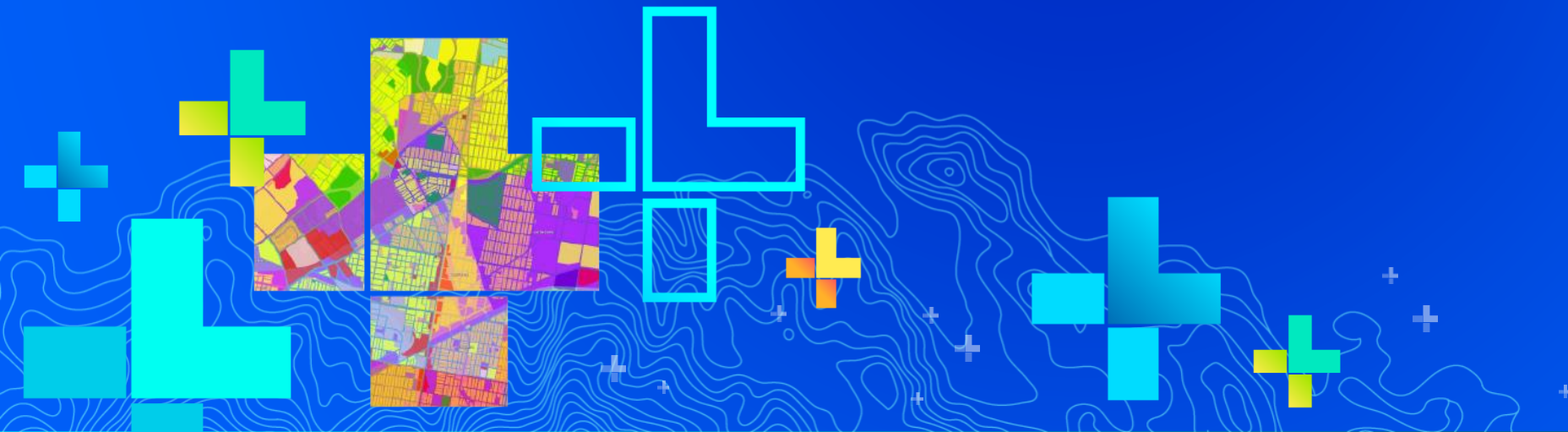


ArcGIS Enterprise: an introduction

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.

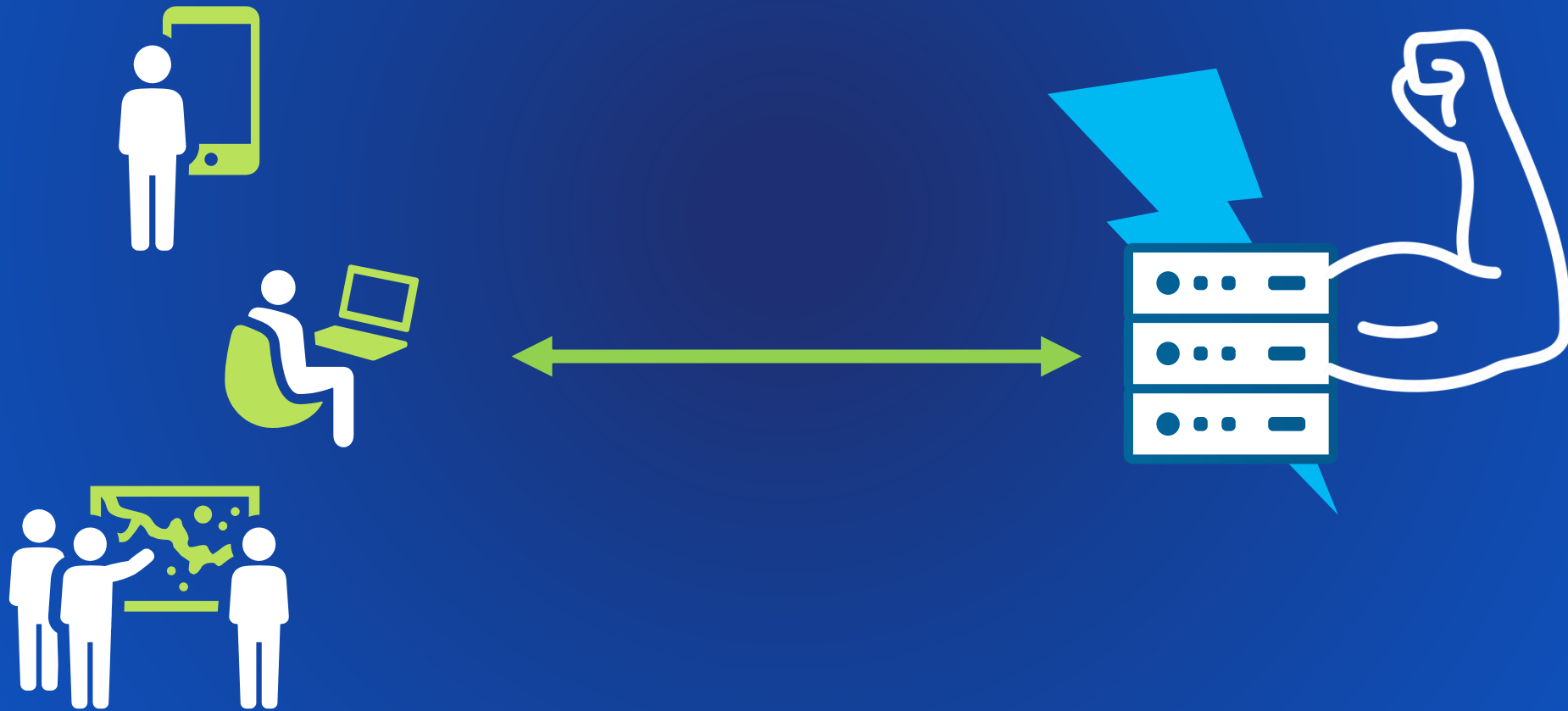
Deployed to fit your
organization's needs
and resources; scales
to meet demand

Seamlessly integrated with
the full stack of Esri GIS
software products



Let's start simply.

What's Web GIS?



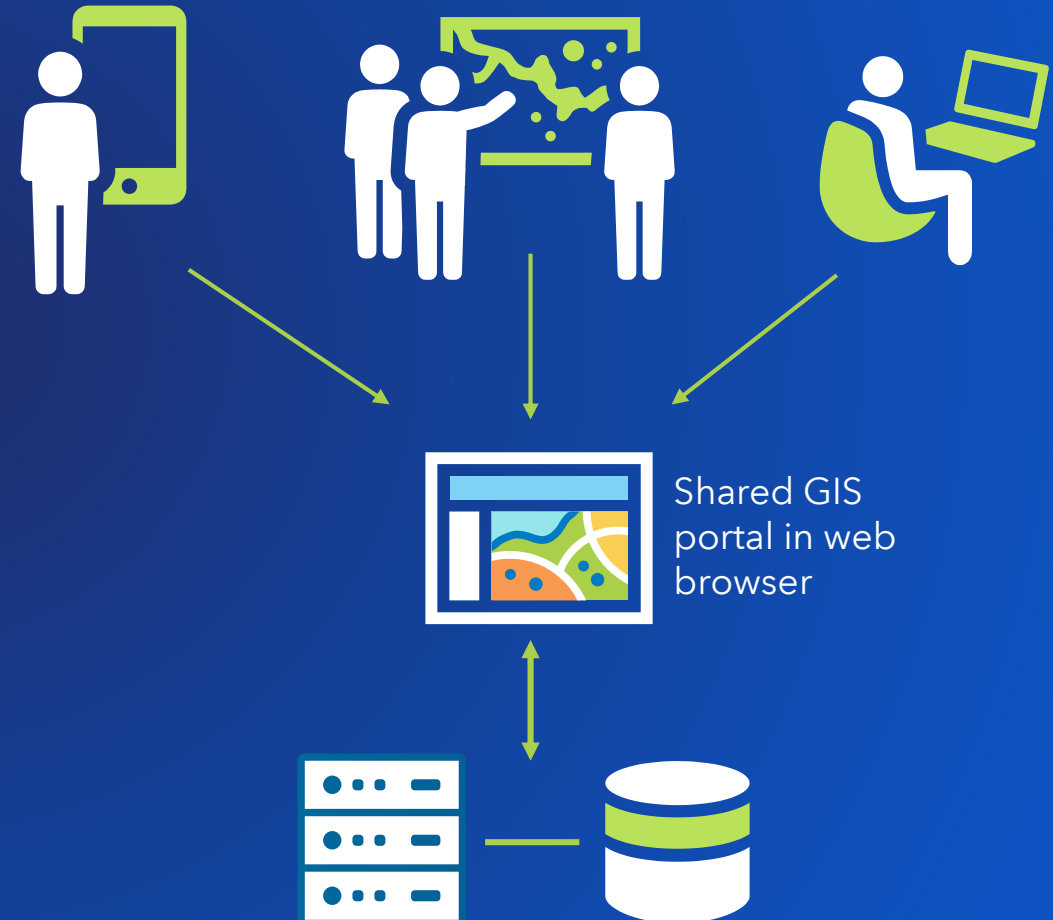
Desktop GIS

All work is done on your local machine.



Web GIS

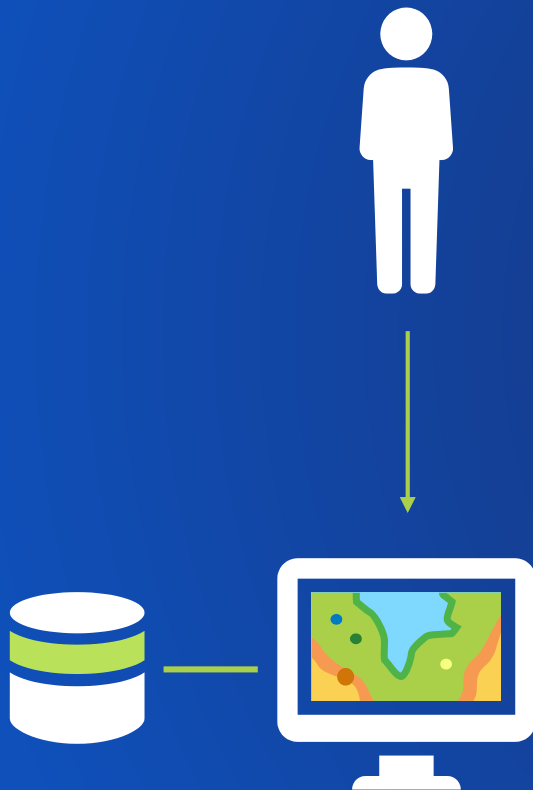
Everyone's work is done by the back-end server infrastructure.



Web GIS is not a replacement for Desktop GIS.
It's the central tier in a modern GIS ecosystem.



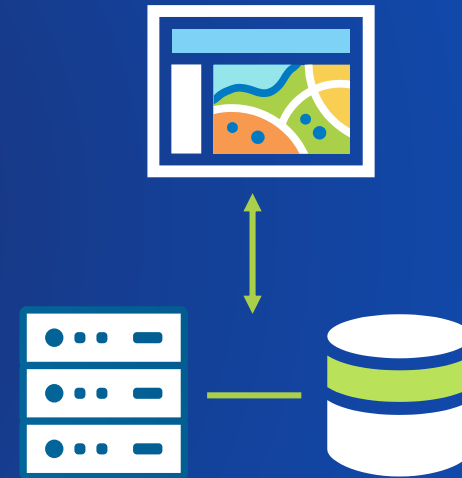
Desktop GIS



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



Web GIS



ArcGIS Enterprise is

Foundational

Powerful

Flexible

Collaborative



ArcGIS for Developers

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



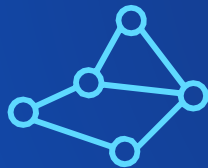
Capabilities of ArcGIS Enterprise: Go beyond to solve tough problems



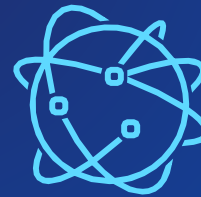
Data science and
machine learning



Develop custom
tools and solutions



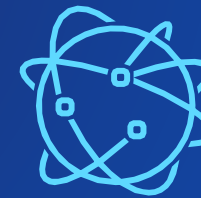
Analyze
massive
datasets



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

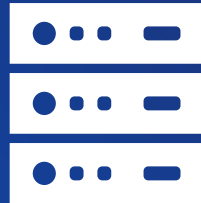
Front-end portal

- 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



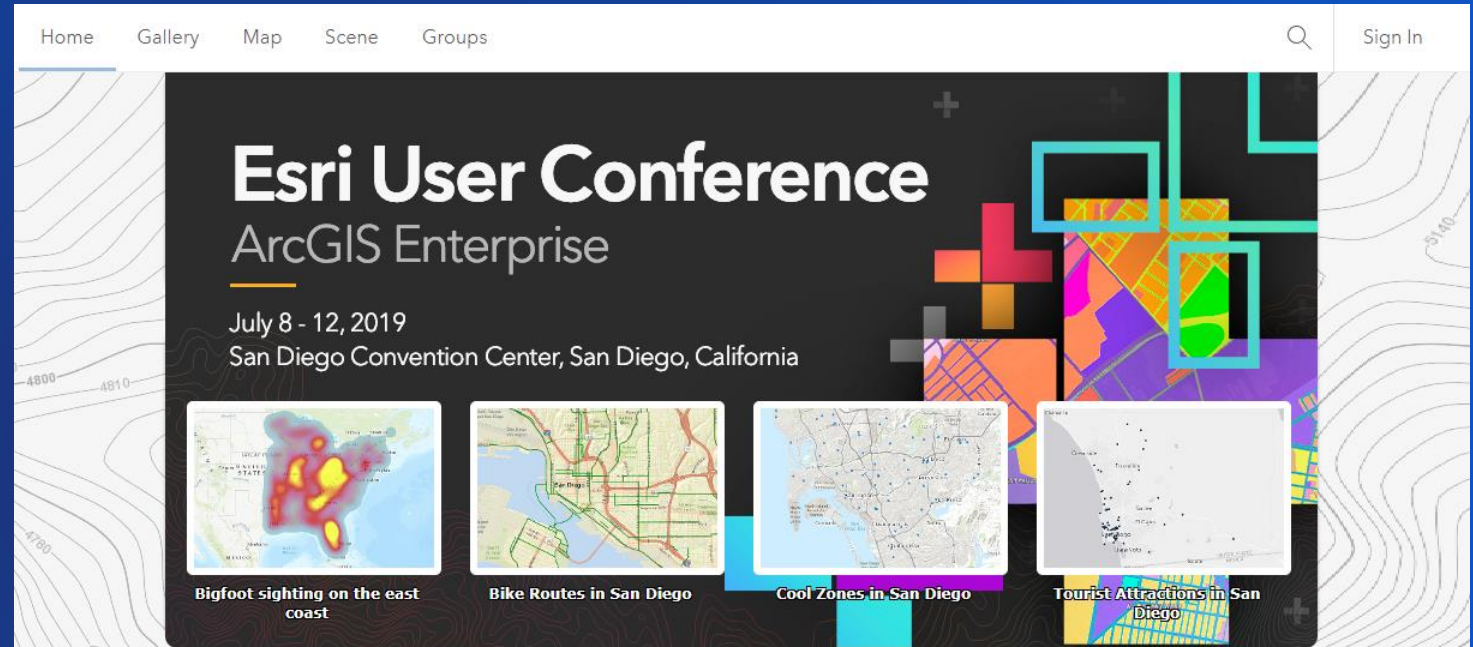
Data store(s)

- 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 ArcGIS Enterprise portal settings interface. At the top, there's a navigation bar with tabs: Home, Gallery, Groups, Content, and Organization. Below this is a sub-navigation bar with 'ArcGIS Enterprise' and tabs for Overview, Members, Licenses, Status, and Settings. The 'Settings' tab is active, and the 'Home Page' section is selected in the left sidebar. The main content area is titled 'Home Page' and includes a description: 'Set up the look and functionality of your portal's Home Page. The Home Page serves as a starting point for your members.' There are three main sections: 'Background Image', 'Banner', and 'Featured Content'. The 'Background Image' section has a preview, a description, and three options: 'No background' (selected), 'Image', and 'Click here to upload custom image'. The 'Banner' section has a preview, a description, and two options: 'Image' (selected) and 'Custom design'. Below these are three image thumbnails, with the middle one selected. The 'Featured Content' section has a preview and a dropdown menu currently set to 'No featured content'.

Home Gallery Groups Content Organization

ArcGIS Enterprise Overview Members Licenses Status Settings

Save Cancel

General
Home Page
Gallery
Map
Items
Groups
Utility Services
ArcGIS Online
Servers
Roles
Collaborations
Security

Home Page

Set up the look and functionality of your portal's Home Page. The Home Page serves as a starting point for your members.

Background Image

The background image displays behind all other components on the Home Page. Select from the available options or choose to upload your own background image.

No background ☒ Image ☐ Custom design

Click here to upload custom image

Banner

The banner displays at the top of the Home Page. Select an image or enter your own HTML to create the contents of the banner area.

☒ Image ☐ Custom design

Click here to upload custom image

Featured Content

Choose a group whose content will be featured on the Home Page.

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 displays the ArcGIS Server Manager web application. The top navigation bar includes links to [esri.com](#), [ArcGIS Enterprise](#), [Sign Out](#), and [Help](#). Below this, there are tabs for **Services**, **Site**, **Security**, and **Logs**. The **Services** tab is active, showing sub-tabs for **Manage Services**, **OGC Services**, **KML Network Links**, and **Sharing**. The main content area is titled "Editing: [Site \(root\)](#) > LakeForest_png" and includes buttons for [Help](#), [Save and Restart](#), and [Cancel](#).

On the left, a sidebar lists configuration categories: **General**, **Parameters**, **Capabilities** (selected), **Pooling**, **Processes**, and **Item Description**.

The **Capabilities** section is titled "Select and configure capabilities" and contains checkboxes for ☒ **Imaging (always enabled)**, ☐ **WMS**, and ☐ **WCS**.

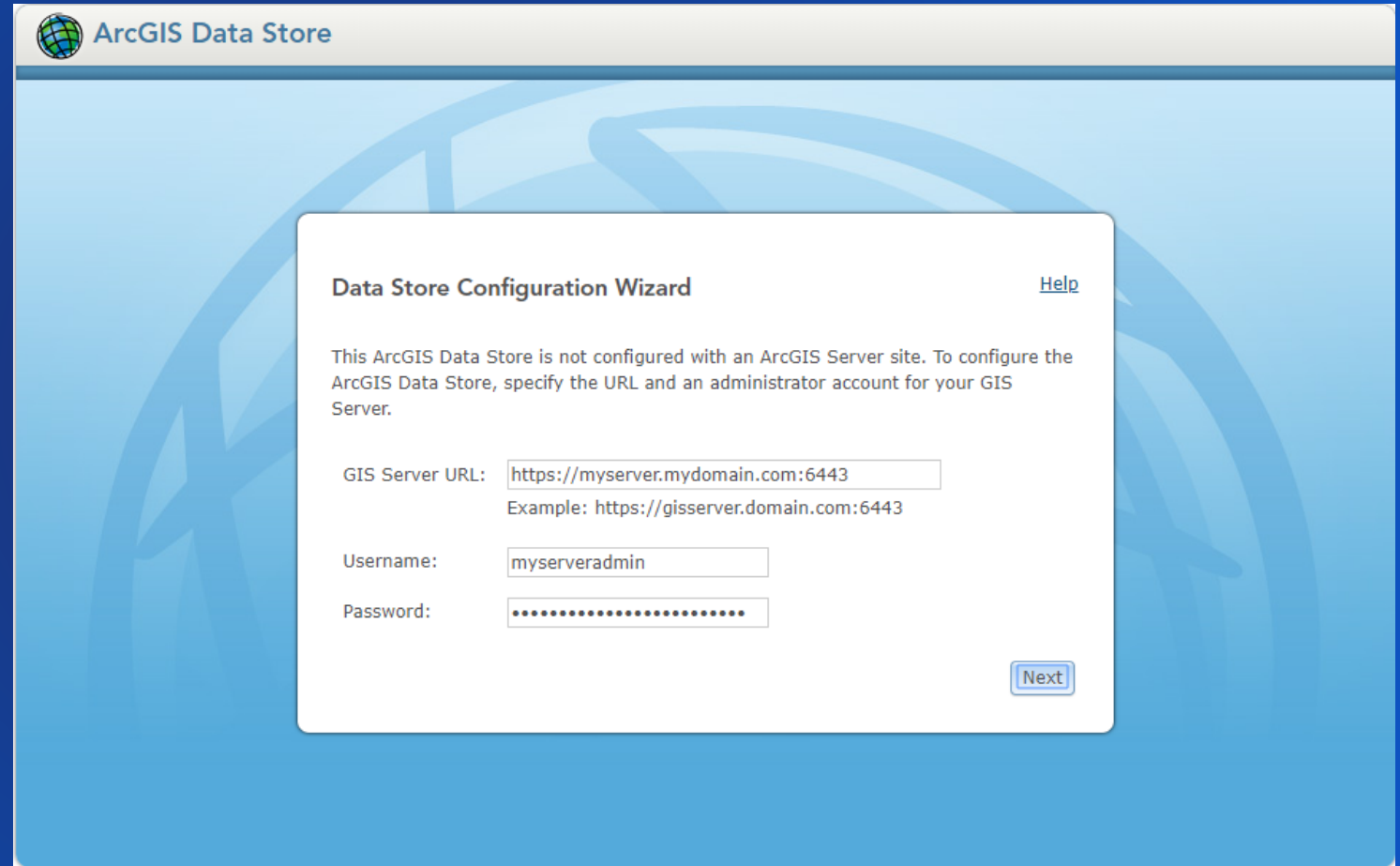
Below this is the **Imaging Configuration** section, which includes **URLs** (REST URL: <https://serve>, SOAP URL: <https://serve>) and **Operations Allowed** (Catalog, Pixels, and ☒ **Metadata**).

On the right, the **ArcGIS REST Services Directory** is shown, with a breadcrumb trail: [Home](#) > [services](#) > [LakeForest_png \(ImageServer\)](#). Below this, the service details for **LakeForest_png (ImageServer)** are listed:

- 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:**
- 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



The screenshot shows the ArcGIS Data Store configuration wizard. The window title is "ArcGIS Data Store". The wizard is titled "Data Store Configuration Wizard" with a "Help" link. The text states: "This ArcGIS Data Store is not configured with an ArcGIS Server site. To configure the ArcGIS Data Store, specify the URL and an administrator account for your GIS Server." The form includes three input fields: "GIS Server URL" with the value "https://myserver.mydomain.com:6443" and an example "https://gisserver.domain.com:6443", "Username" with the value "myserveradmin", and "Password" with masked characters. A "Next" button is at the bottom right.

ArcGIS Data Store

Data Store Configuration Wizard [Help](#)

This ArcGIS Data Store is not configured with an ArcGIS Server site. To configure the ArcGIS Data Store, specify the URL and an administrator account for your GIS Server.

GIS Server URL:
Example: https://gisserver.domain.com:6443

Username:

Password:

[Next](#)

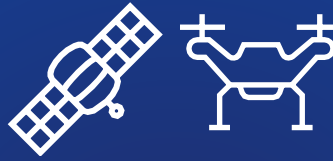
Components of ArcGIS Enterprise: User-managed data



feature



tabular



imagery



real-time



big data



3D



field data



secure data



file-based



business intelligence

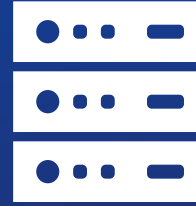
Bring your own data



Desktop



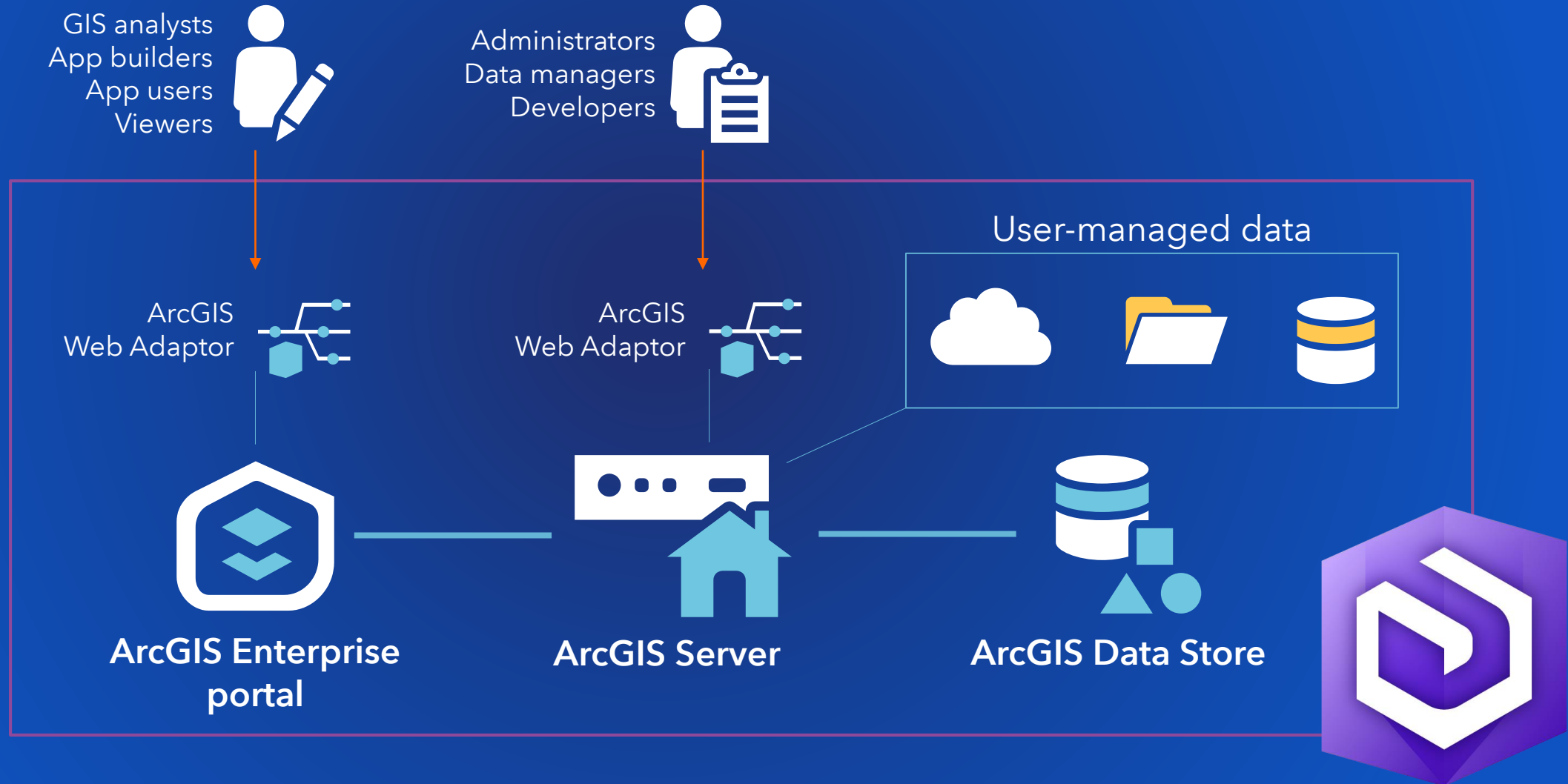
Server



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

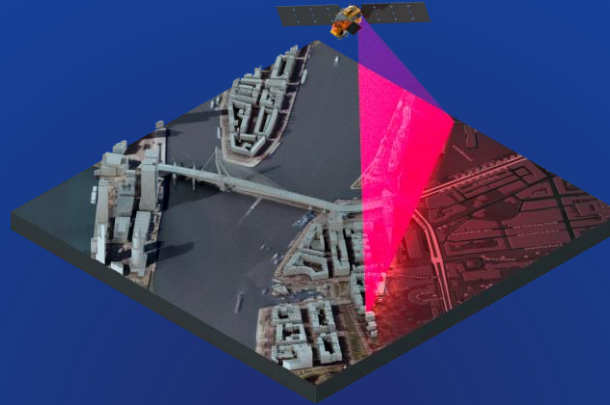
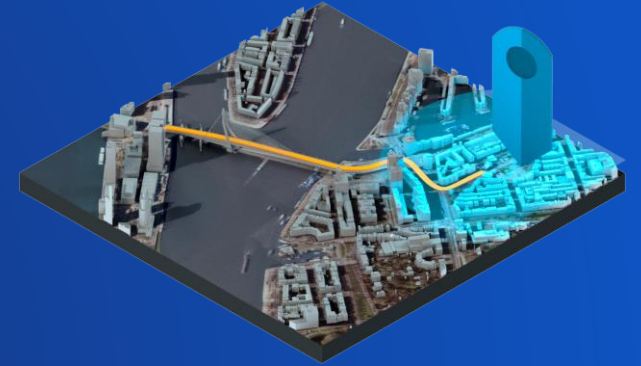


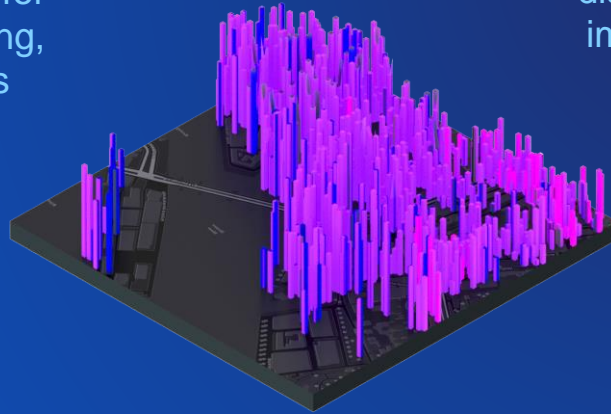
Image Server

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

ArcGIS | Crime Analysis: Boston Police | last checkpoint: a few seconds ago (unsaved changes)

File Edit View Insert Cell Kernel Help

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": -71.00969271899999, "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": -71.00969271899999, "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": -71.00969271899999, "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": -71.00969271899999, "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": -71.00969271899999, "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]:

*Comes with a rich
gallery of sample
notebooks to illustrate
workflows*

ArcGIS Online

Search for layers

3,316,224 layers

World Topographic Map
by Esri
Updated: 8/21/18

2016 USA Population Density
by esri
Updated: 9/12/16

2016 USA Median Age
by esri
Updated: 9/12/16

2016 USA Per Capita Income
by esri
Updated: 9/12/16

2016 USA Median Home Value
by esri
Updated: 9/12/16

World Topographic Map
Tile Layer by Esri
Updated: August 21, 2018

Living Atlas Authoritative

This (v2) vector tile layer provides a detailed basemap for the world featuring a classic Esri topographic map style designed for use with a relief map.

Description

This vector tile layer provides a detailed basemap for the world symbolized with a classic Esri topographic map style. This vector tile layer is similar in content and

Add to Notebook

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

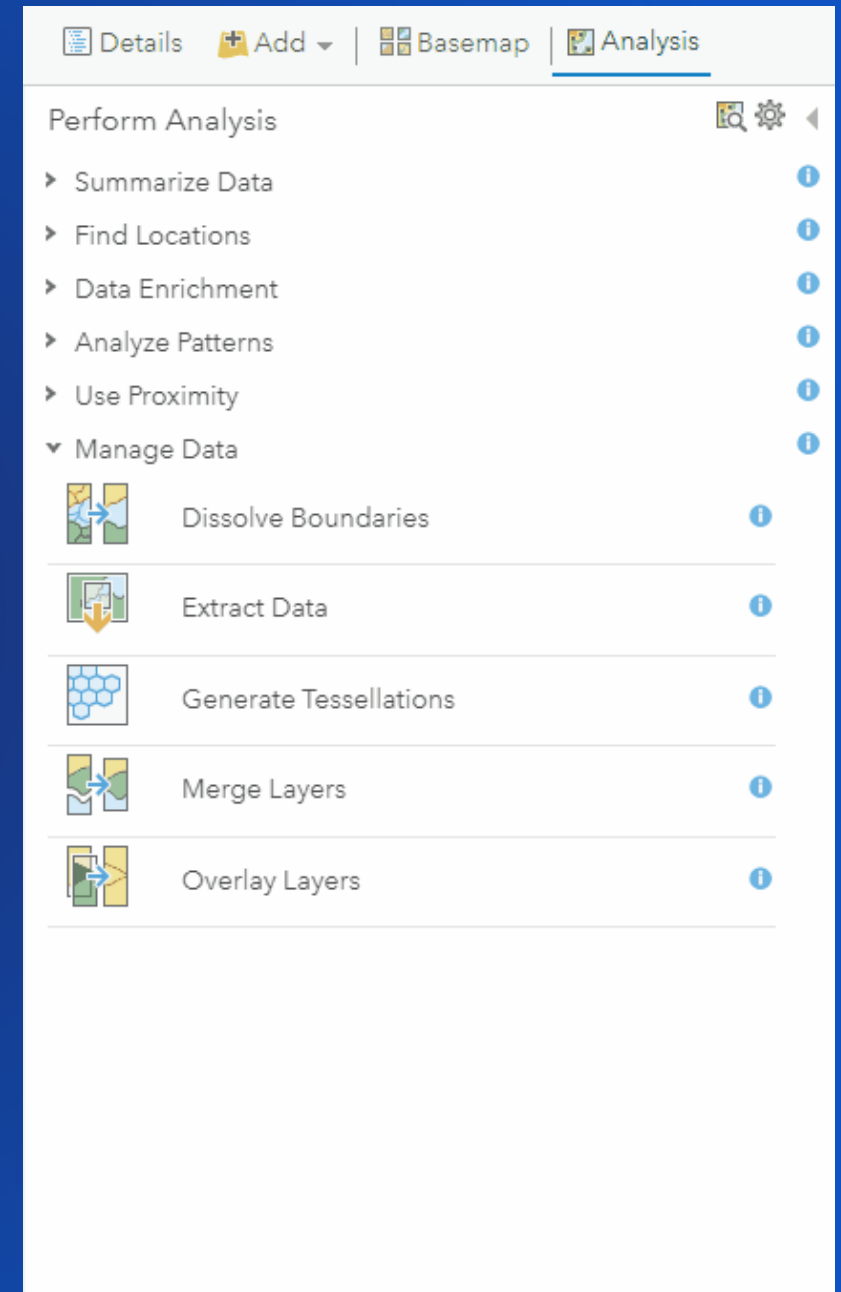


Out-of-the-box spatial analysis

Feature Analysis



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



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

Home Gallery Map Scene Groups Content Organization

Content

My Content My Favorites My Groups My Organization Living Atlas

Categories

- Trending (1)
- Basemaps (115)
- Imagery (45)
- Boundaries (644)
- People (105)
- Infrastructure (68)
- Environment (244)

Item Type

- Maps
- Layers
- Scenes
- Apps
- Tools
- Files

Search Living Atlas

1 - 16 of 1653

Sort by: Relevance

2016 Population Density by C...
by esri_livingatlas
Updated: Apr 24, 2018
View Count: 2

2017 USA Grocery Store Mar...
by esri_livingatlas
Updated: Apr 24, 2018
View Count: 1

2017 USA Facebook Users
by esri_livingatlas
Updated: Apr 24, 2018
View Count: 1

Landsat 8 Views
by esri_livingatlas
Updated: Apr 24, 2018
View Count: 0

World Topo Base
by esri_livingatlas
Updated: Apr 24, 2018
View Count: 0

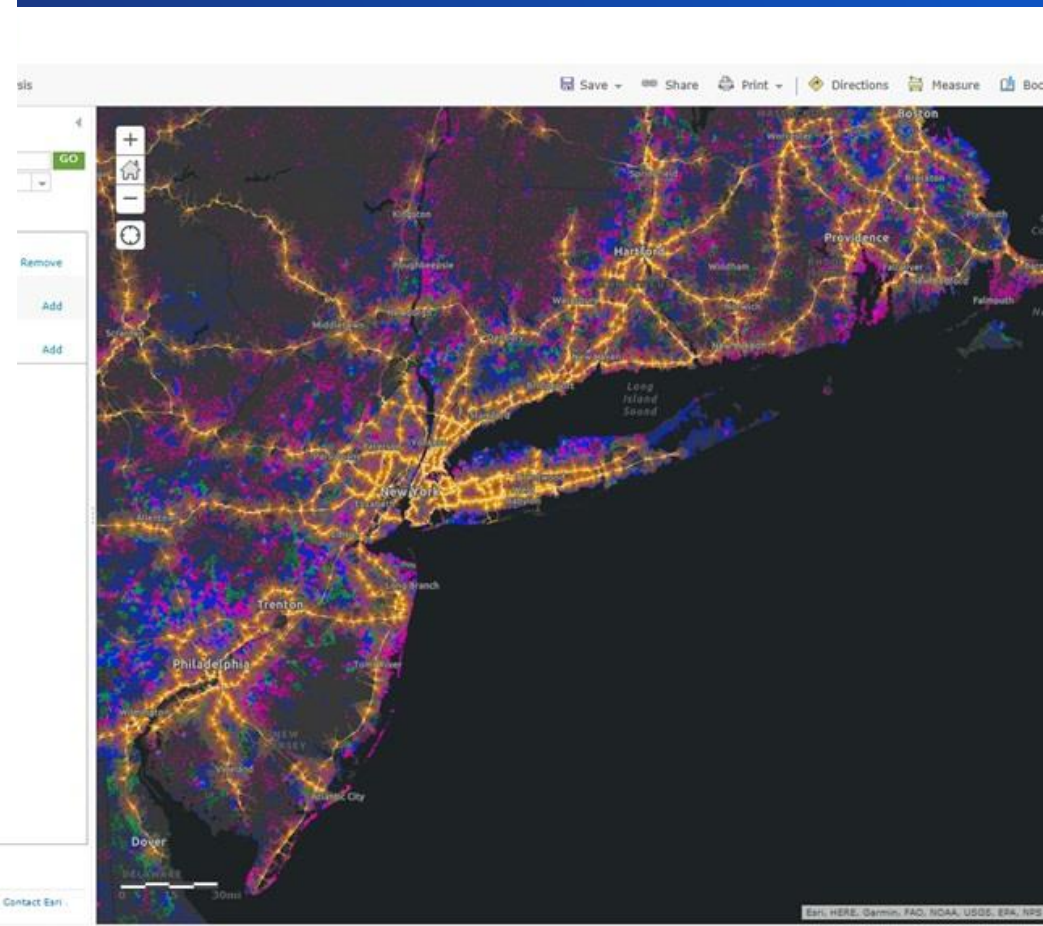
Landsat 8 Pansharpended
by esri_livingatlas
Updated: Apr 24, 2018
View Count: 0

DeLorme World Basemap
by esri_livingatlas
Updated: Apr 24, 2018
View Count: 0

Elevation Coverage Map
by esri_livingatlas
Updated: Apr 24, 2018
View Count: 0

DONE ADDING LAYERS

Esri.com | ArcGIS Marketplace | Help | Terms of Use | Privacy | Contact Esri | Report Abuse



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!

Item Information

[? Learn more](#)

Top Improvement: [Add a longer summary](#)

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 [i](#)

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 [i](#)

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

INSPIRE categories [i](#)

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

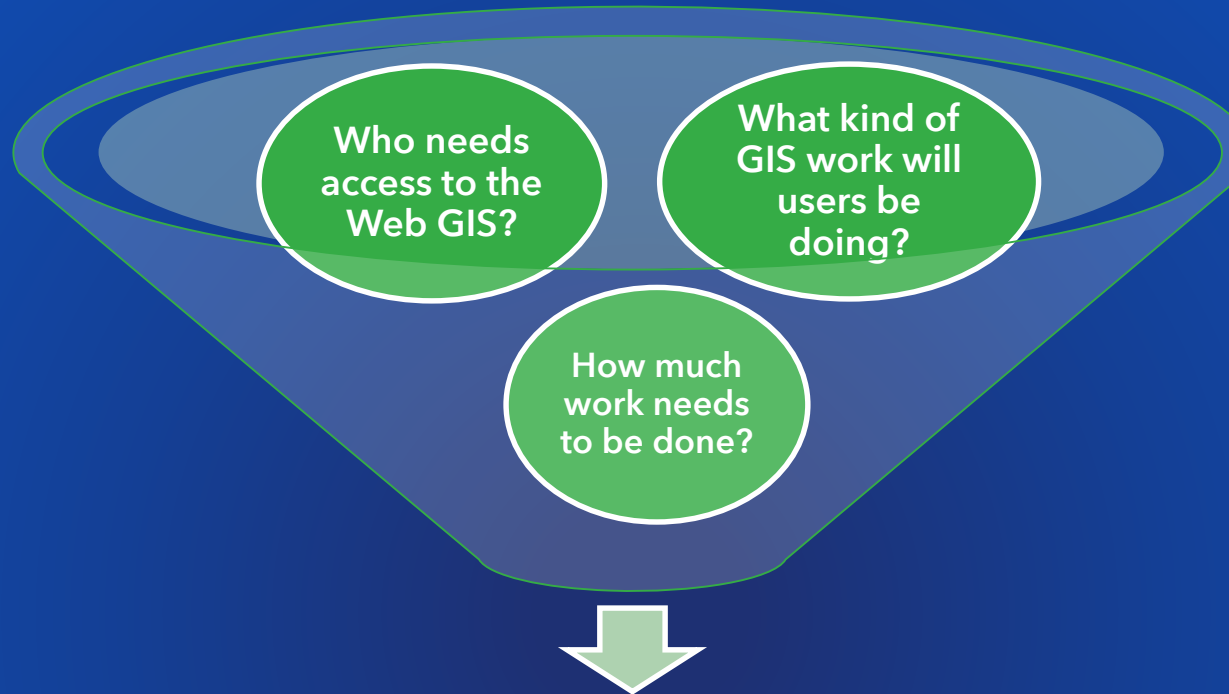
Works with your IT setup

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")

Virtual machines

Infrastructure size

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

Server roles & add-ons

Esri Managed Cloud Services

High availability

A mix of multiple options

Deployment tools



Carry out those decisions with these options

Infrastructure type

Infrastructure size

Number of machines

Size of each machine (CPU cores, RAM)

Server roles & add-ons

High availability

Deployment tools



Carry out those decisions with these options

Infrastructure type

Infrastructure size

Server roles & add-ons

High availability

Deployment tools

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

ArcGIS Monitor

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



Carry out those decisions with these options

Infrastructure type

Infrastructure size

Server roles & add-ons

High availability

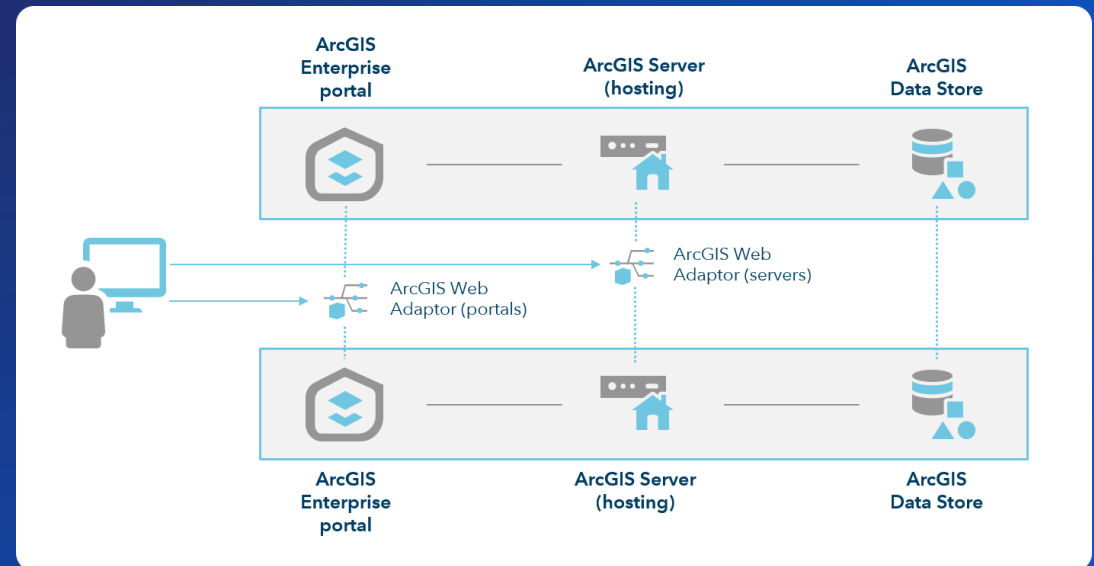
Deployment tools

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



ArcGIS
Enterprise
Builder

All-in-one
wizard

Infrastructure size



Amazon
Web
Services



Microsoft
Azure

Machine Images
and CloudBuilders

Server roles & add-ons

High availability

Deployment tools



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



Basemaps &
Content Services



← 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.

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

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)

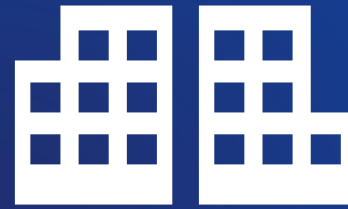
In the portal, security and sharing are handled at the item level.



Not shared



Shared with
one or more
groups



Shared with
your whole
organization



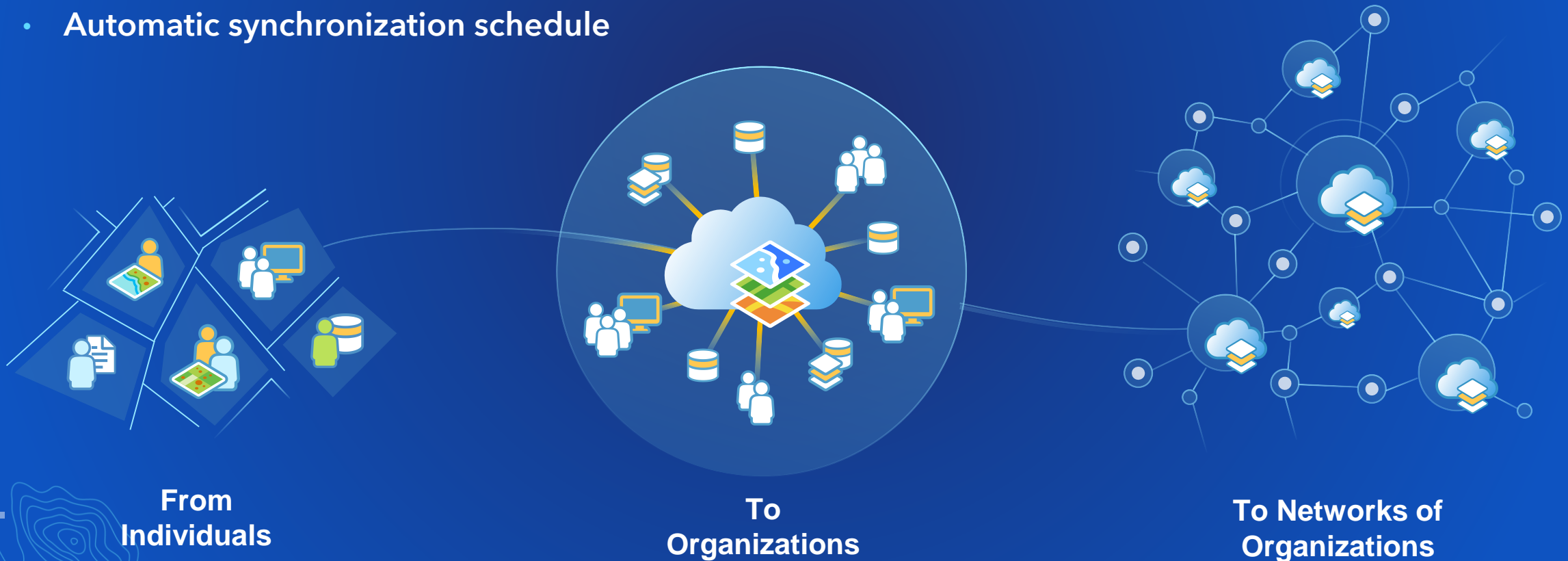
Shared with
everyone

Most secure
Least access

Least secure
Most access

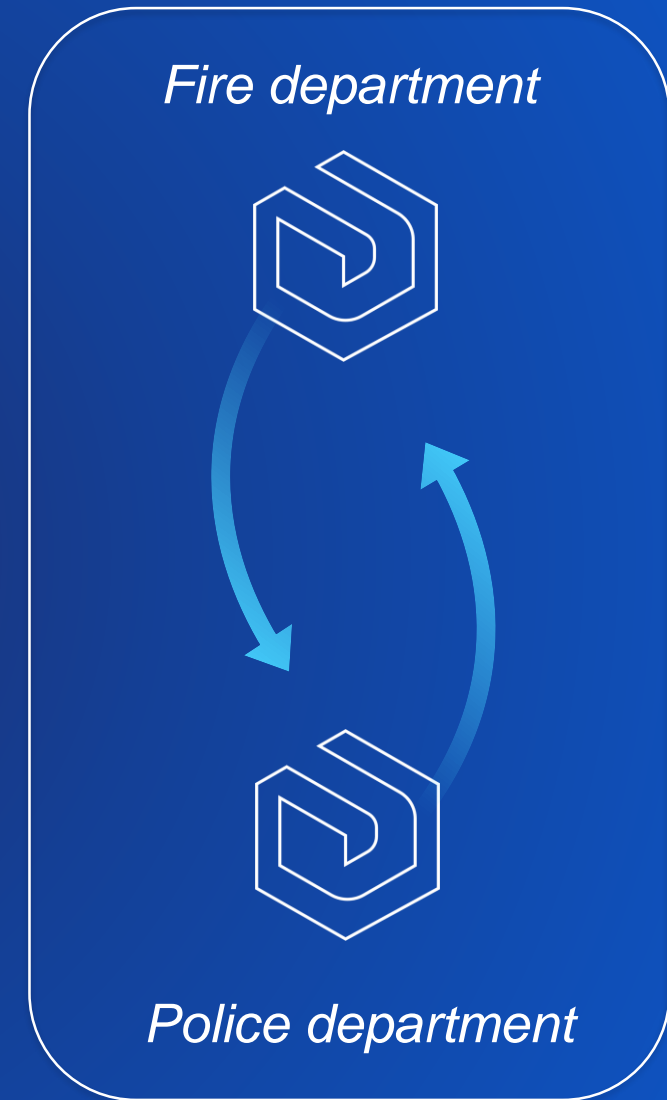
Distributed Collaboration

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



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



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.

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

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

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

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

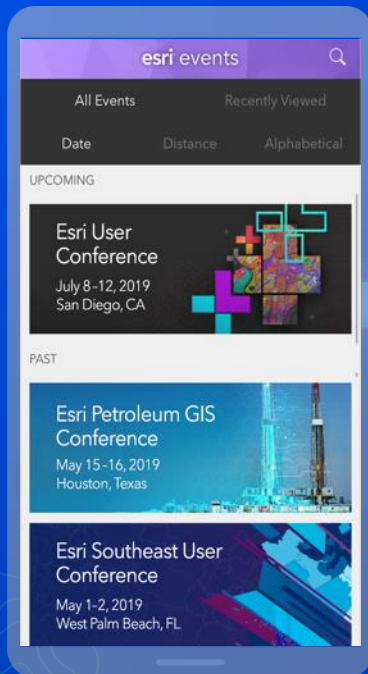
collaborative

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

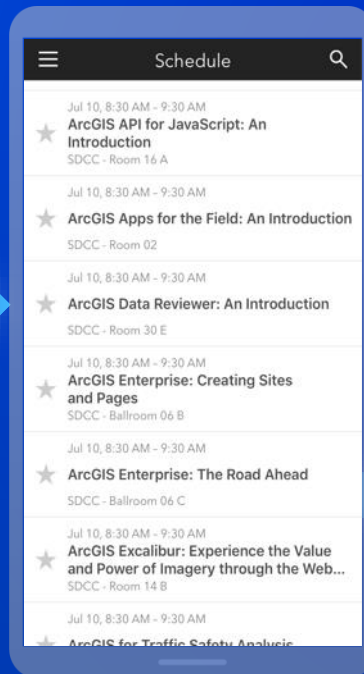


Please share your feedback in the app

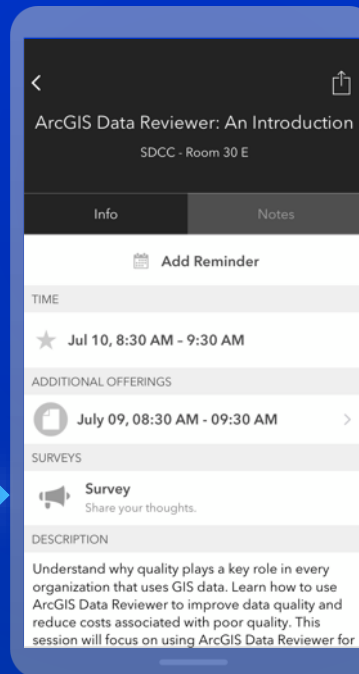
Download the Esri Events app and find your event



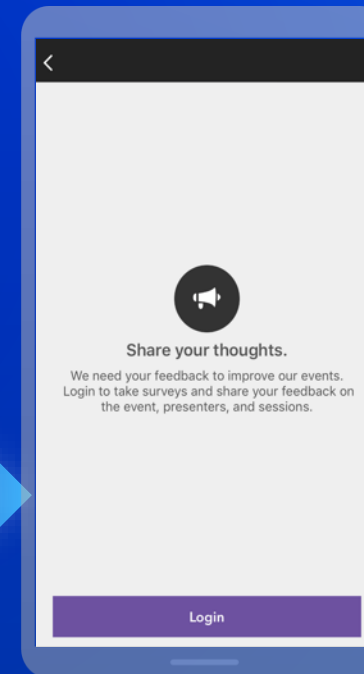
Select the session you attended



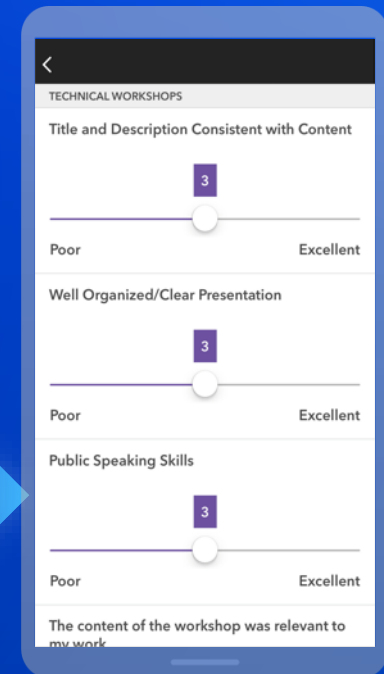
Scroll down to "Survey"



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

