ArcGIS Runtime: Building 3D Apps

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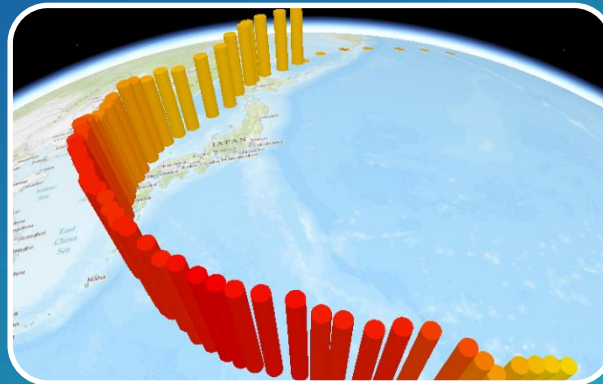
ArcGIS 3D helps customers
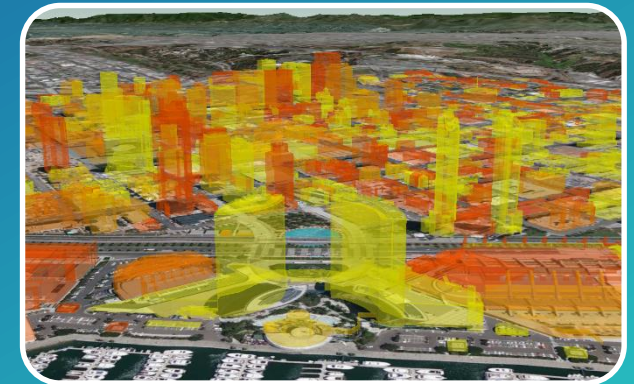
Create and Manage

Quickly and easily extract value from 2D and 3D data
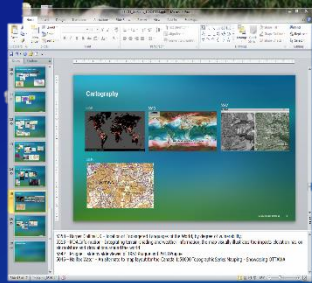
Visualize and Analyze

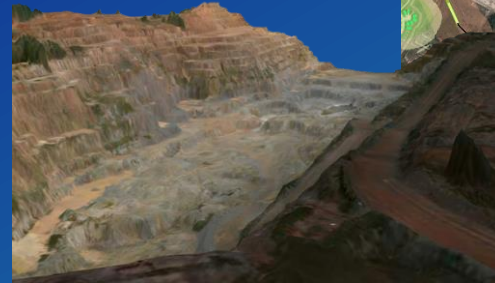Understand and experience events and change

Design and Simulate

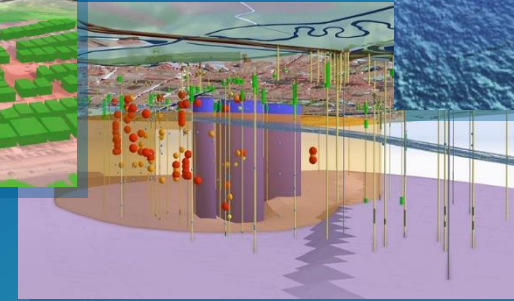Manage the designed environment

3D GIS across industries

Transportation

Developing Energy resources

Mining

Scientific Visualization
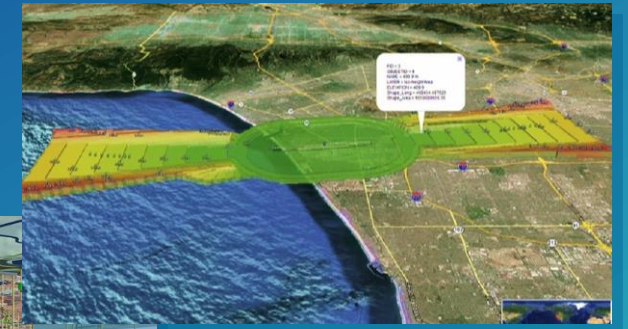
Environmental assessment

Urban Planning

Utilities and Telecommunications

Military

Facilities Management
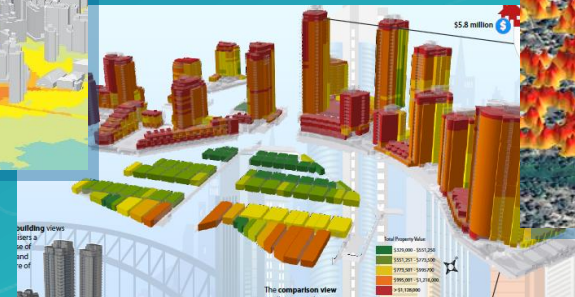
Land Information Management

3D across the ArcGIS Platform

Server

Desktop

Online

Web

Devices

ArcGIS Runtime – Modern Architecture

64 Bit

Local and Cloud

Multi -Threaded

Common APIs

ArcGIS Runtime SDKs – Common Core

.NET	iOS	macOS	Android	Java	Qt QML

Runtime Common API
C++ with C ABI

C++ Runtime core

3D Mapping and GIS capabilities
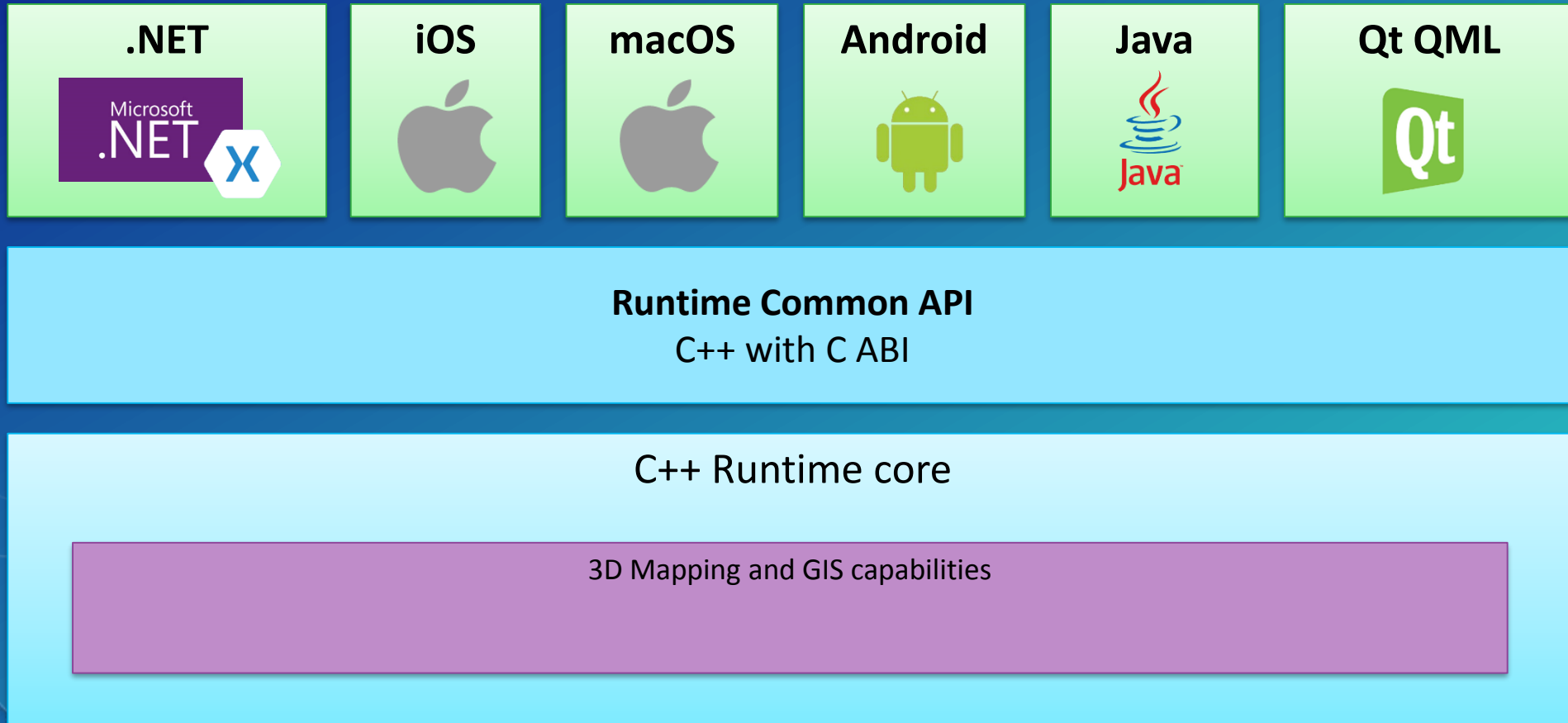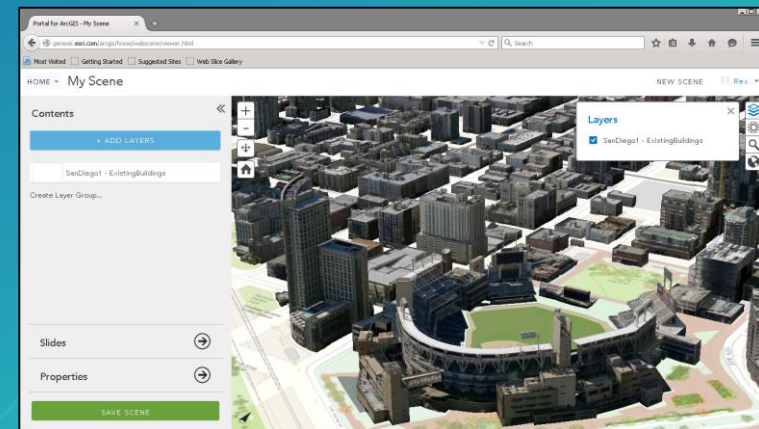
3D in Runtime Today

- Version 100.1
  - All SDKs

  - Scenes
  - Layers
  - 3D symbols
  - Elevation sources

Scenes

- SceneView
  - Renders data in 3D and enables interaction
- Scene
  - Defines how data is organized and presented in 3D
- Web Scene
  - Document to define display and interaction of spatial content in 3D

Scene Layers

- Optimized for display of 3D content
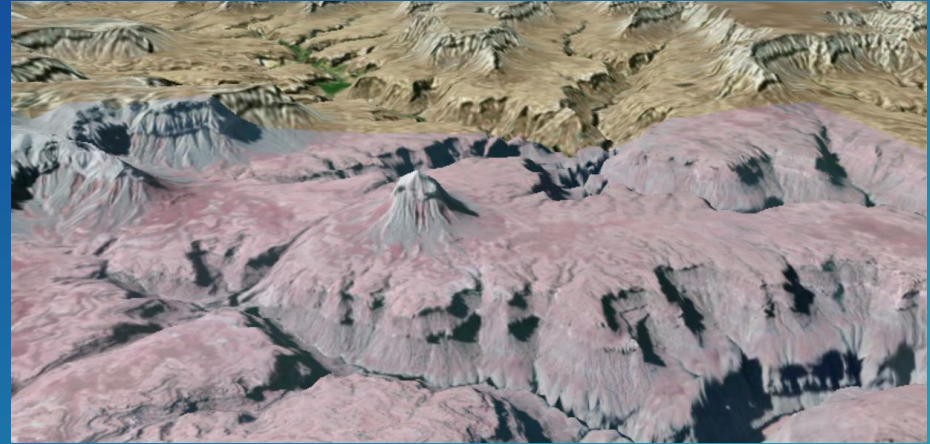- Based on I3S spec
- 3D objects, integrated mesh

Sources
- ArcGIS scene service
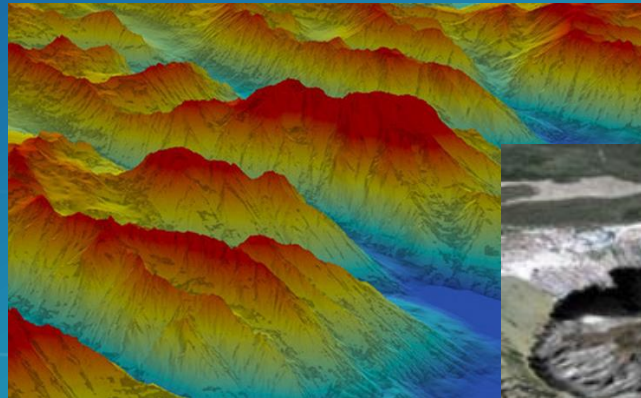- Scene layer package

Elevation sources

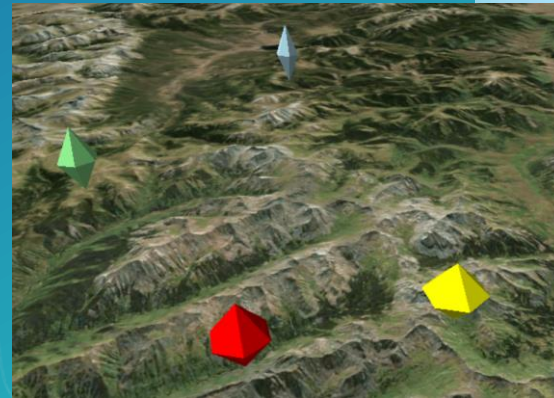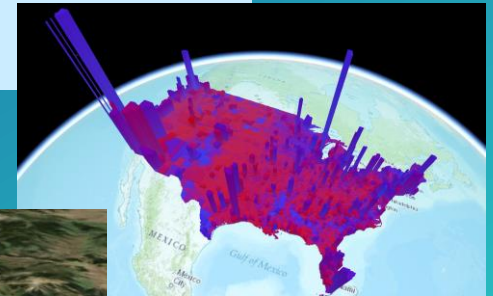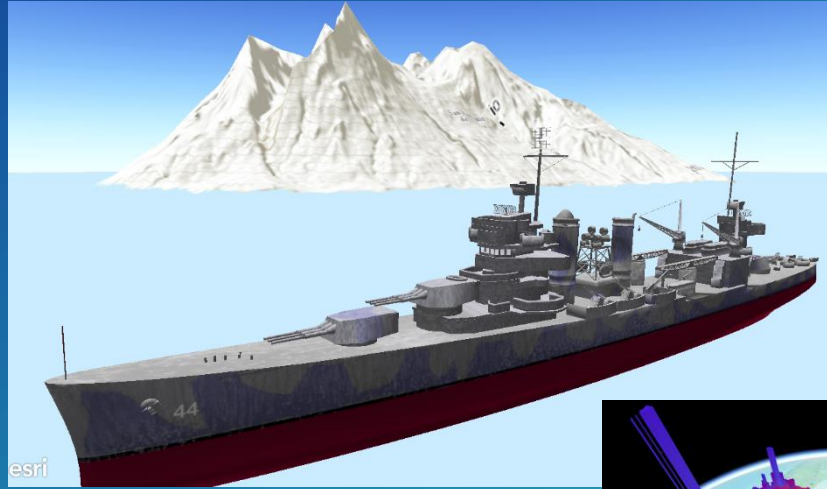- Defines height values across the surface of a scene
- One or many

Sources
- ArcGIS image service
- Tile package with LERC
- Local raster

3D Symbology

- Extrusion
- 3D marker symbols
- Model marker symbols
- Distance composite symbol

Cameras, viewpoints, and controllers

- Camera
  - location, altitude, heading, pitch
  - RotateAround
- Viewpoint
  - camera, geometry, scale, rotation
- GeoView.GetCurrentViewpoint
  - geometry or center\scale
- GeoView.SetViewpoint
  - viewpoint, camera, timespan

- Globe – Free roaming global navigation
- OrbitGeoElement – pivot camera around a target element
- OrbitLocation – pivot camera around target point
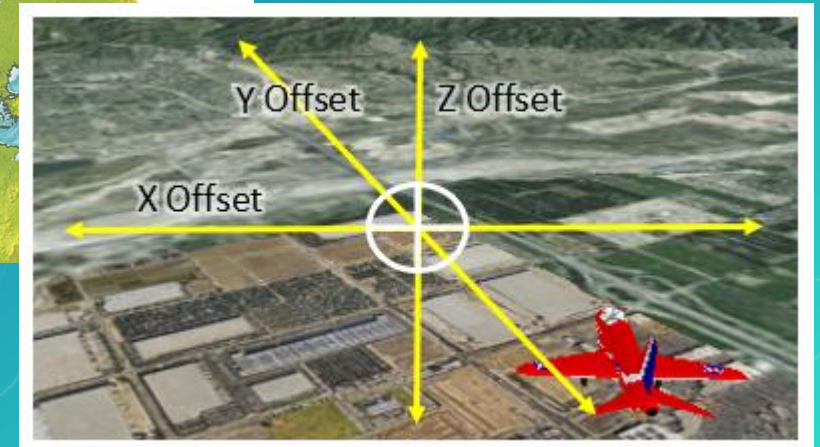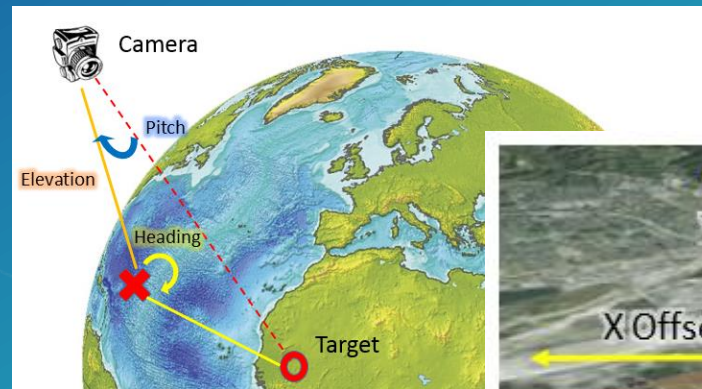
3D Demos

- Offline
- View controllers
- Feature display
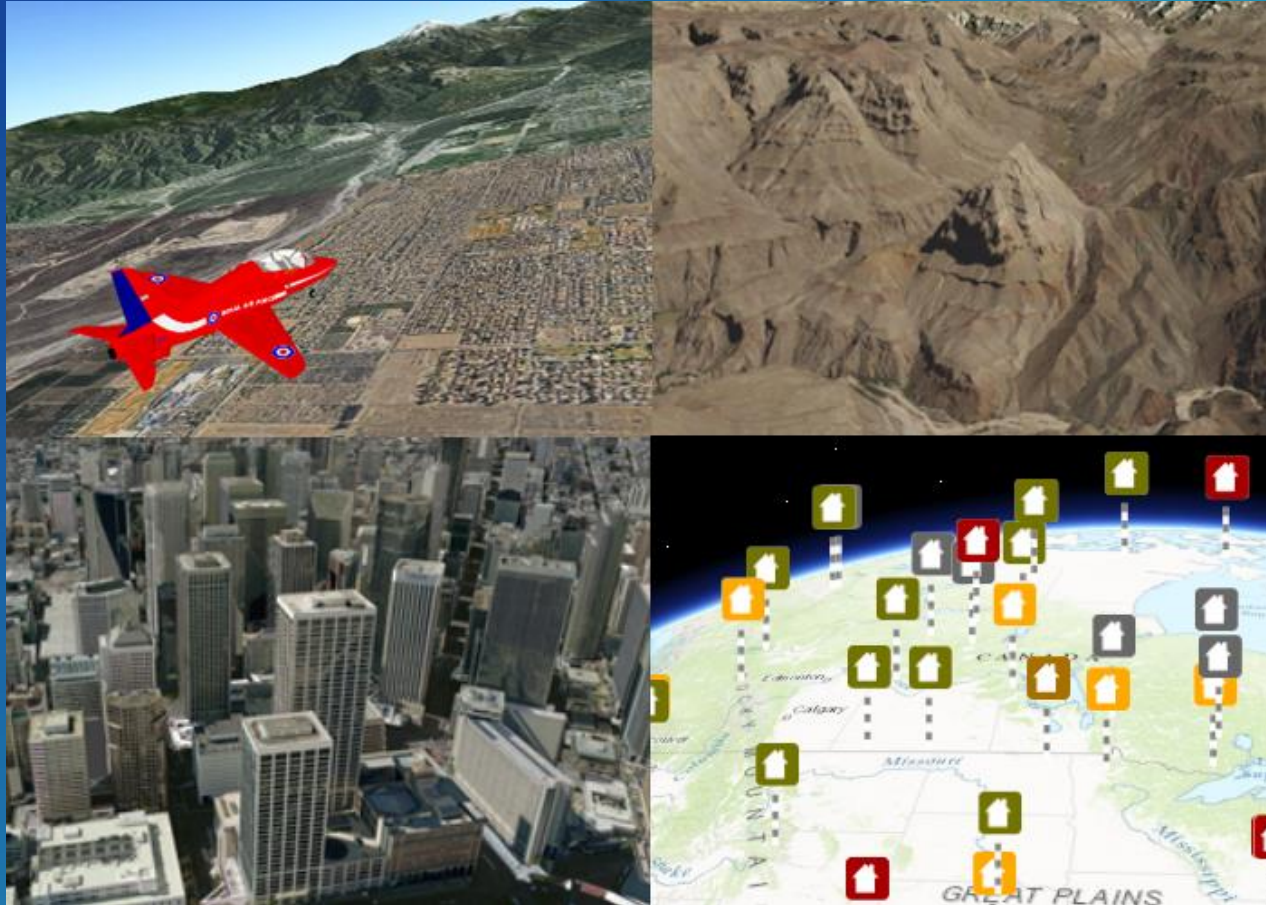
ArcGIS Runtime road ahead for 3D

100.x

June 2017

Dec 2017

2018

Update 1 (100.1)

- Commercial support on mobile platforms
  - Improved memory management
  - Optimized for OpenGL, DirectX
- Camera controllers to follow geoelement
- Local elevation TPKs
- WMTS, OSM, Web tiled layers

Update 2 (100.2)

- Analysis: viewshed, line of sight, measure
- KML, WMS, shapefiles, ArcGIS image services
- Dynamic feature layers
- WGS84 tiled layers
- Point cloud scene layers
- VR/AR public beta?

Update 3/4

- Read/write web scenes
- Mobile scene packages
- Point scene layers
- Vector tiled layers
- Local scenes
- More analysis tools...

Virtual and Augmented Reality with ArcGIS Runtime

- Enhance existing ArcGIS Runtime SDKs
  - VR: Add "stereo display" rendering mode
  - AR: Transparent background to render on video/camera feed
  - Private Beta in September 2017

- Integrate ArcGIS Runtime with game engines
  - Enable access to GIS data and analytics in developer environment optimized for immersive 3D experiences
  - Game engines currently power VR, AR and mixed reality (MR) solutions
  - Targeting Beta in early 2018