



Esri Best Practices:

Implementing and Configuring the ArcGIS Platform

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ESRI USER CONFERENCE

GIS
INSPIRING
WHAT'S
NEXT

Context:

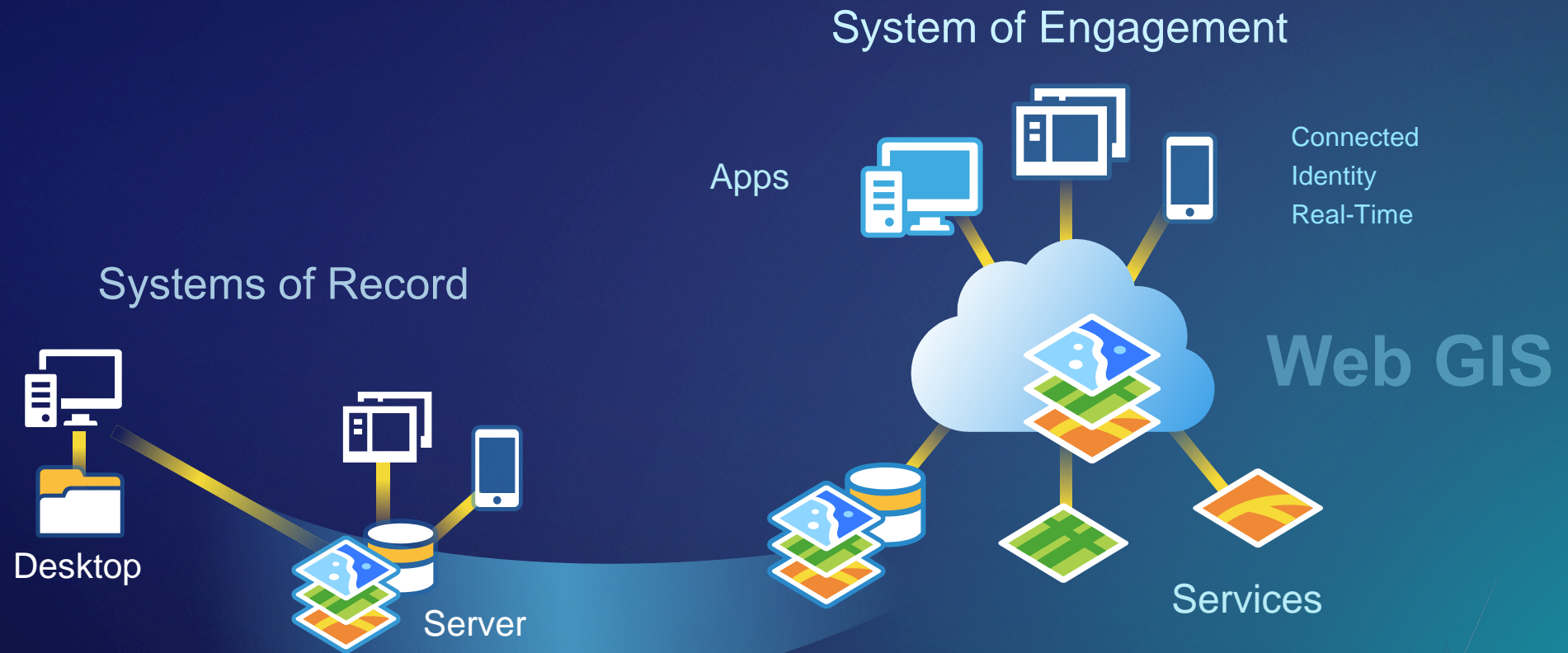
Implementing and Configuring
the ArcGIS Platform to achieve
an Initial Operating Capability



“The state achieved when a capability is available
in its minimum usefully deployable form”

Web GIS Is Transforming GIS

Opening, integrating and simplifying everything



Traditional Considerations for Implementing ArcGIS

- Desktop -> Enterprise Geodatabase: multi-user editing and viewing



Systems of Record



- Desktop to Server: drawing maps in map services

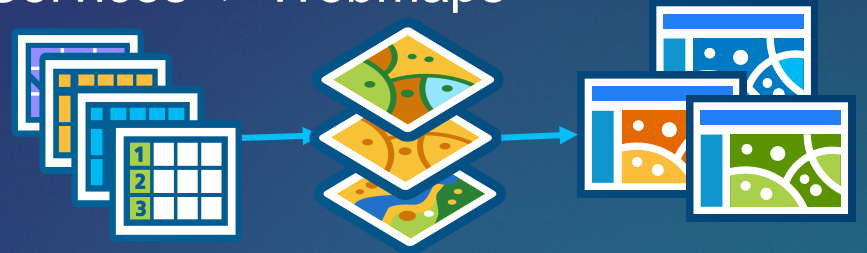


Modern Considerations for Implementing a Web GIS

- Users & Workflows



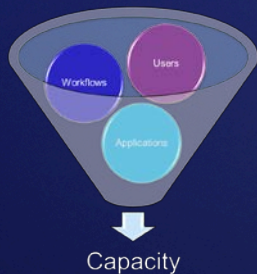
- Data -> Services -> Webmaps



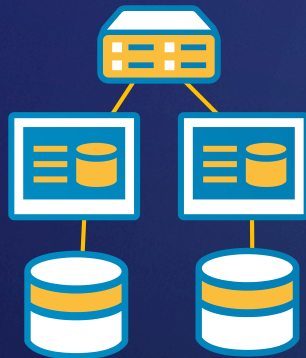
- Security



Capacity



Architecture



System of Engagement

Web GIS



Implementating & Configuring the ArcGIS Platform

Enable & Empower Your Organization



Location Strategy



Organizational Vision

What is the Overarching Goal?

The primary mission of the Department of Building Safety is to safeguard the public, promote the health, safety and welfare of the City.....

.....helps its clients achieve profitable growth with a combination of specialized broking expertise, strategic advisory services.....

Esri Professional Services supports customers and partners in the effective implementation and application of ArcGIS software



Establish Key Users

How is Location Valuable to Them?

Desktop Analyst



What is being collected?

Team Supervisor



Where is my team?

Field Worker



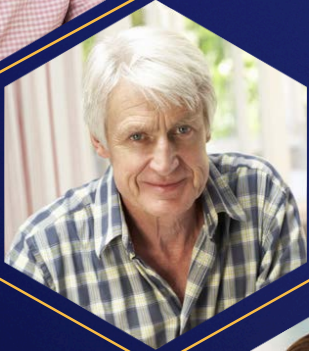
Where is my next task?

Discuss Goals & Identify Success

How is Location Valuable to Them?



As a [Role] I can [Feature/Function] so that [Goal/Business Value]....



.... I will know I'm successful when I can [select/operate]
[Feature/Function] so that [output] is [visible/complete/ect.]

Implementating & Configuring the ArcGIS Platform

Enable & Empower Your Organization

Organizational Vision
Establish Key Users
Identify Location Value



Assess & Plan

The image features a dark teal background with a subtle grid pattern. In the center, the text "Assess & Plan" is written in a bold, white, sans-serif font. The top-left corner is decorated with a series of overlapping, diagonal lines in shades of teal and blue. The bottom-right corner contains a complex, colorful graphic consisting of several overlapping rectangular shapes in shades of orange, red, and green, set against a background of a faint grid and a red-to-orange gradient.

Document Workflows

Start with Patterns of Use



Mapping & Visualization



Understand locations and relationships with maps and visual representations

Data Management



Collect, organize, and maintain accurate locations and details about assets and resources

Field Mobility



Manage and enable a mobile workforce to collect and access information in the field

Monitoring



Track, manage, and monitor assets and resources in real-time

Analytics



Discover, quantify, and predict trends and patterns to improve outcomes

Design & Planning



Evaluate alternative solutions and create optimal designs

Decision Support



Gain situational awareness and enable information-driven decision making

Constituent Engagement



Communicate and collaborate with citizens and external communities of interest

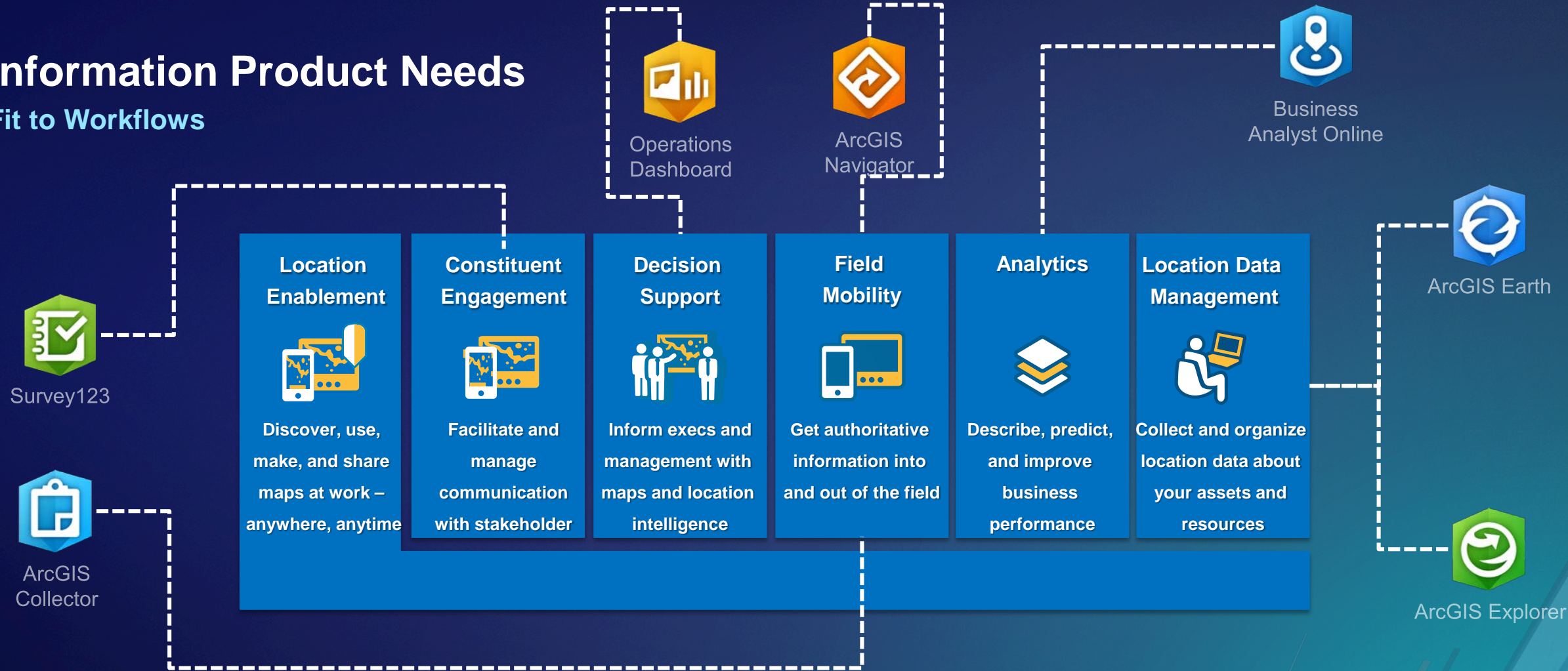
Sharing & Collaboration



Empower everyone to easily discover, use, make, and share geographic information

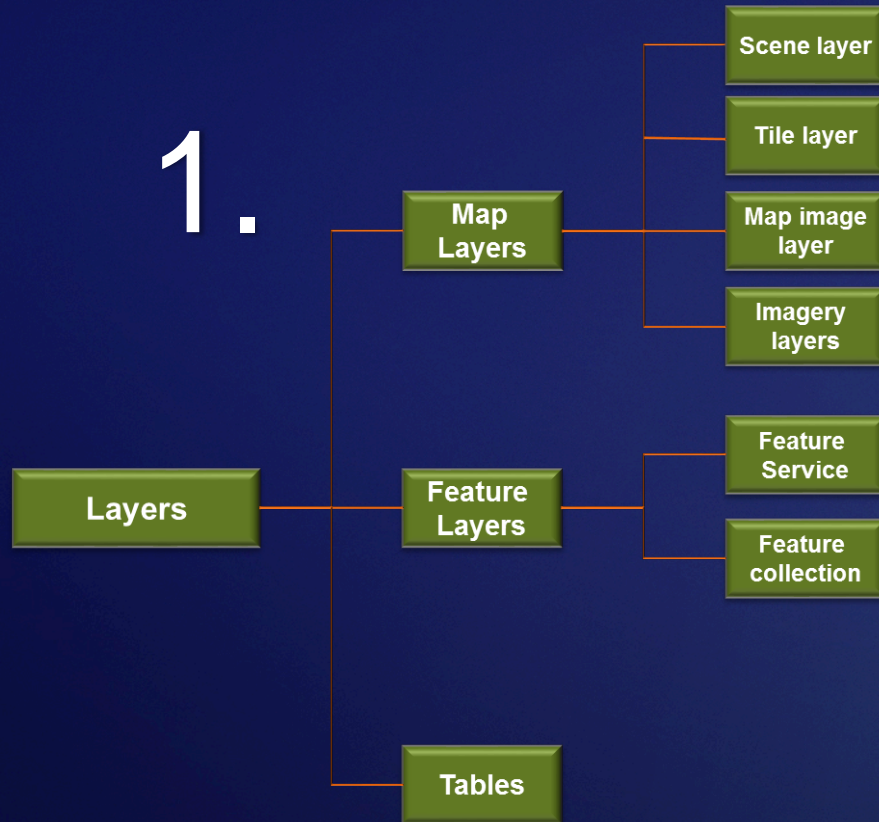
Information Product Needs

Fit to Workflows



Data Requirements

Minimum Data Required to Meet Users Needs



2.

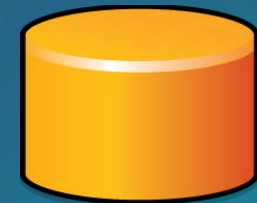
ArcGIS Online



Files



ArcGIS Data Store



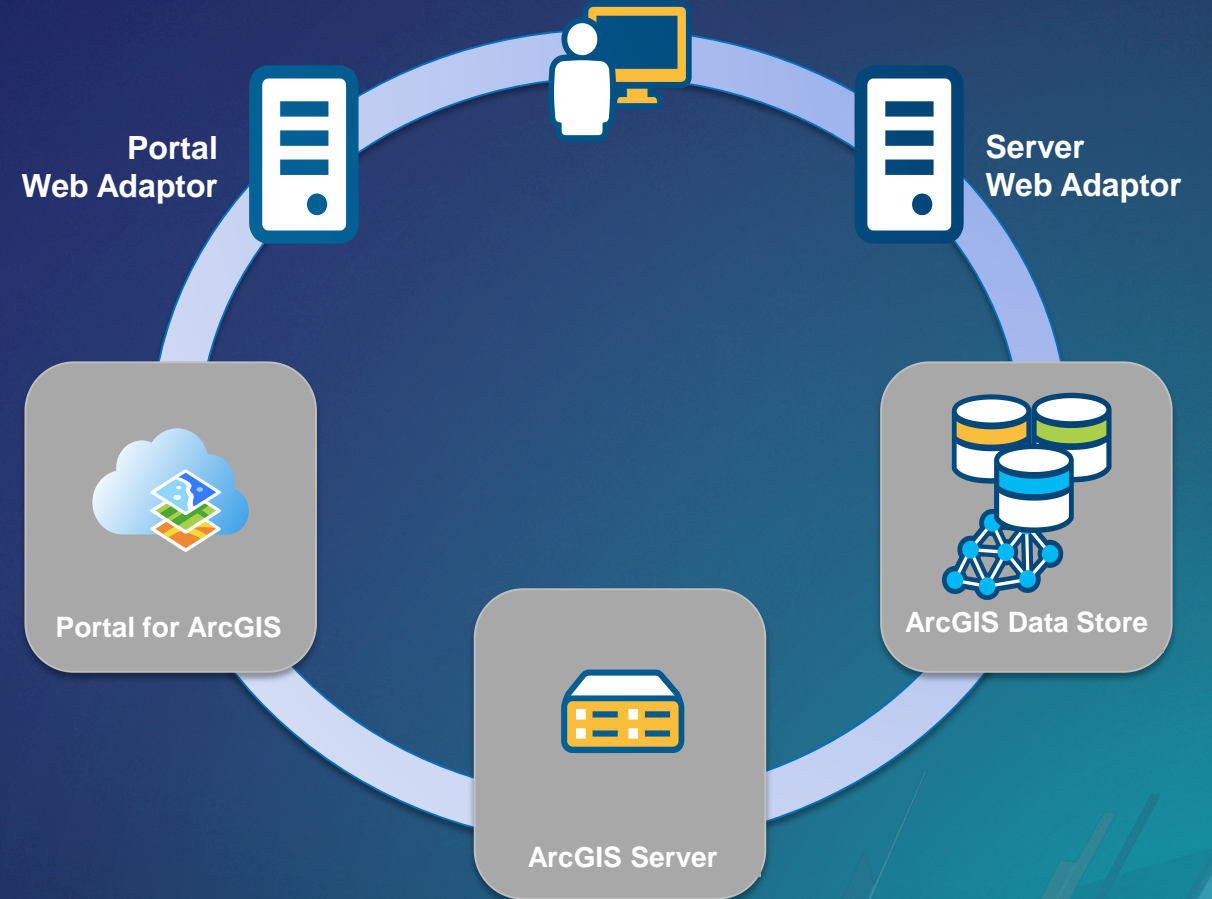
Enterprise Geodatabase

Determine a Deployment Pattern

- **Base Enterprise Deployment (10.6)**

- ArcGIS GIS Server
- Portal for ArcGIS
- ArcGIS Datastore
- ArcGIS Web Adaptor

- **Can be configured with a single machine or with multiple machines**



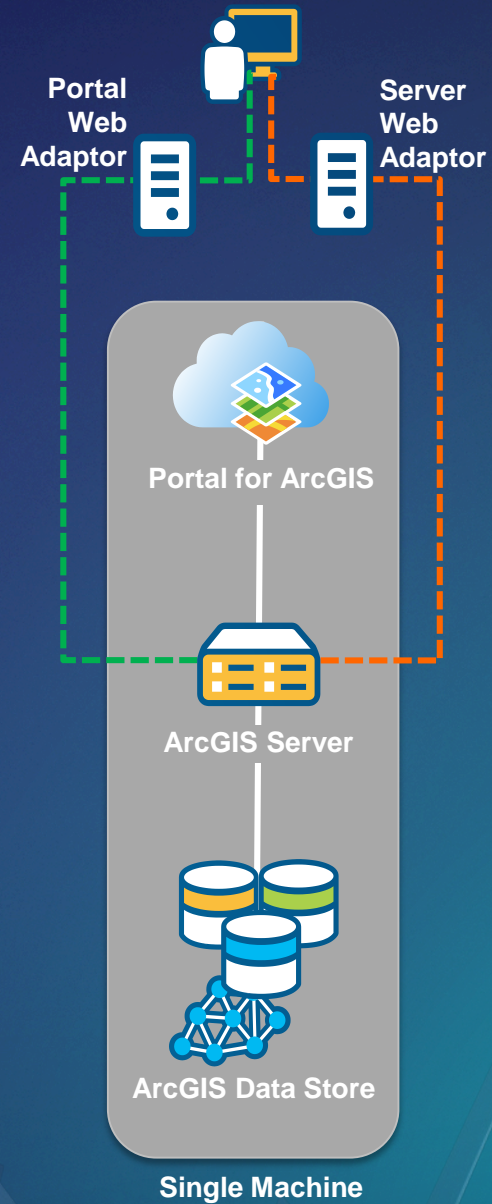
Single Machine Deployment

- **Benefits:**

- Minimal investment
- All-in-one
- Easiest to deploy
- Best used for testing
- Limited impact on hardware resources

- **Considerations:**

- Least stable,
- Not-scalable



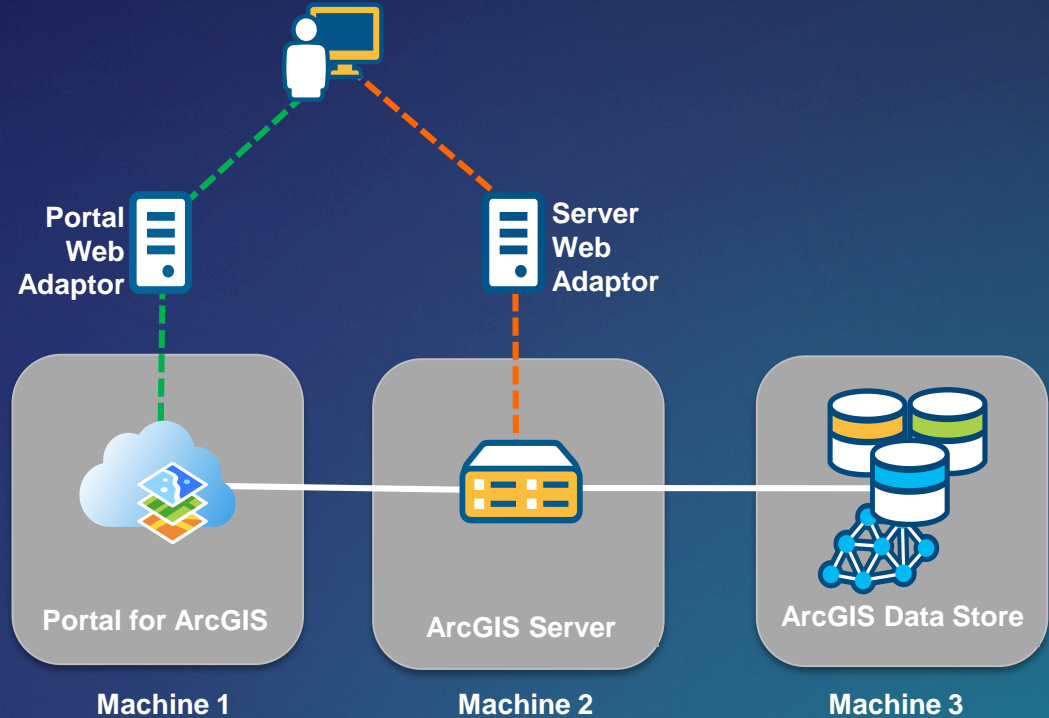
Multitiered Deployment

- **Benefits:**

- Scales to meet increased load
- Separation of work
- More stable

- **Considerations:**

- Increased hardware expenses & IT management



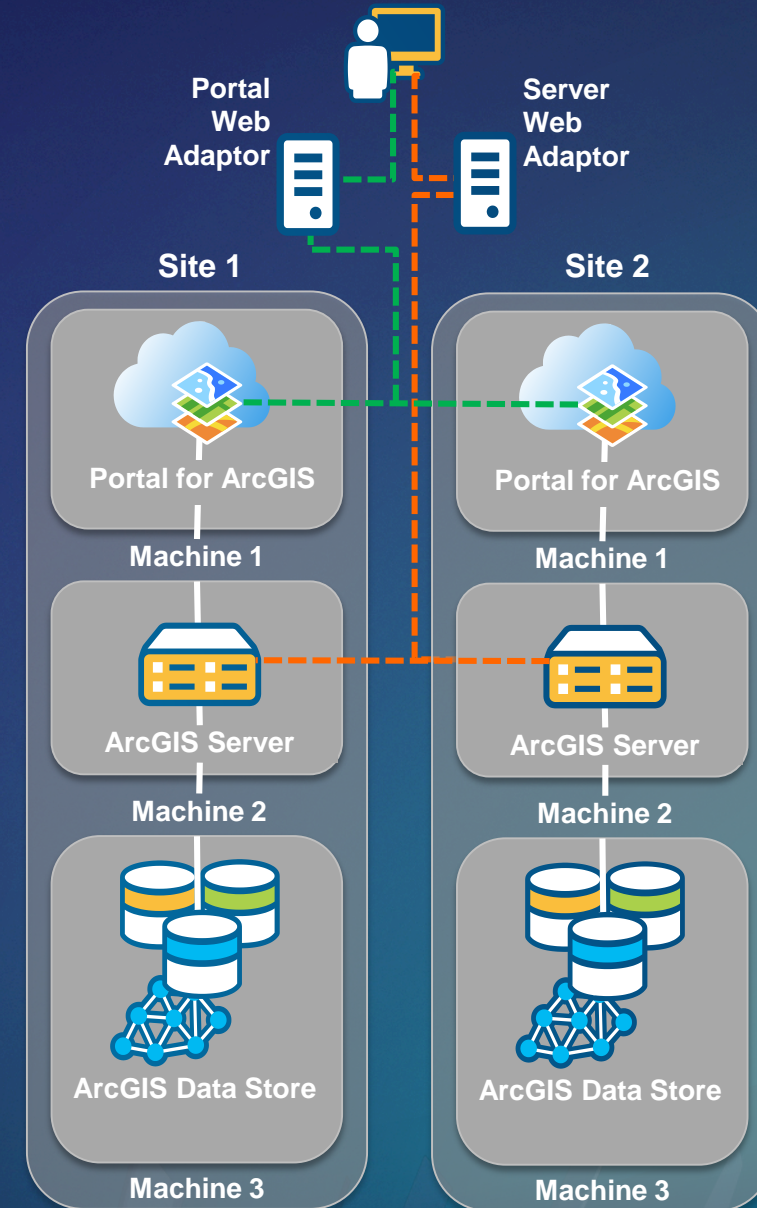
High-Availability Deployment

- **Benefits:**

- Highest stability
- Load balancing
- Fail over

- **Considerations:**

- Increased hardware expenses
- Integration with 3rd party software
- More IT management required



Capacity Planning

Sizing Based on Workflows & Usage

Assemble Requirements

Apply Methodology

Determine Needs

$$\text{Mbps} = \frac{\text{TH} \times \text{Mbits / req}}{3600}$$

$$\text{TH} = \frac{\text{Concurrent users} \times \text{Response Time} + \text{Think Time}}{\text{throughput}}$$

Concurrent users

- Workflows
- GIS Services
- Users

response time
Network capacity

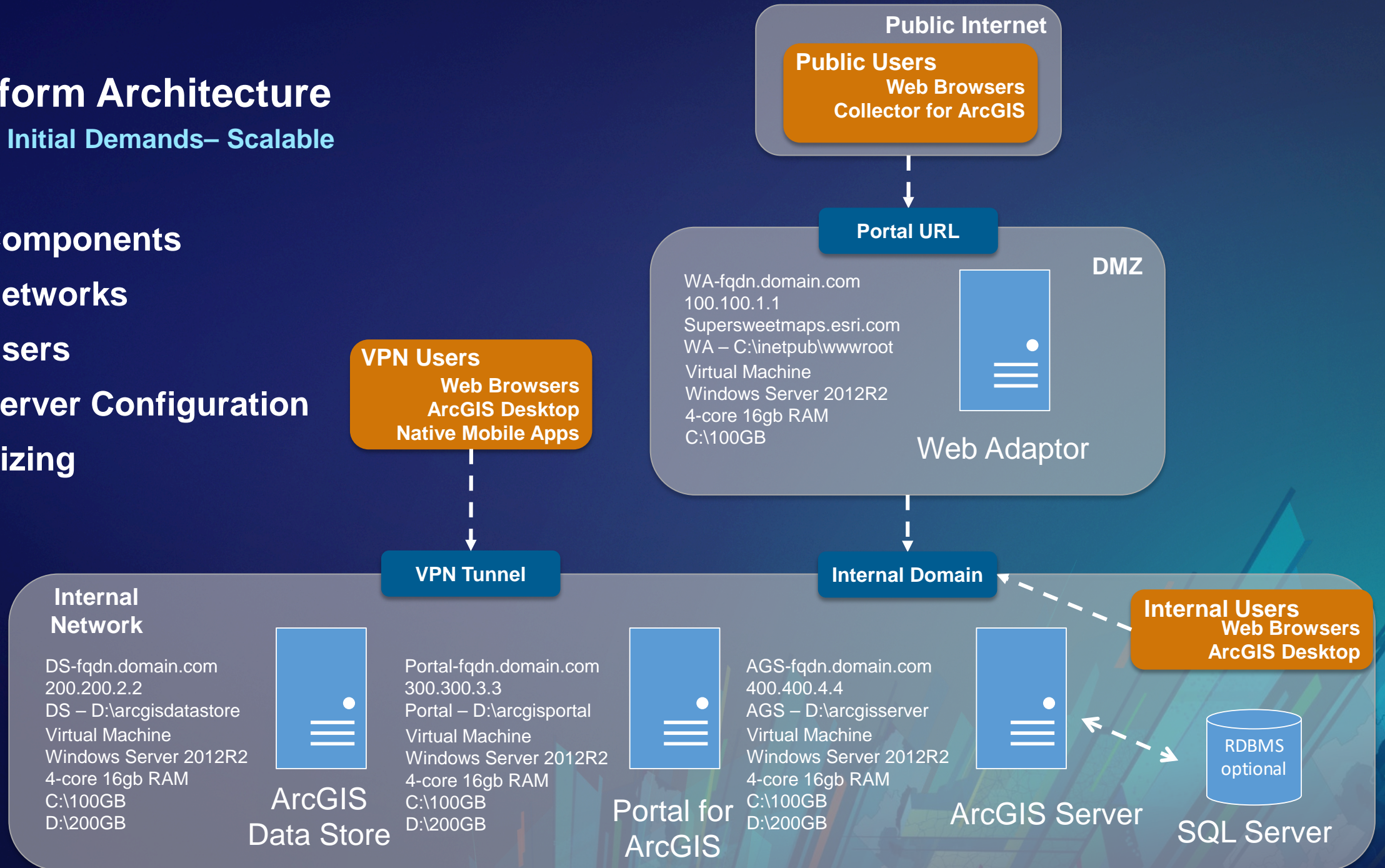
$$\# \text{ CPU}_t = \frac{\text{ST}_b \times \text{TH}_t \times 100}{3600 \times \% \text{CPU}} \times \frac{\text{SpecRatePerCPU}_b}{\text{SpecRatePerCPU}_t}$$

software distribution
Core SpecRate
CPUs

Platform Architecture

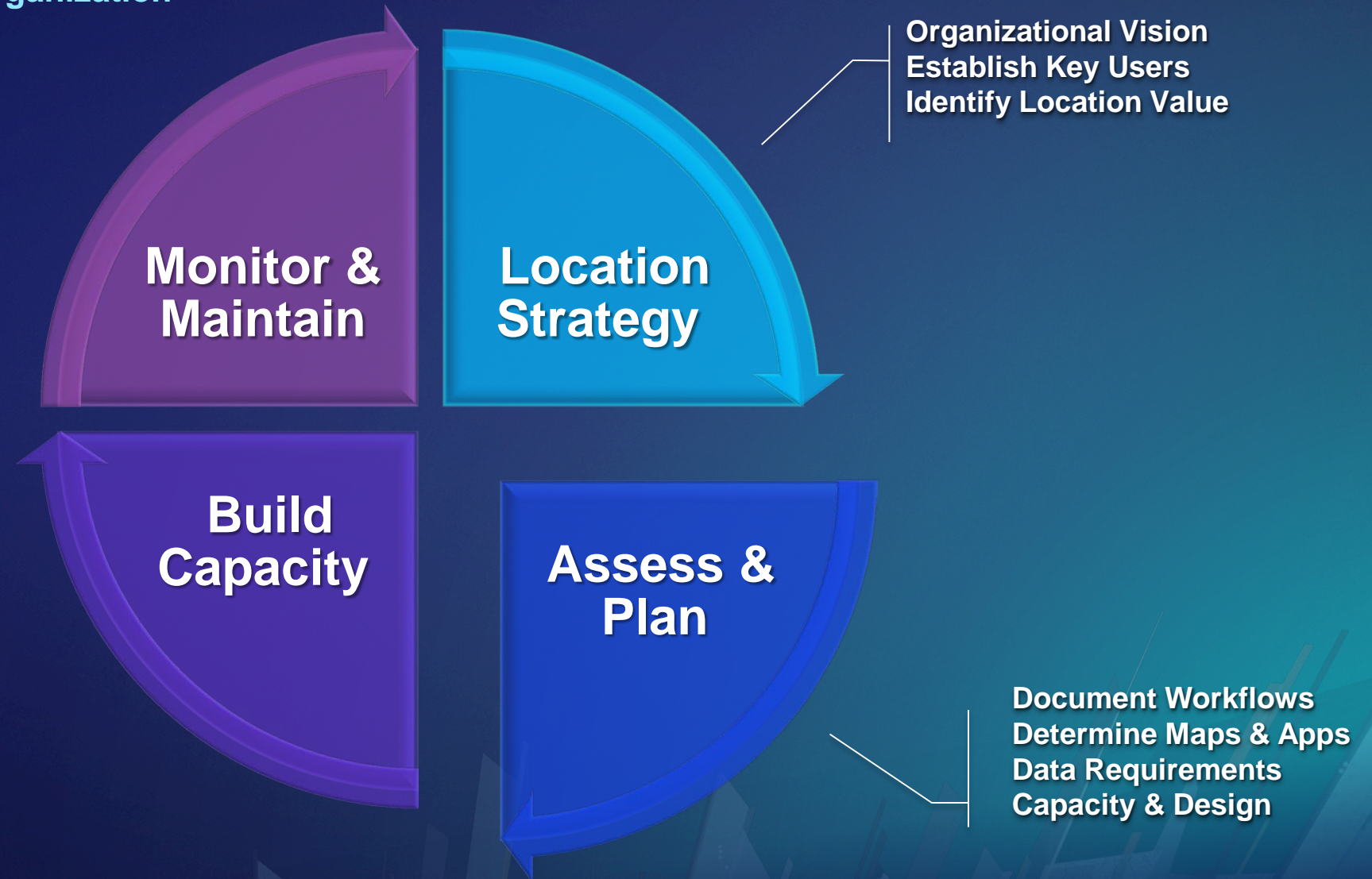
Meets Initial Demands– Scalable

- Components
- Networks
- Users
- Server Configuration
- Sizing



Implementating & Configuring the ArcGIS Platform

Enable & Empower Your Organization



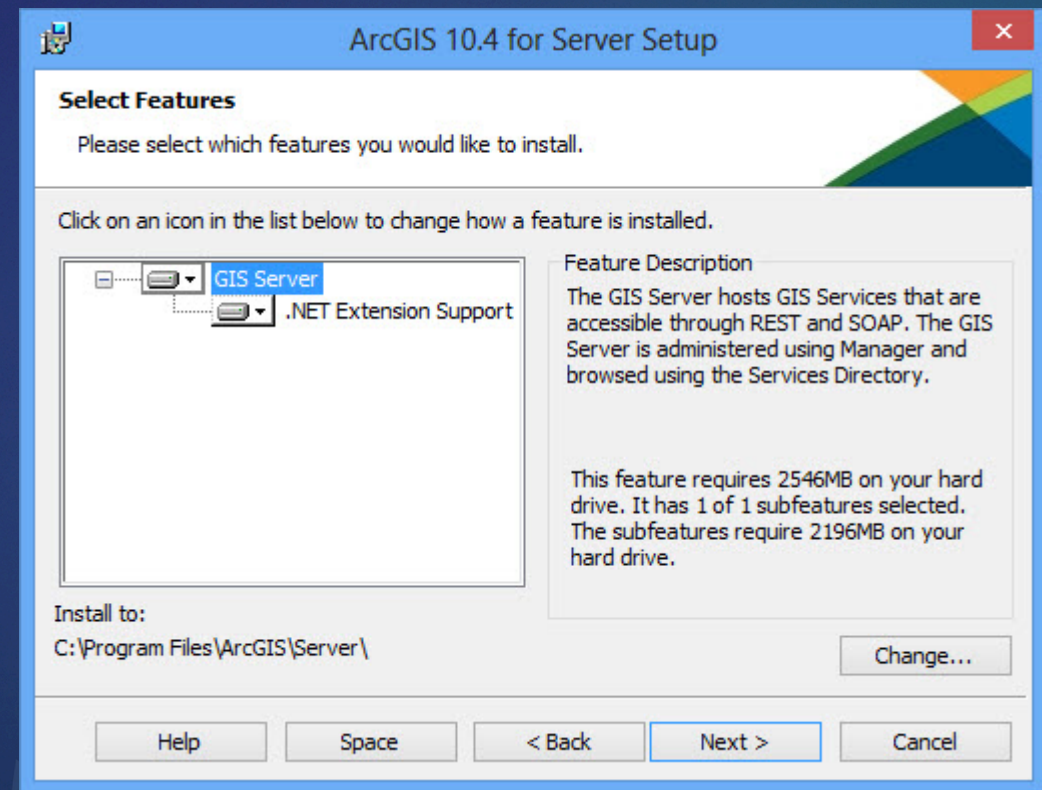
Build Capacity



Software Installation

Distribute Content to Users

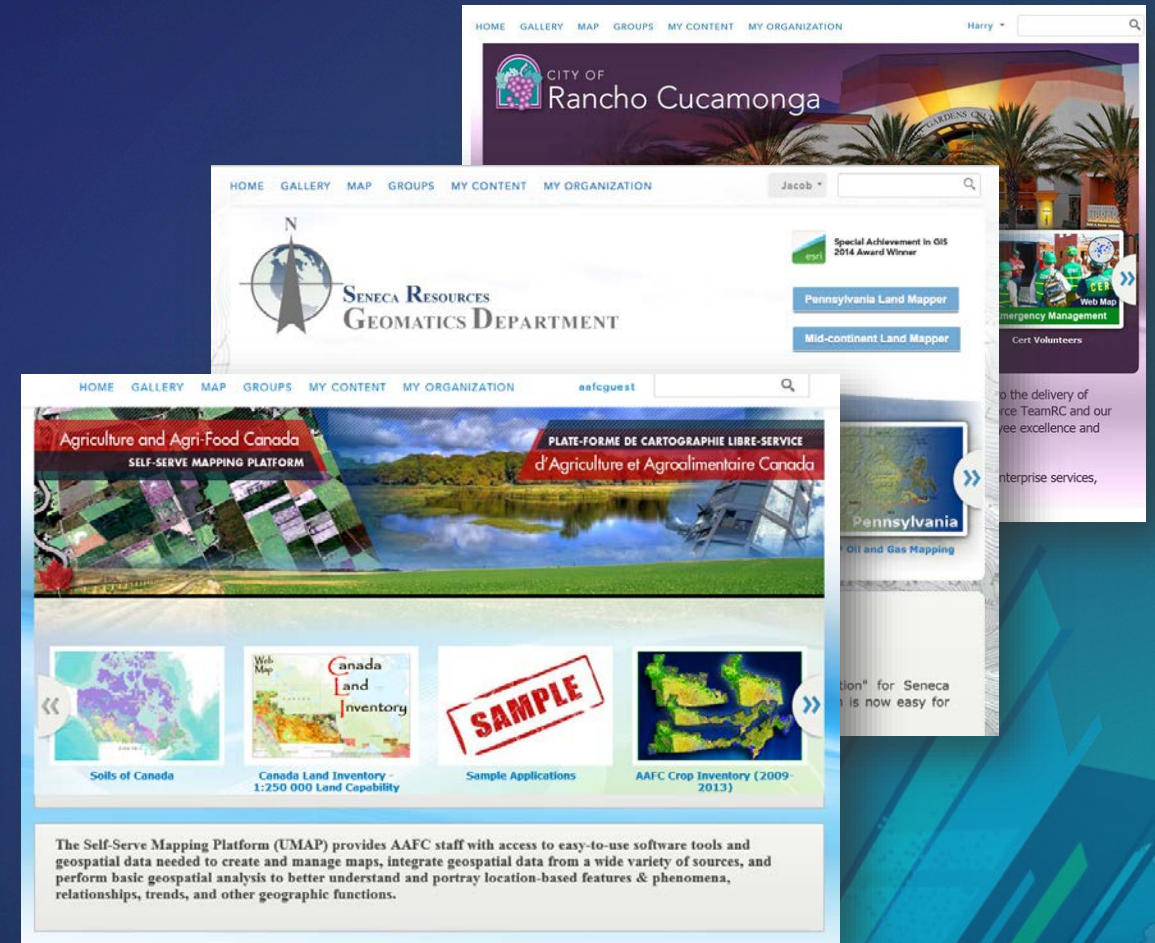
- Prepare Environment
- Run ArcGIS Enterprise Installation
- Create or Join Site
- Install Web Adaptor
- Connect in ArcGIS for Desktop
- Grant Permissions to Data
- Publish Services



Configure Organizational Site

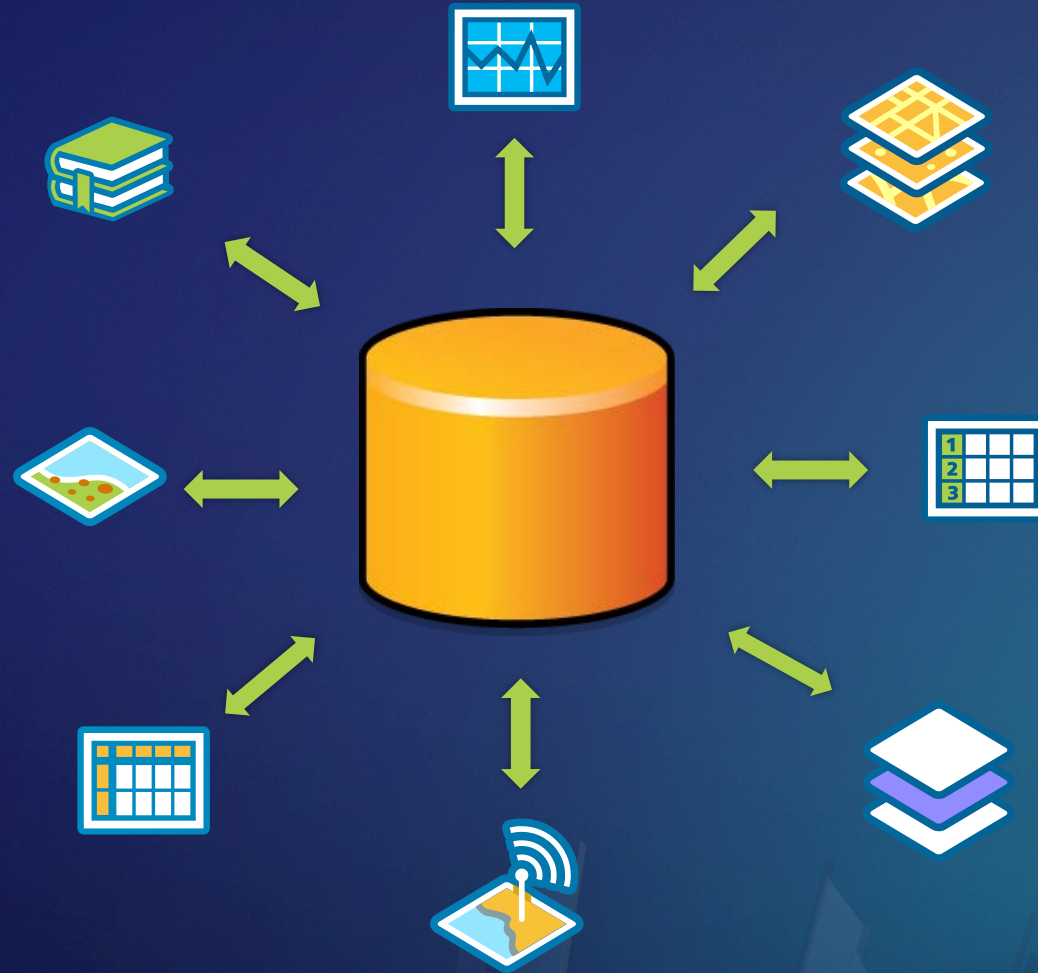
Your User's First Impression

- Use your organizational brand
- Use consistent visual cues
- Intuitive naming conventions
- Add useful descriptions
- Pre-populate with content
- Create a resource destination



Building Data

Central & Authoritative Content



Configure Maps & Apps

Workflow Driven Information Products



Business Analyst Online



AppStudio for ArcGIS



Operations Dashboard



ArcGIS Collector



ArcGIS Explorer



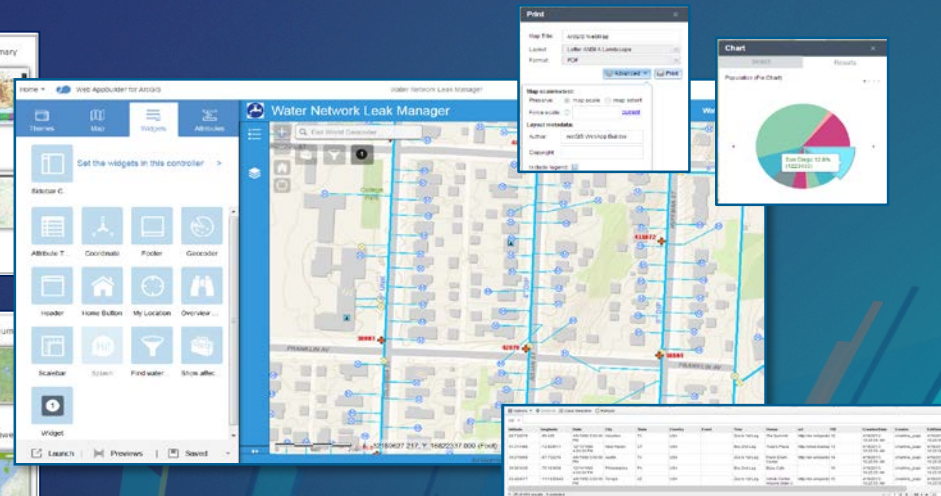
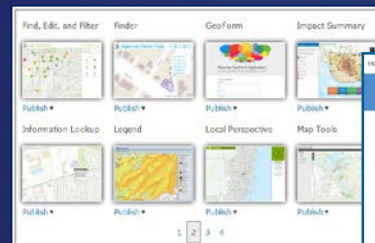
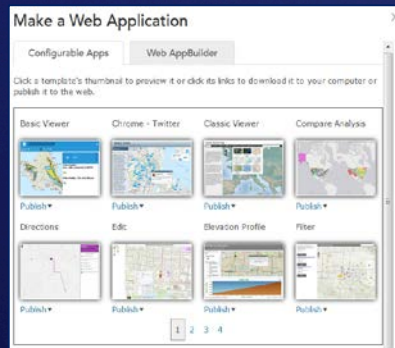
ArcGIS Earth



Survey123



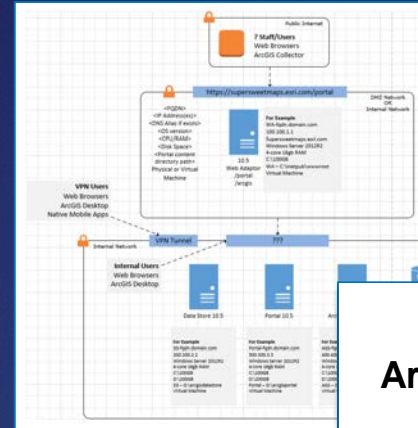
ArcGIS Navigator



Runbook

Standard Documentation To Capture

- Intended Use Cases
- Capacity Calculations
- System Diagram
- Installation Summary
- Configuration Specifications
- Go-Live Details
- Logged Incidents
- Training Needs
- Restore Procedures



Configuration

Server Overview

Server Name (FQDN)	Server Purpose	IP Address	Intranet DNS Alias
<Server FQDN>	License Server	<IP Address>	<DNS Name>
	Web Server (IIS)		
	ArcGIS Server Database Server		

Software Installation Overview

Software	Server	Installation Path	Data Path
Web Adaptor		C:\inetpub\wwwroot	-
ArcGIS Server	<Server Name>	C:\Program Files\ArcGIS\Server	D:\arcgisserver
Portal for ArcGIS		C:\Program Files\ArcGIS\Portal	D:\arcgisportal

Username and Passwords

Domain Service Account	Username	Password
ArcGIS Server	<Service Account>	<Password>
Primary Site Administrator	<PSA Account>	<Password>
Portal for ArcGIS Initial Administrator Account	<Initial Admin Account>	<Password>

ArcGIS Server URLs

Server	Protocol	URL
ArcGIS Server Base URL	HTTP	http://<Server FQDN>-6080/arcgis
ArcGIS Server Base URL	HTTPS	https://<Server FQDN>-6443/arcgis

ArcGIS Enterprise Runbook

Prepared for:
Contact Name, Title
Client Name
Address
City, State Zip Code

Performed:

Prepared By
Technical Lead:
Project Coordinator: |



380 New York Street
Redlands, California 92373-8100 USA
t. 909.793.2653

Rollout

Get People Working!

Users Empowered

Next Big Idea

✓ Technology Implemented

✓ Information Products Ready

✓ Location Strategy

✓ Detailed Plan



Implementing & Configuring the ArcGIS Platform

Enable & Empower Your Organization

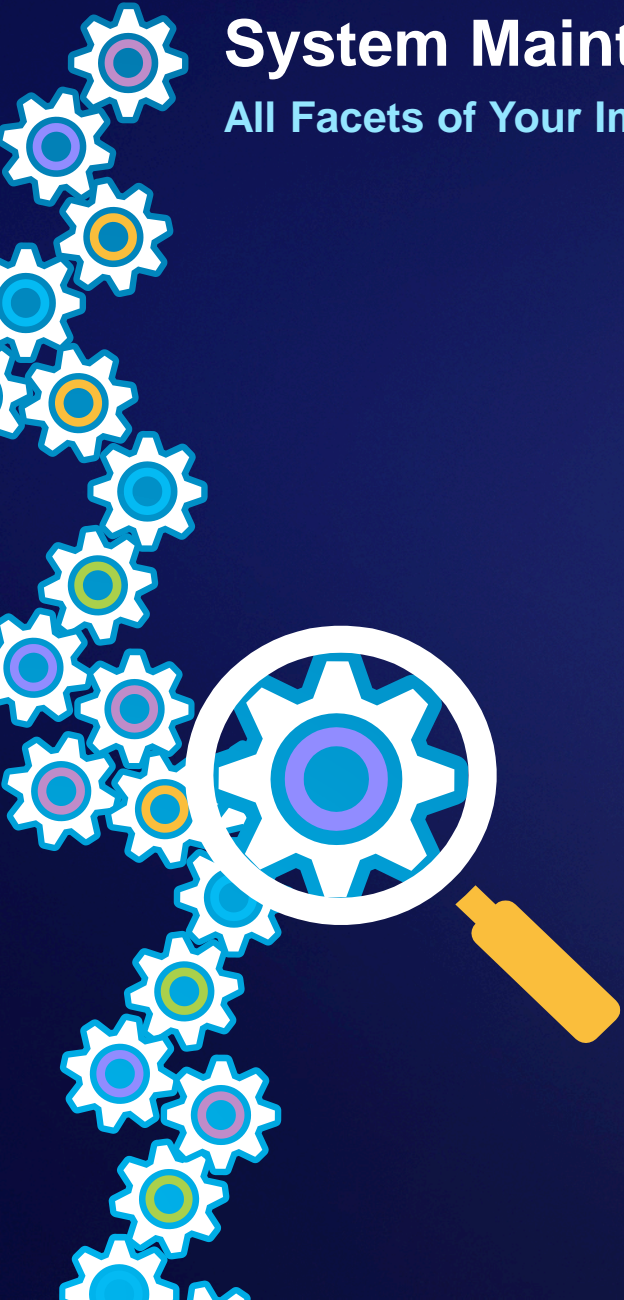


Monitor & Maintain



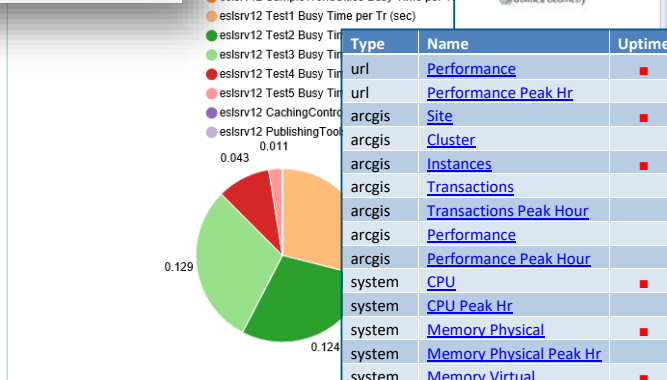
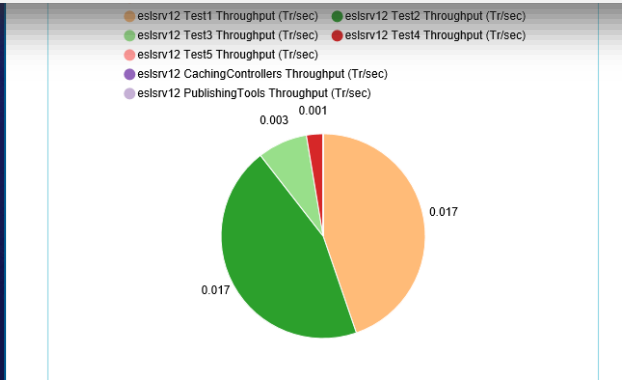
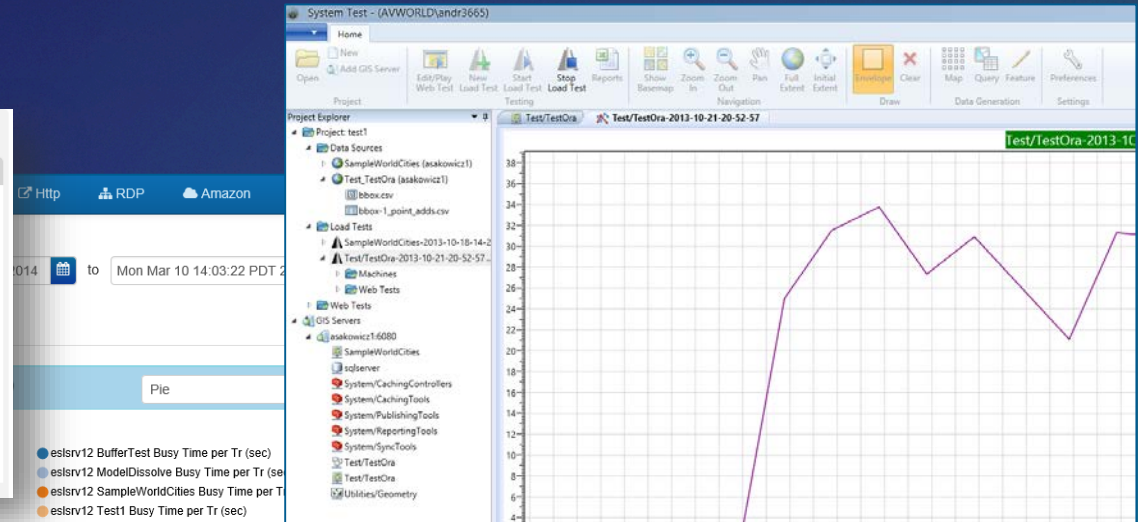
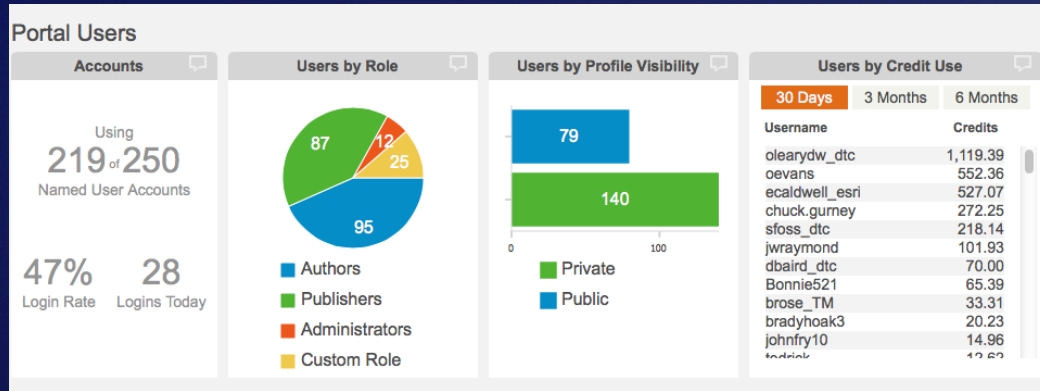
System Maintenance

All Facets of Your Implementation



Monitoring

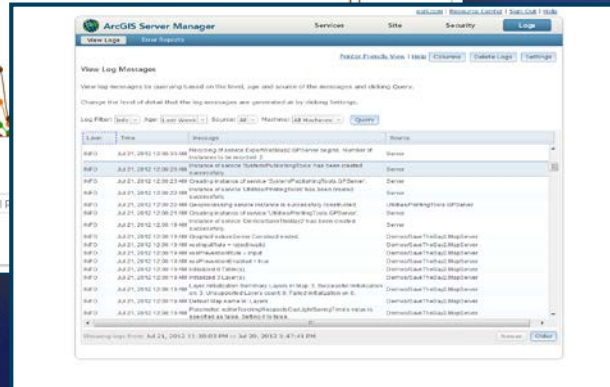
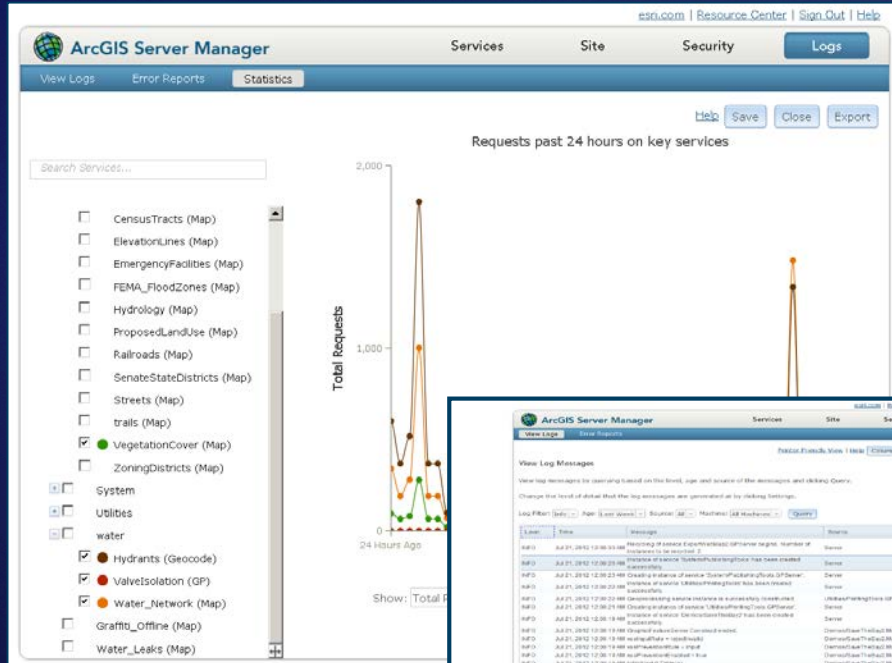
Proactively Review Your Status



Type	Name	Uptime	Performance	HighUtilization	LowUtilization	Alerts	Errors
url	Performance	■	■				■
url	Performance Peak Hr		■				
arcgis	Site	■					■
arcgis	Cluster						
arcgis	Instances	■		■	●		
arcgis	Transactions			■			
arcgis	Transactions Peak Hour			■			
arcgis	Performance		■				
arcgis	Performance Peak Hour						
system	CPU	■		▲	●		
system	CPU Peak Hr			■	●	■	
system	Memory Physical			▲			
system	Memory Physical Peak Hr			▲			
system	Memory Virtual	■			●		
system	Memory Virtual Peak Hr			■			
system	Disk IO	■		■			
system	Disk IO Peak Hr			■	●		
system	Disk Space	■		■	●		

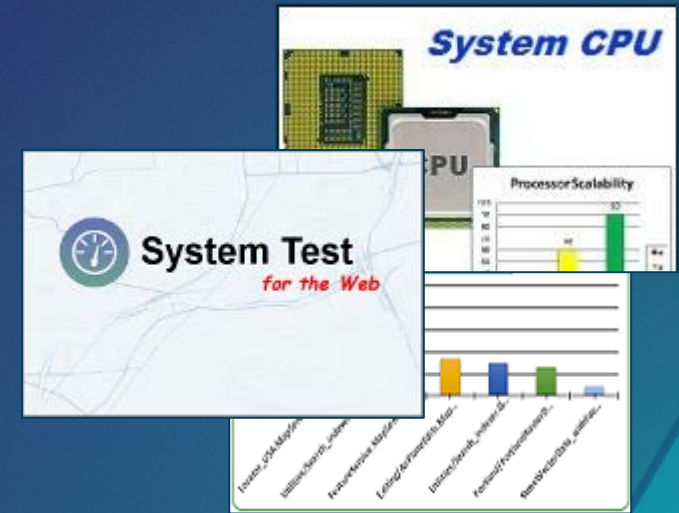
Testing, Tuning, & Scaling

Fixing Issues – Preparing For Expansion



Out of the box tools

Custom Tools



Training

Evolve Your People with Your Technology



The screenshot shows a website for training. At the top, there's a navigation bar with a 'Main' dropdown and links for 'Catalog', 'My Learning', 'Certification', and 'Help'. The main content area features a central banner with the text 'Training' and 'Your location for lifelong learning'. Below the banner, there are four columns, each with a colored circular icon and a title:

- Authoritative Resources** (Orange icon): Thousands of hours of professionally developed and curated content.
- Relevant Training for Your Role** (Green icon): Content for everyone - students, educators and professionals.
- Many Ways to Learn** (Light Green icon): Multiple options and formats to meet your needs.
- Helping you Grow** (Yellow icon): Content for all stages along your learning journey.

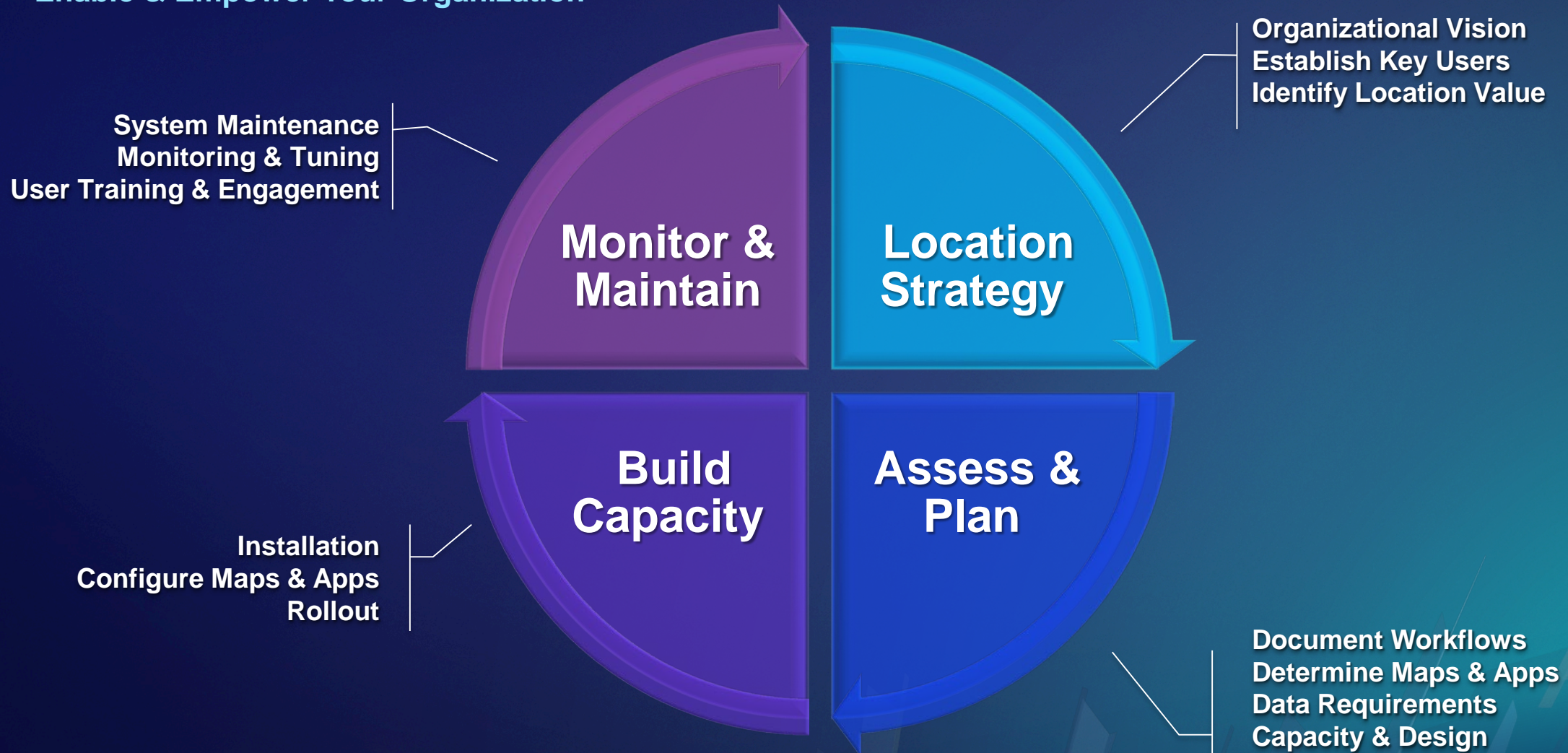
Reconnect With Users

Have Needs Changed?



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Enable & Empower Your Organization

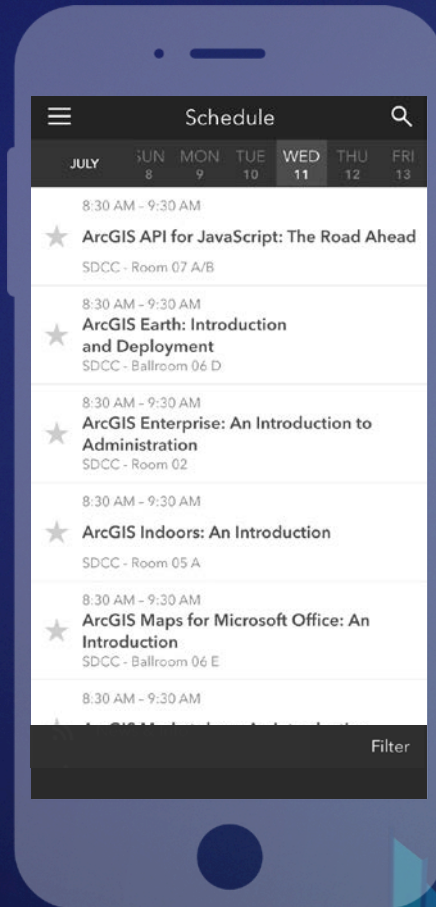


Please Take Our Survey on the App

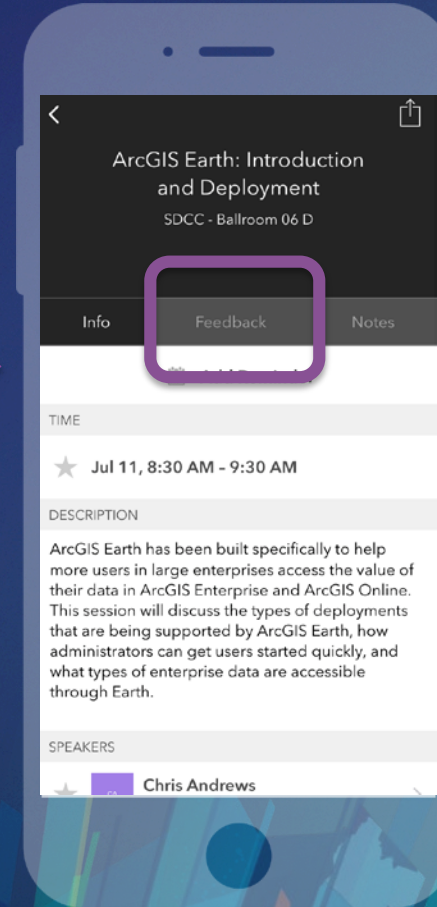
Download the Esri Events app and find your event



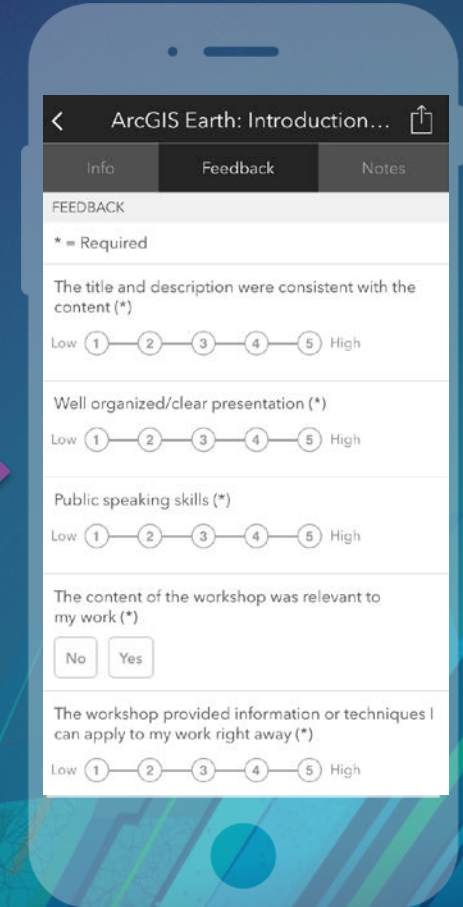
Select the session you attended



Scroll down to find the feedback section



Complete answers and select "Submit"





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THE
SCIENCE
OF
WHERE