ArcGIS for Server
An Introduction

Andrew Stauffer & Derek Law
Esri – Seattle, WA and Redlands, CA
Agenda

- Overview
- What is ArcGIS for Server
- Publishing GIS resources onto the web
- Clients for web services
- What’s New in 10.2
- Editions and licensing levels
- Server + ArcGIS Online/Portal for ArcGIS
- Summary
ArcGIS Is a Platform
Enabling Web GIS Everywhere

Available in the Cloud . . .
. . . and On-Premises
ArcGIS – Powered by Services

Simple
Integrated
Open

Desktop
Web
Device

Web GIS

Server
Online Content and Services
Demo
ArcGIS for Server in action
ArcGIS for Server

- **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

• 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 account (OS level)

http://6080

GIS Server

Manager

Service directories

Server Administrator API

Primary Site Administrator (PSA)

GIS site

Data

Configuration store

Server directories
ArcGIS Server Manager

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

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

• 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.
ArcGIS for Server architecture sessions

• **ArcGIS Server for Administrators**
  - Wed  10:15 am  Ballroom 6B
  - Thurs  10:15 am  Ballroom 6E

• **Securing ArcGIS Server Services – An Introduction**
  - Fri  9:00 am  Room 7 A/B

• **Securing ArcGIS Server Services – Advanced**
  - Wed  3:15 pm  Ballroom 6F
  - Thurs  3:15 pm  Ballroom 6F
Publishing workflow

1. Author
2. Publish
3. Use/Share
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 Mapping – Terminology

*Common ArcGIS for Server concepts*

- Map service
  - 2 types
    - Cached vs. Dynamic

- Web-based map
  - Data content
    - Base Maps vs. Operational layers
Cached Map Service

- 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

0. map tile creation when service is published (preprocessing operation)

1. client request

2. pre-created image tile sent
Map caching sessions

• **Designing and Using Cached Map services**
  - Wed 1:30 pm Room 8

• **Caching Imagery using ArcGIS**
  - Thurs 3:15 pm Room 5A
Dynamic Map Service

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

• Publishing GIS Services to ArcGIS for Server
  - Wed 1:30 pm Ballroom 6E

• Creating Successful Map Services for ArcGIS Online
  - Thurs 10:15 am Room 3
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

Workflow
Publish a map service
Data content in a web-based map

- **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

- JavaScript
- Flex
- Silverlight

Web Apps

- IOS
- Android
- WinPhone

Mobile Apps

- IBM Cognos
- MS Office
- MS SharePoint

Location Analytics

- Desktop

GIS Server

- ArcGIS Online/
  Portal for ArcGIS

Web Map
Configurable web client viewers

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

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

- **ArcGIS Viewer for Flex – An Introduction**
  - Wed 8:30 am Room 14B

- **Building Applications with the ArcGIS Viewer for Silverlight**
  - Wed 10:15 am Room 15A
  - Thurs 10:15 am Room 15A

- **Building GIS Web Applications for Non-Developers**
  - Wed 1:45 pm Demo theater – Hall B
Web Mapping APIs

- 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
Web mapping API sessions

• **ArcGIS API for JavaScript – An Introduction**
  - Wed 1:30 pm  Ballroom 6C

• **ArcGIS API for Flex – An Introduction**
  - Wed 1:30 pm  Room 15B

• **What’s New in the ArcGIS API for Silverlight**
  - Tue 3:15 pm  Room 14A
What’s New in Server 10.2

• 2 new extensions
  - **Portal for ArcGIS**
    - GIS content management system in your infrastructure
  - **GeoEvent Processor for ArcGIS**
    - Support for real-time GIS data feeds
    - Apply filters, geo-fencing, analytics
ArcGIS 10.2 for Server - Highlights

- Enhanced security
- Administrative tools
- Extend support for databases (not GDB)
- Publishing: block data copy
- Backup and Restore
- Domain forests & nested groups
Sessions on 10.2 release

- **Portal for ArcGIS – An Introduction**
  - Wed 3:15 pm Room 14B

- **ArcGIS GeoEvent Processor for Server – An Introduction**
  - Tues 3:15 pm Room 10
  - Wed 3:15 pm Room 10

- **What’s New in ArcGIS 10.2 for Server**
  - Tues 8:30 am Ballroom 20D
  - Tues 1:30 pm Ballroom 20D
Server + ArcGIS Online/Portal for ArcGIS

- Provides a “front end” for your GIS services
  - Enhanced user experience
  - Search and discovery
  - Simple mapping
Registering a service

- Add service as an item to ArcGIS Online/Portal for ArcGIS
- Share with others
What is a web map?

- The foundation for your maps and applications

Intelligent Maps

Supporting
- Visualization
- Editing
- Popups
- Analysis
- Time

Services And Data
Clients to Server web services

Web Map

ArcGIS Online/Portal for ArcGIS

GIS Server

Desktop

Web Apps

JavaScript
Flex
Silverlight

Mobile Apps

IOS
Android
WinPhone

IBM Cognos
MS Office
MS SharePoint

Location Analytics
Demo

Register a service with ArcGIS Online and Portal for ArcGIS
## ArcGIS for Server – Editions & Levels

<table>
<thead>
<tr>
<th>Edition</th>
<th>Includes</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Workgroup</td>
</tr>
<tr>
<td>Basic</td>
<td>• ArcSDE technology</td>
<td>• SQL Server</td>
</tr>
<tr>
<td></td>
<td>• Geodata services for replication</td>
<td>• Express</td>
</tr>
<tr>
<td></td>
<td>• Read only feature services</td>
<td>• 10 users</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Any supported</td>
</tr>
<tr>
<td></td>
<td></td>
<td>database</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Unlimited users</td>
</tr>
<tr>
<td>Standard</td>
<td>• Basic features plus</td>
<td>“</td>
</tr>
<tr>
<td></td>
<td>• Map, <strong>globe</strong>, geocoding, geoprocessing (<strong>ArcView tools</strong>),</td>
<td>“</td>
</tr>
<tr>
<td></td>
<td>• Web editing</td>
<td>“</td>
</tr>
<tr>
<td>Advanced</td>
<td>• Standard features plus</td>
<td>“</td>
</tr>
<tr>
<td></td>
<td>• Advanced geoprocessing</td>
<td>“</td>
</tr>
<tr>
<td></td>
<td>• <strong>ArcGIS Mobile</strong></td>
<td>“</td>
</tr>
<tr>
<td></td>
<td>• <strong>Portal for ArcGIS</strong></td>
<td>“</td>
</tr>
</tbody>
</table>

### Notes
- **globe** is a typo, should be **globe**.
- The table suggests that the Enterprise level is more flexible and scalable compared to the Workgroup level.
Resources

- ArcGIS for Server functionality matrix
- ArcGIS for Server 101 – ArcUser article
- ArcGIS for Server Resource Center
Summary

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

- Enables sharing of GIS resources as web services
- Architecture
- Publishing resources
  - Author > Publish > Use
  - Design patterns and terminology
- Many clients to web services
- Editions and licensing
Please fill out the session evaluation

First Offering ID: 1404
Second Offering ID: 1303

Online – www.esri.com/ucsessionsurveys
Paper – pick up and put in drop box