



Operations
Dashboard

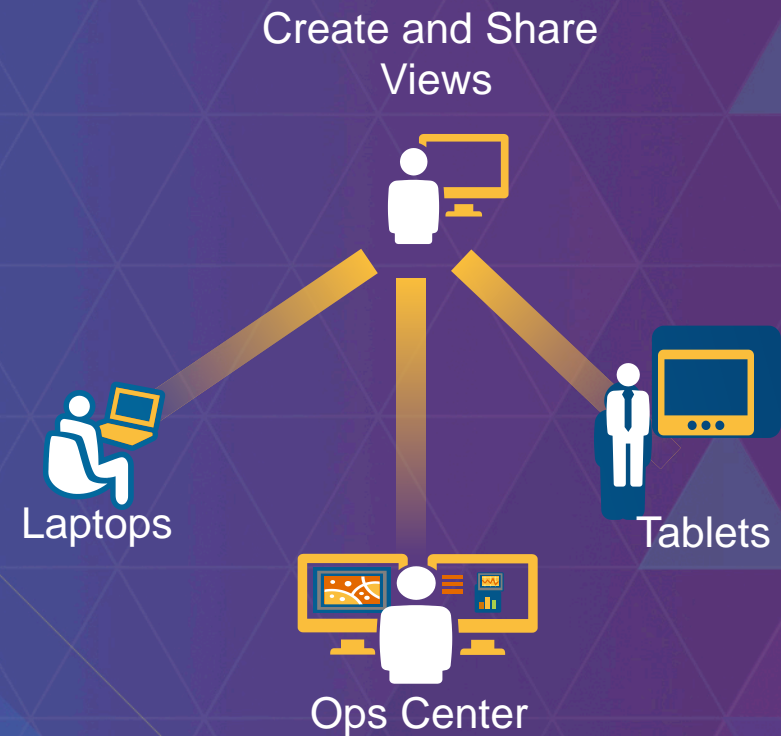
Extending the Operations Dashboard

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Operations Dashboard for ArcGIS

- **Monitor and manage your operations**
- **Ready to use widgets anyone can configure**
 - Maps, Lists
 - Bar Charts, Gauges
 - Histograms, Indicators
 - Details
- **Customer Use**
 - Monitor day to day operations
 - Manage planned and unplanned events
 - Visualize key performance indicators



Creating and Using Operations Views

Components

- Widgets
- Map Tools
- Feature Actions
- Data Sources

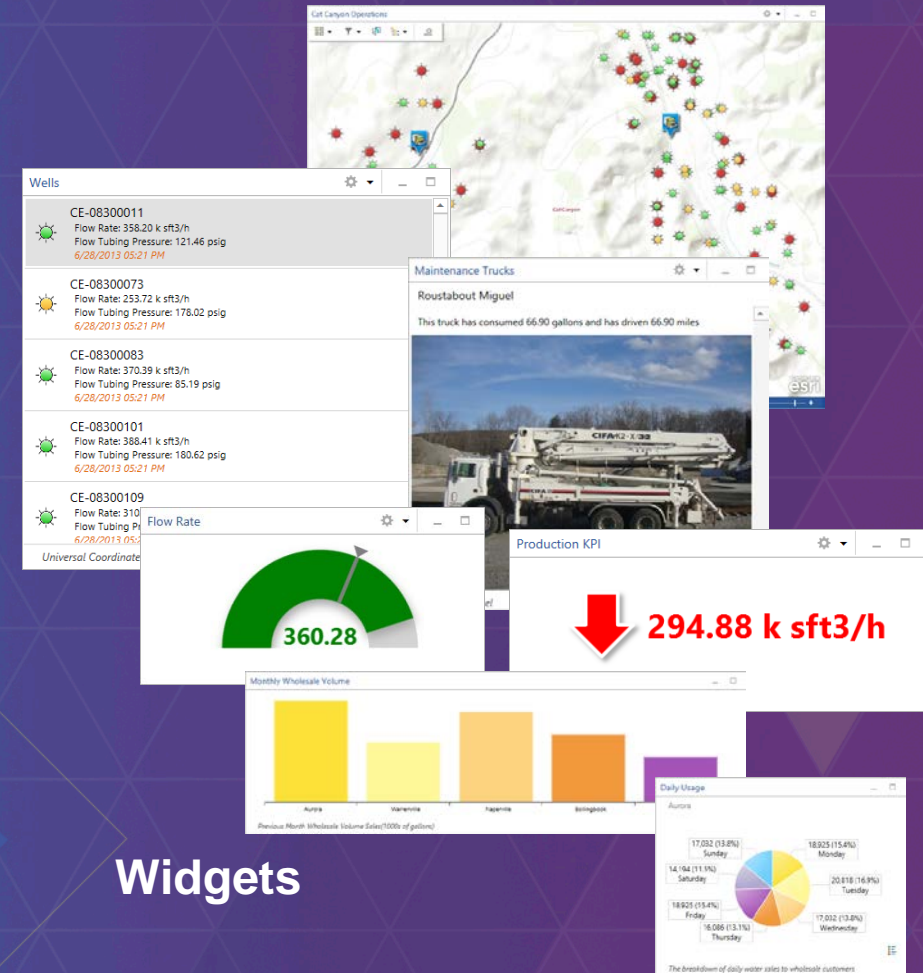
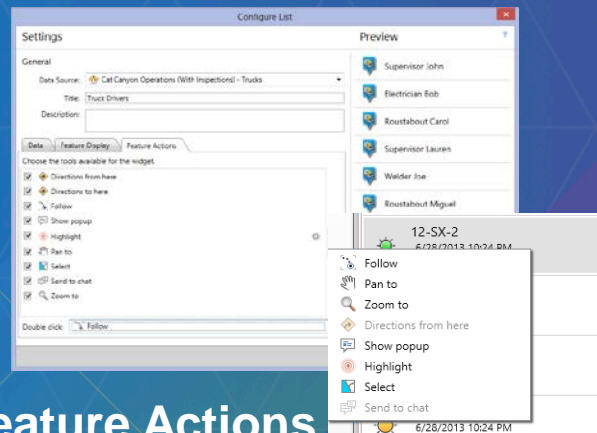
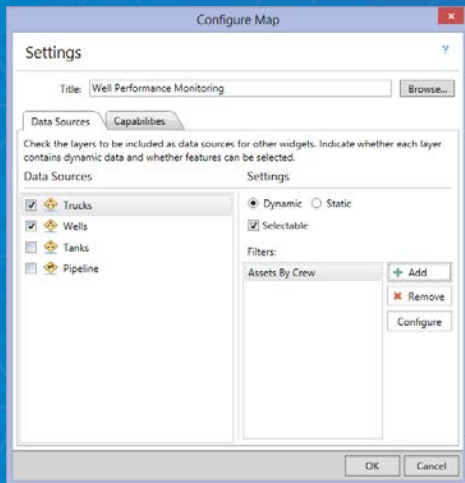
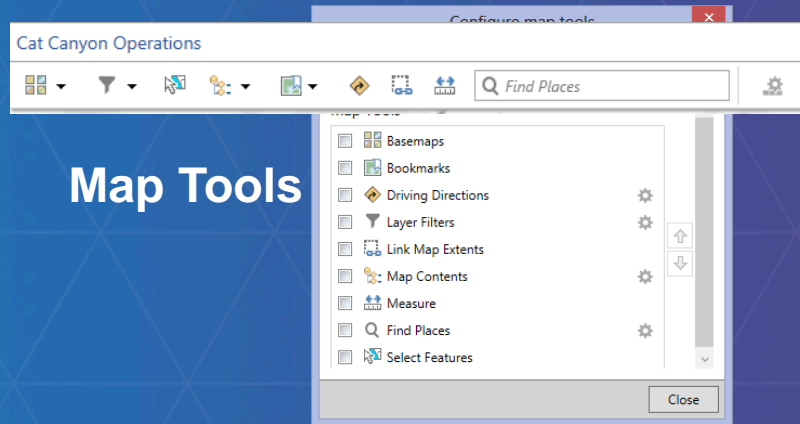
Dynamic, Role Based Access

- Widgets are dynamic, interactive
- Maps provide spatial context
- Create and Share Focused views...

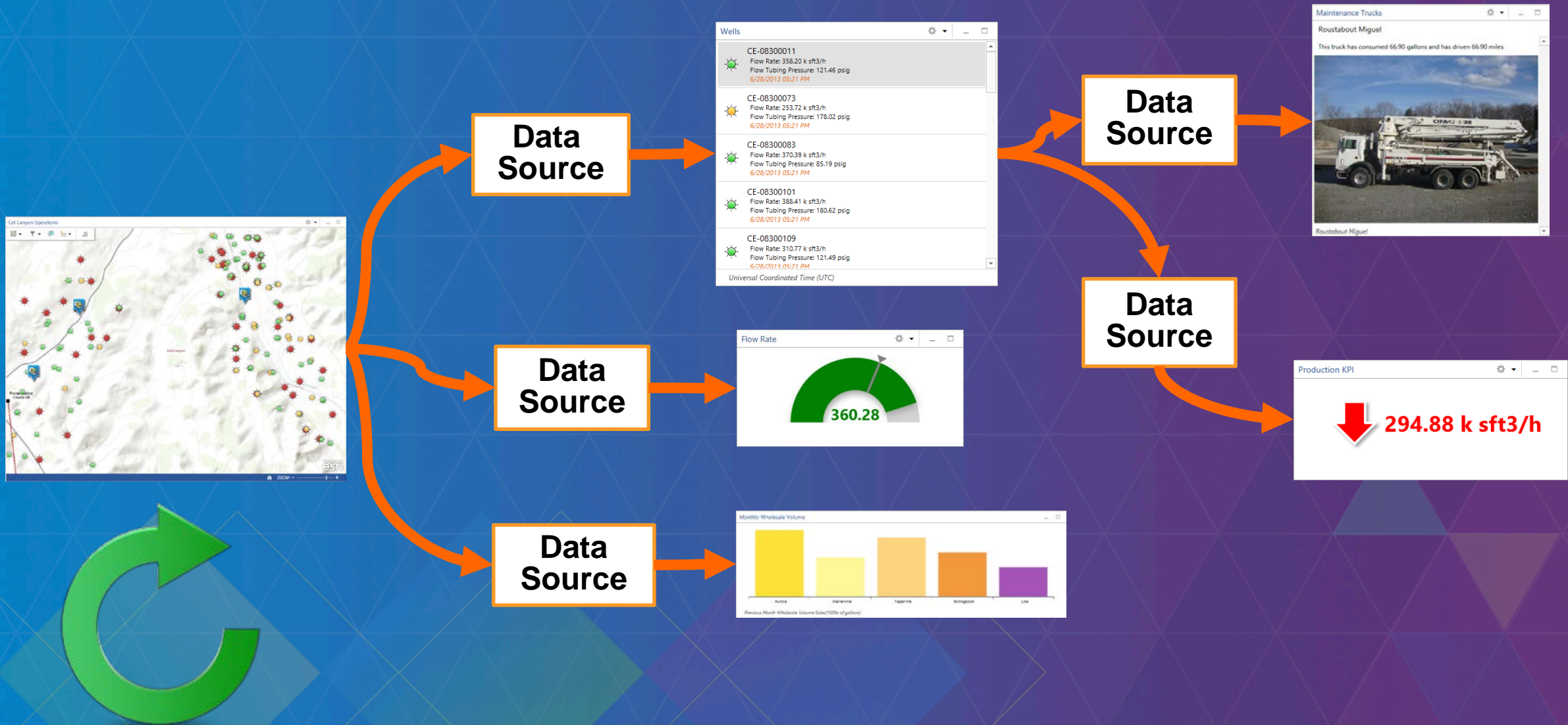
Two Types of Views

- Single Display
- Multiple Display

Composition of an Operation View...



Data Sources



Extensibility...

Extending Operations Dashboard

Casco Bay Ferry Operations (Dev Summit)

Ferries

Filter

- Casco Sound
Current Capacity 88%
- Merepoint
Current Capacity 82%
- Ridley Cove
Current Capacity 79%
- Maquoit II
Current Capacity 79%
- Autocisco III
Current Capacity 71%

Details

Bay Ferries: Casco Sound

Time 3/4/2015, 4:58:36 PM

NumberPassengers 229
Passenger Capacity 327
Minutes Behind Schedule 15

Map Tool

- Show pop-up
- Highlight
- Follow
- Pan to
- Select
- Zoom to

Feature Action

The screenshot shows a dashboard for Casco Bay Ferry Operations. On the left, there is a 'Ferries' section with a list of ferries and their current capacities. Below this is a 'Details' section for 'Casco Sound' showing passenger statistics. On the right, there is a map of the Casco Bay area with various locations marked. A 'Map Tool' callout points to the map's search bar, and a 'Feature Action' callout points to a context menu over a ferry icon on the map. A 'Widget' callout points to the details section.

Widget

Map Tool

Feature Action

Widgets

- **Display data or aggregated data from a dynamic data source**
 - Charts
 - Statistics
- **Display additional data**
 - Weather
 - Video
 - Related information found in a different data store
- **Display data resulting from a geo-processing tool**
- **Keep a state**

Widgets coexist with a map or it's features...

Map Tools

- **Live in a map**
- **Only 1 tool at the time can be activated**
- **Associated UI is destroyed when deactivated (toolbar or dropdown)**
- **Great for temporary analysis/visualization**
 - **Geo-processing tool**
 - **Explore locations**
 - **Editing (be really careful with this one)**

Do something on the map...

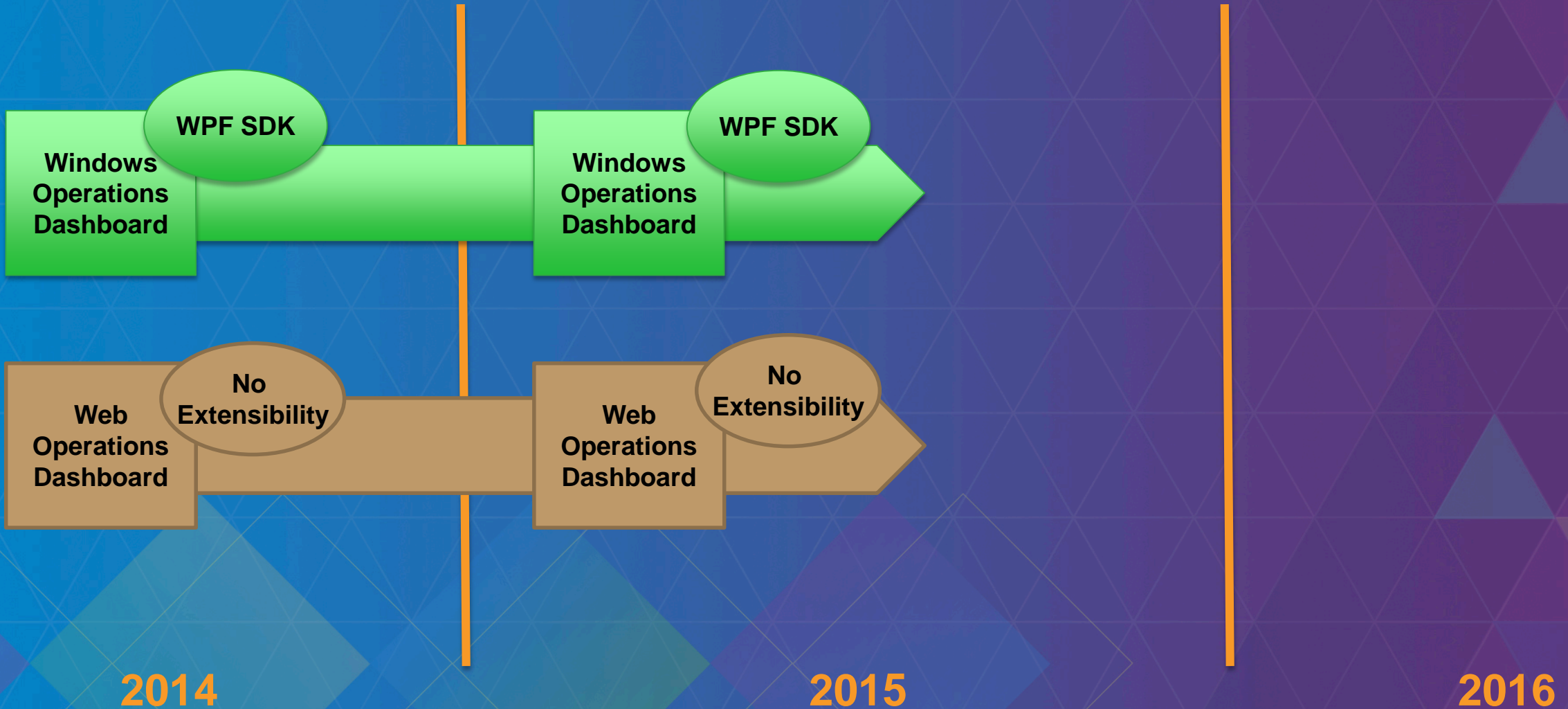
Feature Actions

- **Execute an action related to 1 or many features**
 - **Show a PDF**
 - **Launch another app**

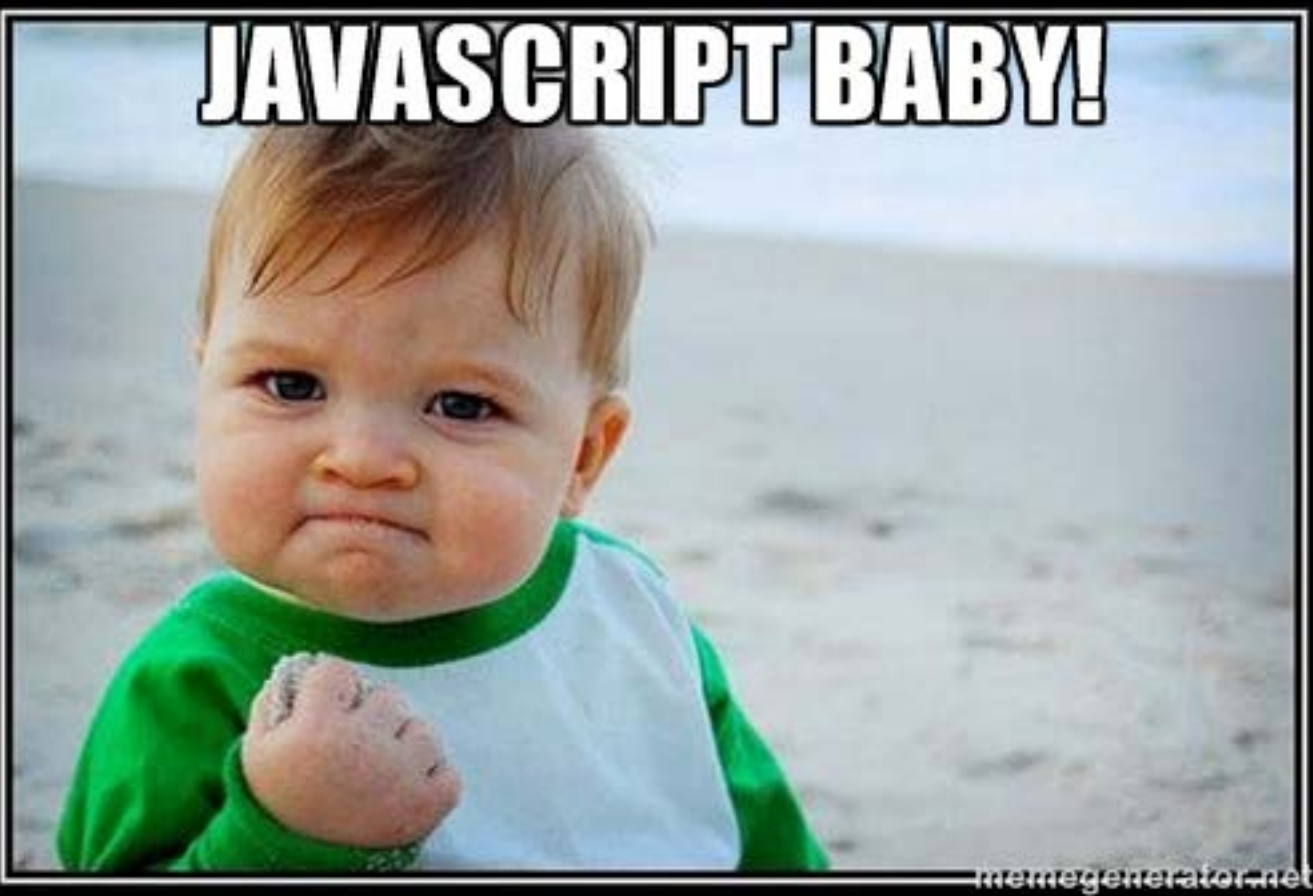
Widgets vs. Map Tools

- Often you will find that you could write your extension as a Map Tool or as a Widget
 - Widgets => Never destroyed => state
 - Map Tools => Destroyed when deactivated => temporary => block other tools

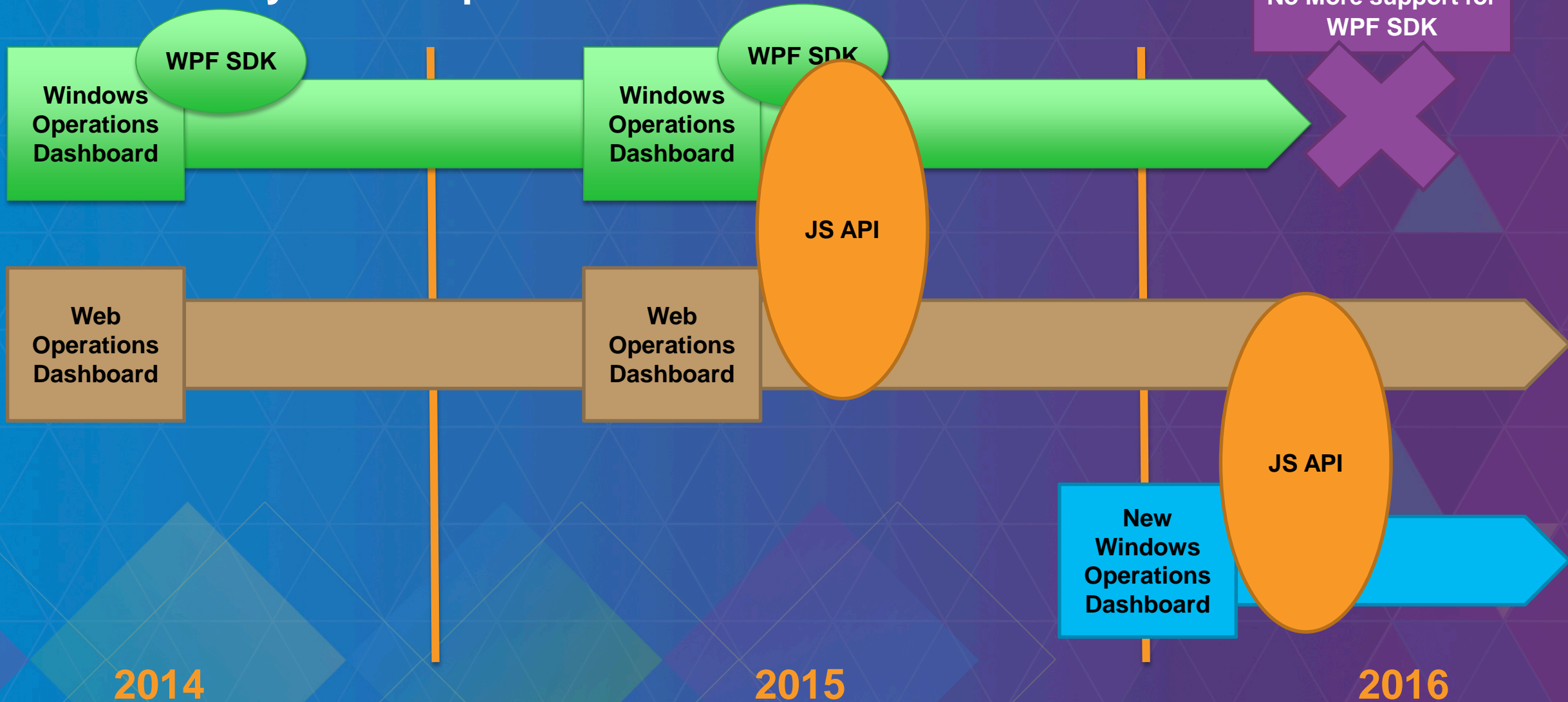
Current extensibility



JAVASCRIPT BABY!



Extensibility Roadmap



Demo...

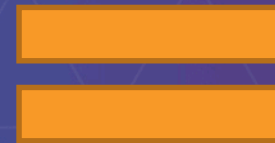
Extending Operations Dashboard using Esri JavaScript API



**Web App
HTML + JavaScript
+ manifest**

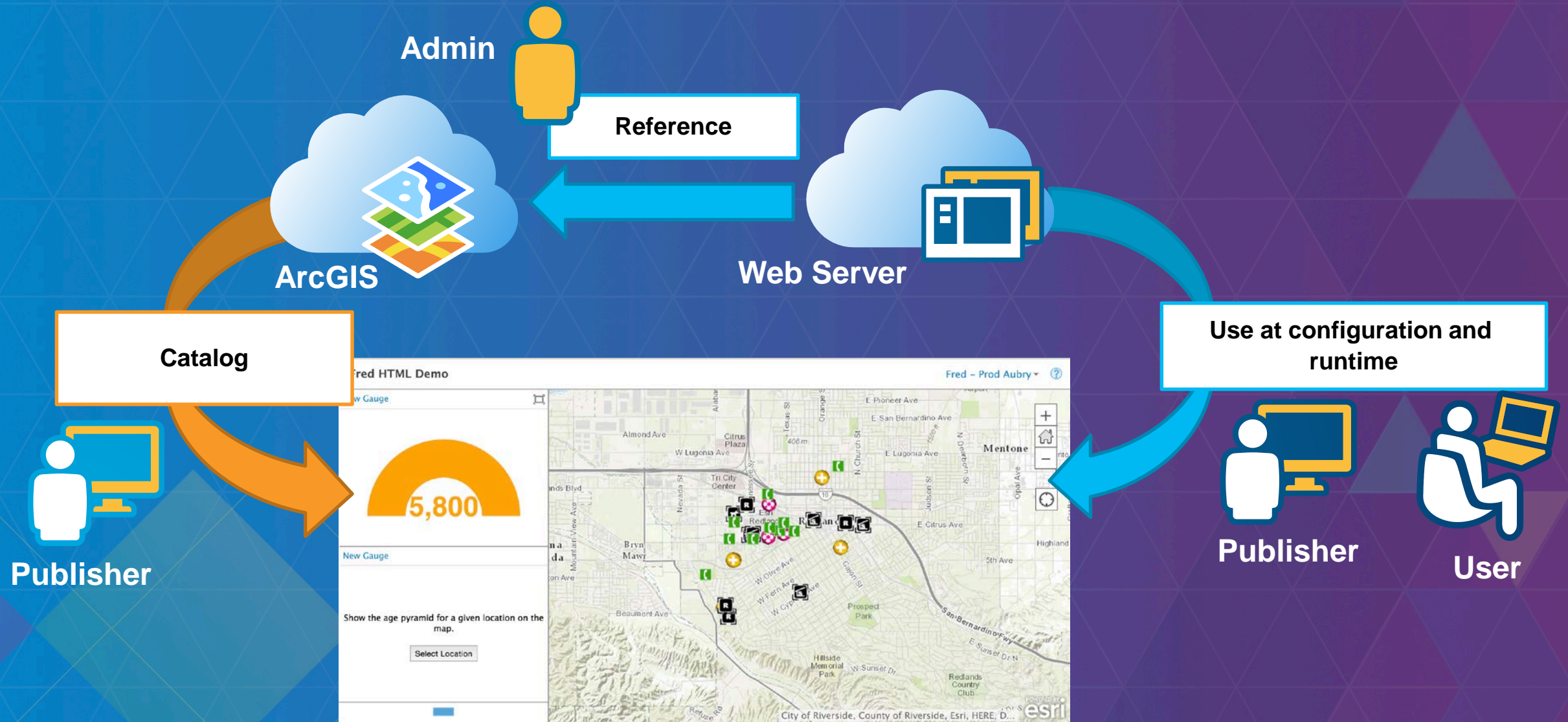


**Registered
App Item**



**Extension
for
Operations
Dashboard**

Extending Operations Dashboard using Esri JavaScript API



Structure of an extension called 'foo'

- Manifest
 - **foo.json**
- Configuration time (optional):
 - fooConfigure.html
 - Optional JS and other resources
- Runtime
 - **foo.html**
 - Optional JS and other resources

foo.html and foo.json are mandatory

Anatomy of an extension web app – foo.json - manifest

```
{
  "type": "widget",
  "name": "Scatter Plot Widget",
  "description": "Scatter Plot Widget sample",
  "runtimePath": "scatterPlot.html",
  "iconPath": "icon.png",
  "configuration": {
    "path": "scatterPlotConfig.html",
    "requiresDataSource": true,
    "supportsFeatureActions": true,
    "requiresDescription": true
  },
  "credits": {
    "companyName": "abc",
    "email": "xx@company.com",
    "copyright": "xxxxxx",
    "url": "http://www.esri.com"
  }
}
```

Work in progress...

Anatomy of an extension web app – foo.html

```
<!DOCTYPE html>  
<html>  
<head>  
</head>  
<body>  
  
    <div>...</div>  
  
    <script src="//js.arcgis.com/3.14/"></script>  
    <script src="foo.js"></script>  
  
</body>  
</html>
```

Extension code...

Reference the Esri JS API

Anatomy of an extension web app – widget – for runtime

Code snippet from the geo-enrichment example

```
view.initialize().then(function () {  
  
    var studyArea = new DriveBuffer(...);  
    var infographics = new Infographic(...);  
    infographics.startup();  
  
    view.getMapWidgets().then(function (mapWidgets) {  
  
        var mapWidget = mapWidgets[0];  
        mapWidget.createGraphicsLayer().then(function (graphicsLayer) {  
  
            dojoQuery(".pick-location-tool").on("click", ...);  
            mapWidget.on("draw-complete", ...);  
            mapWidget.on("draw-cancel", ...);  
            infographics.on("data-ready", ...);  
  
        });  
    });  
});
```

Anatomy of an extension web app – fooConfigure.html

```
<!DOCTYPE html>  
<html>  
<head>  
</head>  
  
<body>  
  
    <div>...</div>  
  
    <script src="//js.arcgis.com/3.14/"></script>  
    <script src="fooConfigure.js"></script>  
  
</body>  
</html>
```

Anatomy of an extension web app – widget – for configuration

```
view.configure().then(function(widget) {  
  
    ...  
  
    widget.on("data-source-selection-changed", lang.hitch(widget, dataSourceSelected));  
});  
  
var dataSourceSelected = function (dataSourceConfig) {  
    dataSourceConfig.myOwnProperty = "bar";  
  
    ...  
};  
  
widget.readyToPersistConfig(true);
```

Unstructured code! Can do better...

Communication with the host Operations Dashboard

- Request something from the host
 - `view.getMapWidgets.then(function(mapWidgets){});`
 - Promises!
- React to something happening in the host
 - `mapWidget.on("draw-complete", function(event){});`
 - Events!



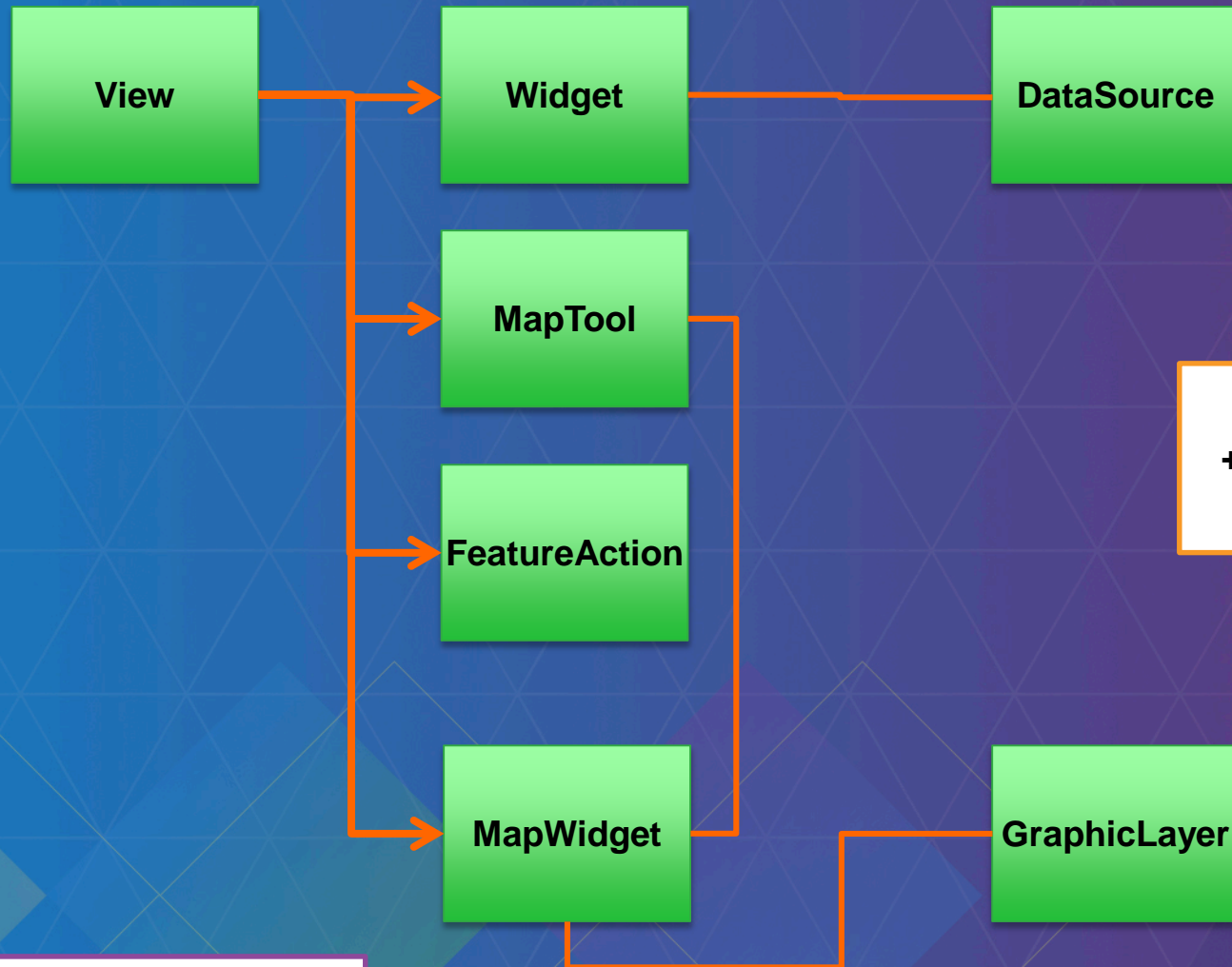
How can an organization use my extension?

- The **Admin** for the organization will register the extension by creating a Dashboard Extension Item.
(reference the extension web page <http://myDomain/myExtension.html>)



Demo...

Operations Dashboard Extensibility Namespace



+ the rest of the Esri JS API

API could change before final release!

View API

- **Functions**
 - initialize
 - configure
 - **getMapWidgets**
 - **getDataSources**
- **Events**
 - error

API could change before final release!

Singleton!

Widget API

- **Functions**

- `getDataSourceConfig`
- `activateDrawingToolbar`
- `deactivateDrawingToolbar`

- **Events**

- `Data-source-expired`
- `data-source-removed`
- `data-selection-changed`
- `data-source-changed`
- `draw-complete`
- `draw-cancel`

API could change before final release!

DataSource API

- **Functions**
 - `executeQuery`

API could change before final release!

MapWidget API

- **Functions**
 - `getExtent`
 - `createGraphicLayer`
 - `deleteGraphicLayer`
 - `selectFeatures...`
 - `clearSelection`
- **Events**
 - `extent-changed`

API could change before final release!

GraphicLayer API

- **Functions**
 - **addGraphic**
 - **removeGraphic**
 - **updateGraphic**
 - **clear**

API could change before final release!

FeatureAction API

- **Events**
 - **execute**

API could change before final release!

MapTool API

- **Functions**
 - **activateDrawing**
 - **deactivateDrawing**
- **Events**
 - **draw-cancel**
 - **draw-complete**
 - **draw-cleared**

Now that we are friends, you should know

- ECMAScript 5
- Dojo AMD http://dojotoolkit.org/documentation/tutorials/1.10/modern_dojo/
- Dojo Events <http://dojotoolkit.org/documentation/tutorials/1.10/events/>
- Dojo Promises <http://dojotoolkit.org/documentation/tutorials/1.10/promises/>
- Esri JS API <http://developers.arcgis.com/javascript/>
- https/ssl/certificates !
- CORS



No IE8! Move on...

Frequently Asked Questions that you did not yet ask...

- **Can I escape AMD? Nope. AMD is great.**
- **Can I use jQuery? Yep. You are just making stuff slower...**
- **D3? You should.**
- **What about Styling? We are working on it.**
- **Samples? Yep. We will provide a public repo**
- **Doc? Under Esri JS-API**
- **When? UC 2015**
- **WPF Extensions? Migrate them as soon as you can.**

Contact us – Send your ideas

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