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

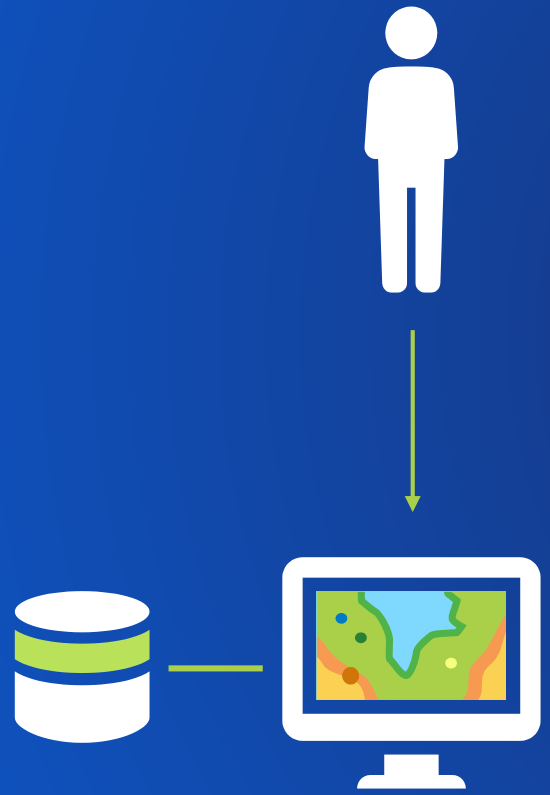
Let’s start simply.

What’s Web GIS?

ArcGIS Enterprise is Foundational Powerful Flexible Collaborative

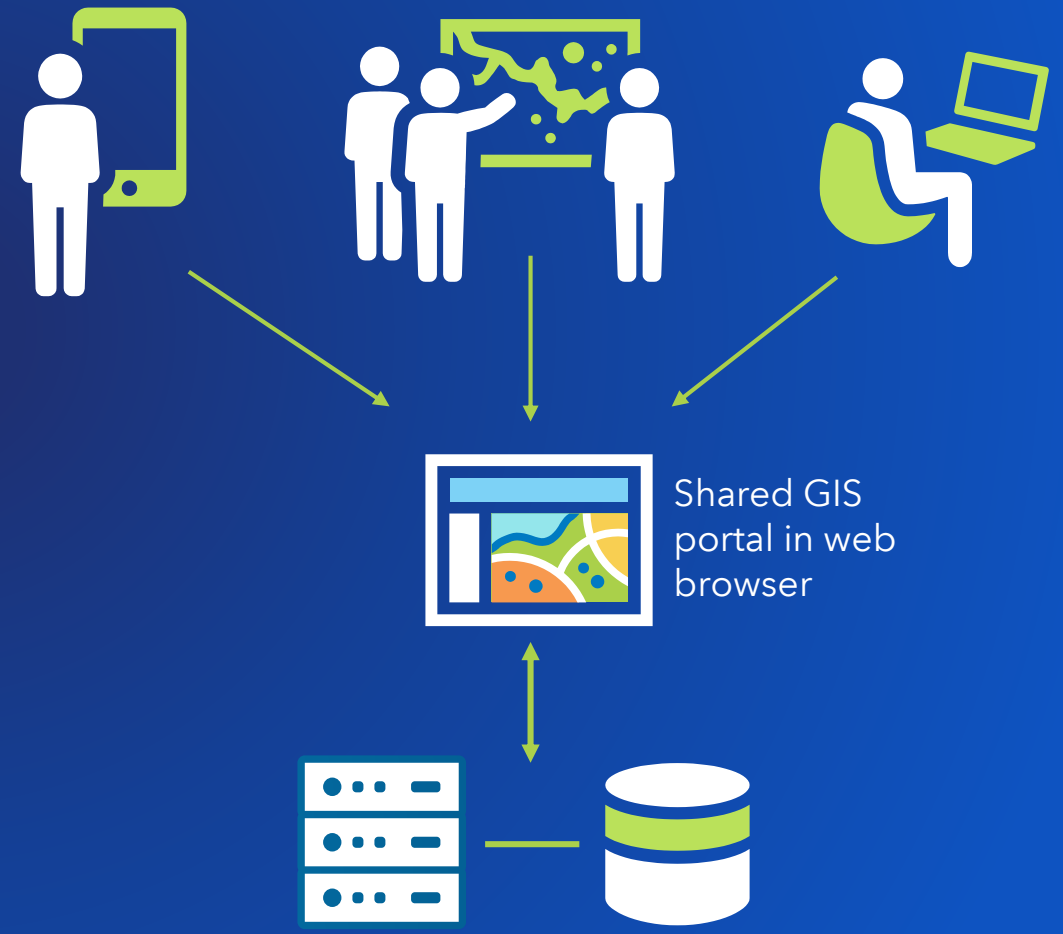
Desktop GIS

All work is done on your local machine.



Web GIS

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

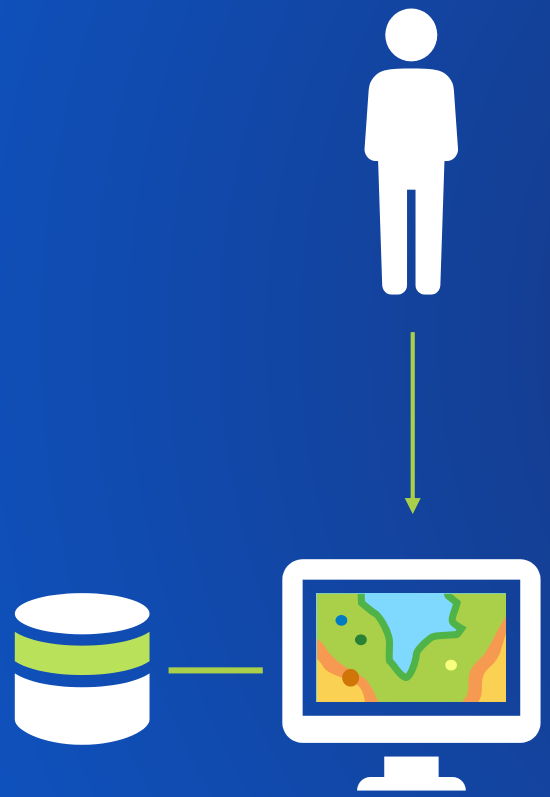


Web GIS is not a replacement for Desktop GIS.

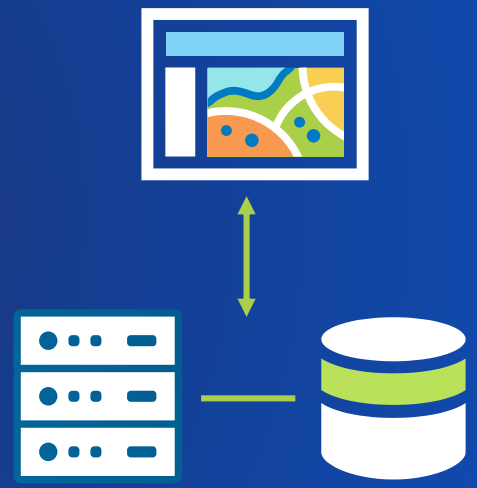
It's the central tier in a modern GIS ecosystem.

Desktop GIS

Web GIS



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



ArcGIS Enterprise is Foundational Powerful Flexible Collaborative

ArcGIS Pro
ArcGIS Desktop

ArcGIS Online

ArcGIS Enterprise

ArcGIS Apps
Geo-Enabled Systems

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

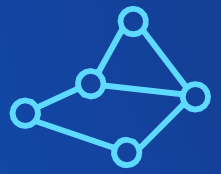
Build and use applications

Fuel field operations

Capabilities of ArcGIS Enterprise: Go beyond to solve tough problems

Data science and machine learning

Develop custom tools and solutions

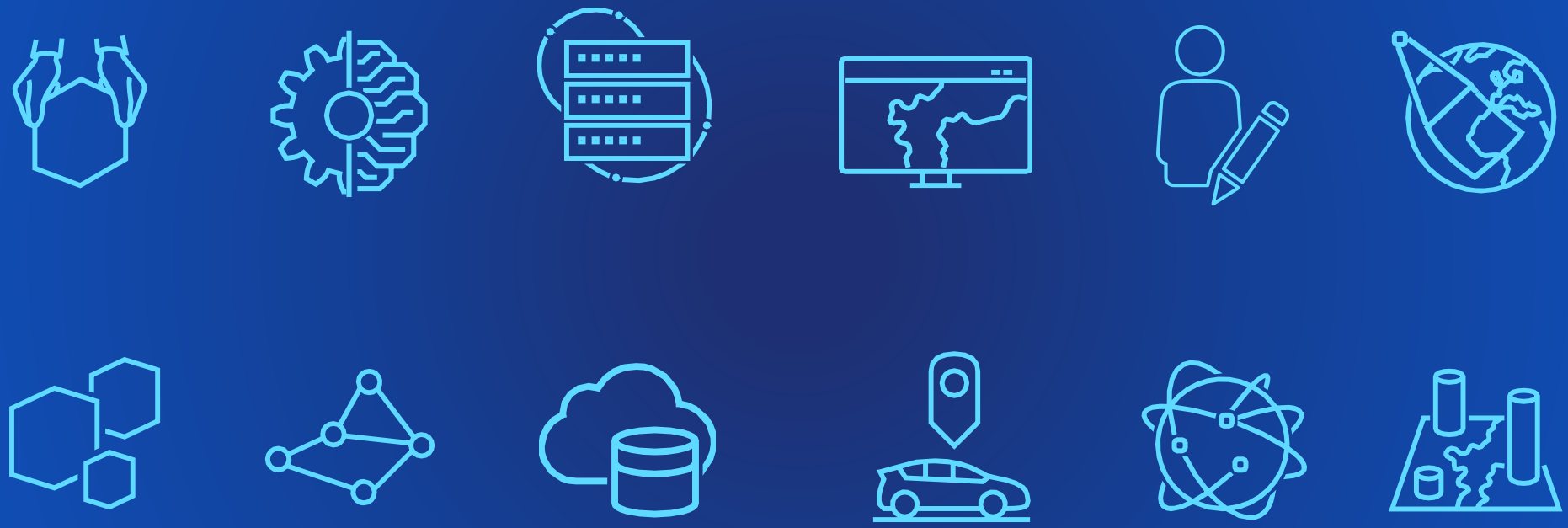


Analyze massive datasets

Monitor real-time data and your IoT

ArcGIS Enterprise is Foundational Powerful Flexible Collaborative

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

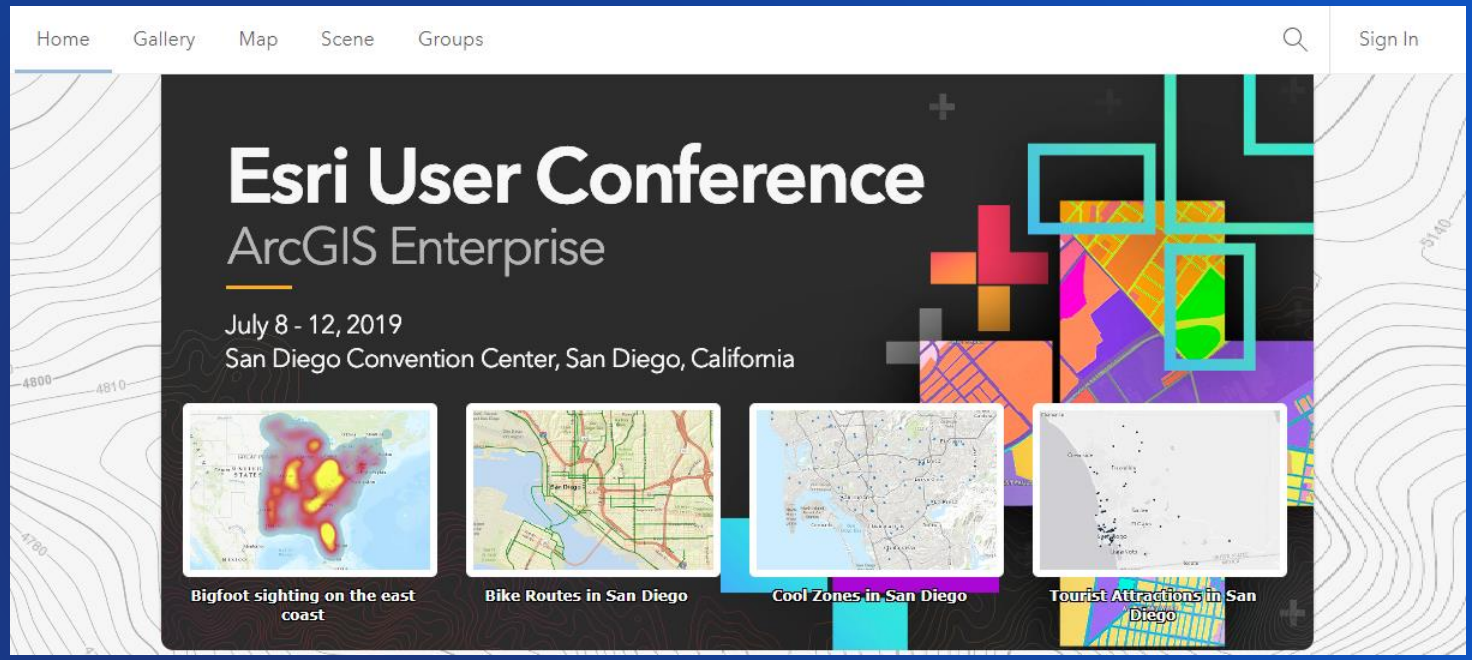
- Run GIS services that power your items
- Handle all requests (zoom a map, find a location, run an analysis tool)
- Scale processes based on traffic

Data store(s)

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

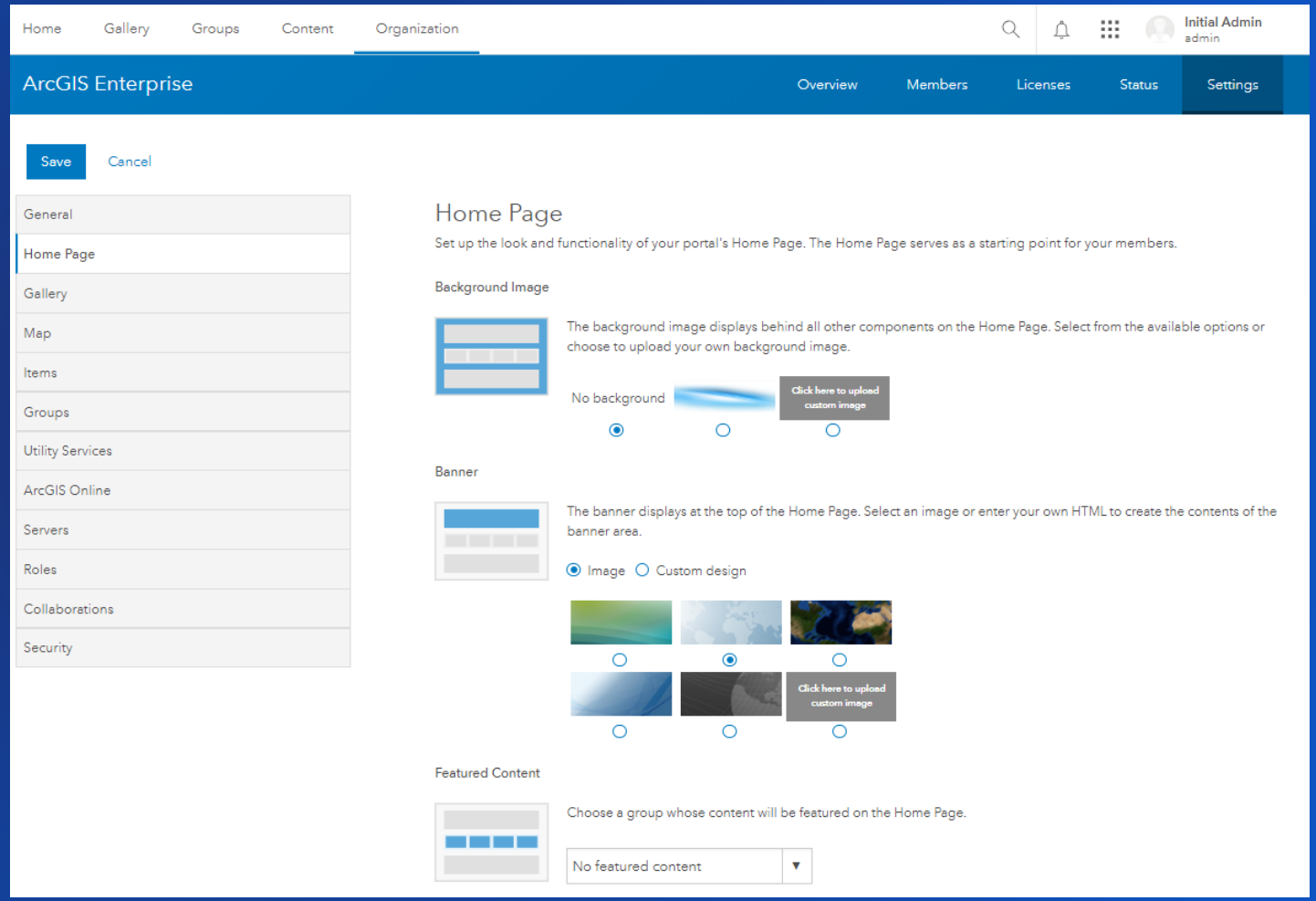
Components of ArcGIS Enterprise: The portal

- 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



User Types | Manage your users and licenses in the portal

Identity

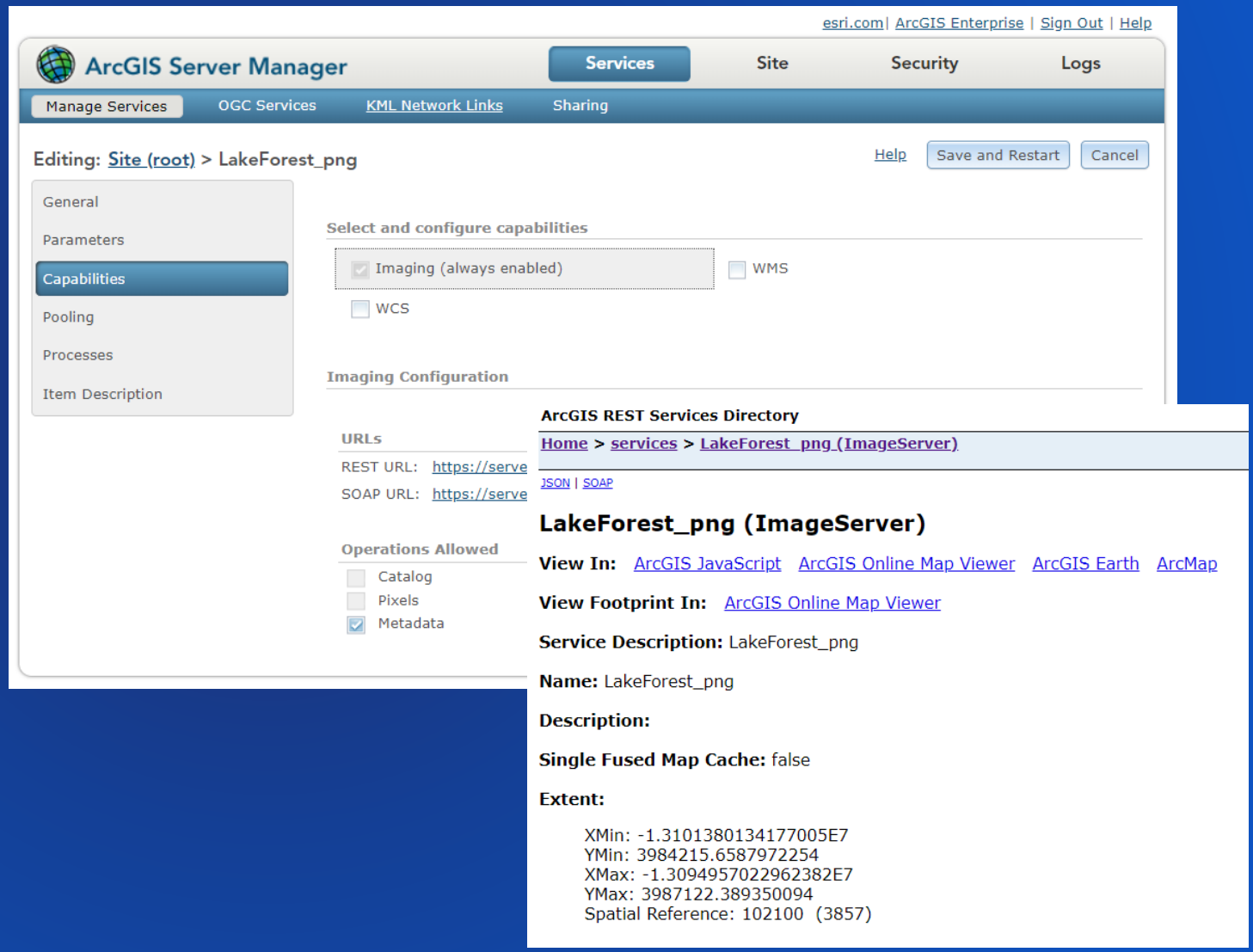
Capabilities

View
Edit
Analyze
Create
Share
Administer

Apps

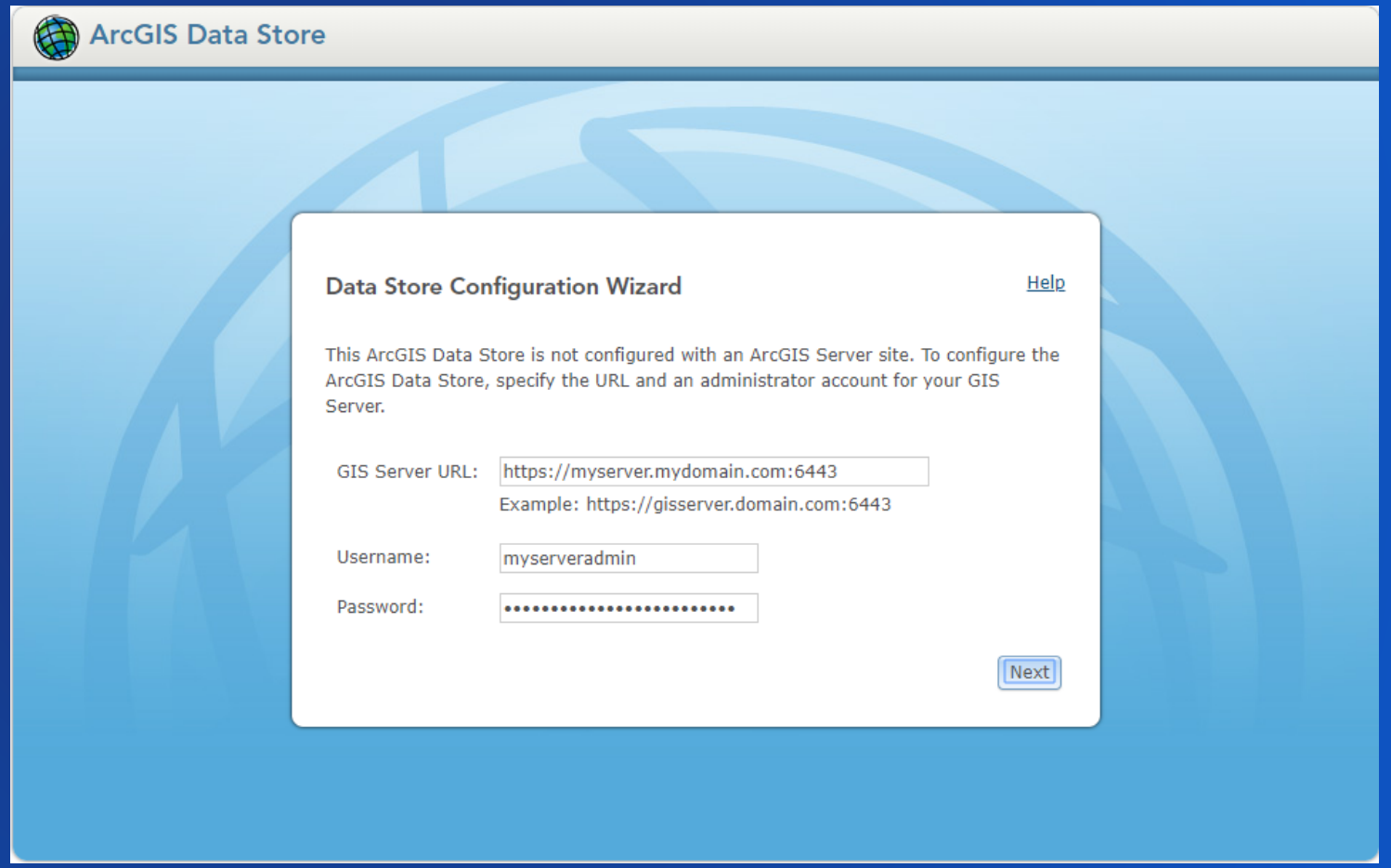
Components of ArcGIS Enterprise: ArcGIS Server

- 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



Components of ArcGIS Enterprise: ArcGIS Data Store

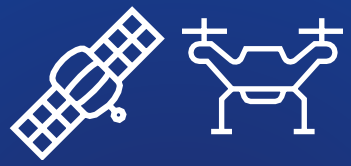
- ArcGIS-managed database
- Enables hosted layers
- Supports self-service mapping



Components of ArcGIS Enterprise: User-managed data


feature


tabular


imagery


real-time


big data


3D


field data


secure data


file-based

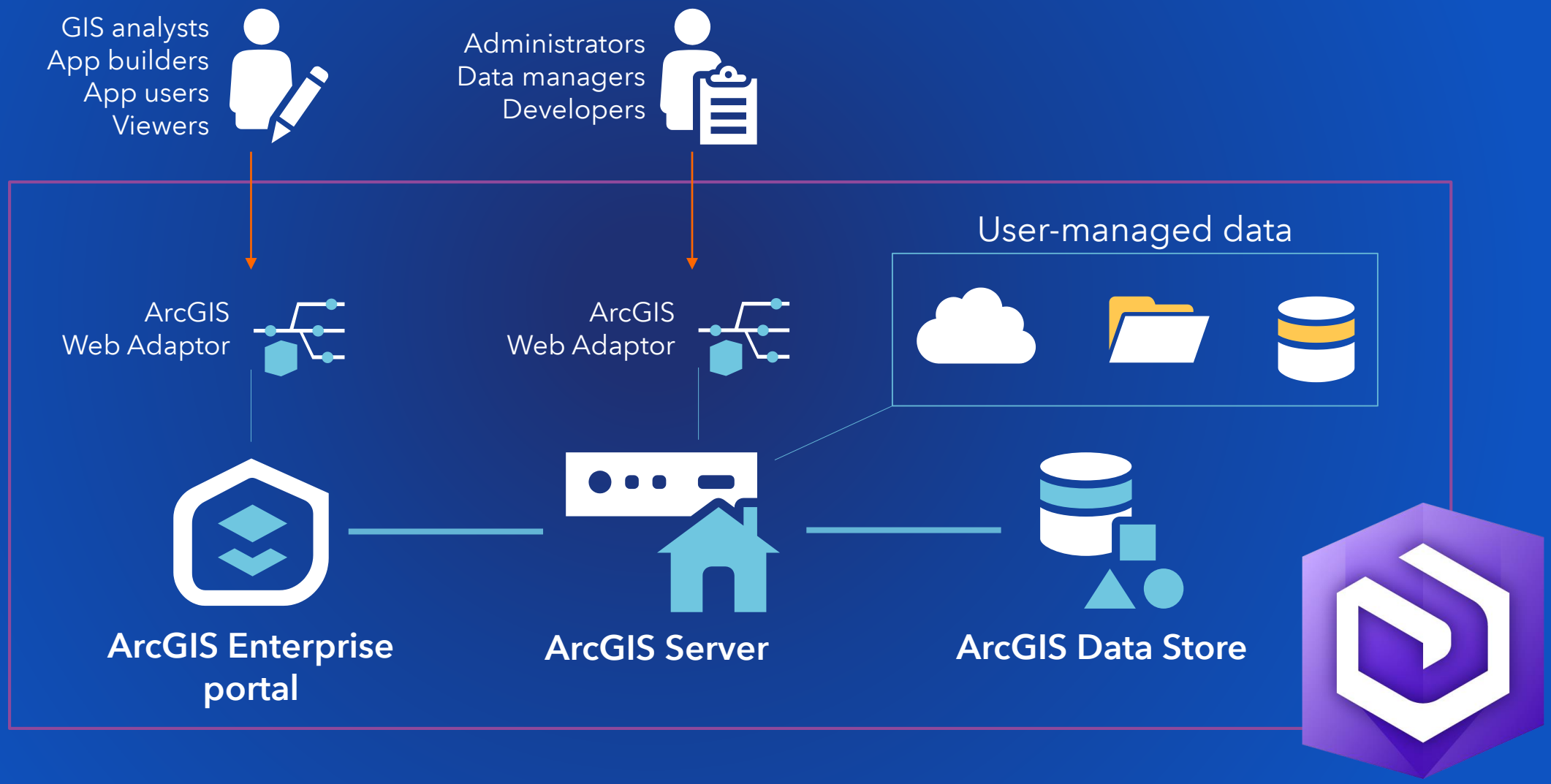

business intelligence

Bring your own data

ArcGIS Enterprise is Foundational | Powerful | Flexible | Collaborative

Desktop	Server	Portal	
			
Layer	Map service	Map image layer	Web maps
Feature class	Feature service	Feature layer	
Mosaic dataset	Image service	Image layer	
Address locator	Geocode service	Geocoder	
Geoprocessing tool	Geoprocessing service	Web tool	
3D scene	Scene service	Scene layer	Web scenes

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

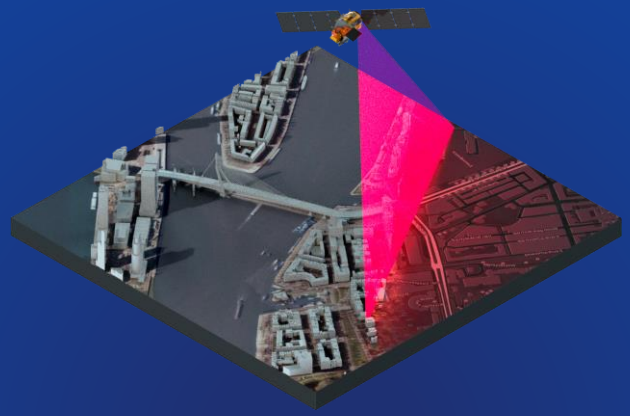
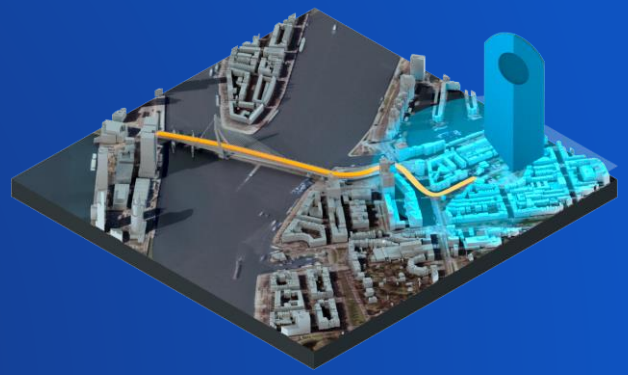


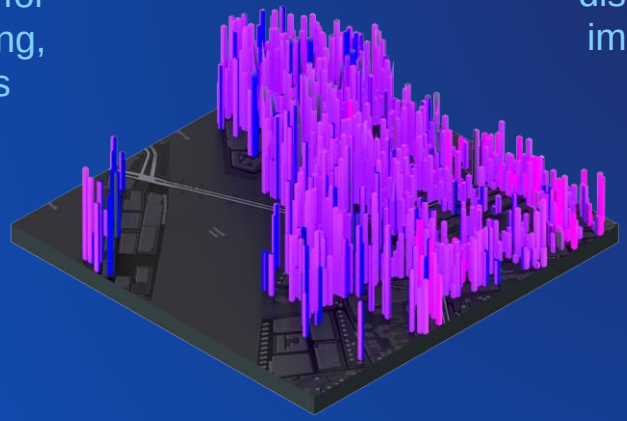
Image Server

distributed raster and imagery exploitation



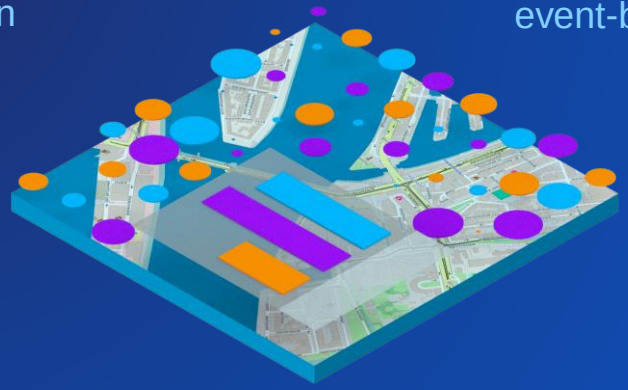
GeoEvent Server

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

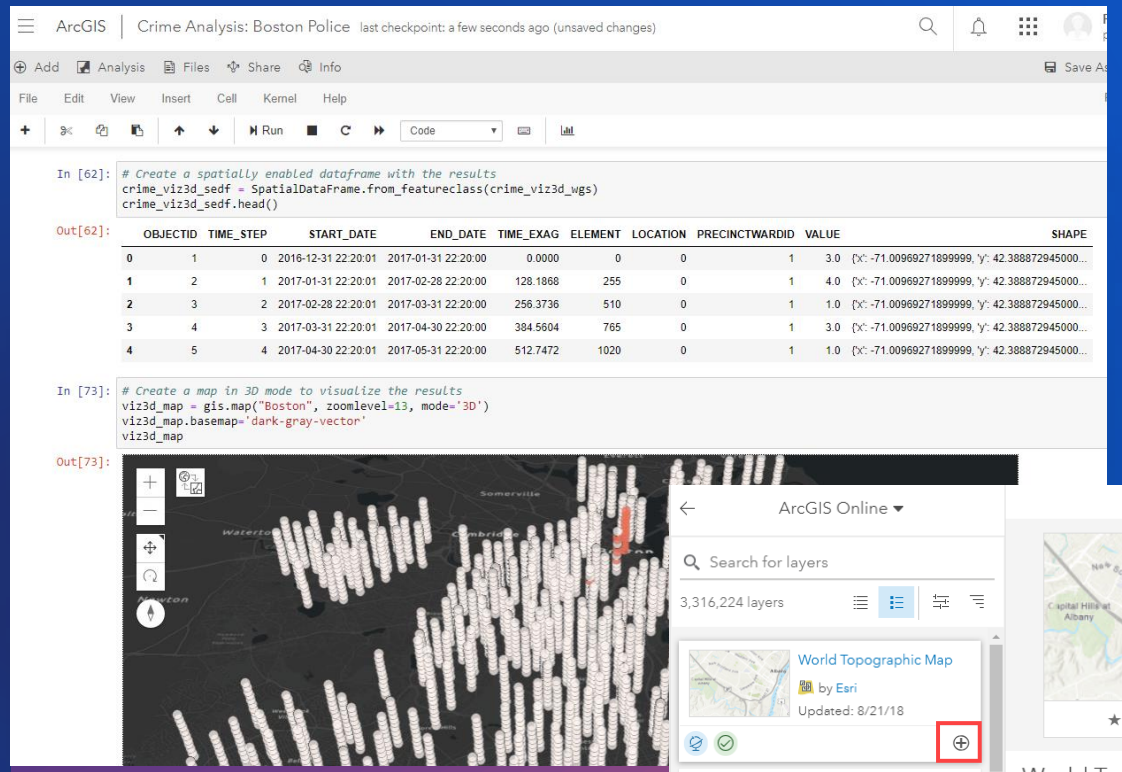
ArcGIS Notebook Server

New in 2019

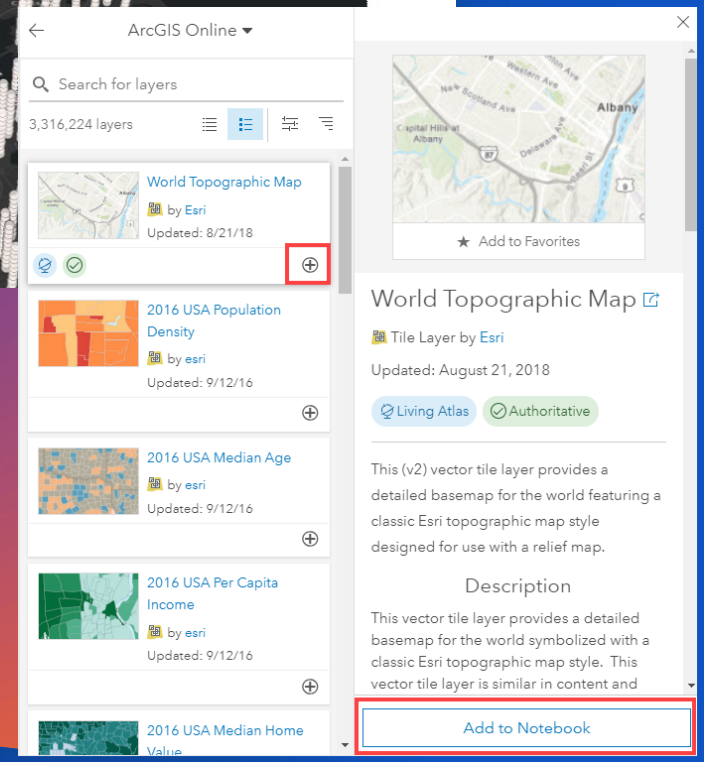
- Automate analysis and administration
- Powerful data science platform
- Code with the Python API and ArcPy

Fully integrated with your Enterprise portal:

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



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

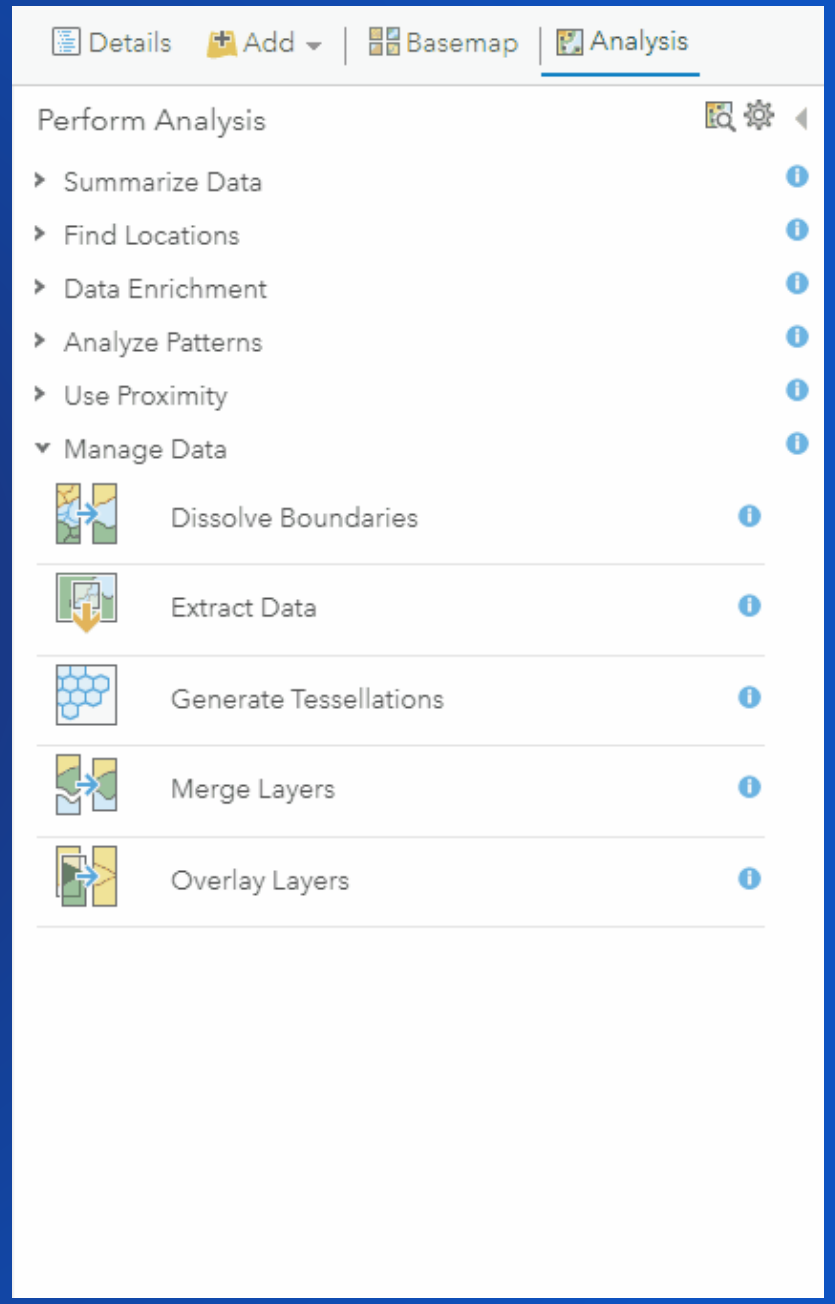
Thursday, July 11
4:00 pm – 5:00 pm
SDCC Ballroom 06 B

Out-of-the-box spatial analysis

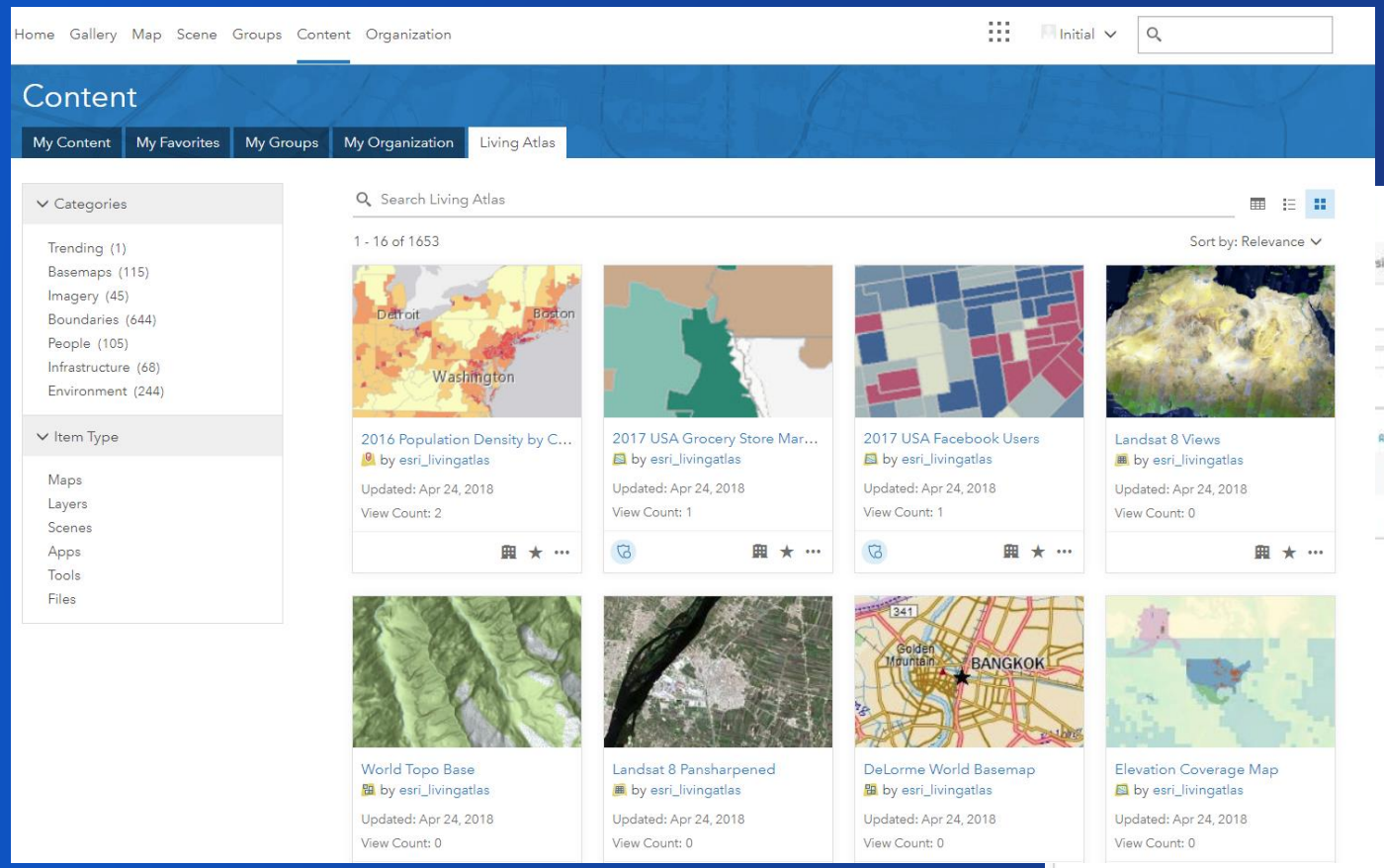
Feature Analysis

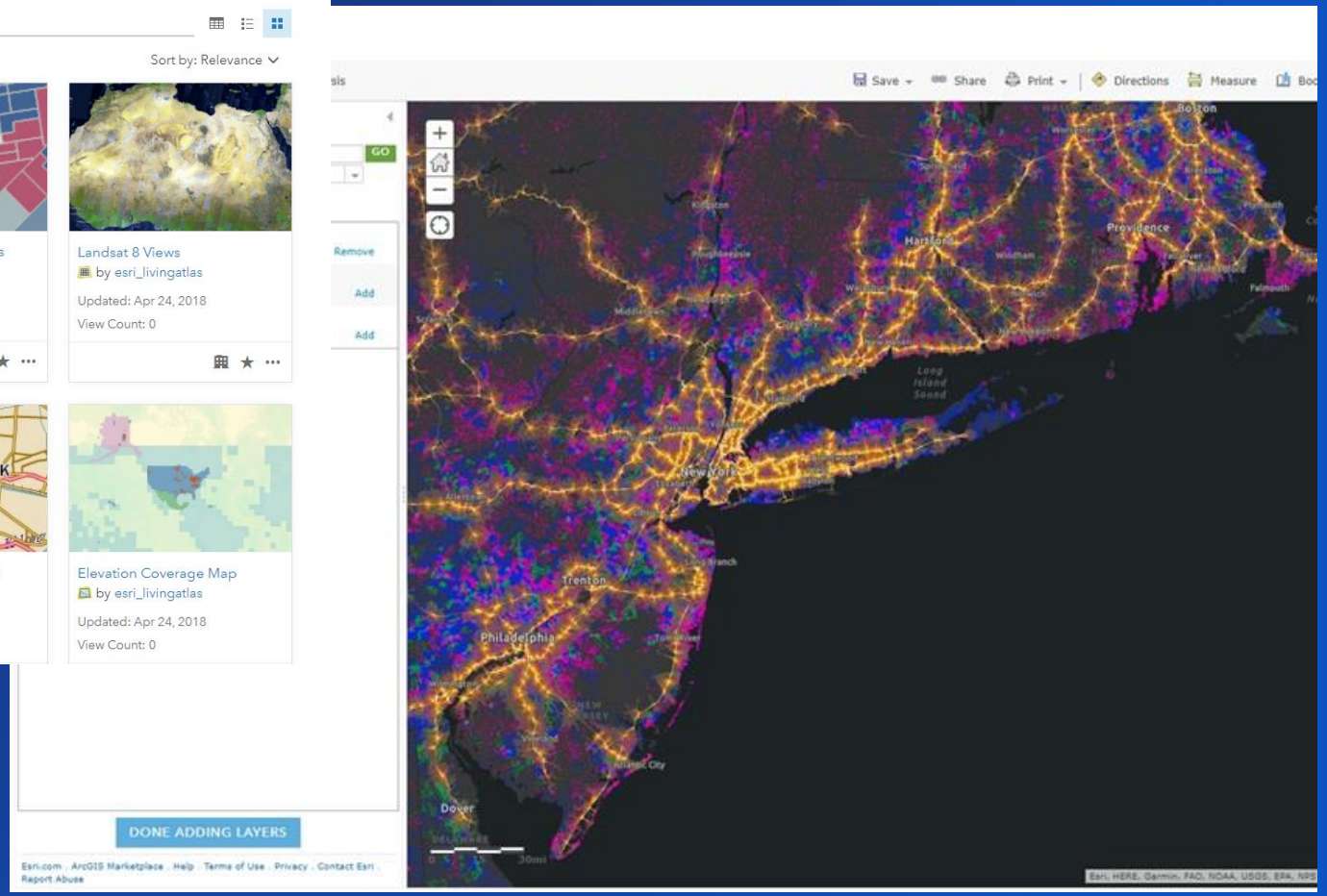
- Summarize Data
- Find Locations
- Data Enrichment
- Analyze Patterns
- Use Proximity
- Manage Data

- 27 standard tools



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





Find out more…

Living Atlas of the World: The Road Ahead

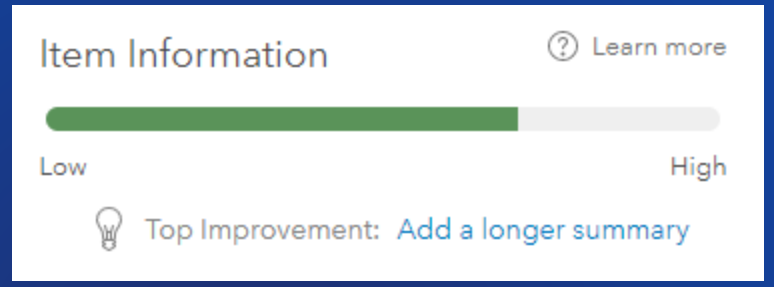
Wednesday, July 10
4:00 pm – 5:00 pm
SDCC Room 16 B

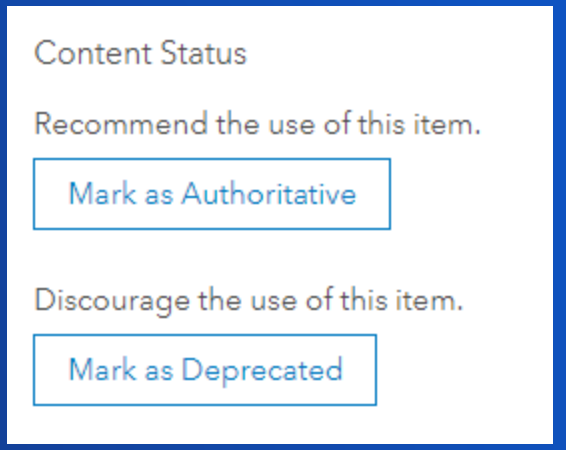
Using the Living Atlas for Demographic Analysis

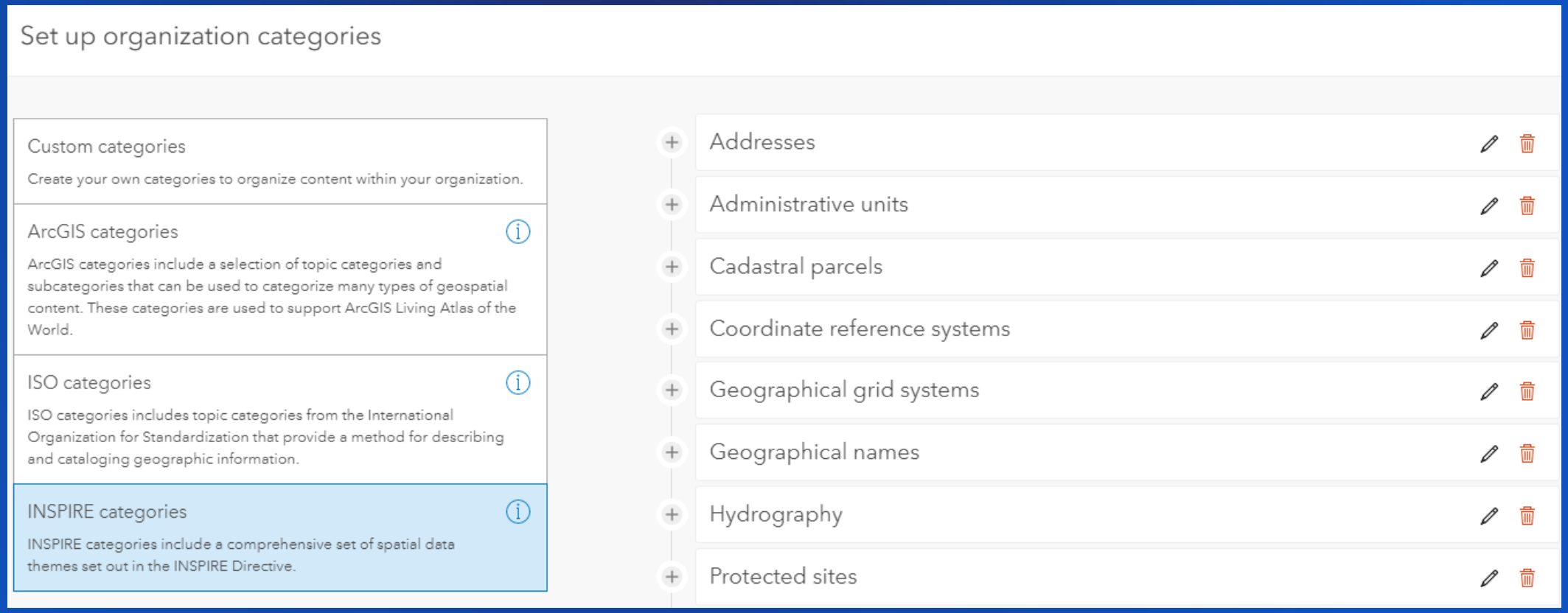
Thursday, July 11
10:00 am – 11:00 am
SDCC Room 30 D

Efficient content management

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







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.

ArcGIS Enterprise is Foundational Powerful Flexible Collaborative

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
- Private cloud (Amazon Web Services, Microsoft Azure, others)
- Esri Managed Cloud Services
- A mix of multiple options

Infrastructure size

Server roles & add-ons

High availability

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

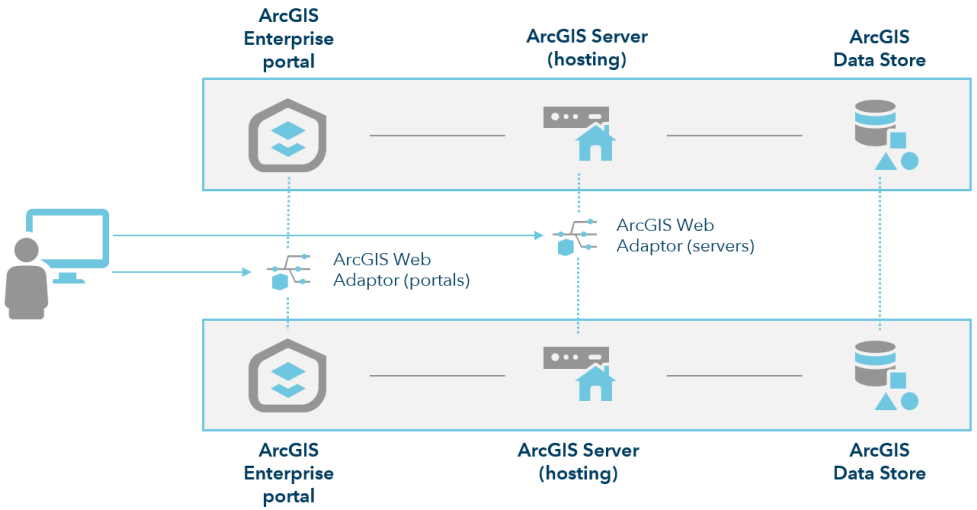
Deployment tools

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

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

ArcGIS Enterprise is Foundational Powerful Flexible Collaborative

Web GIS isn't necessarily one or the other.

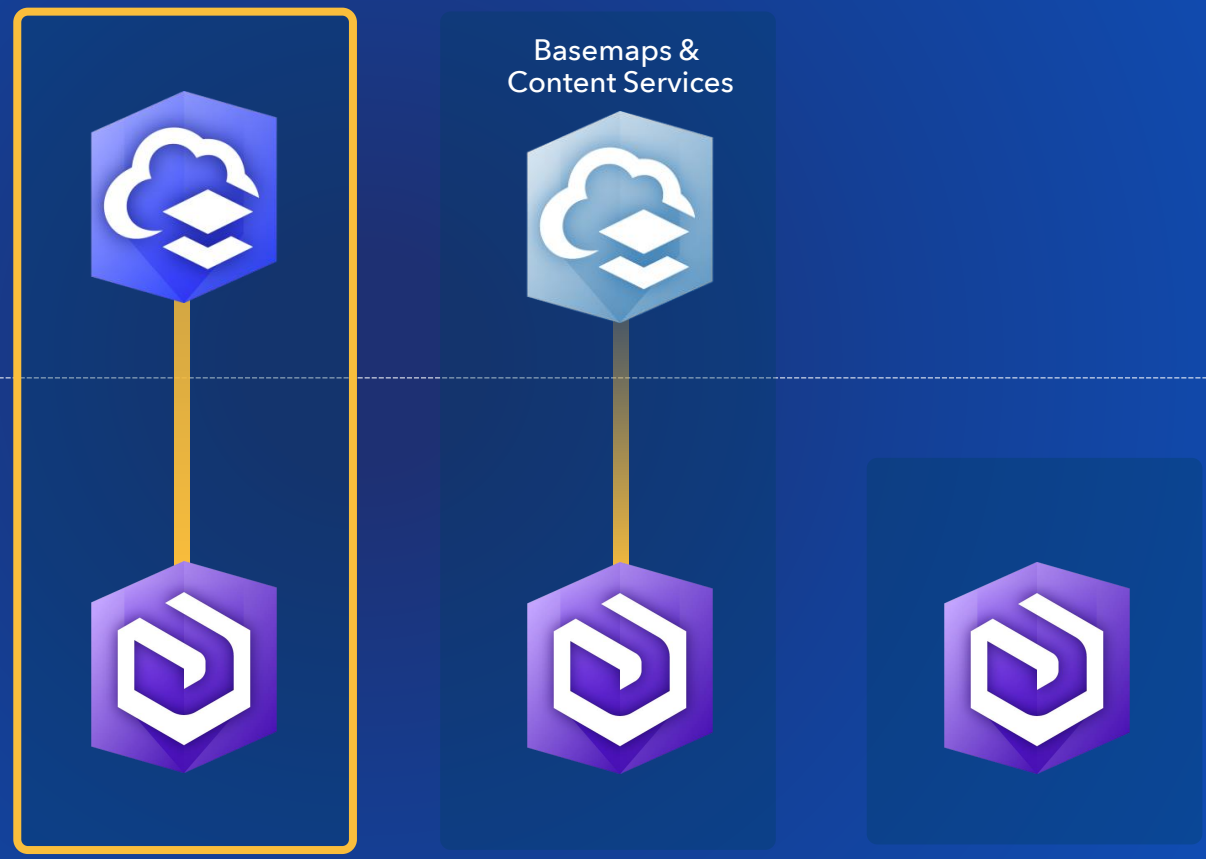
Begin with ArcGIS Online & SaaS

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

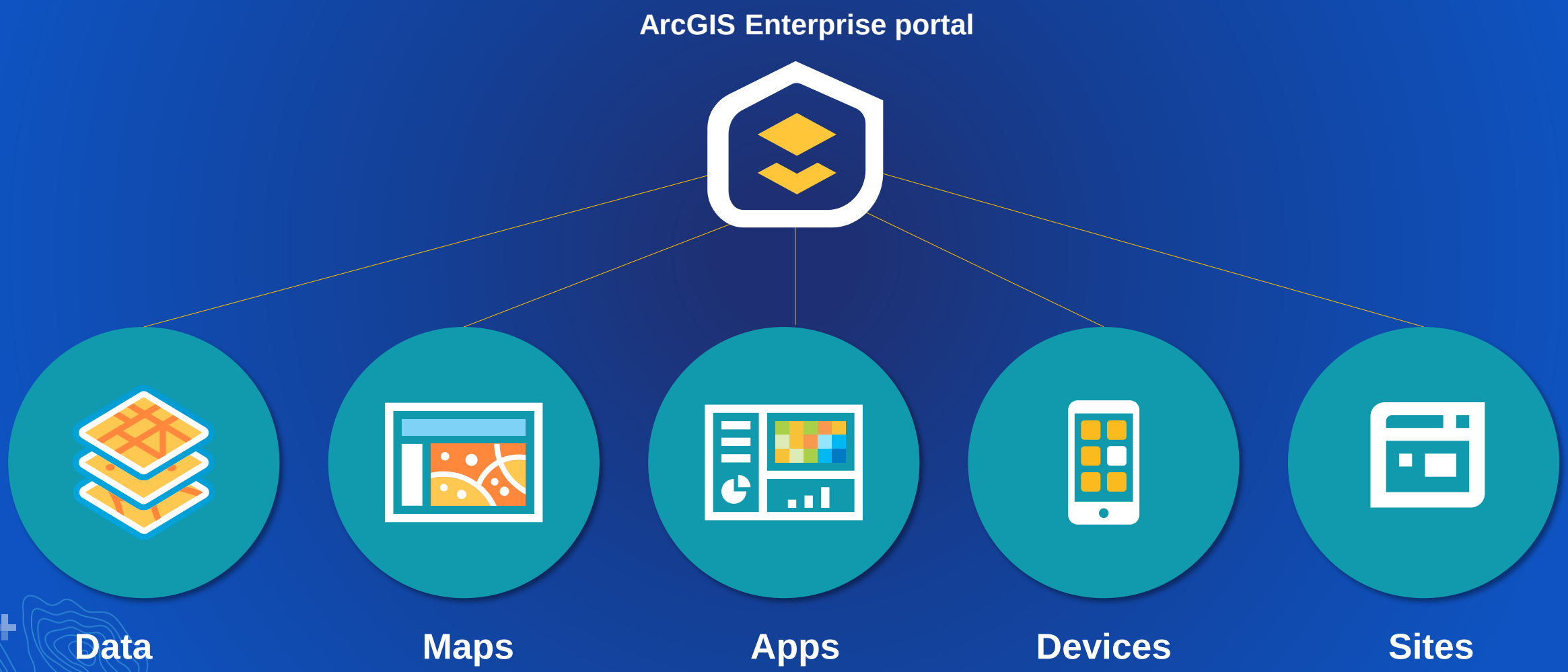
Thursday, July 11
10:00 am – 11:00 am
SDCC Room 04

ArcGIS Enterprise is collaborative

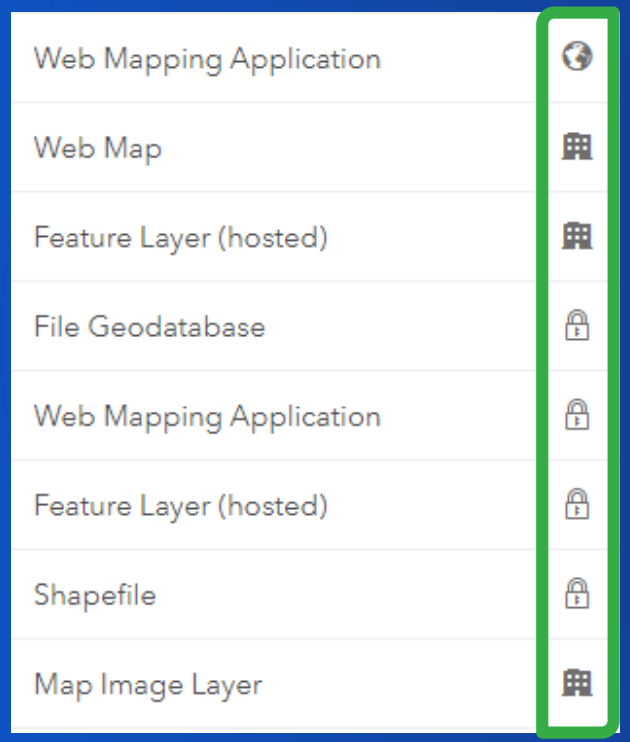
Familiar security and sharing
Tailor content for your audiences
Distributed collaboration

ArcGIS Enterprise is Foundational Powerful Flexible Collaborative

Intuitive, secure sharing of GIS content by design



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



What's an item?

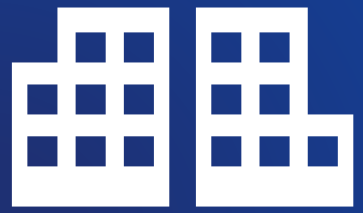
Everything in your portal.

- 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

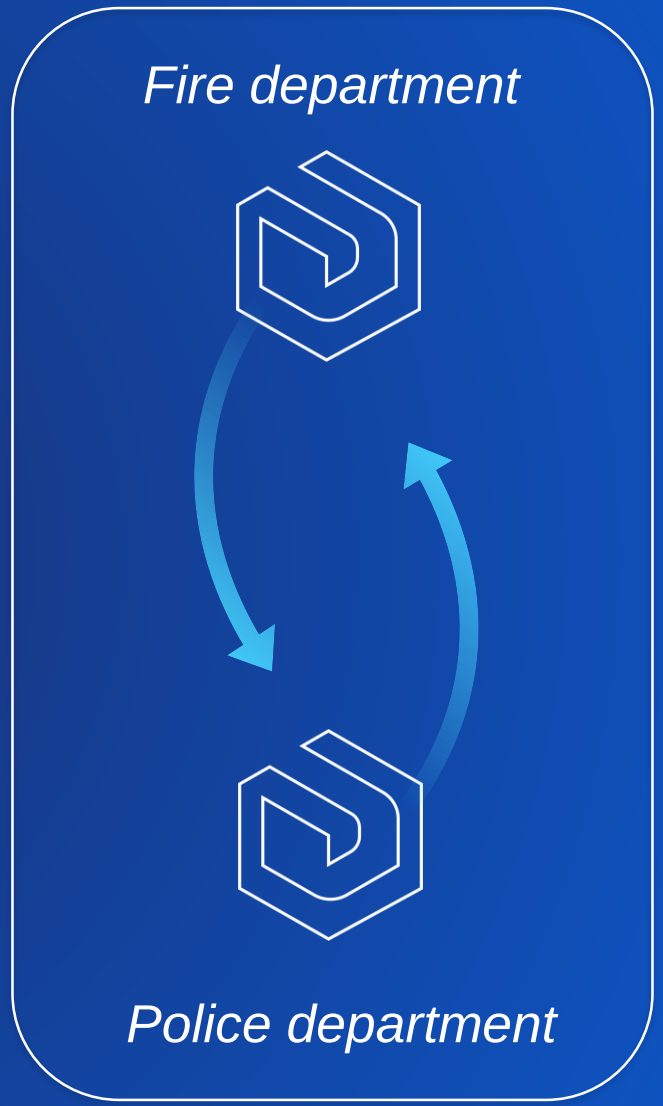
From Individuals

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 yuor residnece 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

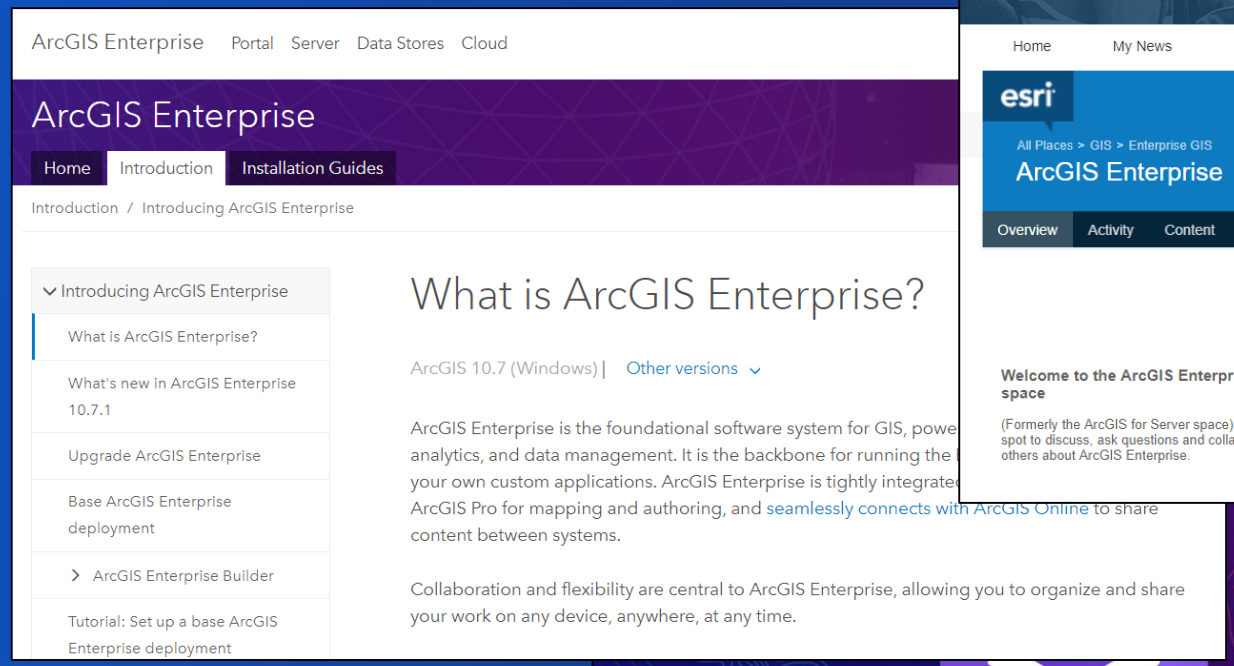
Find out more…

ArcGIS Enterprise: Creating Sites and Pages

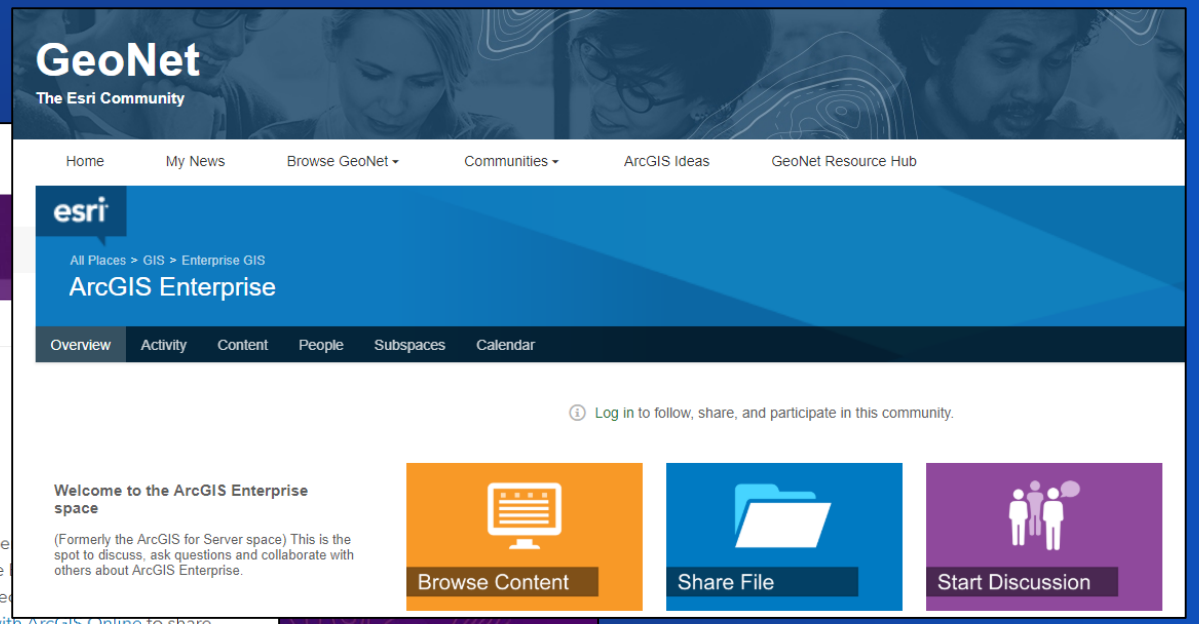
Thursday, July 11
8:30 am – 9:30 am
SDCC Ballroom 06 E

Distributed Collaboration on the ArcGIS Blog

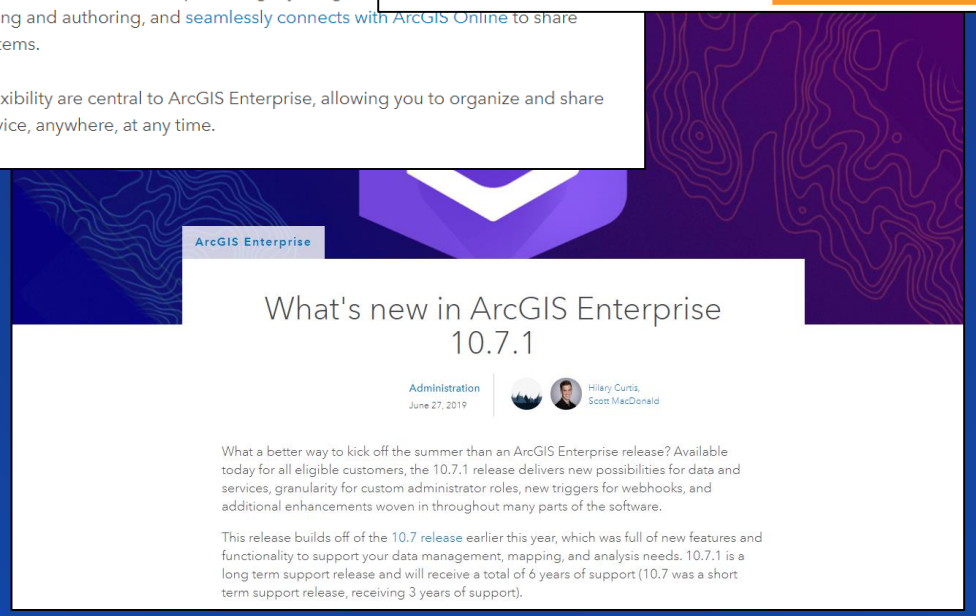
How to learn more



Documentation



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

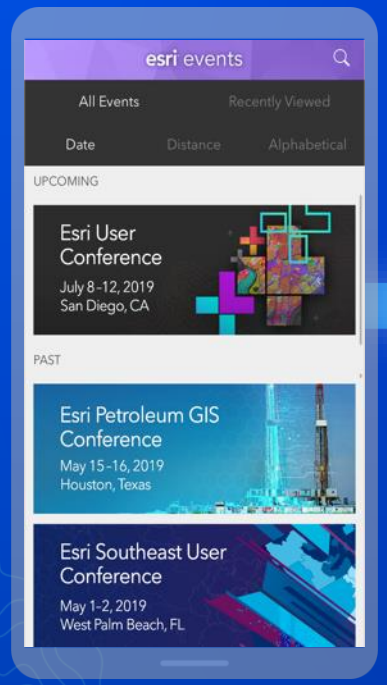
Versatile architecture
Helpful deployment tools
Scalable and adaptive
Works with your IT setup

collaborative

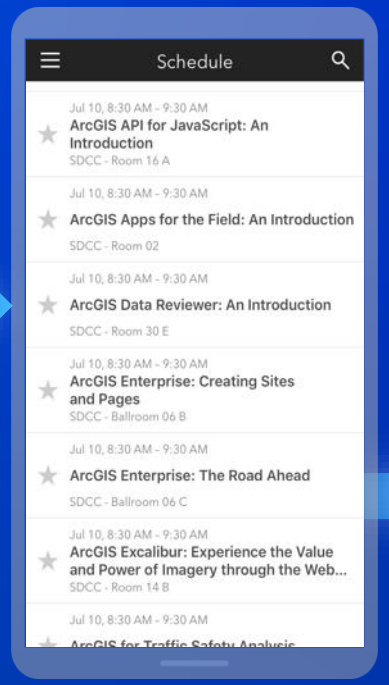
Easy content security + sharing
Tailor sites for your audiences
Distributed collaboration

Please share your feedback in the app

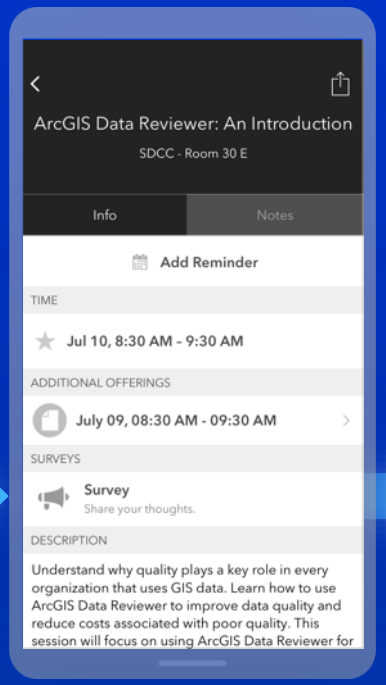
Download the Esri Events app and find your event



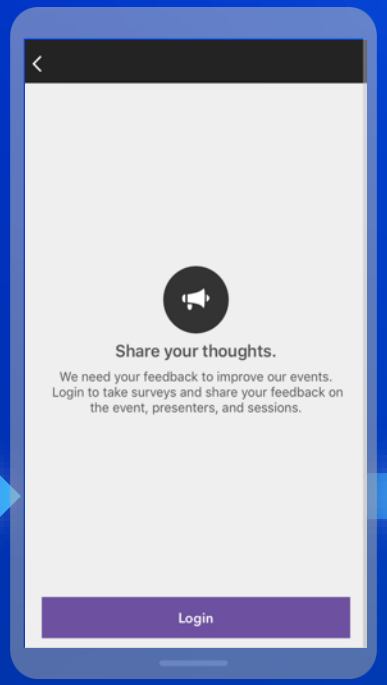
Select the session you attended



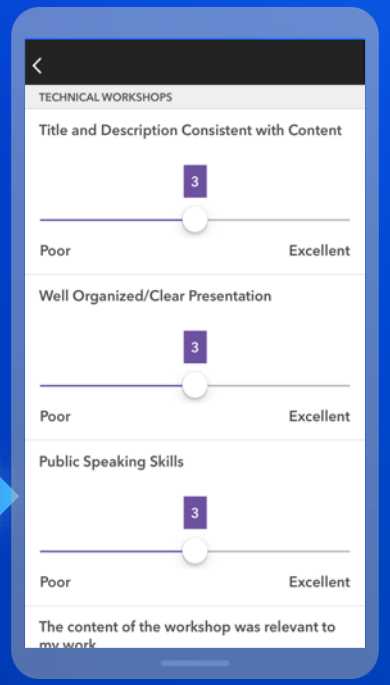
Scroll down to “Survey”



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