ArcGIS Enterprise 10.7 release highlights and updates

PRESENTED BY VICTOR TEY

DIRECTIONS LIVE Online

ArcGIS Portal 10.7

DIRECTIONS LIVE Online

Product Lifecycle Changes

10.7 – Short-term Support
10.7.1 – Long-term Support

	General Availability	Extended support	Mature support	Retired
Technical support				
Request case	Yes	Yes	Yes	No
Phone and Chat	Yes	Yes	Yes	No
Online support resources	Yes	Yes	Yes	Yes
Software support				
Security updates	Yes	Yes	No	No
Software updates and patches	Yes	Yes	No	No
Software hotfixes	Yes	Yes	No	No
New environment certification (only for LTS releases)	Yes	No	No	No
Short-term support releases	1.5 years	None	1.5 years	Retired after 3 years
Long-term support releases	2 years	2 years	2 years	Retired after 6 years

New User Types

Level 1 => Viewer - Read only access to content which is secured.
(not create, edit, share, analyse)

Editor - Read/Write data
(not create, share, analyse)

Field Worker - Read/Write data through Field Apps
(not create, share, analyse)

Level 2 => Creator - Read/Write/Create/Share/Analyse/Administer
(not ArcGIS Pro)

GIS Professional - Same as Creator, but with ArcGIS Pro

Portal UX/UI

- Changes to the Organisation page
  - Overview tab that summarizes key information
  - Improvements to Portal Member management
  - Contact details for Admins
- More responsive for small screens (don’t forget ArcGIS Companion though)
- Improved searching
  - Separate Living Atlas searches from organization’s content

Data management

- The 1GB upload limit have been removed and users can now upload files up to 200GB
- You can enable synchronization on hosted feature layer views
- You can rename hosted feature layers and hosted feature layer views
- A new job status is available when you rebuild a scene layer's cache.
- Hosted feature layer view by defining an area of interest
- New tile package file format.

New tile package format

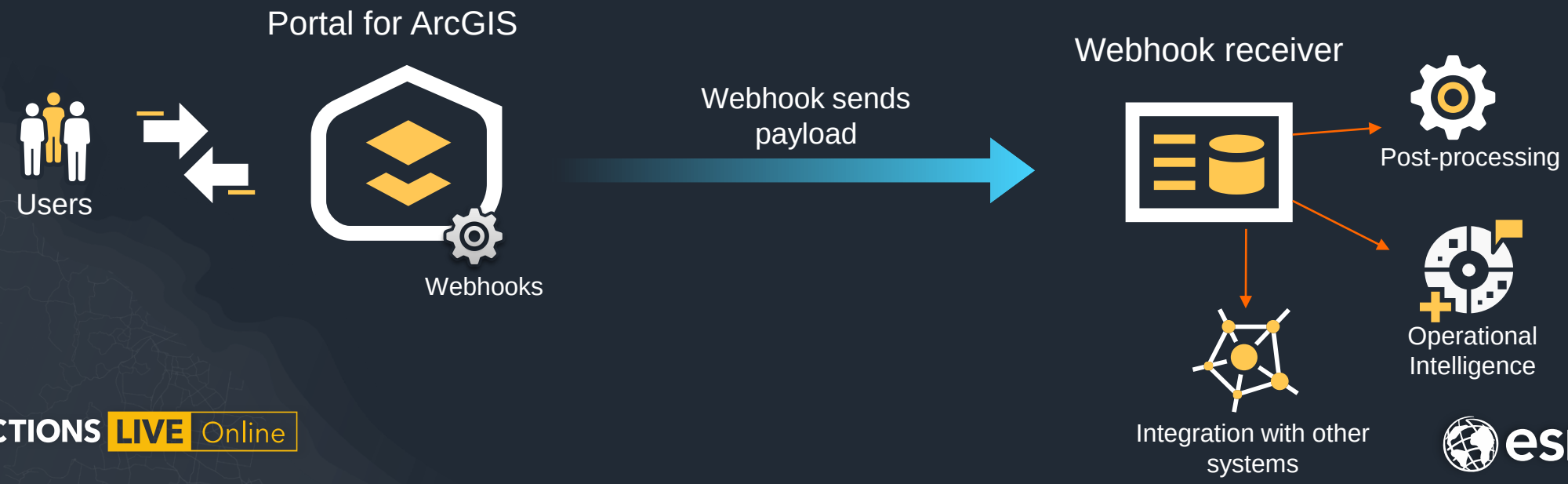
- ArcGIS Enterprise 10.7 includes a new tile package file format with the extension .tpkx
- cache tiles are stored using the optimized compactv2 storage format
- simplified file structure and provides better performance when accessed over network file shares and cloud store directories
- open specification
- Not backwards-compatible; it can only be used by ArcGIS Enterprise 10.7, ArcGIS Online 7.1, and ArcGIS Runtime 100.5.

Distributed Collaboration

- Share Insights Content
  - Workbooks and Pages as read-only items
  - Models as copies that recipients can configure and use
  - Needs Insights for ArcGIS 3.2.1
  - Can share between Enterprise and AGOL
- Share Hosted Feature Layer Views as copies
- Shared content is badged and visible from consumption pages
- Pause and Resume Sync
  - Data or System Maintenance

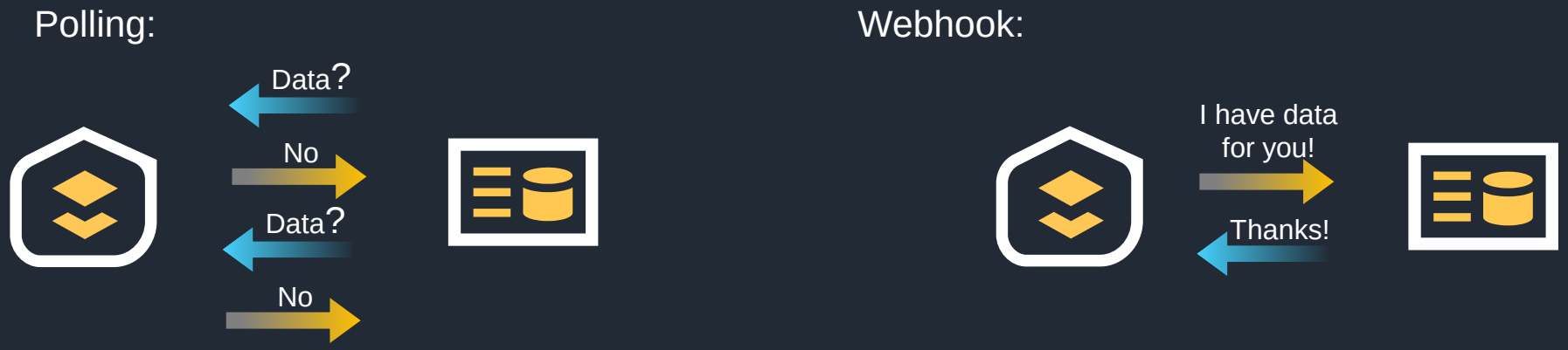
Web Hooks

- A webhook is a new ArcGIS Enterprise capability that will automatically provides other applications with event-driven information, delivered as an HTTPS request (POST)
- They can be used to create automated and integrative workflows, adding new extensibility to ArcGIS Enterprise.



Advantages of using webhooks

- More efficient than polling



- Allow users to create custom event-driven workflows, that can be integrated across multiple systems.
- Creates new and more efficient opportunities for automation.

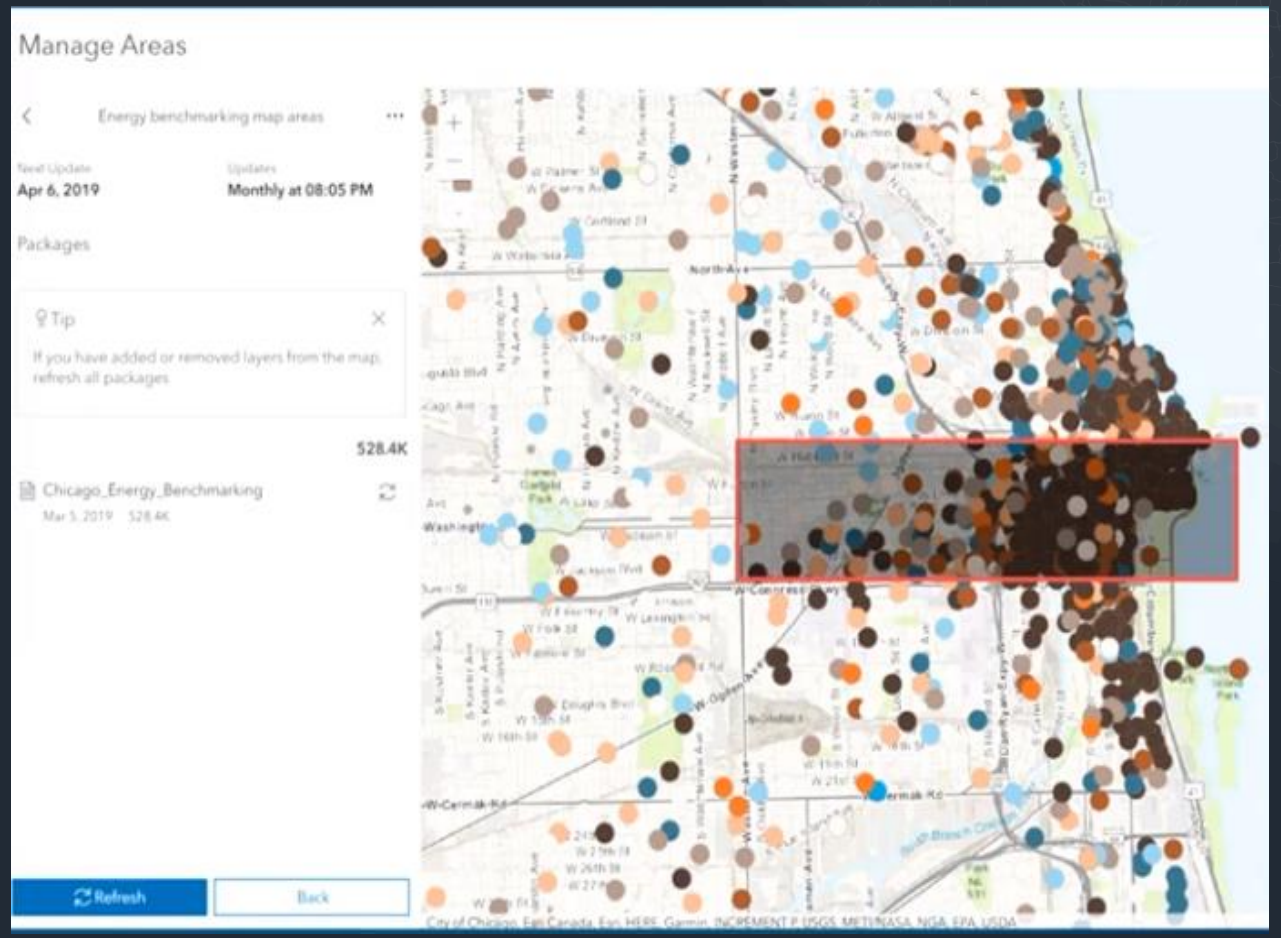
Web Hook Triggers

- Items
  - Add, Update, Delete, Move (or change ownership), Publish, Share, Unshare
- Users
  - Update, Delete, Disable, Enable
- Groups
  - Add, Update, Delete, Protect, Unprotect, Invite, Add Users

Create offline map areas

Support offline field workflows

- Create pre-determined map areas to take offline:
  - Makes it easier and faster to package up and take maps offline.
  - Update offline areas on a schedule to reflect changes in your web map.
  - Use in apps built using the Runtime SDK or Collector for ArcGIS.

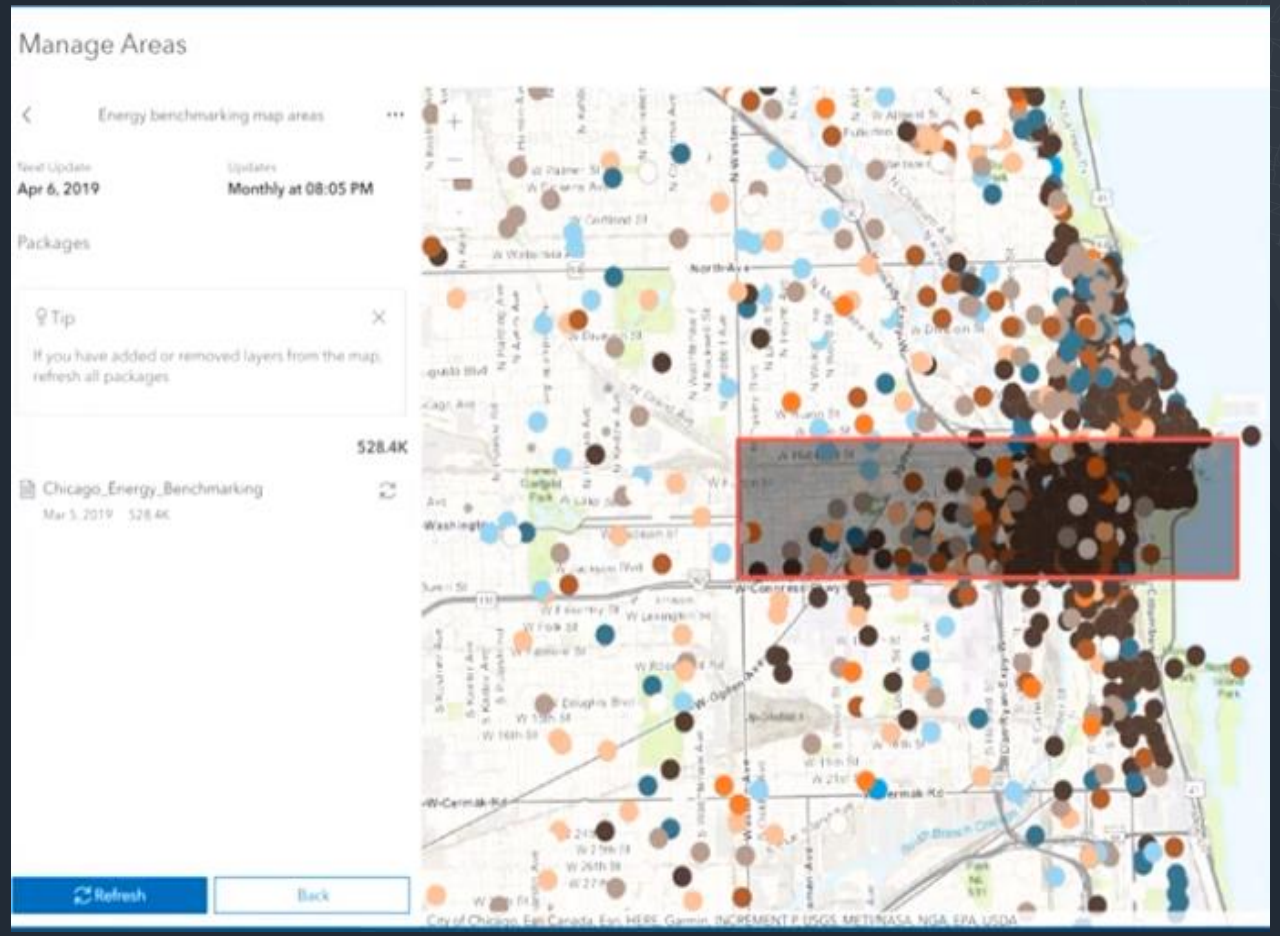


Area of interest

New option for hosted feature layer views

1. Feature definition
2. Field definition
3. New: Area of interest

Keeps the connection to the source data while displaying only what you want to show

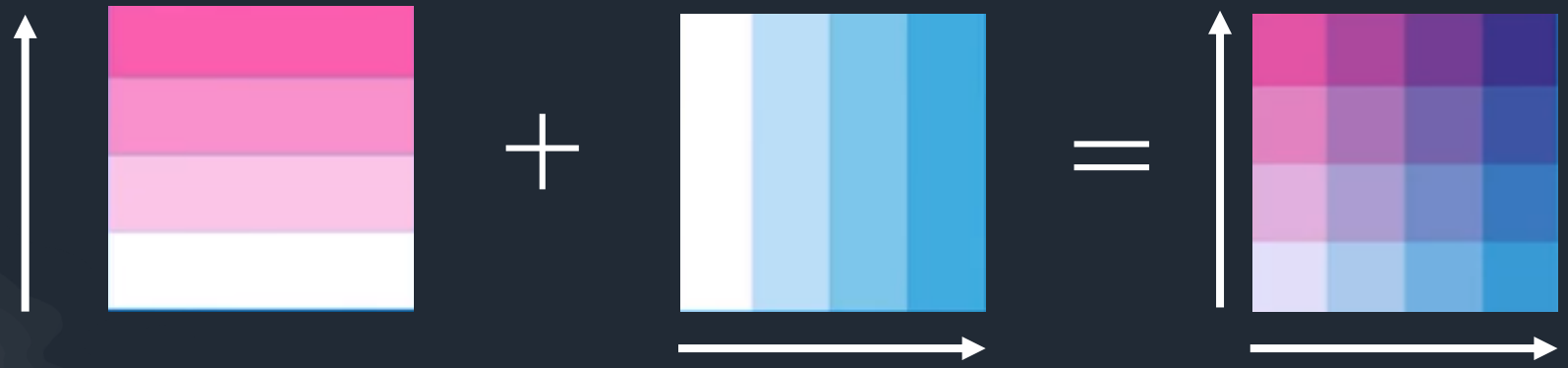


Why? I want some users to have access to data only in their geographic area.

Relationship style

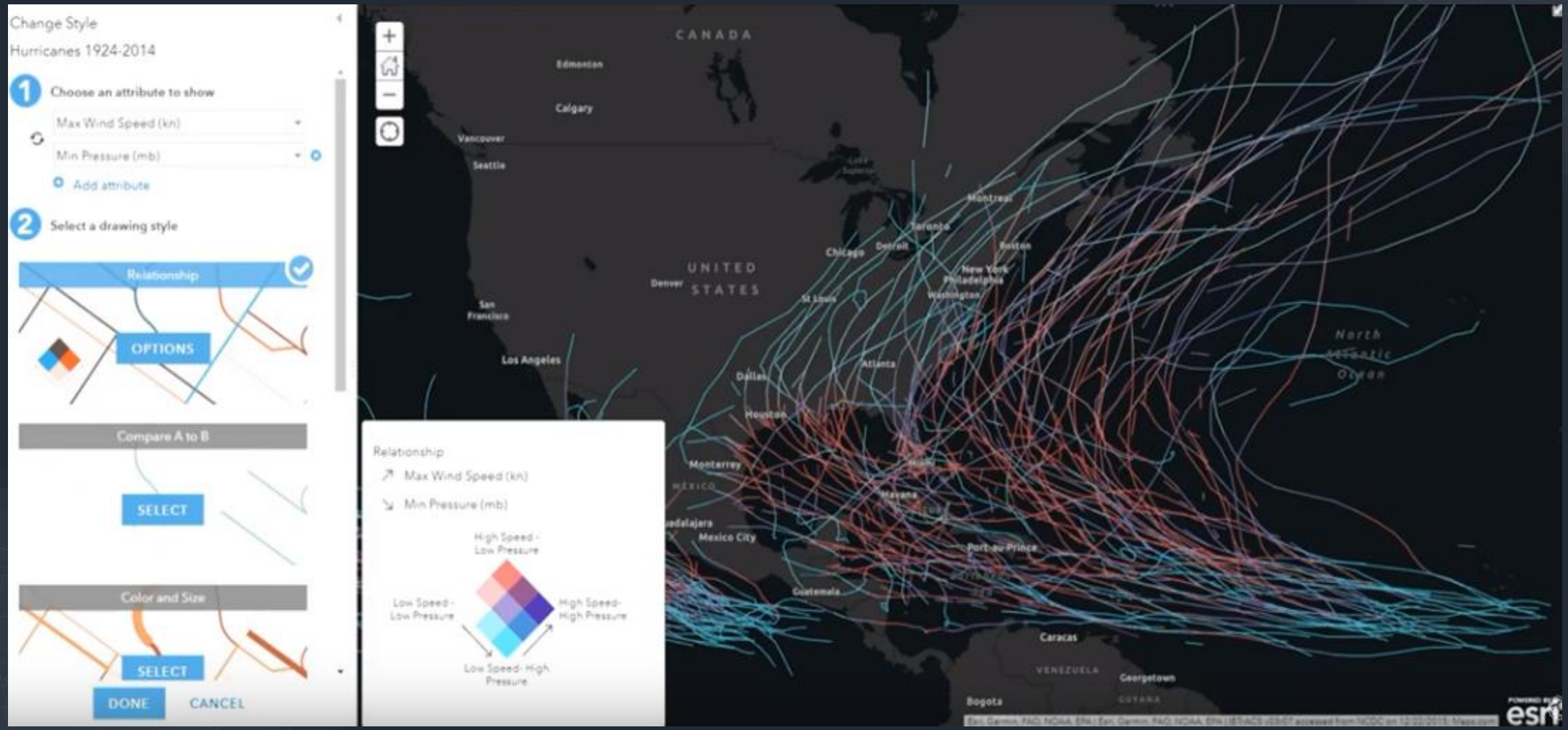
New smart mapping style

- Compares two attributes on a map using color variation
  - Which commercial buildings have high occupancy rates and high energy use?
  - Which streets had high rates of accidents and low speed limits?



Relationship style

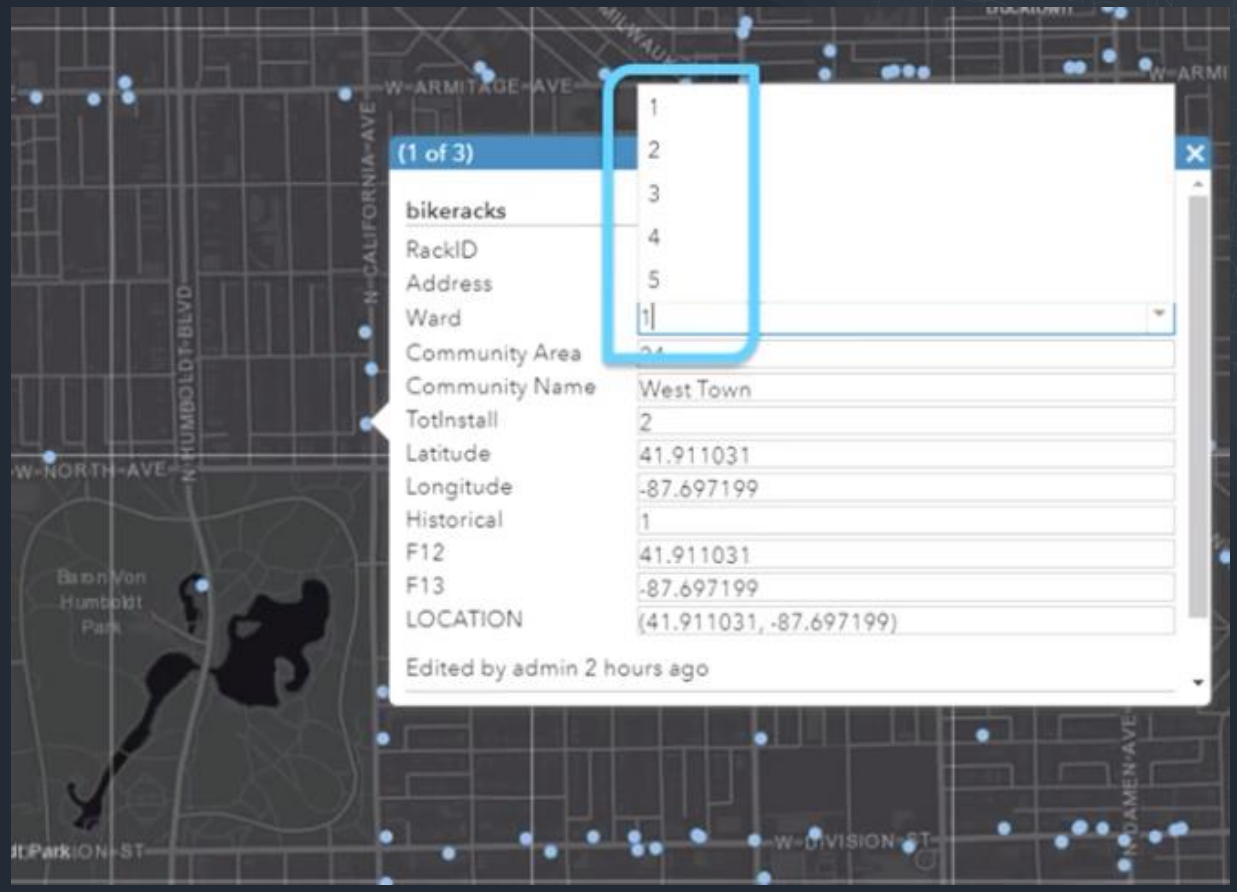
New smart mapping style



Domains

New for hosted feature layer

1. Constrain attribute values
2. Long-time feature of geodatabase
3. Can use permitted values in field applications like Collector for ArcGIS
4. Enforces data integrity and consistency



Examples: true/false, certain cities, statuses/conditions, names, etc

ArcGIS Notebook Server

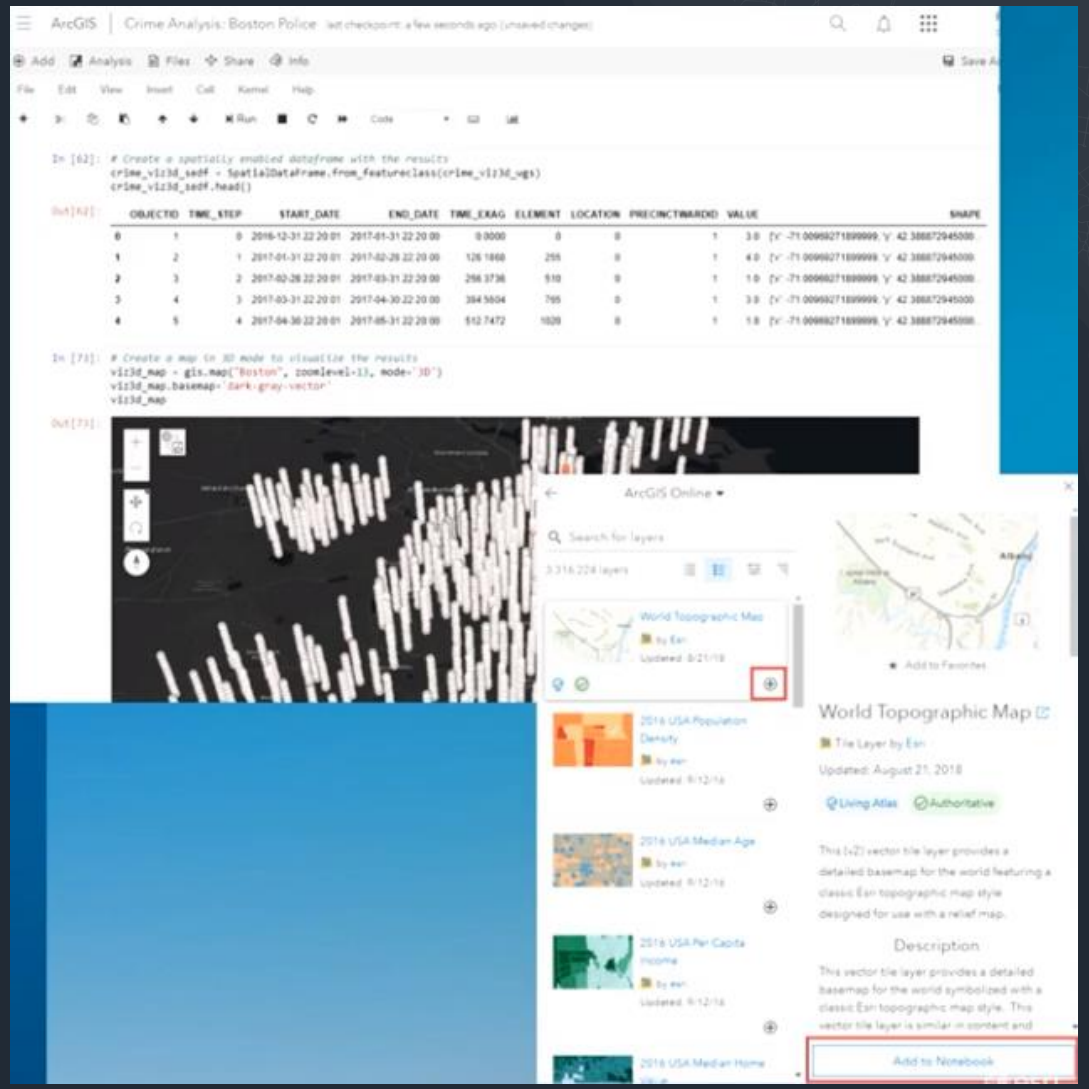
Host Python notebooks in your infrastructure

A powerful data science platform

- Uses Docker containers to isolate each notebook author's workspace
- Code with the Python API and ArcPy
- Dynamic mapping and visualization

Integrated with your portal

- Users are granted notebook privileges via portal user roles
- Add and reference portal items
- Share notebooks in the portal



ArcGIS Server 10.7

DIRECTIONS LIVE Online

What's new in ArcGIS Server

- More resilient sites
  - Heartbeat
  - Under Maintenance Mode
  - Improved performance
  - Removal of multiple cluster support
- Set heap sizes for individual services
- Shared Instances (game changer)
- Request ID in server logs
- View and update Geoprocessing Job status
- Publish to standalone ArcGIS Server from ArcGIS Pro using Python

More Resilient Sites

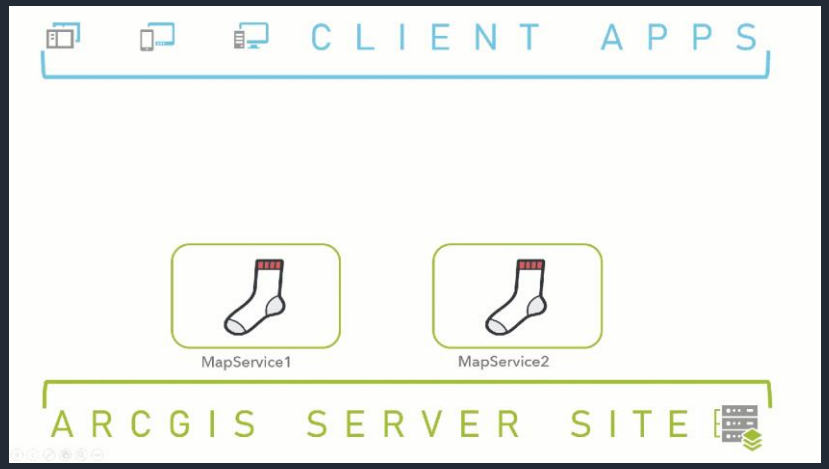
- Heartbeat
  - Health Check endpoint reflects its connection status
  - Machines can be suspended after threshold
  - Suspended machines can be unregistered from the site after threshold
- Under Maintenance Mode
  - Sets the health check
  - Allows a machine to stop accepting map requests
  - Used for taking offline for OS patching/maintenance.
  - Web Adaptor doesn't honour until 10.7.1
- Removal of multiple cluster sites
  - Cuts down on noise in the site
  - No fallback to legacy modes => Recommend migrating to single cluster before to upgrade

Set Individual Service Heap Size

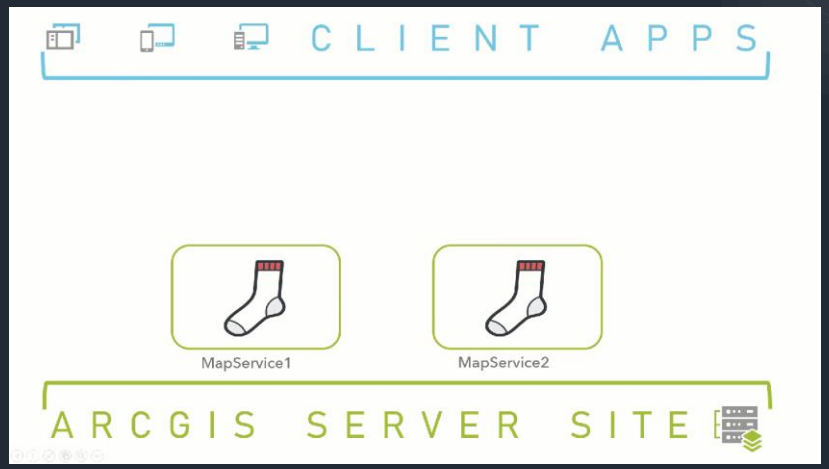
- Current Heap Size Settings apply across the server (all services)
  - Application Server Heap (256MB)
  - SOC Heap (64MB)
  - Can be increased in response to services that use large files
  - Good for SOEs and SOIs
- One setting across the board, so servers pay the price for a few exceptions to the rule
- New feature in 10.7 allows definition of heap size for individual services
  - Apply something conservative in the site-wide setting
  - Apply increased values for specific services.

Shared Instances – The Problem

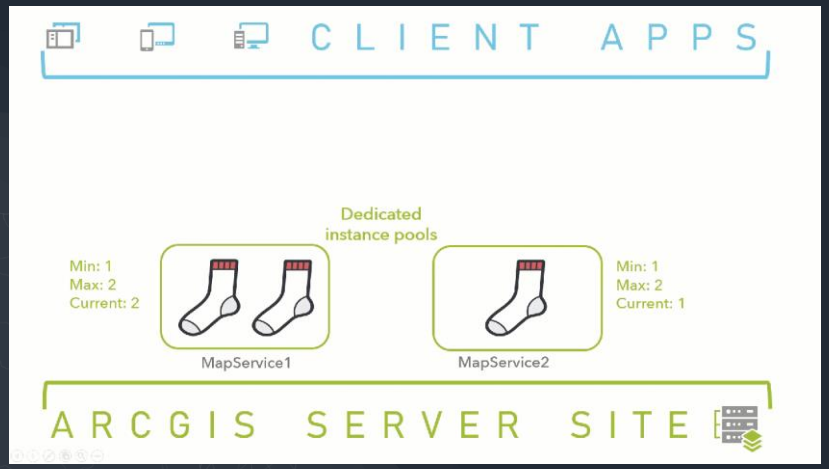
1. Uniform Requests



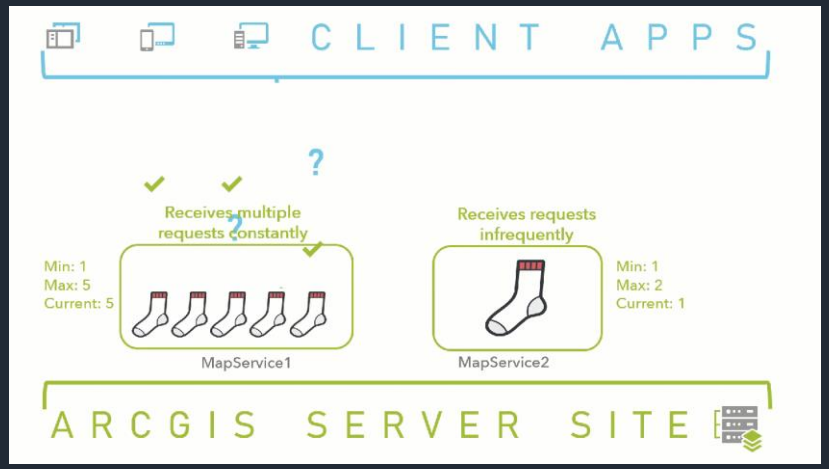
2. Unbalanced Requests



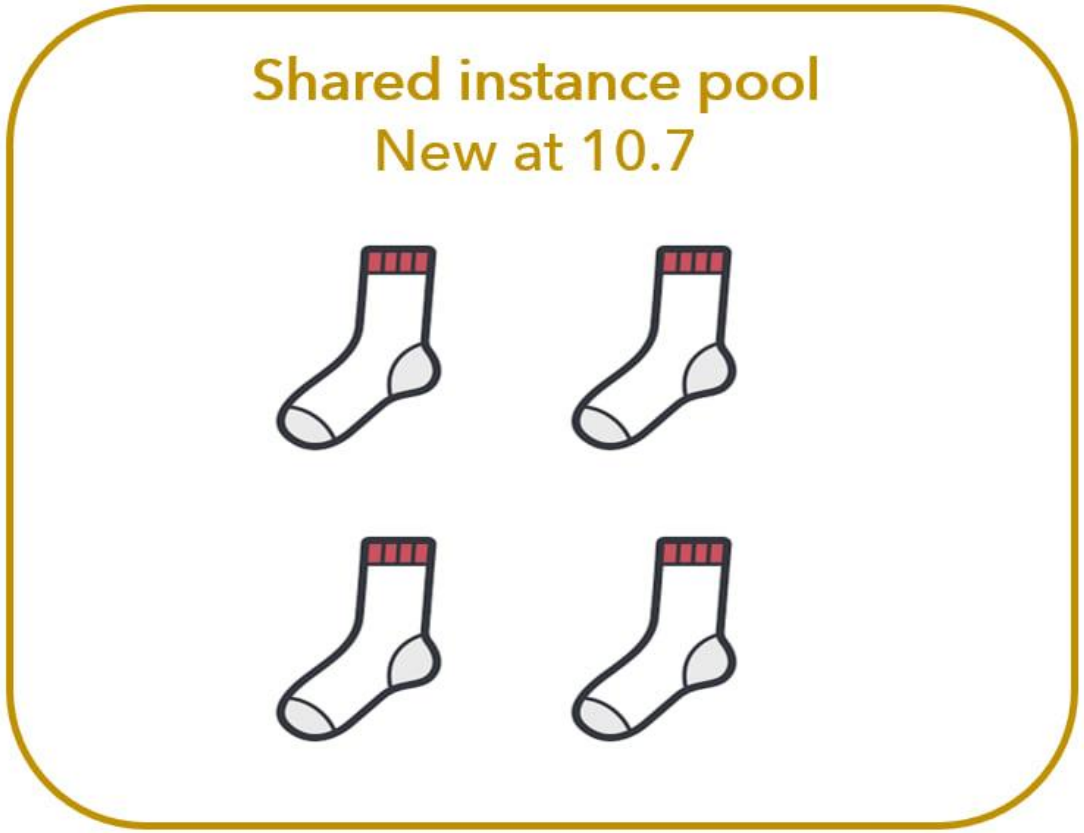
3. Increased Process Pooling



4. Quiet Services Still Consume Memory



Shared Instances – 10.7

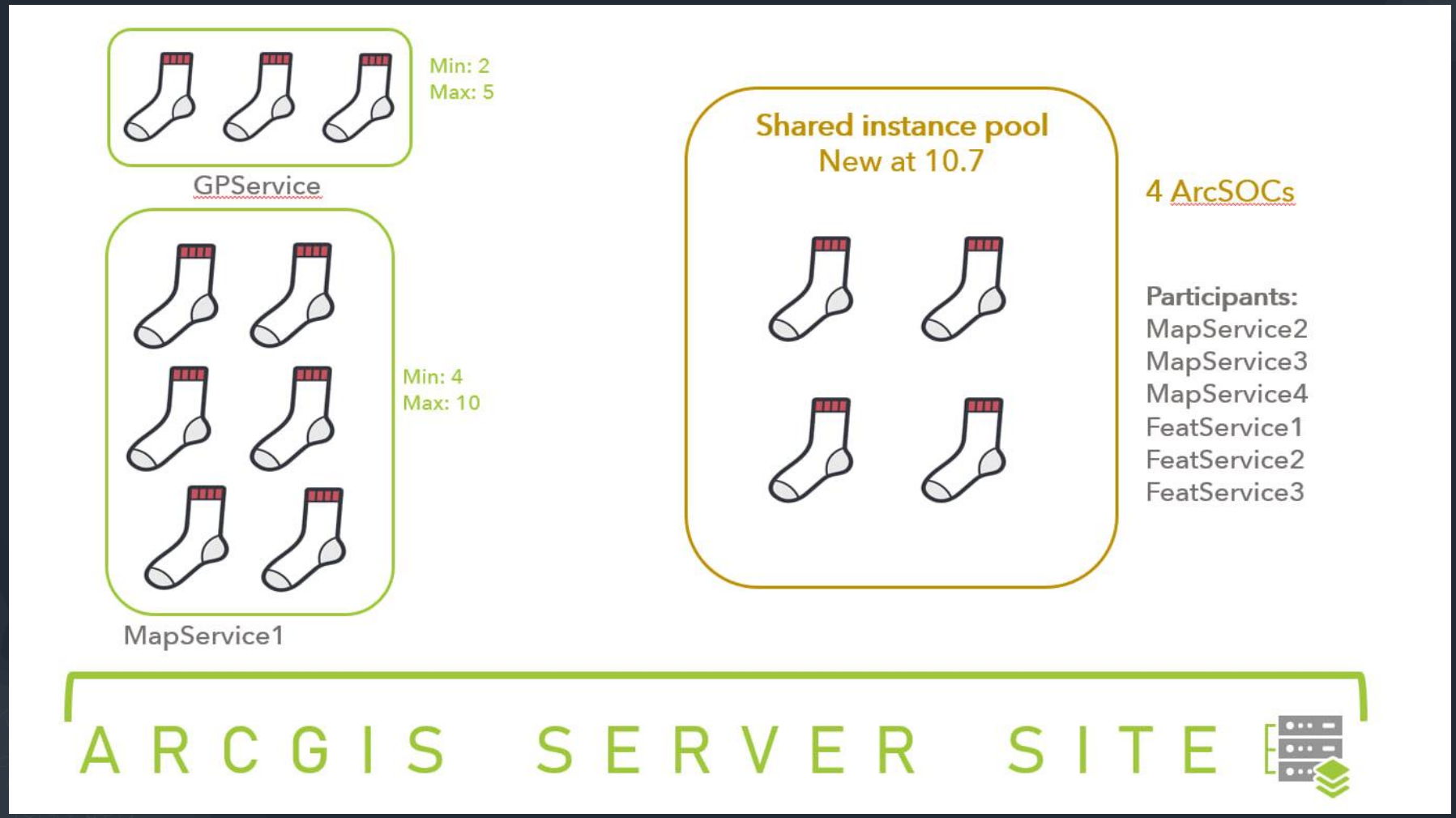


4 ArcSOCs

Participants:
MapService2
MapService3
MapService4
FeatService1
FeatService2
FeatService3

Shared Instances – 10.7 - Recommended

Mix of Defined Pooling and Shared Instance Pool



Shared Instances – 10.7

- Shared Instances Caveats
  - Only for services published through ArcGIS Pro
  - Only supported capabilities
    - Map, Feature Access, KML, WMS, WFS
    - NOT Network Analysis, Utility Network

Other new features in ArcGIS Server

- Request ID in server logs
  - Improved logging to track the logged items relating to the same request
- View and update Geoprocessing Job status
  - Ability to manage running

GeoAnalytics 10.7

DIRECTIONS LIVE Online

GeoAnalytics Server

Big data processing and analysis

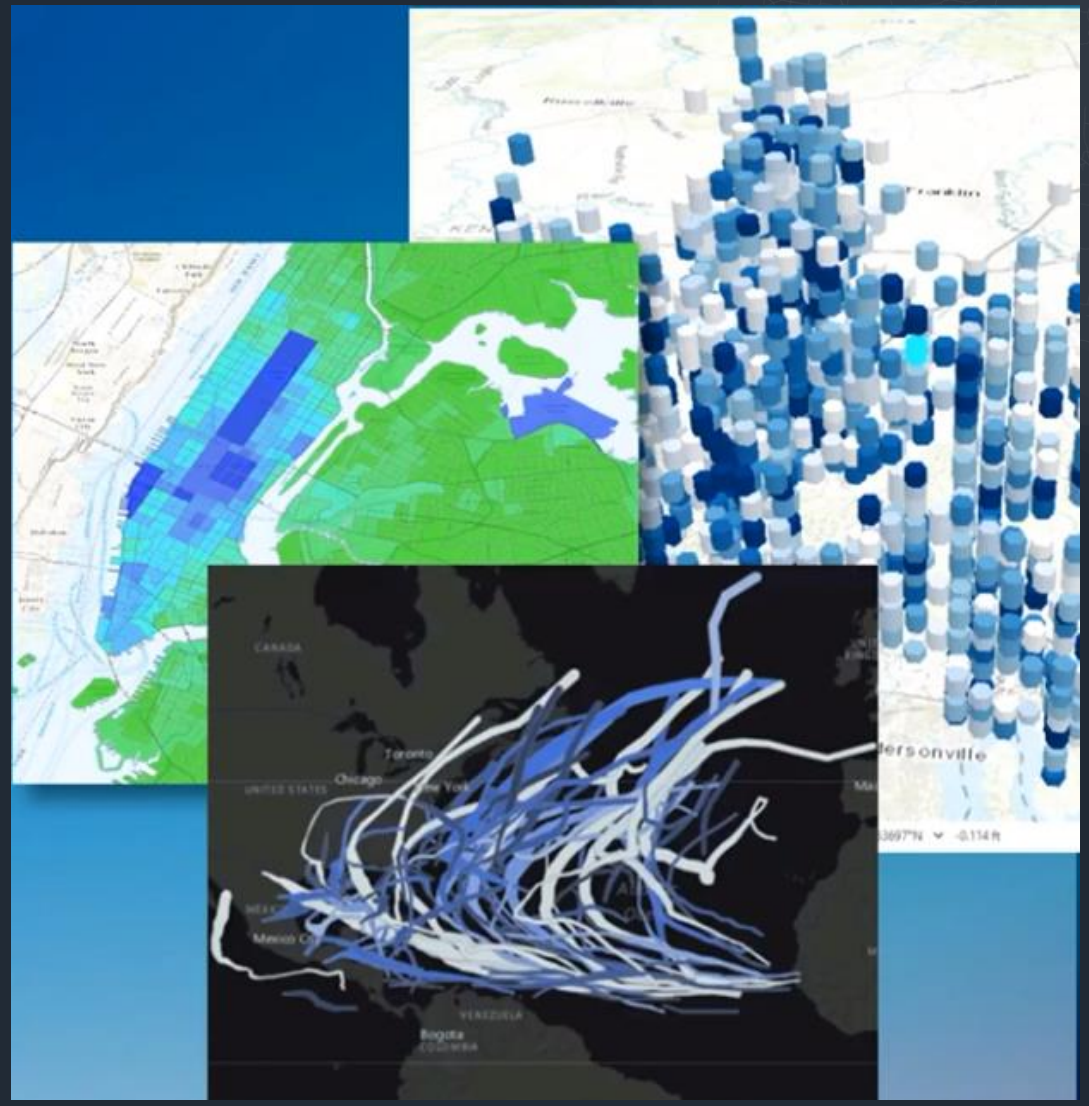
New tools:

- Clip, Dissolve, Merge
- Forest-Based Classification and Regression
- Generalized Linear Regression

New extensibility

Run Python Script

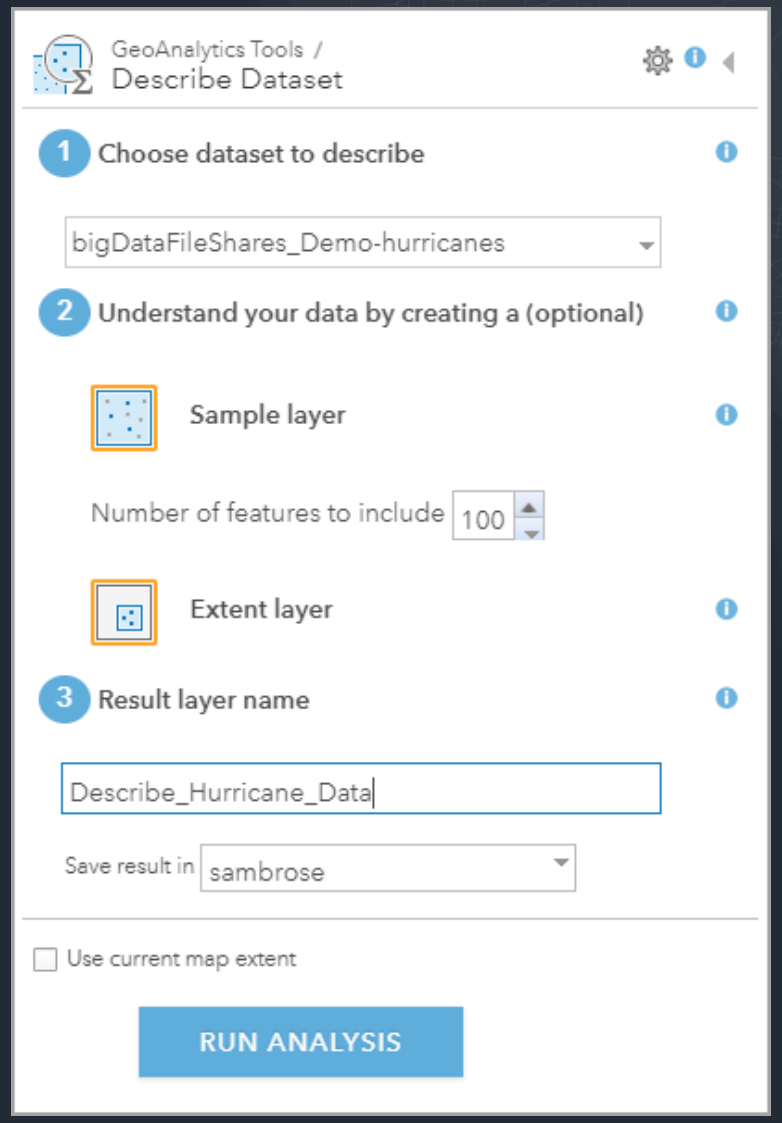
- Leverage pyspark & all subpackages
- Run SQL queries
- Chain tools together



+write analysis results back to your own data stores

Describe dataset

- Where the layer is stored (big data file share or ArcGIS Data Store)
- How many records are in my dataset
- The geometry settings (point, line, polygon or table) as well as the spatial reference, spatial extent and number of features with or without a valid geometry
- The time type (instant, interval or none) as well as the number of features with and without a valid time
- A sample of the data, including the attributes, geometry and time.
- The extent of the data in space (based on the minimum bounding rectangle) and time (start + end)



Generalized Linear Regression

- This tool generates linear models to find relationships (such as: an increase in X leads to higher Y values) and predict to new datasets (knowing this relationship, what are predicted values on new inputs?). With this tool you can find relationships for continuous data, binary data (like will an event happen or not), and count data.

Forest-Based Classification and Regression

- Forest-Based Classification and Regression can be used in two ways – one, to train a model, and two, to fit a model and predict values.

Run Python Script

- Execute PySpark code against GeoAnalytics
- Chain multiple GeoAnalytics tools together without creating an intermediate layer

Write results to input sources

Tracker

DIRECTIONS LIVE Online

Tracker for ArcGIS

Components

Tracker Mobile app (iOS, Android)

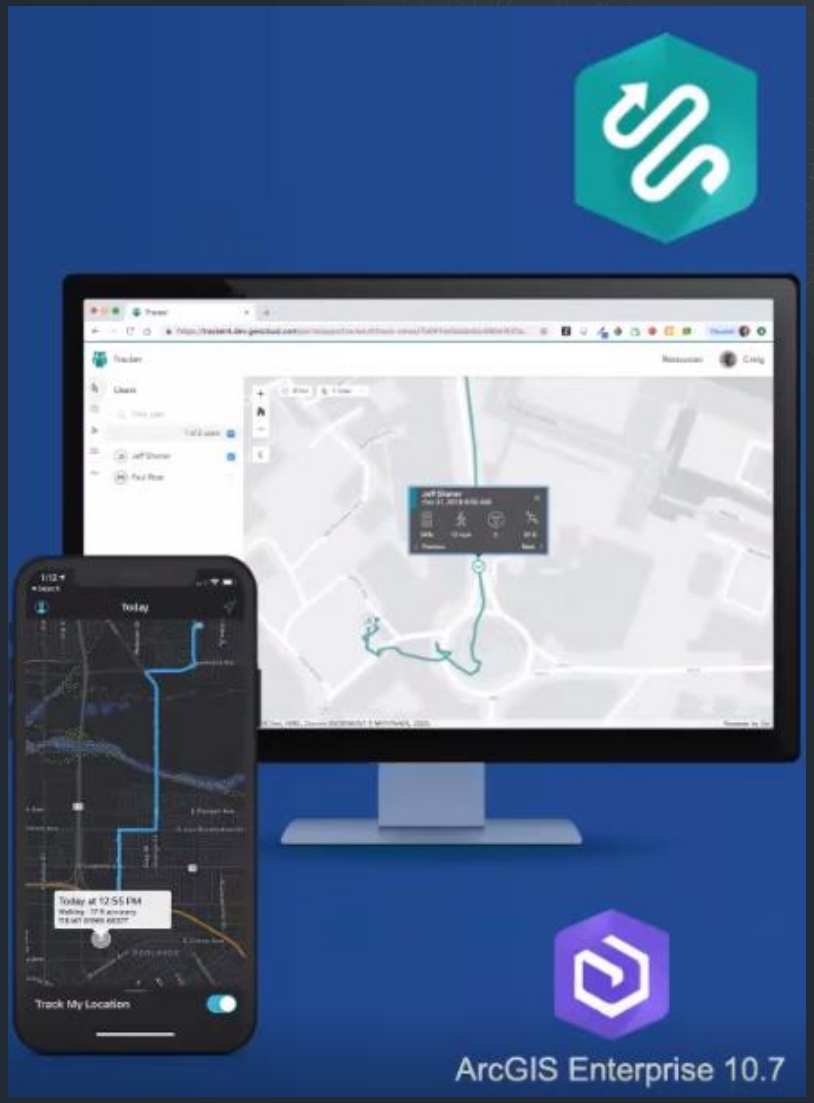
- Simple, schedule-driven tracking experience
- Supports offline use
- Premium App available with all user types
  - Requires an add-on license

Tracker Viewer web app

- Display and manage users and their location history
- See only the users that you have access to

New Location Tracking Capability

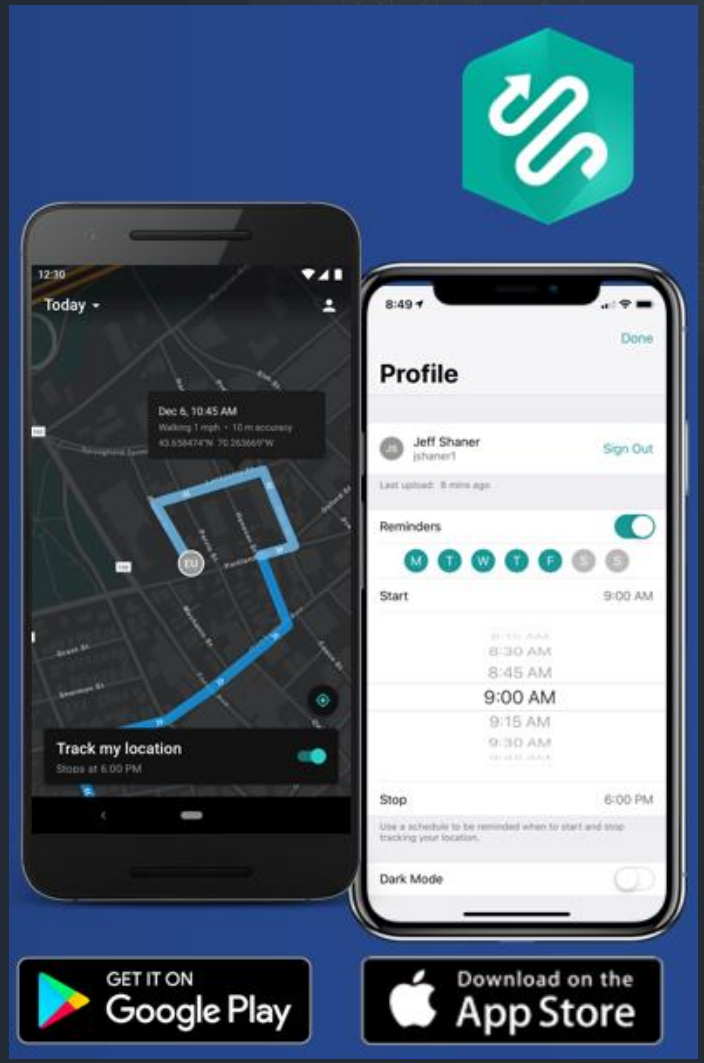
- Enable location tracking in their organization
- Single service for storing and managing location tracks
- Requires the **spatiotemporal big data store**



Tracker for ArcGIS

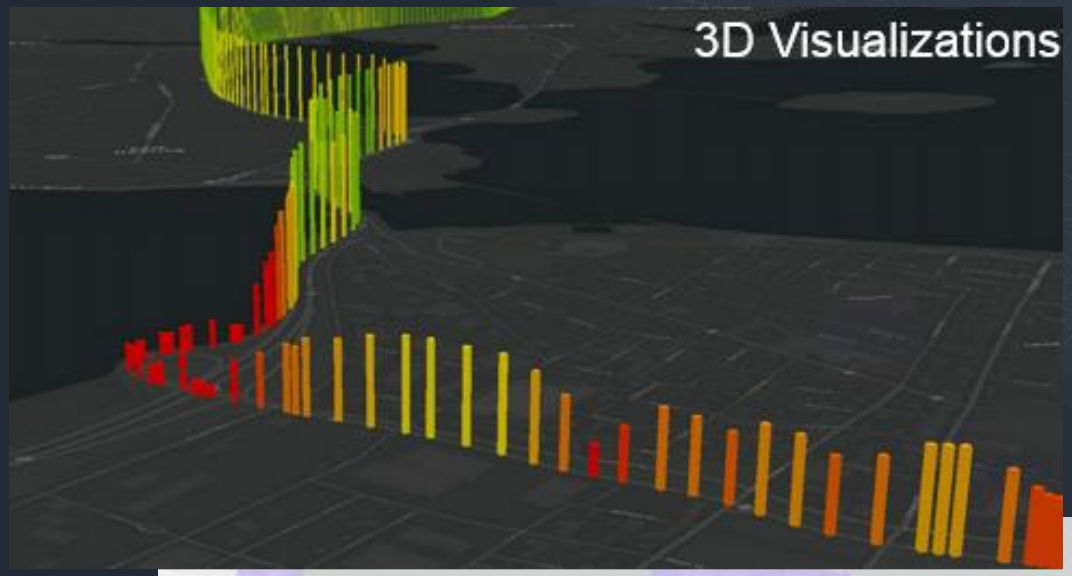
Mobile app

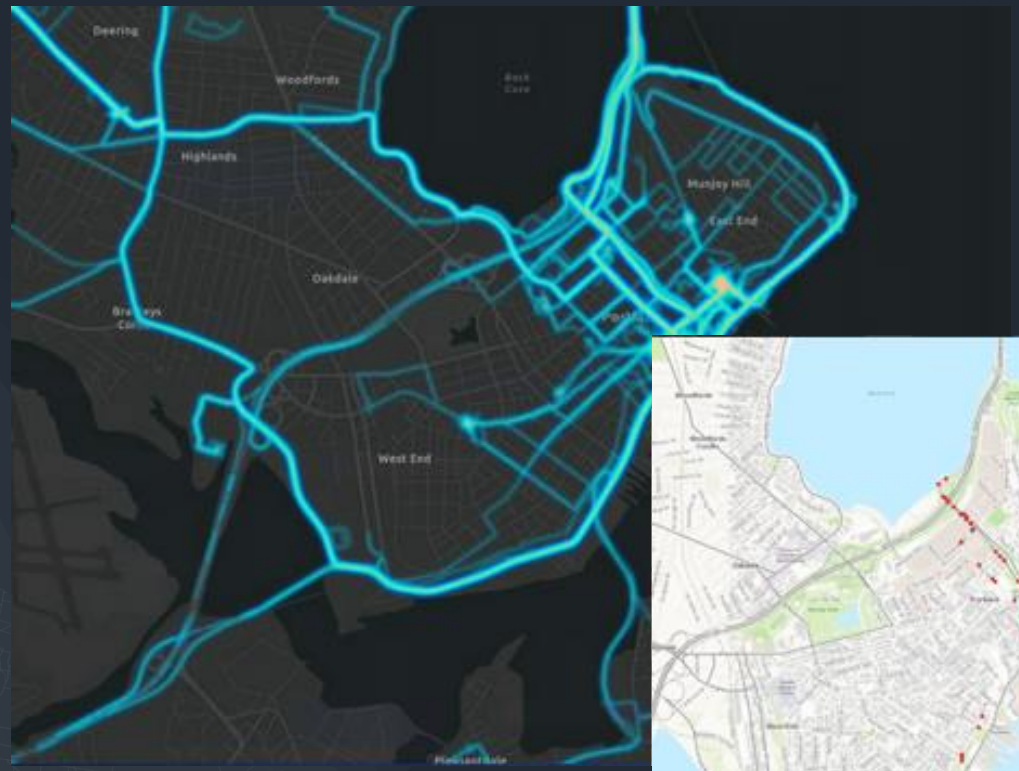
- Mobile user in control
  - Turns on/off tracking
  - Set reminders/schedule to start or stop tracking
- Collect Tracks
  - Tracks are collected using movement with core location and motion APIs
- Tracks are uploaded every
  - 10 mins (60 secs if device is being charged and battery is >20%)
- LKL (Last known location) are uploaded every
  - 60 seconds but configurable to 30 seconds
- Supports offline use
  - Tracks stored locally if connectivity is lost
- Licensing
  - Premium app that works with Viewer+ user type



Tracker for ArcGIS

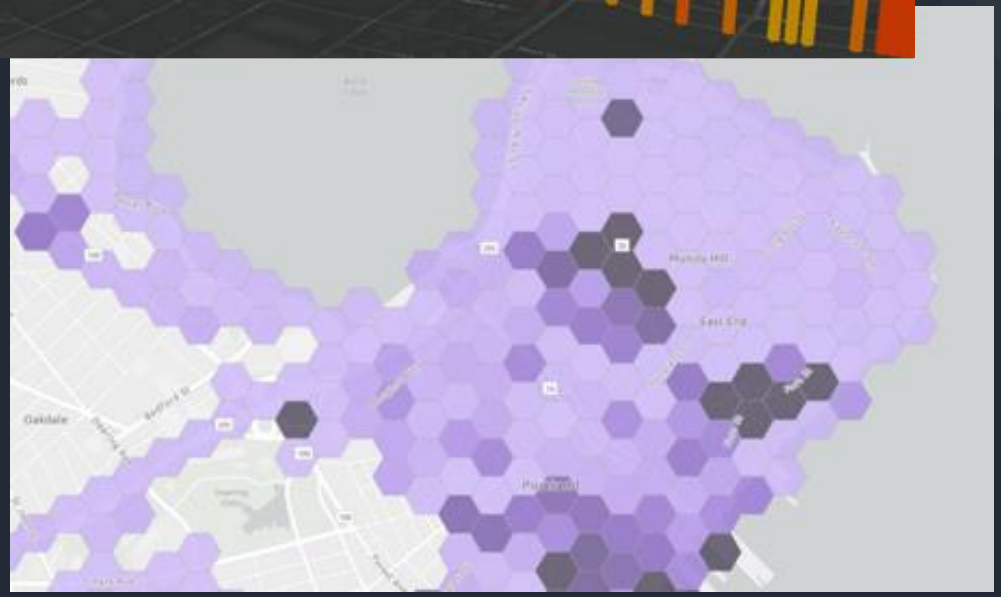
Analyzing Location Tracks





Linear heat maps

Incident Detection

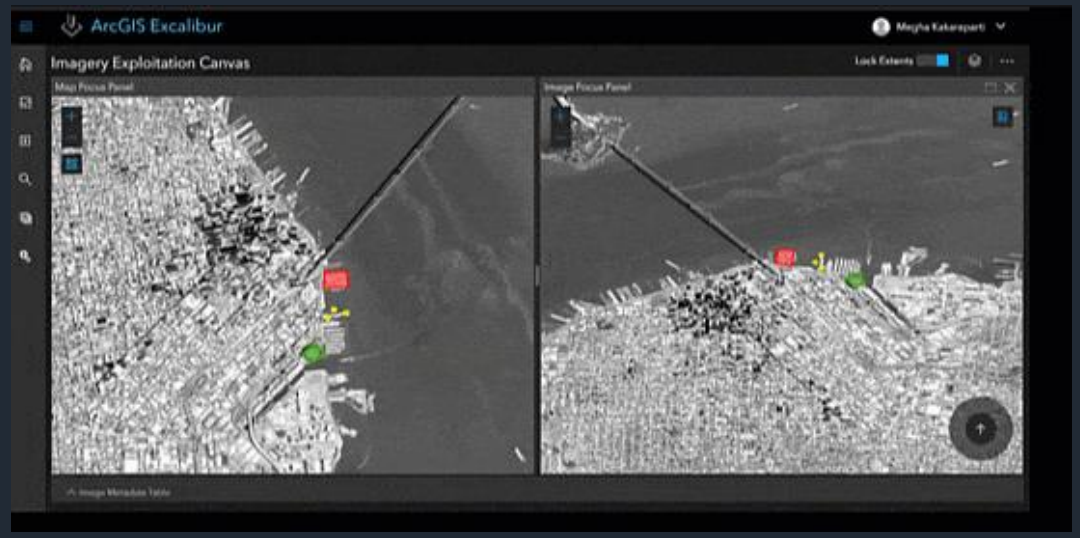


Aggregation

Excalibur

Excalibur

- Perform image interpretation and exploitation including dynamic image manipulation, enhancements and measurements.
- Work with orthorectified and oblique imagery side-by-side, which includes display of your GIS features providing context and increased value when working with your imagery layers.
- Enable feature creation and editing capabilities when working with imagery to facilitate effective image interpretation workflows like collecting and recording observations from imagery.



Product Definition

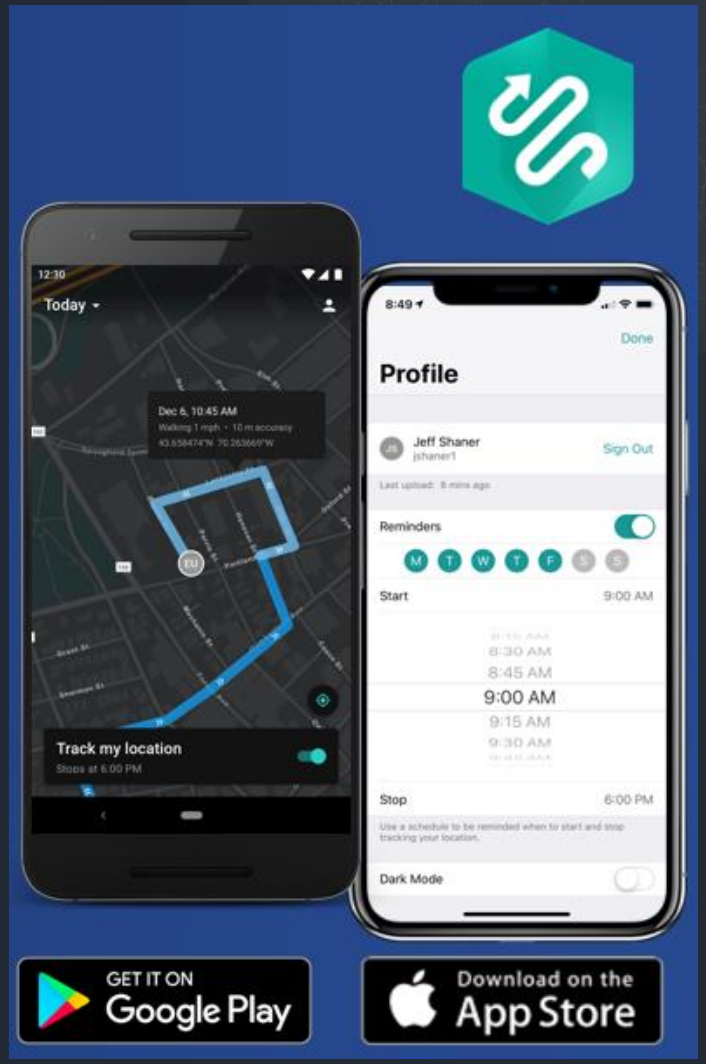
ArcGIS Excalibur

For: Analysts, Imagery Specialists and Imagery/GIS Managers

Who: Need to discover, analyze, report and efficiently disseminate information derived from imagery analysis and workflows.

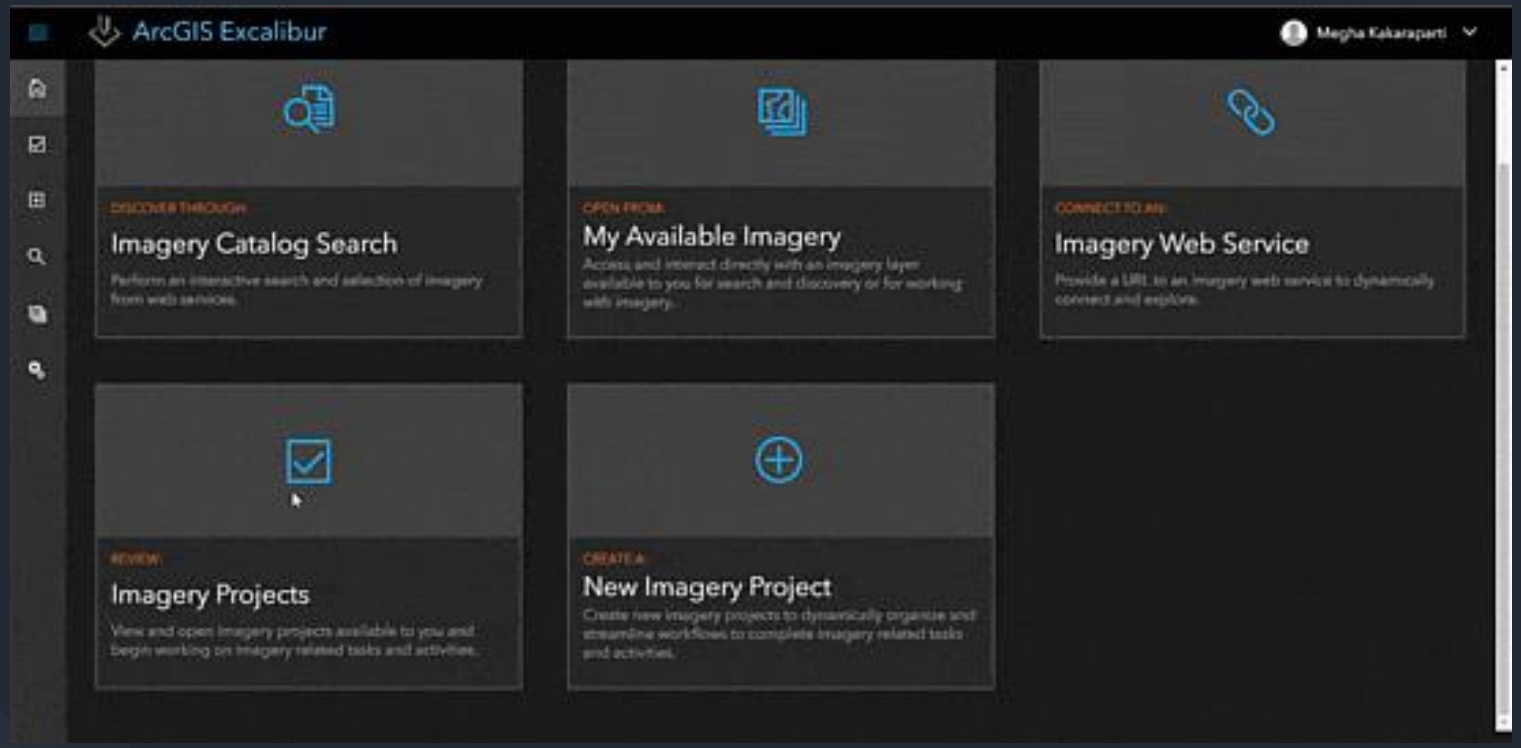
The Solution: is a cloud-based experiences

That provides: a simple, and intuitive design to work with imagery and reference data in a project-based environment. Results are shared in dynamics information products across organizations.



Imagery project

- Organize resources that are required to complete an image-based task in a single location



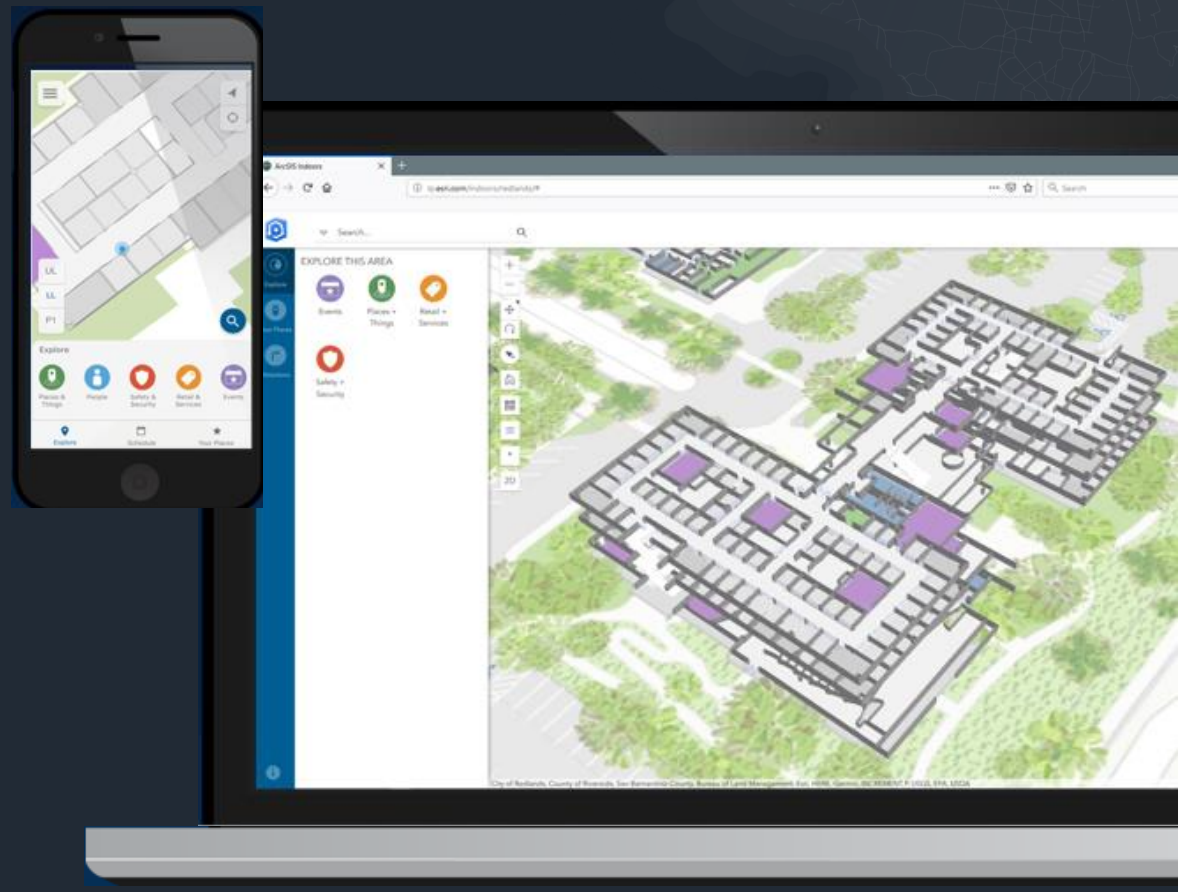
ArcGIS Indoor

DIRECTIONS LIVE Online

ArcGIS Indoors

A System for Workplace Planning and Navigation

- Easily find workplace information
- 2D & 3D Maps and visualizations
- Accurate indoor positioning

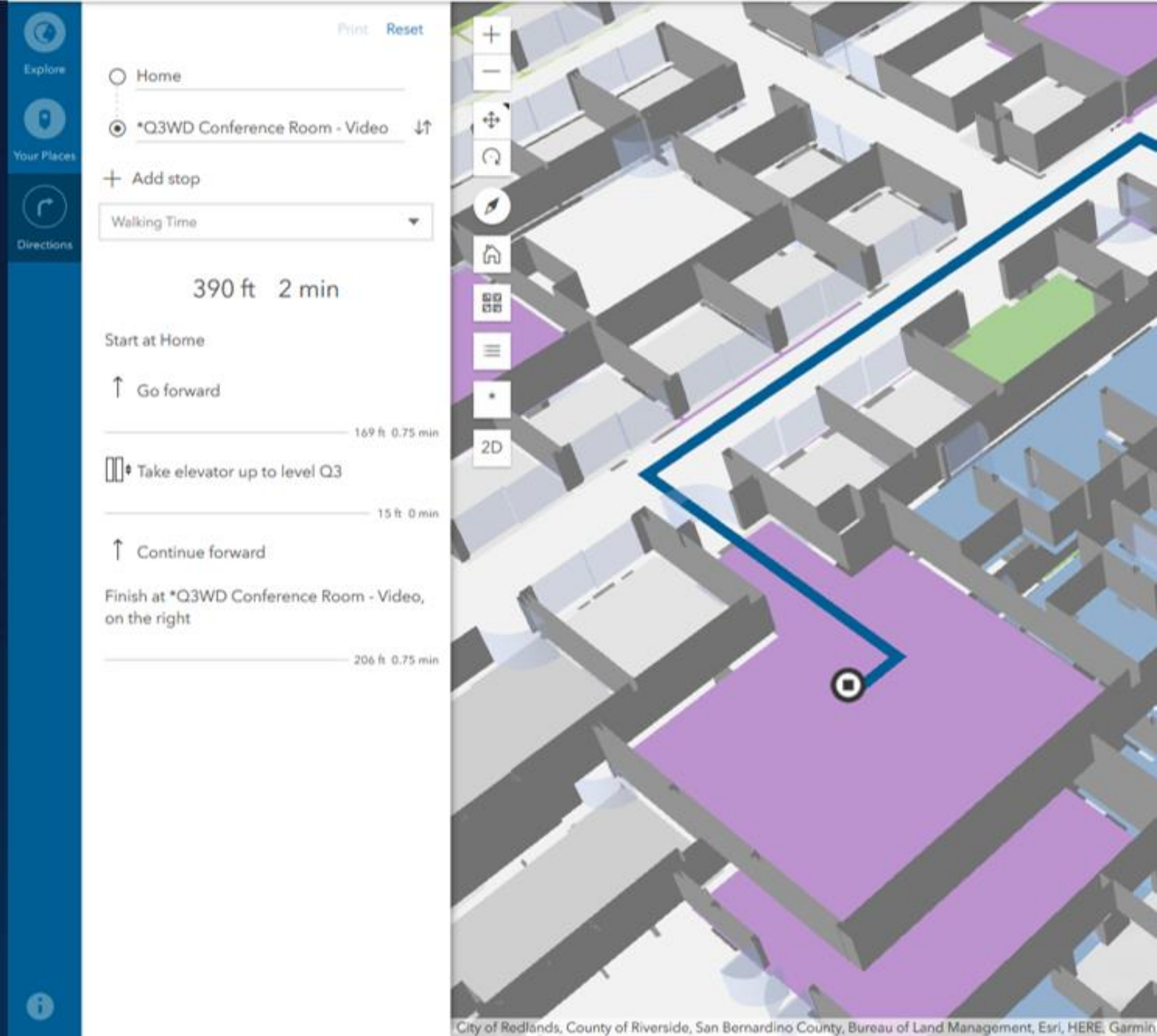


The core capabilities of ArcGIS Indoors are

- Digital 2D/3D indoor maps
- Building intelligence and resource planning
- Incident management
- Problem reporting and maintenance
- Indoor positioning and mobile wayfinding
- Analytical data

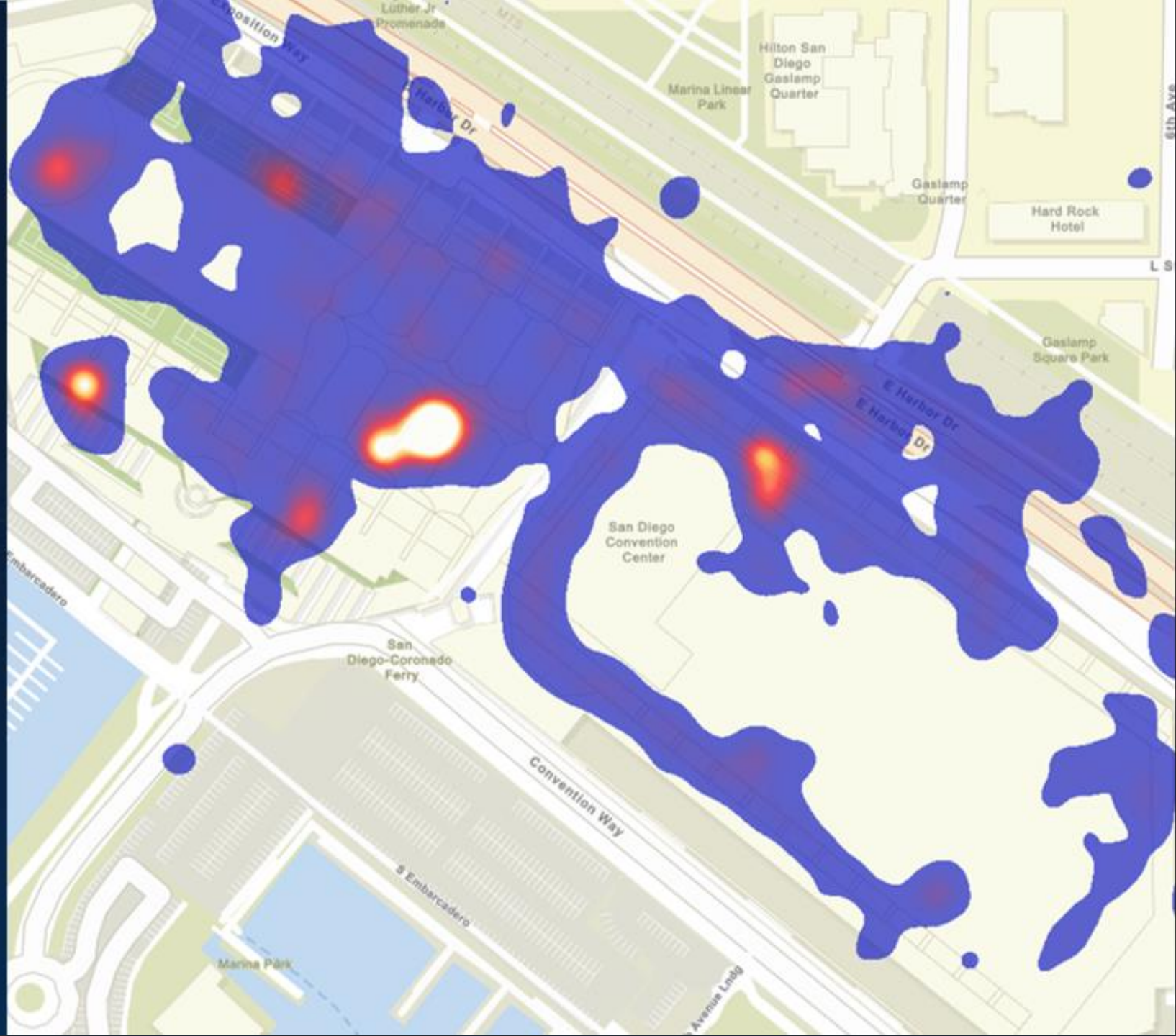
Support Employee Mobility

Quickly find your next meeting, an important colleague, collaboration spaces, or other amenities.



Monitor Security and Continuity

Complete asset visibility and real-time device tracking enable rapid event response.

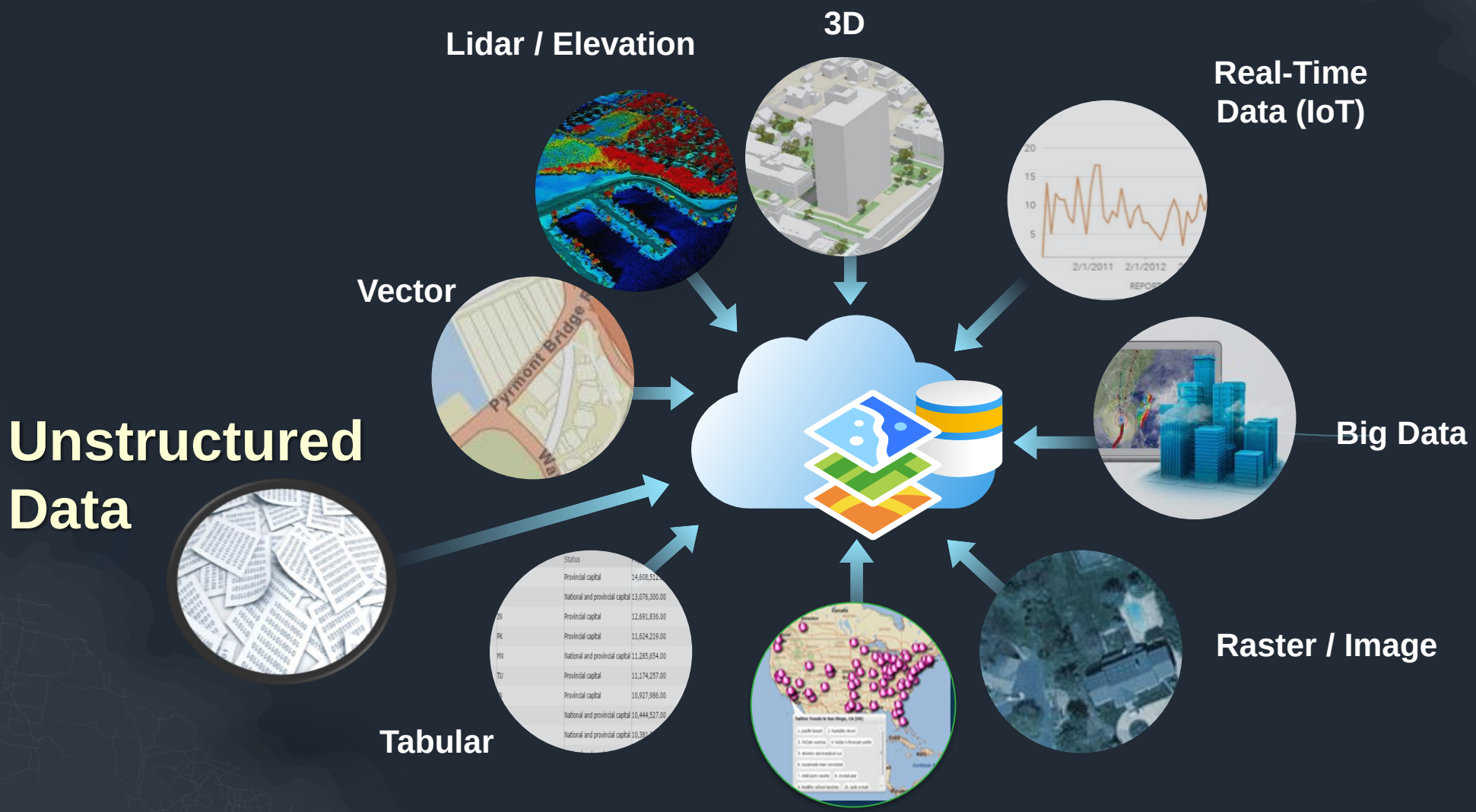


ArcGIS LocateXT Extension

Extending ArcGIS to work with Unstructured Data

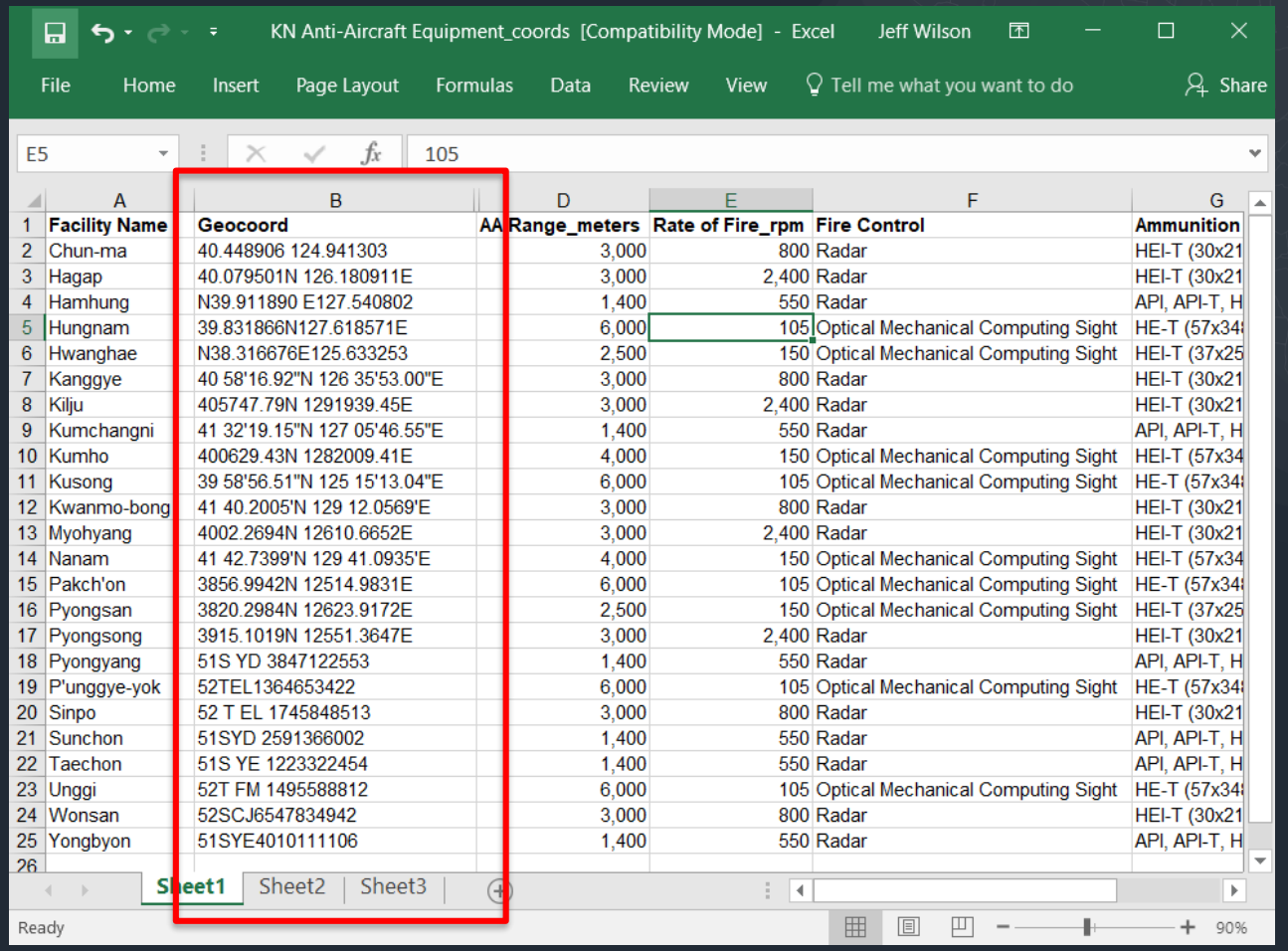
DIRECTIONS LIVE Online

ArcGIS can access & integrate many data types…



Unstructured Data Problem

- Even tabular or semi-structured data is often difficult to work with (Excel, CSV)
  - Varying coordinate formats
  - Several steps to ingest/visualize
- Business problem
  - Excessive manual work (read/copy/paste)
  - Data not captured to enterprise
- Analysts spend 80% of time doing extract-transform-load (ETL) operations and 20% doing actual analysis
- Every past, present, and potential GIS user has this unstructured data problem

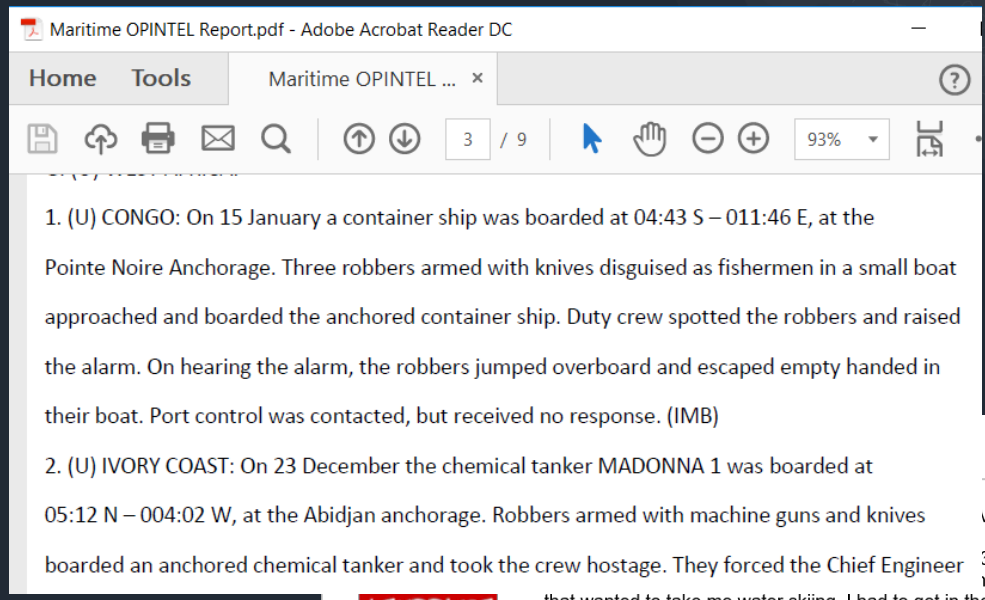


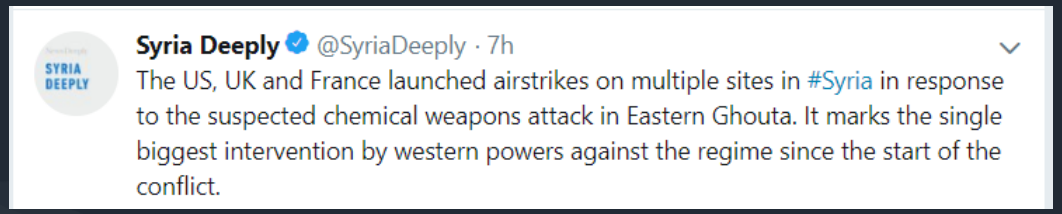
	A	B	AA	D	E	F	G
1	Facility Name	Geocoord		Range_meters	Rate of Fire_rpm	Fire Control	Ammunition
2	Chun-ma	40.448906 124.941303		3,000	800	Radar	HEI-T (30x21
3	Hagap	40.079501N 126.180911E		3,000	2,400	Radar	HEI-T (30x21
4	Hamhung	N39.911890 E127.540802		1,400	550	Radar	API, API-T, H
5	Hungnam	39.831866N127.618571E		6,000	105	Optical Mechanical Computing Sight	HE-T (57x34
6	Hwanghae	N38.316676E125.633253		2,500	150	Optical Mechanical Computing Sight	HEI-T (37x25
7	Kanggye	40 58'16.92"N 126 35'53.00"E		3,000	800	Radar	HEI-T (30x21
8	Kilju	405747.79N 1291939.45E		3,000	2,400	Radar	HEI-T (30x21
9	Kumchangni	41 32'19.15"N 127 05'46.55"E		1,400	550	Radar	API, API-T, H
10	Kumho	400629.43N 1282009.41E		4,000	150	Optical Mechanical Computing Sight	HEI-T (57x34
11	Kusong	39 58'56.51"N 125 15'13.04"E		6,000	105	Optical Mechanical Computing Sight	HE-T (57x34
12	Kwanmo-bong	41 40.2005'N 129 12.0569'E		3,000	800	Radar	HEI-T (30x21
13	Myohyang	4002.2694N 12610.6652E		3,000	2,400	Radar	HEI-T (30x21
14	Nanam	41 42.7399'N 129 41.0935'E		4,000	150	Optical Mechanical Computing Sight	HEI-T (57x34
15	Pakch'on	3856.9942N 12514.9831E		6,000	105	Optical Mechanical Computing Sight	HE-T (57x34
16	Pyongsan	3820.2984N 12623.9172E		2,500	150	Optical Mechanical Computing Sight	HEI-T (37x25
17	Pyongsong	3915.1019N 12551.3647E		3,000	2,400	Radar	HEI-T (30x21
18	Pyongyang	51S YD 3847122553		1,400	550	Radar	API, API-T, H
19	P'unggye-yok	52TEL1364653422		6,000	105	Optical Mechanical Computing Sight	HE-T (57x34
20	Sinpo	52 T EL 1745848513		3,000	800	Radar	HEI-T (30x21
21	Sunchon	51SYD 2591366002		1,400	550	Radar	API, API-T, H
22	Taechon	51S YE 1223322454		1,400	550	Radar	API, API-T, H
23	Unggi	52T FM 1495588812		6,000	105	Optical Mechanical Computing Sight	HE-T (57x34
24	Wonsan	52SCJ6547834942		3,000	800	Radar	HEI-T (30x21
25	Yongbyon	51SYE4010111106		1,400	550	Radar	API, API-T, H
26							

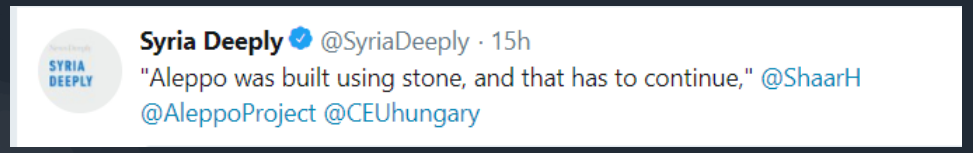
Unstructured Data has unique challenges

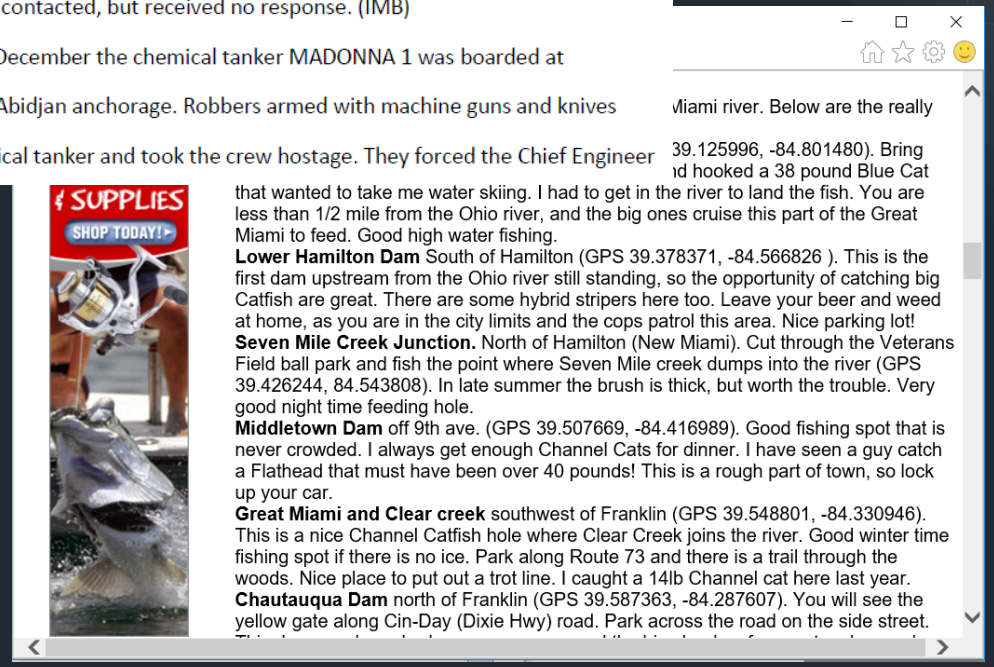
- Not in a traditional spatial format
- Difficult to machine capture and visualize
- Often in narrative or report format
- Locational data can be found in:

Reports	DOC, PDF
Web sites	HTML
Social Media	TXT
Presentation	PPT









ArcGIS Urban

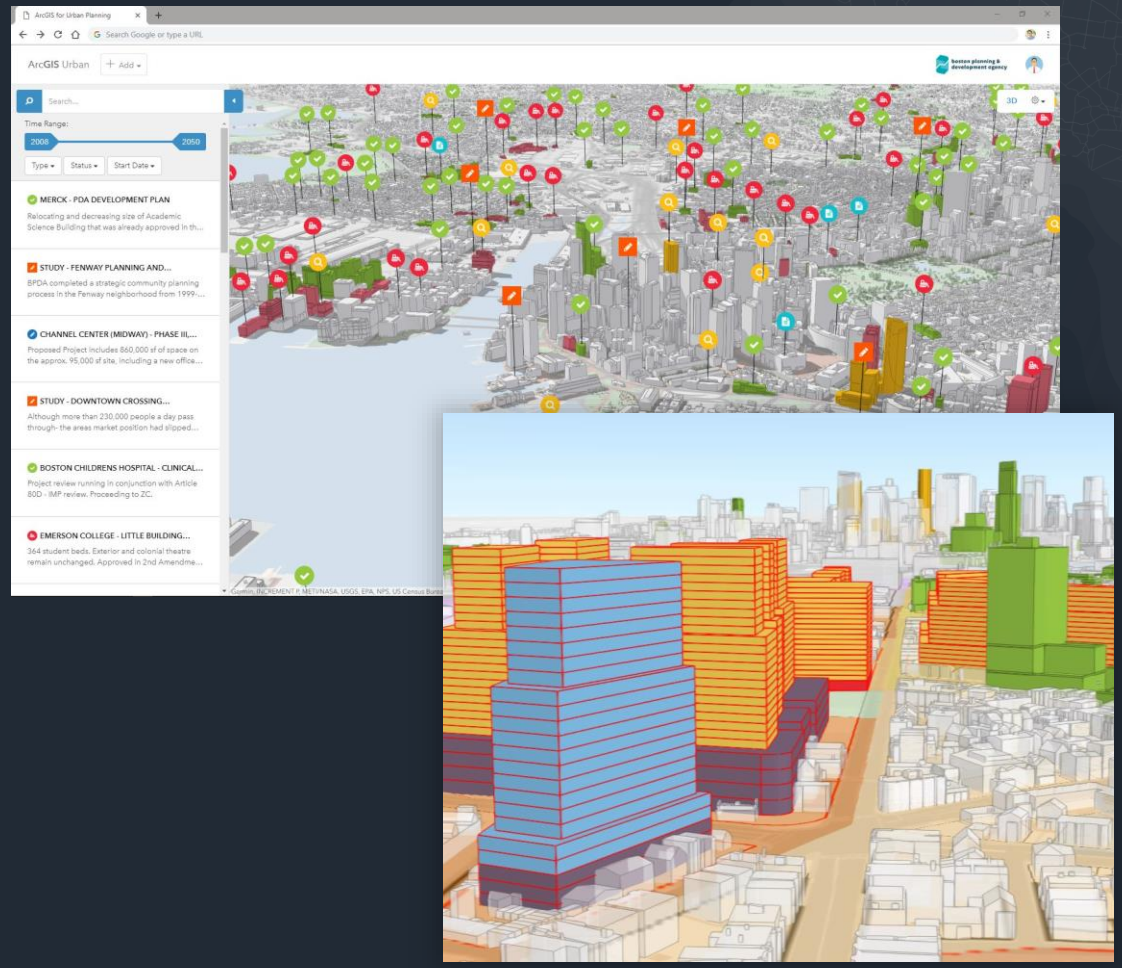
DIRECTIONS LIVE Online

ArcGIS Urban

A Digital Twin as Context

Zoning and Land use Planning

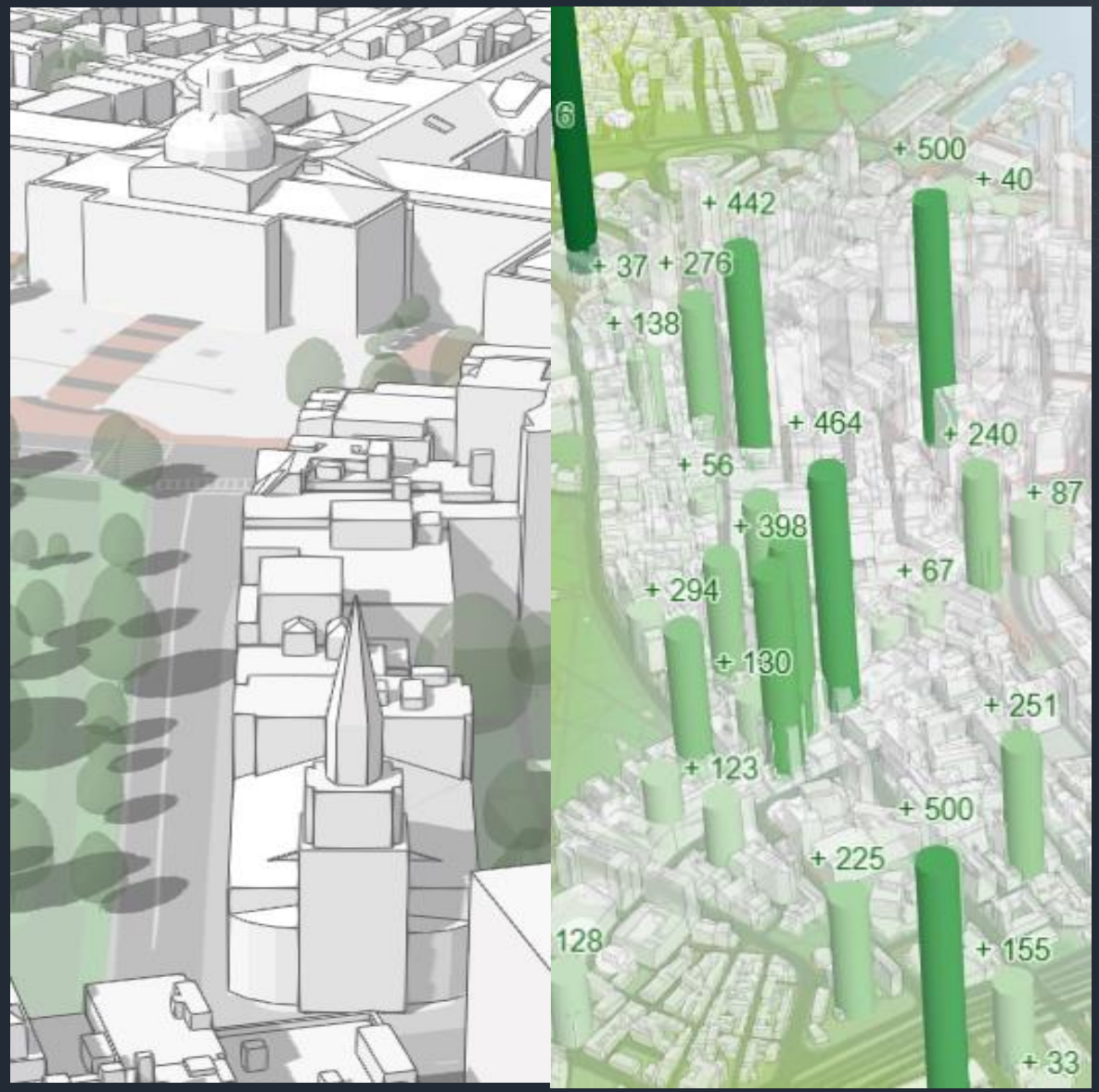
Project Status & Design Review



A Digital Twin as Context for Change

Provides a 3D representation of the city and contextual information to assess performance and drive sound decision making

- **3D Basemap**
- **Interactive viewer**
- **Indicators and Metrics**
- **Smart Search**



Zoning and Land Use Plans

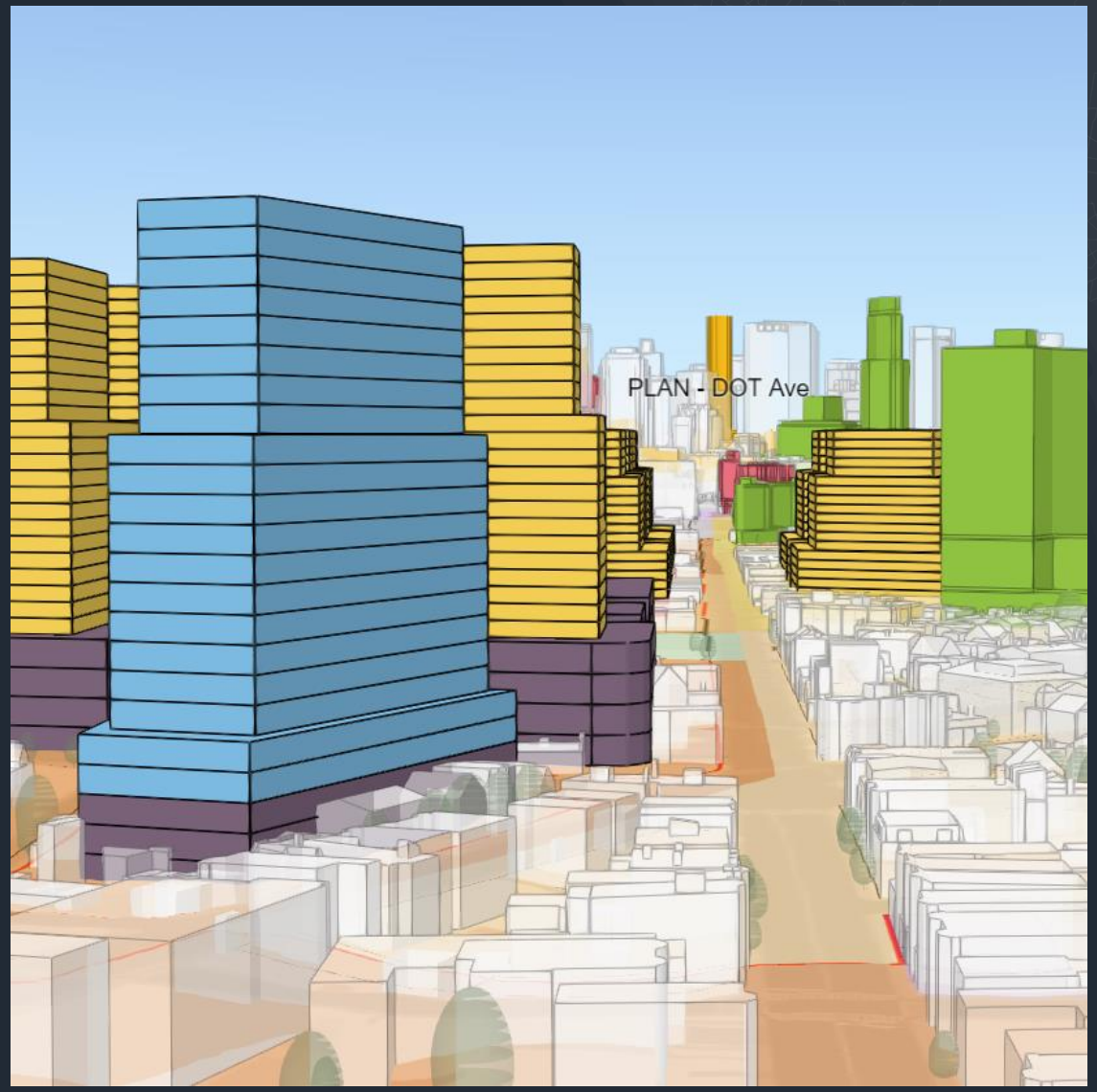
Create visual and analytical representation that allows planners to ‘do the math’ while at the same time ‘show their work’ to stakeholders

Local Code

Visual Representation

Downstream Reporting

Scenario Management



Project Status & Design Review

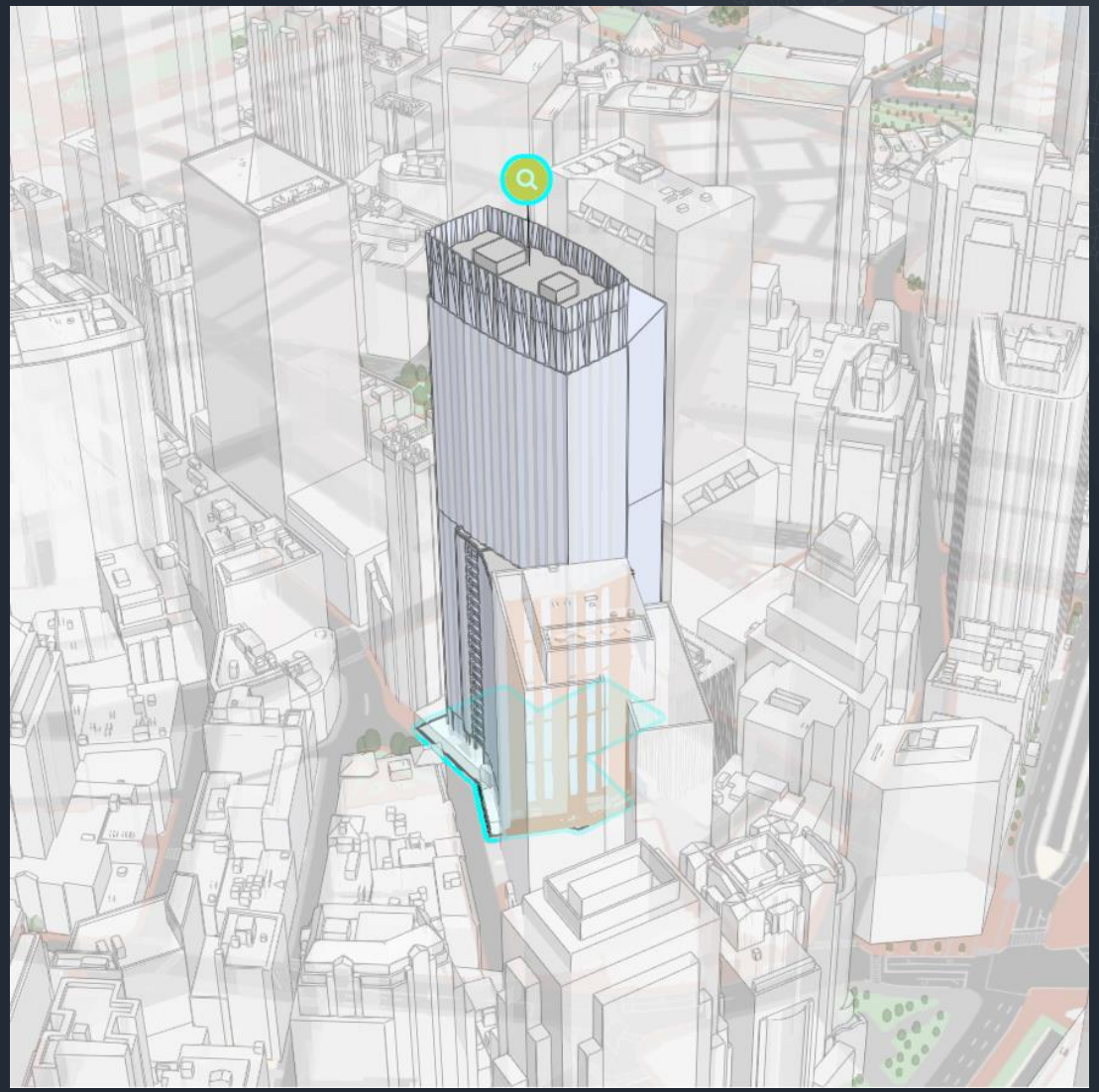
Ensure proposed development conforms to the city policy relating to visibility or shadow impact regulations during design review

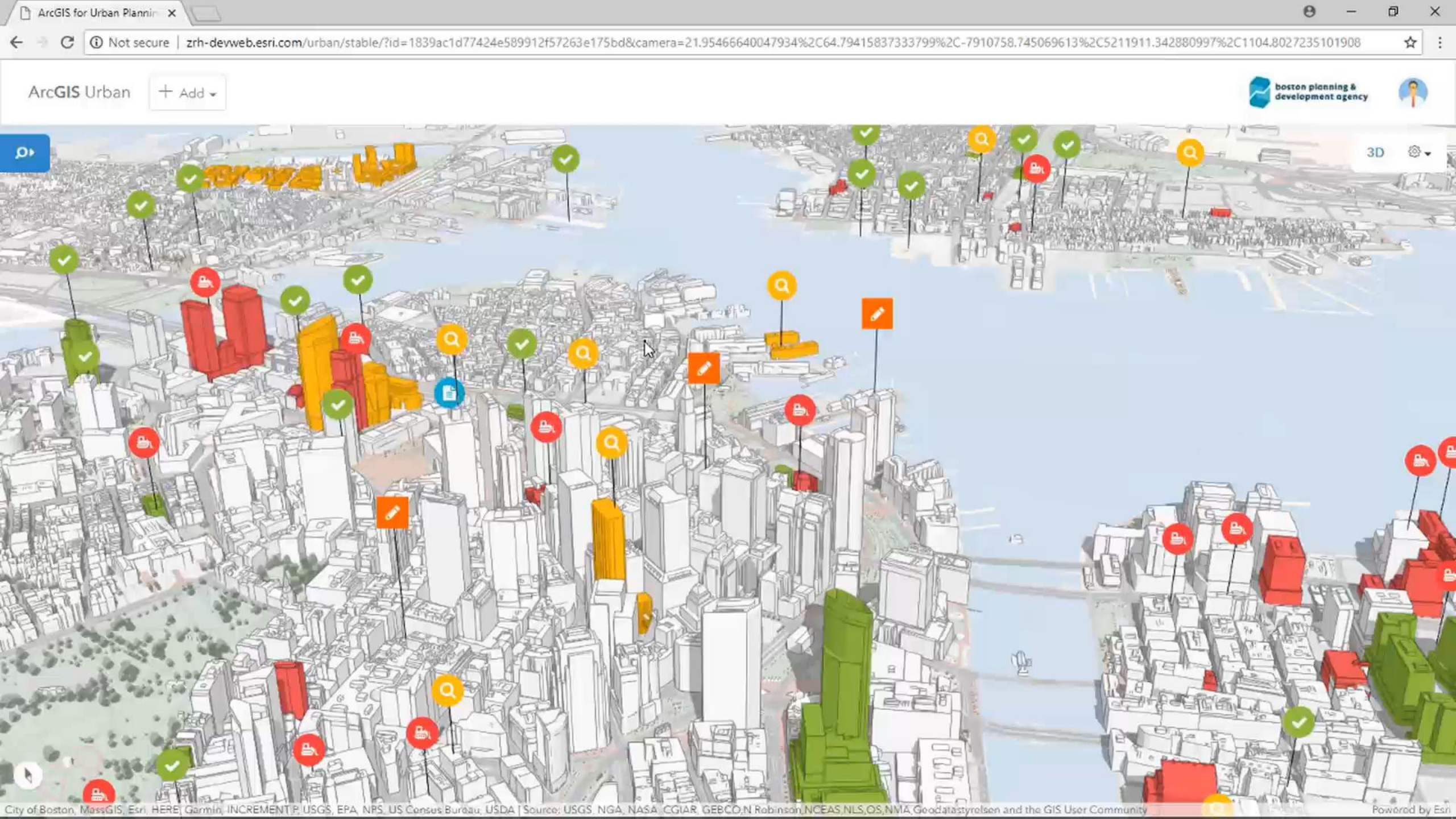
3D Project Model

Project Information

Measure Impact

Streamline Reports




ArcGIS for Urban Planning
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City of Boston, MassGIS, Esri, HERE, Garmin, INCREMENT P, USGS, EPA, NPS, US Census Bureau, USDA | Source: USGS, NGA, NASA, CGIAR, GEBCO, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen and the GIS User Community
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