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
Powerful GIS capabilities

Delivered as Web services

To help solve real problems by real people

ArcGIS Server
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
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 Server Manager

- Web browser based administrative console to manage Server
  - Services, site management, security, and logs
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.
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. Author
2. Publish
3. Use
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

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**
  - 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

- JavaScript
- Flex
- Silverlight
- Web Apps
- IOS
- Android
- WinPhone
- Mobile Apps
- IBM Cognos
- MS Office
- MS SharePoint
- Location Analytics
- Desktop
- GIS Server
- Web Map
- ArcGIS Online
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
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
Register a service with ArcGIS Online

- Add service as an item to ArcGIS Online
- 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 Apps

JavaScript
Flex
Silverlight

Desktop

GIS Server

Web Map

ArcGIS Online

Mobile Apps

iOS
Android
WinPhone

IBM Cognos
MS Office
MS SharePoint

Location Analytics
Demo
Register a service with Online
## ArcGIS for Server – Editions and Levels

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<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&lt;br&gt;• Geodata services for replication&lt;br&gt;Read only feature services</td>
<td>SQL Server Express&lt;br&gt;10 users</td>
</tr>
<tr>
<td>Standard</td>
<td>Basic features plus&lt;br&gt;• Map, globe, geocoding, geoprocessing (ArcView tools),&lt;br&gt;• Web editing</td>
<td>“”</td>
</tr>
<tr>
<td>Advanced</td>
<td>Standard features plus&lt;br&gt;• Advanced geoprocessing&lt;br&gt;• ArcGIS Mobile</td>
<td>“”</td>
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ArcGIS for Server Functionality matrix

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/ucsessionssurveys