ArcGIS Enterprise: an introduction

Thomas Edghill and Scott MacDonald
ArcGIS Enterprise is foundational, powerful, flexible, and collaborative.
ArcGIS Enterprise is powerful, flexible, and collaborative software that serves as the foundation of your organization’s Web GIS.

- Advanced analytics capabilities delivered in user-friendly ways
- Deployed to fit your organization’s needs and resources; scales to meet demand
- Seamlessly integrated with the full stack of Esri GIS software products
- Share content easily, securely, and efficiently with your stakeholders
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.

ArcGIS Enterprise is
- Foundational
- Powerful
- Flexible
- Collaborative
Web GIS is not a replacement for Desktop GIS.

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

ArcGIS Enterprise is
- Foundational
- Powerful
- Flexible
- Collaborative
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
User Types | Manage your users and licenses in the portal

Identity

Capabilities
- View
- Edit
- Analyze
- Create
- Share
- Administer

Apps

ArcGIS Enterprise is
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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 powerful, flexible, and collaborative.

**Desktop**
- Layer
- Feature class
- Mosaic dataset
- Address locator
- Geoprocessing tool
- 3D scene

**Server**
- Map service
- Feature service
- Image service
- Geocode service
- Geoprocessing service
- Scene service

**Portal**
- Map image layer
- Feature layer
- Image layer
- Geocoder
- Web tool
- Scene layer

Web maps and Web scenes.
Components of ArcGIS Enterprise

ArcGIS Enterprise is Foundational, Powerful, Flexible, Collaborative

GIS analysts
App builders
App users
Viewers

Administrators
Data managers
Developers

ArcGIS Enterprise portal
ArcGIS Web Adaptor
ArcGIS Server
ArcGIS Data Store

User-managed data
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
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!

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.
Building web apps

- Configurable Apps
- App Templates
- App Builders
- Widgets Components
- SDKs
- APIs

easier, quicker
coarse-grained
more black box
less coding

more effort, more time
fine-grained
more control
more coding
ArcGIS Enterprise is foundational, powerful, flexible, and collaborative.

### 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
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:

- Who needs access to the Web GIS?
- What kind of GIS work will users be doing?
- How much work needs to be done?

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
- A mix of multiple options

**High availability**

**Deployment tools**
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
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

ArcGIS Enterprise is
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Carry out those decisions with these options

Infrastructure type
Infrastructure size
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Deployment tools

ArcGIS Enterprise is Foundational Powerful Flexible Collaborative

All-in-one wizard

ArcGIS Enterprise Builder

Amazon Web Services

Microsoft Azure

Machine Images and CloudBuilders

Script-based

Chef

Powershell DSC
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

ArcGIS Enterprise is
Foundational  Powerful  Flexible  Collaborative
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
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.

What’s an item?
Everything in your portal.
In the portal, security and sharing are handled at the item level.
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 sheathing to cover their damaged roofs until arrangements can be made for permanent repairs.
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

Find out more…

Five ways to use distributed collaboration to share your data with others

Sharing and Collaboration
February 07, 2019
Hilary Curtis
How to learn more

ArcGIS Enterprise

Documentation

What's ArcGIS Enterprise?

ArcGIS Enterprise is the foundational software system for GIS, powerful analytics, and data management. It is the backbone for running your own custom applications. ArcGIS Enterprise is tightly integrated with 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.

What's new in ArcGIS Enterprise 10.7.1

ArcGIS 10.7 (Windows) | Other versions ▼

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Welcome to the ArcGIS Enterprise space

(Formerly the ArcGIS for Server space) This is the place 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