Esri International User Conference
San Diego, California

Technical Workshops | July 25, 2012

# ArcGIS for Server
# An Introduction

Dan Haag & Derek Law

# Agenda

- Overview
- What is ArcGIS for Server?
- Publishing resources onto the Web
- Clients to Server web services
- Editions and Licensing levels
- ArcGIS for Server and ArcGIS Online
- Summary
- Questions

# Vision

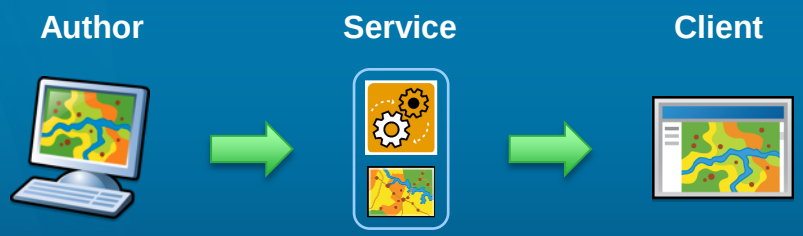
**Powerful GIS capabilities**

**Delivered as Web services**

**To help solve real problems by real people**

# Demo

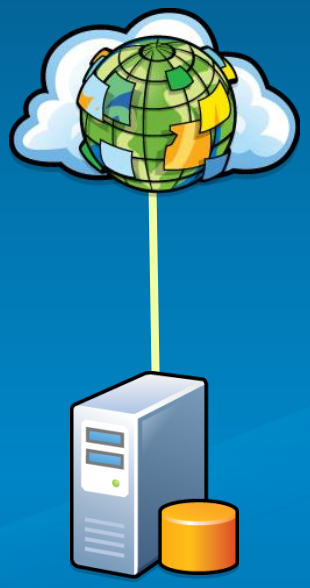
ArcGIS for Server
in action



# ArcGIS for Server

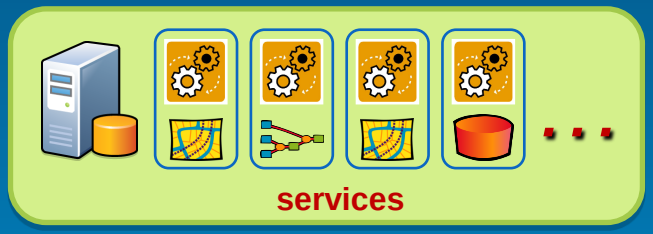
***Delivering GIS with powerful services and applications***

- **Complete, out-of-the-box Web based GIS**
  - **Ready to use applications and GIS services for**
    - **Spatial data management**
    - **Visualization**
    - **Analysis**
- **Platform for developing Web and enterprise applications and services**
- **Share your GIS work and resources**



# What are GIS Services?

- **GIS Service = GIS resource running on a server**
  - **vs. GIS application on your local computer**




- **Share GIS resources across the Web**


Map


Feature


Network


Geodata


Geoprocessing

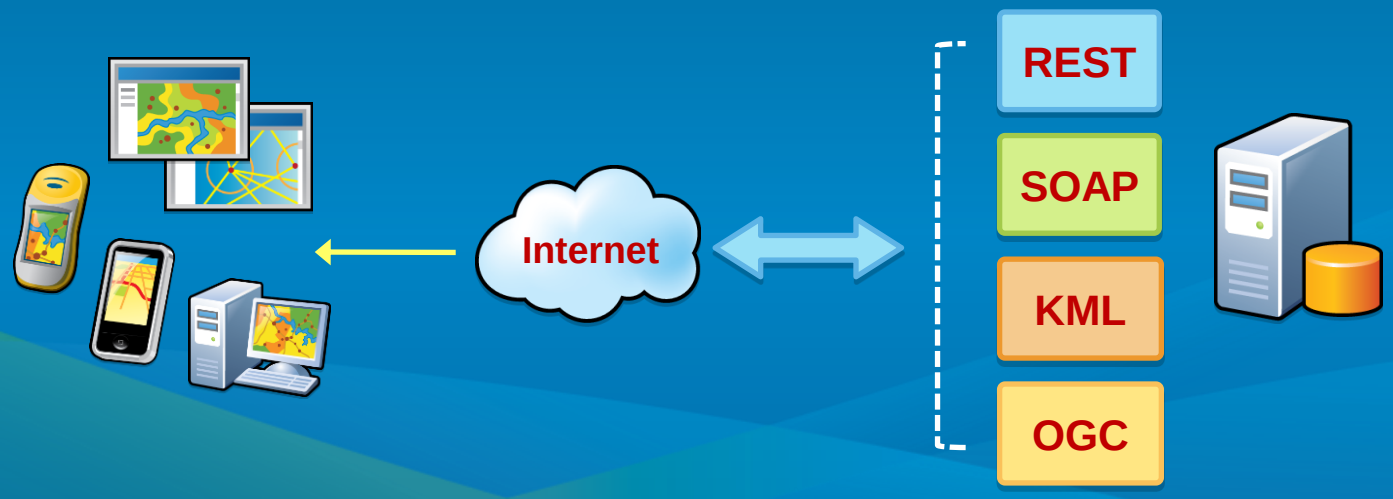

Image


Locator

# ArcGIS for Server – Web protocols

***Supports industry standards***

- **Its GIS services can be accessed via**
  - **Representational State Transfer (REST)**
  - **Simple Object Access Protocol (SOAP)**
  - **Keyhole Markup Language (KML)**
  - **Open Geospatial Consortium (OGC)**

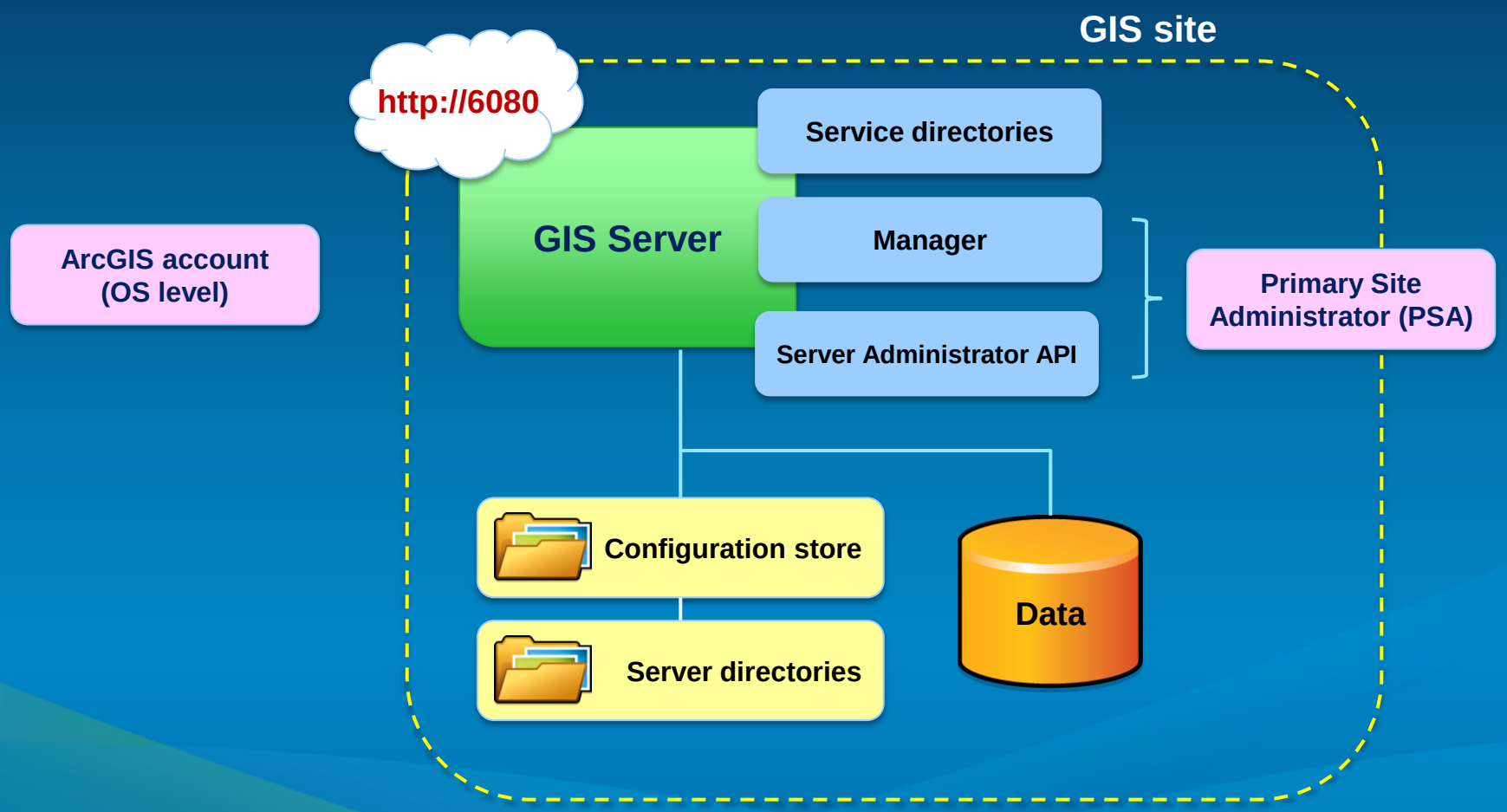


# ArcGIS for Server overview

- Pure web services GIS server
  - Easy install and configuration
  - Self contained GIS server
  - No external dependencies
- Built for resilience
- Designed for enterprise systems

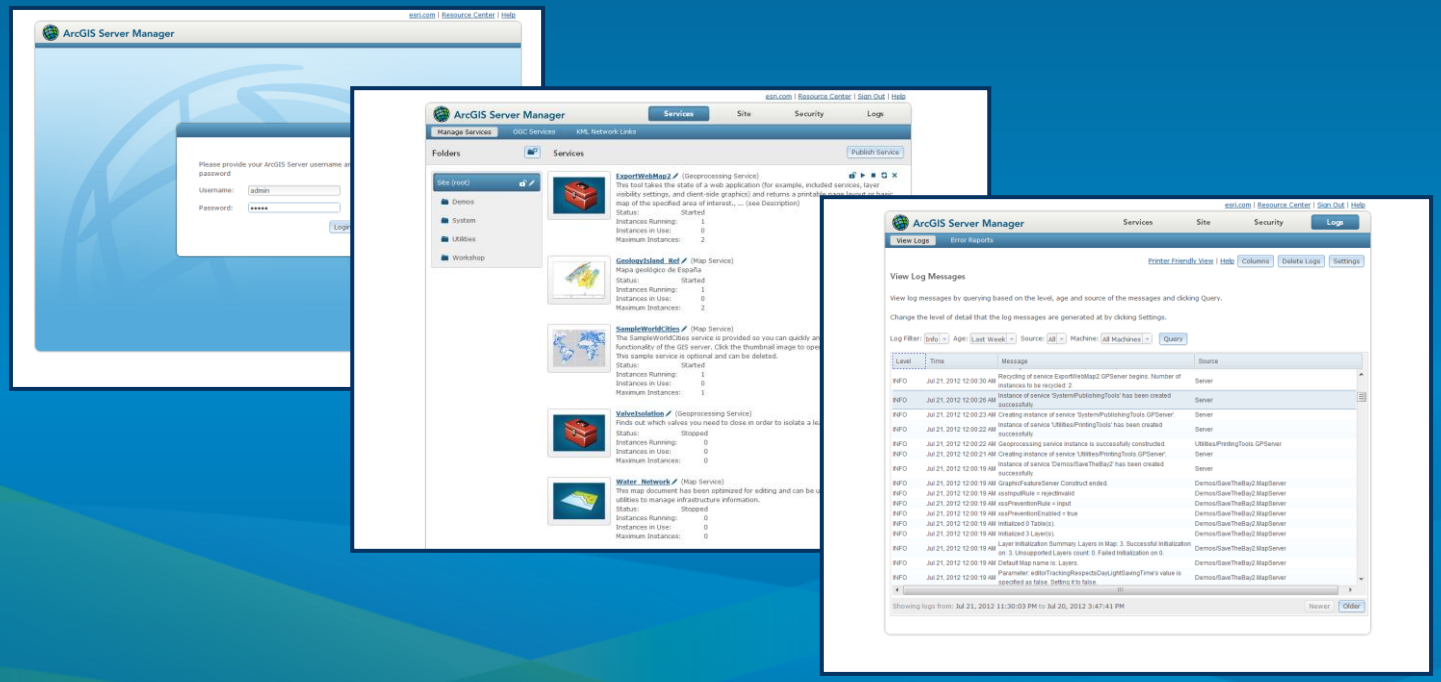
On-premise or in the cloud


# ArcGIS for Server Architecture



# ArcGIS Server Manager

- Web browser based **administrative console** to manage Server
  - Services, site management, security, and logs

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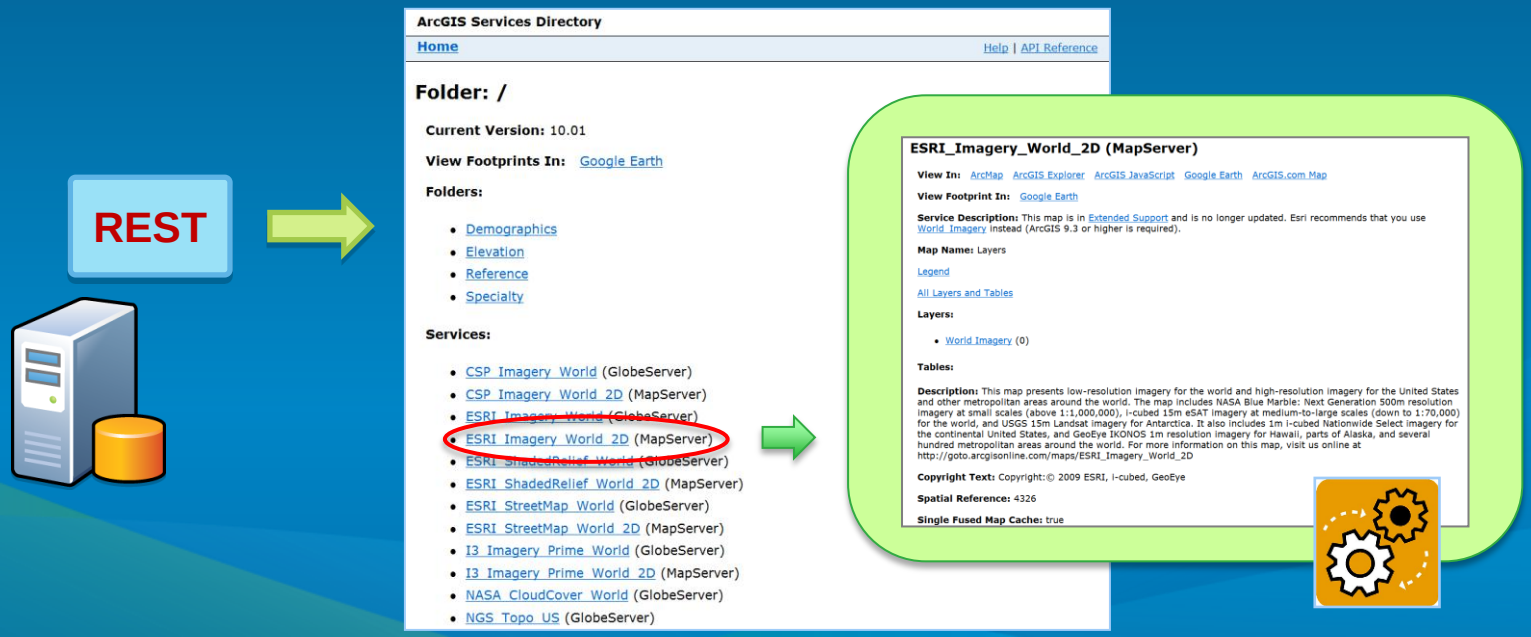
# Services Directory

*View of ArcGIS Server REST endpoint*

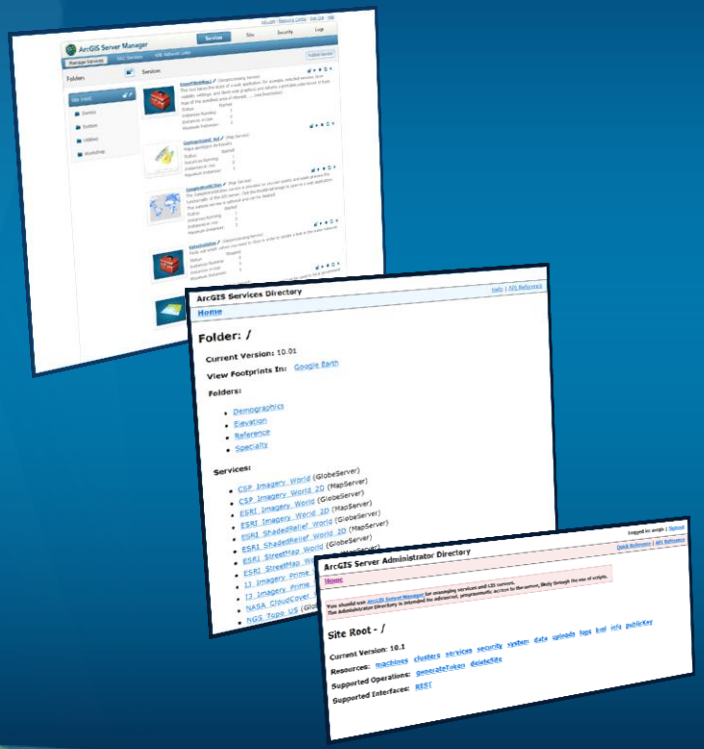
- ArcGIS Services Directory **exposes GIS services**
  - http://localhost/ArcGIS/rest



# Server Administrator Directory

*AKA: Server Administrator API*

- Enables **scripting of Server administration tasks**
  - E.g., Join machine to a site, start/stop services
- Can be invoked from:
  - Python, Java, JavaScript, C#, PowerShell, Ruby, Scala, Perl, etc.

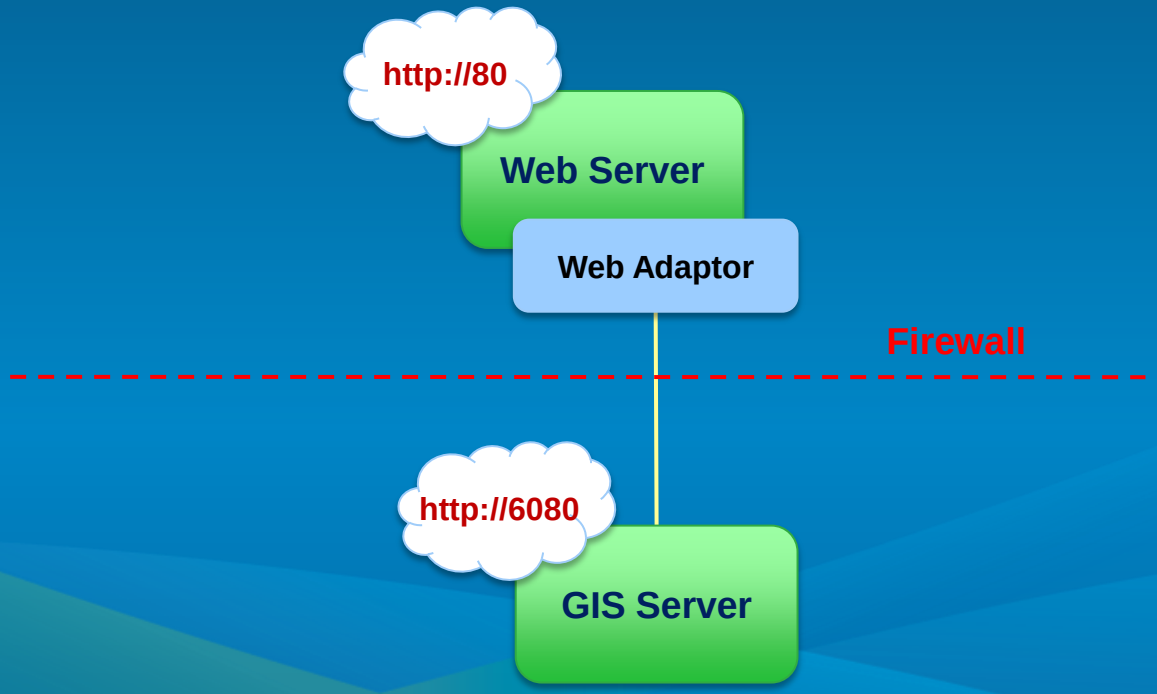



# Demo

ArcGIS Server Manager
Services directory
Server Admin directory

# ArcGIS for Server – Web Adaptor

- Enables ArcGIS for Server to work with 3rd party Web server
  - E.g., Internet Information Services (IIS), Web Sphere, etc.

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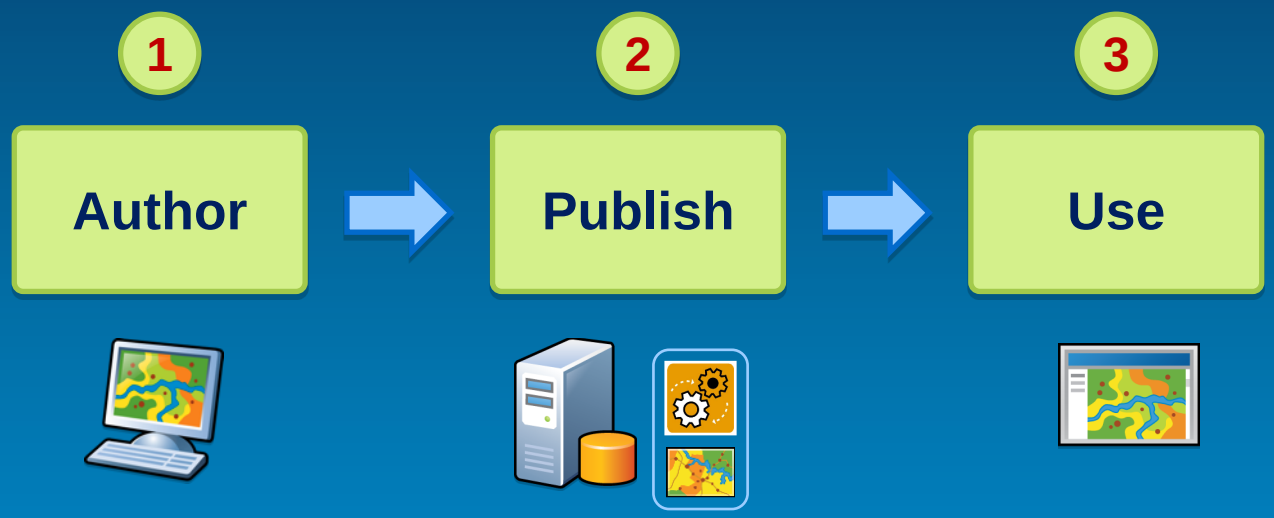
# ArcGIS for Server architecture sessions

- **What's New in ArcGIS for Server 10.1 – Server Framework**
  - **Wed 1:30 pm Ballroom 6F**

# Publishing Workflow

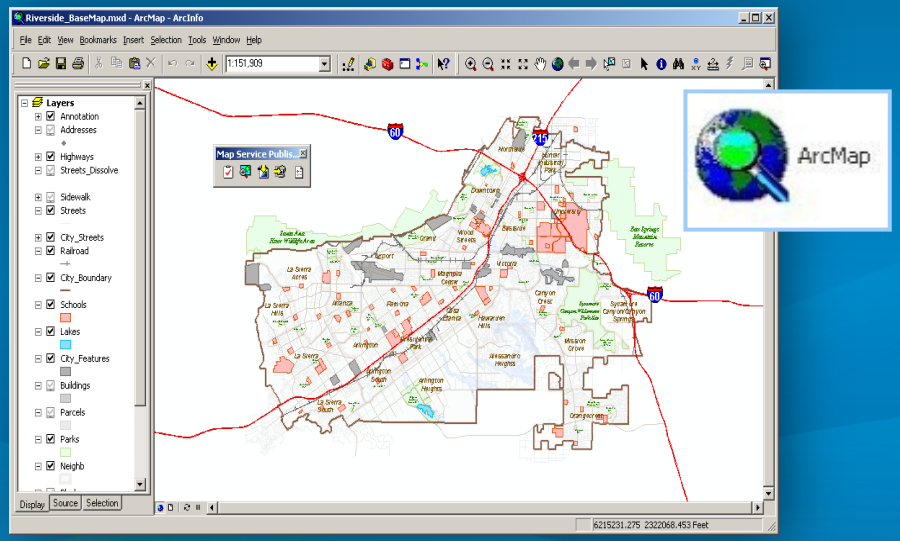
***Share your GIS resources***



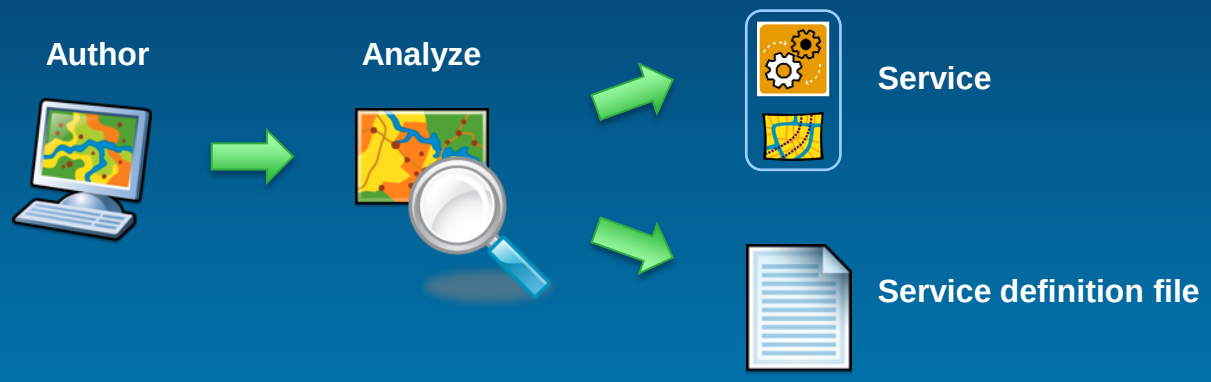
# 1 Authoring Maps for ArcGIS Server

***Create professional looking maps for the Web***

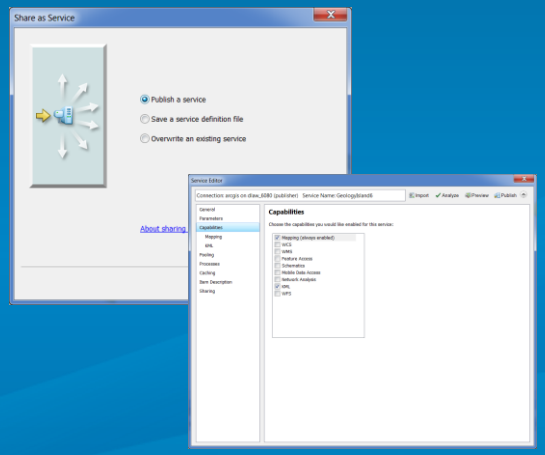
- **Leverage ArcMap's powerful cartographic capabilities**
- ***WYSIWYG* map authoring**
- **Follow best practices for optimal maps**



# 2 Publish resources




- 2a) Share resource wizard
  - Service editor dialog
    - Define service properties




- 2b) Analyze map for optimization

# Web Map Design – Terminology

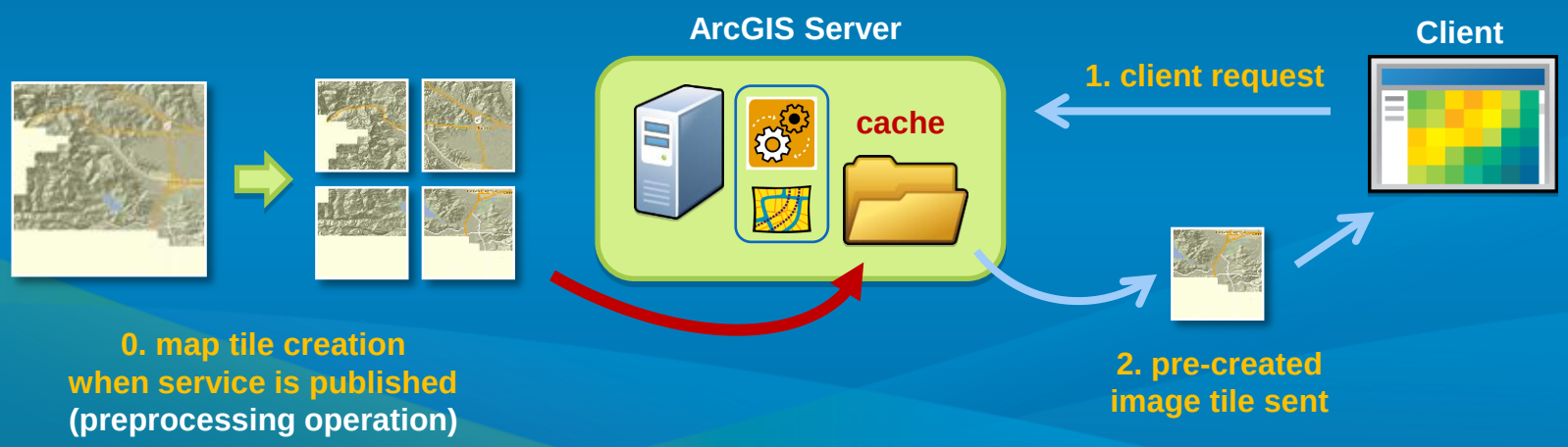
***Common ArcGIS Server concepts***

- **Map service**
  - **2 types**
    - **Cached vs. Dynamic**
- **Web-based map**
  - **Data content**
    - **Base Maps vs. Operational layers**

# Cached Map Service

*Type 1*

- Pre-render data as a collection of images stored on the server
- Used for data that does not change frequently
- Can be vector and raster data

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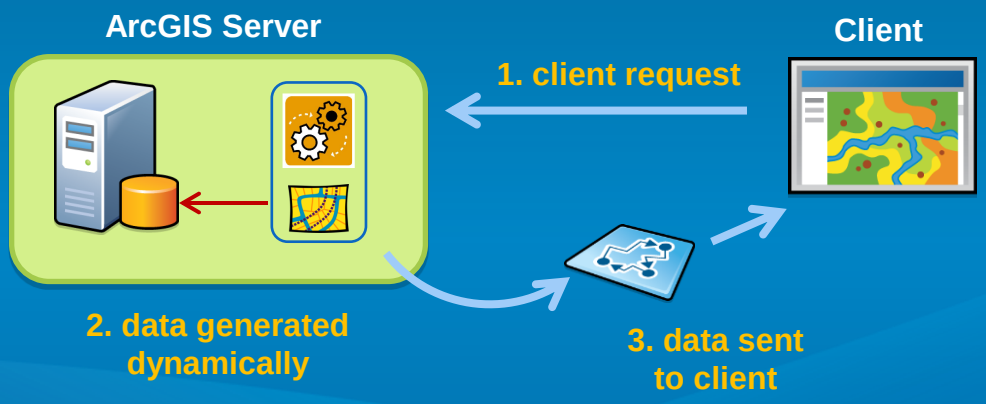
# Map caching sessions

- **Designing and Using Cached Map services**
  - Thurs 3:15 pm Room 10
- **Advanced Map Caching Topics**
  - Wed 3:15 pm Room 4
  - Thurs 8:30 am Room 10
- **Map Caching: Tips from the ArcGIS Online team**
  - Wed 10:15 am Room 3
  - Thurs 3:15 pm Room 1B

# Dynamic Map Service

*Type 2*

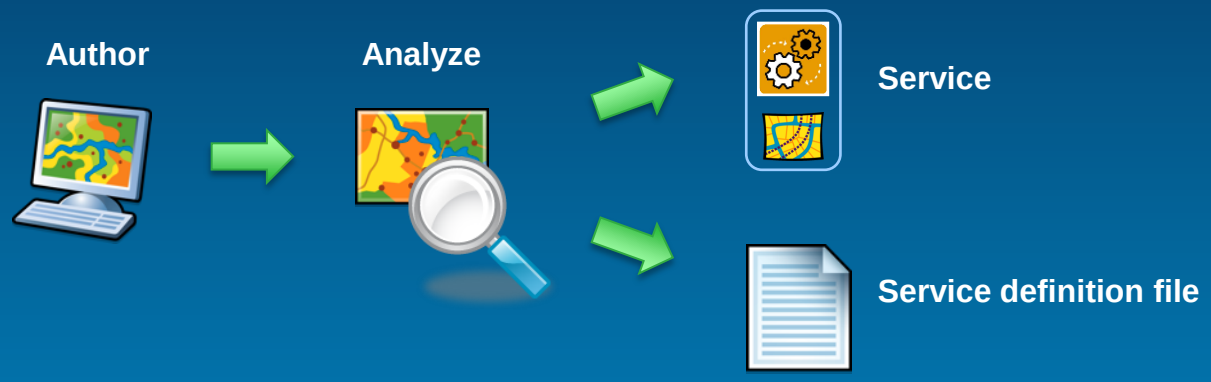
- Map service data content is generated on-the-fly as needed
- Used for data that changes/updated frequently
- Typically vector data



# Map authoring sessions

- Best Practices for Designing Effective Map Services
  - ~~Tues 8:30 am Room 8~~
- Best Practices for Designing Effective Map Services: Case Studies
  - Thurs 10:15 am Room 15B

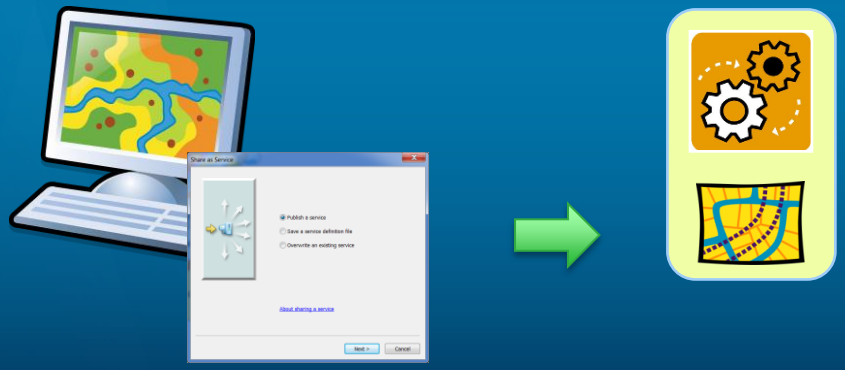
# Publishing GIS resources




- Share
  1. Publish service or
  2. Create service definition file
     - Defines service schema and info
     - Can be used to publish service later
- All GIS resources are published with the same workflow

# Demo

Publish a map service workflow



# Data Content in a Web-based map

*Common design pattern*


- **Base Maps**
  - Geographic frame of reference
  - Contain static data
- **Operational layers**
  - Information overlays that end uses interact with
  - Contain dynamic data
- **Operational layers display on top of Base Maps**

# Clients to Server web services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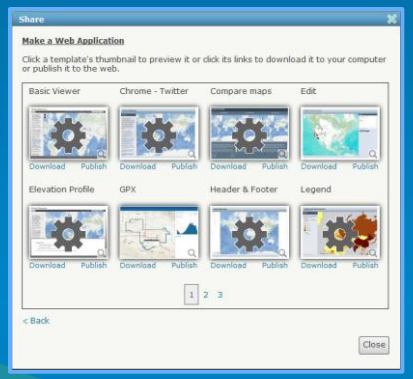
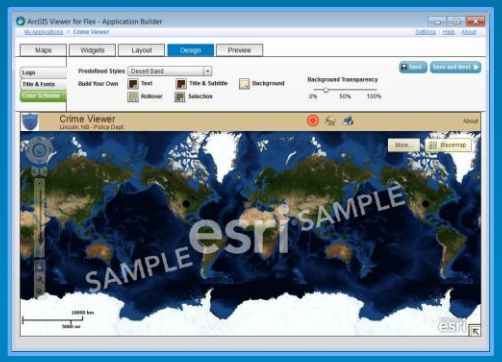
# Configurable ArcGIS client viewers

- Easily create and deploy web mapping applications
  - No programming required
- Define: data content, functionality, look and feel
- 3 options




ArcGIS.com application templates




ArcGIS Viewer for Flex


ArcGIS Viewer for Silverlight


# Demo

Create and deploy a new web app with ArcGIS Viewer for Flex application builder

# Configurable ArcGIS viewer sessions

- **Creating Web Applications with ArcGIS**
  - **Fri 9:00 am Room 8**
- **ArcGIS Viewer for Flex – An Introduction**
  - **Thurs 10:15 am Room 2**
- **ArcGIS Viewer for Silverlight – An Introduction**
  - **Thurs 10:15 am Ballroom 6D**
  - **Fri 9:00 am Ballroom 6D**

# Web Mapping APIs

*Building web clients*

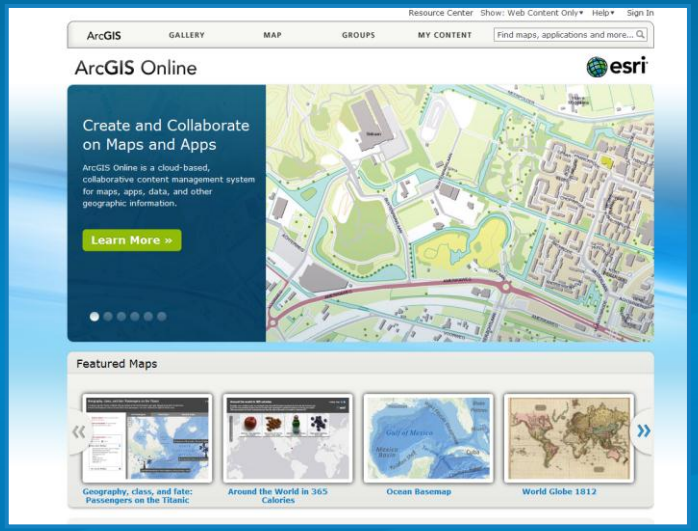
- Allow developers to easily build custom Web applications
  - ArcGIS API for JavaScript
  - ArcGIS API for Flex
  - ArcGIS API for Silverlight
- Built on a simple architecture
  - Use REST services endpoint
  - Web services based

- Choice depends on developer experience and style preference

# ArcGIS Server and ArcGIS Online

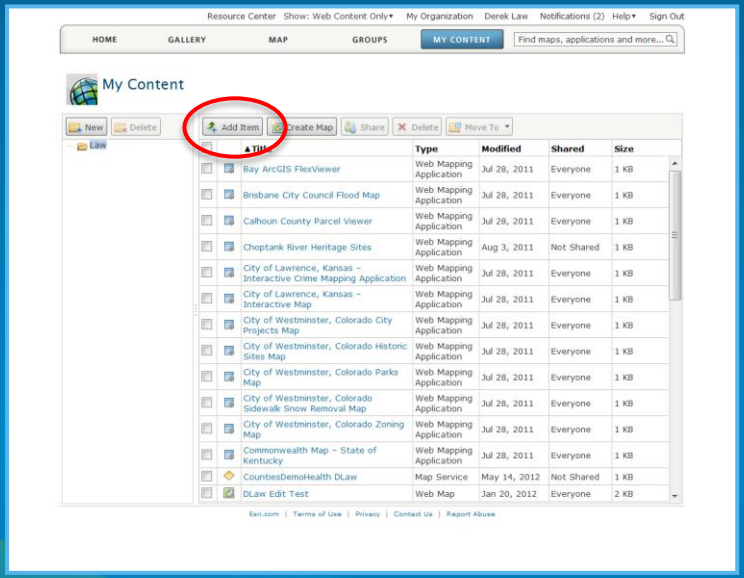
- ArcGIS Online extends the reach of ArcGIS for Server
- Easier user experience to locate and access YOUR services

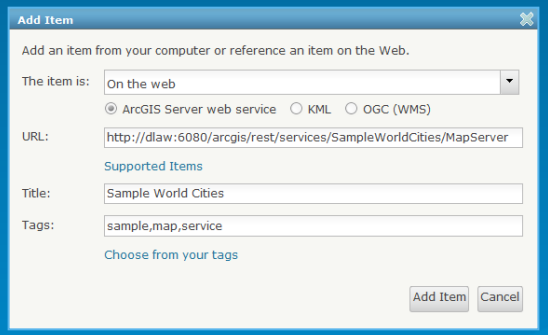
ArcGIS for Server



# Register a service with ArcGIS Online

- Add service as an item to ArcGIS Online
- Share with others

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# What is a web map?

- The foundation for your maps and applications

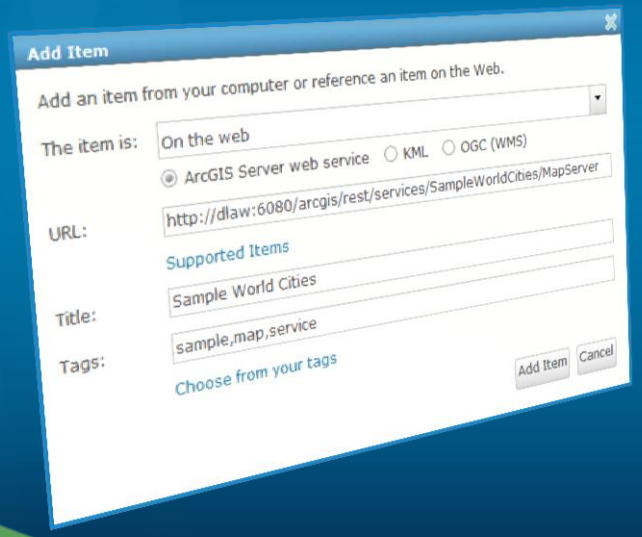
Intelligent Maps

Services
And Data

Supporting

- Visualization
- Editing
- Popups
- Analysis
- Time

# Clients to Server web services




# Demo

Register a service with Online

# ArcGIS for Server – Editions and Levels

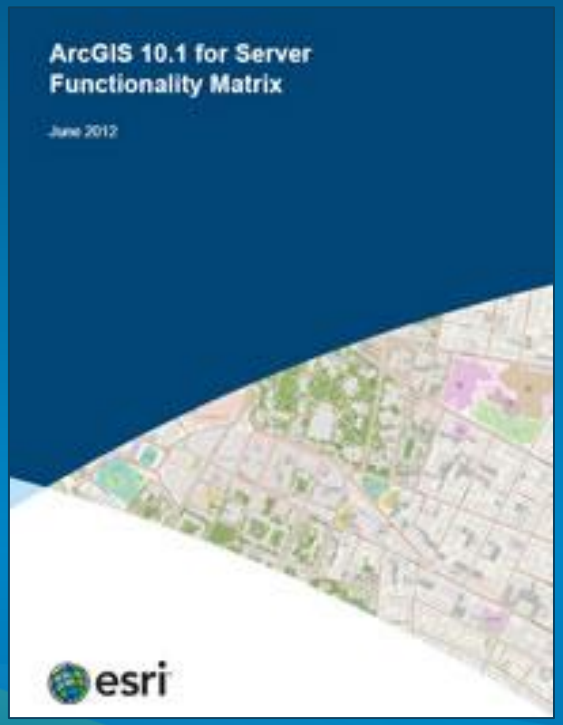
Capacity →

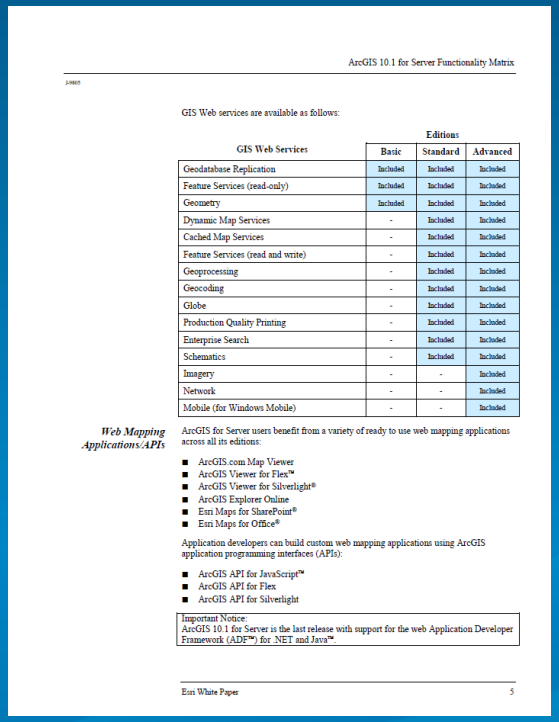
Functionality ↓

| Edition | Includes | Level | |
|---|---|---|---|
| | | Workgroup | Enterprise |
| Basic | • ArcSDE technology<br>• Geodata services for replication<br>Read only feature services | • SQL Server Express<br>• 10 users | • Any supported database<br>• Unlimited users |
| Standard | Basic features plus<br>• Map, globe, geocoding, geoprocessing (ArcView tools),<br>• Web editing | " | " |
| Advanced | Standard features plus<br>• Advanced geoprocessing<br>• ArcGIS Mobile | " | " |

# ArcGIS for Server Functionality matrix

- **http://www.esri.com/software/arcgis/arcgisserver/whitepapers**



ArcGIS 10.1 for Server Functionality Matrix

J-9865

GIS Web services are available as follows:

| GIS Web Services | Editions | | |
|---|---|---|---|
| | Basic | Standard | Advanced |
| Geodatabase Replication | Included | Included | Included |
| Feature Services (read-only) | Included | Included | Included |
| Geometry | Included | Included | Included |
| Dynamic Map Services | - | Included | Included |
| Cached Map Services | - | Included | Included |
| Feature Services (read and write) | - | Included | Included |
| Geoprocessing | - | Included | Included |
| Geocoding | - | Included | Included |
| Globe | - | Included | Included |
| Production Quality Printing | - | Included | Included |
| Enterprise Search | - | Included | Included |
| Schematics | - | Included | Included |
| Imagery | - | - | Included |
| Network | - | - | Included |
| Mobile (for Windows Mobile) | - | - | Included |

***Web Mapping Applications/APIs***

ArcGIS for Server users benefit from a variety of ready to use web mapping applications across all its editions:

- ArcGIS.com Map Viewer
- ArcGIS Viewer for Flex™
- ArcGIS Viewer for Silverlight®
- ArcGIS Explorer Online
- Esri Maps for SharePoint®
- Esri Maps for Office®

Application developers can build custom web mapping applications using ArcGIS application programming interfaces (APIs):

- ArcGIS API for JavaScript™
- ArcGIS API for Flex
- ArcGIS API for Silverlight

Important Notice:
ArcGIS 10.1 for Server is the last release with support for the web Application Developer Framework (ADF™) for .NET and Java™.

Esri White Paper 5

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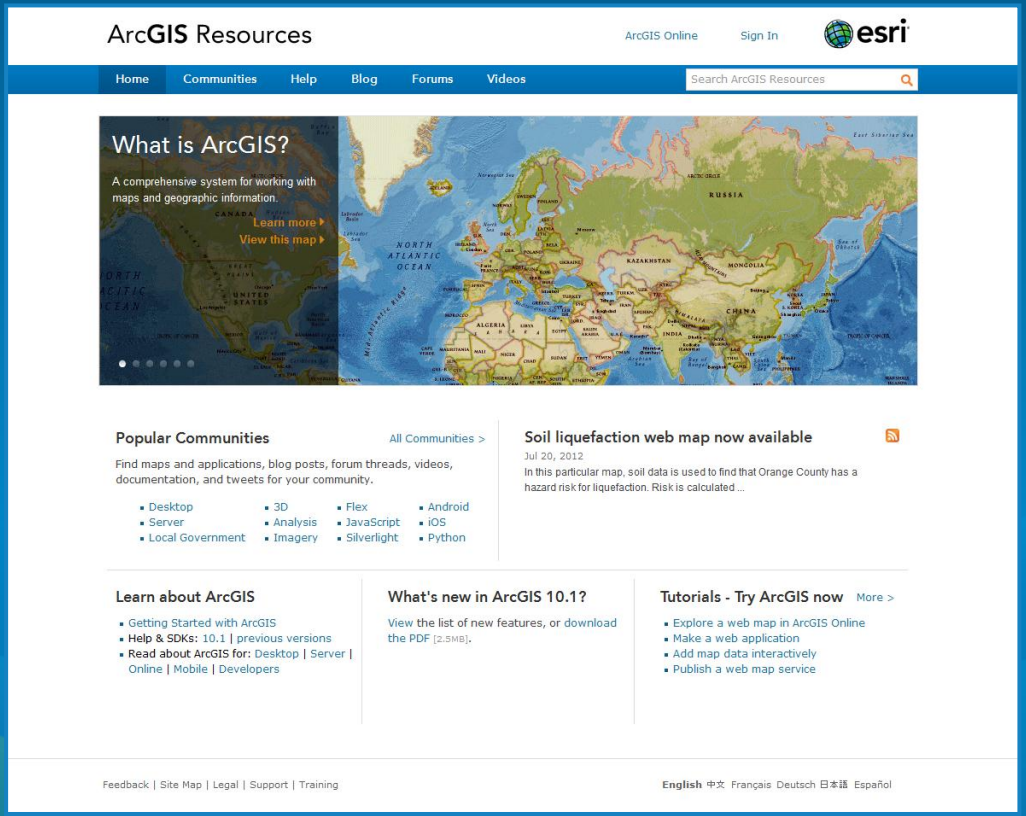
# ArcGIS Resource Center

- Central location for ArcGIS resources
- Help
- Blog
- Support



# Summary

***ArcGIS for Server: Complete, out-of-the-box Web based GIS***

- **Enables sharing of GIS resources as services**
- **Architecture**
- **Publishing resources**
  - **Author > Publish > Use**
  - **Design patterns and terminology**
- **Many clients to web services**
- **Editions and licensing**

- **Thank you for attending**
- **Have fun at UC2012**
- **Open for Questions**

- **Please fill out the evaluation:**

***www.esri.com/ucsessionsurveys***