ArcGIS Maps SDK for JavaScript: Capabilities & Techniques

Jose Bañuelos

Anne Fitz

2025 ESRI DEVELOPER & TECHNOLOGY SUMMIT

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Agenda

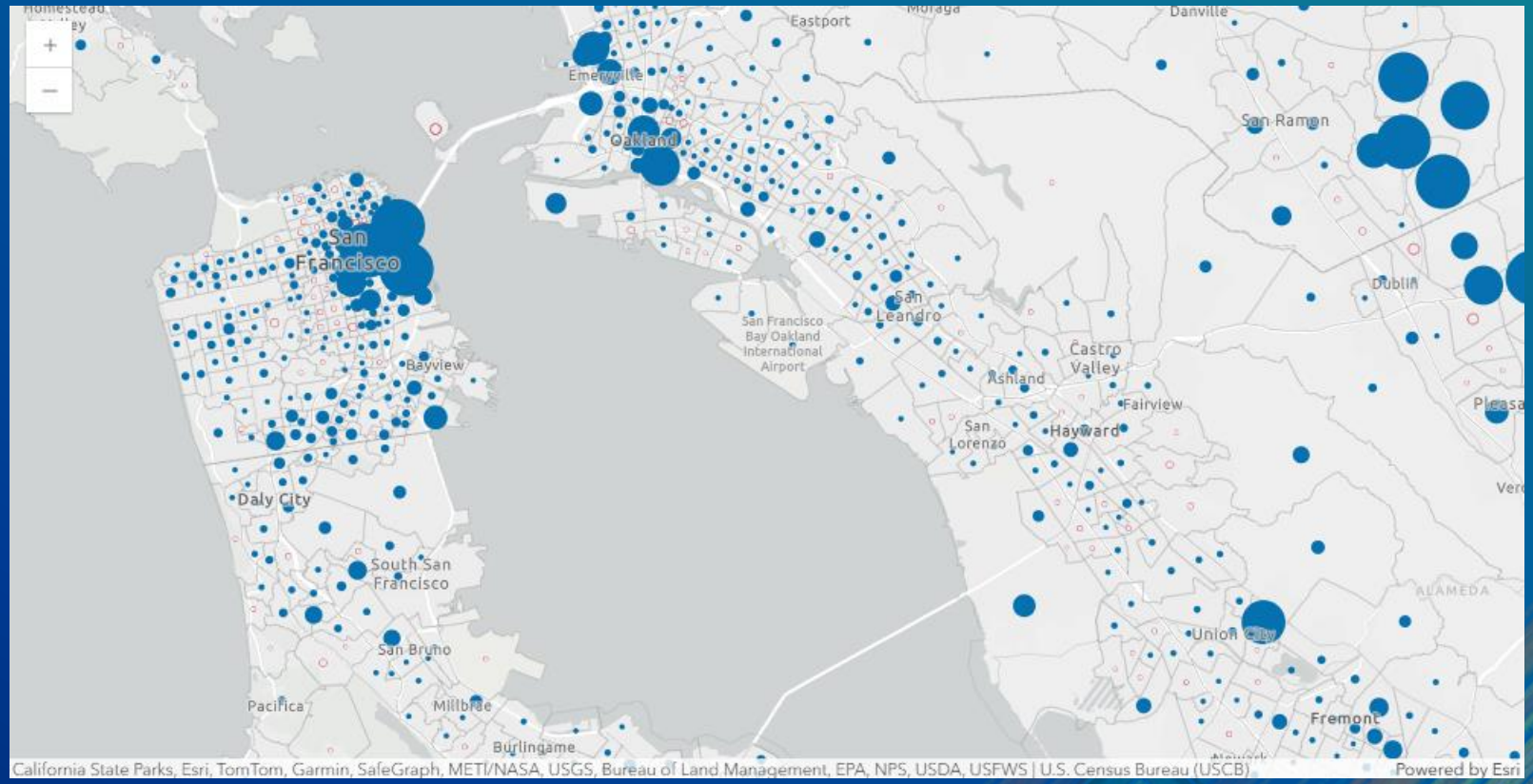
- Bring in your data
- Data-driven styling
- UI components
- Editing
- Client-side analysis
- Questions

Bring in Your Data

Jose Bañuelos

WebMap & WebScene

- ArcGIS Online
- ArcGIS Enterprise
- ArcGIS Location Platform



WebMap

- ArcGIS Online
- Map components
- Minimal code

```
<body>
  <arcgis-map item-id="f2e9b762544945f390ca4ac3671cfa72"></arcgis-map>
</body>
```

WebScene

- ArcGIS Online
- Map components
- Minimal code

```
<body>
  <arcgis-scene item-id="fbbc829fa7d342e7ae8d18c54a5eab37"></arcgis-scene>
</body>
```

WebMap & WebScene

- ArcGIS Enterprise
- esri/config

```
<body>
  <script>
    require(["esri/config"], (esriConfig) => {
      esriConfig.portalUrl = "https://myHostName.com/portal";
    });
  </script>

  <arcgis-map item-id="0b3a8c3deff448118c04d700c761da1c"></arcgis-map>
</body>
```

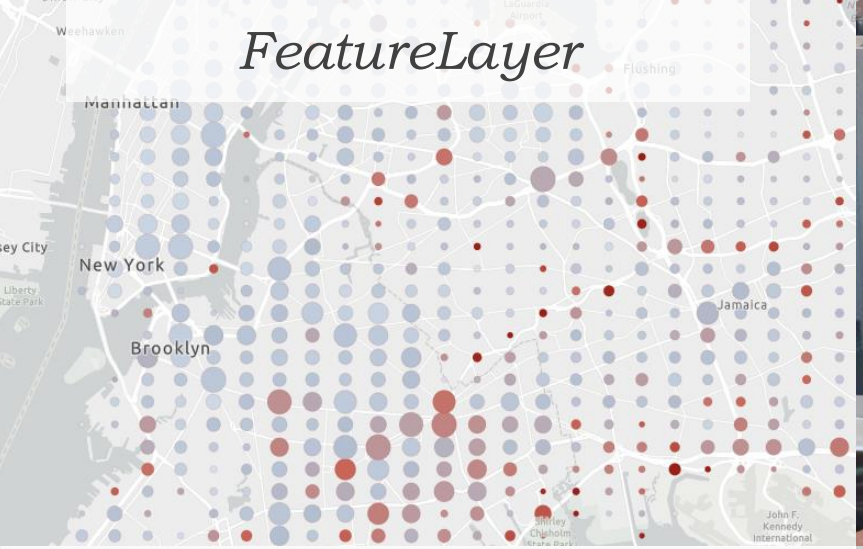
WebMap & WebScene

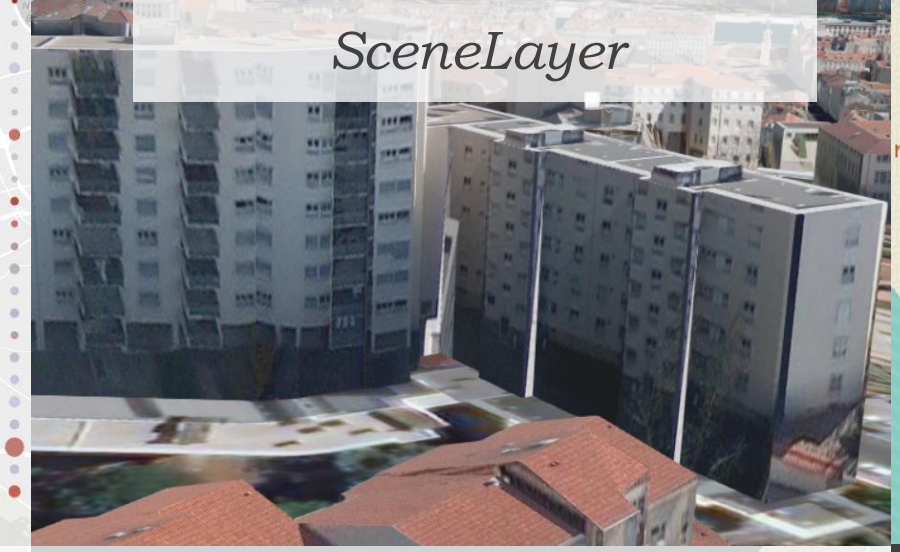
- ArcGIS Location Platform
- esri/config

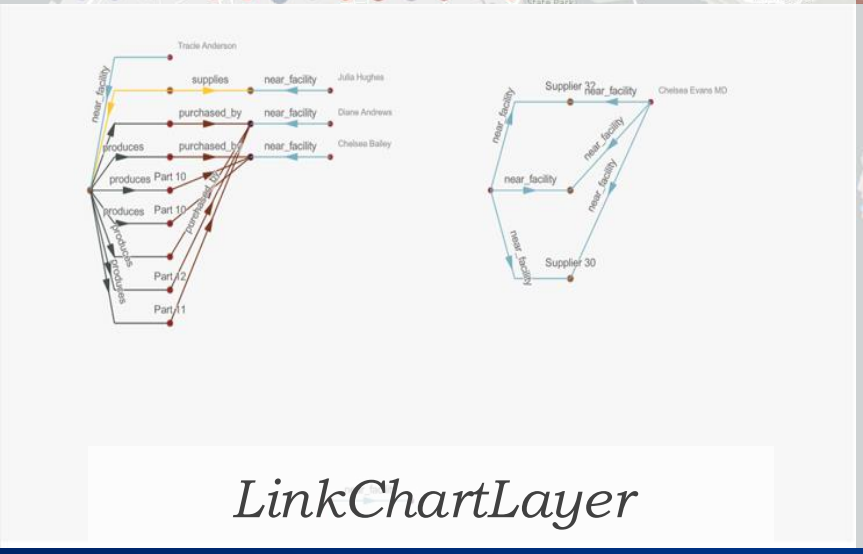
```
<body>
  <script>
    require(["esri/config"], (esriConfig) => {
      esriConfig.apiKey = "YOUR_ACCESS_TOKEN";
    });
  </script>

  <arcgis-map
    basemap="arcgis/topographic"
    center="-118.805, 34.027"
    zoom="13"
  ></arcgis-map>
</body>
```

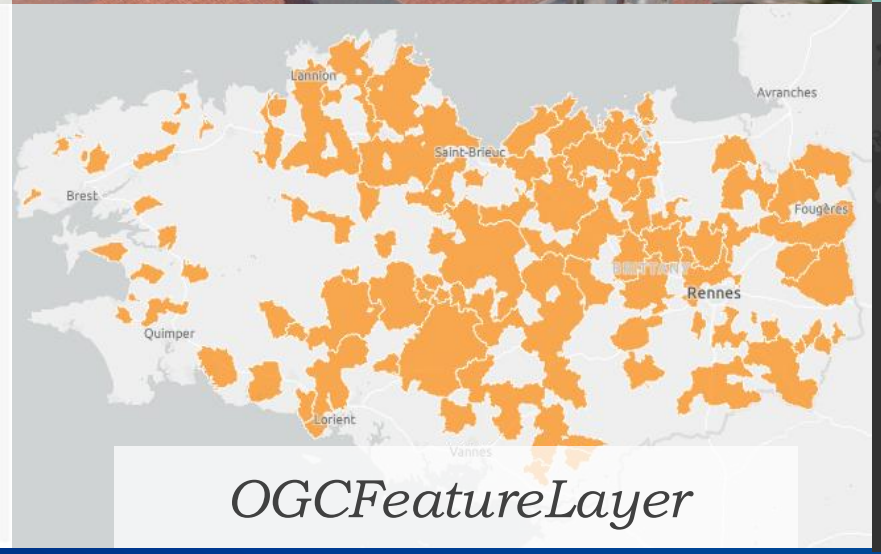
Demo: WebMap & WebScene

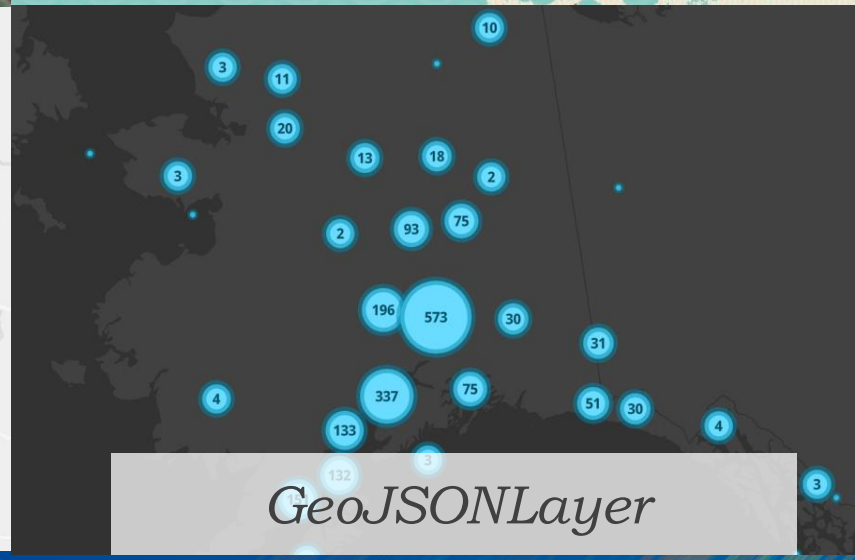
Jose Bañuelos











- CSV
- BUILDINGSCENE
- INTEGRATED MESH
- MAPIMAGE
- STREAM
- ORIENTEDIMAGERY
- KNOWLEDGE-GRAPH
- WFS
- WMS
- ...

LAYERS

FeatureLayer

SceneLayer

VectorTileLayer

```
import FeatureLayer from "esri/layers/FeatureLayer";

const arcgisMap = document.querySelector("arcgis-map");

const featureLayer = new FeatureLayer({
  url: "https://services.arcgis.com/V6ZHFr6zdgNZuVG0/arcgis/rest/services/Global_power_plants/FeatureServer"
});
arcgisMap.map.add(featureLayer);
```

LinkChartLayer

OGCFeatureLayer

GeoJSONLayer

- CSV
- BUILDINGSCENE
- INTEGRATED MESH
- MAPIMAGE
- STREAM

- ORIENTEDIMAGERY
- KNOWLEDGE-GRAPH
- WFS
- WMS
- ...

LAYERS

FeatureLayer

SceneLayer

VectorTileLayer

```
import FeatureLayer from "esri/layers/FeatureLayer"

const arcgisMap = document.querySelector("arcgis-map");

const featureLayer = new FeatureLayer({
  portalItem: {
    id: "332e9421a25644c5a6fb31375b2a86dc"
  }
});

arcgisMap.map.add(featureLayer);
```

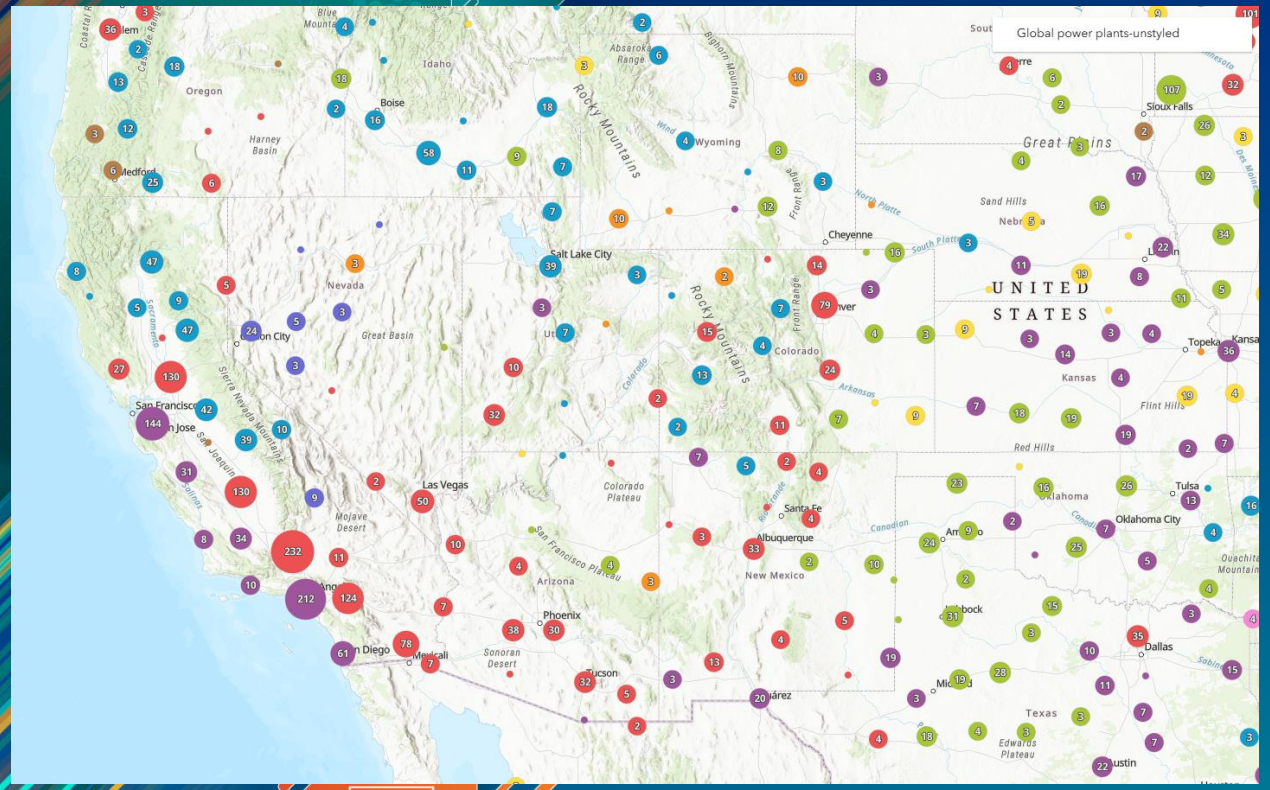
LinkCl

NLayer

- CSV
- BUILDINGSCENE
- INTEGRATED MESH
- MAPIMAGE
- STREAM

- ORIENTEDIMAGERY
- KNOWLEDGE-GRAPH
- WFS
- WMS
- ...

LAYERS



Demo: Bring in Layers

Jose Bañuelos

For more information…

3D on the Web: Working with Web Scenes

- **Wednesday, Mar 12th 4:00 PM – 5:00 PM PDT**
- Catalina | Renaissance Hotel

From Raw Data to Web App: A Holistic View

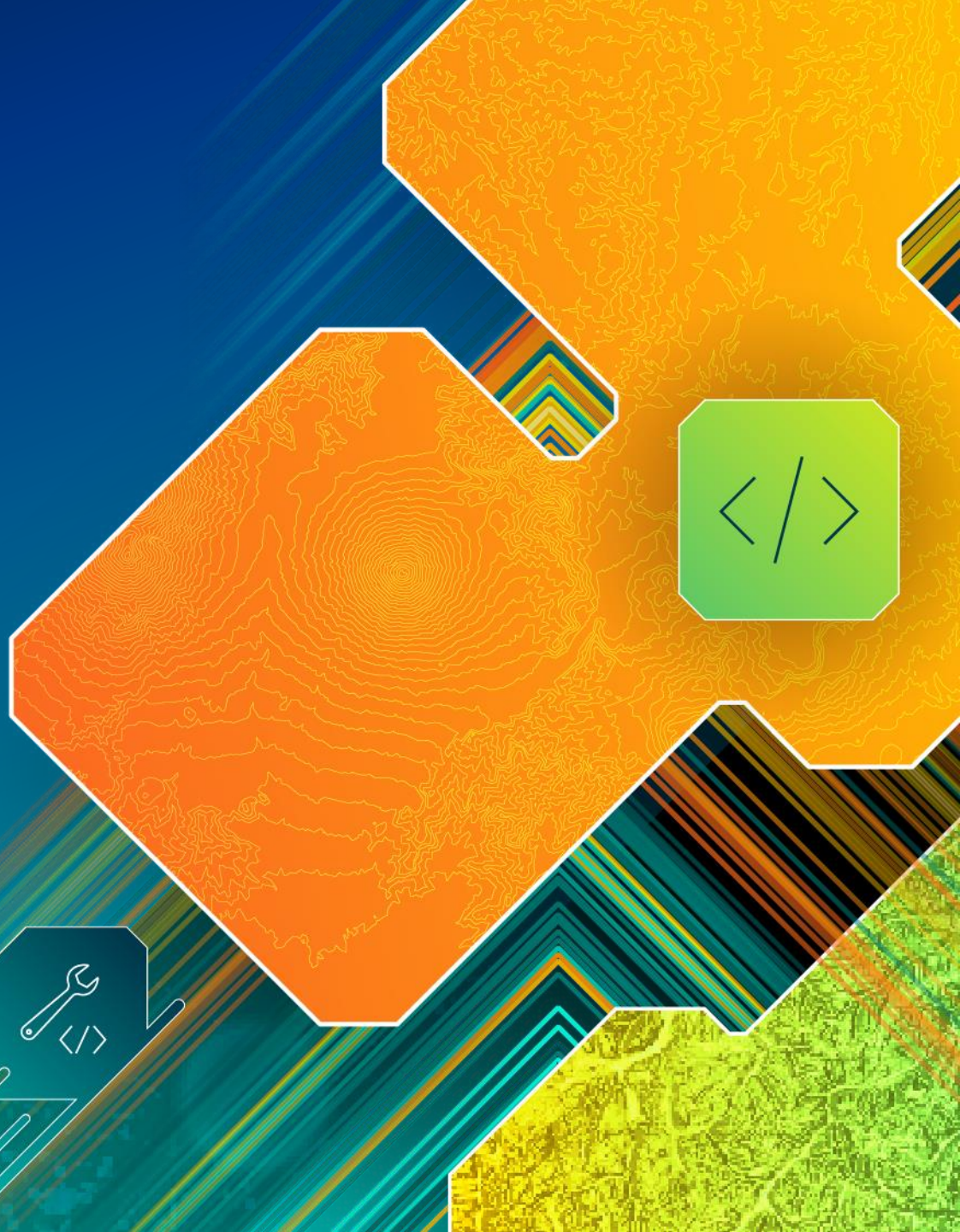
- **Thursday, Mar 13th 10:30 AM - 11:30 AM**
- Catalina | Renaissance Hotel

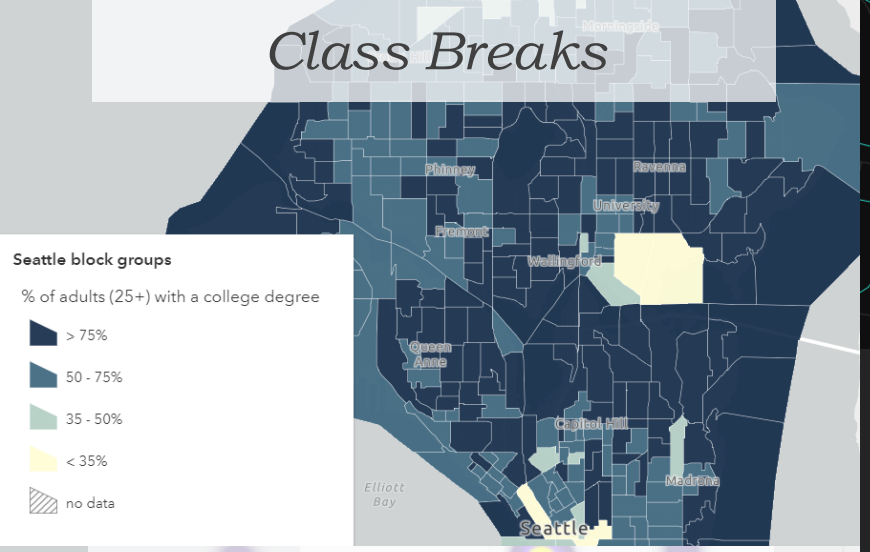
ArcGIS Maps SDK for JavaScript: Bring in Data from Anywhere

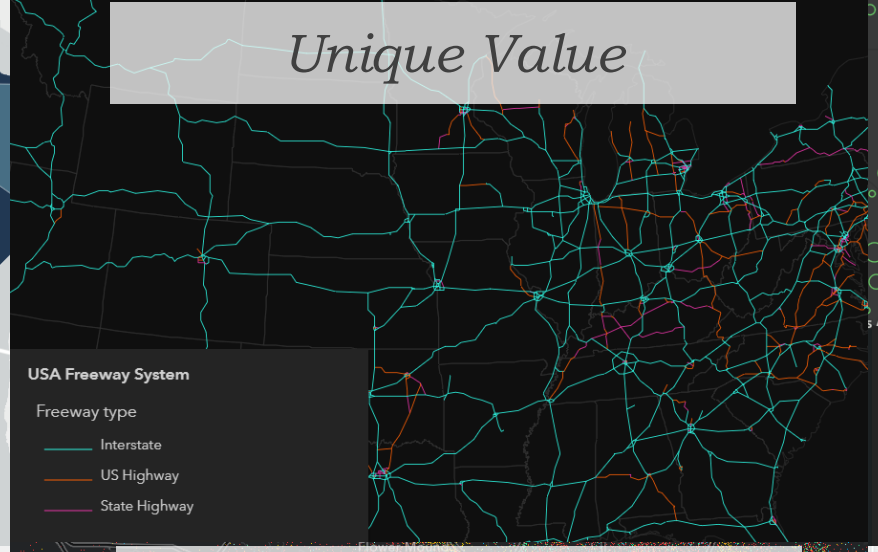
- **Thursday, Mar 13th 2:30 PM - 3:30 PM**
- Primrose B | PSCC

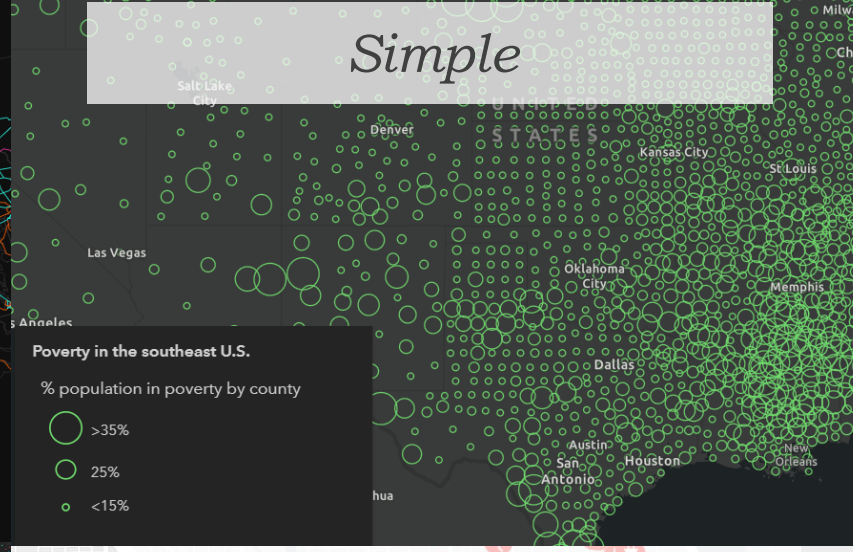
Data-driven Styling

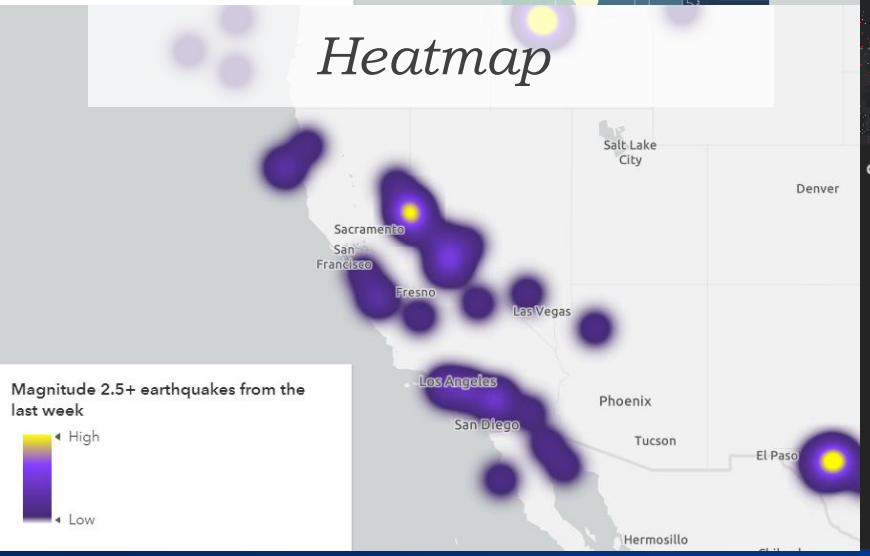
Anne Fitz

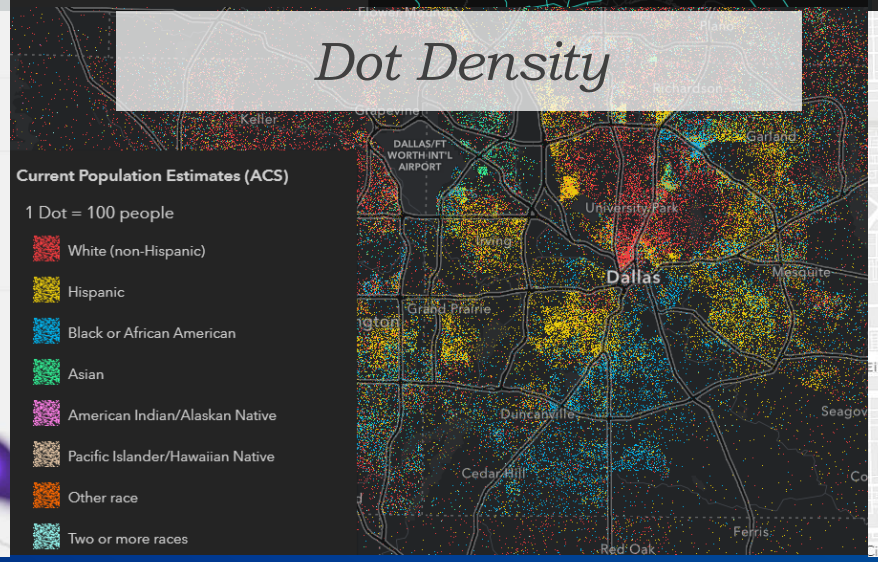


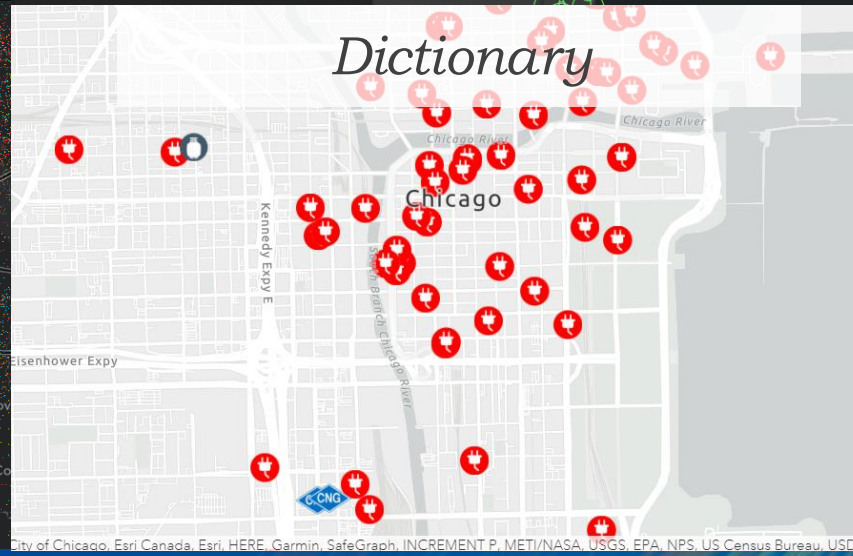

Class Breaks
Seattle block groups
% of adults (25+) with a college degree
> 75%
50 - 75%
35 - 50%
< 35%
no data
Phinney
Ravenna
University
Fremont
Wallingford
Queen Anne
Capitol Hill
Madrona
Elliott Bay
Seattle


Unique Value
USA Freeway System
Freeway type
Interstate
US Highway
State Highway

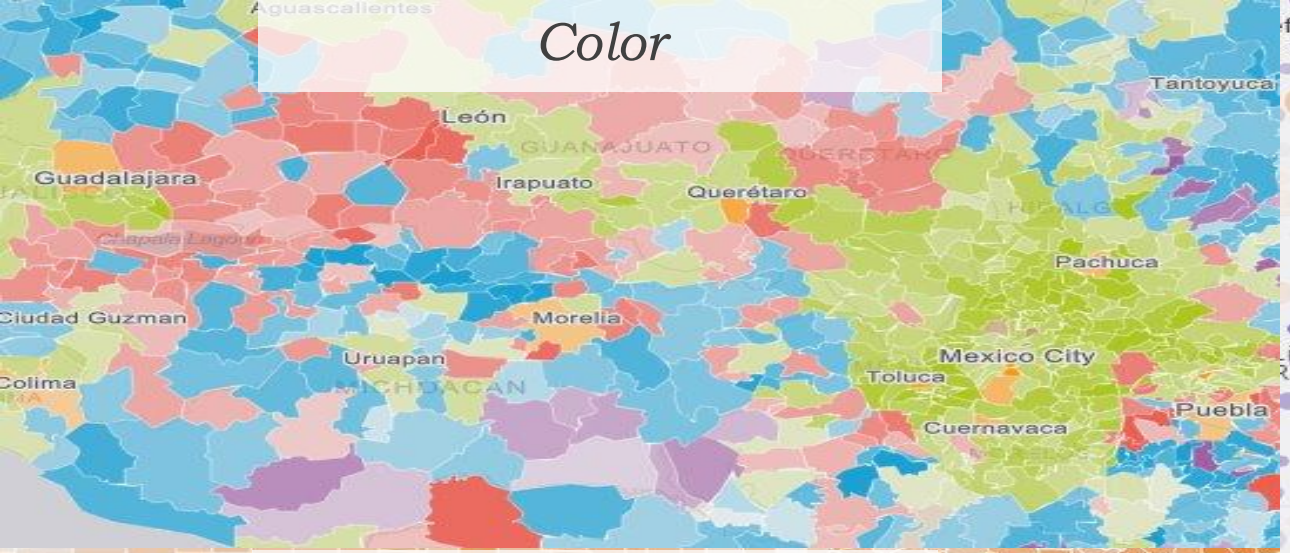

Simple
Poverty in the southeast U.S.
% population in poverty by county
>35%
25%
<15%
Denver
Kansas City
St Louis
Las Vegas
Oklahoma City
Memphis
Dallas
Austin
San Antonio
Houston
New Orleans

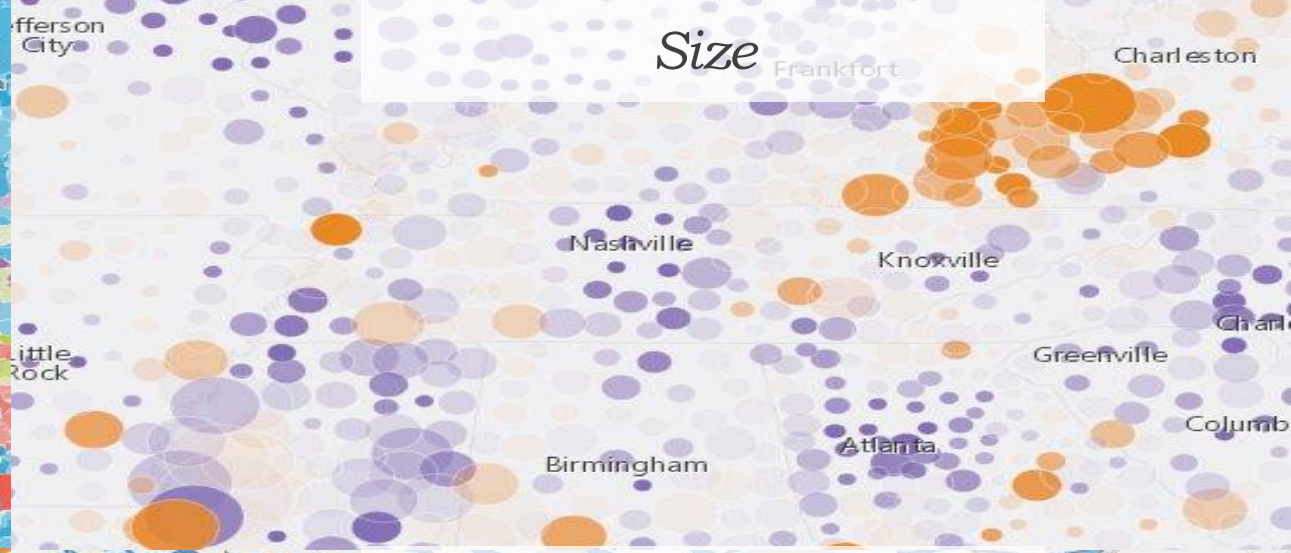

Heatmap
Magnitude 2.5+ earthquakes from the last week
High
Low
Salt Lake City
Denver
Sacramento
San Francisco
Fresno
Las Vegas
Los Angeles
Phoenix
San Diego
Tucson
El Paso
Hermosillo

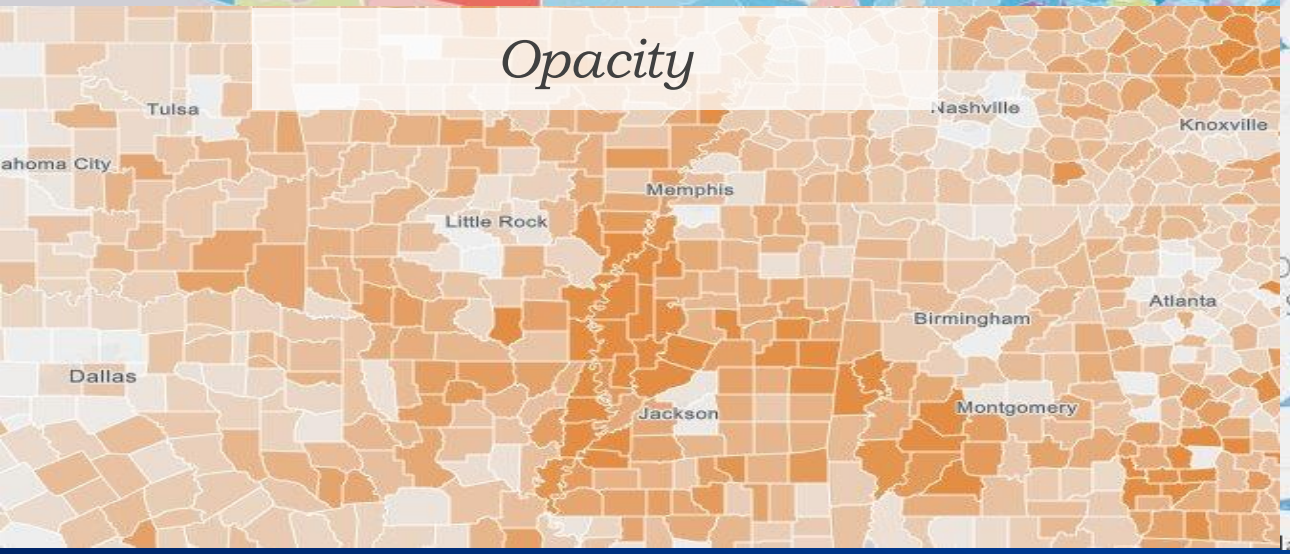

Dot Density
Current Population Estimates (ACS)
1 Dot = 100 people
White (non-Hispanic)
Hispanic
Black or African American
Asian
American Indian/Alaskan Native
Pacific Islander/Hawaiian Native
Other race
Two or more races
DALLAS/FT WORTH INT'L AIRPORT
Dallas
Grand Prairie
Mesquite
Duncanville
Cedar Hill
Ferris
Red Oak


Dictionary
Chicago
Chicago River
Kennedy Expy E
Eisenhower Expy
CNG
City of Chicago, Esri Canada, Esri, HERE, Garmin, SafeGraph, INCREMENT P, METI/NASA, USGS, EPA, NPS, US Census Bureau, USD

Renderers

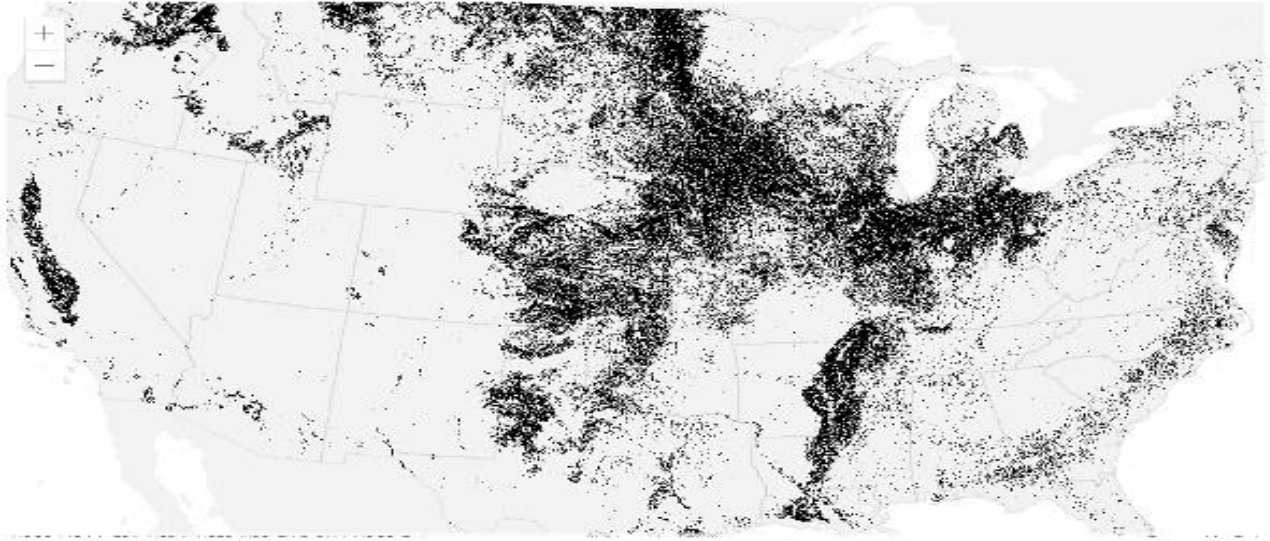


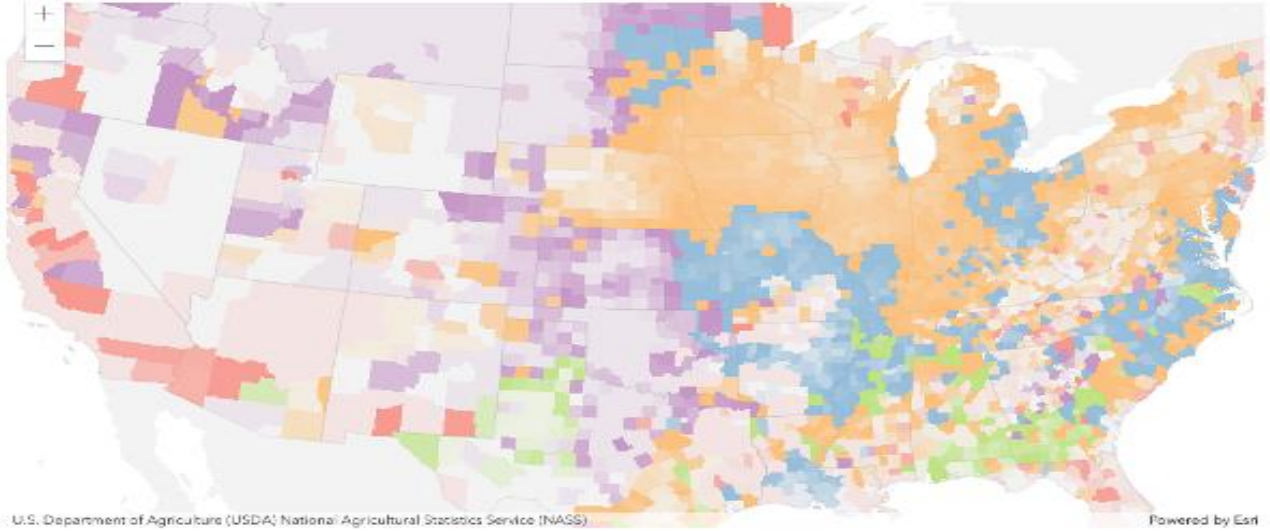


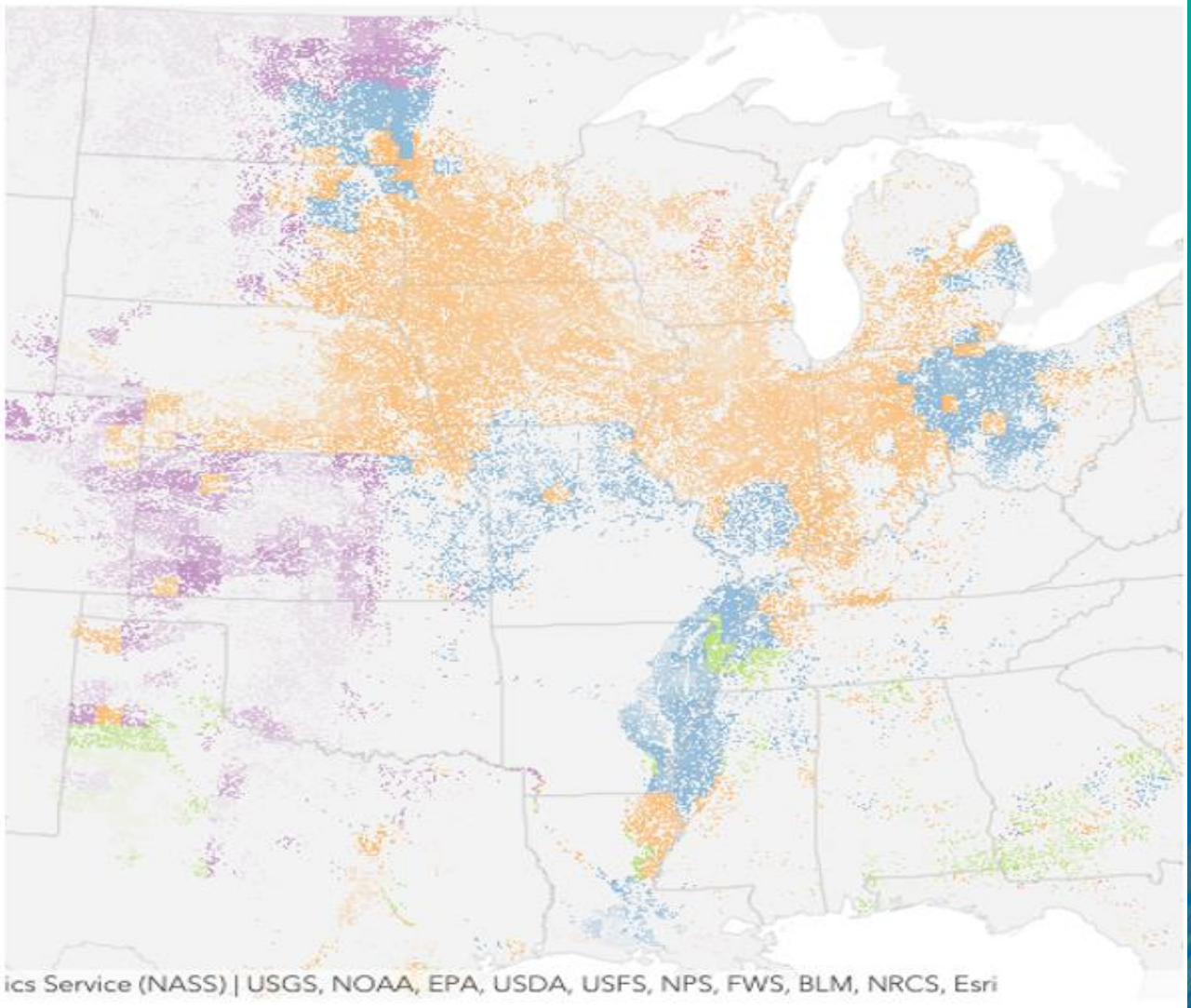


VISUAL VARIABLES

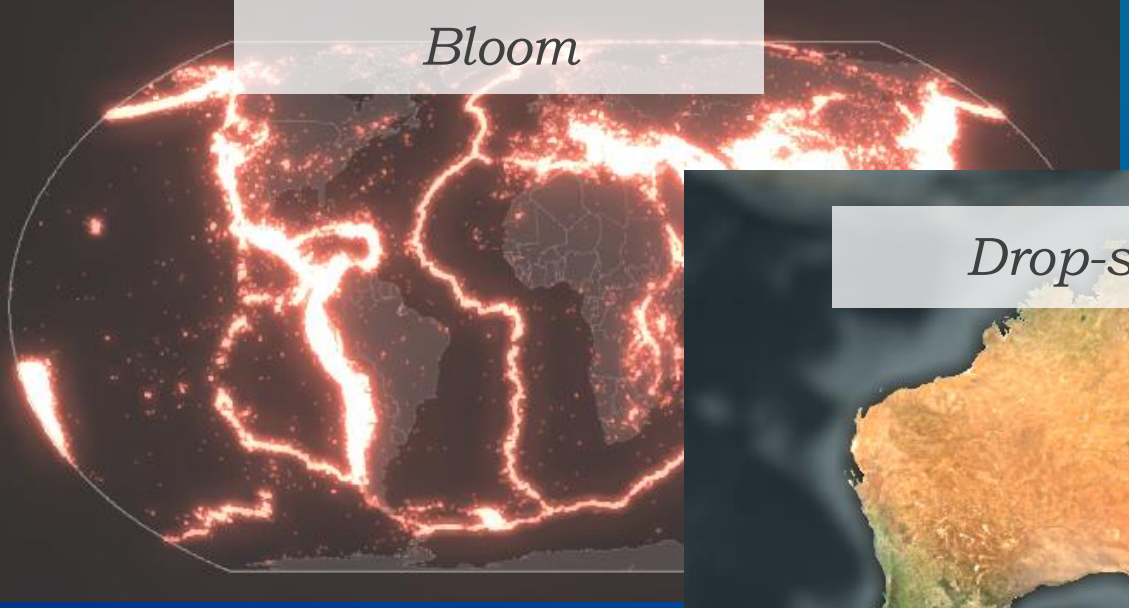
- COLOR
- SIZE
- OPACITY
- ROTATION



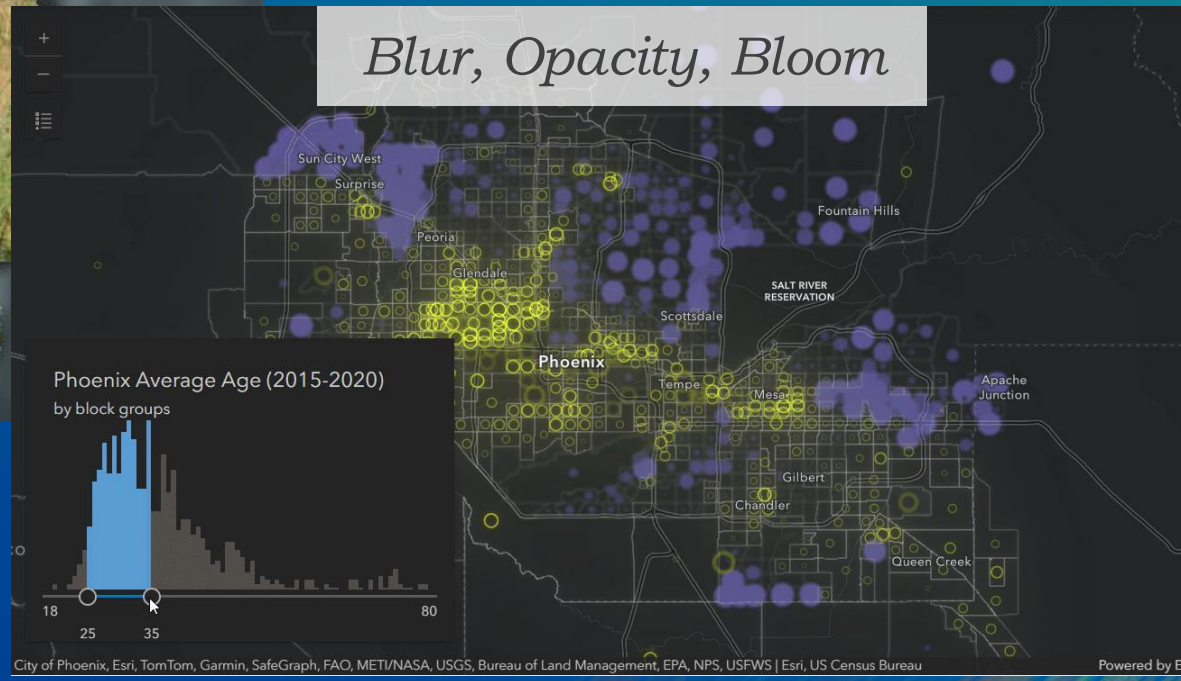




LAYER BLENDING


Bloom

Drop-shadow


Blur, Opacity, Bloom
Sun City West
Surprise
Peoria
Glendale
Fountain Hills
SALT RIVER RESERVATION
Scottsdale
Phoenix
Tempe
Mesa
Apache Junction
Gilbert
Chandler
Queen Creek
Phoenix Average Age (2015-2020)
by block groups
18
25
35
80
City of Phoenix, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS | Esri, US Census Bureau

EFFECTS

Demo: Data Visualization

Anne Fitz

For more information…

ArcGIS Maps SDK for JavaScript: Creating a Custom Visualization Style

- **Wednesday, Mar 12th 4:45 PM - 5:15 PM PDT**
- Demo Theater 3: Mesquite D-E

ArcGIS Maps SDK for JavaScript: Visualizing Change Over Time

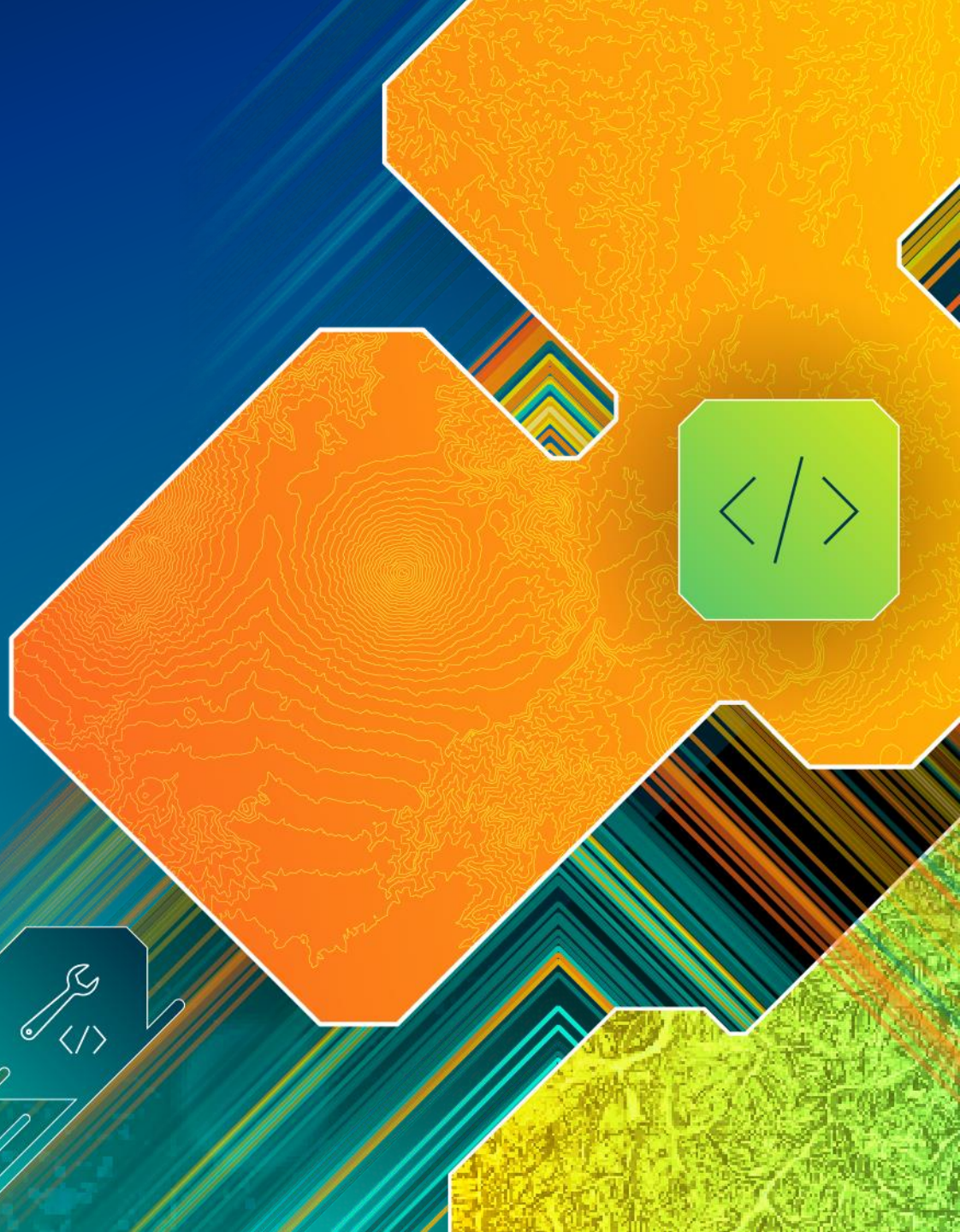
- **Thursday, March 13th 10:30 AM - 11:00 AM PDT**
- Demo Theater 1: Oasis 1-2

ArcGIS Maps SDK for JavaScript: Real-Time and Historical Data Visualization

- **Thursday, Mar 13th 4:00 PM - 5:00 PM PDT**
- Primrose C

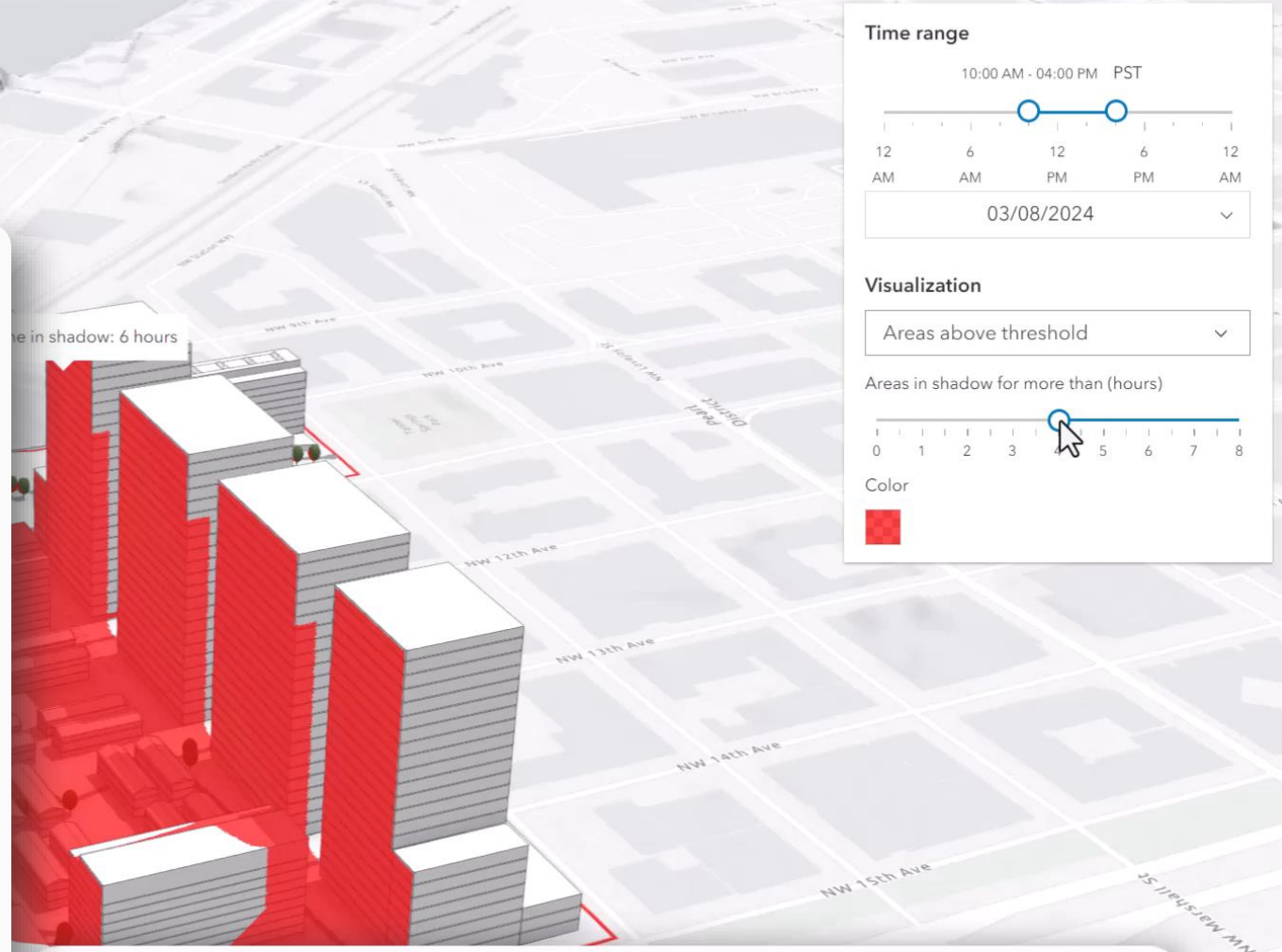
UI Components

Jose Banuelos



JavaScript SDK Components

```javascript
require(["esri/WebScene", "esri/views/SceneView", "esri/widgets/ShadowCast",
"esri/widgets/BasemapGallery", "esri/widgets/Expand"], function (
  WebScene,
  SceneView,
  ShadowCast,
  BasemapGallery,
  Expand
) {
  const view = new SceneView({
    container: "viewDiv",
    map: new WebScene({
      portalItem: {
        id: "f2220db76c6448b4be8083d19ef4cf8d"
      }
    })
  });

  const shadowCast = new ShadowCast({
    view
  });
  view.ui.add(shadowCast, "top-right");

  const basemapGallery = new BasemapGallery({
    view
  });
  const expand = new Expand({
    view: view,
    content: basemapGallery
  });
  view.ui.add(expand, "bottom-left");

});
```




```html
<arcgis-scene item-id="f2220db76c6448b4be8083d19ef4cf8d">
    <arcgis-shadow-cast position="top-right" />
    <arcgis-expand position="bottom-left">
        <arcgis-basemap-gallery />
    </arcgis-expand>
</arcgis-scene>
```

Components

Maximize productivity for front-end web development

- Encapsulate functionality & workflows
- Seamless framework integration
- Standard way to embed custom functionality

Map components

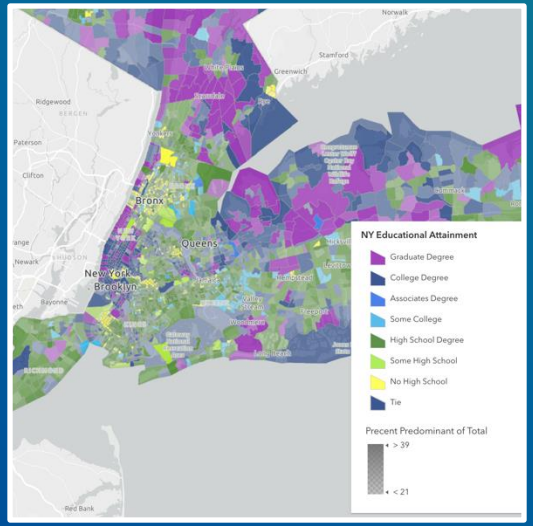
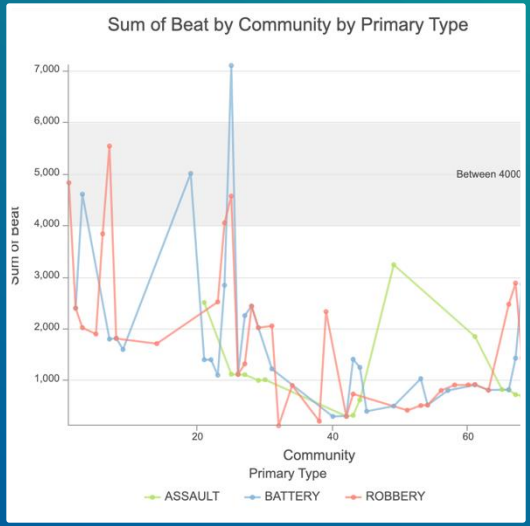
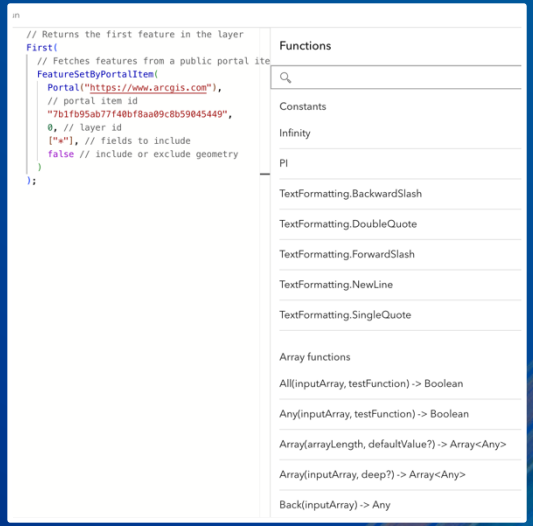


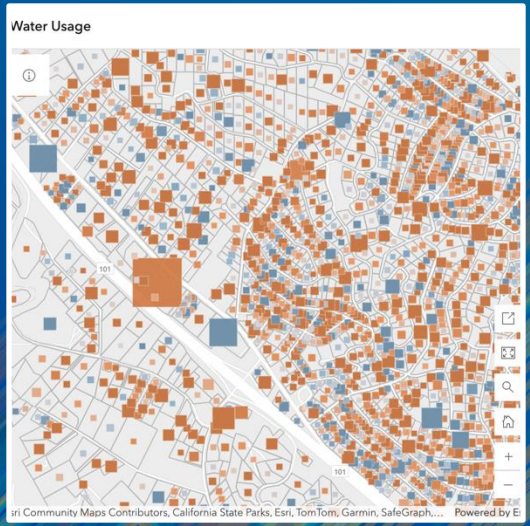
Chart components (beta)



Coding components



Embedded map component



For more information…

ArcGIS Maps SDK for JavaScript: Components with Angular, Vue, and Derivatives

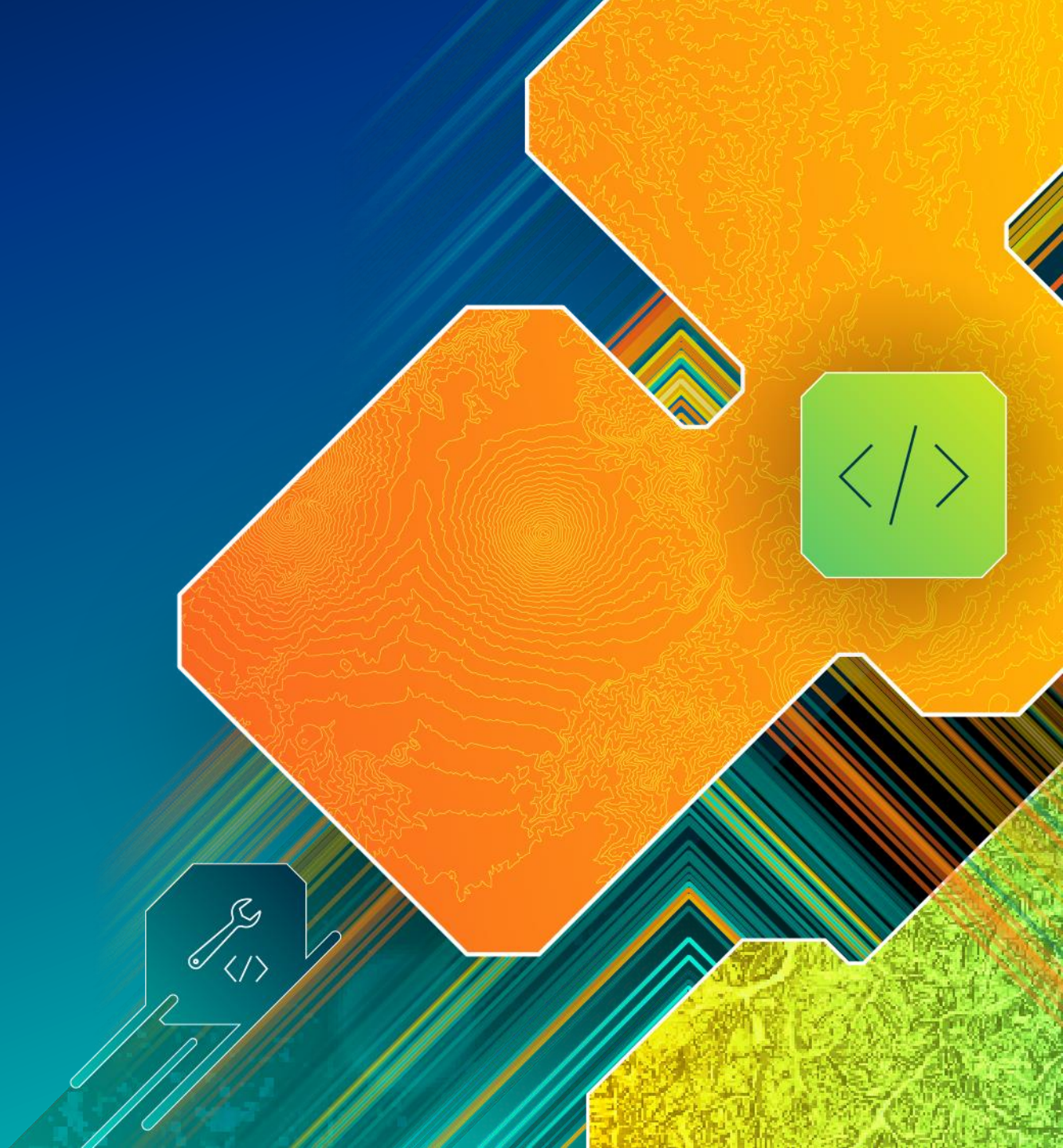
- **Wednesday, Mar 12th 4:00 PM – 4:30 PM PDT**
- Demo Theater 3: Mesquite D-E | PSCC

App Development with Components Part 3: User Experience

- **Thursday, Mar 13th 1:00 PM - 2:00 PM**
- Primrose A | PSCC

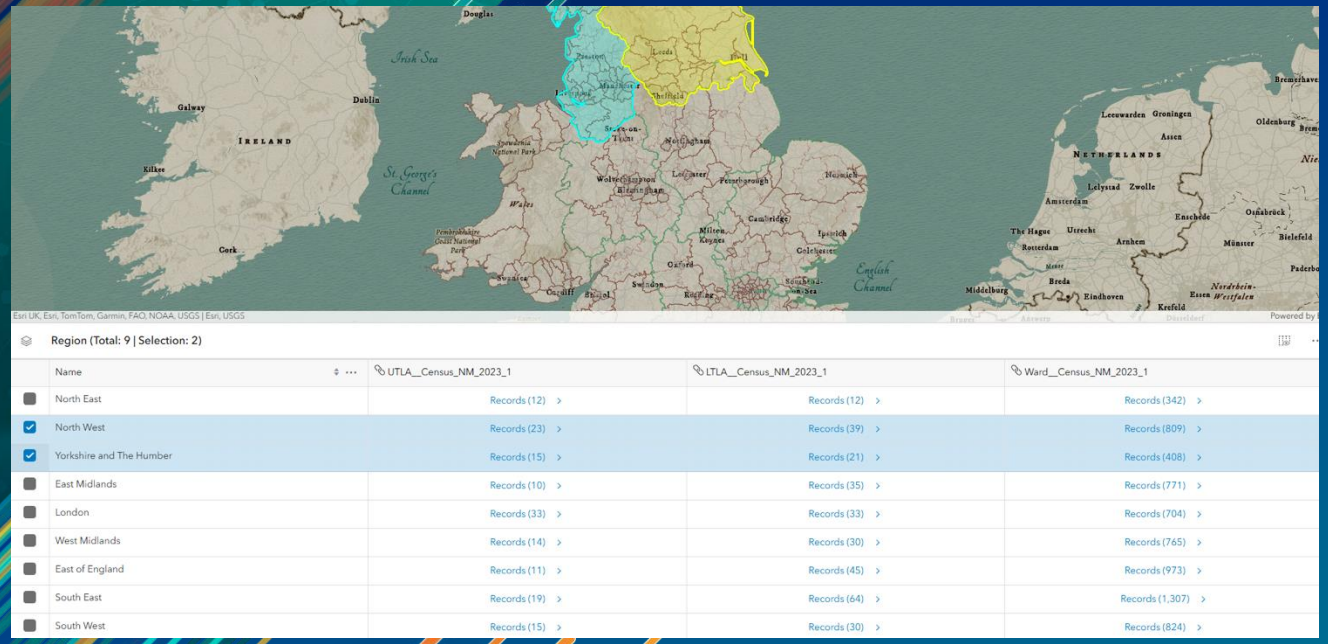
Editing

Jose Bañuelos



FeatureTable

- Tabular view of data + editing
- Attachments
- Related Records
- Highlighting
- TableTemplate
- Export to CSV

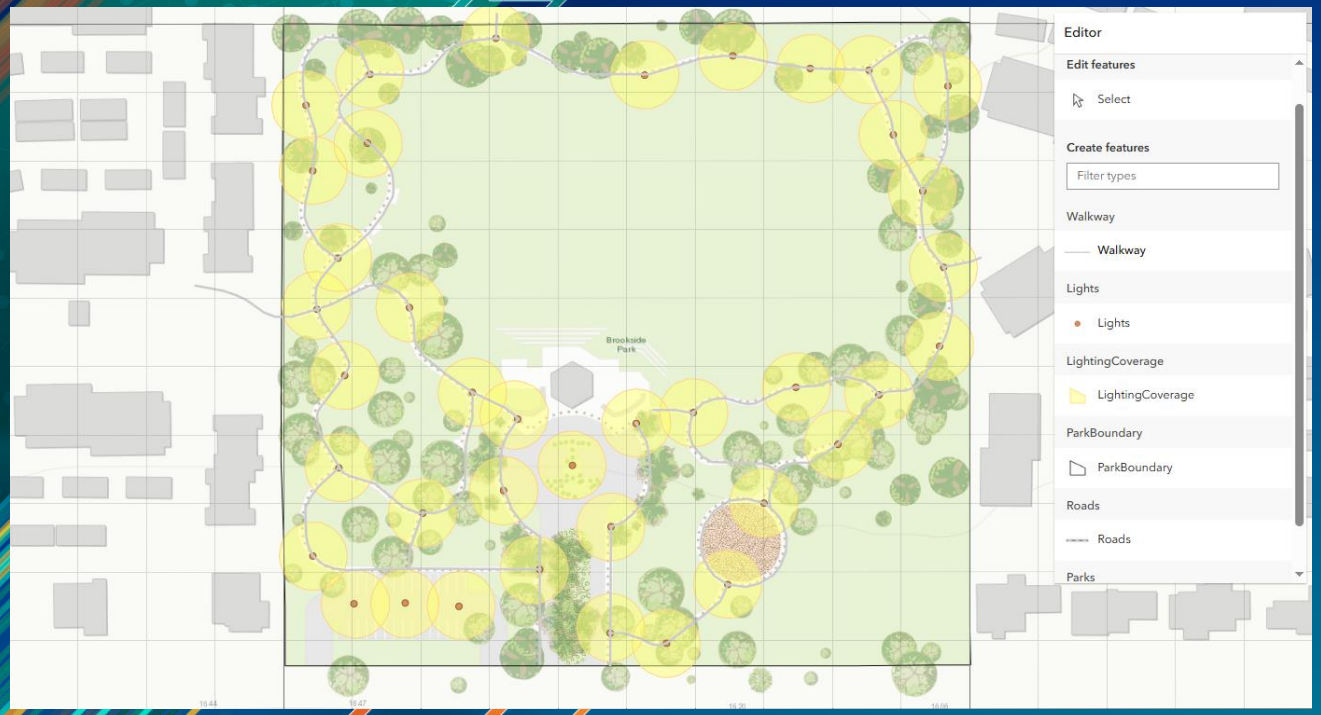


Demo: FeatureTable

Jose Bañuelos

Editor

- Templates
- Drawing capabilities (old and new with toolbar)
- Basic editing
  - Attach
  - Attributes
  - Geometry
  - Related records
- 2D / 3D
- Snapping
- Advanced
  - Utility Network workflows



Demo: Editor

Jose Bañuelos

Demo: Editor 3D

Jose Bañuelos

For more information…

ArcGIS Maps SDK for JavaScript: Web Editing

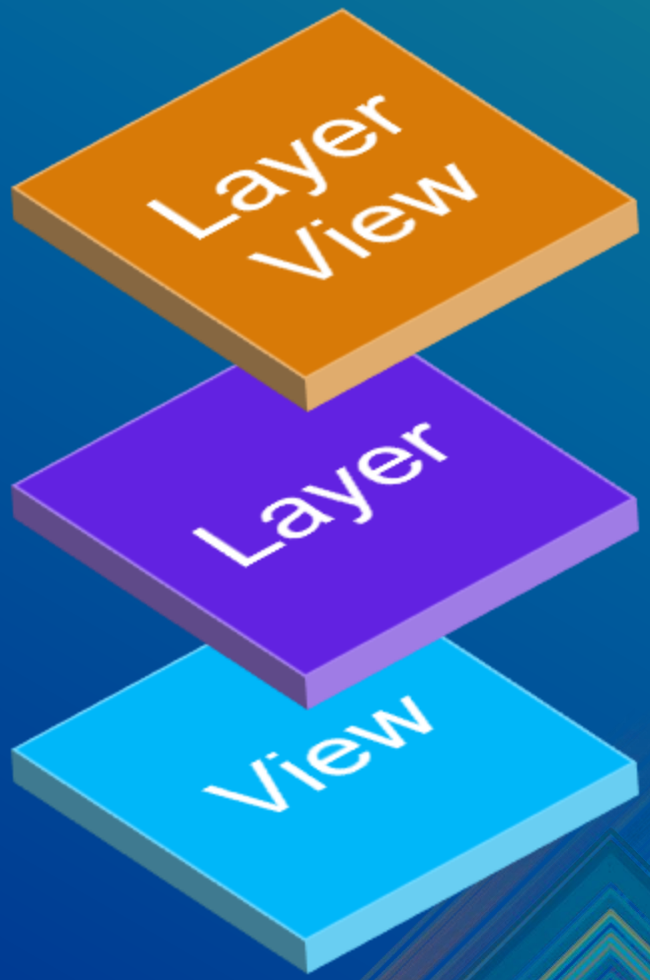
- **Thursday, Mar 13th 1:00 PM – 2:00 PM PDT**
- Madera | Renaissance Hotel

Client-side analysis

Anne Fitz

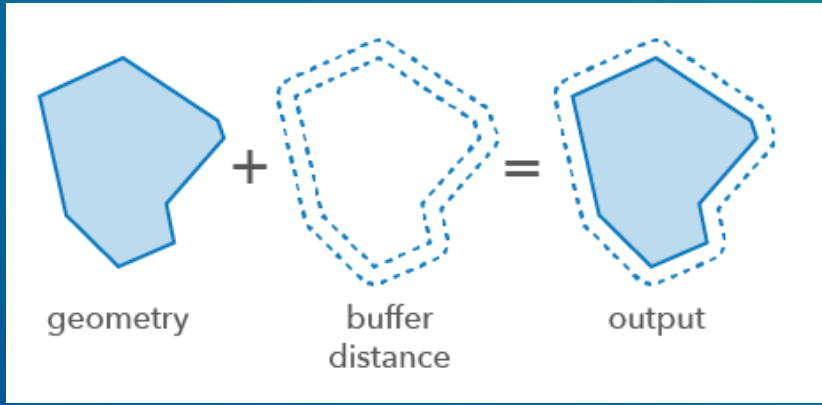
Layers & LayerViews

- Render features in the view
- Client-side
  - Queries
  - Analysis
  - Filtering
  - Statistics
  - Highlights

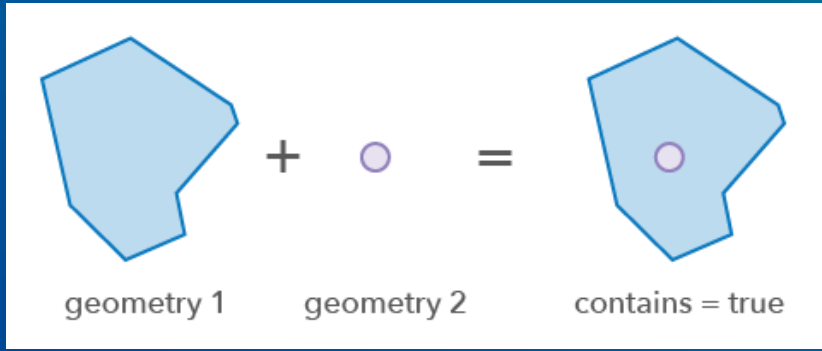


Geometry operators

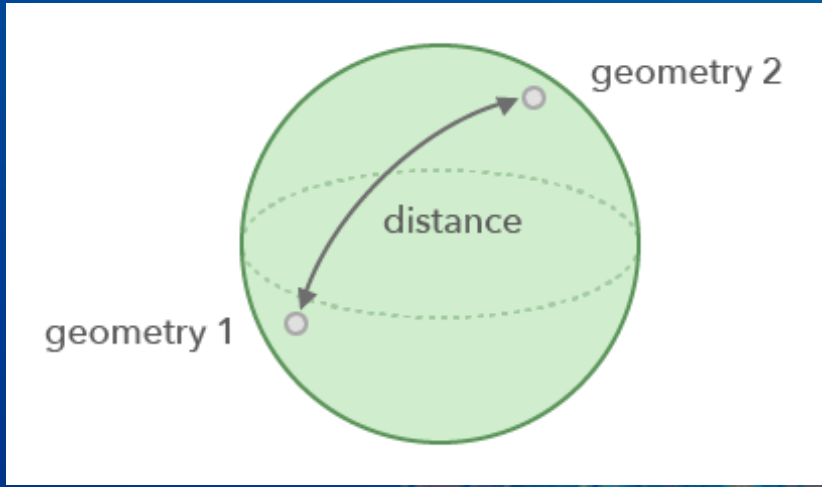
- Provide 2D capabilities for performing **client-side geometric operations** on points, multipoints, lines, polygons, and extents
- 38 operators overlap with geometryEngine, **23 brand new operators**
- Curve support



bufferOperator

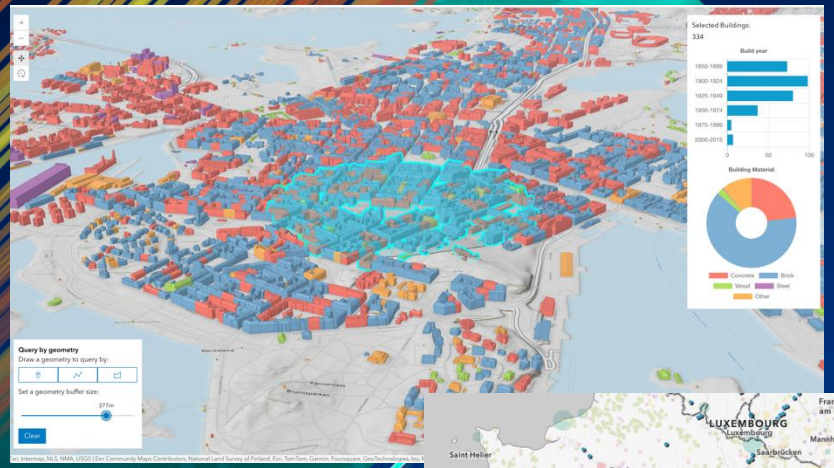


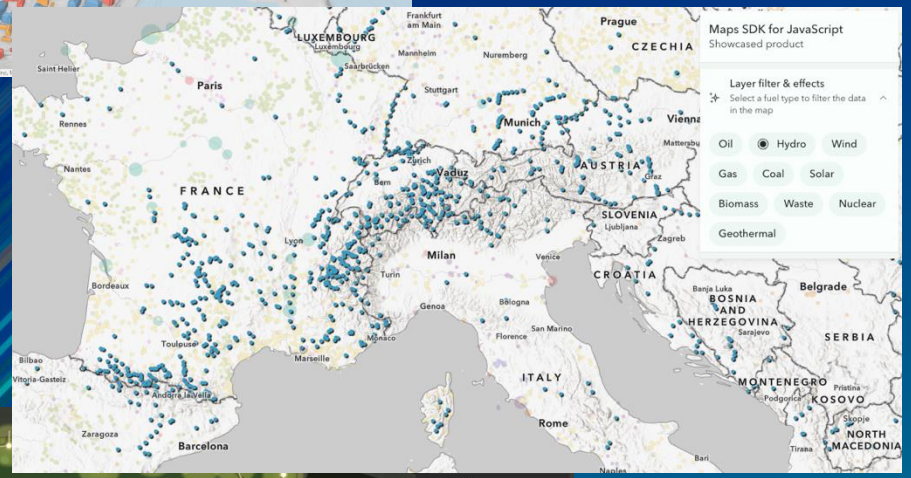
containsOperator

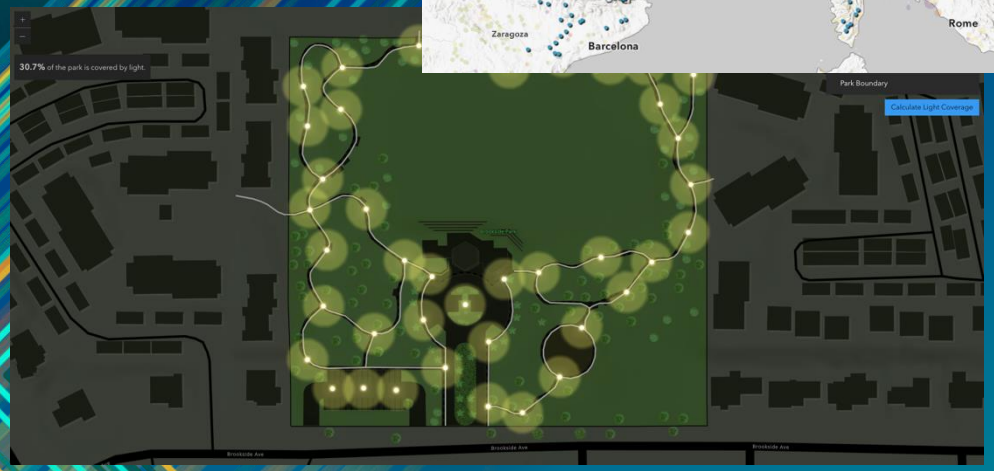


geodeticDistance Operator

SDK guide topic overview page







Demo: Client-side query and analysis

Anne Fitz

For more information…

ArcGIS Maps SDK for JavaScript: Client-Side Queries & Analysis

- **Thursday, Mar 13th 1:00 PM – 2:00 PM PDT**
- Smoketree C

Questions?

Scan for slides & demos!

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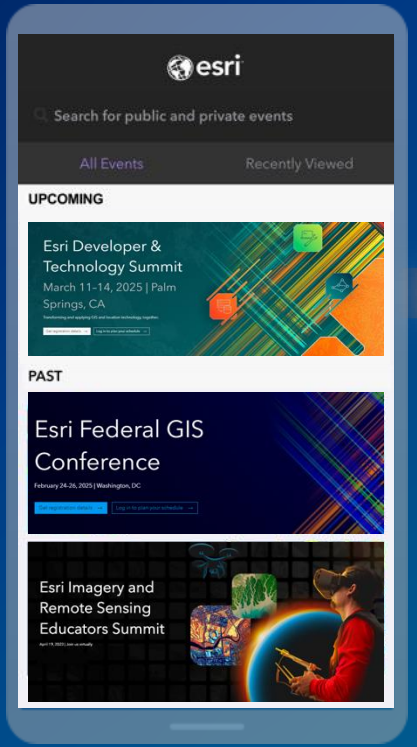
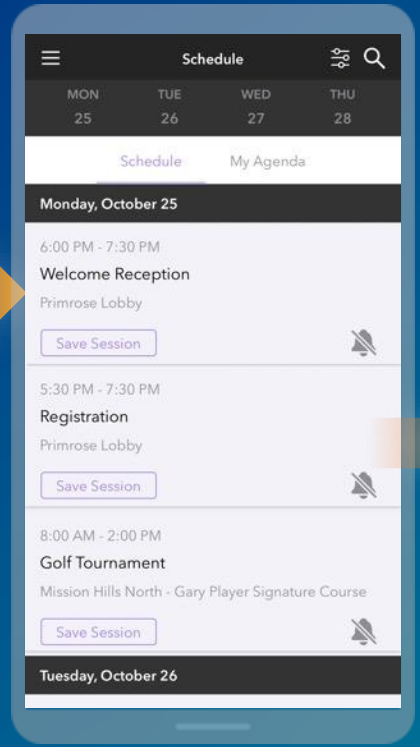
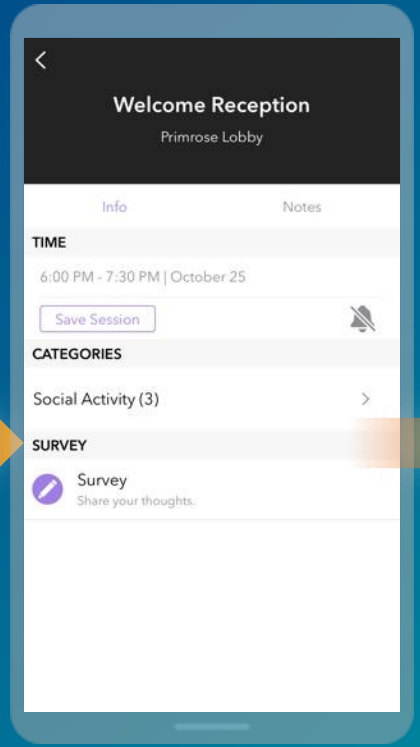


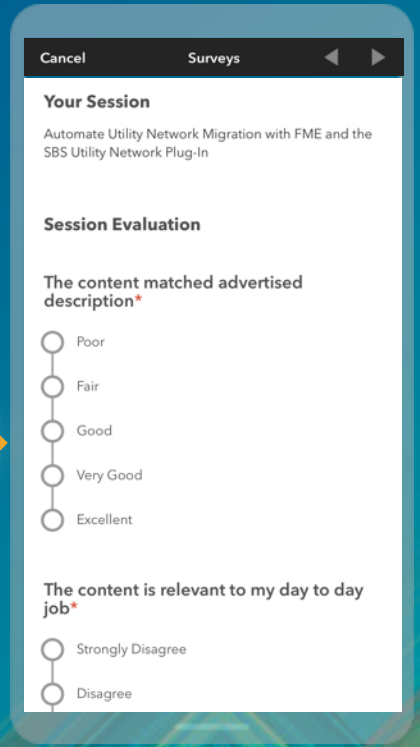
Select the session that you attended



Scroll down to "Survey"



Log in to access the survey



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[Add section title]

[Add topic]

- [Add subtopic]
- [Add subtopic]
- [Add subtopic]

[Add topic]

[Add big word]

[Add smaller word]

[Add “Quote”]

[Name]

Demo: [Add demo title]

What is [add product name, capability, or technology]?

- [Add simple description of product, capability, or technology]
  - [Add capability]
  - [Add capability]
  - [Add capability]

What is [add product name, capability, or technology]?

- [Add description]
- [Add description]
- [Add description]

[Add product or solution name] road map

Near-term	Midterm	Long-term
• [Add enhanced functionality in development] • [Add enhanced functionality in development]	• [Add enhanced functionality in development] • [Add enhanced functionality in development]	• [Add enhanced functionality in development] • [Add enhanced functionality in development]

[Add product name] vision and strategy

- [Add subtopic]
- [Add subtopic]
- [Add subtopic]

What is [add feature]?

- [Add simple description of application or solution type]
  - [Add capability]
  - [Add capability]
  - [Add capability]

[Add topic]

Currently available	Changes coming
• [Add existing functionality A] • [Add existing functionality B]	• [Add enhanced functionality A in development] • [Add enhanced functionality B in development]

[Add topic]

Currently available

[Replace with visual of existing functionality]

[Add optional caption]

Changes coming

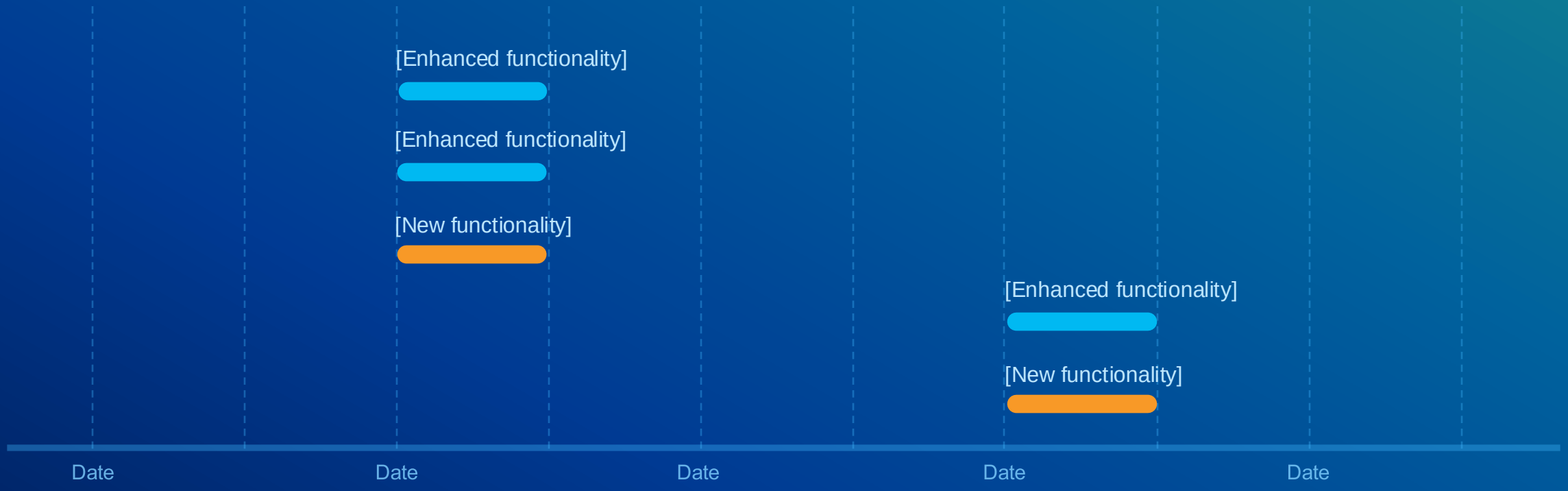
[Replace with visual of enhanced functionality]

[Add optional caption]

[Add product or solution name] road map

Near-term	Midterm	Long-term
• [Add enhanced functionality in development] • [Add enhanced functionality in development]	• [Add enhanced functionality in development] • [Add enhanced functionality in development]	• [Add enhanced functionality in development] • [Add enhanced functionality in development]

[Add product name] release schedule



What is [add product name]?

- [Add simple description of application or solution type]
  - [Add capability]
  - [Add capability]
  - [Add capability]

Highlights

- [Add highlight]
- [Add highlight]
- [Add highlight]
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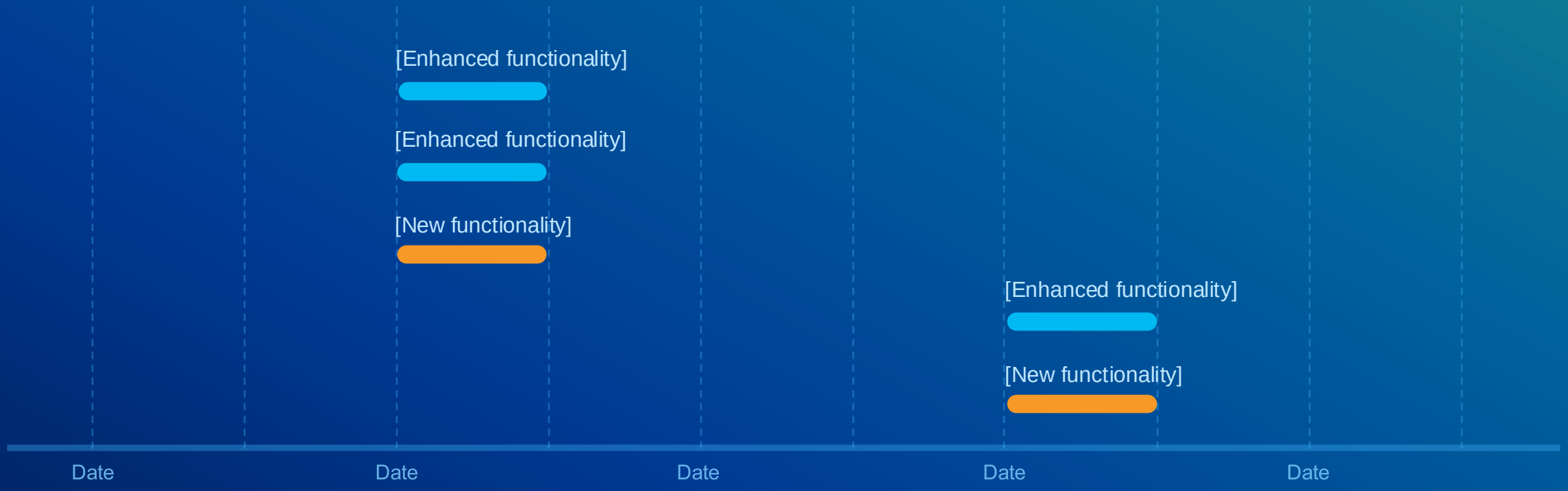
[Add product name] release schedule