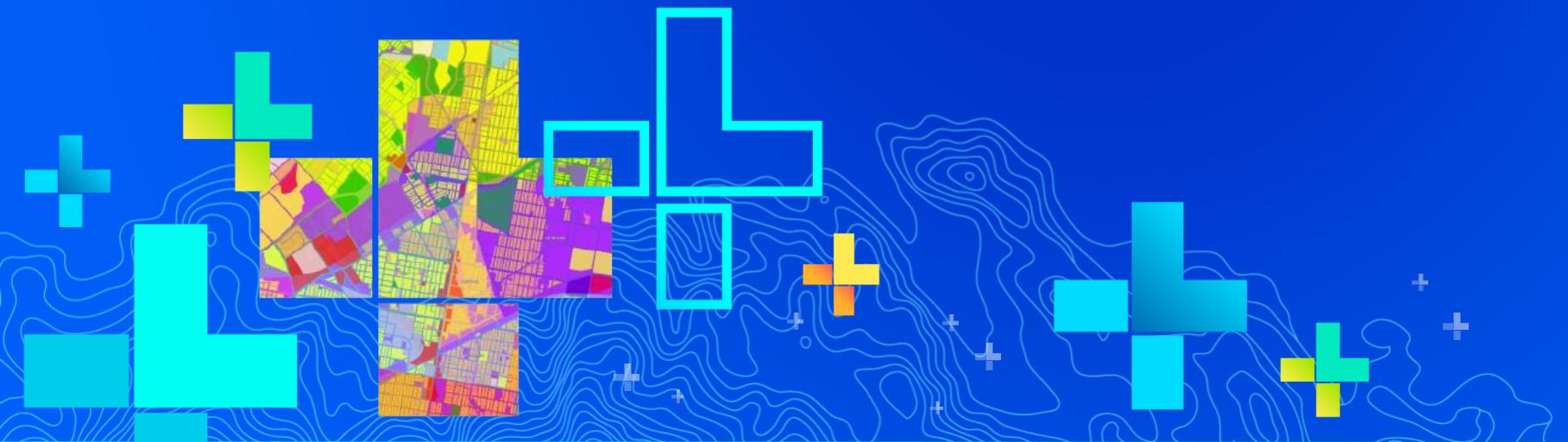


ArcGIS Enterprise: an introduction

Thomas Edghill and Scott MacDonald





ArcGIS Enterprise is foundational
powerful
flexible
collaborative

Advanced analytics
capabilities delivered
in user-friendly ways

Share content easily,
securely, and
efficiently with your
stakeholders

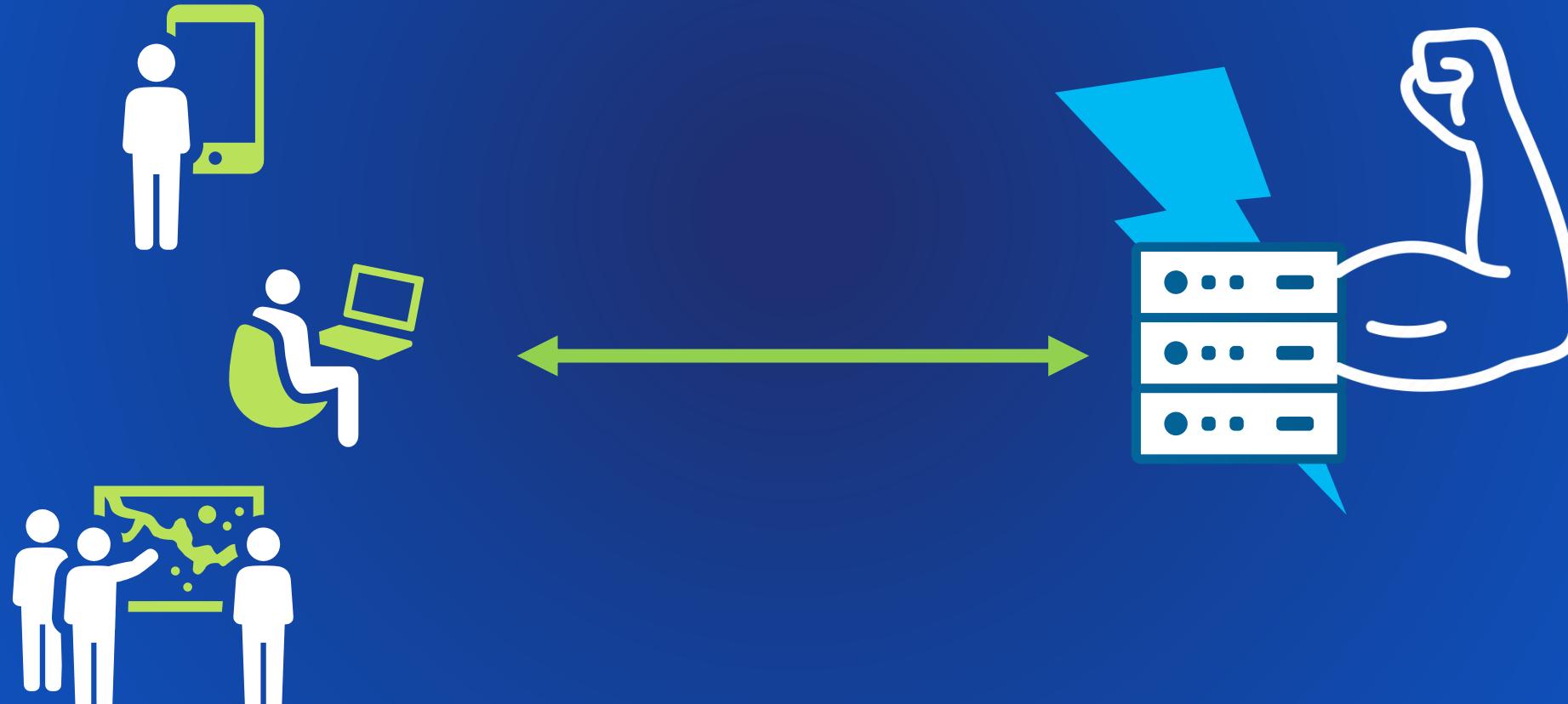
ArcGIS Enterprise is **powerful, flexible** and
collaborative software that serves as the
foundation of your organization's Web GIS.

Deployed to fit your
organization's needs
and resources; scales
to meet demand

Seamlessly integrated with
the full stack of Esri GIS
software products

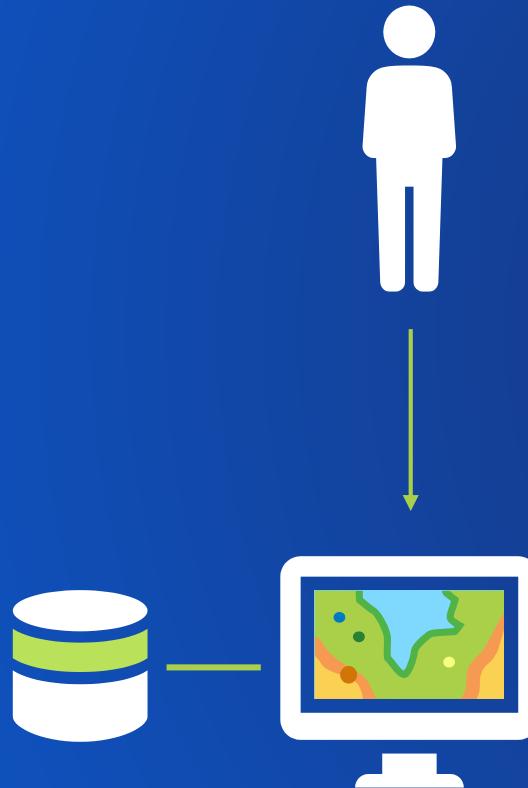
Let's start simply.

What's Web GIS?



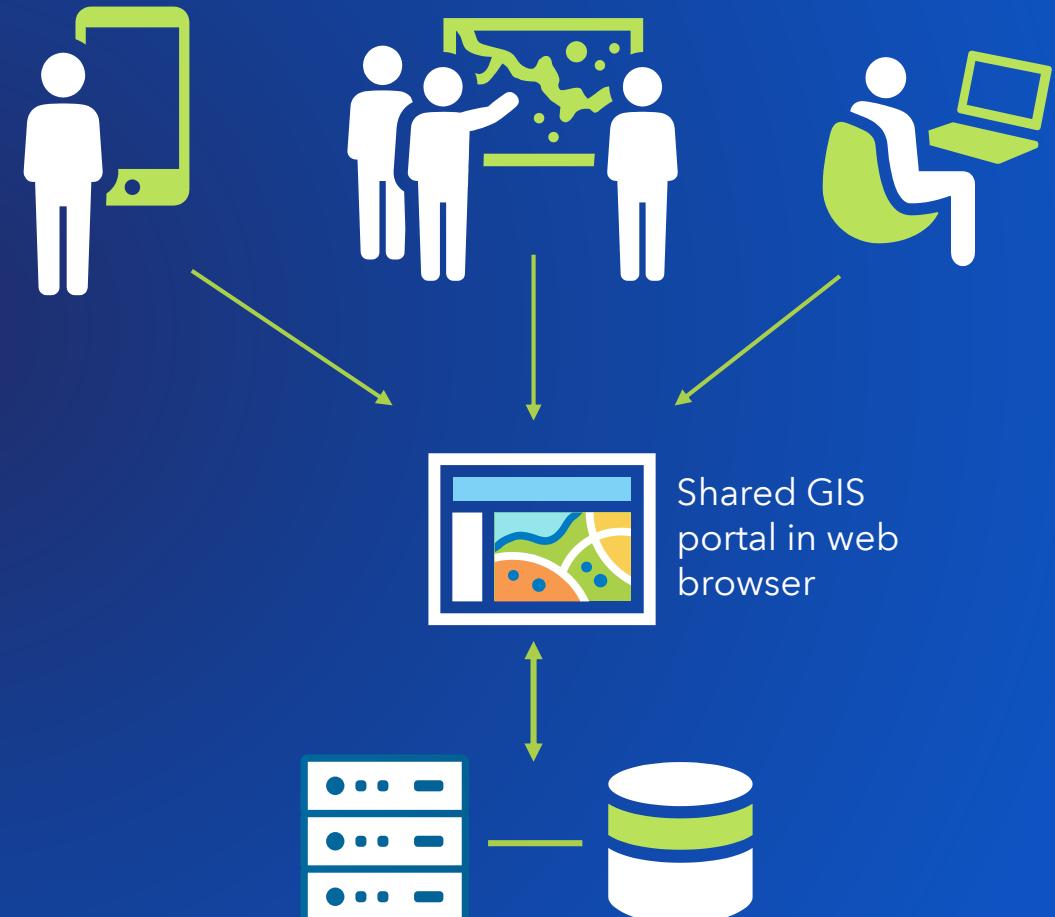
Desktop GIS

All work is done on your local machine.



Web GIS

Everyone's work is done by the back-end server infrastructure.

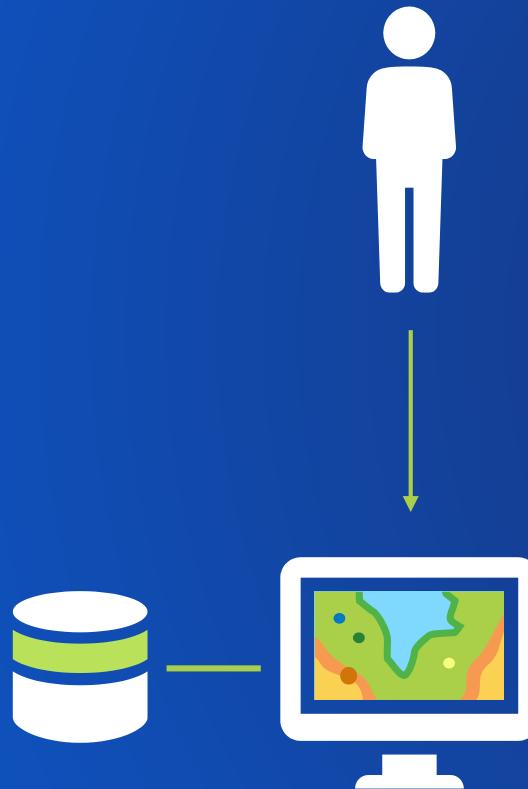




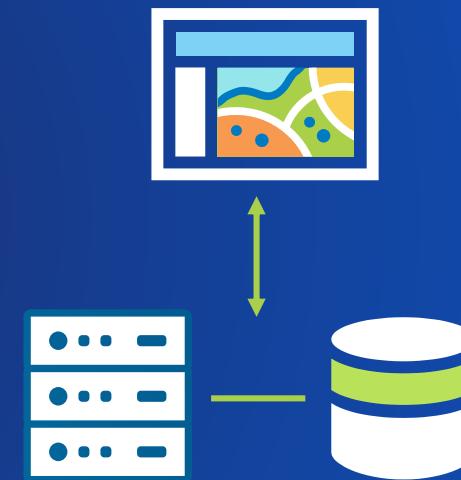
Web GIS is not a replacement for Desktop GIS.

It's the central tier in a modern GIS ecosystem.

Desktop GIS



Web GIS



When I finish my work
in ArcGIS Desktop, I
publish or share it to
my Web GIS.







Capabilities of ArcGIS Enterprise: Use spatial content in a web browser



Publish, host and serve web services



Work with imagery, 3D, and raster data



Access all kinds of data



Use web mapping and analysis





Capabilities of ArcGIS Enterprise: Empower your organization



Share and collaborate



Make GIS content accessible to non-GIS users



Build and use applications



Fuel field operations





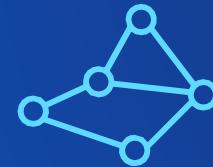
Capabilities of ArcGIS Enterprise: Go beyond to solve tough problems



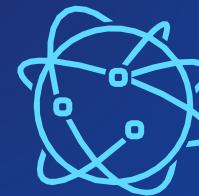
Data science and
machine learning



Develop custom
tools and solutions



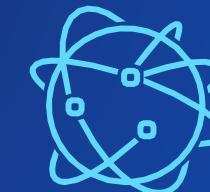
Analyze
massive
datasets



Monitor real-
time data and
your IoT



Capabilities of ArcGIS Enterprise



One, some, or all of these capabilities could be transformative for your organization.





What does a Web GIS look like?



Three components of Web GIS

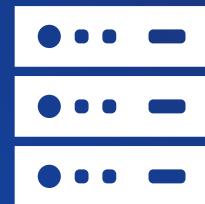
Front-end portal

- Share content from desktop GIS
- View and work with content in a map viewer
- Bring in GIS items from web
- Produce outputs (maps, apps, reports)



Back-end server

- Run GIS services that power your items
- Handle all requests (zoom a map, find a location, run an analysis tool)
- Scale processes based on traffic



Data store(s)

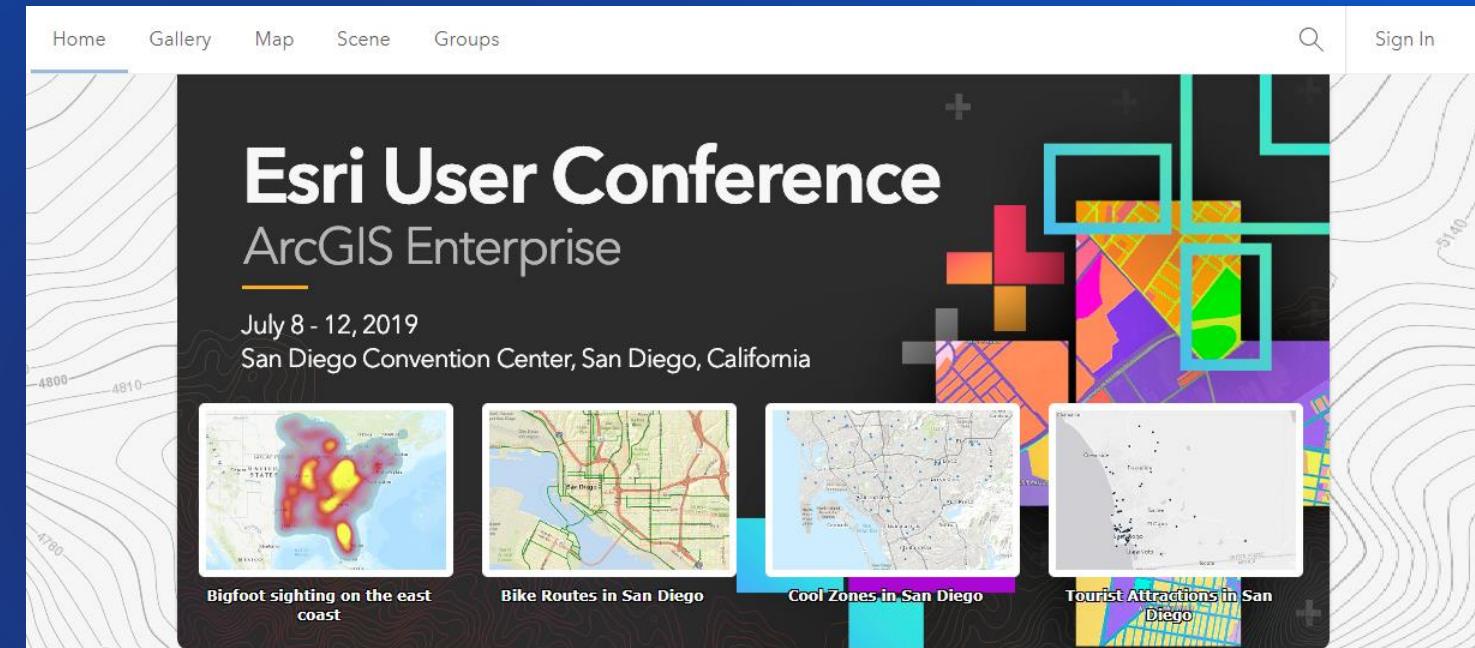
- Host the data referenced by your items
- Facilitate instant data retrieval
- (Sometimes) Allow data editing from portal





Components of ArcGIS Enterprise: The portal

- Find, use, add, share, analyze and manage data
- Manipulate data: create offline map areas, layer views, etc.
- Create and customize your own 2D and 3D maps and apps
- Use ArcGIS applications
- Discover and use Living Atlas items





Components of ArcGIS Enterprise: The portal

- Manage users and licenses
- Set security
- Monitor item usage
- Create groups
- Categorize content
- Administer collaborations
- Customize the look and feel of your portal
- Create sites and pages

The screenshot shows the 'Organization' tab selected in the top navigation bar of the ArcGIS Enterprise portal. The main content area is titled 'Home Page' with the sub-instruction 'Set up the look and functionality of your portal's Home Page. The Home Page serves as a starting point for your members.' On the left, a sidebar menu lists options: General, Home Page (which is selected and highlighted in blue), Gallery, Map, Items, Groups, Utility Services, ArcGIS Online, Servers, Roles, Collaborations, and Security. The 'Home Page' section contains three configuration sections: 'Background Image', 'Banner', and 'Featured Content'. The 'Background Image' section includes a placeholder image, a radio button for 'No background', and a link to 'Click here to upload custom image'. The 'Banner' section includes a placeholder image, radio buttons for 'Image' and 'Custom design', and a grid of preview images. The 'Featured Content' section includes a placeholder image and a dropdown menu currently set to 'No featured content'.



User Types | Manage your users and licenses in the portal

Identity



Capabilities

View
Edit
Analyze
Create
Share
Administer

+

Apps





Components of ArcGIS Enterprise: ArcGIS Server

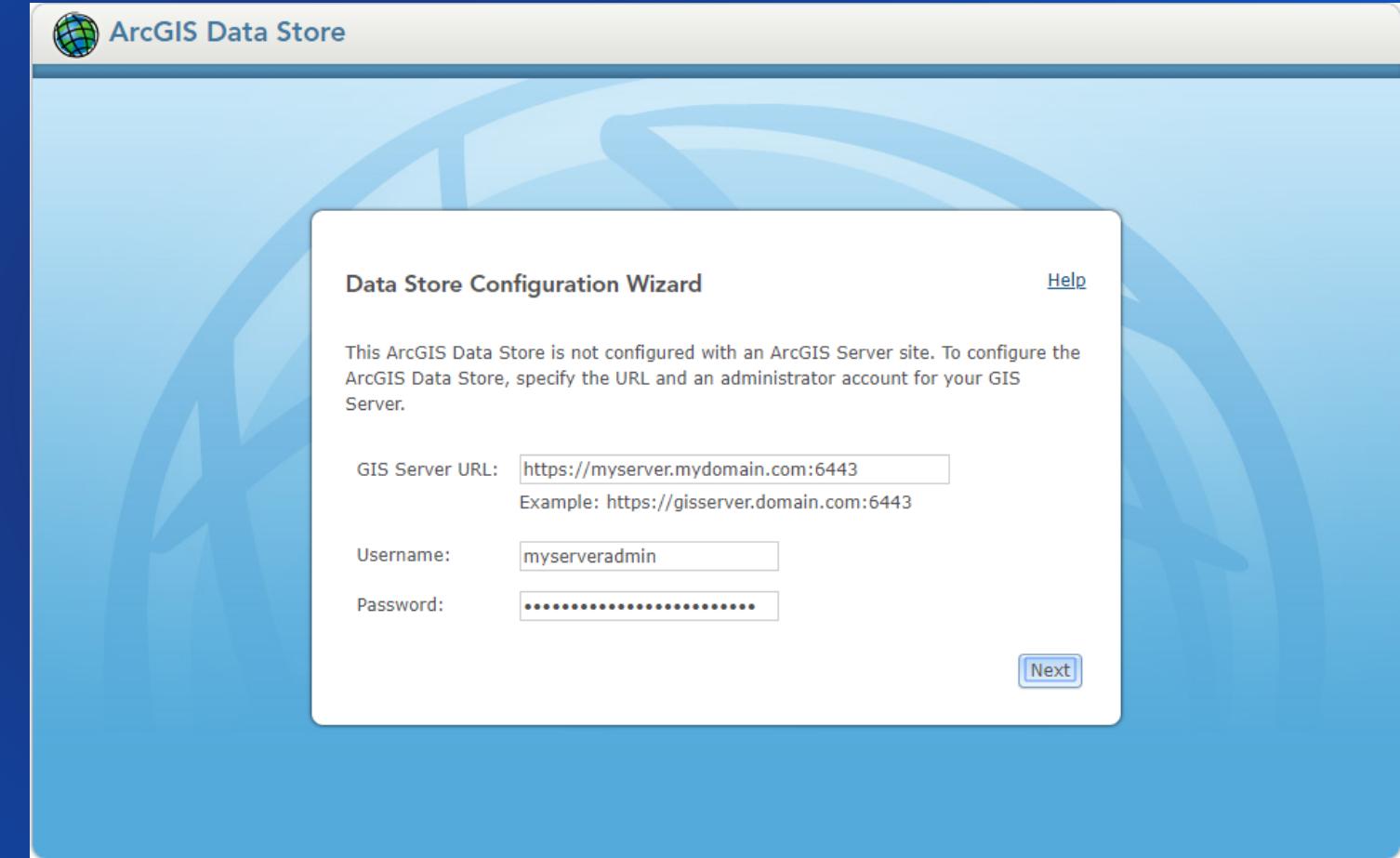
- Federates with portal
- View and configure services in ArcGIS Server Manager app
- Accessible through the ArcGIS REST API
- Administrators can monitor, tune and configure site and security
- Add custom extensions
- Administrator API - access manually or programmatically

The screenshot shows the ArcGIS Server Manager interface. The top navigation bar includes links for esri.com, ArcGIS Enterprise, Sign Out, and Help. The main menu tabs are Services, Site, Security, and Logs, with Services currently selected. Below the menu, there are buttons for Manage Services, OGC Services, KML Network Links, and Sharing. A sub-menu for 'Editing: Site (root) > LakeForest_png' is open, showing options like General, Parameters, Capabilities (which is selected), Pooling, Processes, and Item Description. On the right side, under 'Select and configure capabilities', 'Imaging (always enabled)' is checked, while 'WCS' is unchecked. Below this is the 'Imaging Configuration' section. To the right of the configuration area, the 'ArcGIS REST Services Directory' is listed with a link to Home > services > LakeForest_png (ImageServer). Further down, details about the service are provided: **LakeForest_png (ImageServer)**, View In: ArcGIS JavaScript, ArcGIS Online Map Viewer, ArcGIS Earth, ArcMap, View Footprint In: ArcGIS Online Map Viewer, Service Description: LakeForest_png, Name: LakeForest_png, Description: (empty), Single Fused Map Cache: false, Extent: XMin: -1.3101380134177005E7, YMin: 3984215.6587972254, XMax: -1.3094957022962382E7, YMax: 3987122.389350094, Spatial Reference: 102100 (3857).



Components of ArcGIS Enterprise: ArcGIS Data Store

- ArcGIS-managed database
- Enables hosted layers
- Supports self-service mapping



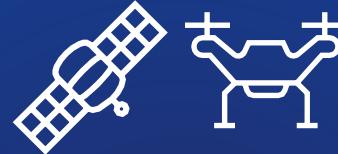
Components of ArcGIS Enterprise: User-managed data



feature



tabular



imagery



real-time



big data



3D



field data



secure data



file-based



business intelligence

Bring your own data

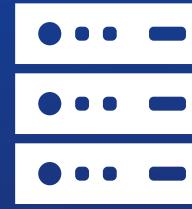




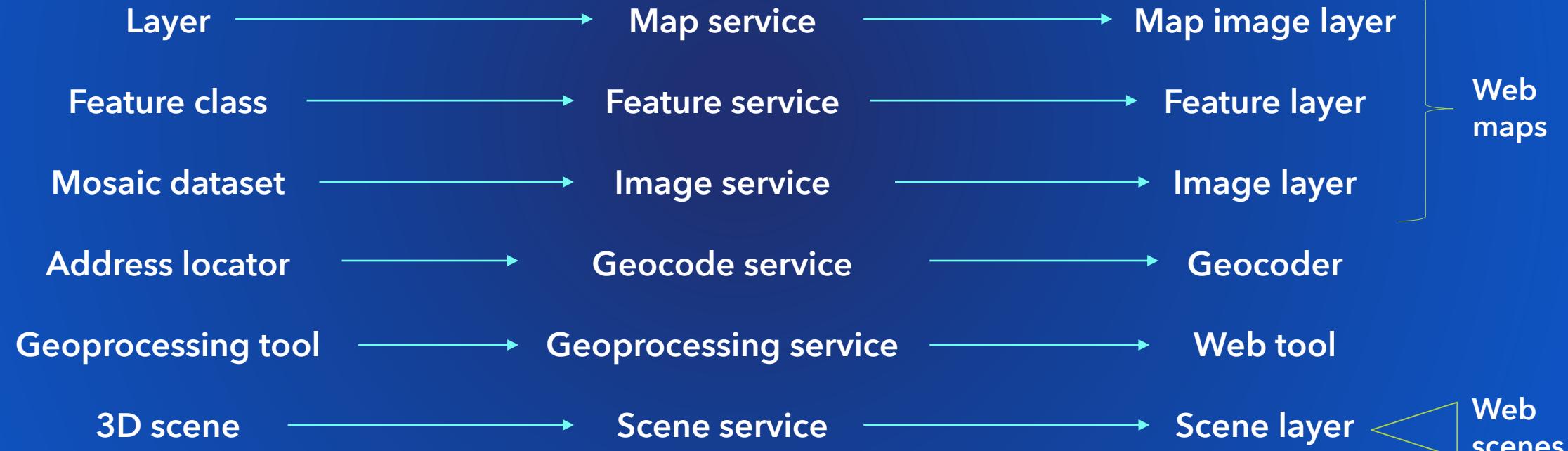
Desktop



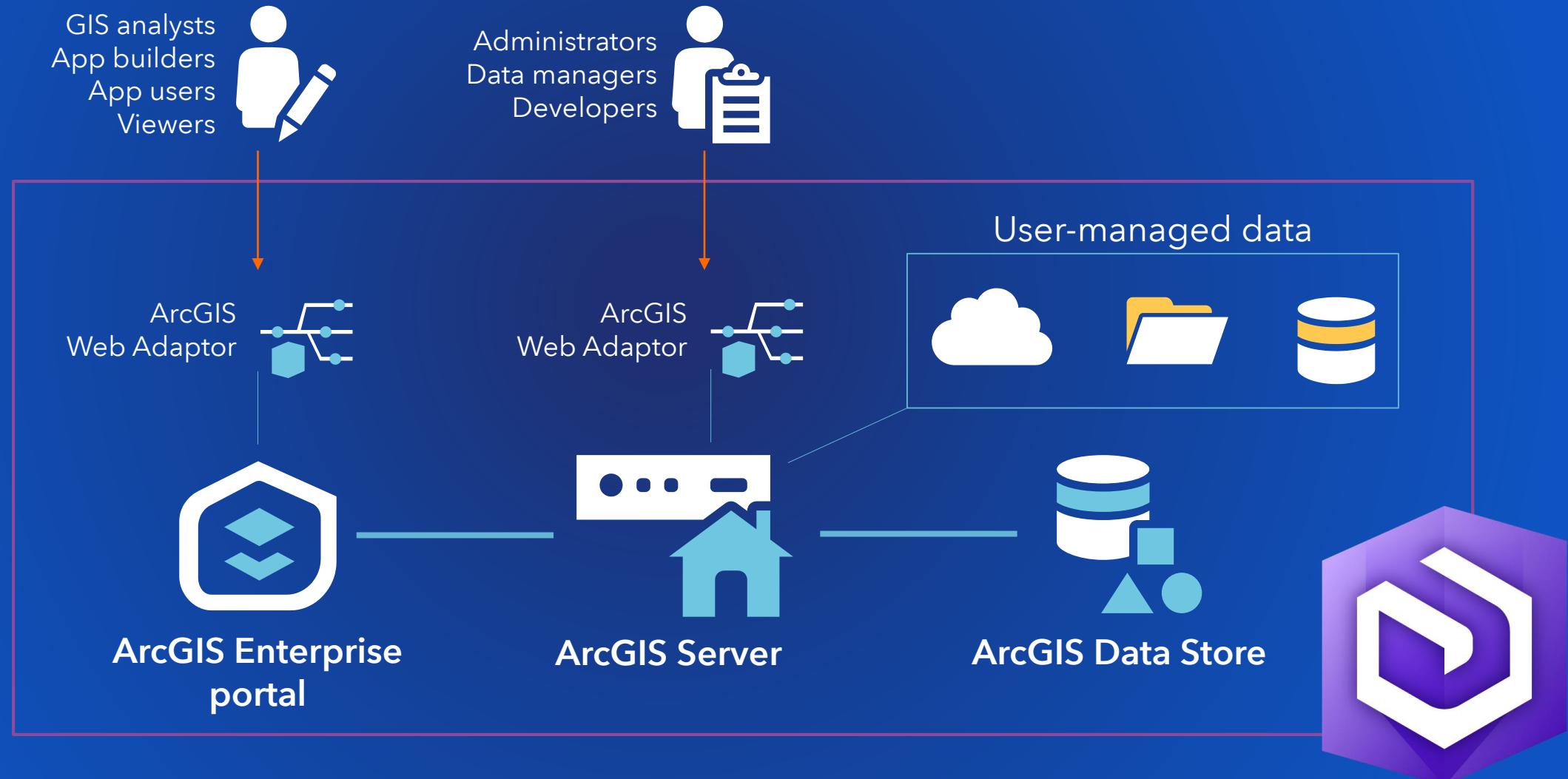
Server



Portal



Components of ArcGIS Enterprise



ArcGIS Enterprise is powerful

Sophisticated server roles

Advanced analytics and data science

Efficient content + data management

Security and reliability



Server roles provide focused capabilities



GIS Server
your powerhouse for
analysis, geocoding,
serving services

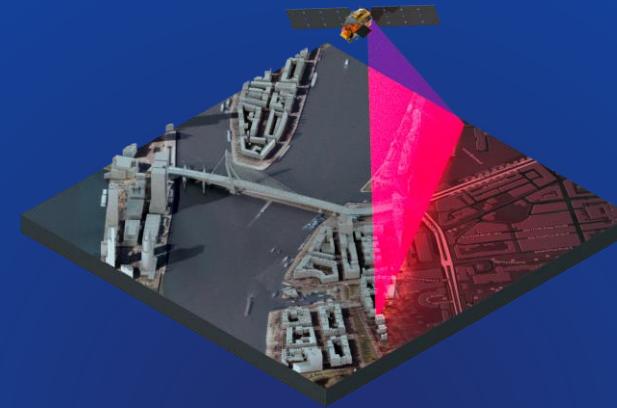
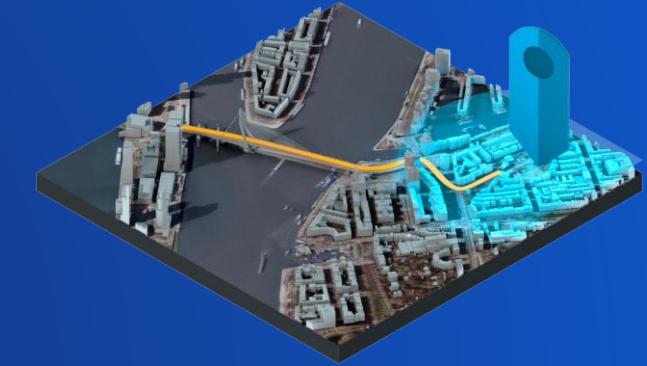
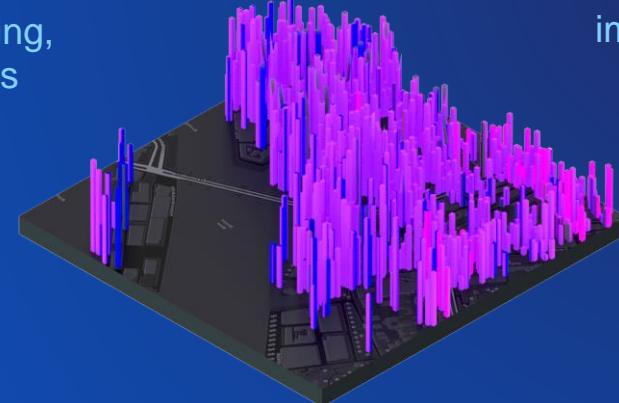


Image Server
distributed raster and
imagery exploitation



GeoEvent Server
real-time data feeds and
event-based notifications



GeoAnalytics Server
big data processing and analytics
focusing on vector + tabular data



Notebook Server
complete data science platform
integrated with the portal



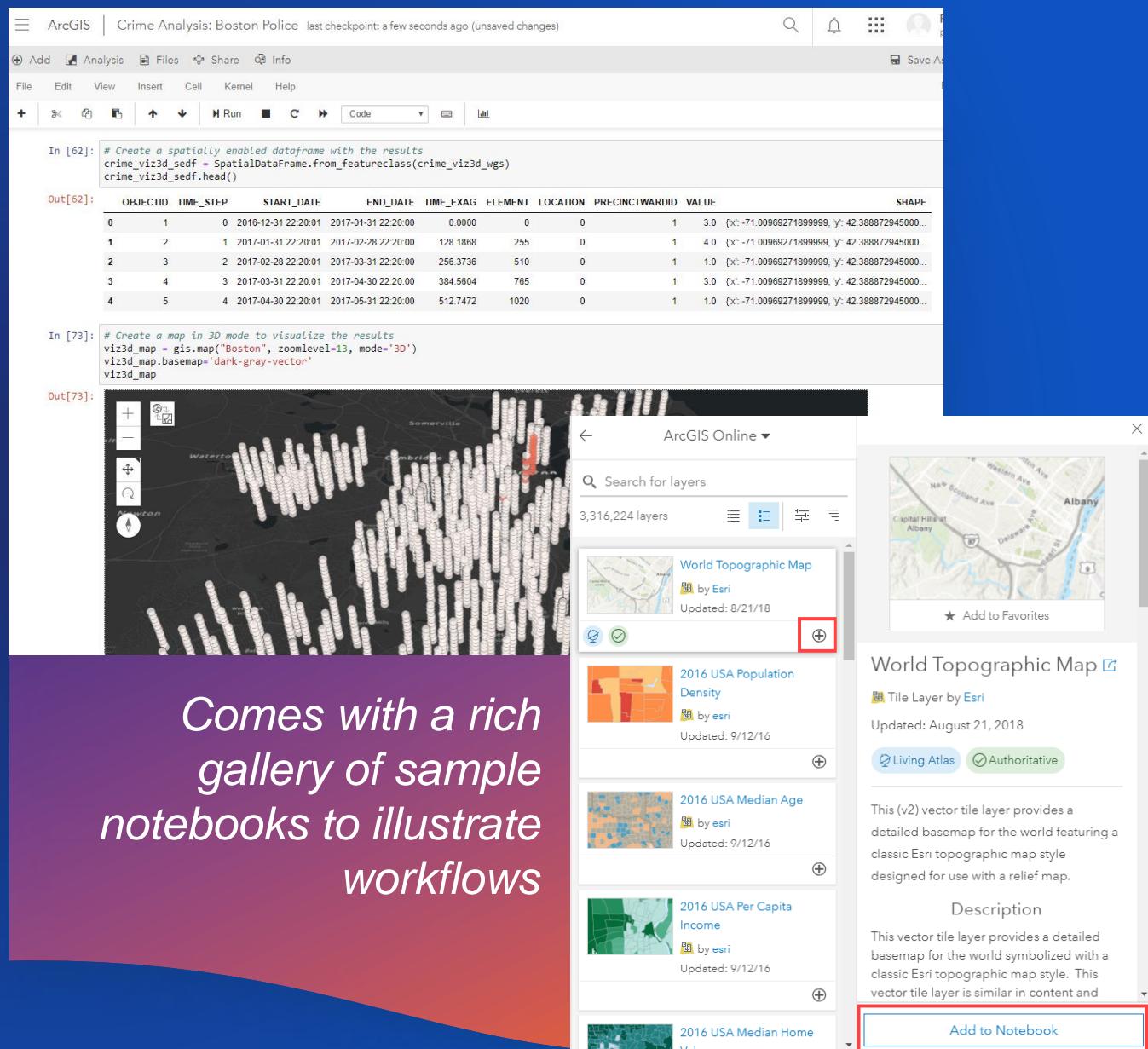
ArcGIS Notebook Server

New in 2019

- Automate analysis and administration
- Powerful data science platform
- Code with the Python API and ArcPy

Fully integrated with your Enterprise portal:

- Add and reference portal items from within your notebook
- Share notebooks with other users within your portal



The screenshot shows the ArcGIS Notebook Server interface. At the top, there's a navigation bar with 'Add', 'Analysis', 'Files', 'Share', and 'Info' buttons. Below that is a toolbar with 'File', 'Edit', 'View', 'Insert', 'Cell', 'Kernel', and 'Help' menus. The main area has two code cells and their outputs.

```
In [62]: # Create a spatially enabled dataframe with the results
crime_viz3d_sedf = SpatialDataFrame.from_featureclass(crime_viz3d_wgs)
crime_viz3d_sedf.head()

Out[62]:
```

| | OBJECTID | TIME_STEP | START_DATE | END_DATE | TIME_EXAG | ELEMENT | LOCATION | PRECINCTWARDID | VALUE | SHAPE |
|---|----------|-----------|---------------------|---------------------|-----------|---------|----------|----------------|-------|---|
| 0 | 1 | 0 | 2016-12-31 22:20:01 | 2017-01-31 22:20:00 | 0.0000 | 0 | 0 | 1 | 3.0 | [x: -71.0096927189999, y: 42.388872945000...] |
| 1 | 2 | 1 | 2017-01-31 22:20:01 | 2017-02-28 22:20:00 | 128.1868 | 255 | 0 | 1 | 4.0 | [x: -71.0096927189999, y: 42.388872945000...] |
| 2 | 3 | 2 | 2017-02-28 22:20:01 | 2017-03-31 22:20:00 | 256.3736 | 510 | 0 | 1 | 1.0 | [x: -71.0096927189999, y: 42.388872945000...] |
| 3 | 4 | 3 | 2017-03-31 22:20:01 | 2017-04-30 22:20:00 | 384.5604 | 765 | 0 | 1 | 3.0 | [x: -71.0096927189999, y: 42.388872945000...] |
| 4 | 5 | 4 | 2017-04-30 22:20:01 | 2017-05-31 22:20:00 | 512.7472 | 1020 | 0 | 1 | 1.0 | [x: -71.0096927189999, y: 42.388872945000...] |

```
In [73]: # Create a map in 3D mode to visualize the results
viz3d_map = gis.map("Boston", zoomlevel=13, mode='3D')
viz3d_map.basemap="dark-gray-vector"
viz3d_map
```

Out[73]:

The notebook also includes a map visualization showing crime data as 3D points over a basemap of Boston. To the right, there's an ArcGIS Online search interface displaying a gallery of sample notebooks. One notebook, 'Crime Analysis: Boston Police', is highlighted with a red box around its 'Add to Notebook' button.

Comes with a rich gallery of sample notebooks to illustrate workflows

Find out more...



ArcGIS Enterprise: Raster Analytics in Image Server

Thursday, July 11
2:30 pm - 3:30 pm
SDCC Room 08



ArcGIS Notebooks: An Introduction

Thursday, July 11
2:30 pm - 3:30 pm
SDCC Ballroom 06 B

Thursday, July 11
4:00 pm - 5:00 pm
SDCC Ballroom 06 B

Out-of-the-box spatial analysis

Feature Analysis



- Summarize Data
- Find Locations
- Data Enrichment
- Analyze Patterns
- Use Proximity
- Manage Data
- 27 standard tools

The screenshot shows the ArcGIS interface with the 'Analysis' tab selected. At the top, there are buttons for 'Details', 'Add', 'Basemap', and 'Analysis'. Below this, a section titled 'Perform Analysis' lists several tools: 'Summarize Data', 'Find Locations', 'Data Enrichment', 'Analyze Patterns', 'Use Proximity', and 'Manage Data'. Under 'Manage Data', five specific tools are listed with icons: 'Dissolve Boundaries', 'Extract Data', 'Generate Tessellations', 'Merge Layers', and 'Overlay Layers'. Each tool has a small info icon next to it.

Out-of-the-box data - Living Atlas of the World

The screenshot displays the ArcGIS Enterprise Content page. At the top, there is a navigation bar with links for Home, Gallery, Map, Scene, Groups, Content, and Organization. Below the navigation bar, a search bar is present. The main area is titled "Content" and includes tabs for My Content, My Favorites, My Groups, My Organization, and Living Atlas. A sidebar on the left contains sections for Categories (Trending, Basemaps, Imagery, Boundaries, People, Infrastructure, Environment) and Item Type (Maps, Layers, Scenes, Apps, Tools, Files). The main content area shows a grid of 11 items from the Living Atlas, each with a thumbnail, title, author, update date, view count, and a "View Details" button. The items include "2016 Population Density by County" (by esri_livingatlas), "2017 USA Grocery Store Market Share" (by esri_livingatlas), "2017 USA Facebook Users" (by esri_livingatlas), "Landsat 8 Views" (by esri_livingatlas), "World Topo Base" (by esri_livingatlas), "Landsat 8 Pan sharpened" (by esri_livingatlas), "DeLorme World Basemap" (by esri_livingatlas), and "Elevation Coverage Map" (by esri_livingatlas). On the right side of the page, there is a large map of the Northeastern United States, specifically focusing on the New England and Mid-Atlantic regions. The map is a composite of various data layers, including roads, land cover, and elevation. A legend on the left side of the map identifies these layers. The map interface includes standard GIS tools like zoom, pan, and measurement.

Find out more...



Living Atlas of the World: The Road Ahead

Wednesday, July 10
4:00 pm - 5:00 pm
SDCC Room 16 B



Using the Living Atlas for Demographic Analysis

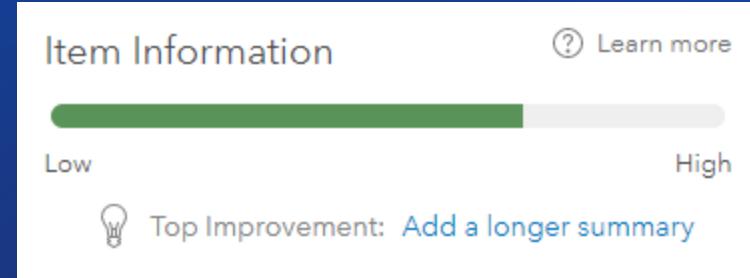
Thursday, July 11
10:00 am - 11:00 am
SDCC Room 30 D





Efficient content management

- Groups
- Content Categories
- Item Descriptions
- Content Statuses
- Metadata... and more!



Content Status

Recommend the use of this item.

Mark as Authoritative

Discourage the use of this item.

Mark as Deprecated

Set up organization categories

Custom categories

Create your own categories to organize content within your organization.

ArcGIS categories

ArcGIS categories include a selection of topic categories and subcategories that can be used to categorize many types of geospatial content. These categories are used to support ArcGIS Living Atlas of the World.

ISO categories

ISO categories includes topic categories from the International Organization for Standardization that provide a method for describing and cataloging geographic information.

INSPIRE categories

INSPIRE categories include a comprehensive set of spatial data themes set out in the INSPIRE Directive.

Addresses



Administrative units



Cadastral parcels



Coordinate reference systems



Geographical grid systems



Geographical names



Hydrography



Protected sites





Building web apps



easier, quicker
coarse-grained
more black box
less coding



more effort, more time
fine-grained
more control
more coding





Security and reliability

With great power comes great responsibility

Confidentiality

- Protect sensitive information from improper access
- Stay aware of who has access to what content

Integrity

- Maintain the authority of your data and information
- Prevent improper editing or alteration of your content

Availability

- Keep your sites and data continuously operating
- Minimize or eliminate downtime and data loss in case of failure



Find out more...



ArcGIS Enterprise: Security Integration

Thursday, July 11
10:00 am - 11:00 am
SDCC Room 32 A/B



ArcGIS Enterprise: Threat Mitigation and Prevention

Thursday, July 11
1:00 pm - 2:00 pm
SDCC Room 31 B/C



ArcGIS Enterprise is flexible

Versatile architecture

Variety of deployment options

Scalable and adaptive

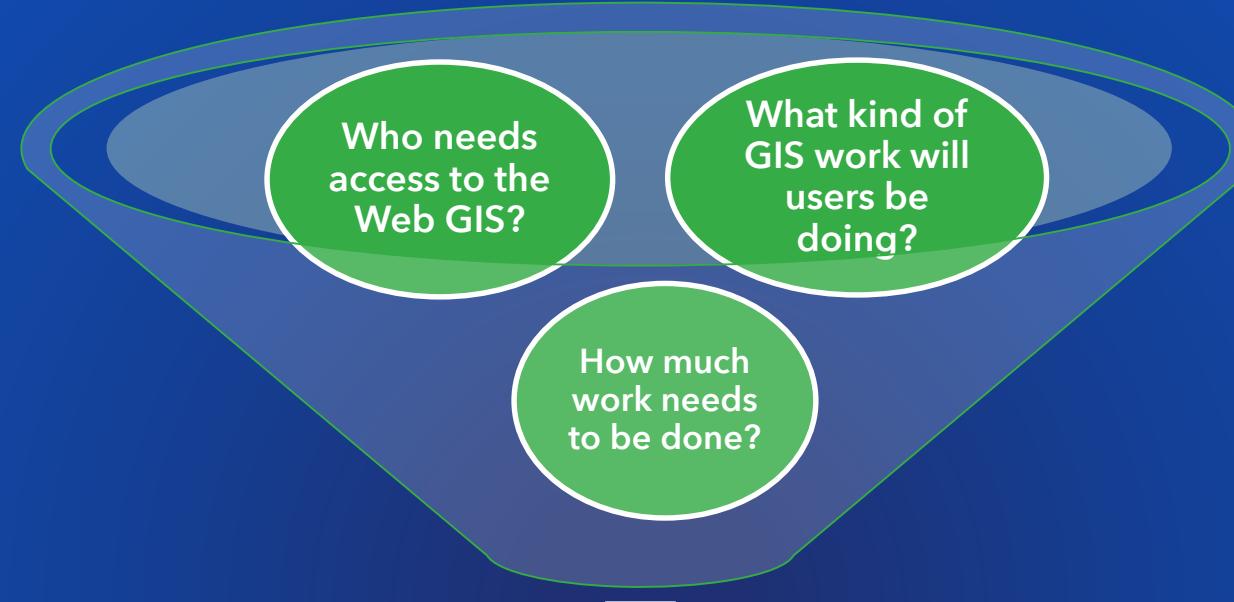
Works with your IT setup

No two deployments are the same - because
every Web GIS is deployed for
unique reasons by unique organizations.

Deploying ArcGIS Enterprise in a way that works
for you starts with asking the right questions.



Ask these
questions:



Make these
decisions:

We need *this amount* of machine resources for our Web GIS.

This many people need to have this level of access.

We need to have *this level of control* over the back-end system.

It needs to be *this level of secure*, and to fit our existing IT practices.



Carry out those decisions with these options

Infrastructure type

On-premises machines ("bare metal")

Infrastructure size

Virtual machines

Server roles & add-ons

Private cloud (Amazon Web Services,
Microsoft Azure, others)

High availability

Esri Managed Cloud Services

Deployment tools

A mix of multiple options





Carry out those decisions with these options

Infrastructure type

Infrastructure size

Server roles & add-ons

High availability

Deployment tools

Number of machines

Size of each machine (CPU cores, RAM)





Carry out those decisions with these options

Infrastructure type

GeoAnalytics Server for big data analysis
GeoEvent Server for real-time data processing
Image Server for advanced imagery and raster
GeoEnrichment Server for business analytics

Infrastructure size

ArcGIS Monitor

Server roles & add-ons

Workflow Manager
Specific industry solutions (Linear Referencing,
Maritime, Mapping and Charting)

High availability

Deployment tools



Carry out those decisions with these options

Infrastructure type

Infrastructure size

Server roles & add-ons

High availability

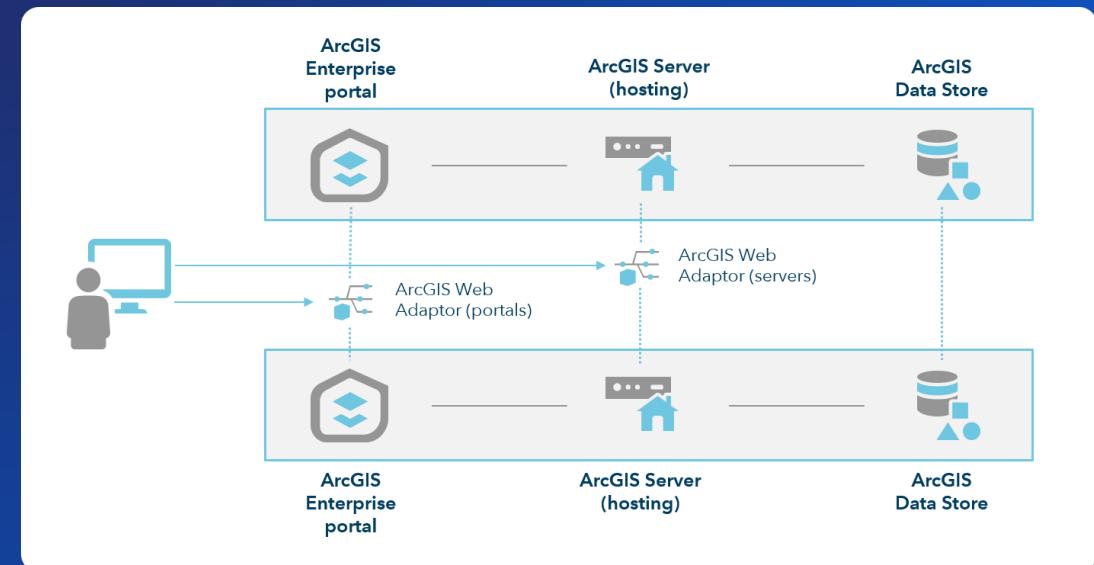
Deployment tools

What's our plan to deal with machine failure?

Limit downtime and data loss

Standby machines

Backup strategy





Carry out those decisions with these options

Infrastructure type

Infrastructure size

Server roles & add-ons

High availability

Deployment tools



ArcGIS
Enterprise
Builder

All-in-one
wizard



Amazon
Web
Services



Microsoft
Azure

Machine Images
and CloudBuilders



Chef



Powershell
DSC

Script-based





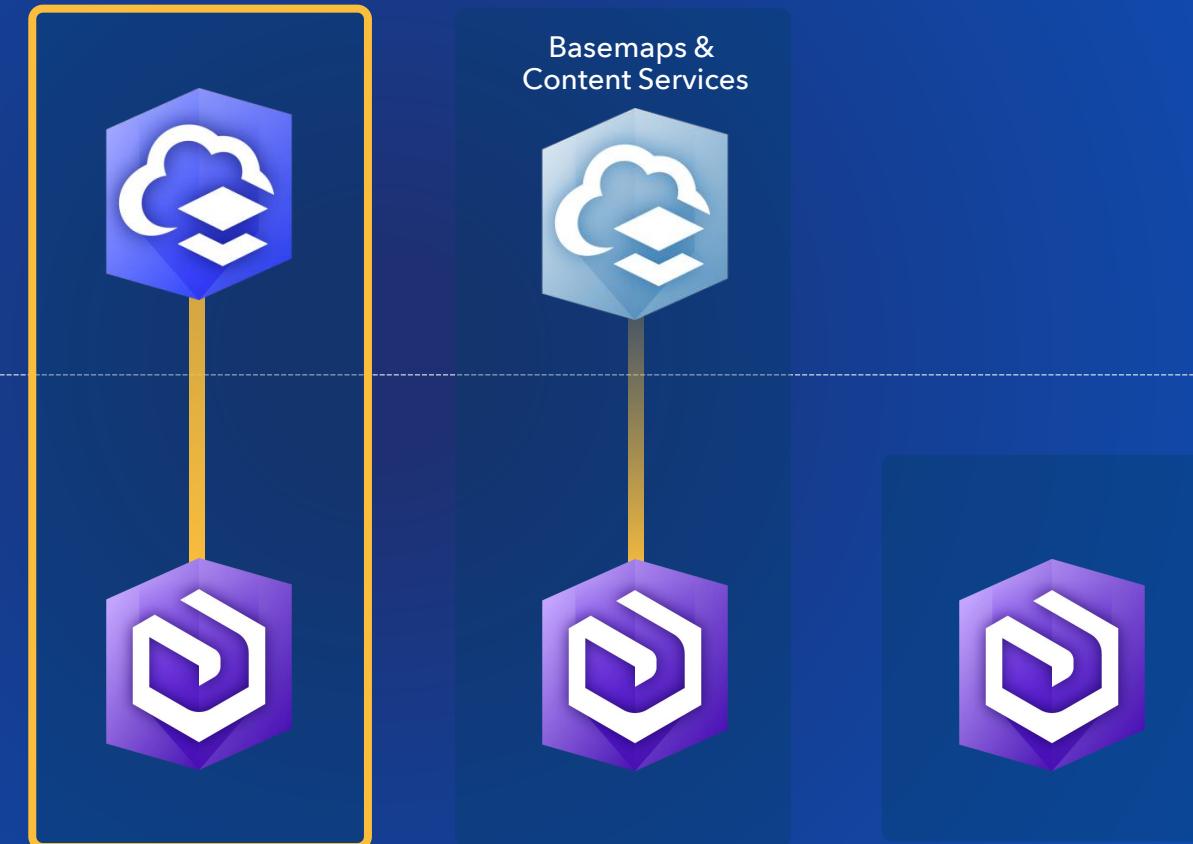
Web GIS isn't necessarily one or the other.

Begin with ArcGIS Online & SaaS

ArcGIS Online
Esri-managed
cloud infrastructure



ArcGIS Enterprise
Customer-managed
infrastructure



← Begin with ArcGIS Enterprise & software





Planning and adjusting
doesn't stop after you deploy.

Your usage patterns and traffic
volume change.

Scalability is crucial.

Access and authentication

ArcGIS Enterprise works with your organization's existing authentication system.

Built-in identity store

Users configured
within your portal

Accounts are separate from
your organization's
authentication system

SAML-based identity provider

Flexibility for both
built-in and
enterprise users

Users can either use their
organizational accounts or
create new ArcGIS accounts

Enterprise identity store (AD, LDAP)

Users configured
externally and imported

Integrates with your
organization's authentication
system

Find out more...



ArcGIS Enterprise: Architecting your Deployment

Wednesday, July 10
4:00 pm - 5:00 pm
SDCC Ballroom 06



ArcGIS Enterprise: High Availability and Disaster Recovery

Thursday, July 11
10:00 am - 11:00 am
SDCC Room 04



ArcGIS Enterprise is collaborative

Familiar security and sharing

Tailor content for your audiences

Distributed collaboration



Intuitive, secure sharing of GIS content by design

ArcGIS Enterprise portal



Data



Maps



Apps



Devices



Sites





In the portal, security and sharing are handled at the item level.

The screenshot shows a vertical list of items in the ArcGIS Portal:

- Web Mapping Application
- Web Map
- Feature Layer (hosted)
- File Geodatabase
- Web Mapping Application
- Feature Layer (hosted)
- Shapefile
- Map Image Layer

A vertical sidebar on the left contains icons for each item type: globe, map, building, padlock, and building.

What's an item?
Everything in your portal.

- 360 VR Experience (.3vr)
- AppBuilder Extension (URL)
- AppBuilder widget package (.zip)—Only portal ad
- Application (URL)
- ArcGIS Desktop add-in (.esriaddin)
- ArcGIS Explorer add-in (.eaz)
- ArcGIS Explorer application configuration (.ncfg)
- ArcGIS Explorer document (.nmf)
- ArcGIS Explorer layer (.nmc)
- ArcGIS for Windows Mobile package (.wmpk)
- ArcGIS Pro add-in (.esriaddinx)
- ArcGIS Pro configuration (.proconfigX)
- ArcGlobe document (.3dd)
- ArcMap document (.mxd)



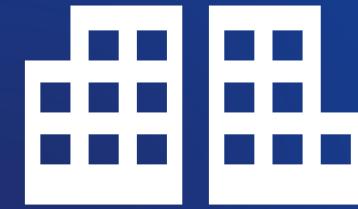
In the portal, security and sharing are handled at the item level.



Not shared



Shared with
one or more
groups



Shared with
your whole
organization



Shared with
everyone



Most secure
Least access

Least secure
Most access



Distributed Collaboration

- **Sharing content in a secure, trusted pipeline**
- **Familiar access control - group sharing model**
- **Each participant keeps its own security settings**
- **Automatic synchronization schedule**



From
Individuals



To
Organizations

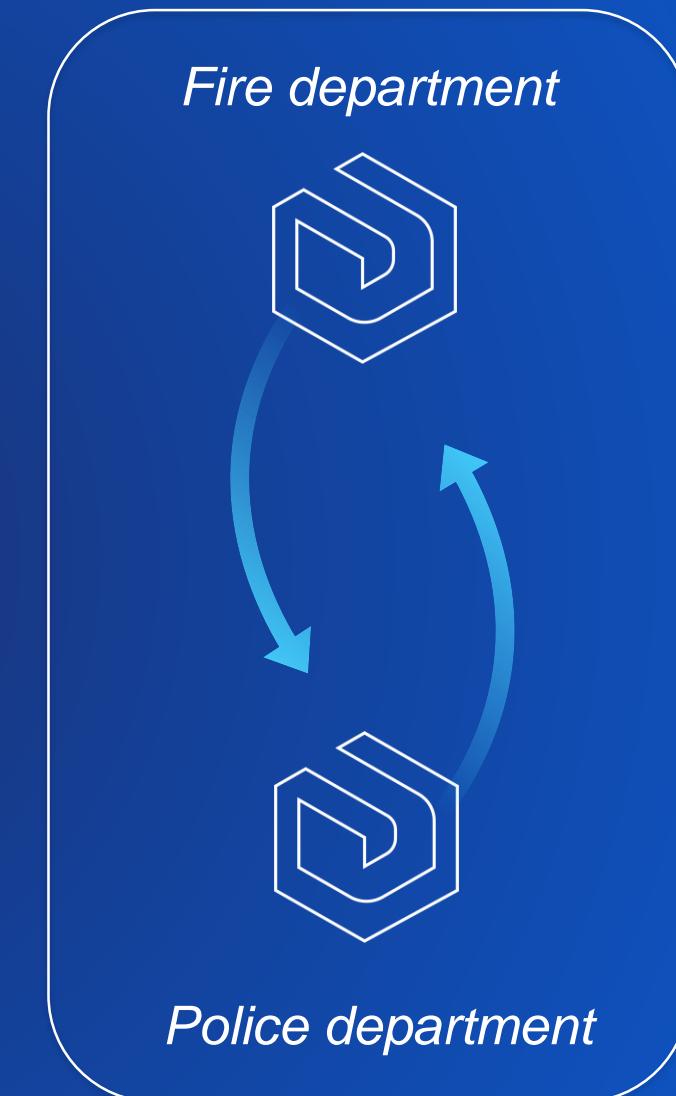


To Networks of
Organizations



Distributed Collaboration

- Keeps data updates in sync automatically
- Provides a common hub of data and information, making one deployment's data usable in the next
- Can share feature layers, applications, 3D data, flat files, and more
- Variety of use cases and setups





Enterprise Sites

- Heavily customizable for your organization
- Deliver curated content for a specific audience
- Dive deeper with Pages



Welcome to the U.S. Army corps of Engineers right of entry web application. This site allows you to apply for Blue Roof assistance through the use of a user friendly form which gathers information about your residence through the Right of Entry form. The Right of Entry (ROE) is a legal requirement that allows Corps workers to access your property and assess damage to your home. The ROE also allows contracted crews to work on your roof.

Operation Blue Roof is a priority mission managed by the U.S. Army Corps of Engineers for the Federal Emergency Management Agency. The purpose of Operation Blue Roof is to provide homeowners in disaster areas with fiber-reinforced sheeting to cover their damaged roofs until arrangements can be made for permanent repairs.



FEMA

Additional Information



US Army Corps

Find out more...

ArcGIS Enterprise: Creating Sites and Pages

Thursday, July 11
8:30 am - 9:30 am
SDCC Ballroom 06 E

Distributed Collaboration on the ArcGIS Blog



A thumbnail image for a blog post. It features a dark blue background with a network of white lines and dots representing connectivity. In the center, there's a white rectangular box. At the top left of this box is the ArcGIS Enterprise logo (a hexagon with three yellow diamonds). To the right of the logo, the text "ArcGIS Enterprise" is written in a light blue font. Below this, inside the white box, is the title of the post: "Five ways to use distributed collaboration to share your data with others". At the bottom left of the white box, the category "Sharing and Collaboration" and the date "February 07, 2019" are listed. To the right of the white box, there's a small circular profile picture of a person and the name "Hilary Curtis".

How to learn more

ArcGIS Enterprise Portal Server Data Stores Cloud

ArcGIS Enterprise

Home Introduction Installation Guides

Introduction / Introducing ArcGIS Enterprise

▼ Introducing ArcGIS Enterprise

- What is ArcGIS Enterprise?
- What's new in ArcGIS Enterprise 10.7.1
- Upgrade ArcGIS Enterprise
- Base ArcGIS Enterprise deployment
- > ArcGIS Enterprise Builder
- Tutorial: Set up a base ArcGIS Enterprise deployment

What is ArcGIS Enterprise?

ArcGIS 10.7 (Windows) | Other versions ▾

ArcGIS Enterprise is the foundational software system for GIS, power analytics, and data management. It is the backbone for running the your own custom applications. ArcGIS Enterprise is tightly integrated ArcGIS Pro for mapping and authoring, and seamlessly connects with ArcGIS Online to share content between systems.

Collaboration and flexibility are central to ArcGIS Enterprise, allowing you to organize and share your work on any device, anywhere, at any time.

Documentation

ArcGIS Enterprise

What's new in ArcGIS Enterprise 10.7.1

Administration June 27, 2019 Hilary Curtis, Scott MacDonald

What a better way to kick off the summer than an ArcGIS Enterprise release? Available today for all eligible customers, the 10.7.1 release delivers new possibilities for data and services, granularity for custom administrator roles, new triggers for webhooks, and additional enhancements woven in throughout many parts of the software.

This release builds off of the 10.7 release earlier this year, which was full of new features and functionality to support your data management, mapping, and analysis needs. 10.7.1 is a long term support release and will receive a total of 6 years of support (10.7 was a short term support release, receiving 3 years of support).

GeoNet

The Esri Community

Home My News Browse GeoNet ▾ Communities ▾ ArcGIS Ideas GeoNet Resource Hub

esri

All Places > GIS > Enterprise GIS
ArcGIS Enterprise

Overview Activity Content People Subspaces Calendar

① Log in to follow, share, and participate in this community.

Welcome to the ArcGIS Enterprise space
(Formerly the ArcGIS for Server space) This is the spot to discuss, ask questions and collaborate with others about ArcGIS Enterprise.

Browse Content Share File Start Discussion

GeoNet

ArcGIS Blog

To recap, ArcGIS Enterprise is...

foundational

Anchors your Web GIS workflows
Receives content from desktop GIS
Connected with all Esri apps

powerful

Sophisticated server roles
Advanced analytics and data science
Efficient content + data management
Controls for security and reliability

flexible

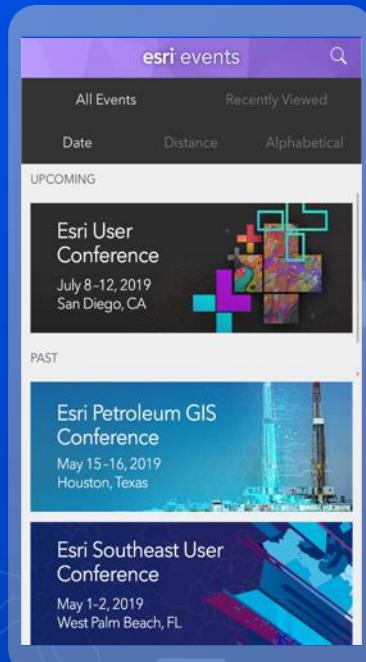
Versatile architecture
Helpful deployment tools
Scalable and adaptive
Works with your IT setup

collaborative

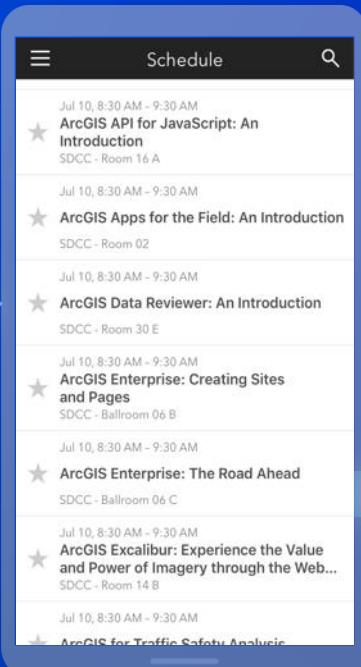
Easy content security + sharing
Tailor sites for your audiences
Distributed collaboration

Please share your feedback in the app

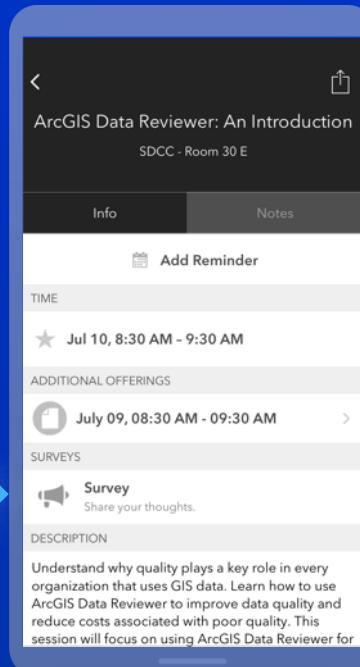
Download the Esri Events app and find your event



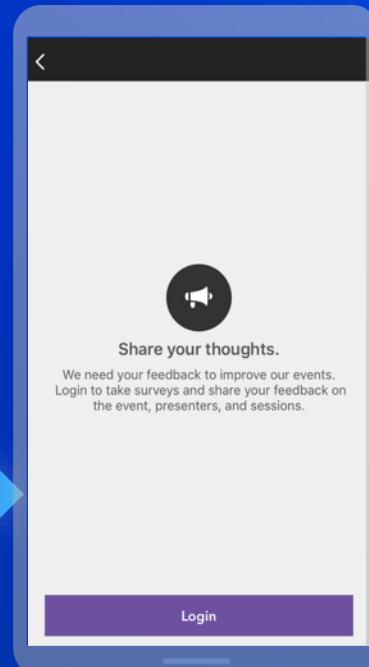
Select the session you attended



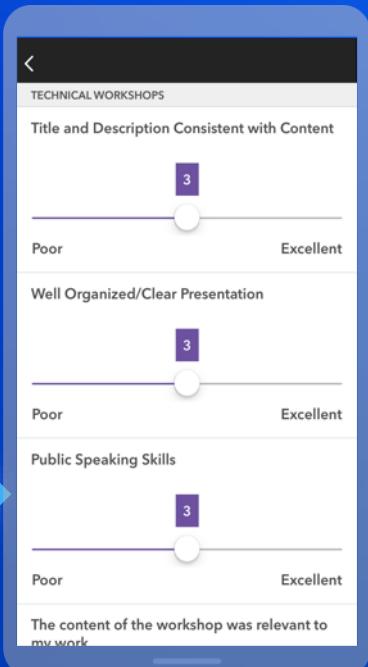
Scroll down to "Survey"



Log in to access the survey



Complete the survey and select "Submit"



Thank you!

For slides: please leave your business card on the side table