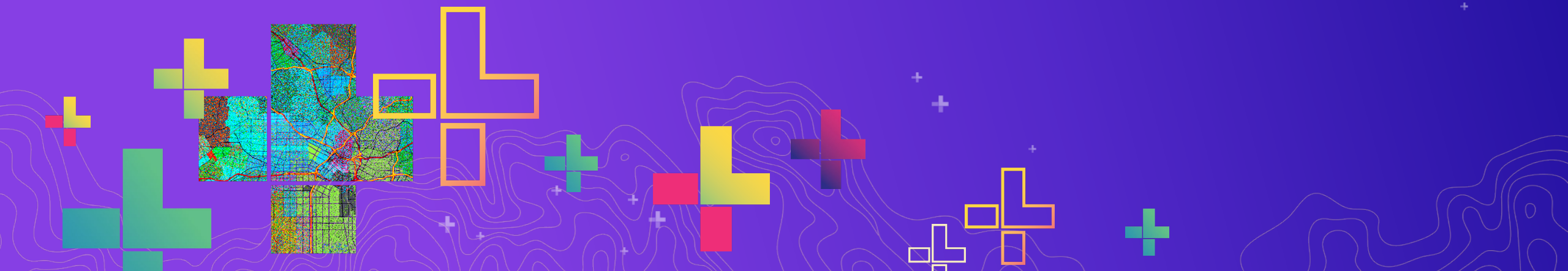




# Distributed Workflows in ArcGIS

Cheryl Cleghorn, Gary MacDougall

2020 ESRI DEVELOPER SUMMIT | Palm Springs, CA



# Session Overview

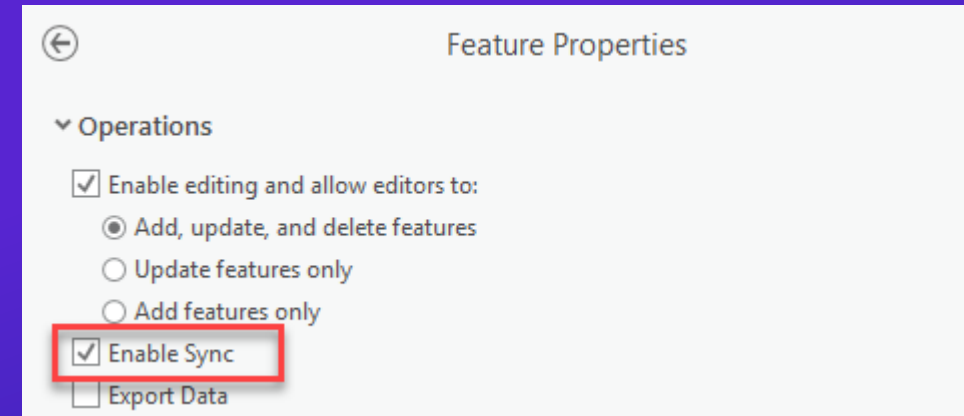
- **Focus on techniques for distributing data and syncing with ArcGIS**
- **Discussions & Demos – focus on recently added features**
  - **Feature Services:**
    - **Distributed Collaboration**
    - **Take a map offline in ArcGIS Pro**
    - **Collector For ArcGIS with map areas**
  - **Geodatabase:**
    - **Replication workflows in ArcGIS Pro**
- **What's coming**



# Feature Service Sync Capability

- Sync capability is required
  - Enable sync when publishing
- or
- Enable sync after publishing
    - For hosted layers (Online and Enterprise) – Items Page
    - For ArcGIS Server feature services – Server Manager

## ArcGIS Pro Publishing

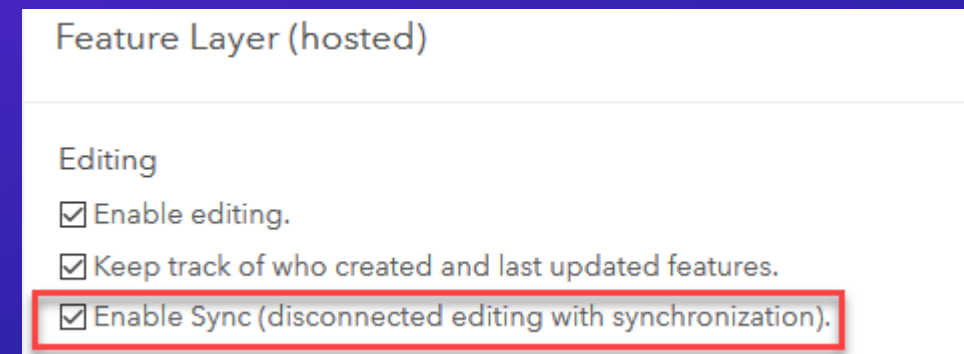


Feature Properties

Operations

- Enable editing and allow editors to:
  - Add, update, and delete features
  - Update features only
  - Add features only
- Enable Sync
- Export Data

## ArcGIS Enterprise Item Page

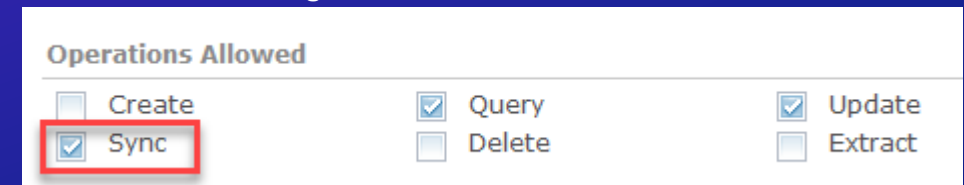


Feature Layer (hosted)

Editing

- Enable editing.
- Keep track of who created and last updated features.
- Enable Sync (disconnected editing with synchronization).

## ArcGIS Server Manager

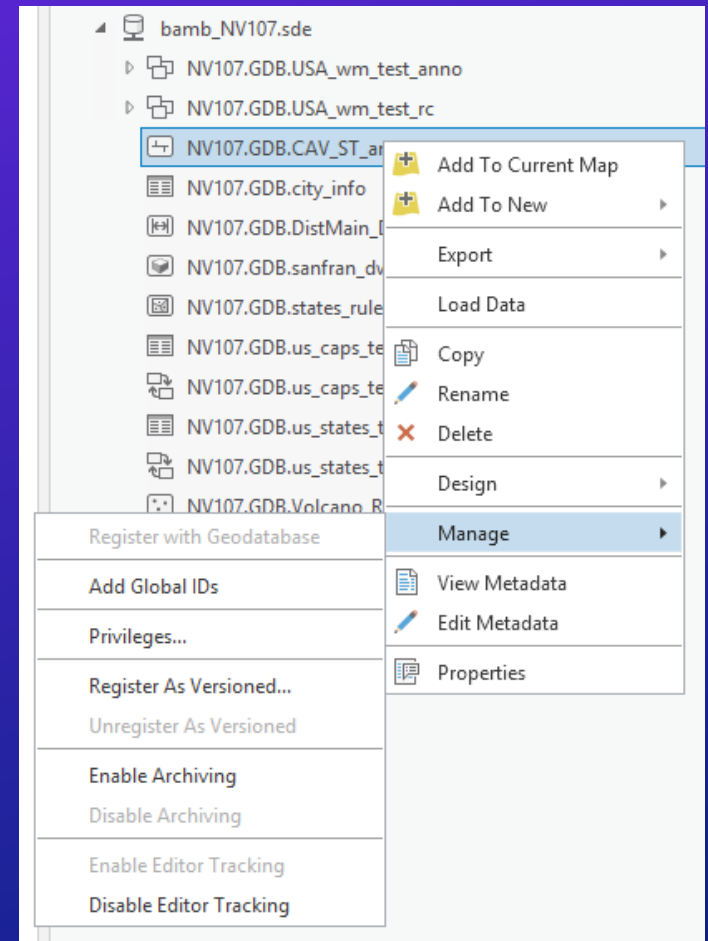


Operations Allowed

<input type="checkbox"/> Create	<input checked="" type="checkbox"/> Query	<input checked="" type="checkbox"/> Update
<input checked="" type="checkbox"/> Sync	<input type="checkbox"/> Delete	<input type="checkbox"/> Extract

# Data Requirements for Sync Capability

- **Hosted feature layers in Online and Enterprise**
  - Data is automatically configured when enabling sync
- **ArcGIS Server feature services**
  - **Enterprise geodatabase data requires....**
    - A GlobalID column
    - A data registration type of either
      - Versioned
      - Non-versioned with archiving or
      - Branch Versioned
    - Relationship classes must not have the ObjectID as the primary key



# Service Configurations with Sync

- **Download only sync**
  - Query and Sync capabilities only
- **Subset of editing capabilities**
  - For example: Query, Update and Sync allow only updates
- **Limit which attributes can be edited**
  - `allowGeometryUpdates = false`, field editable properties
- **Other settings also supported while offline**
  - Editor tracking, ownership based access control, relationship classes, time settings...

## Operations Allowed

- |  |   |                                  |
|--|---|----------------------------------|
| <input type="checkbox"/> Create          | <input checked="" type="checkbox"/> Query | <input type="checkbox"/> Update  |
| <input checked="" type="checkbox"/> Sync | <input type="checkbox"/> Delete           | <input type="checkbox"/> Extract |

## Operations Allowed

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Create          | <input checked="" type="checkbox"/> Query | <input checked="" type="checkbox"/> Update |
| <input checked="" type="checkbox"/> Sync | <input type="checkbox"/> Delete           | <input type="checkbox"/> Extract           |

## Feature Layer (hosted)

### Editing

- Enable editing.
- Keep track of who created and last updated features.
- Enable Sync (disconnected editing with synchronization).

### • Who can edit features?

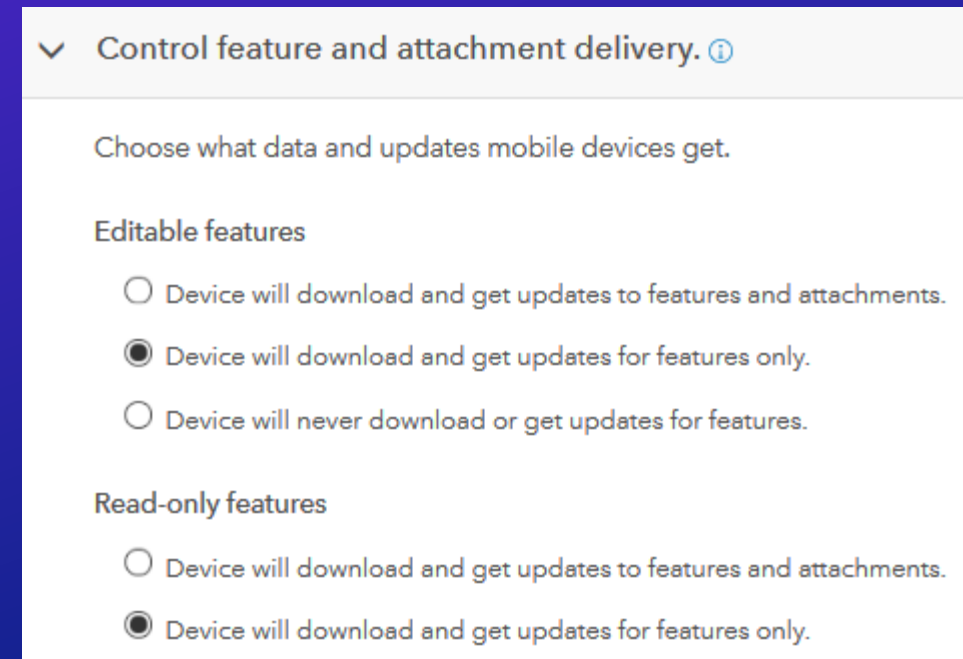
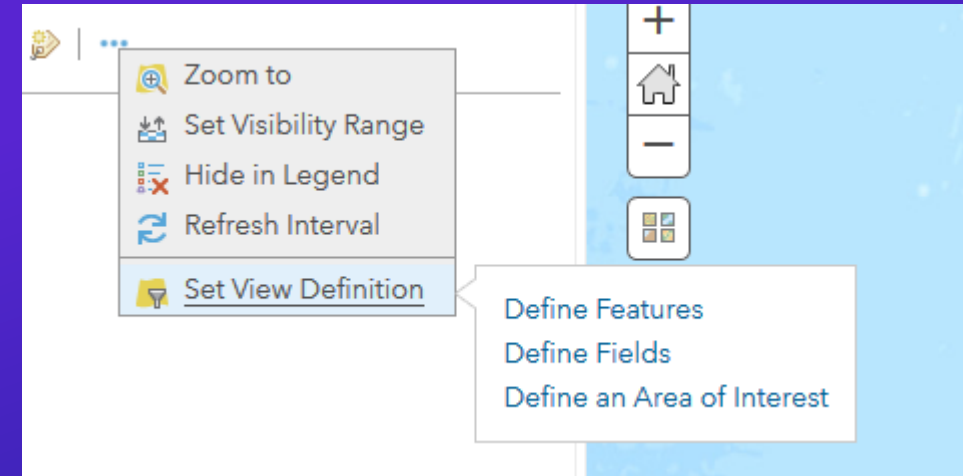
Share the layer to specific groups of people, the organization or shared.

### • What kind of editing is allowed?

- Add, update, and delete features
- Add and update features
- Add features
- Update features
- Update attributes only

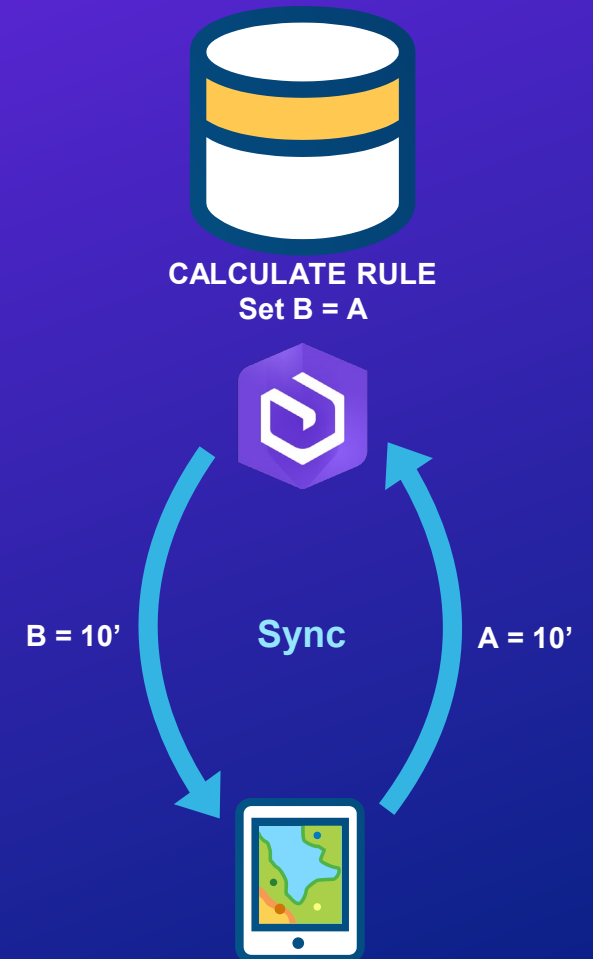
# View Properties and Web Map Settings with Sync

- **Hosted feature layer view properties automatically applied**
  - Feature attribute filters
  - Field Visibility
  - Area of Interest (10.7)
- **Web Map settings - Used by Collector for ArcGIS**
  - Sync download attachment and feature options
  - Map Areas



# Geodatabase Enhancements and Sync

- **Sync with branch versioned data (10.7)**
  - Default version only
- **Simple features model**
  - Excludes: Utility Networks, Contingent Values, Attribute Rules, Annotation and Dimension layers
- **Attribute rules and sync**
  - Calculate and constraint rules applied as edits are synced
  - Feature status updated for validation and batch calculate rules
- **Work planned / in progress**
  - Support advanced items listed above with offline data
  - Sync with named branch versions





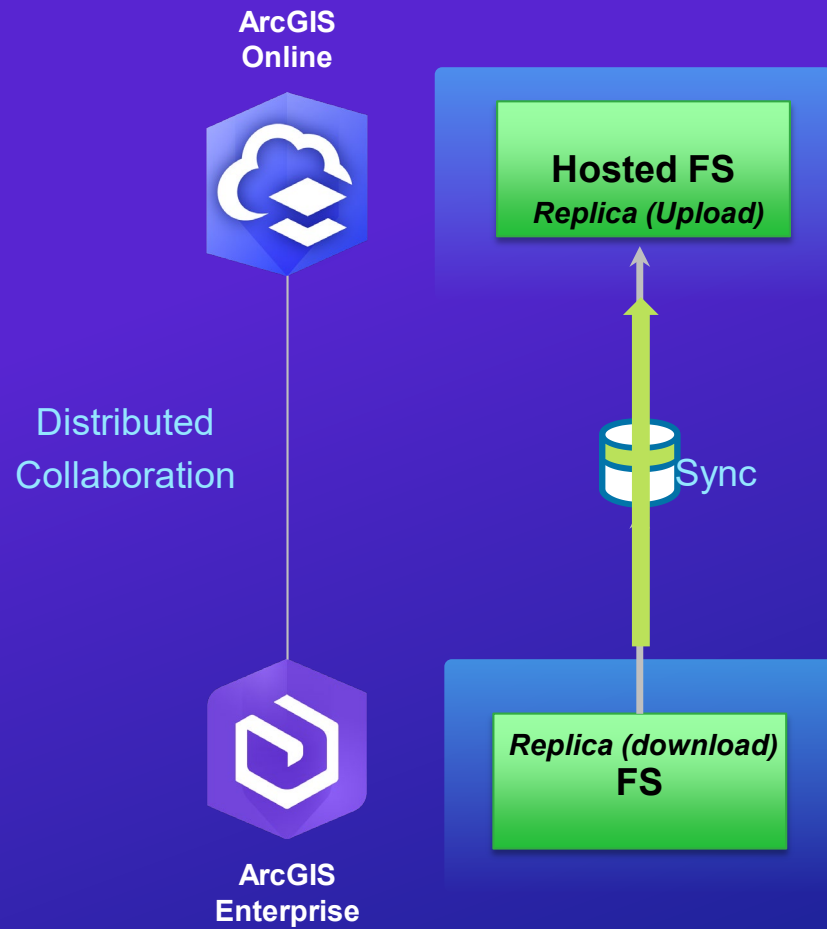
# DEMO Overview (Feature Services)







# Distributed Collaboration with Feature Layers and Sync



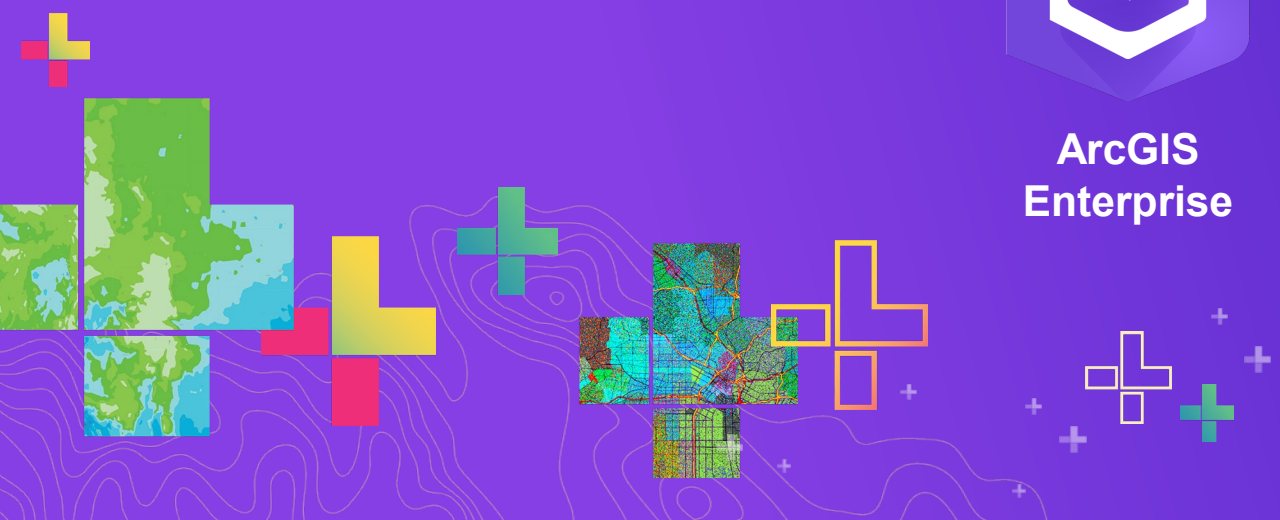
ArcGIS  
Online



ArcGIS  
Enterprise

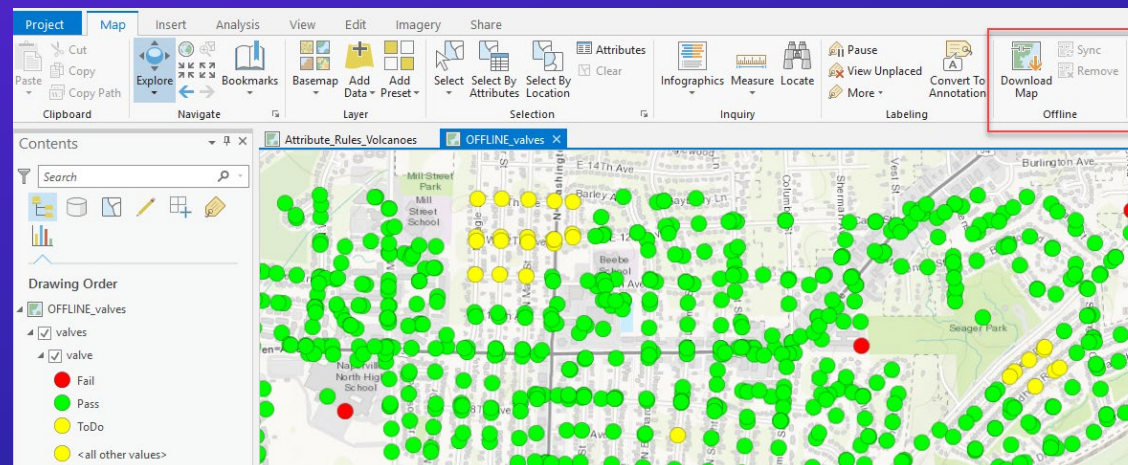
# Demo 1

Distributed Collaboration



# Download Maps with ArcGIS Pro

- Commands to take feature layers offline ArcGIS Pro (added in 2.1)
- Once offline you can disconnect, make edits and then sync when back online
- Support multiple bidirectional syncs (not just check-out / check in like ArcMap)
- Uses feature services sync capability (same as collaboration and collector)
- Data is stored in a mobile geodatabase when offline
- Click remove to switch back to online mode





ArcGIS  
Pro



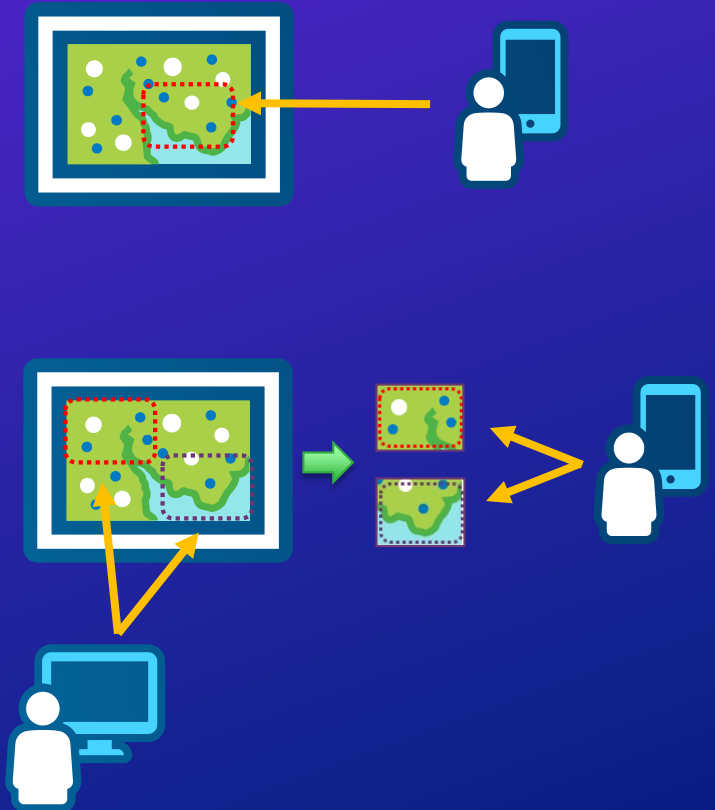
ArcGIS  
Enterprise

## DEMO 2

Take a map offline in ArcGIS Pro

# Collector for ArcGIS

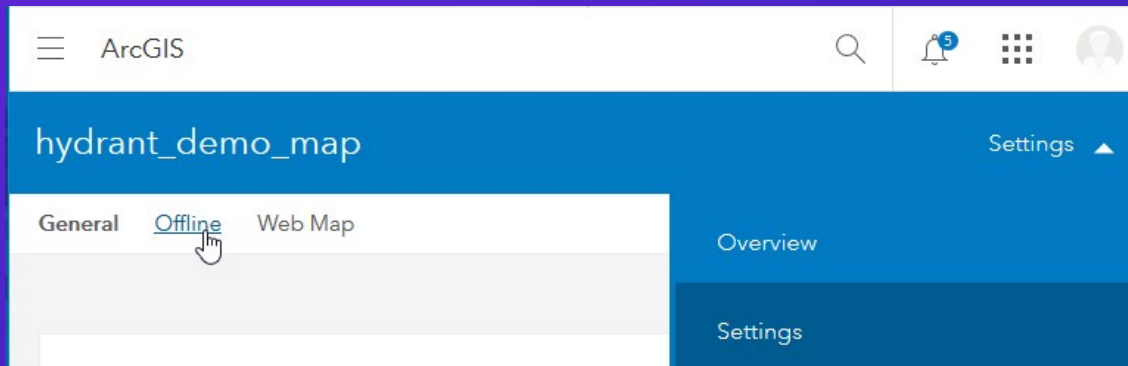
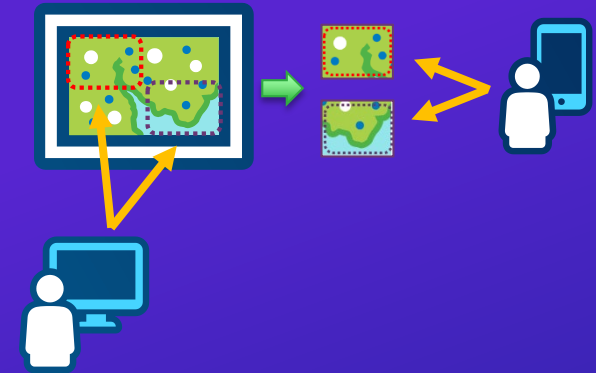
- **New editing user experience**
- **Ability to sync from an open map and schedule sync**
- **On-demand workflow**
  - Map author enables and configures maps for offline use
  - Field worker defines the area
    - Level of detail (raster tiles only)
  - Server processes data for each download
- **Pre-planned workflow**
  - Map author defines the map areas for offline use
  - Field worker selects the area to work offline
  - Server processes data once





# Map Areas in Online and Enterprise

- Performed by the map author
- In Online and Enterprise, web map settings
  - Offline > Map Areas > Manage Areas
  - Define spatial extents & level of detail for offline maps
  - Schedule updates

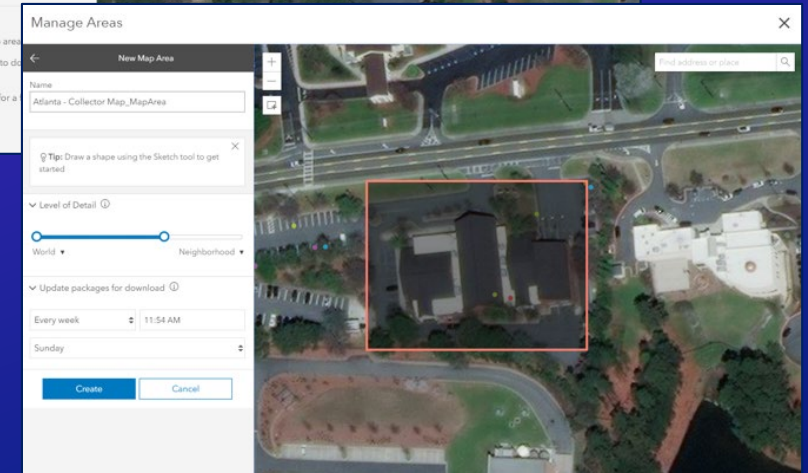
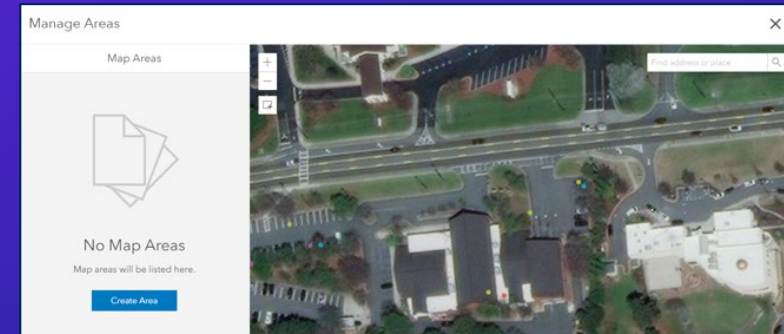


**Map Areas**

While not required, it is recommended that you create map areas ahead of time to package data for specific areas you expect to be used offline. Using map areas makes taking maps offline easier and faster.

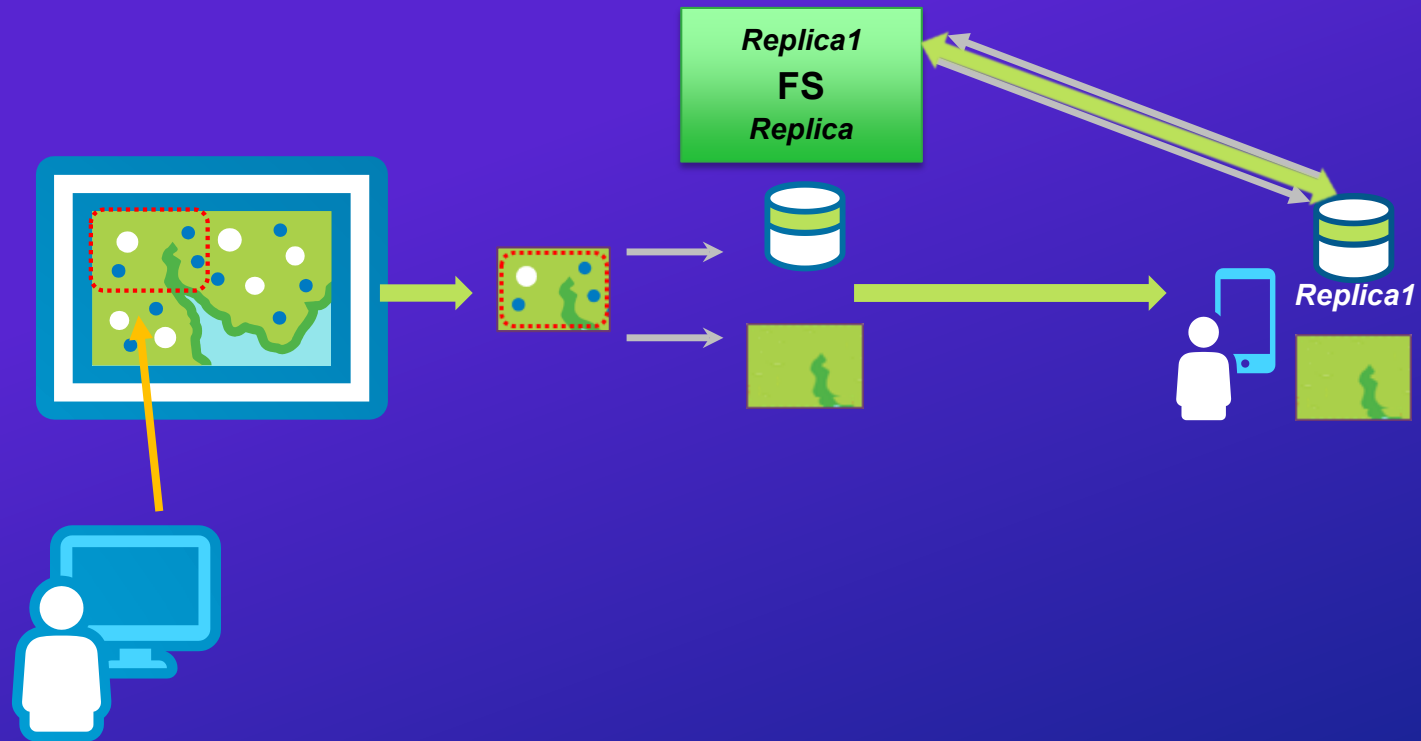
Available map areas: 1

[Manage Areas](#)



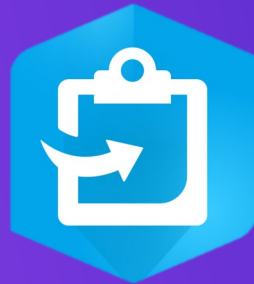


# Map Areas with Feature Layers





ArcGIS  
Enterprise



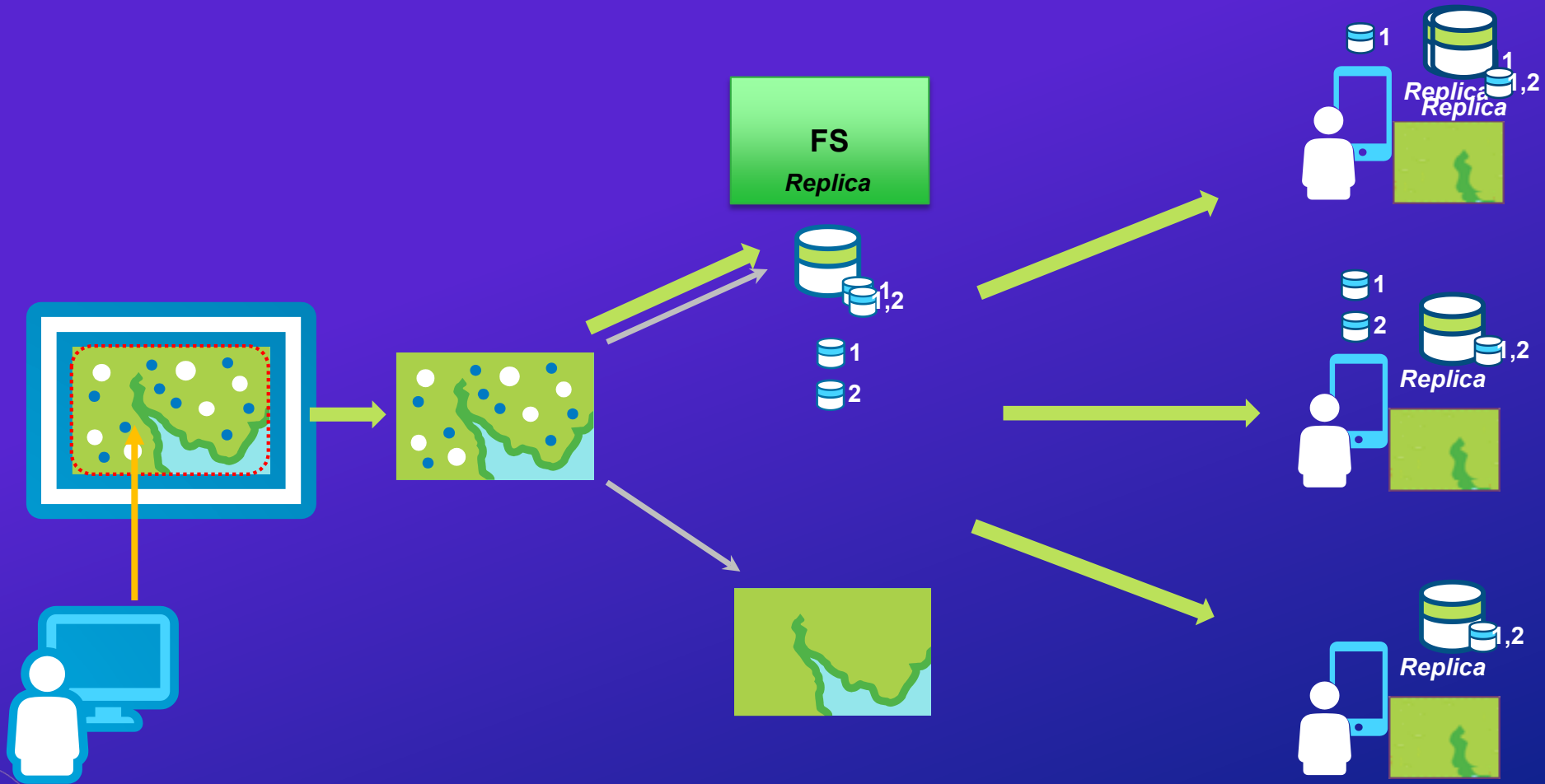
Collector  
for ArcGIS

## DEMO 3

Collector For ArcGIS with map  
areas



# Pre-planned Workflows with Scheduled Updates



# DEMO Recap (Feature Services)



## Geodatabase Replication in ArcGIS Pro (added at 2.5)

- **First release of ArcGIS Pro with geodatabase replication**
  - **Sharing and syncing data between two geodatabases**
- **Allows ArcMap replication users to start to move to ArcGIS Pro**
- **Not all of ArcMap replication has been added to ArcGIS Pro 2.5**
  - **2 main geoprocessing tools**
- **No enhancement to geodatabase replication in ArcGIS Pro**
  - **Still requires traditional versioning for 1 way and 2 way replicas**



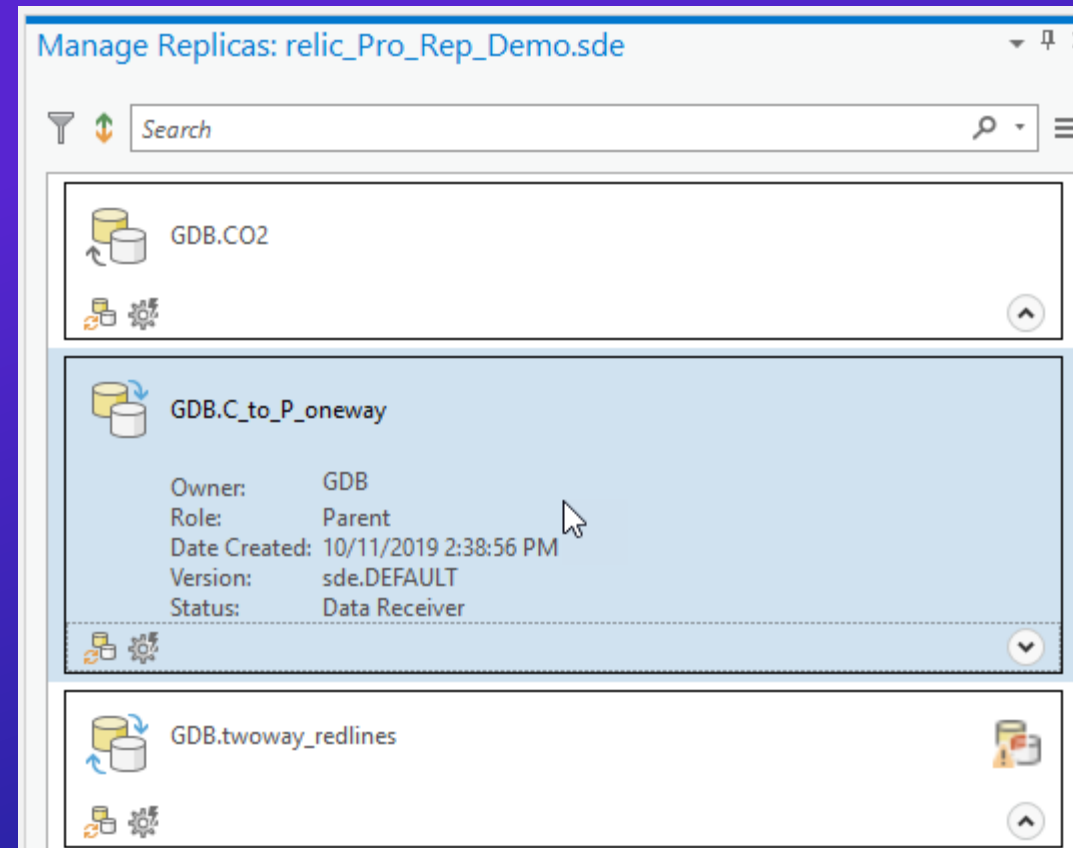
# Geodatabase Replication Tools and Replica Manager

- **Features in ArcGIS Pro**
  - **Create Replica geoprocessing tool**
  - **Synchronize Changes geoprocessing tool**
  - **New Replica Manager**
- **Cannot create replicas from geodata services but can sync**
- **No support for geometric network or cadastral fabric data**

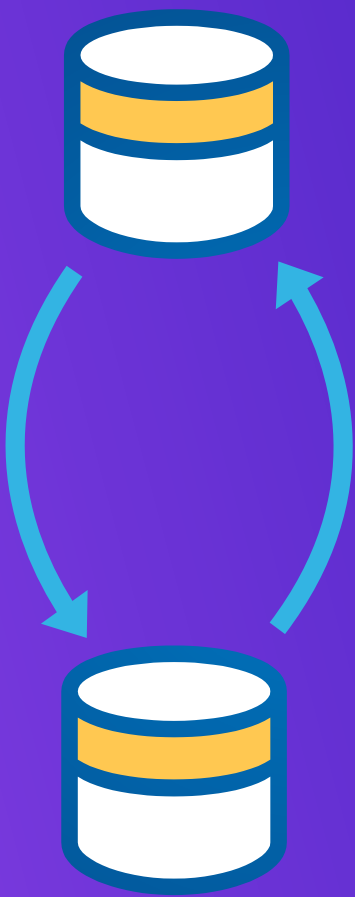


# New Replica Manager

- New card based user experience in a replica manager pane
- All the same features as the replica manager in ArcMap







# Demo 4

Geodatabase Replication in Pro

# What's Coming:

- **Feature Services**
  - Sync with Named Branch
  - Taking the full model Utility Network offline
  - Two-way Collaboration
- **Geodatabase Replication**
  - Additional Replica Manager ribbon access point



# Recommended Links



- **Feature Service Blog Articles**

- <https://www.esri.com/arcgis-blog/?s=#&author=sarahmegan200>



- **Feature Service REST API**

- <https://developers.arcgis.com/rest/services-reference/feature-service.htm>



- **Offline maps and versioned data**

- <http://enterprise.arcgis.com/en/server/latest/publish-services/windows/offline-maps-and-versioned-data.htm>



- **What's new in Collector for ArcGIS (January 2020)**

- <https://www.esri.com/arcgis-blog/products/collector/field-mobility/whats-new-in-collector-for-arcgis-january-2020/>



- **Geodatabase Replication Fundamentals**

- <https://pro.arcgis.com/en/pro-app/help/data/geodatabases/overview/geodatabase-replication-fundamentals.htm>

# Session Review

- **Feature Services Distributed Workflows**
  - **Distributed Collaboration**
  - **Take a map offline in ArcGIS Pro**
  - **Collector For ArcGIS with map areas**
- **Geodatabase Replication in ArcGIS Pro**
- **What's coming**



**Thank You!**

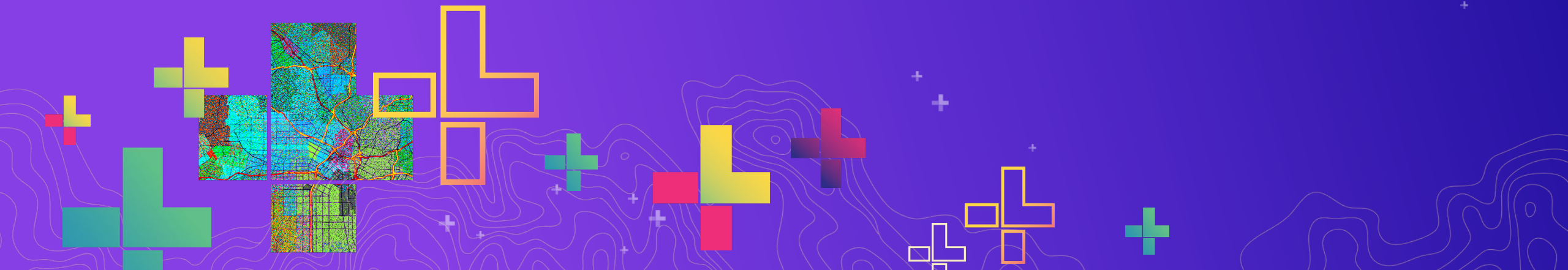




# Presentation Title

Presenter Names

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# Section Header

Section Subhead





# Demo Title

Presenter(s)

