Agenda

• ArcGIS API for JavaScript: An Overview
• ArcGIS Server Resource Center
• ArcGIS API for JavaScript: Details
ArcGIS API for JavaScript: An Overview
ArcGIS Server 9.3 mashups

Supported Web Clients
- ArcGIS JavaScript API
- Virtual Earth/Google Maps

ArcGIS Clients
- Explorer
- Web Map

Other Web Clients
- OpenLayers
- Yahoo Pipes
- Adobe Flex/Java Fx/Silverlight

Supported Protocols
- REST
- KML/REST
- SOAP
- REST/REST
- REST/soap

Mashup
- Consumer Mapping

ArcGIS Server
Selecting a Web mapping technology

• Web mapping application
  – No programming skills required
  – Supports multiple data sources including ArcGIS Server, ArcIMS, and WMS
  – Includes many tools/tasks: Identify, overview map and magnifier, geocoding, geoprocessing tasks, copyright text, etc.
  – Ideal for creating GIS Web applications, as opposed to applications targeting general public
  – Ideal for highly skilled desktop users with limited server and programming skills
  – Requires .NET or Java environment to run
Selecting a Web mapping technology

• ArcGIS Web ADF SDKs (.NET or Java)
  – Most sophisticated developer framework for ArcGIS Server (many utilities, classes, extensible task framework)
  – Fully integrated with Visual Studio, NetBeans, and Eclipse
  – Requires .NET or Java skills; good for organizations that feel comfortable developing with .NET or Java
  – Integration with .NET and Java (full security models, access to databases and other enterprise systems from the Web tier, access to fine-grained ArcObjects calls)
Selecting a Web mapping technology

• **ArcGIS API for JavaScript**
  - Simplest API (lightweight scripting model)
  - Migration path for Avenue, AML, and ArcIMS HTML Viewer users; JavaScript is similar in concept and complexity to those scripting languages
  - Free!
  - Data sources are limited to ArcGIS Server services with a well known coordinate system ID (no custom projections; e.g., no ArcIMS or WMS)
  - Access to geoprocessing and geolocators
  - Easily embeddable into any Web site
Selecting a Web mapping technology

- **ArcGIS API for Flex**
  - Similar in functionality to JavaScript API
  - Supports ArcGIS Server services with well known coordinate system ID and ArcIMS services
  - Free!
  - Integrated with Adobe Flex Builder (requires Flex skills)
  - Easily embeddable into any Web site
  - Ideal for users who understand Web design and have Flash/Flex expertise
  - Build rich Internet applications on top of best GIS server
ArcGIS API for JavaScript: features

• Embed maps and tasks from any ArcGIS Server into your Web site
• Use content provided by ESRI or use your own content as a basemap
• Map can be in any supported projection
• Built on top of Dojo JavaScript toolkit
  – Graphics support, community, Dijits
• Copy and paste HTML and JavaScript to make your own Web mapping application
ArcGIS API for JavaScript: functionality

• Examples
  – Display an interactive map of your own data
  – Execute a GIS model on the server and display results
  – Display your data on ArcGIS Online basemap
  – Search for features or attributes in your GIS data and display results
  – Search for addresses and display results
ArcGIS API for JavaScript

• Web-browser based API
  – High performance
  – Easy-to-use mapping applications

• Hosted by ESRI on ArcGIS Online and available for free use
  – No development or deployment license required on the Web server hosting your application
  – Flexible release cycle
  – Akamai (24/7 Availability)
    • Web Application Acceleration and Performance Management
Why JavaScript?

- One of the most used languages in the world
- Pure client development
- JavaScript frameworks abstract away browser complexity (Dojo)
- Stability
  - No new changes since 1999
- Path for HTML Viewer (ArcIMS) developers
Example applications

- Site Selection
- Parcel Notification
Creating JavaScript mapping Web pages

1. Author Maps / GP Models

2. Publish resources to ArcGIS Server

3. Discover services using Services Directory

4. Copy/Paste HTML/JS from Resource Center

5. Preview Web application
ArcGIS Server Resource Center

http://resources.esri.com/arcgisserver
Demo

• Visit the ArcGIS Server Resource Center
• Create an application from a sample
What is in the JavaScript API?

- Maps
- Graphics
- Tasks
  - QueryTask
  - Locator
  - FindTask
  - IdentifyTask
  - Geoprocessor
  - Geometry
ArcGIS JavaScript API – Map Navigation

- Drag the mouse to pan
- Mouse Scroll Forward to zoom in
- Mouse Scroll Backward to zoom out
- SHIFT + Drag the mouse to zoom in
- SHIFT + CTRL + Drag the mouse to zoom out
- SHIFT + Click to recenter
- SHIFT + Double Click to Center and Zoom in
- Use arrow keys to pan
- Use + key to zoom in a level
- Use - key to zoom out a level
ArcGIS JavaScript API – Map Navigation

- **Slider**

- **Pan Navigation Arrows**

- **Navigation Toolbar**
ArcGIS JavaScript API -- GraphicsLayer

- Graphics (geometry + attributes + symbol + InfoTemplate)

- Mouse Events on GraphicLayer
  - onClick, onMouseIn, onMouseOut, onMouseOver
ArcGIS JavaScript API -- Tasks

- QueryTask
- Locator
- FindTask
- IdentifyTask
- GeometryService
- Geoprocessor (synchronous or asynchronous)
  - As data or as map image
ArcGIS JavaScript API – QueryTask

• QueryTask works off a single layer in a map service

• You can query by attribute or geometry or both

• You can make use of rich spatial relationships when querying by geometry
  – Intersects, contains, touches, crosses, and others
ArcGIS JavaScript API – QueryTask

- Query Geometry: Point
- Query Relationship: Intersects
- Layer Geometry: Polygon

- Query Geometry: Polygon
- Query Relationship: Intersects
- Layer Geometry: Polygon

Lost Springs

Field ID: 100014759
Produces Gas: Yes
Produces Oil: Yes
Status: Active
ArcGIS JavaScript API – QueryTask

- Query Geometry: Polygon
- Query Relationship: Contains
- Layer Geometry: Polygon

- Query Geometry: Polygon
- Query Relationship: Touches
- Layer Geometry: Polygon

Comparing 060375734031 census block group with surrounding block groups

<table>
<thead>
<tr>
<th></th>
<th>Selected</th>
<th>Average Surrounding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pop 2007</td>
<td>2468</td>
<td>1788</td>
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<tr>
<td>Pop 2000</td>
<td>1715</td>
<td>1664</td>
</tr>
<tr>
<td>Males</td>
<td>845</td>
<td>806</td>
</tr>
</tbody>
</table>
ArcGIS JavaScript API – IdentifyTask & Find

• Identify by geometry on multiple layers in a map service
  – Input Geometry can be Point, Polyline, Polygon, & Multipoint
  – Filter by spatial relationships (intersects, contains, etc.)
  – Can specify a tolerance

• Find by attribute against multiple layers in a map service
ArcGIS JavaScript API – Locator & Geometry

• Access ArcGIS Server Locators
  – Geocode and Reverse Geocode

• Perform geometric operations on the server
  – Buffer, Simplify, Areas and Lengths, Lengths, Project
ArcGIS JavaScript API – Geoprocessor

- Access ArcGIS Server Geoprocessing Tasks
  - Synchronous and Asynchronous
  - Results as data or as map image

- Geoprocessing Service corresponds to a Toolbox
- Geoprocessing Task corresponds to a Model in a Toolbox

The population in the user defined polygon is 957,939,700.
ArcGIS JavaScript API Applications

- Can be a very complete user application
- Client Side Thematic Mapping
- Strong symbology model
ArcGIS JavaScript API – What do you need to know?

- **Online SDK**
  - [http://resources.esri.com/arcgisserver/apis/javascript/arcgis](http://resources.esri.com/arcgisserver/apis/javascript/arcgis)
  - Sample driven
  - Code gallery
  - Samples powered by an ArcGIS Server sample server
    - [http://sampleserver1.arcgisonline.com/arcgis/rest/services](http://sampleserver1.arcgisonline.com/arcgis/rest/services)
    - [http://sampleserver2.arcgisonline.com/arcgis/rest/services](http://sampleserver2.arcgisonline.com/arcgis/rest/services)

- **Blog:**

- **Live training seminar:**

- **JavaScript hosted by ESRI**
  - [http://serverapi.arcgisonline.com/jsapi/arcgis/?v=1.2](http://serverapi.arcgisonline.com/jsapi/arcgis/?v=1.2)
  - Flexible release cycle
  - Hosted by ArcGIS Online
    - 24/7
Questions?

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