Getting Started with 3D in the ArcGIS API for JavaScript

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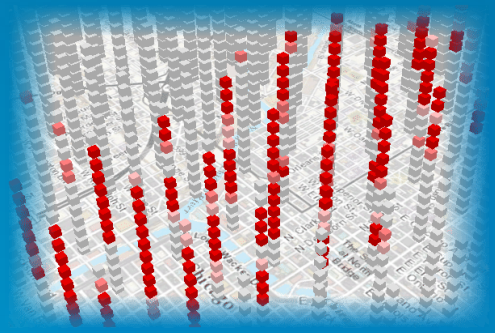
Esri Middle East and Africa
User Conference & Developer Summit

#esrijs

3D GIS across industries

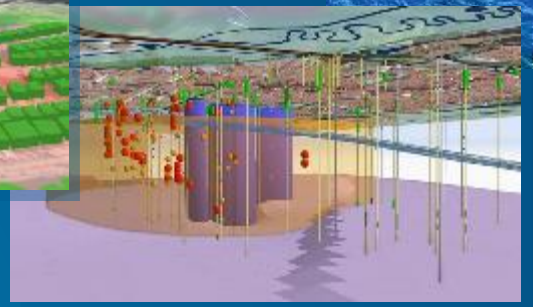


Scientific Visualization

Mining

Developing Energy resources

Transportation

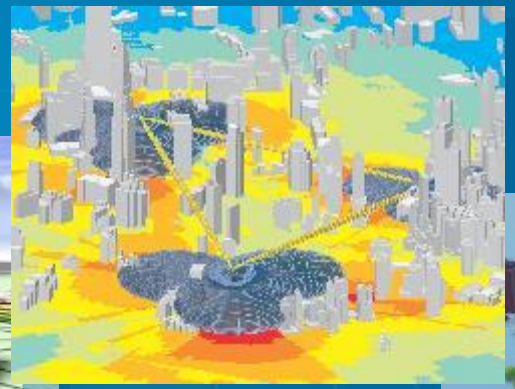


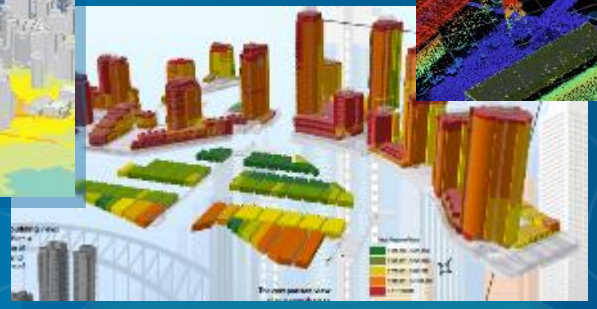
Environmental assessment

City planning and monitoring

Facilities Management

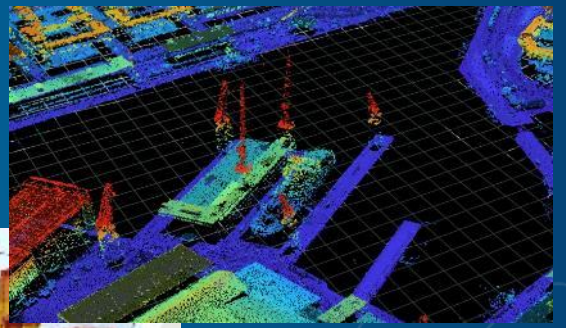
Utilities and Telecommunications





Land Management

Infrastructure

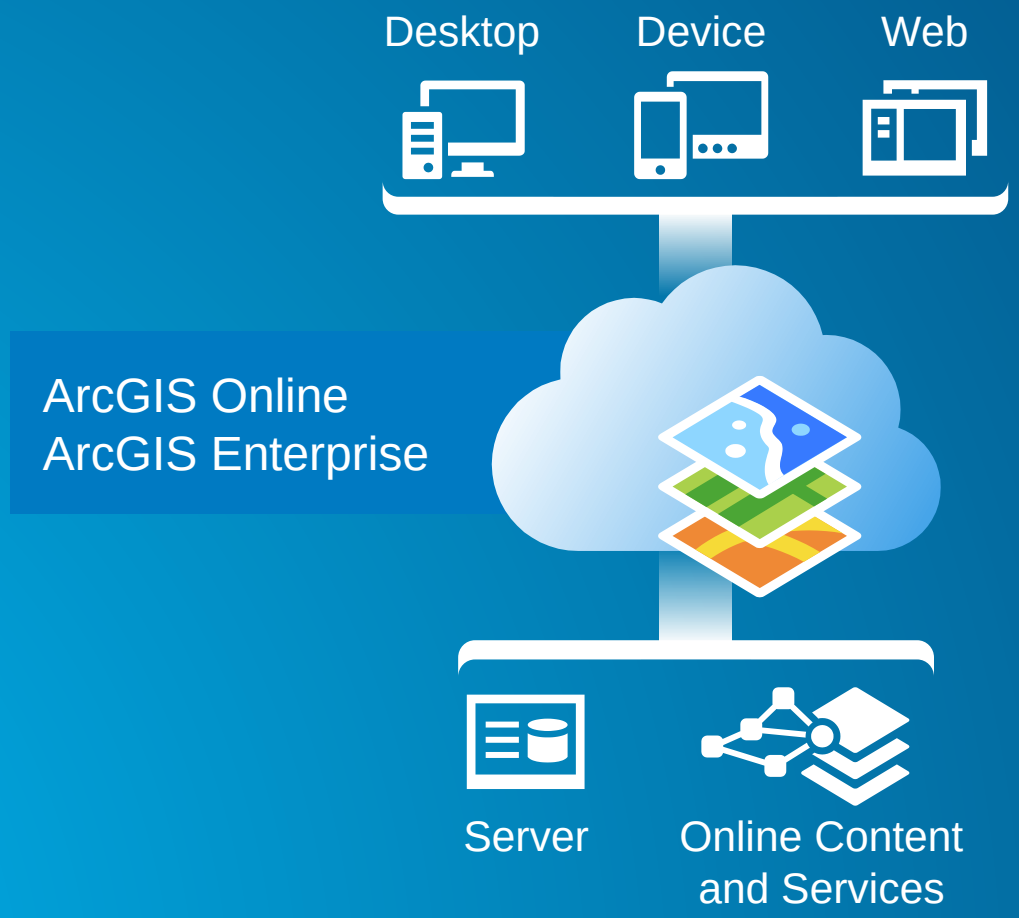


Introduction

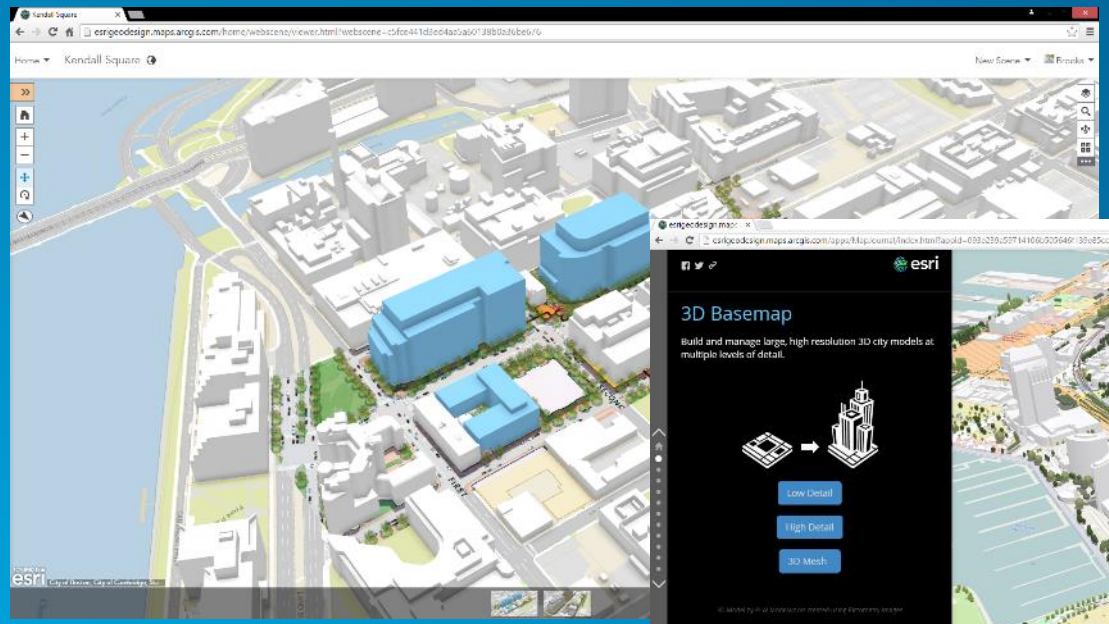
3D on the Web with the ArcGIS Platform

The ArcGIS 3D Platform

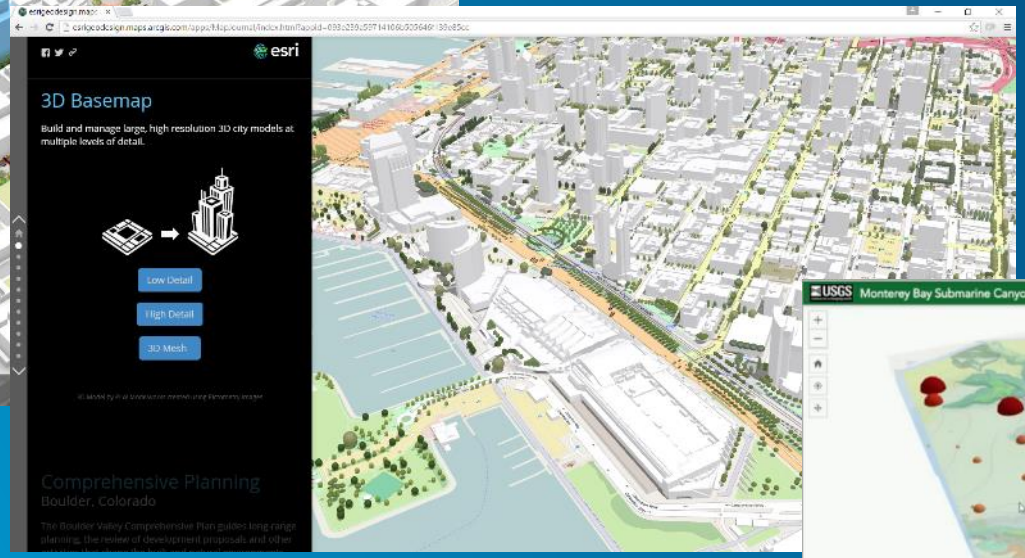
A System for Managing and Applying Geographic Information



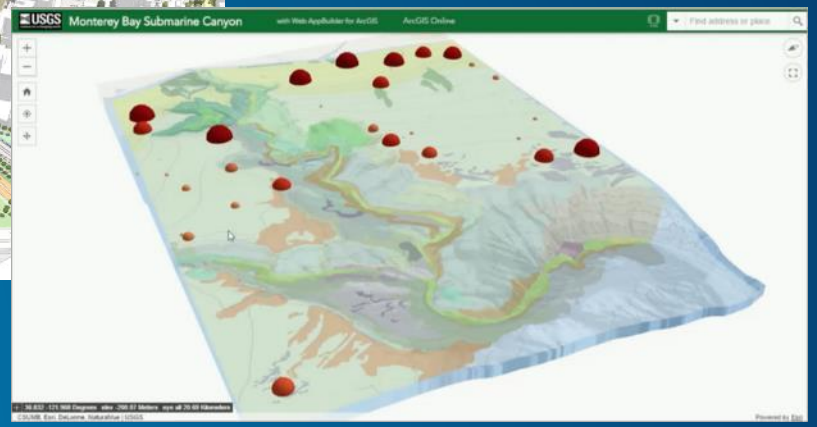
Esri Provides out-of-the-box 3D Web Apps



Scene Viewer

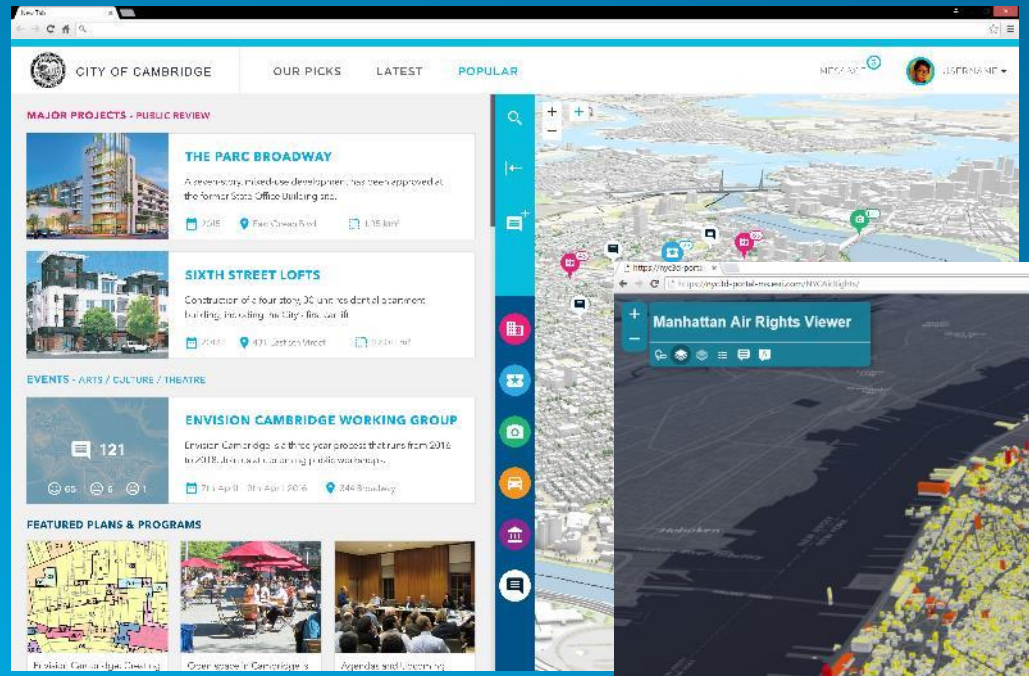


Story Maps

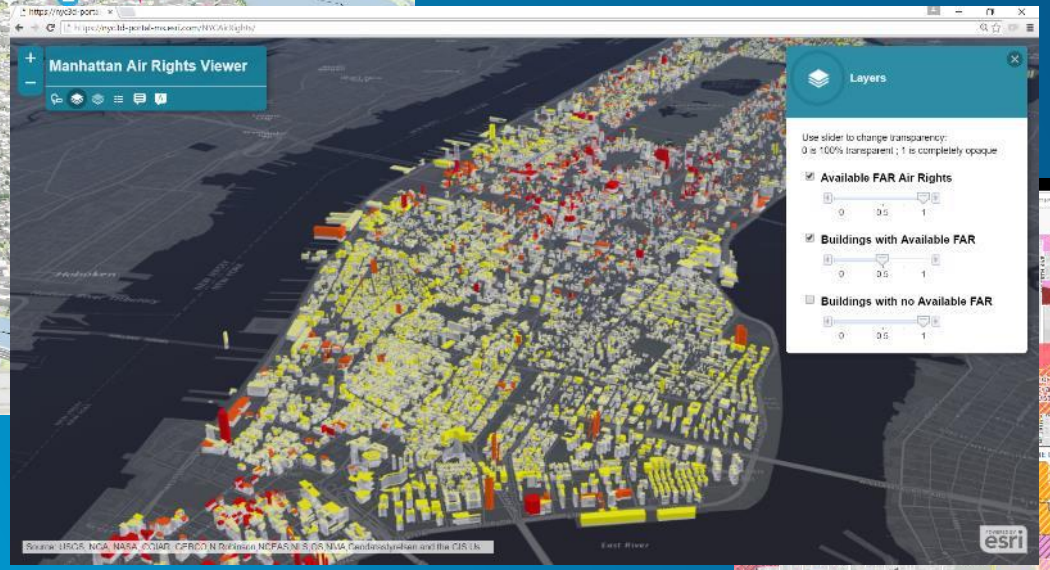


Web AppBuilder …

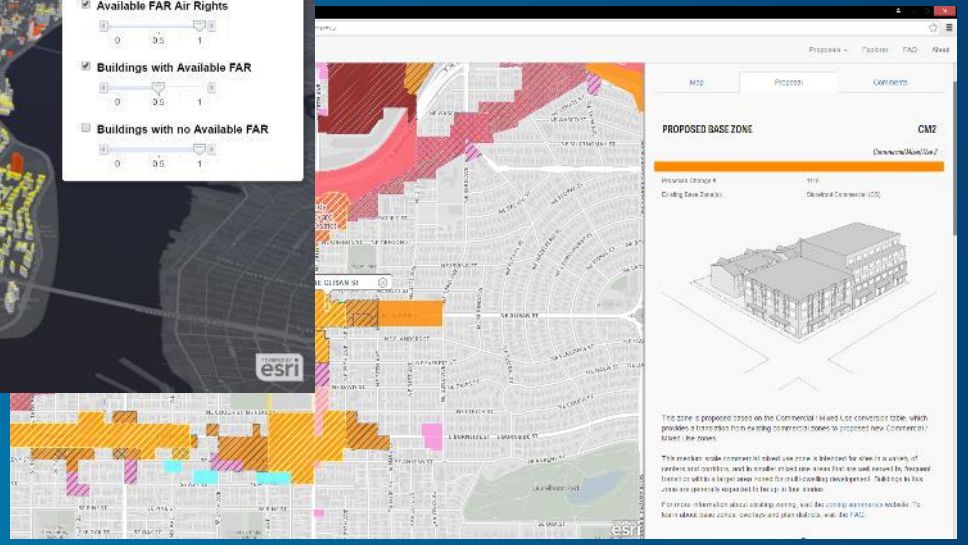
Build Your Own custom 3D Web Apps



Add news/social feeds,



filter/reporting functionality,



custom UI elements, etc …

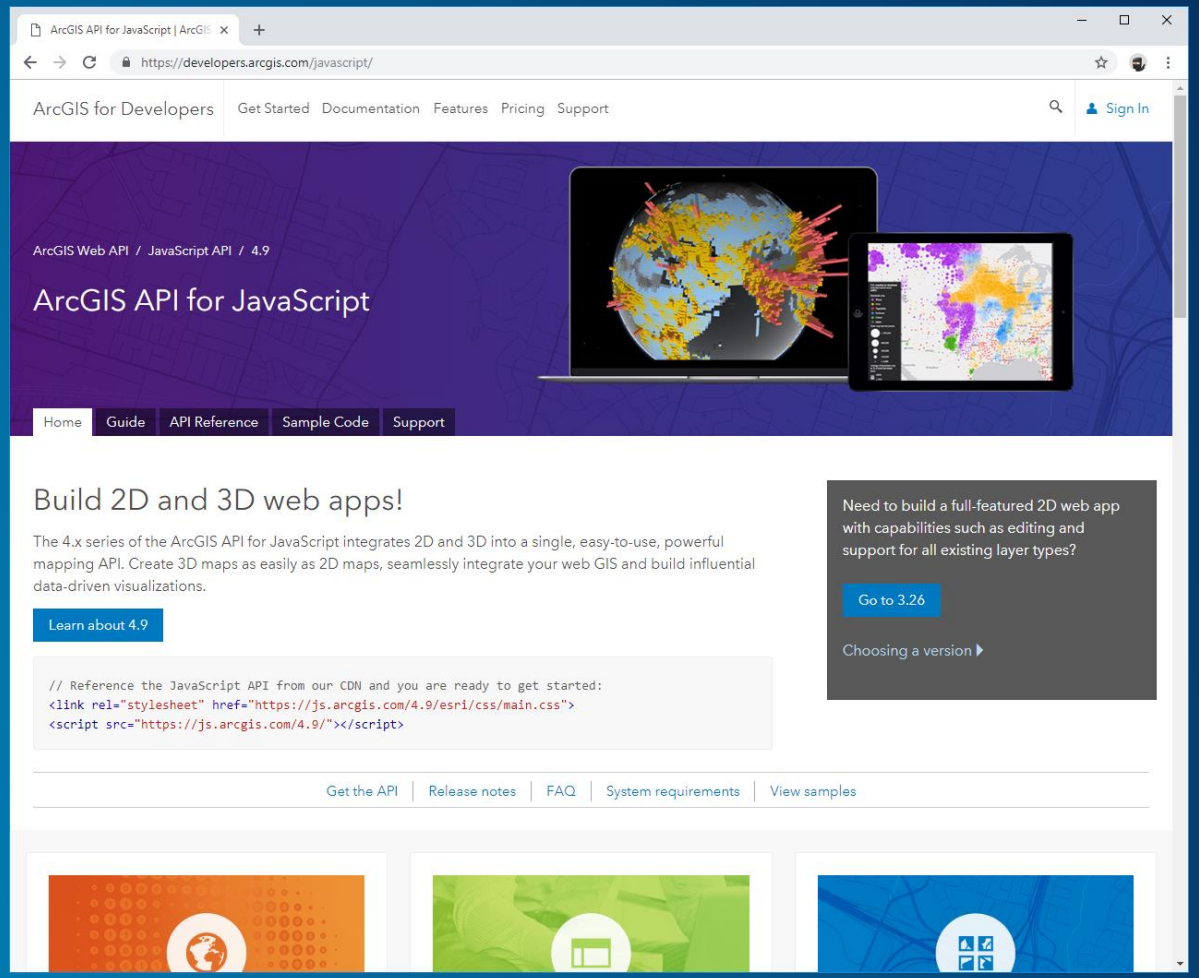
ArcGIS API for JavaScript

Build 3D web apps!

The ArcGIS API for JavaScript

- Provides visual mapping component & widgets
- Support for many different layer types (data sources)
- Integration with ArcGIS platform (security, sign-in, premium services, …)

- Get it today
  - Hosted build https://js.arcgis.com/4.9
  - Doc/samples https://developers.arcgis.com/javascript



Modern, simple API

- **Properties**
  https://developers.arcgis.com/javascript/latest/guide/working-with-props/index.html
  - read/write properties directly
  - set all properties via constructors
  - watch properties, instead of events

```
// Creates a new Map with a 'streets' basemap
var map = new Map({
  basemap: 'streets'
});

// Read the basemap property
console.log("Basemap title: ", map.basemap.title);
```

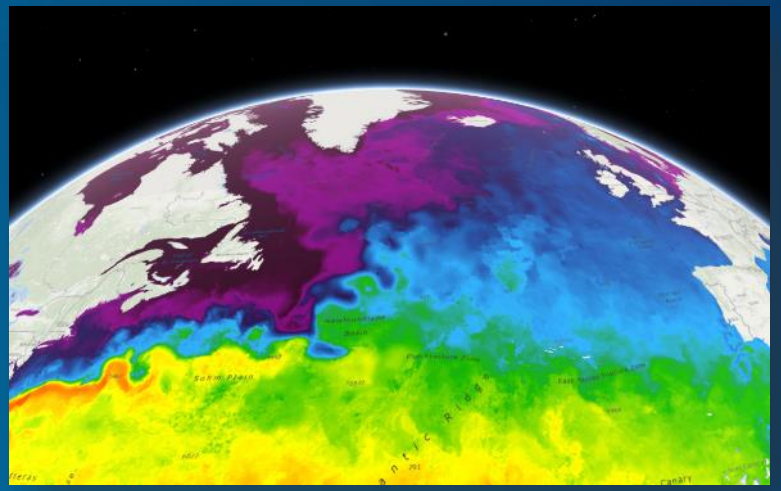
- **Promises**
  https://developers.arcgis.com/javascript/latest/guide/working-with-promises/index.html
  - for handling asynchronous tasks, e.g. network
  - states: *pending*, *resolved*, or *rejected*

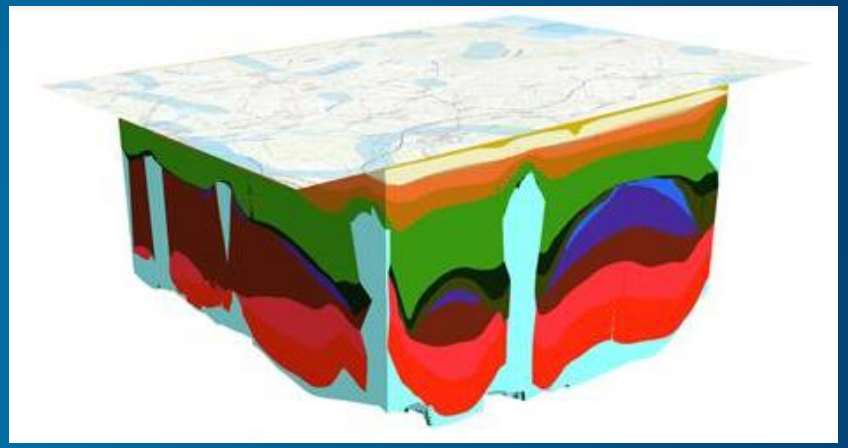
```
someAsyncFunction()
  .then(function(resolvedVal){
    // This is called when the promise resolves
    console.log(resolvedVal);
  })
  .catch(function(error){
    // This function is called when the promise is
rejected
    console.error(error);
  });
```

- Autocasting, Loadable, JSON, Typescript, …

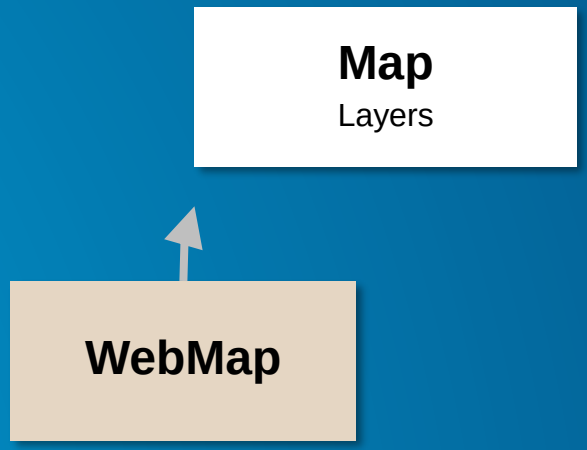
Introducing 3D

- Data
  - 2D tiles, maps, elevation, features
  - Scene layers (open i3s format)
    - 3D Objects, Integrated Meshes, Point Clouds
- 3D concepts
  - Local & global scenes
  - Ground surface with elevation
  - Camera, light and shadows
- Requirements
  - Modern web browser w/ WebGL (IE11+)
  - Modern hardware w/ Graphics Card
  - Also works in mobile devices!





3.x architecture



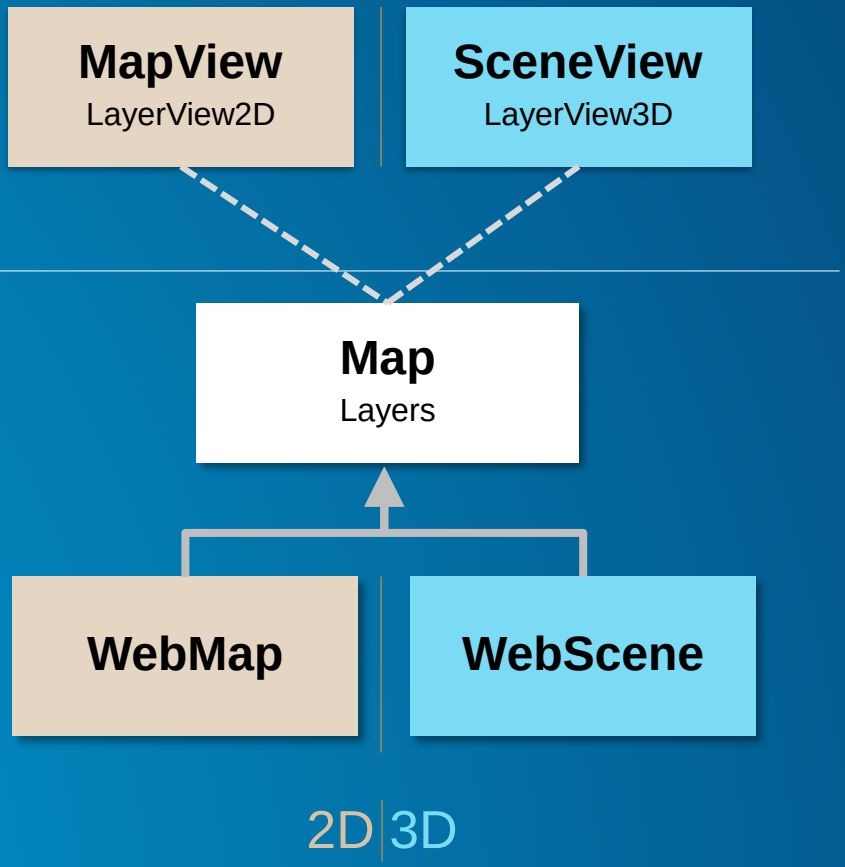
4.x architecture

Renders and interacts with the model

View

Model

Describes the content of the map/scene



4.x architecture – 3D

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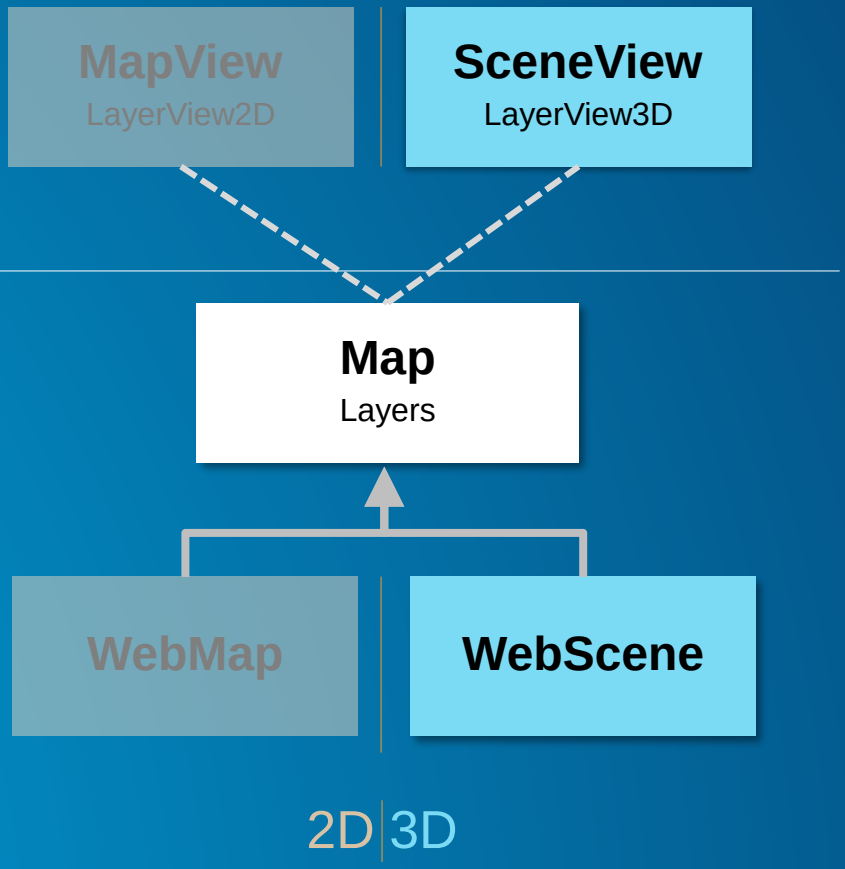

API Concepts

Thank you


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SCIENCE
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