What is modern GIS?
On the Front Lines of Famine

In parts of Africa and the Middle East, conflict and drought are driving a food crisis of unprecedented scale.
What is modern GIS?

GIS that is interactive, accessible, that helps you explore questions, solve problems, find answers, and that works with many kinds of data.

It is GIS you can share.
Technology
What parts of ArcGIS do you use

ArcGIS Enterprise
ArcGIS Pro
ArcGIS Online
Scenarios

How might sharing work within your organization?
Where does sharing start?

ArcGIS Enterprise as a system of record, ArcGIS Online as the system of engagement

ArcGIS Enterprise → ArcGIS Pro → ArcGIS Online

Data → Web maps + layers → Web apps

public
Where does sharing start?
Supporting internal and external stakeholders

ArcGIS Enterprise
- Data
- internal users

ArcGIS Pro
- Web maps + layers

ArcGIS Online
- Web apps
- public

REST services or Distributed Collaboration
Where does sharing start?

ArcGIS Enterprise

ArcGIS Pro

ArcGIS Online

Data

Enterprise portal

Web maps + layers

REST services or Distributed Collaboration

public

Web apps

internal users
Where does sharing start?
And many more

ArcGIS Enterprise  ArcGIS Pro  ArcGIS Online

[Diagram showing connections between ArcGIS Enterprise, ArcGIS Pro, and ArcGIS Online]
Web GIS

ArcGIS Pro + ArcGIS Enterprise and/or ArcGIS Online = a modern GIS
Sharing from ArcGIS Pro
Demo
ArcGIS Pro - Sharing User Experience

1. Sign into a portal
2. Share from:
   i. The ribbon to share your entire map
   ii. The context menu to share a selection of layers
3. Analyze your data for potential issues
4. Click Share/Publish
Sharing from ArcGIS Pro

ArcGIS Pro
ArcGIS Online

ArcGIS Pro
ArcGIS Server
ArcGIS Enterprise

ArcGIS Data Store
Concept Review: Base Deployment and Federated Servers

- **ArcGIS Enterprise Base Deployment**
  - Consists of a federated Server site
  - ArcGIS Data Store has been registered with the Server site as the registered managed database
  - The Server site is designated as hosting server

- Some organizations may also have additional Server sites that are federated with Portal

- When Sharing from ArcGIS Pro, you decide which federated Server you want to share content to
How Web maps, Layers, and Services Work Together

- **Web map (2D) or Web scene (3D)**
  - Collection of web layers and mapping functionality

- **Web Layer**
  - portal content that exposes a service
  - References a service and can configure attribute pop-ups, symbology, etc.

- **Web Service**
  - Exposes a URL for web clients to access data
  - Data can be copied to the server or referenced from a shared location or enterprise geodatabase
<table>
<thead>
<tr>
<th>Web Layer</th>
<th>Web Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Map Image Layer</td>
<td>Dynamic/Cached map service</td>
</tr>
<tr>
<td>Feature Layer</td>
<td>Feature service</td>
</tr>
<tr>
<td>Tile Layer</td>
<td>Cached map service (hosted)</td>
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<tr>
<td>Vector Tile Layer</td>
<td>Vector tile service</td>
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<td>Scene Layer</td>
<td>Cached scene service</td>
</tr>
<tr>
<td>Web Tool</td>
<td>Geoprocessing service</td>
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</tbody>
</table>
Sharing web layers
Demo
Data

What happens to your data when you share with ArcGIS Pro?
Sharing Data Options

1. **Reference registered data**
   - Registered data will be referenced, unregistered data will be copied

2. **Copy all data**
   - Both registered and unregistered data will be copied
Working with Registered Data

- Designed to support enterprise editing workflows
- Data sources are registered with the federated server
- Source data is referenced, not copied
Working with Unregistered Data

- Source data is copied to the server machine
- Does not support enterprise data updates
- Maintains a static copy of your data

- Copy all data option in ArcGIS Pro
  - All source data is treated as unregistered data
Understanding Data Stores

- **Data store items**
  - Locations registered with the server that contains data used by services
  - OS account that ArcGIS Server is running as has read/write access

- **ArcGIS Data Store**
  - Part of the base ArcGIS Enterprise deployment
  - Database is managed by the server
  - Used to store data copied to the server for hosted services, and data that is the result of analysis run within the Enterprise portal
Data stores

- Valid data source locations accessible by server
  1. Databases
  2. Folders

- 2 ways to define
  1. Ahead of time:
     - Manage Registered Data Stores
     - ArcGIS Server Manager
  2. While sharing: Resolve analyzers
Overwriting web layers

- Map image layers and feature layers can be overwritten

- When overwriting, both the web layer and underlying service are updated
  - Service URL does not change
  - Item ID does not change

- If a service has additional layers and capabilities (i.e. a map service with feature access), overwrite the map image layer
New Module - arcpy.sharing

- Designed to be more efficient, intuitive, and follow future enhancements
- Map image, feature, and tile layers are split
- Common parameters are exposed as properties
  - Overwrite existing service
  - Portal folder and server folder
- Arcpy.mp workflow is still supported
Arcpy.sharing workflow

1. Create a map object using arcpy.mp

2. Create a draft of the map or specific layers using the getWebLayerSharingDraft function
   - FeatureSharingDraft
   - TileSharingDraft
   - MapImageSharingDraft

   Depends on the service_type parameter

3. Export the draft as a service definition draft using the exportToSDDraft function

4. Stage using arcpy.StageService_server

5. Upload using arcpy.UploadServiceDefinition_server
Sharing Web maps

- Preset configurations make one click sharing of new web layers easy and accessible
- Map level settings, such as bookmarks, are automatically maintained
- For more control, new web layers can be split and configured individually or shared beforehand
Web maps and existing web layers

• Existing web layers are referenced in the Web map
  - Any modified settings are stored in the map; not at the web layer or service
  - Sharing settings will NOT be updated to match the Web map

• If the map contains existing web layers, they will not be “published” again
Sharing a web map
Demo
Sharing Web maps - One Click Configurations

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploratory</td>
<td>Interactive map that supports querying</td>
</tr>
<tr>
<td></td>
<td>• Reference - map image layers</td>
</tr>
<tr>
<td></td>
<td>• Copy - non-editable feature layers</td>
</tr>
<tr>
<td>Editing</td>
<td>Editable map</td>
</tr>
<tr>
<td></td>
<td>• Reference - map image + feature layers</td>
</tr>
<tr>
<td></td>
<td>• Copy - editable feature layers</td>
</tr>
<tr>
<td>Visualization</td>
<td>Pre-generated tiles</td>
</tr>
<tr>
<td></td>
<td>• Reference - cached map image layers</td>
</tr>
<tr>
<td></td>
<td>• Copy - tile layers</td>
</tr>
</tbody>
</table>

- Map layers unsupported by the primary web layer type will still be shared
  - EX: **Copy all data** - **editing** with raster data will share raster layers as web tile layers
Sharing 3D Data

- GIS data is not siloed between 2D and 3D in ArcGIS Pro
- 3D layers and scenes are just as easy to share
- Supported 3D data types
  - Point layer
  - 3D object layer
  - Point cloud layer
  - Integrated mesh
Sharing web tools

- Portal item that exposes a geoprocessing (GP) service

- Can be used across the platform including ArcGIS Pro and through web clients such as Web AppBuilder for ArcGIS

- Shared from the history item of a successfully ran GP tool
Questions