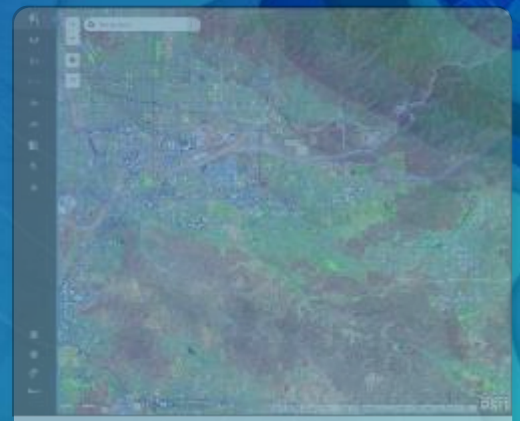
Julie Powell

Create a Theme

Moxie Zhang

WAB Communities

Julie Powell



Agriculture

ArcGIS Online WAB Show Case

Boone Coun

ArcGIS Online W

Create a Widget

Introduce Web AppBuilder widgets and how to create a widget

Julie Powell

What's Coming

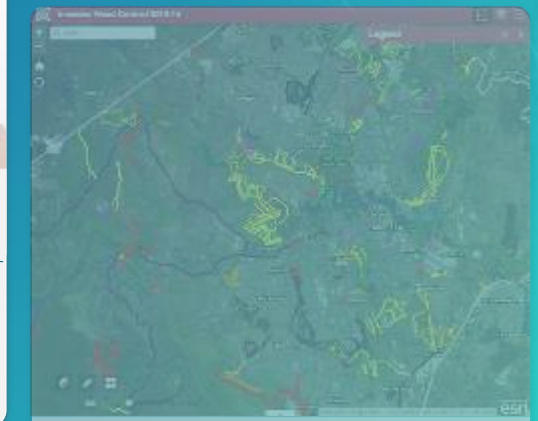
What are the exciting new features and functions introduced recently

Moxie Zhang

Q&A

Moxie Zhang

Julie Powell



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ArcGIS Online WAB Show Case

Muscatine C

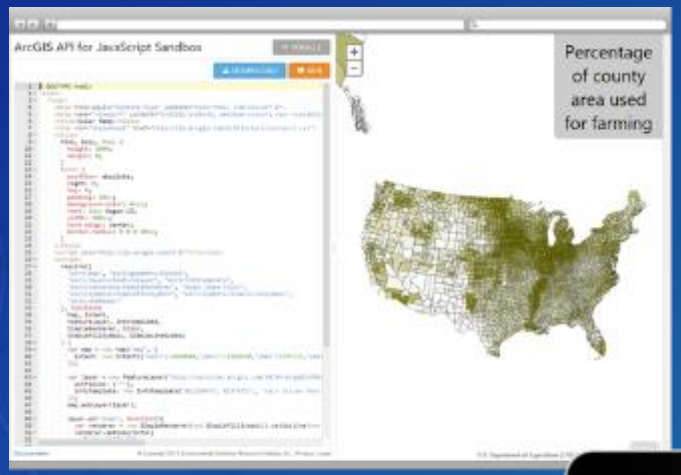
Introduction

Web AppBuilder for ArcGIS

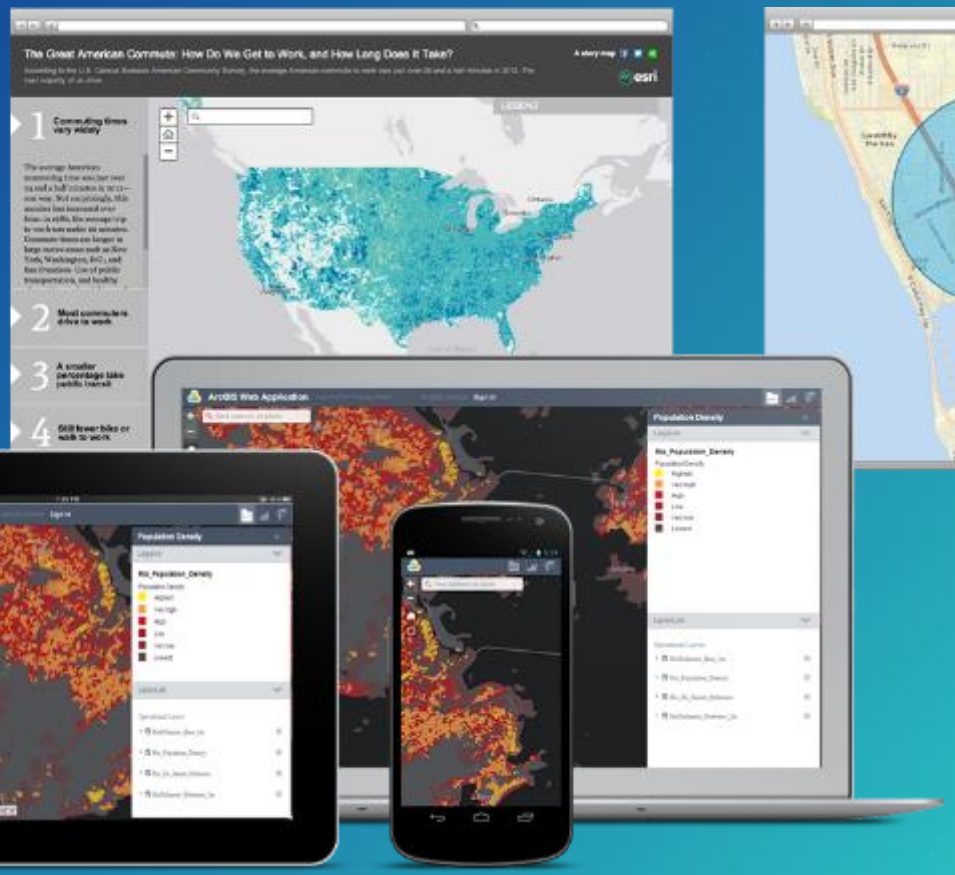
Building Web Apps for Your Organization

Using the ArcGIS API for JavaScript

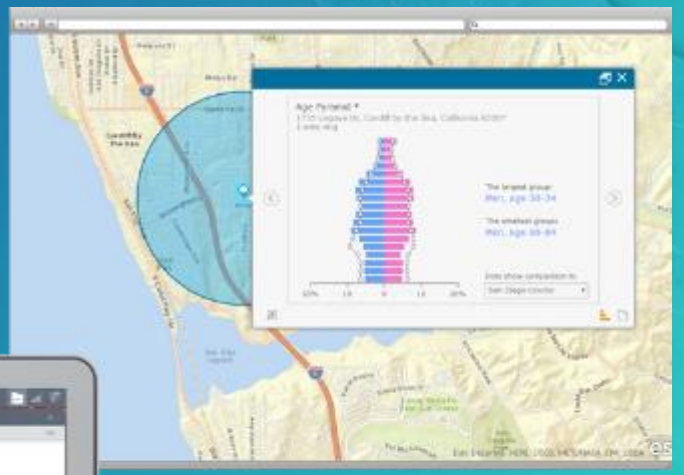
Samples



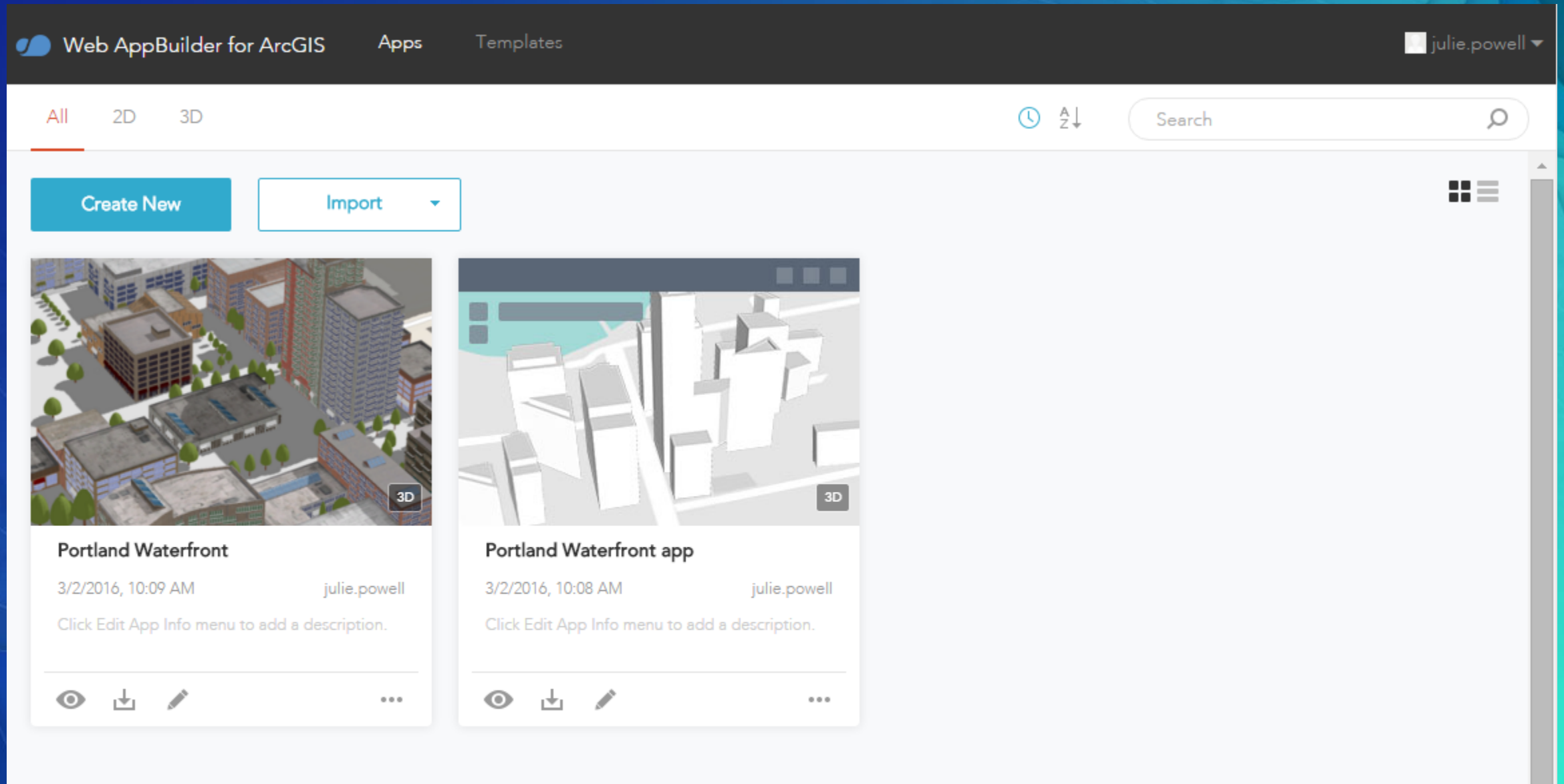
Configurable Apps & Builders



Widgets



Web AppBuilder (Developer Edition)



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

Break the code into files

MyWidget.css

```
html, body, #map{
  height: 100%;
  margin: 0;
  padding: 0;
}
```

MyWidget.js

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

MyWidget.html

```
<div id="feedback">
  <h3>Washington State</h3>
  <div id="info">
    <div id="note">
      Note:  This sample requires an ArcGIS Server version 10.1 map service to generate a renderer.
    </div>
    Select a field to use to create a renderer for the counties in Washington state.
  </div>
  <div id="legendWrapper"></div>
  <div id="fieldWrapper">
    Currently selected attribute:
  </div>
</div>
```

Tutorial:

https://developers.arcgis.com/javascript/jshelp/intro_custom_dijit.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

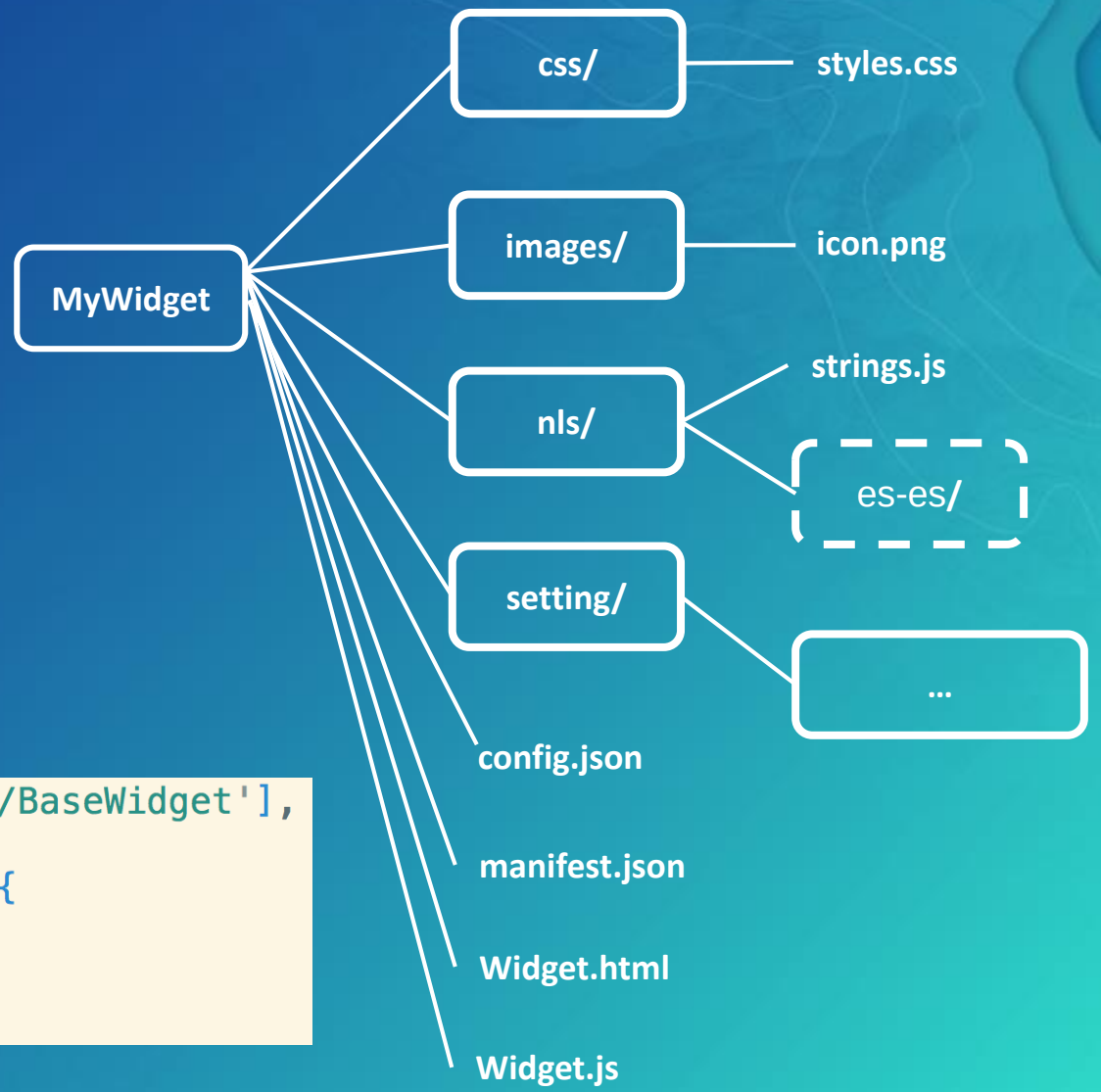
BaseWidget

- 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 / worklows (JavaScript)**

Widget Files




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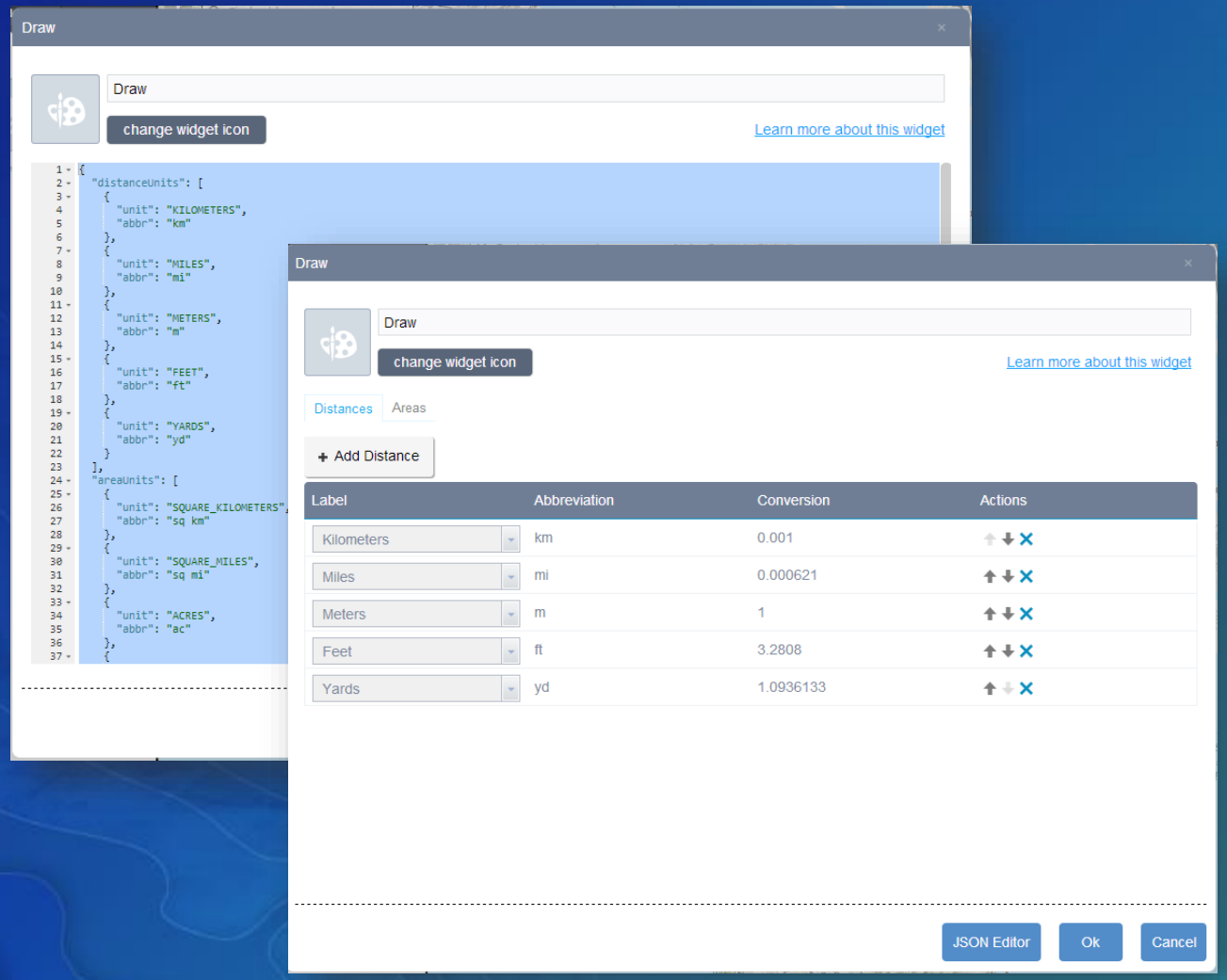

Getting Started…

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



Building a UI for the user

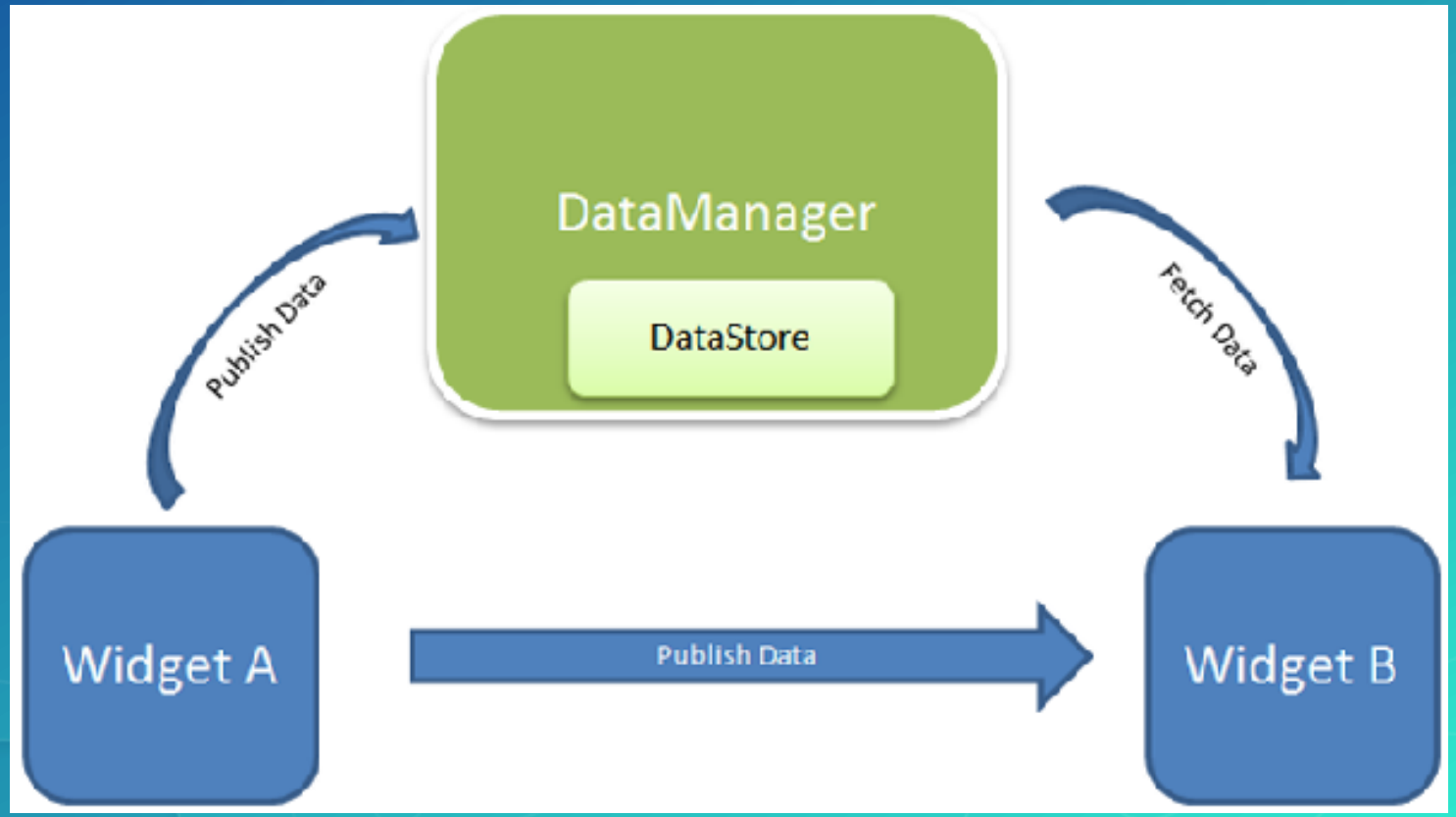
- **Setting.js**
  - **Config info**
  - **getConfig, setConfig**
- **Setting.html**
- **Usual localization pattern**
- **css**

Widget to Widget Data Sharing / Communication

…using the DataStore

- Get all data, or..
- Data from a specific widget
- Handled through events
- Widget loading order handled

- Can load another widget:
  `this.openWidgetById`

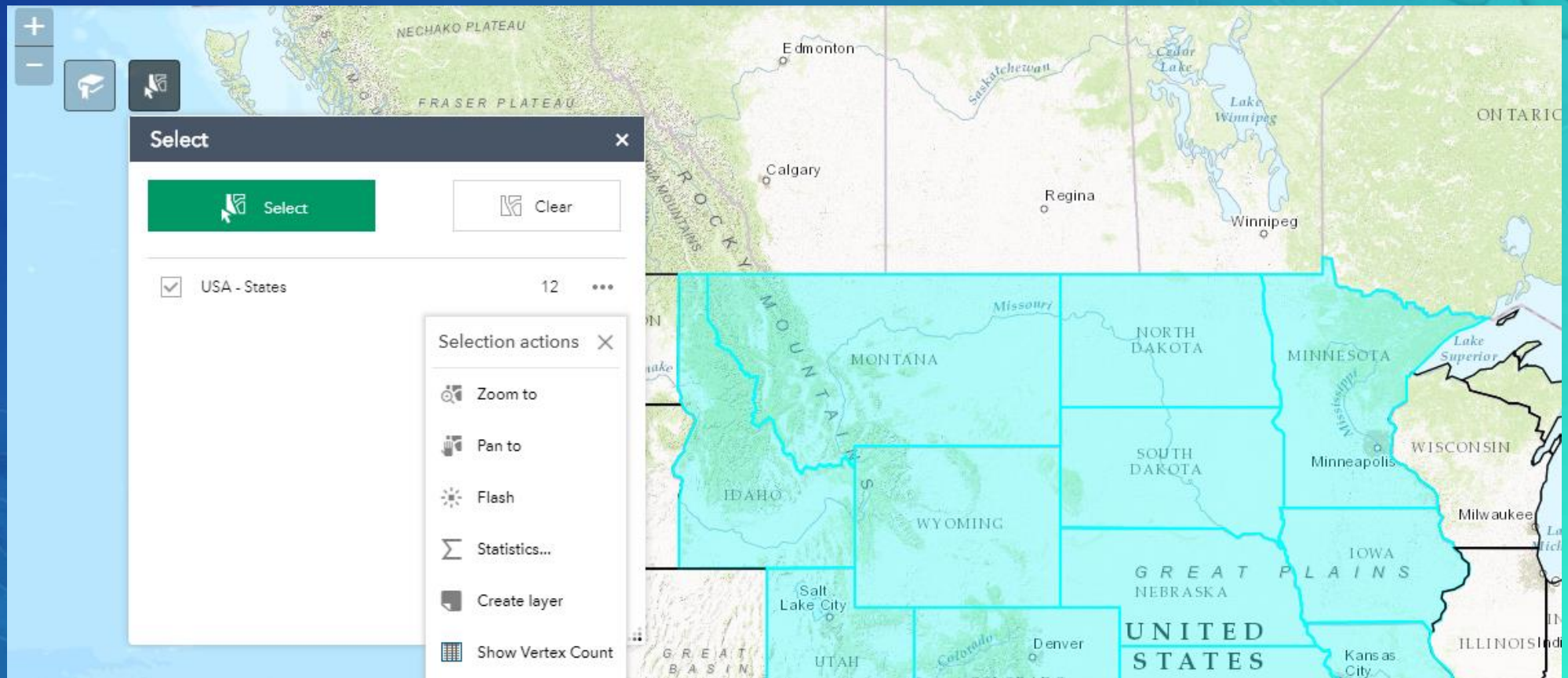


Extra data source

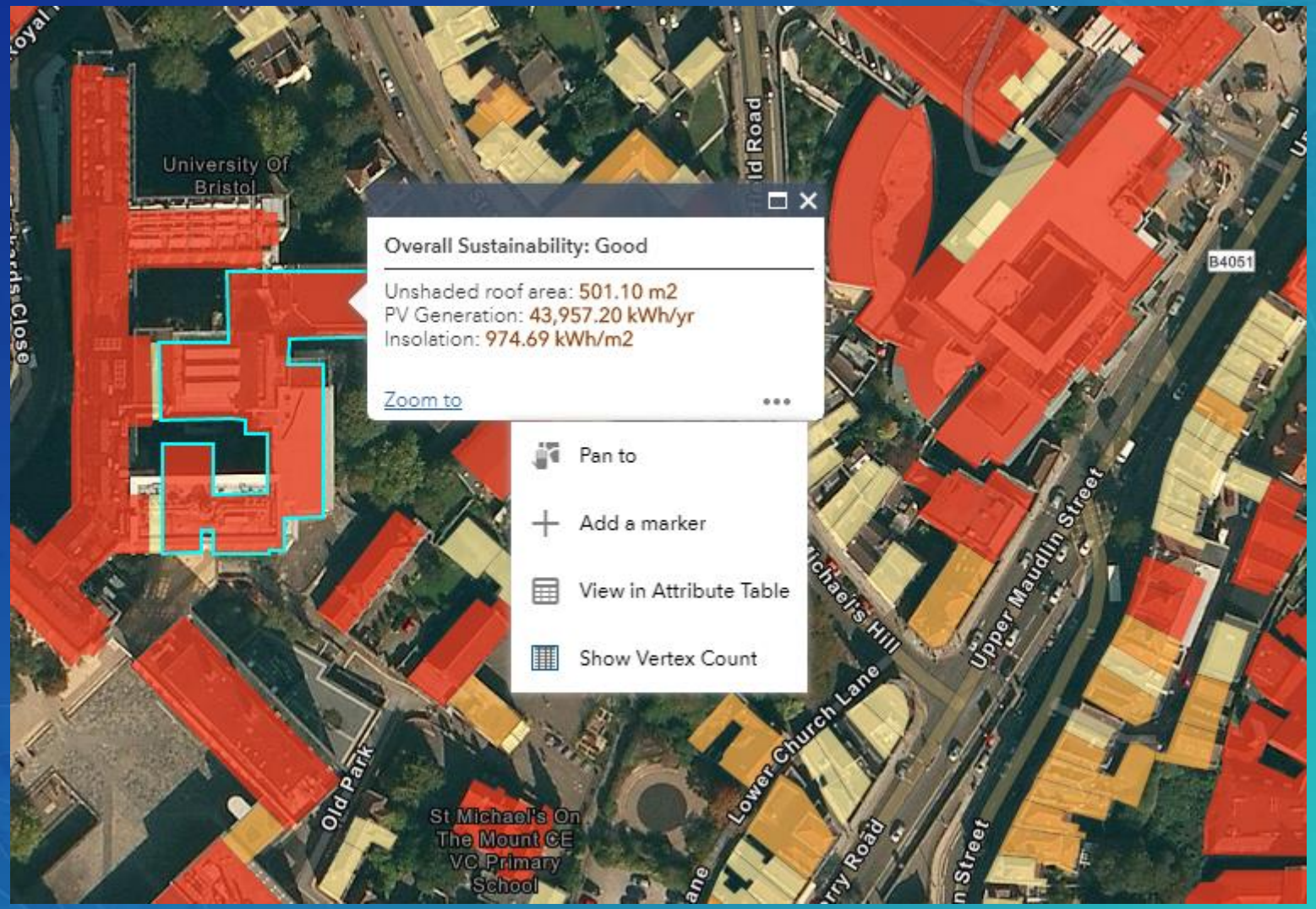
- Configure a layer or statistics
- Configure the refresh interval of the data
- Currently supported by InfoGraphic widget

Feature Actions

- Your widget can work with selected feature sets
- Example: Zoom To, Export to CSV, send to GP



Feature Actions



Feature Actions

manifest.json

```
...
"featureActions": [{
    "name": "ShowVertex",
    "uri": “myFeatureAction"
 }]
```

“myFeatureAction.js”

```
isFeatureSupported: function(featureSet){ return…
onExecute: function(featureSet){…}
```

```
WidgetManager.getInstance().triggerWidgetOpen(this.widgetId)
```

Widget.js

Do something

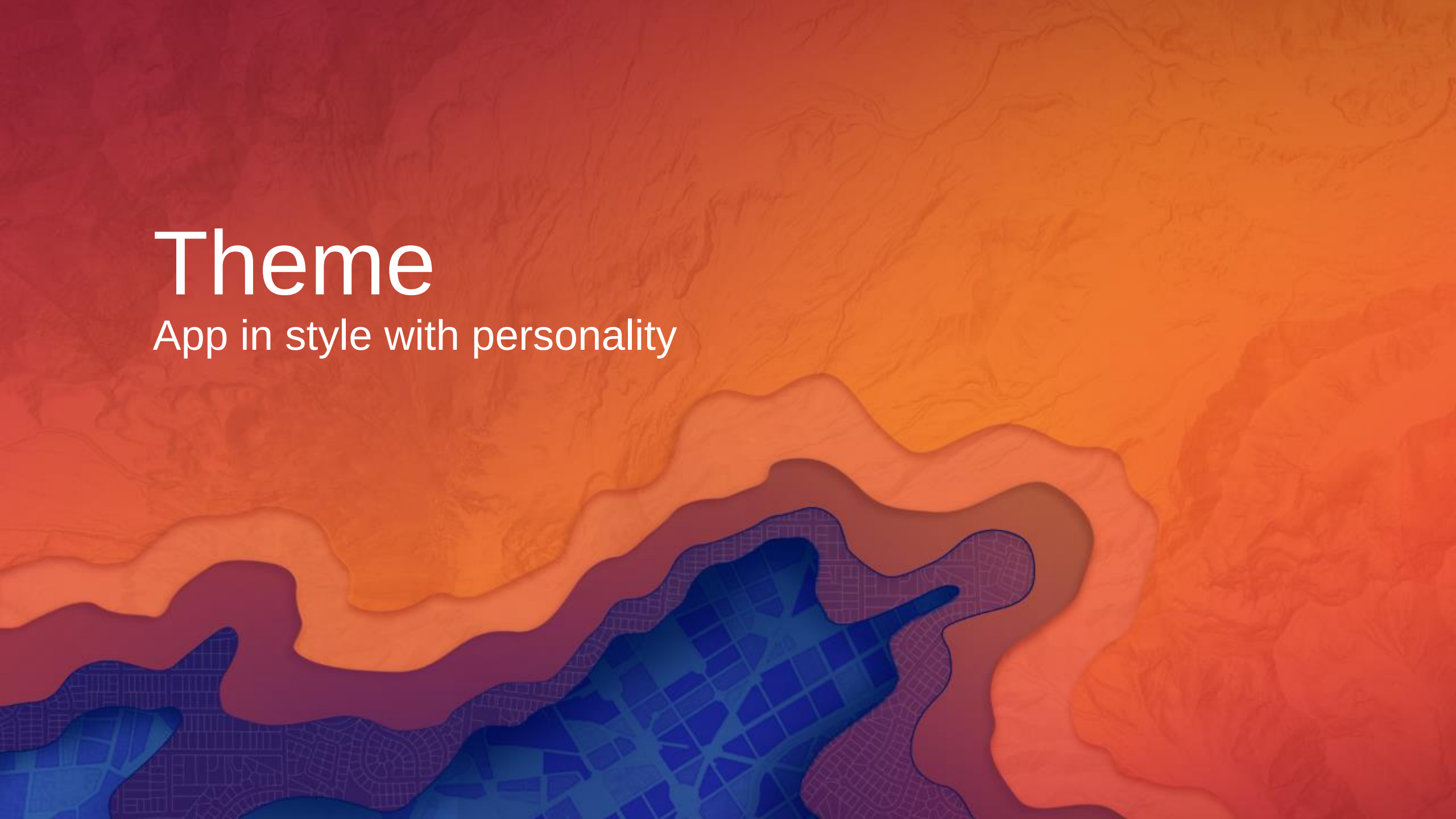
Create a feature action in your widget

A feature action is a piece of code that is requested to execute on one feature or a set of features. Web AppBuilder provides some out-of-the-box feature actions, such as **Zoom To**, **Export to CSV File**, and **View in Attribute Table**. Additionally, you can create your custom feature action by extending the `BaseFeatureAction` class. The following steps demonstrate how to create a feature action in the Demo widget that shows the count of vertexes for a selected feature set.

> Note:
> The complete code is available in the Demo widget. Access the following URL to play the feature action in the Demo widget:
>
> `http://<your host machine>:3344/webappviewer/?config=sample-configs/config-demo.json`

Create a feature action class

1. Browse to the `~\client\stemapp\widgets\samplewidgets` folder under the Web AppBuilder installation.
2. Under the Demo widget folder, create a new text file named `ShowVertexFeatureAction.js`.
3. Copy and paste the following code snippet into the file. It creates a feature action class by


Theme
App in style with personality


Theme is you


Specks of GIS
Shirts of GIS
Beards of GIS
feet of GIS
#mapthis
I ♥ GIS
HACKER
StackExchange
esri
Because you are special


Your apps deserve to
stand out from the crowd.
via creating your own theme

A menu of tools

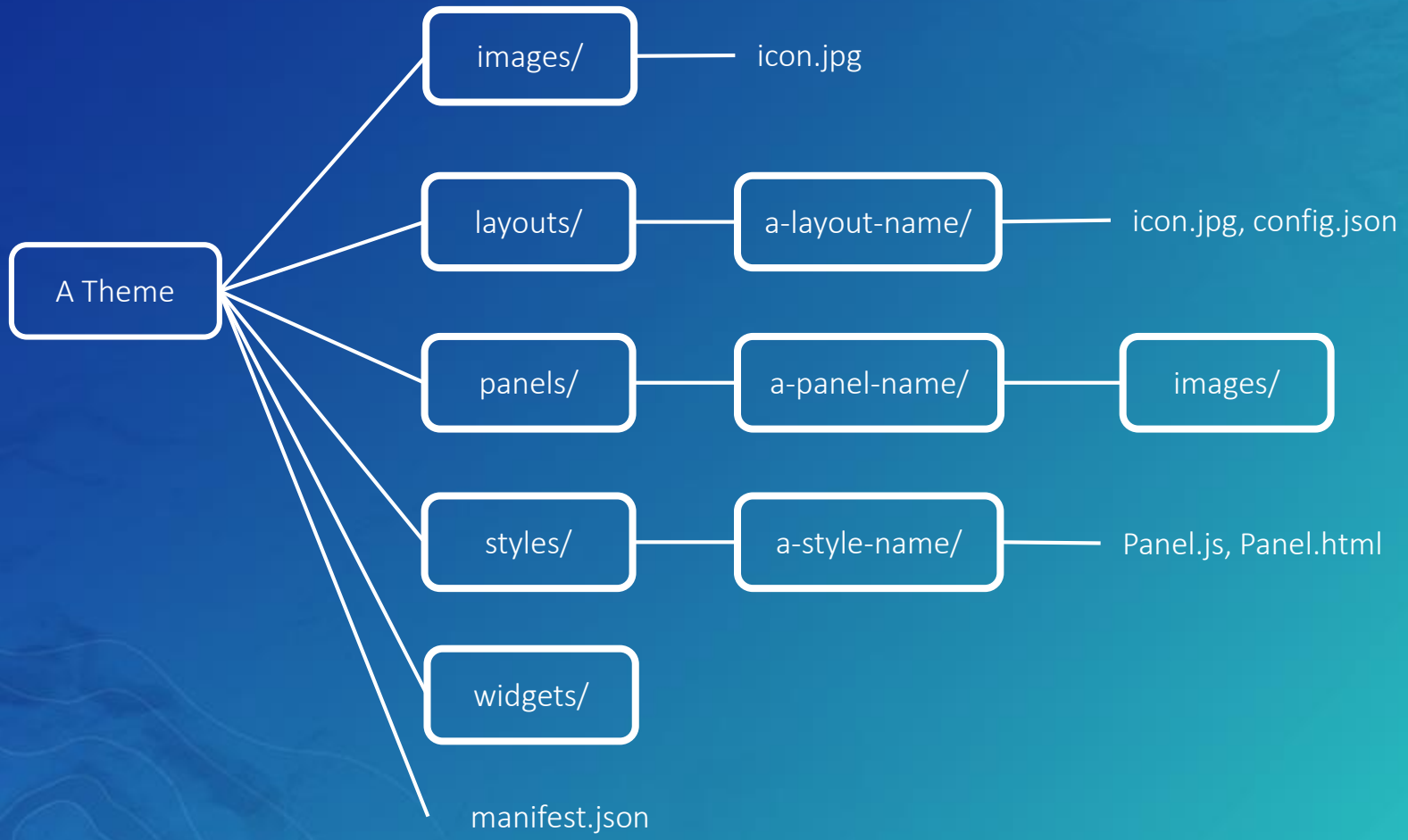
Interactive content

Shortcut items

Map, of cause

The “player”

Theme Convention and Defaulting



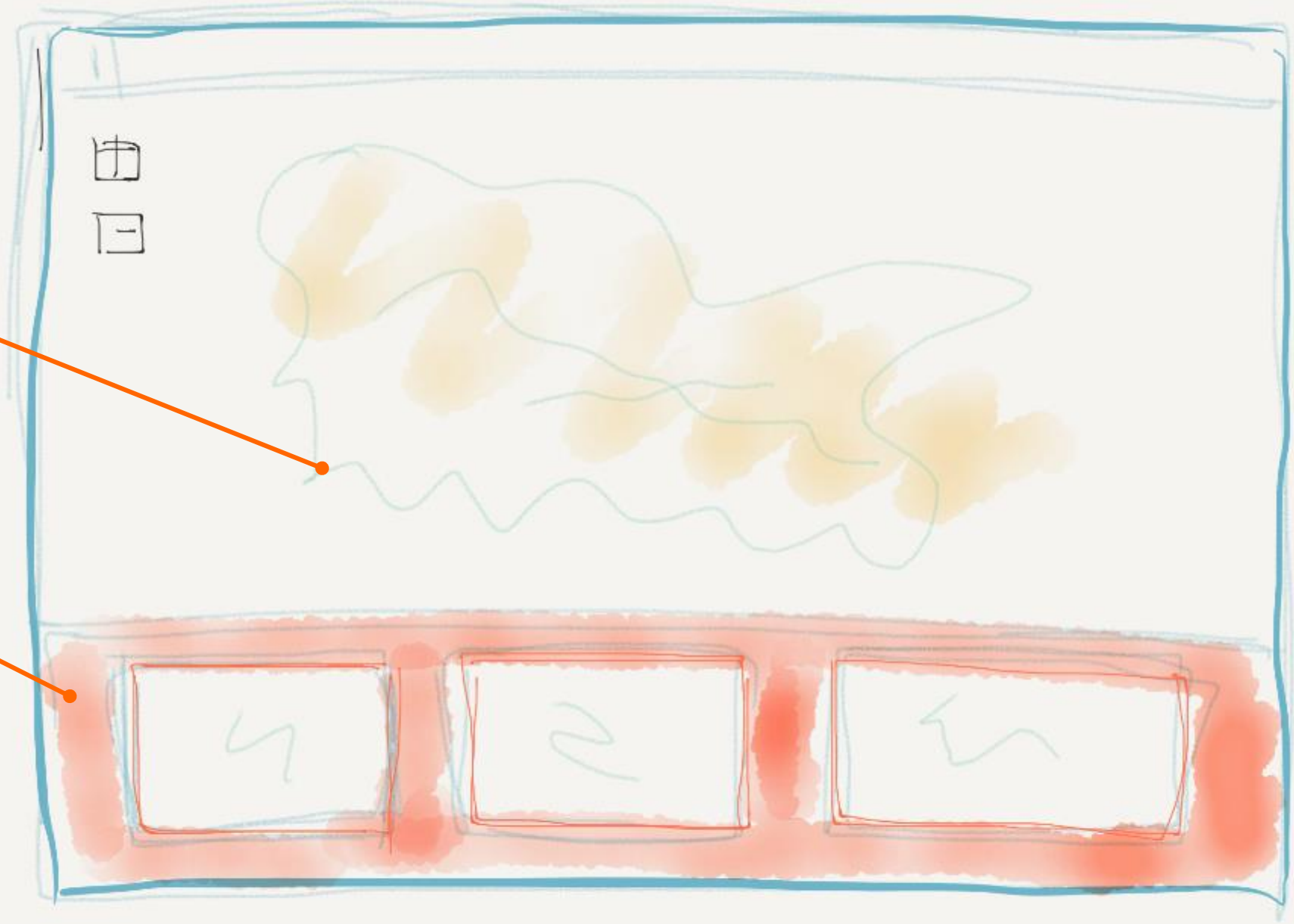
Create a Theme

Embrace your own style

My pretty layout

My cool color

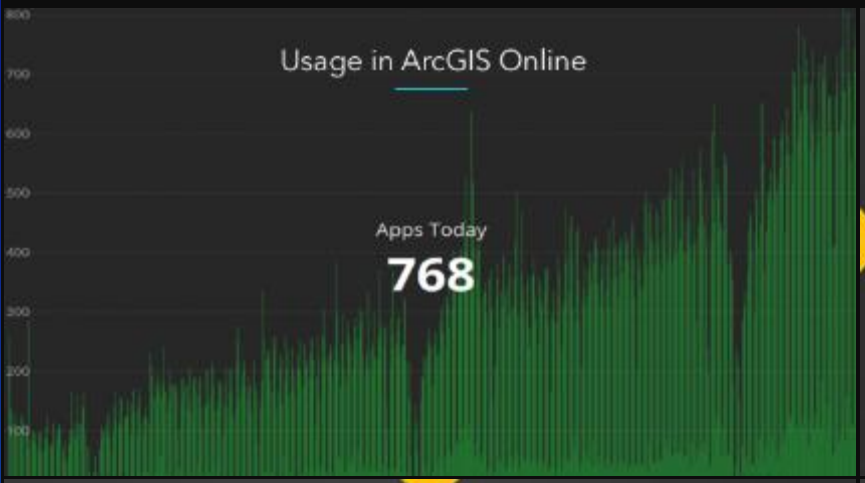
FF8000

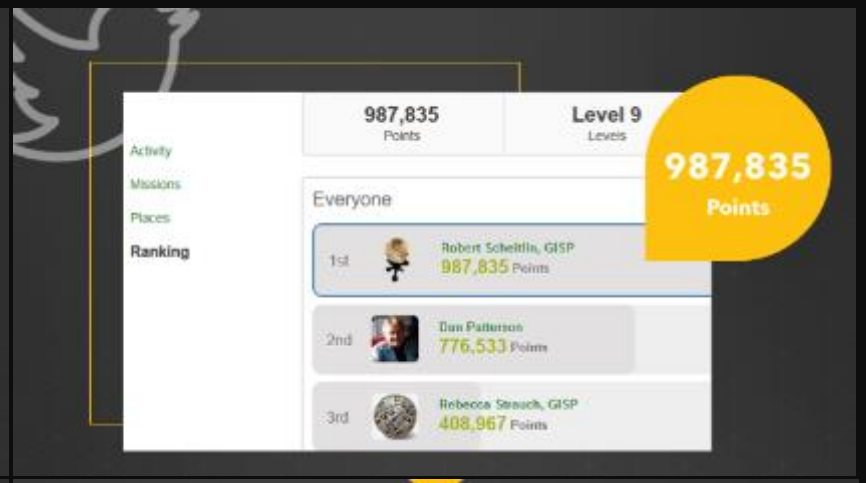


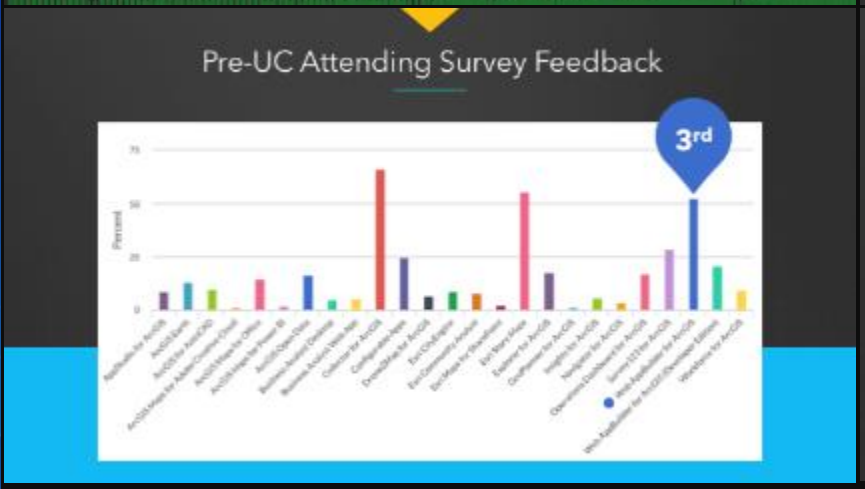
What’s Coming

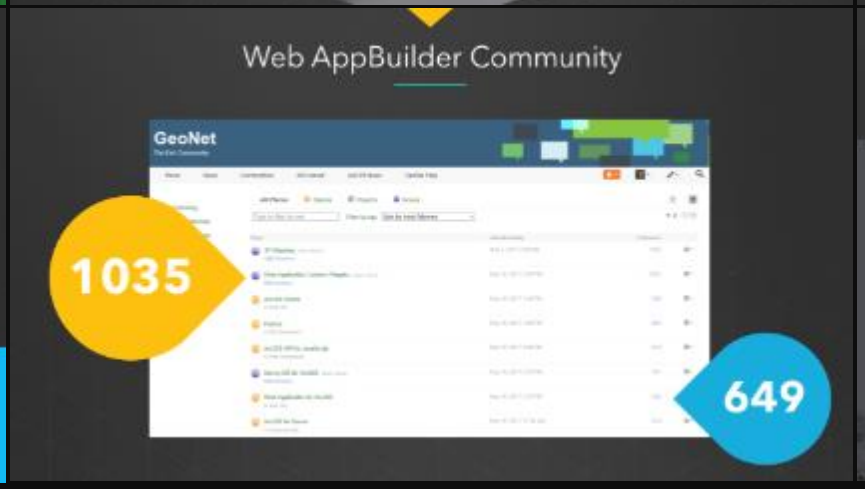
Evolution with excitements

Web AppBuilder is greatly appreciated by our users..



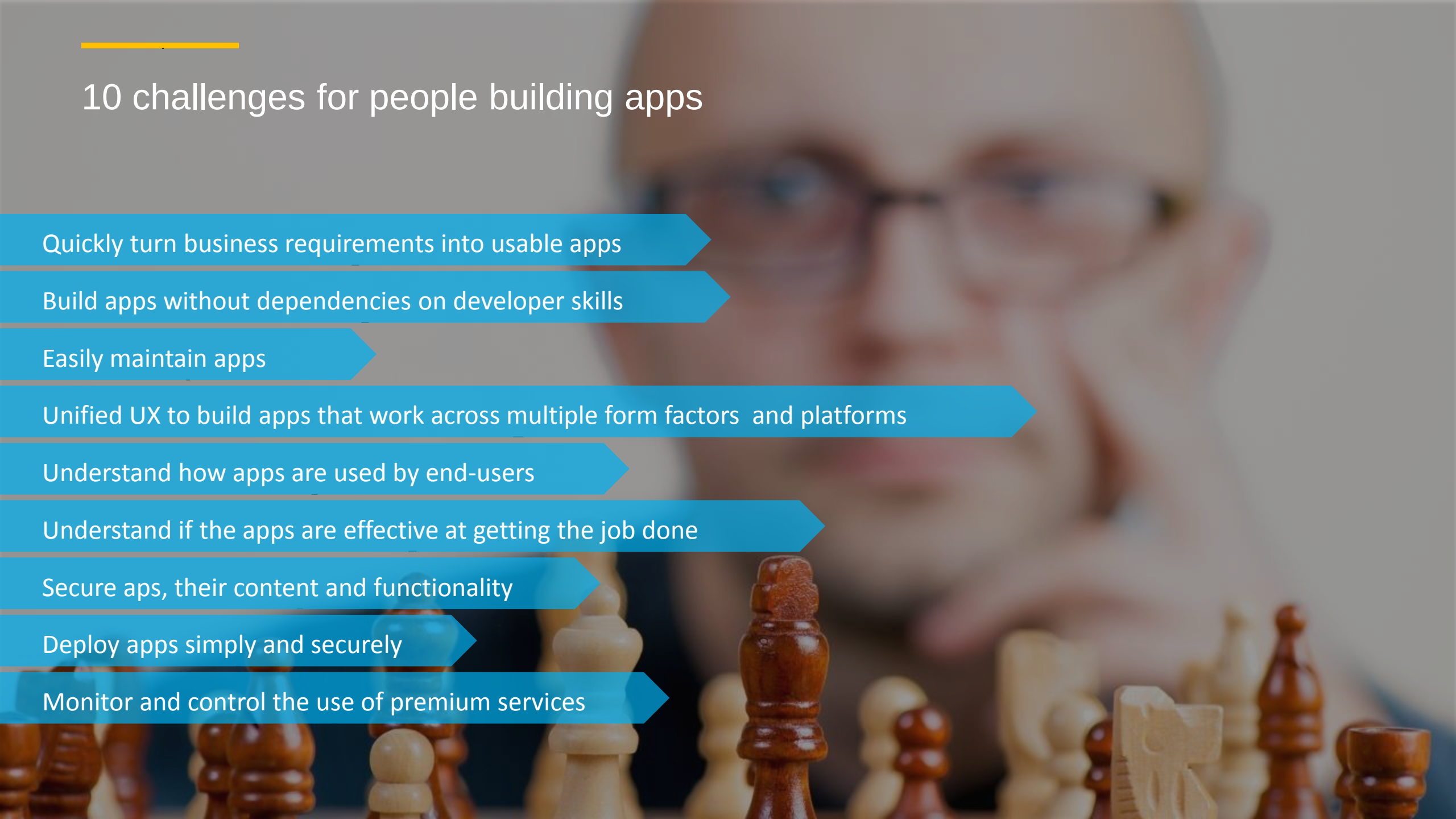






however, we can’t stand still in this fast moving world…

10 challenges for people building apps



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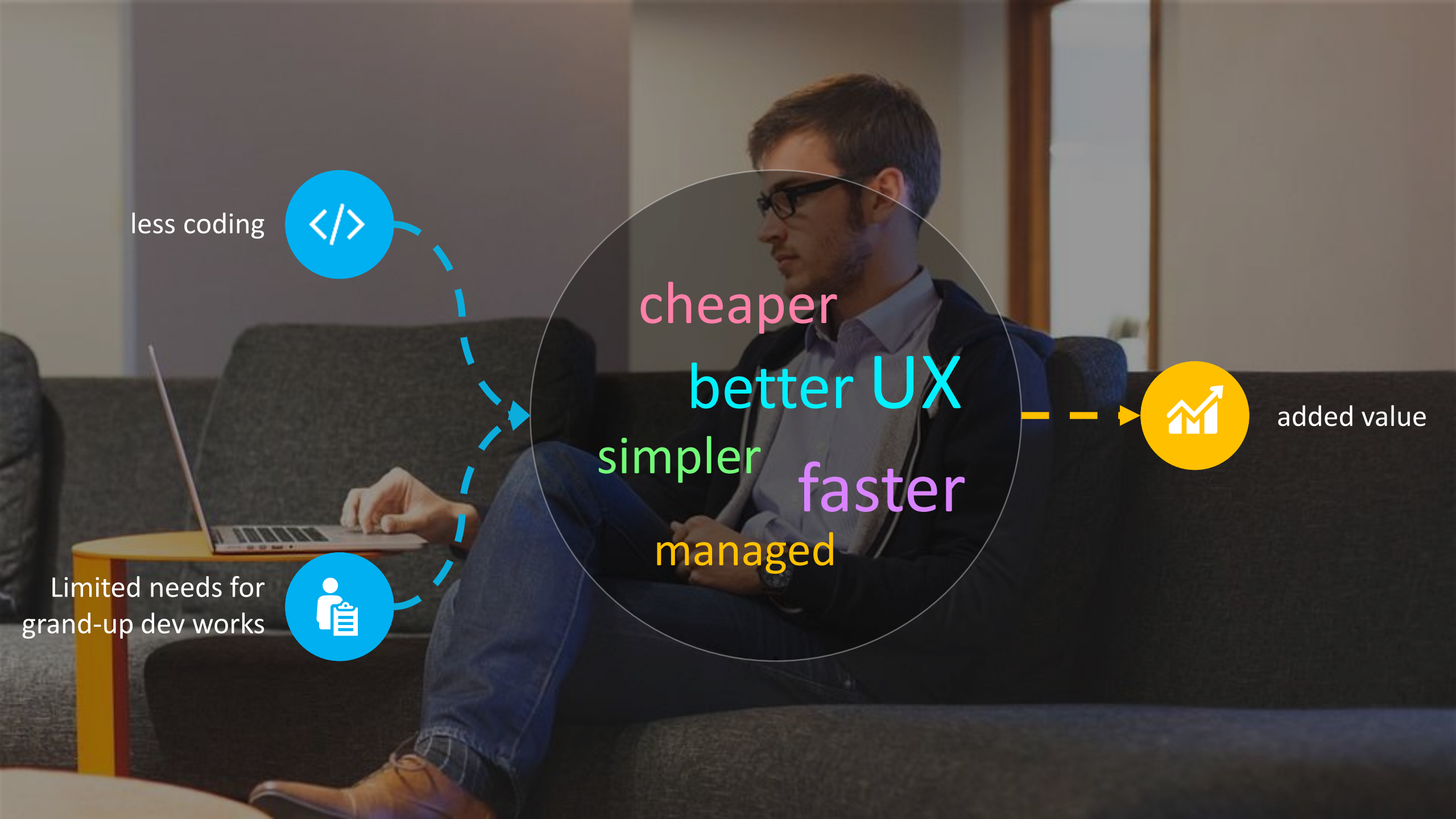

less coding
Limited needs for grand-up dev works
cheaper
better UX
simpler
faster
managed
added value

What Esri Has

Configurable App simplifies the app creation

- **Web AppBuilder (WAB), as a tool, has significantly simplified the app creation process**
- **Since the first WAB release, in two years, more than 220,000 apps are created and hosted on ArcGIS Online**

- However, as a tool, WAB can only partially meet the customer's requirements for apps (in previous slides)
- Esri app creation needs to evolve into being a system to encapsulate the whole app stack and requirements
- Hence …

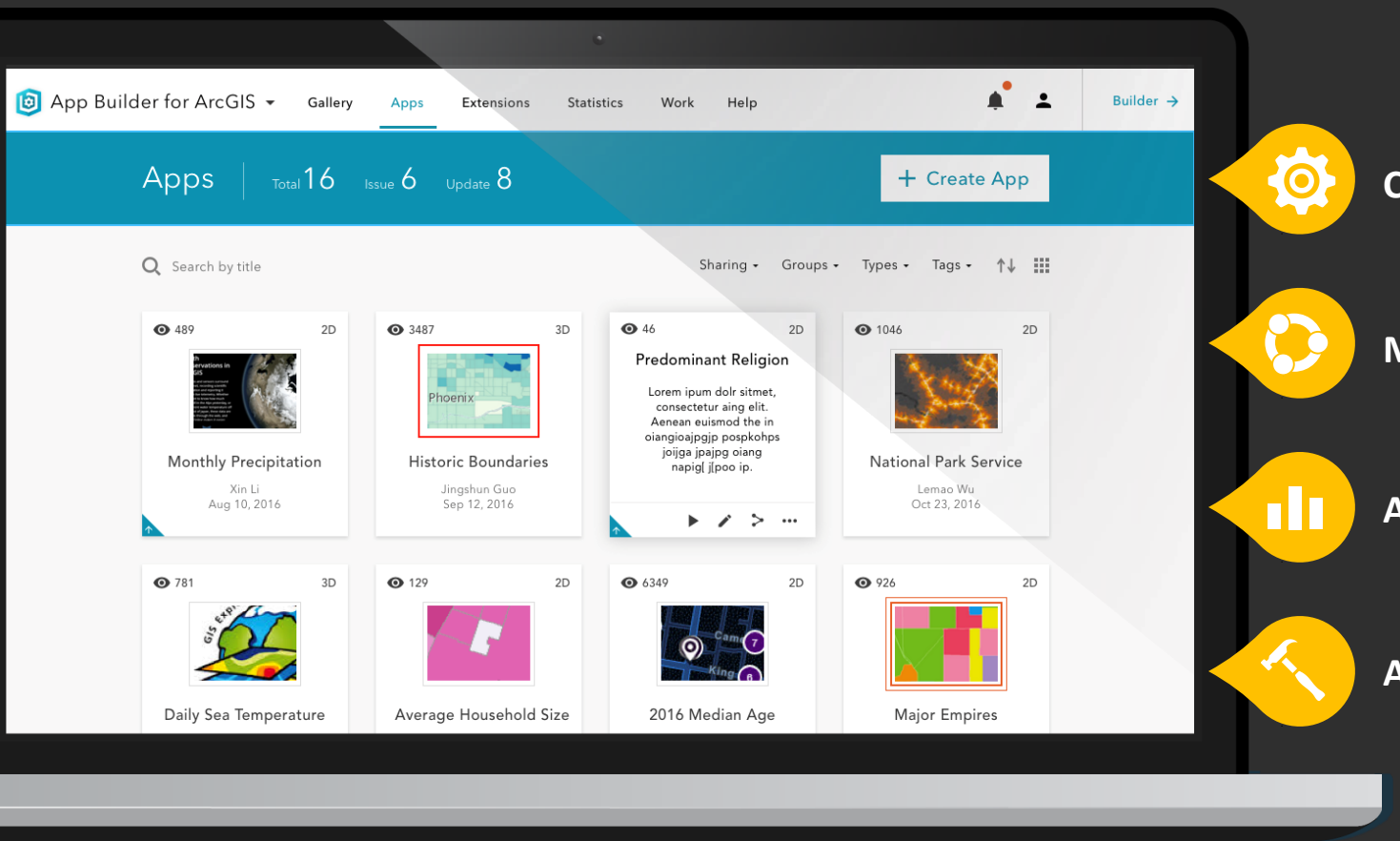

appbuilder.arcgis.com

What is App Builder for ArcGIS

… a web user experience for creating and managing app through the app's lifecycle

… is the evolution of Web AppBuilder, an integrated and unified web user experience

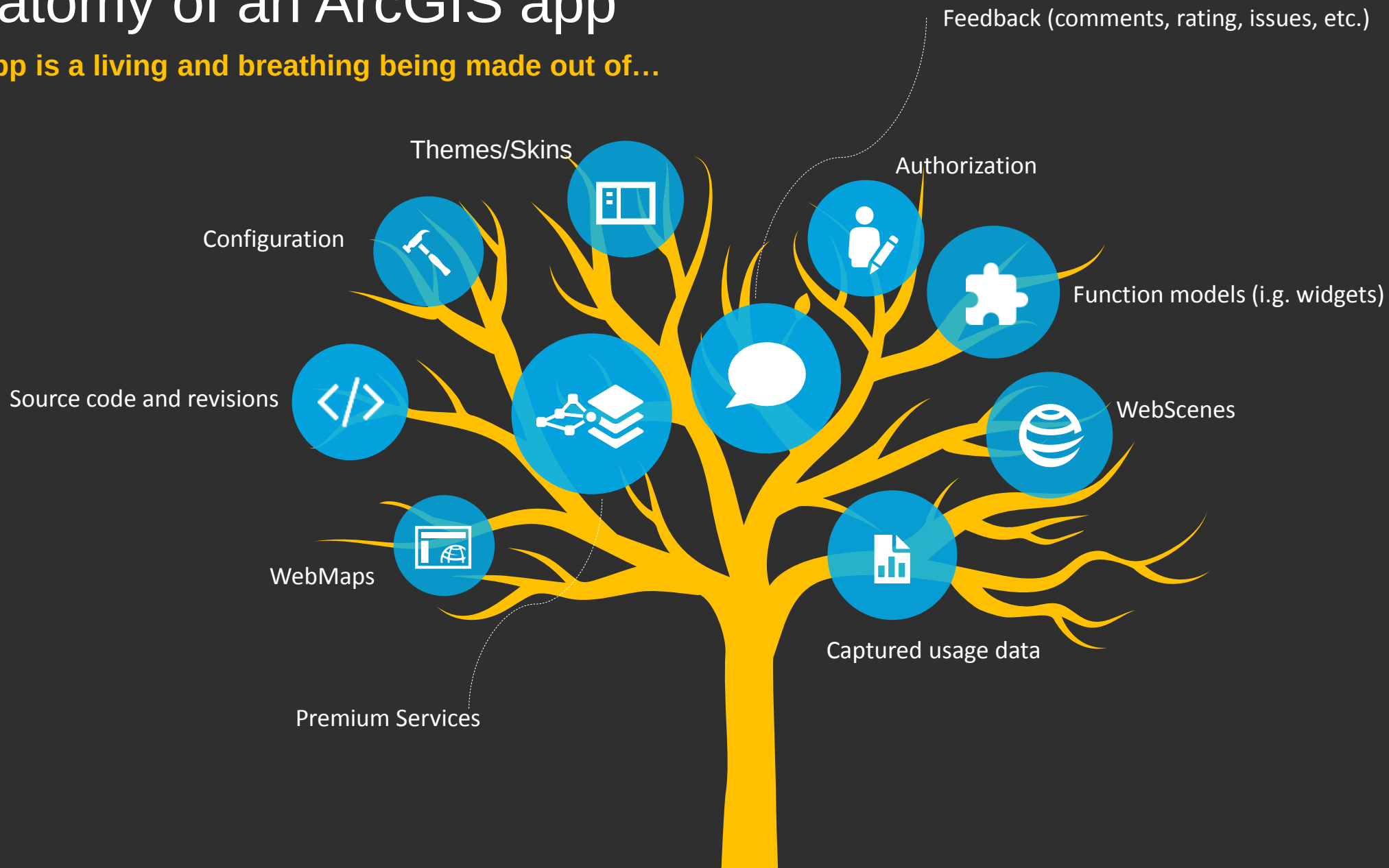
for



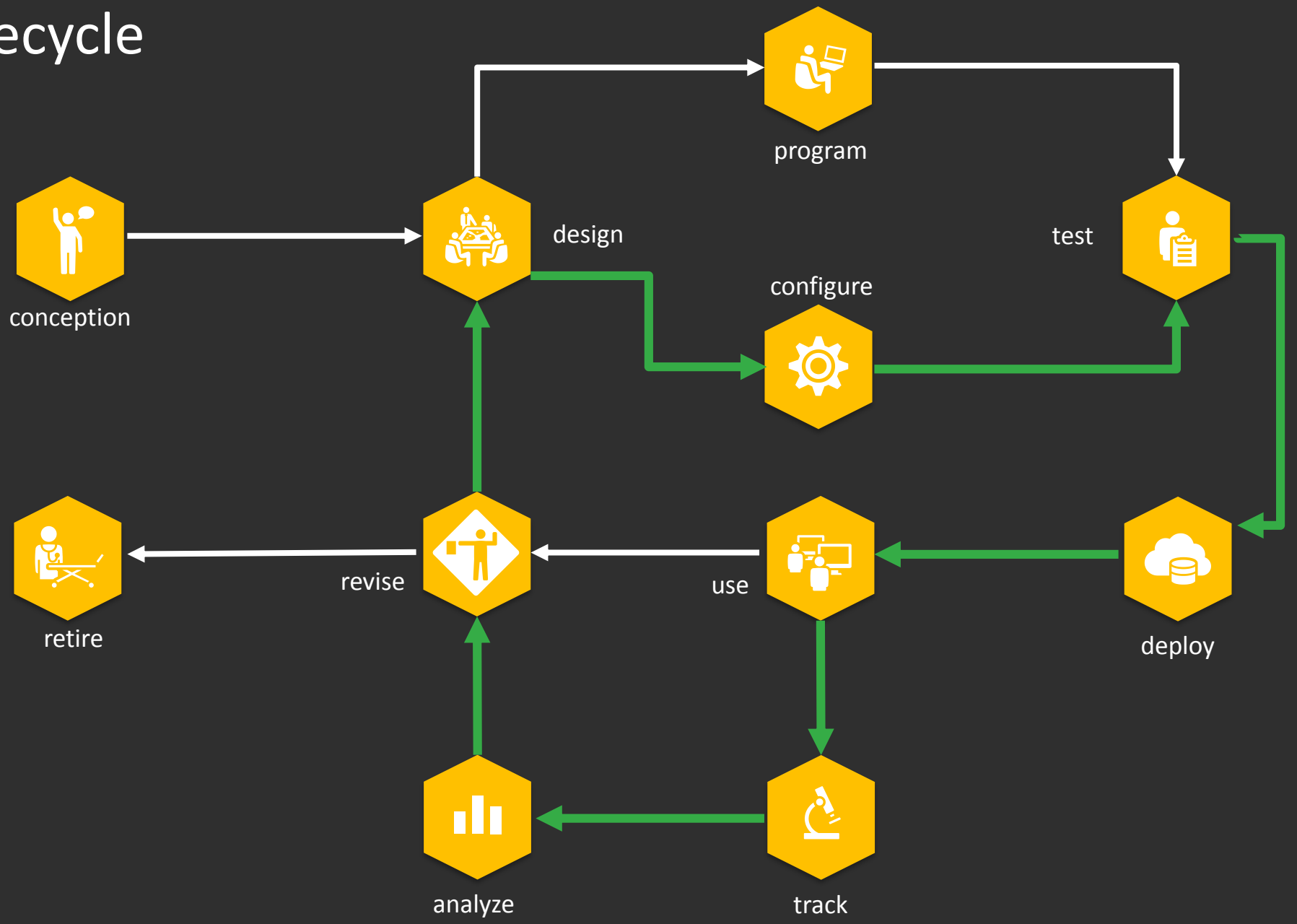
- **Configuring and creating apps**
- **Managing app's lifecycle**
- **Analyzing and reporting the use pattern of the apps**
- **Allowing integration of other app tools**

Anatomy of an ArcGIS app

An App is a living and breathing being made out of…



App Lifecycle



App Lifecycle is complex

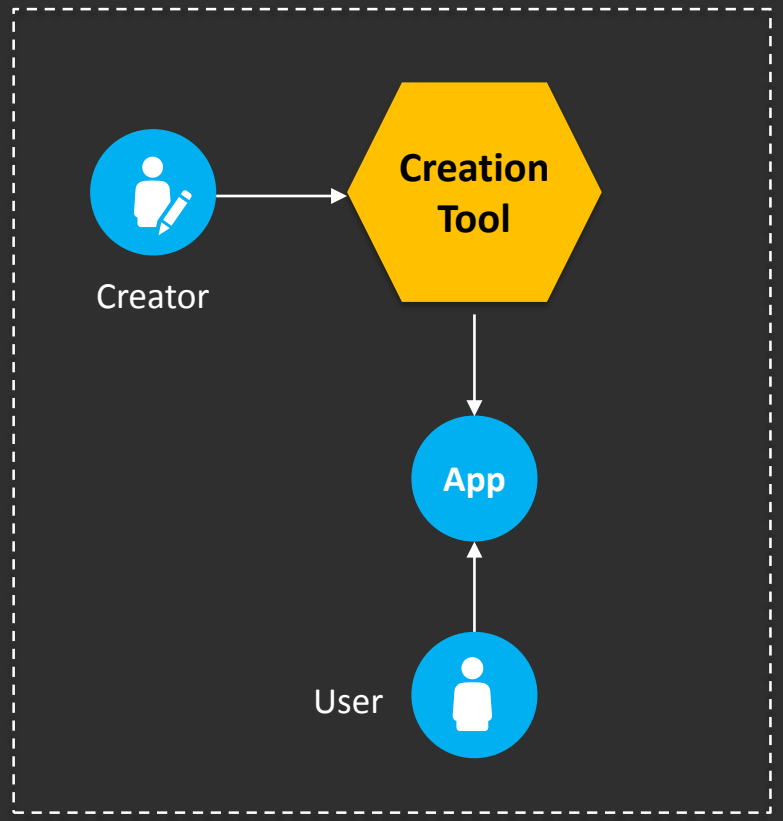
Apps are data

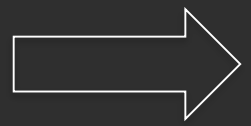
Apps are disposable

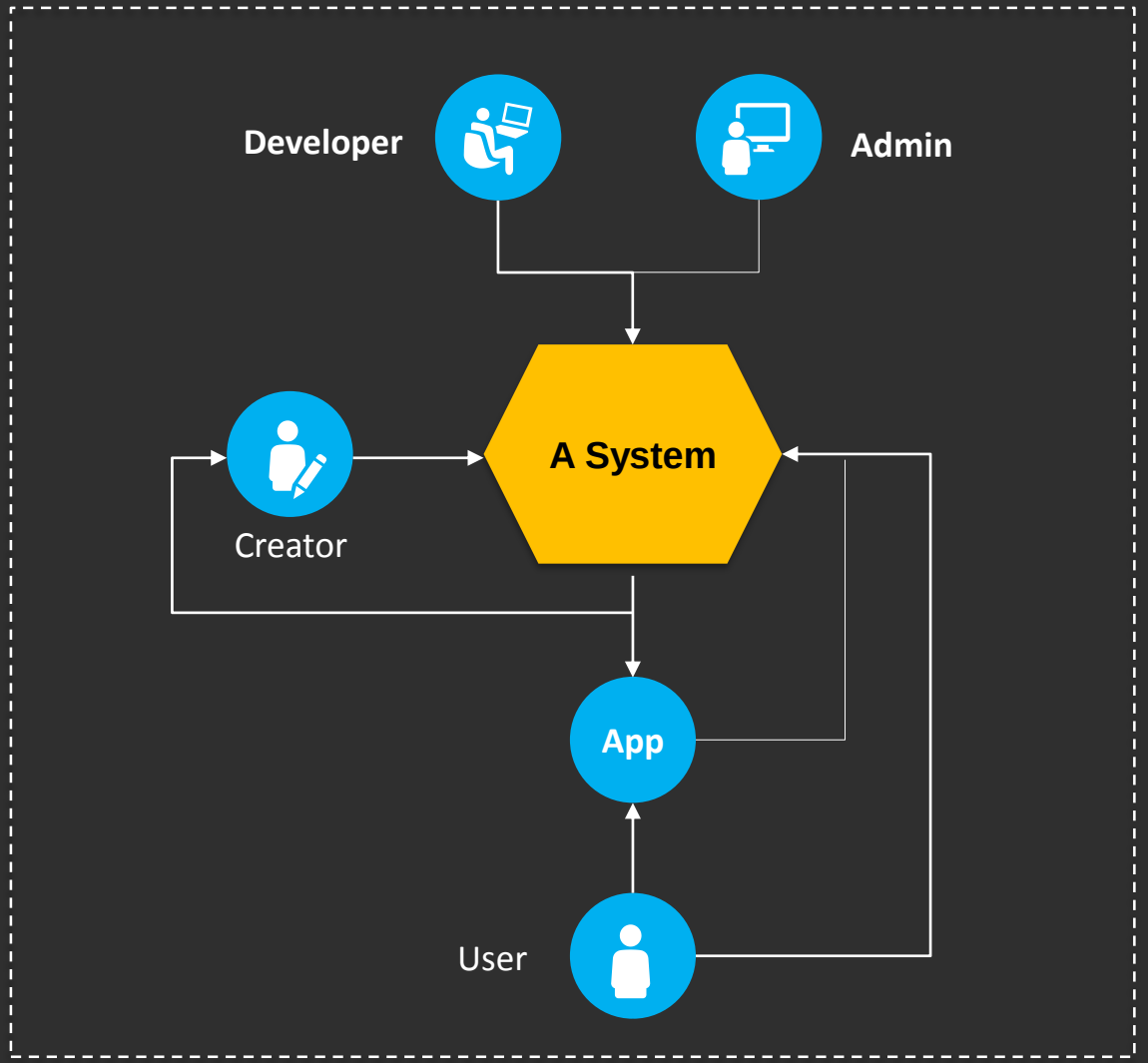
Apps are a conduit to understand your users

The Solution for the Whole App Stack

Go beyond configurable apps



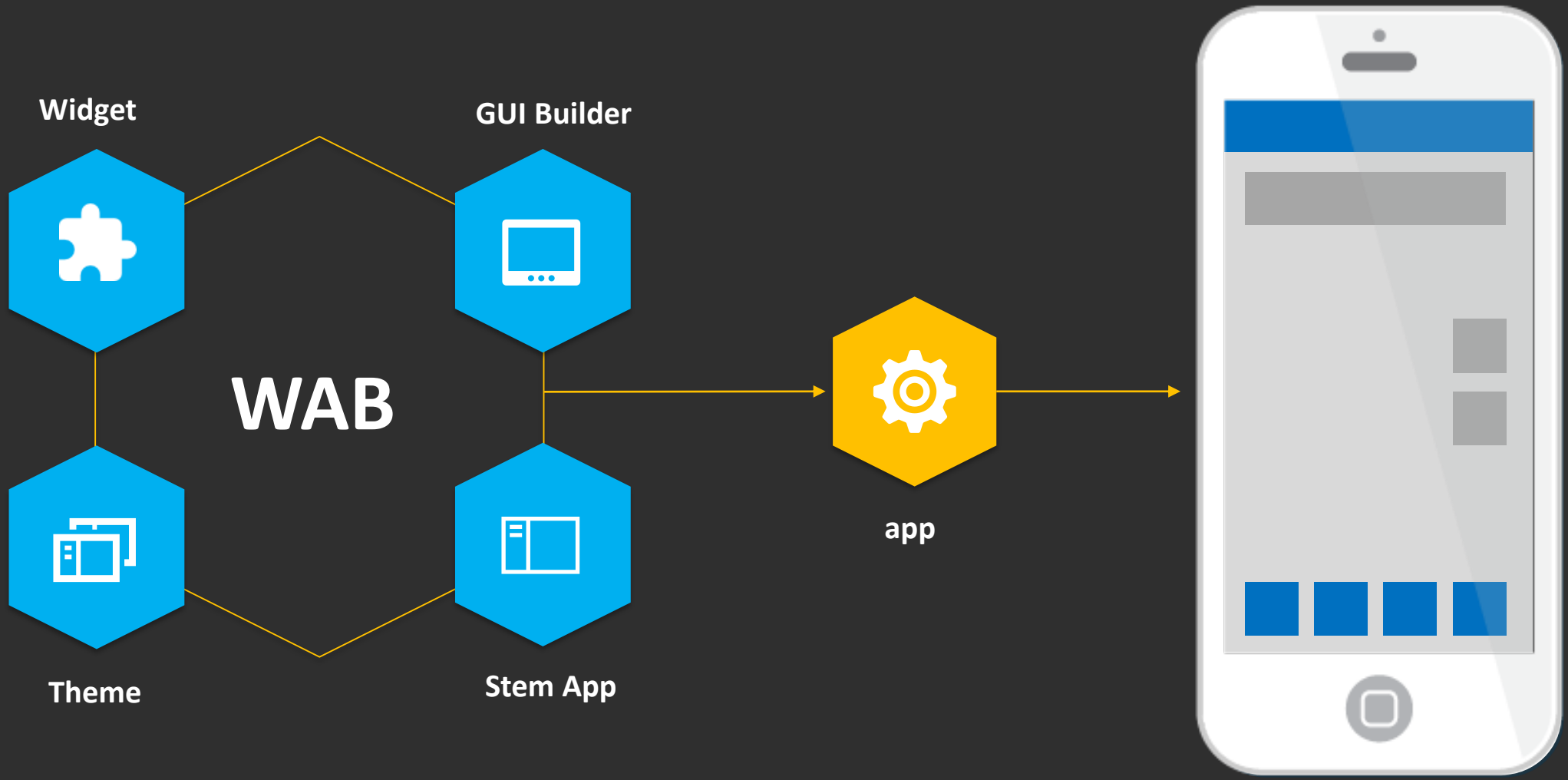




Evolving WAB from a tool to be a system to manage the full App lifecycle

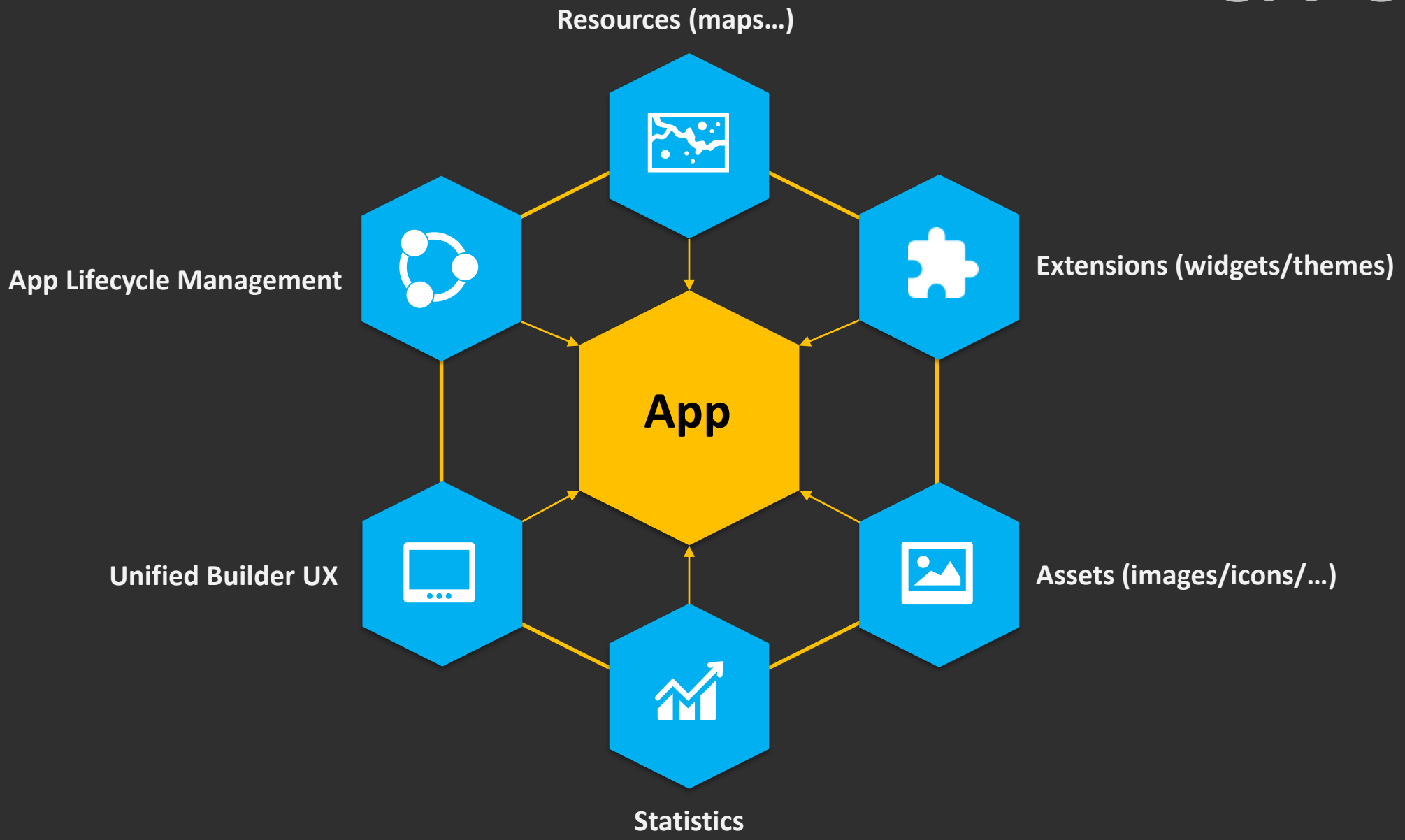
Web AppBuilder as a Tool (tool centric)

before

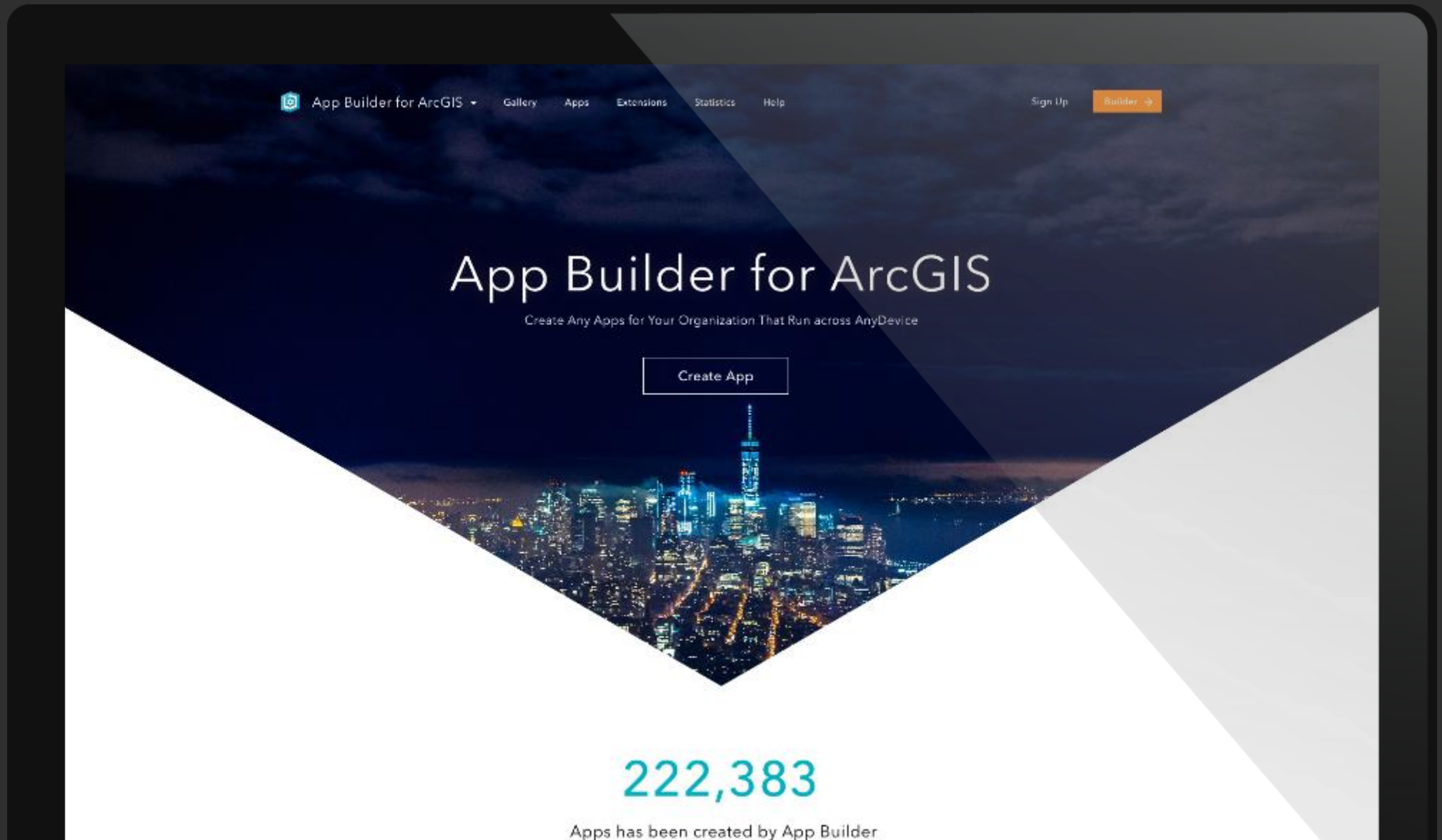


appbuilder.arcgis.com (app centric)

after



appbuilder.arcgis.com UI/UX



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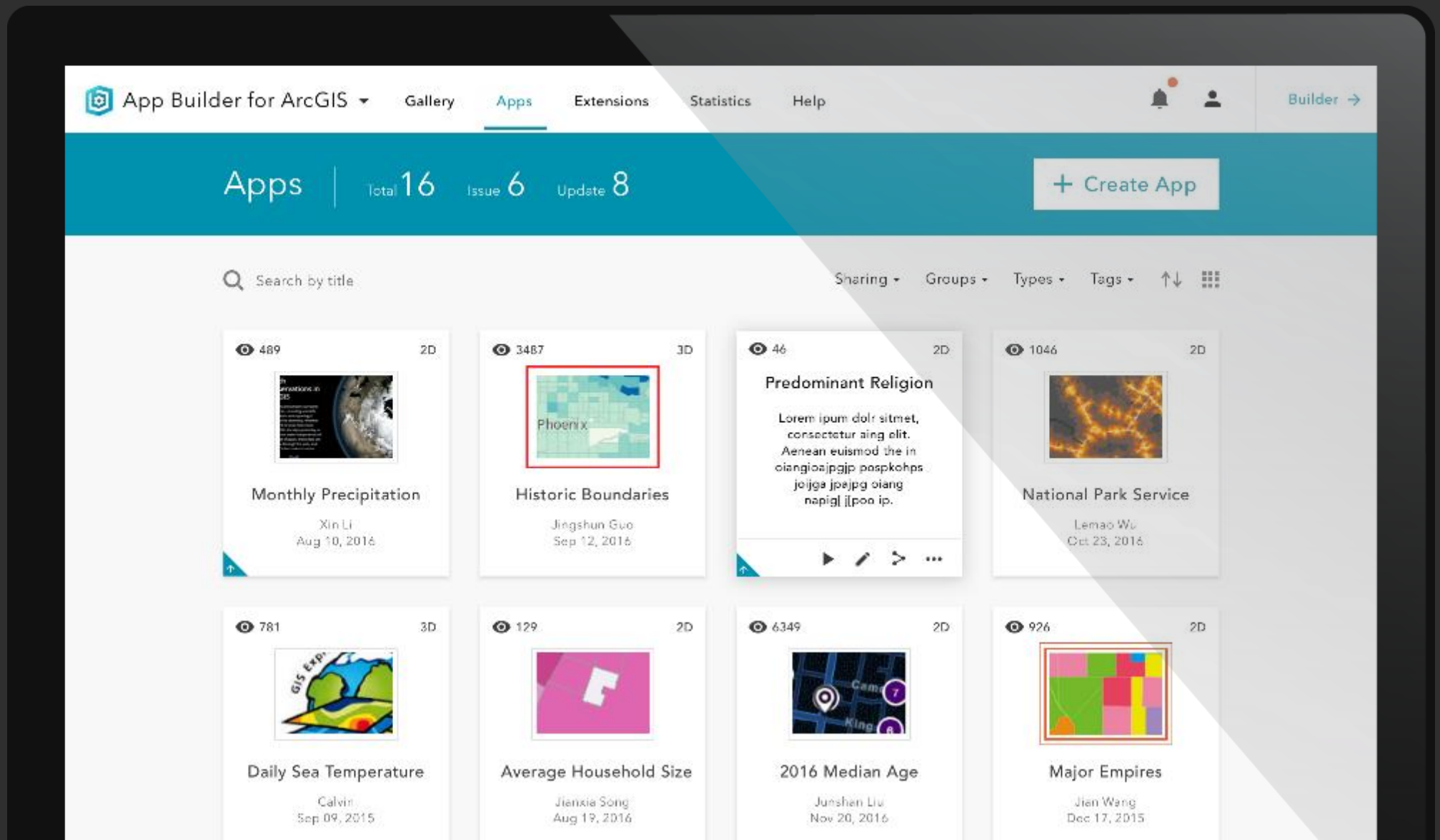

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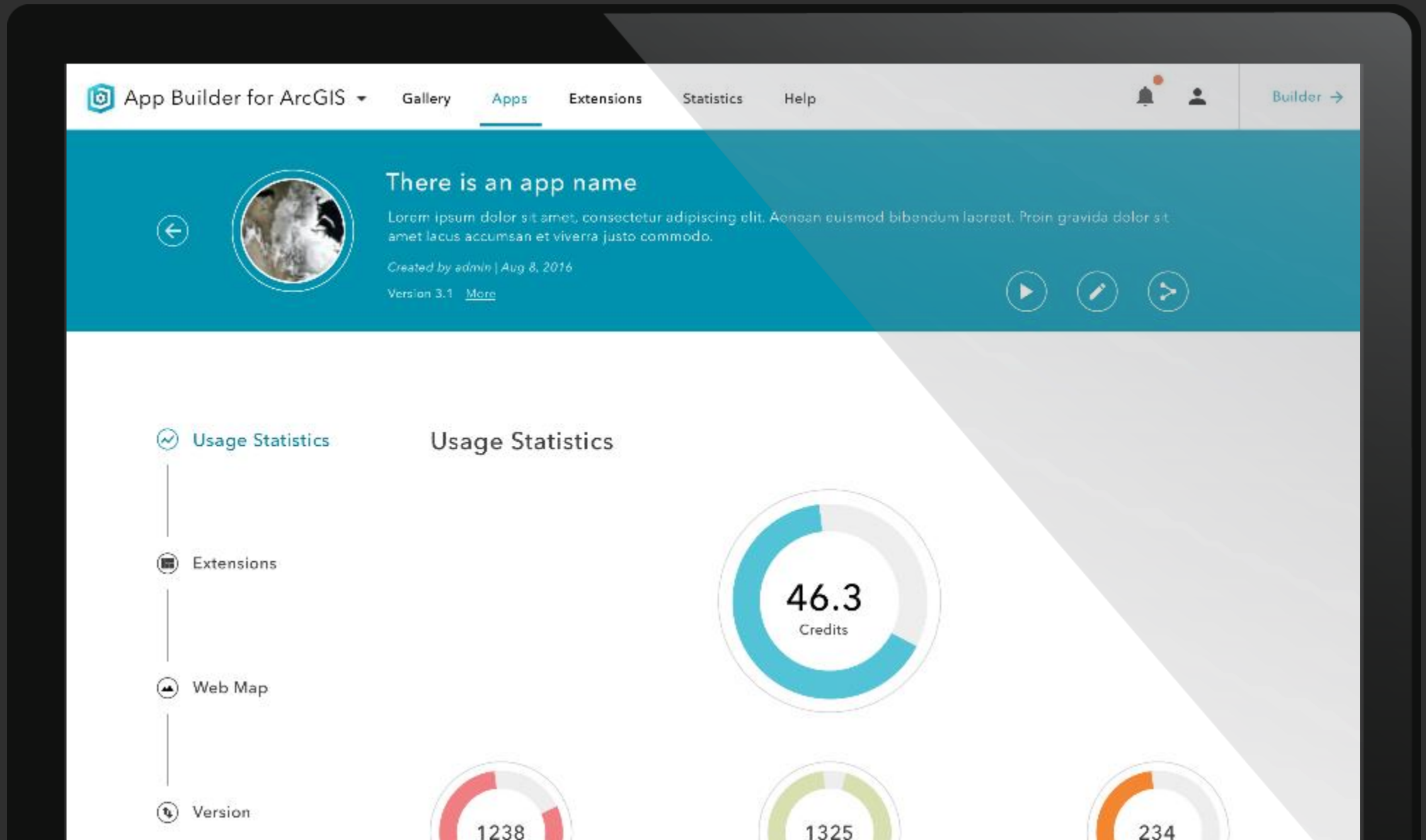

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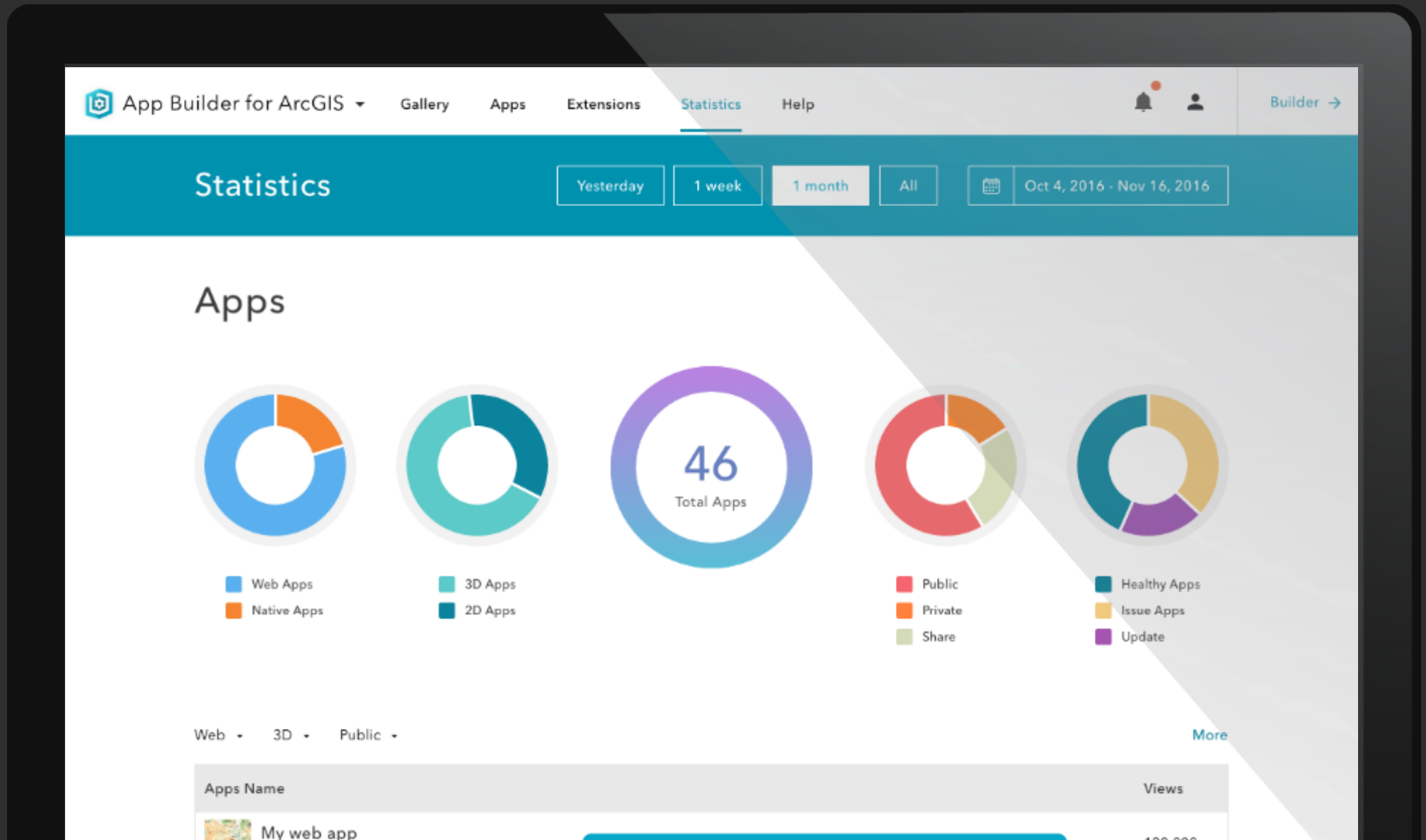



Community
For you and by you

Documentation

Online help documentation
http://doc.arcgis.com/en/web-appbuilder

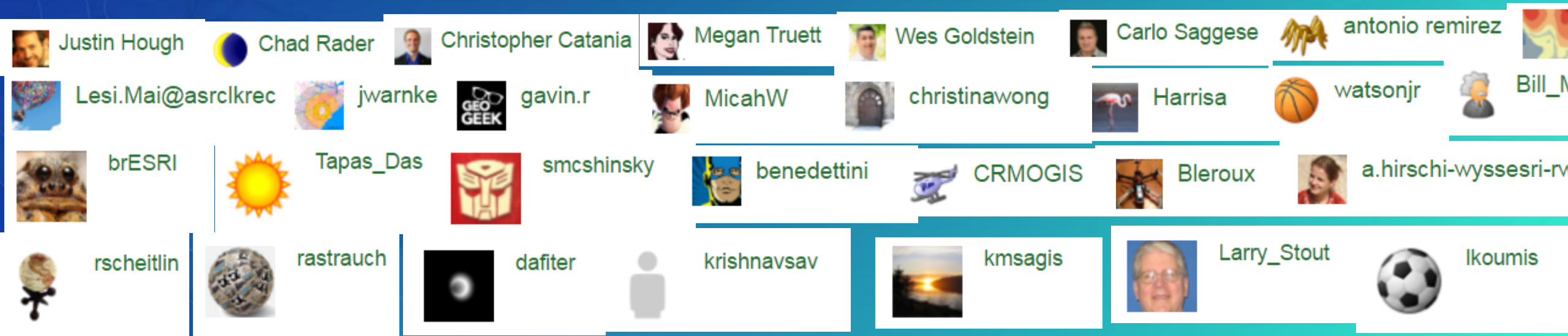
Developer Edition help documentation
http://developers.arcgis.com/web-appbuilder

GeoNet

The Esri Community

https://geonet.esri.com/community/gis/web-gis/web-appbuilder

https://geonet.esri.com/groups/web-app-builder-custom-widgets



Web Course

Creating Web Applications Using Templates and Web AppBuilder for ArcGIS

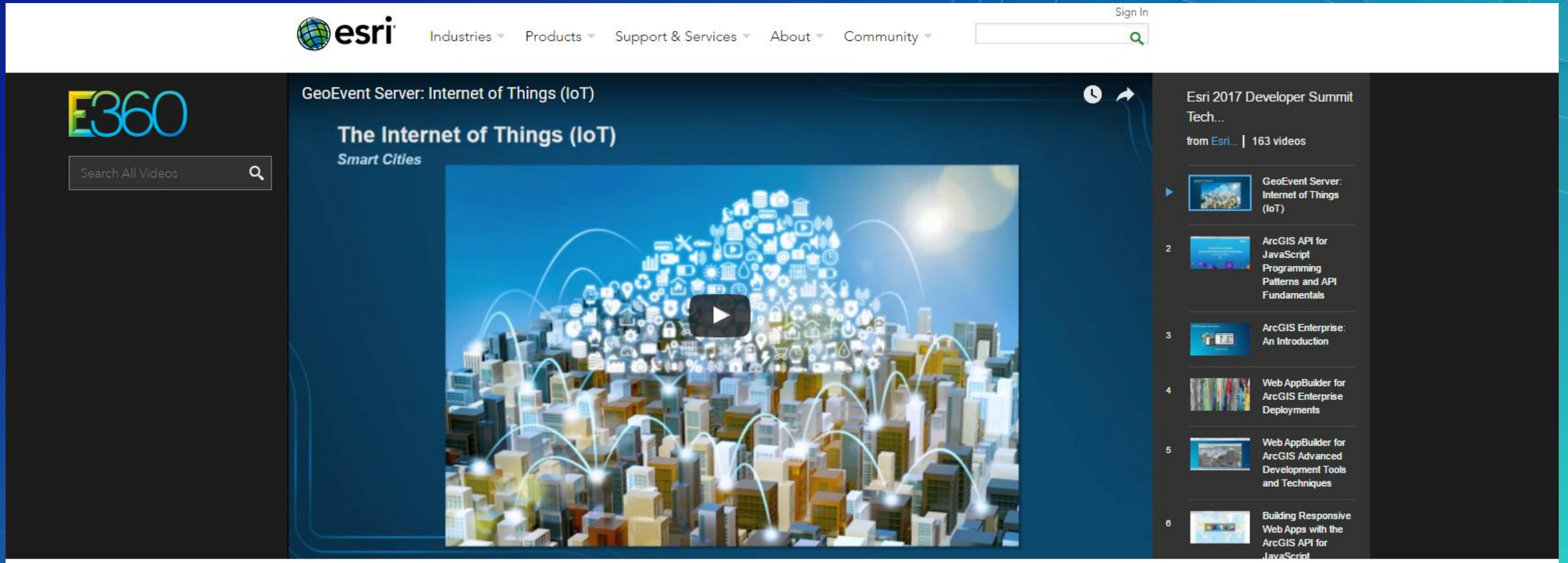
3 Hours Wish List

https://training.esri.com

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/
  - https://github.com/gavinr/wab-widget-search
- **“Awesome ArcGIS”** https://github.com/hhkaos/awesome-arcgis

http://esriurl.com/ds2017videos



GeoEvent Server: Internet of Things (IoT)

The world is becoming more instrumented every day. This session will be a fun exploration of how various things can be integrated into ArcGIS using GeoEvent Server. Presented by Morakot Pilouk, Ming Zhao and Josh Joyner

from Esri Events | March 23, 2017

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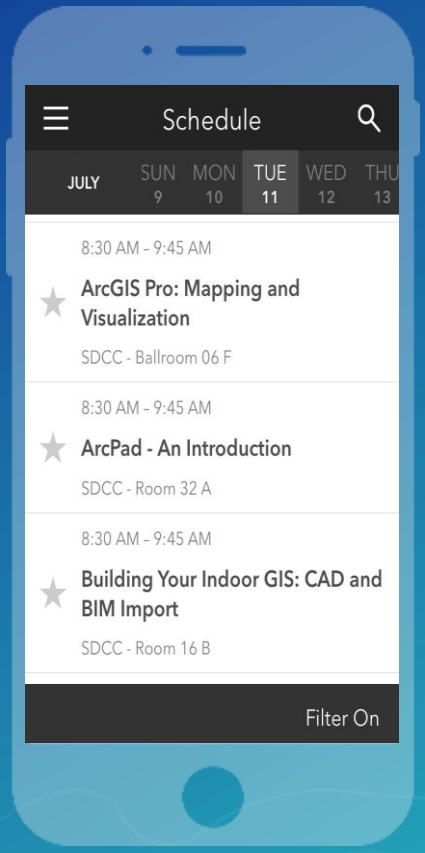
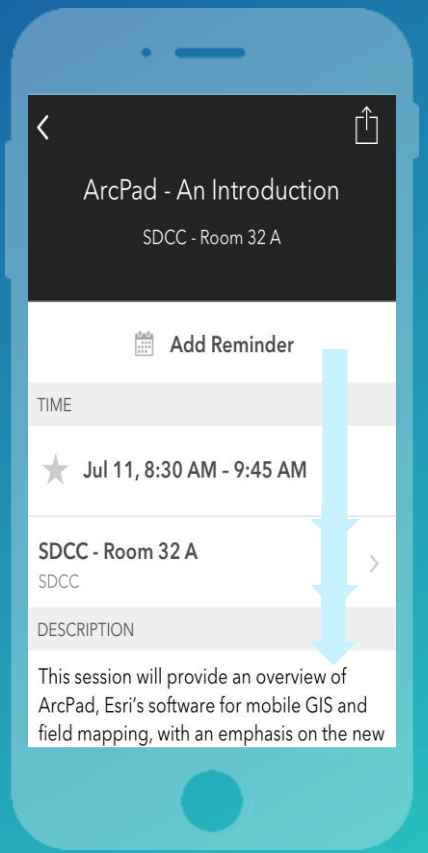
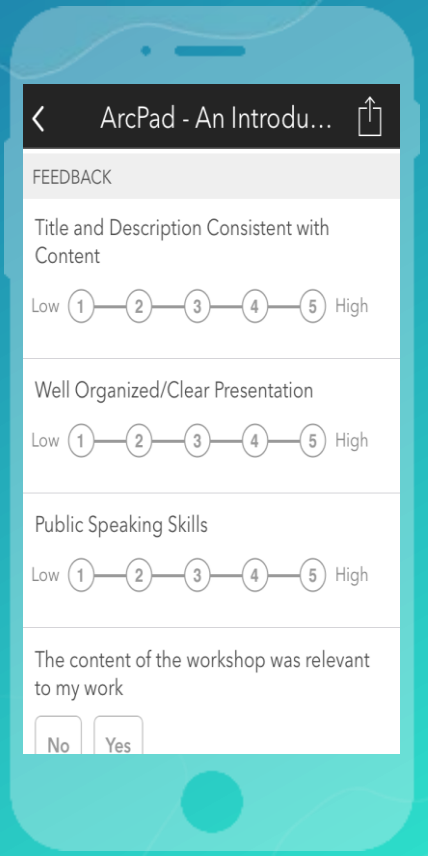
Select the session you attended



Scroll down to find the survey



Complete Answers and Select "Submit"

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