

# Working with Feature Layers

Russell Brennan

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# Working with Feature Layers

- Session will focus on feature access and editing
- Highlight new features added over the last few releases

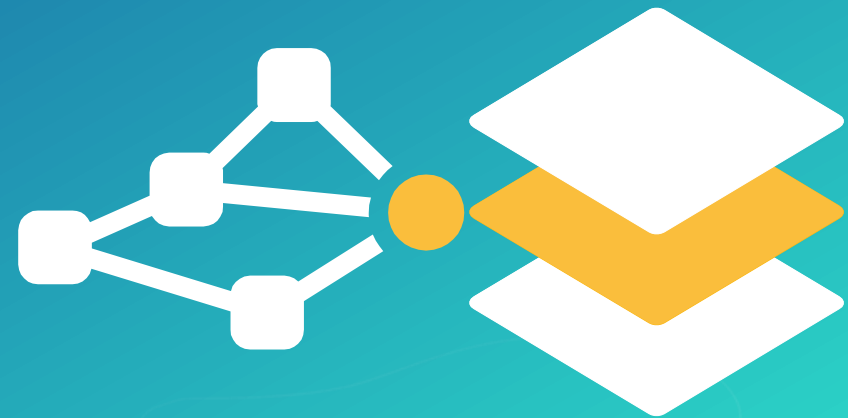
# Agenda

- **Introduction**
- **Workflow demos**
  - Publishing with Pro
  - Feature services in the Map Viewer
  - Pro as a feature service client
  - Taking data offline with Collector
  - Arcade and Views
- **Advanced topics**
  - ArcGIS Python API
  - Distributed Collaboration
  - Admin API
  - ArcGIS Data Store
- **What's new**
- **Q&A**



# Feature Service

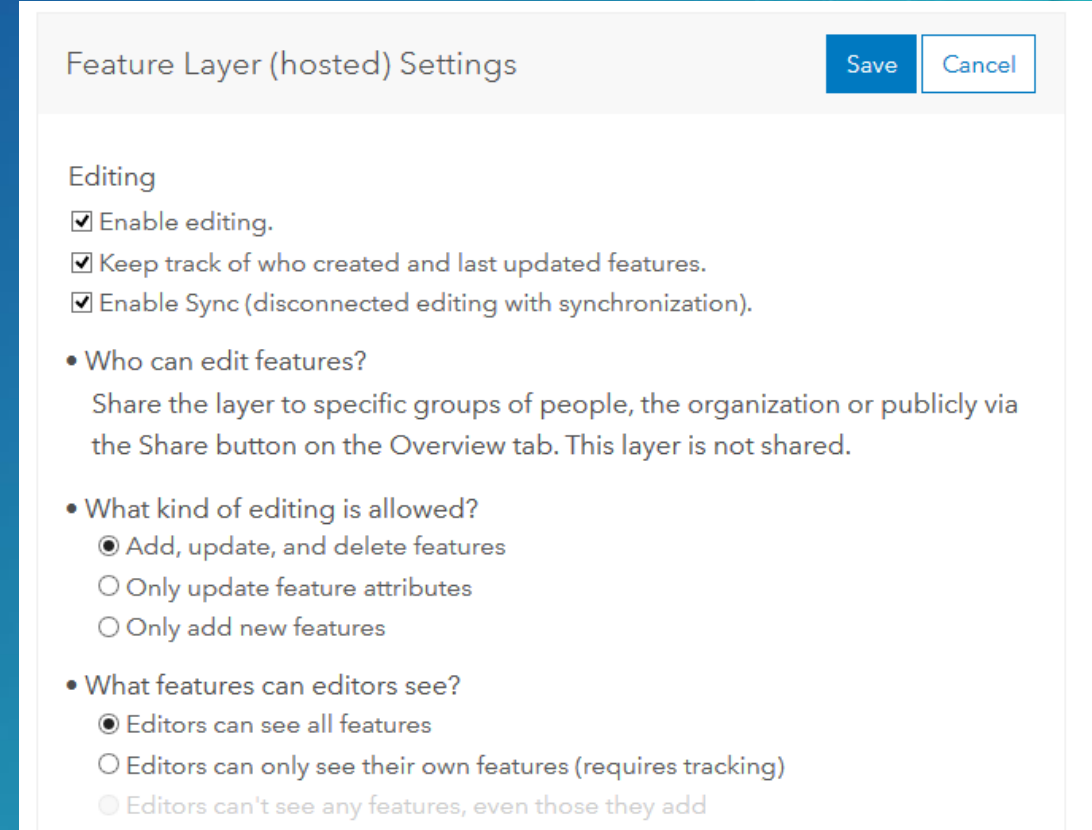
- Exposed on Enterprise and Online through Feature Layers
- Supports accessing and editing data over the web
- Provides online and offline (10.2.1) access
- Layers Contain
  - Drawing info (renderers, symbols, etc)
  - Field info (type, nullable, editable)
  - Feature templates for editing (defaults, domains)
  - Operations for query and editing
- RESTful





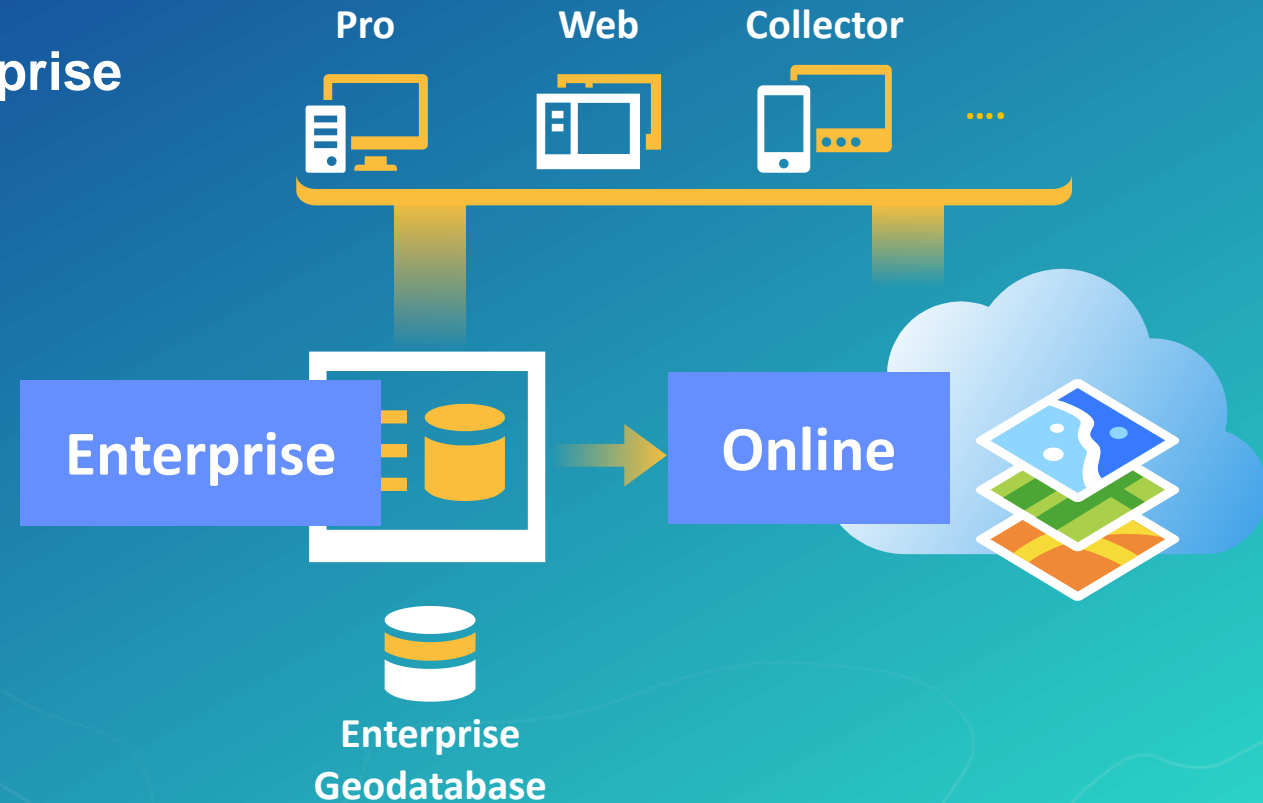
# Options

- Export to various formats
- Work Attachments and Relationship Classes
- Enable time
- Set editing capabilities
- Enable sync
- Enable editor tracking
  - Turn on access control
- Work with M and Z data

A screenshot of the 'Feature Layer (hosted) Settings' dialog box. The dialog has a title bar with 'Feature Layer (hosted) Settings' and two buttons: 'Save' and 'Cancel'. The main content area is divided into sections. The 'Editing' section has three checked checkboxes: 'Enable editing.', 'Keep track of who created and last updated features.', and 'Enable Sync (disconnected editing with synchronization)'. Below this is a section 'Who can edit features?' with a text description: 'Share the layer to specific groups of people, the organization or publicly via the Share button on the Overview tab. This layer is not shared.' The next section is 'What kind of editing is allowed?' with three radio button options: 'Add, update, and delete features' (selected), 'Only update feature attributes', and 'Only add new features'. The final section is 'What features can editors see?' with three radio button options: 'Editors can see all features' (selected), 'Editors can only see their own features (requires tracking)', and 'Editors can't see any features, even those they add'.

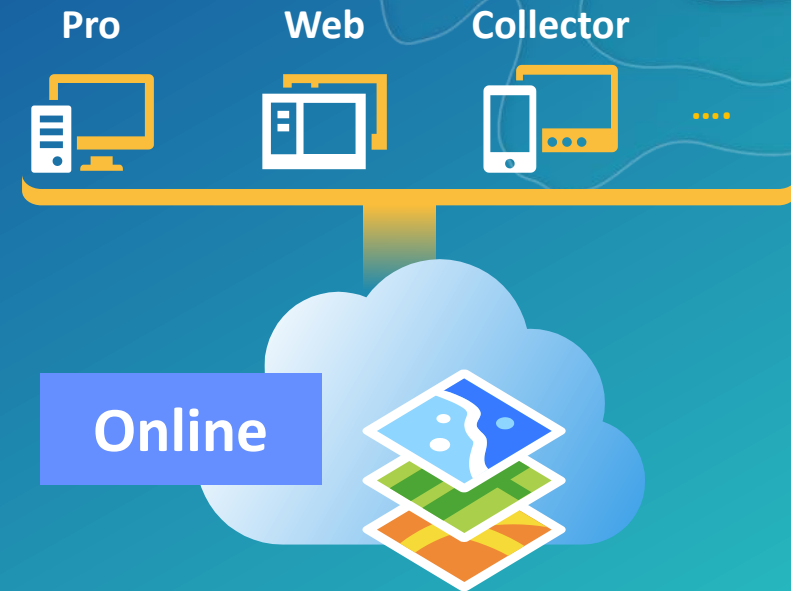
# Data Storage Options

- Feature Services referencing your Enterprise Geodatabase
  - **ArcGIS Enterprise**
- Hosted Feature Services
  - ArcGIS Online
  - ArcGIS Enterprise



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# Feature Service Clients

- **Web**
  - Map viewer (ArcGIS online, ArcGIS Enterprise)
  - Web applications
- **Desktop applications**
  - ArcGIS Pro
  - ArcMap
- **Runtime applications**
  - Collector for ArcGIS
  - Explorer for ArcGIS
  - Operations dashboard for ArcGIS
  - Survey 123
  - Custom apps
  - ...



Business Analyst  
Online



ArcGIS Pro



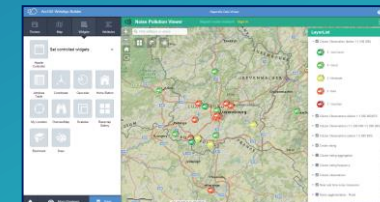
Collector for  
ArcGIS



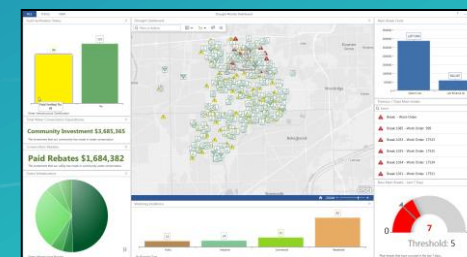
Explorer for  
ArcGIS



ArcMap



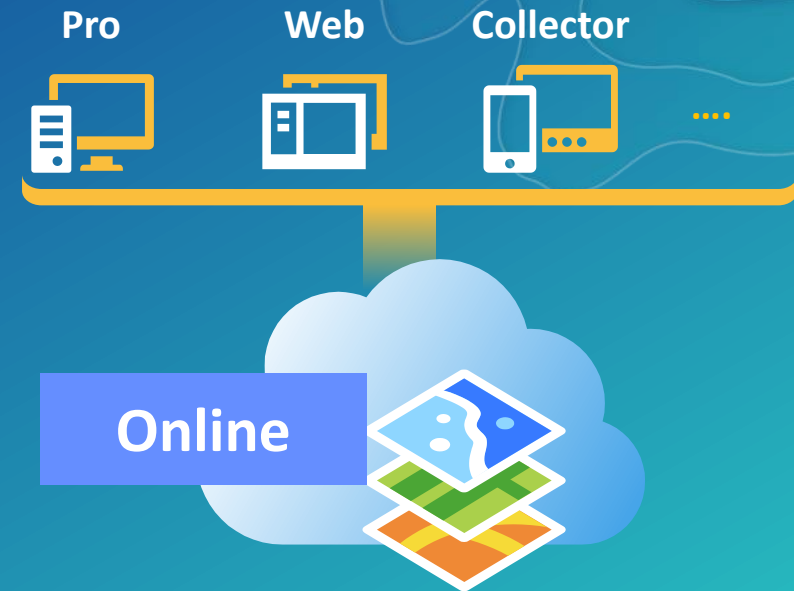
10.3: Web App  
Builder for ArcGIS



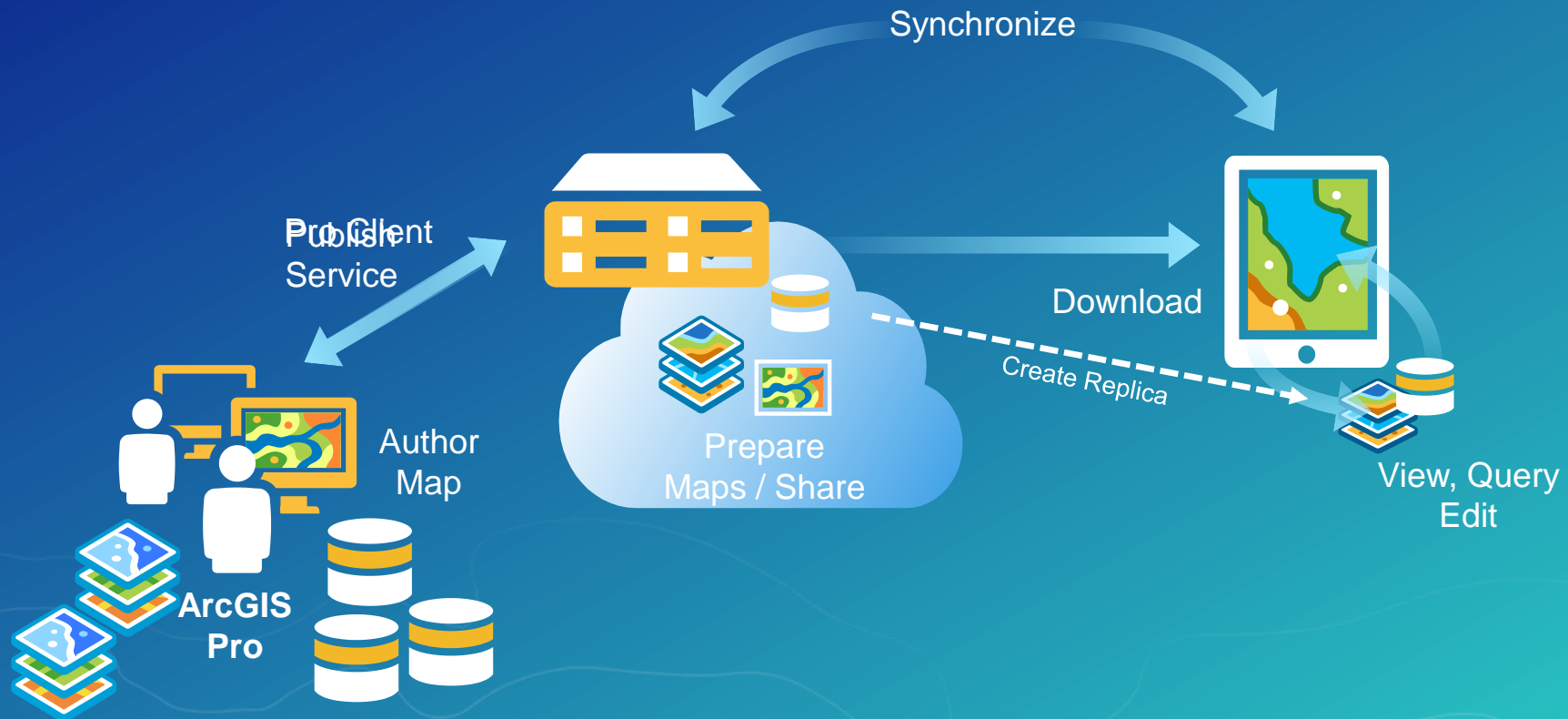
Operations Dashboard for ArcGIS

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  - ArcGIS Data Store
- What's new
- Q&A

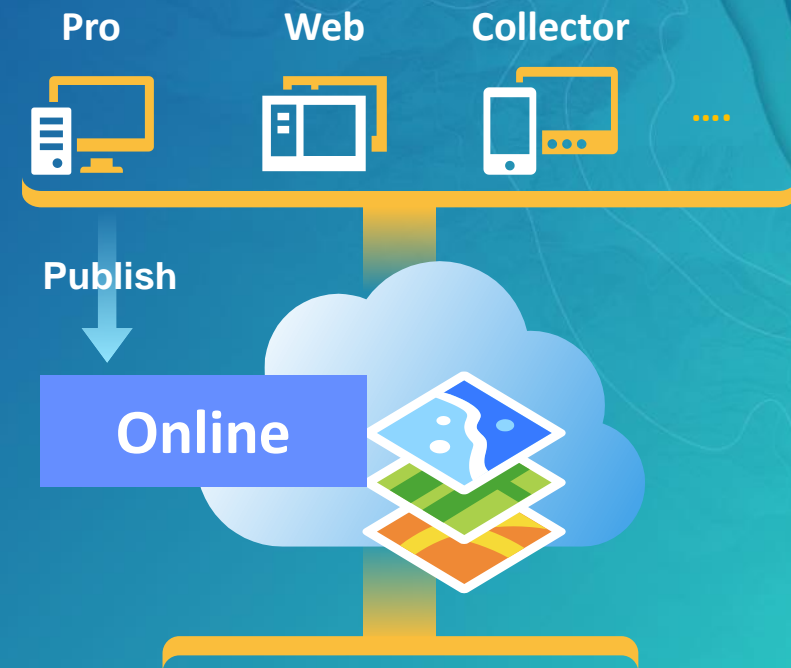


# Workflow Demo Overview



# Agenda

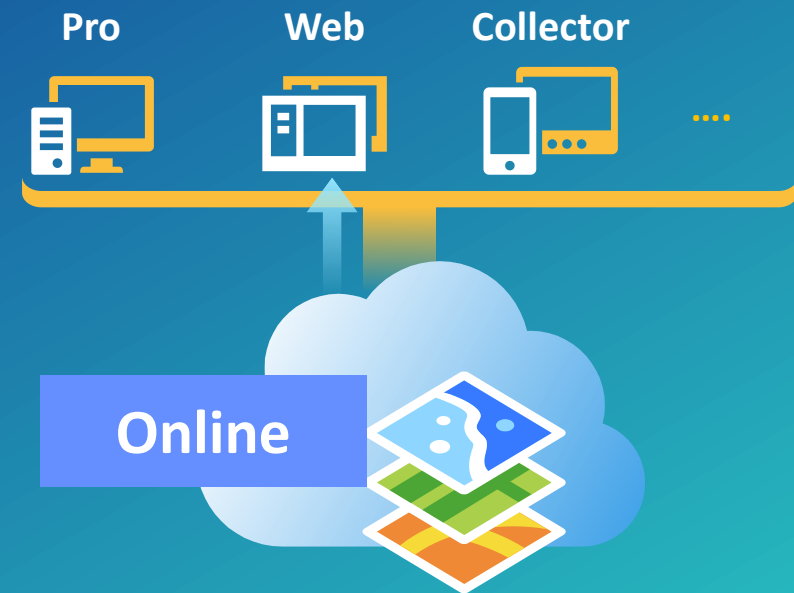
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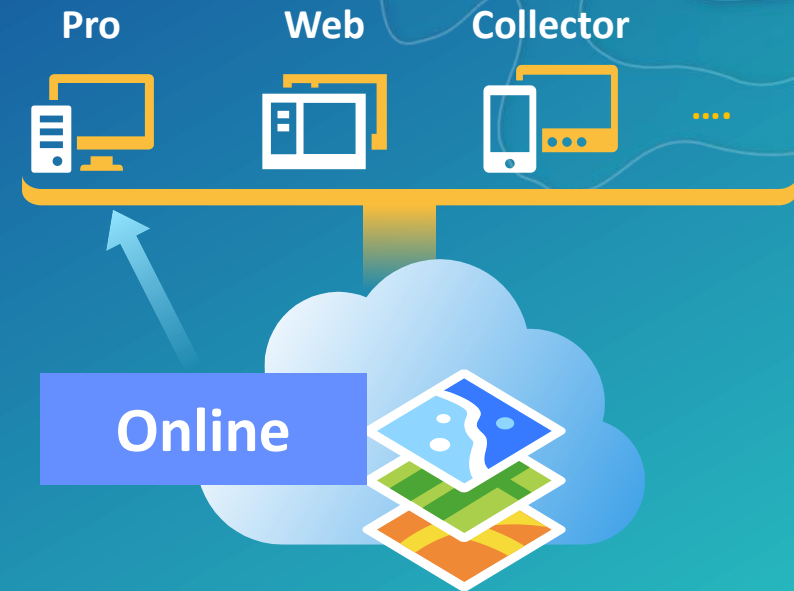
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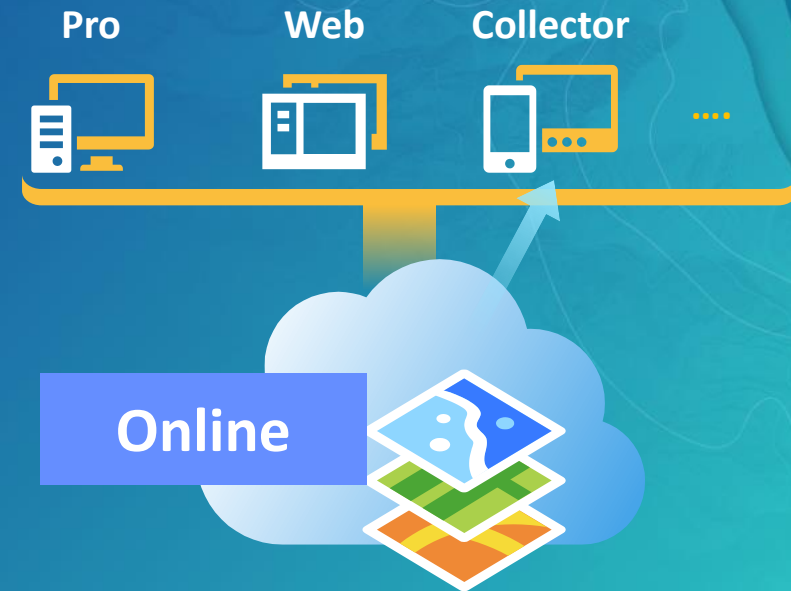
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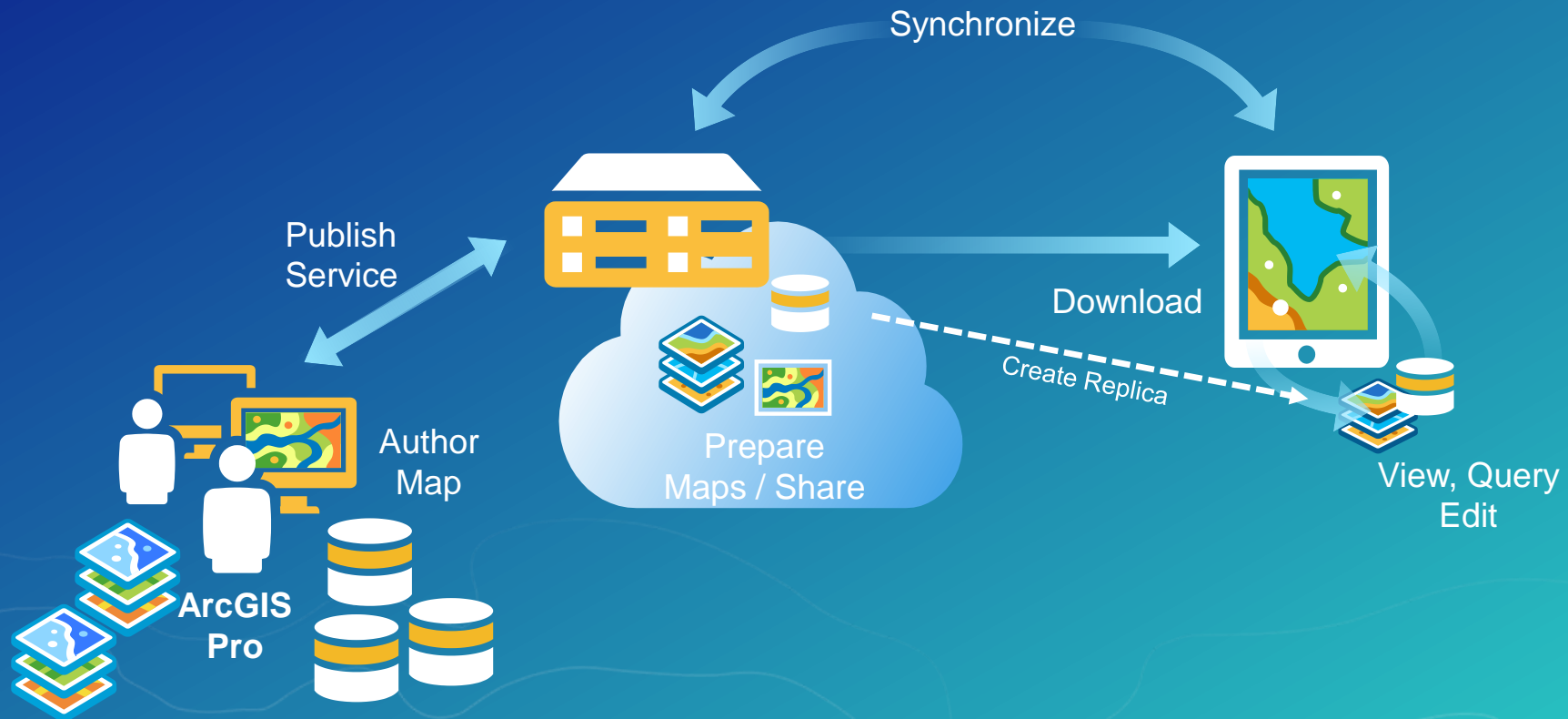


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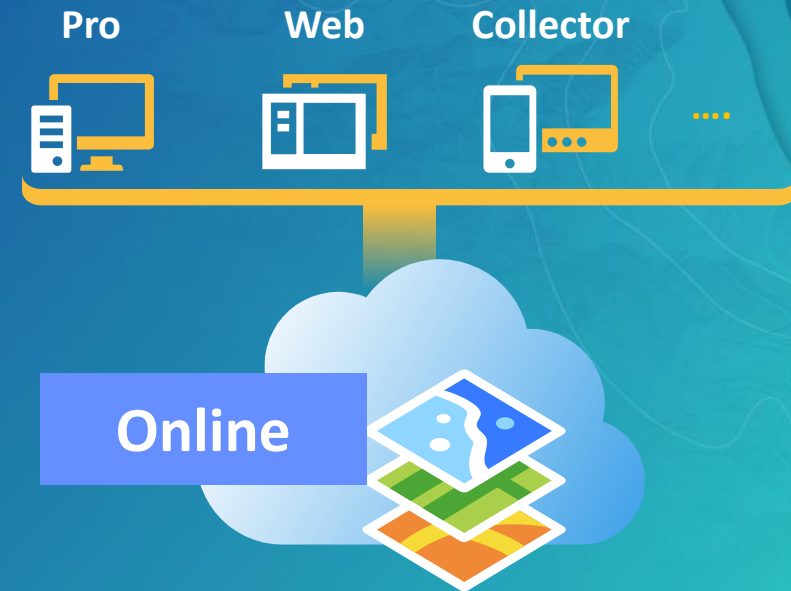
# Workflow Demo Summary





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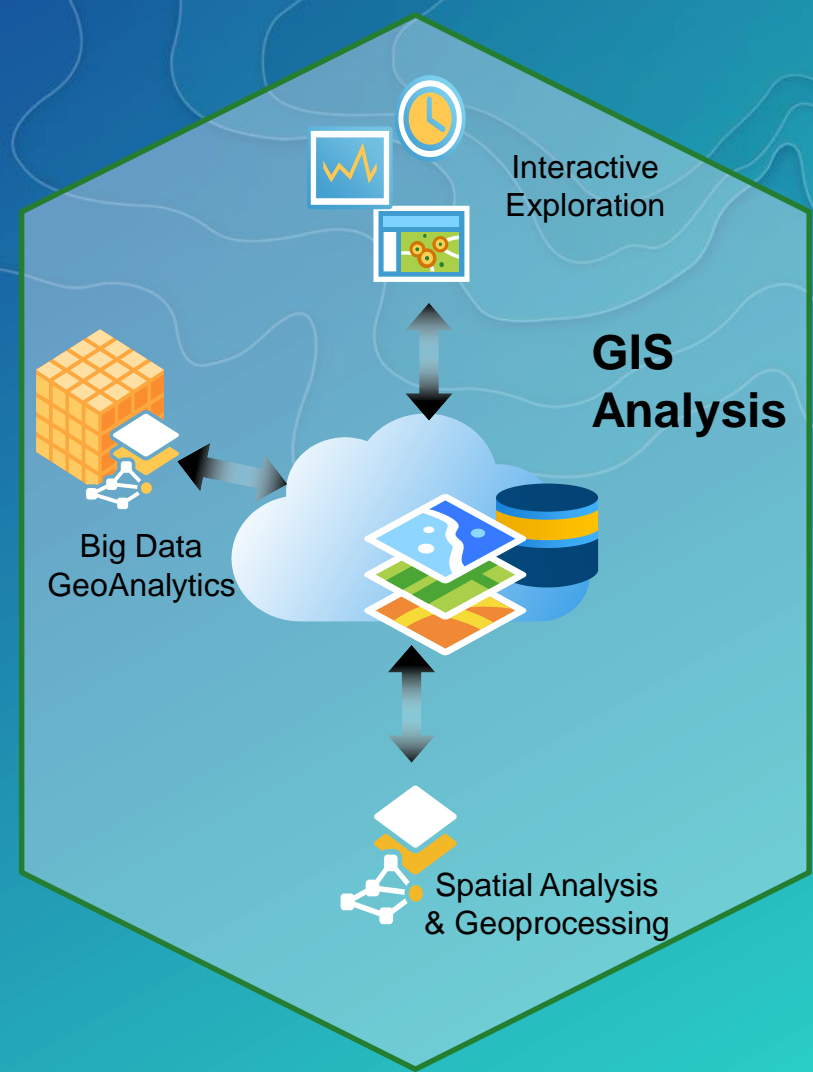


# ArcGIS Python API

- **Python library to perform GIS operations on your Web GIS**
  - GIS system administration tasks
  - Spatial data management
  - Visualization and analysis
- **Runs both interactively, and using scripts**
- **Installs on machines with Python 3.5 and Conda**
  - ArcGIS Pro comes with these







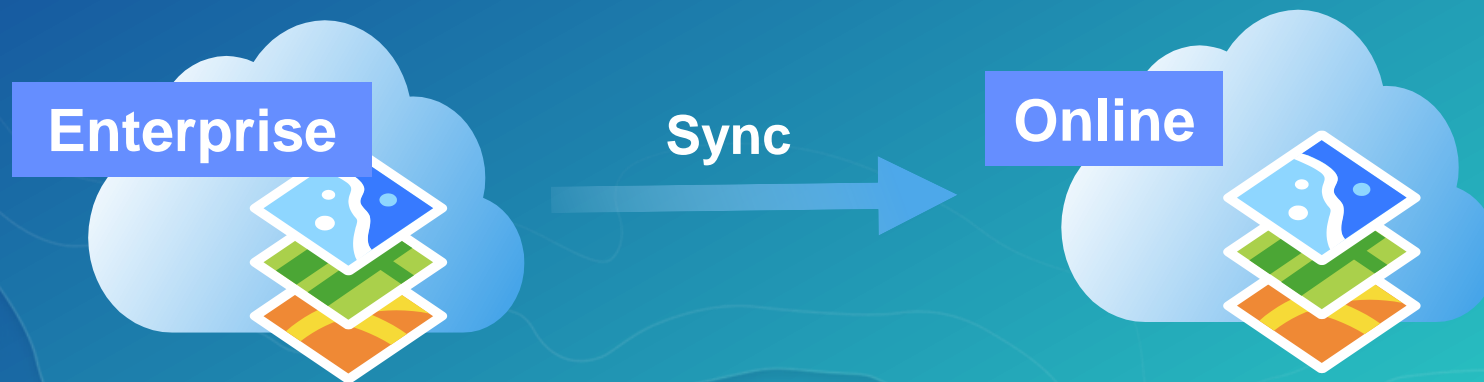
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# Distributed Collaboration

- Allows you to sync feature layers between Enterprise and Online
- 10.5.1 / 5.2 - Option to distribute copies
- Supports one way syncing as copies...
  - From Online to Enterprise
  - or
  - From Enterprise to Online



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# Feature Services Admin API

- **Allows schema edits after publishing**
  - Add/Drop layers, Add/Drop fields, Add/Drop relationship classes / attachments, ...
- **Used by...**
  - Commands in the ArcGIS Enterprise, ArcGIS Online UI, ArcGIS Pro
  - Can also be called directly using the REST services directory
    - E.g. [http://abbey.esri.com/gis/rest/admin/services/Hosted/States\\_rel/FeatureServer/0](http://abbey.esri.com/gis/rest/admin/services/Hosted/States_rel/FeatureServer/0)
- **Supported with hosted feature services**
  - Use Desktop / Pro for Feature Services referencing your Enterprise Geodatabase
- **Updates made via JSON + REST request**

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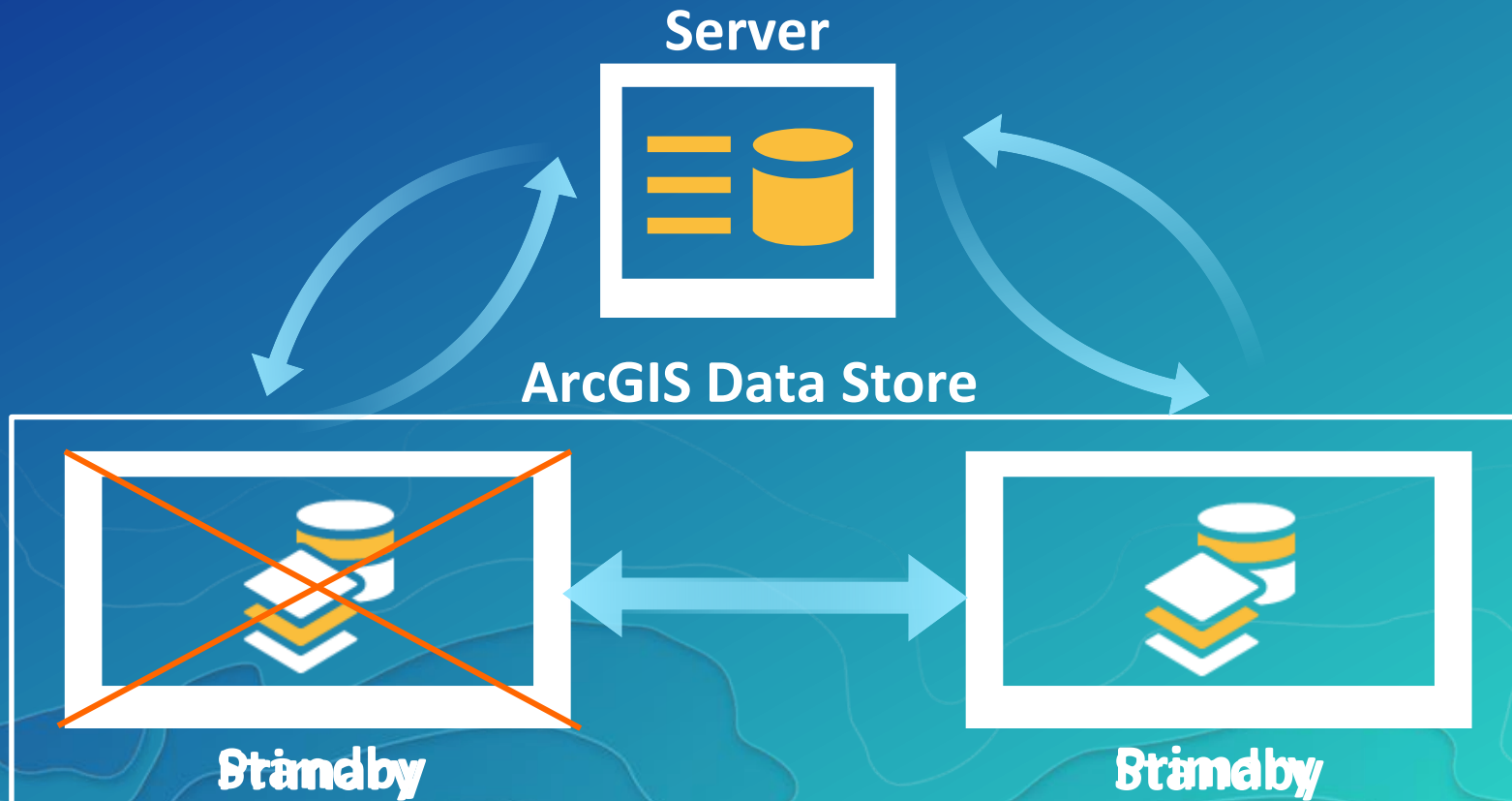


# ArcGIS Data Store

- Released at 10.3
- Designed to store the data from ArcGIS Enterprise
- Installed separately and configured when setting up ArcGIS Enterprise
- Provides
  - Support 1000's of hosted feature services
  - High availability
  - Back up and restore

## ArcGIS Data Store - Relational Data Store

- Provides a Can be configured with a primary and standby for high availability
- Manual or automatic failover



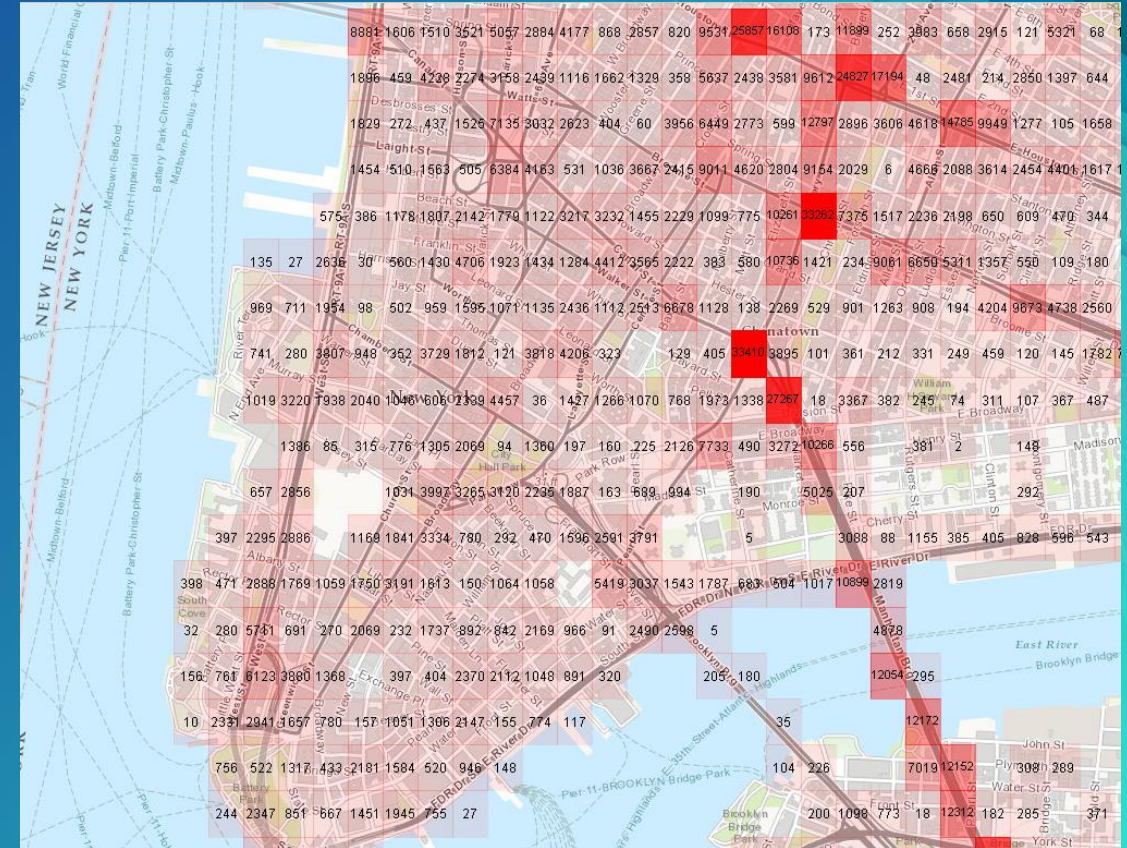
# ArcGIS Data Store – Spatiotemporal Big Data Store

- Can choose to add a Spatiotemporal store when configuring the data store
- Allows better support for
  - Observation data with the ArcGIS GeoEvent Server
  - Big data analysis with the ArcGIS GeoAnalytics Server
- Uses Elasticsearch
  - Enables archival of high volume observation data
  - Very high write throughput and scalability (can run across multiple machines)
  - Provides high availability



# ArcGIS Data Store – Spatiotemporal Big Data Store

- Data can be accessed via Feature Services and Map Services
  - map service provides dynamic rendering and aggregated data representation



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# What's new – ArcGIS Enterprise (10.5 / 10.5.1)

- **10.5.1**

- Support for Distributed Collaboration
- Option to use \* to remove all replicas using unregisterReplica

- **10.5**

- Better domains support
- Improved true curve support including the option to update true curves
- Thumbnails in templates for layers published from dictionary renderers in Pro
- Query includes a historicMoment parameter for archived data
- Create only capability
- Default M value support
- Edit support for Spatiotemporal data store based hosted feature services



# What's new – ArcGIS Online

- **Support for Distributed Collaboration**
- **Support for views**
- **Data Loading and sync optimizations**
- **Datum Transformation support**
- **Publish, Analyze and export excel files**
- **Support for query nearest neighbor**
- **Tile on Demand, change tracking and scheduling**
- **Shape area and length field support**

# What's new – on the desktop

- ***ArcGIS Pro 2.0***
  - True curve support
  - Add/Delete index for hosted layers
  - Performance improvements
- ***ArcGIS Pro 1.4***
  - Support for subtypes
  - Performance improvements
- ***ArcGIS Pro 1.3***
  - Feature caching > improves performance and scalability
  - Accessing features directly from map service
- ***ArcGIS Pro 1.2***
  - Choose to publish registered data
  - Add field/Delete field for hosted layers



# Summary

- **Feature Services and Editing**
- **Included feature services and...**
  - Pro
  - Map Viewer
  - Collector
  - Arcade and Views
- **Advanced topics**
  - ArcGIS Python API
  - Distributed Collaboration
  - Feature Service Admin API
  - ArcGIS Data Store



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