Agenda

- Product overview
- What is ArcGIS for Server
- Publishing GIS resources onto the web
- Working with ArcGIS Online/Portal for ArcGIS
- ArcGIS client applications
- ArcGIS for Server extensions
- Editions and licensing levels
- Summary
ArcGIS Is a Platform
Enabling GIS Everywhere

Simple
Integrated
Open

Available in the Cloud . . .
. . . and On-Premises
ArcGIS for Server enables Web GIS in Your Infrastructure

- **Client applications**: E.g.: Collector, Dashboard, Explorer, Esri Maps for … Apps, and Web AppBuilder
- **Portal for ArcGIS**: Includes data from ArcGIS Online
- **GIS Server**: ArcGIS Web Adaptor, Enterprise geodatabase, ArcGIS Data Store

Diagram:
- Desktop
- Web
- Device
- Server
- Online Content and Services
- Apps
- portal
- GIS Servers
What is ArcGIS for Server?

- Enables “Web GIS” in your infrastructure
- Ready to use applications and GIS services
  - Spatial data management
  - Visualization
  - Analysis
- Share your GIS work and resources
- Spatially enable your organization
  - Promote “maps everywhere”
ArcGIS for Server Customers
www.esri.com/software/arcgis/arcgisserver/success-stories
ArcGIS for Server enables Web GIS in your infrastructure

**Client applications**
E.g.: Collector, Dashboard, Explorer, Esri Maps for … Apps, and Web AppBuilder

**Portal for ArcGIS**
Includes data from ArcGIS Online

**GIS server**
ArcGIS Web Adaptor, Enterprise geodatabase, ArcGIS Data Store
What are GIS services?

- **GIS service** → GIS resource running on a server
  - vs. GIS application on your local computer

- Share GIS resource to the web
ArcGIS Server – GIS Server

- Pure web services GIS server
  - Easy install and configuration
  - Self contained
  - No external dependencies
- Built for resilience
- Designed for enterprise systems
- Works on-premises or in the cloud
  - Amazon or Microsoft Azure
- Works with other server-side components
  - ArcGIS Web Adaptor
  - Enterprise geodatabase (aka. Multi-user geodatabase)
  - ArcGIS Data Store
ArcGIS Server – System Requirements

Windows

Supported operating systems
The Portal for ArcGIS setup will only proceed if the operating system is 64-bit; 32-bit operating systems are not supported. The operating systems supported are:
- Windows Server 2012 R2 Standard and Datacenter
- Windows Server 2012 Standard and Datacenter
- Windows Server 2008 R2 Standard, Enterprise, and Datacenter (maximum version supported is SP1)
- Windows Server 2008 Standard, Enterprise, and Datacenter (maximum version supported is SP2)
- Windows 8.1 Professional and Enterprise
- Windows 8 Professional and Enterprise
- Windows 7 Ultimate, Enterprise, Professional, Home Premium
- Windows Vista Service Pack 2 Ultimate, Enterprise, Business, and Home

Linux

Supported Linux operating systems
The Portal for ArcGIS setup will only proceed if the operating system is 64-bit; 32-bit operating systems are not supported. The operating systems supported are:
- Red Hat Enterprise Linux Server 6
- Red Hat Enterprise Linux Server 5 Update 7 with libX11 patch
- SUSE Linux Enterprise Server 11 Service Pack 1
ArcGIS for Server Architecture
10.1 and later releases

- ArcGIS account (OS level)
- GIS Server
  - Service directories
  - ArcGIS Server Manager
  - Server Administrator API
- Configuration store
- Server directories
- Primary Site Administrator (PSA)
- Data

http://6080
https://6443

ArcGIS Server site
ArcGIS Server Manager

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

- Enables **scripting of Server administration tasks**
  - E.g., Join machine to a site, start/stop services, security, etc.

- Can be invoked from:
  - Python, Java, JavaScript, C#, PowerShell, Ruby, Scala, Perl, etc.

```
ArcGIS Server Administrator Directory

Home

You should use ArcGIS Server Manager for managing services and GIS servers. The Administrator Directory is intended for advanced, programmatic access to the server, likely through the use of scripts.

Site Root: /

Current Version: 10.3.1

Resources: machines clusters services security system data uploads logs kml info usages reports publicKey

Supported Operations: generateToken exportSite importSite deleteSite

Supported Interfaces: REST
```
ArcGIS Services Directory exposes GIS services

- http://localhost/ArcGIS/rest
ArcGIS 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)
Demo

ArcGIS Server Manager
Administrator Directory
Services Directory
ArcGIS Web Adaptor

- Enables ArcGIS Server to work with 3rd party web server
  - E.g., Microsoft IIS, IBM Web Sphere, etc.
- Leverage web server features
- Enables web-tier authentication
- Provides more flexibility to control site access
- Conceptually like a reverse proxy
- Optional component of ArcGIS for Server
  - Separate software install
ArcGIS for Server – Enterprise Geodatabase

- Central data repository for your spatial data and storage management
- Enables geospatial data modeling
  - Topology, Geometric network, Network dataset, Mosaic dataset
- Functionality includes: versioned editing, geodatabase replication, and archiving
- Supported DBMS platforms: DB2, Informix, Oracle, PostgreSQL, and SQL Server
- Create with geoprocessing tool
ArcGIS Data Store – Introduced at 10.3

- Deployed with Portal for ArcGIS to enable publishing directly to Portal
- Enables scalable hosted feature services and 3D scene services
- Highly Available
- Automatic Backup and Recovery
- Component of ArcGIS for Server
  - Separate software install
ArcGIS Server tech sessions

- **ArcGIS Server and Portal for ArcGIS: An Introduction to Security**
  - Tues 3:15 pm Room 4
  - Thurs 1:30 pm Room 4

- **ArcGIS Server: What’s New**
  - Tues 1:30 pm Room 8
  - Wed 1:30 pm Room 7 A/B

- **Road Ahead: ArcGIS for Server**
  - Wed 10:15 am Room 7 A/B
Publishing workflow for GIS Services

1. Author
2. Publish
3. Share/Use
1. Authoring Maps for ArcGIS Server
   Create professional looking maps for the web

- Leverage ArcMap’s powerful cartographic capabilities
- WYSIWYG map authoring user experience
- Follow best practices for optimal maps
2 Publishing GIS resources

- **Share As Service** wizard
  - Publish GIS service
  - Create service definition file
  - Overwrite an existing GIS service

- **Service Editor**
  - Defines GIS service properties

- **Analyze map for optimization**
  - Fix errors and address warnings
Web Mapping - Terminology  
Common ArcGIS for Server concepts

- Map service → probably the most common web service published
- 2 types
  - **Cached vs. Dynamic**
  - Choice on how you publish data depends on business requirements
Cached Map Service

- Pre-render data as a collection of images stored on the server
- Used for data that does not change frequently
- Typically raster data
Dynamic Map Service

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

• You can publish
  1. GIS Service or
  2. Service Definition file
     - Defines service schema and can be used to publish GIS service later

• All GIS resources are published with the same workflow
Demo

Publish a map service workflow
Other Types of Web Services

- Many GIS resources can be shared as GIS web services

- Common web workflows
  - Feature services → web editing
  - Geoprocessing services → share spatial analysis tools and models; custom layouts
  - Locator services → geocoding
Publishing tech sessions

- **Publishing GIS Services to ArcGIS for Server**
  - Tues 10:15 am Room 5 A
  - Thurs 8:30 am Room 3

- **Designing and Using Cached Map Services**
  - Tues 1:30 pm Room 5 A
  - Thurs 10:15 am Room 3

- **Working with Feature Services**
  - Wed 8:30 am Room 5 A
  - Thurs 10:15 am Room 31 B

- **Creating Geoprocessing Services**
  - Thurs 10:15 am Room 33 A
• **Register GIS services in a portal** *(ArcGIS Online or Portal for ArcGIS)*
  - Leverage GIS services in a Web Map
  - Promotes “maps everywhere” paradigm
• **Directly consume GIS services in client applications**
Portal for ArcGIS

Included with ArcGIS for Server Standard and Advanced editions at 10.3.x

• **Central hub for your GIS assets**
• **Provides a user friendly “front end” to your GIS services**
  - Search and discovery
  - Simple mapping
  - Collaboration

• **Solution instead of ArcGIS Online when**
  - Additional security requirements
  - No public cloud option
What is a Web Map?

- Foundation for your maps and apps
- Enables “intelligent maps” → Web Map stores references to web services and data, display and behavior settings
- Supports: smart mapping, pop-ups, editing, analysis, time, etc.

- Create in ArcGIS Online/Portal for ArcGIS map viewer
- Can be leveraged by all other Esri Apps
Data content in a Web Map

Conceptual terms

- **Basemaps**
  - Geographic frame of reference
  - Typically contain static data

- **Operational Layers**
  - Information overlays that end users interact with
  - Contain dynamic data

- Operational layers display on top of basemaps
Clients to Web Maps

- Web Application Templates
- 10.3.x: Web App Builder for ArcGIS
- ArcMap
- ArcGIS Pro
- Explorer for ArcGIS
- Collector for ArcGIS
- Mobile Apps
- Web Apps
- Business Apps
- Esri Maps for ... Apps
- Operations Dashboard for ArcGIS
- GIS Server
- ArcGIS Online
- Portal for ArcGIS
- Web Map
- Web Maps
- GIS Server
Demo
Explore Portal for ArcGIS and Client Apps
Portal for ArcGIS tech sessions

• **Portal for ArcGIS: An Introduction**
  - Tues 10:15 am  Room 2
  - Wed 10:15 am  Room 4

• **Portal for ArcGIS: Administration**
  - Wed 1:30 pm  Room 4
  - Thurs 8:30 am  Room 2
Web GIS in Large Organizations

- GIS Server for different Depts.
- Organization accesses all of its GIS assets through a portal
  - User friendly UX
  - Search and discovery
  - Collaboration
## ArcGIS for Server – Editions & Levels

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

- Support specific workflows
- Examples:
  - Real-time data feeds
  - Imagery
  - Network analysis
  - QA/QC workflows
ArcGIS for Server Resources

- ArcGIS 10.3.1 for Server Functionality Matrix whitepaper
- ArcGIS for Server 101 – ArcUser technical article

ArcGIS for Server 101
Understanding architecture, deployment, and workflows

ArcGIS for Server Resources

ArcGIS 10.3.1 FOR SERVER
FUNCTIONALITY MATRIX

Learn ArcGIS
Learn ArcGIS through guided training. Make maps, solve problems, and share your results with everyone. New and existing users work through lessons that teach GIS through real-world projects.

Previous Versions

Figure 1: ArcGIS for Server architecture
Summary

- ArcGIS for Server enables Web GIS in your infrastructure
- Architecture
- Publishing GIS resources
  - Author > Publish > Share/Use
  - Design patterns and terminology
- Working with ArcGIS Online/Portal for ArcGIS and client applications
- Extensions
- Editions and Levels
Thank you…

• Please fill out the session survey in your mobile app
• Select **ArcGIS Server: An Introduction** in the Mobile App
  - Use the Search Feature to quickly find this title
• Click “Technical Workshop Survey”
• Answer a few short questions and enter any comments