



ESRI California | Hawaii | Nevada

Regional User Group Conference

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Getting Started with the ArcGIS Server Web APIs

Katja Krivoruchko



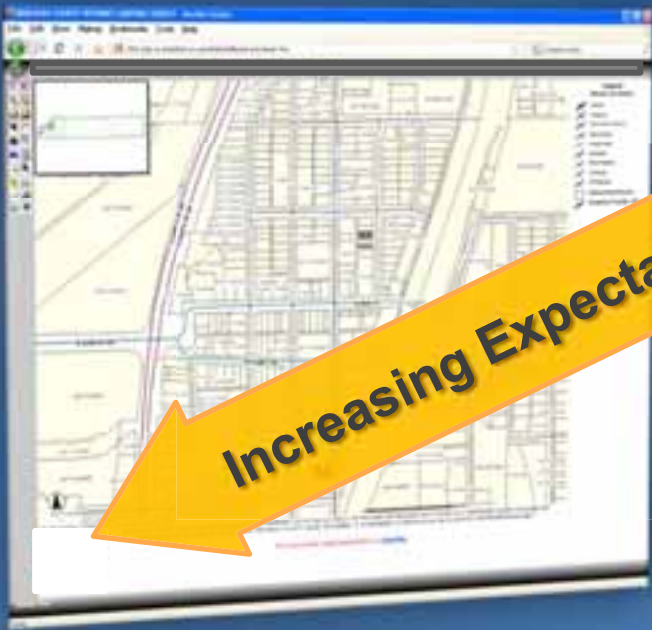
Agenda

- Overview of Web mapping
- ArcGIS APIs for
 - JavaScript
 - Flex
 - Silverlight/WPF
- Sample Viewers
- How to choose an API
- Resources

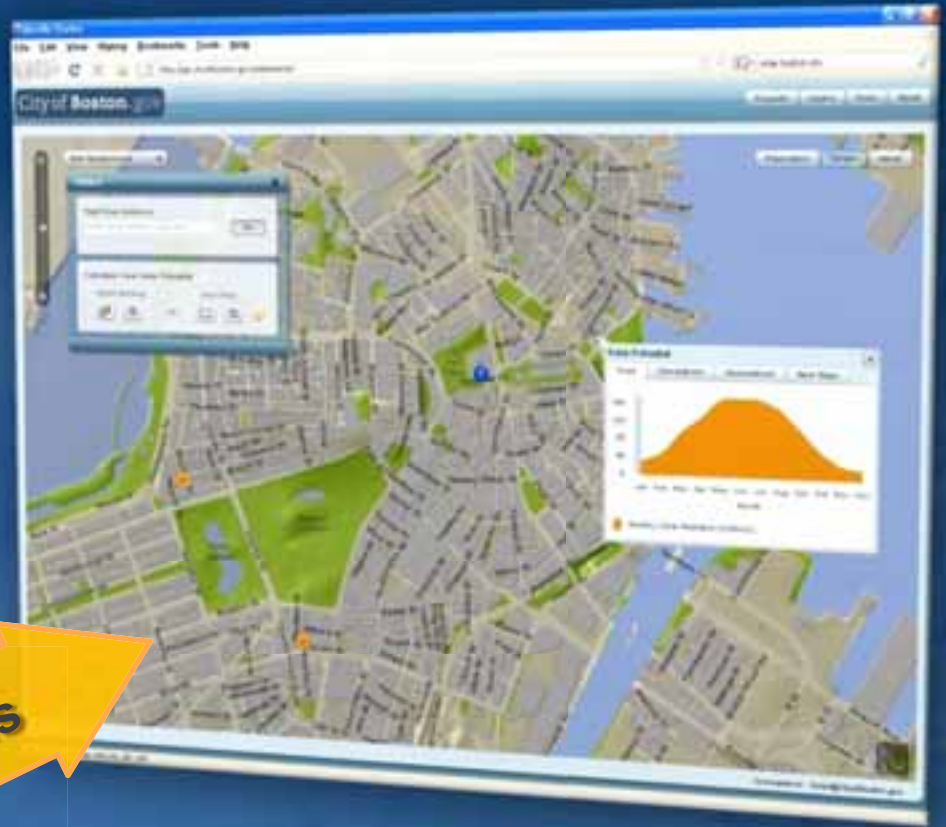


Expectations for a Web map have changed

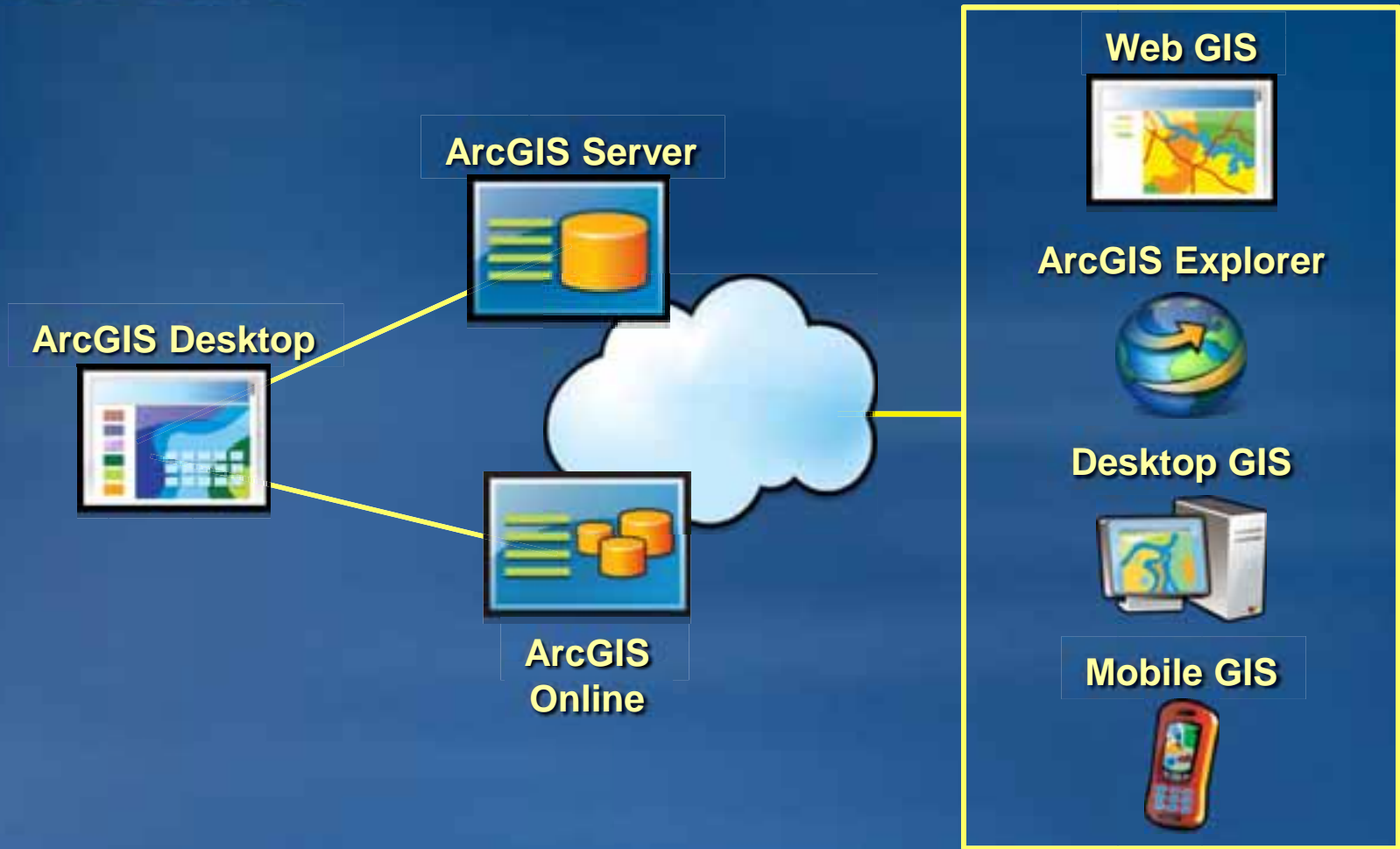
- Consumer mapping sites have raised the bar
- “One-size fits all” Web map will not work



Increasing Expectations

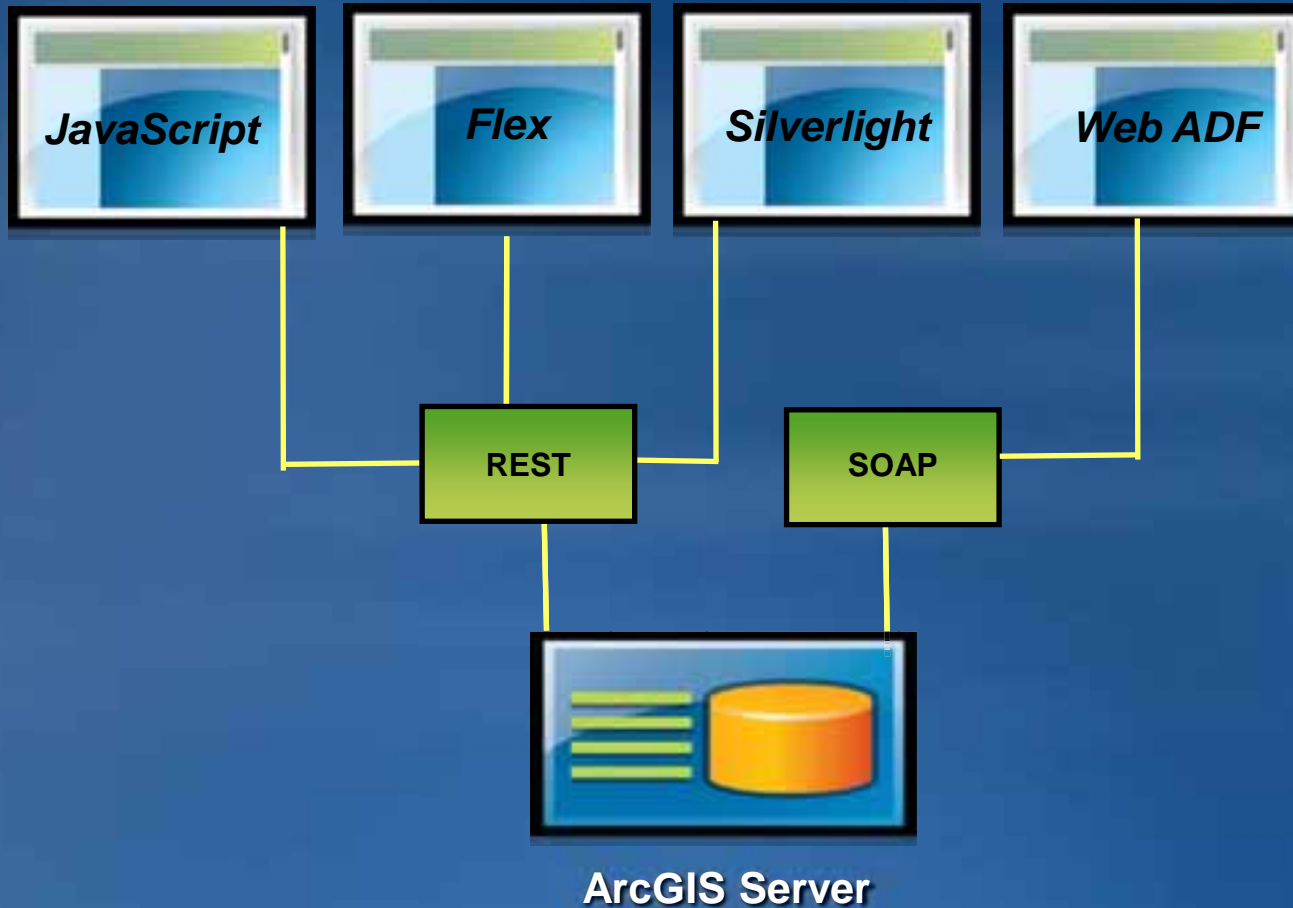


ArcGIS Server



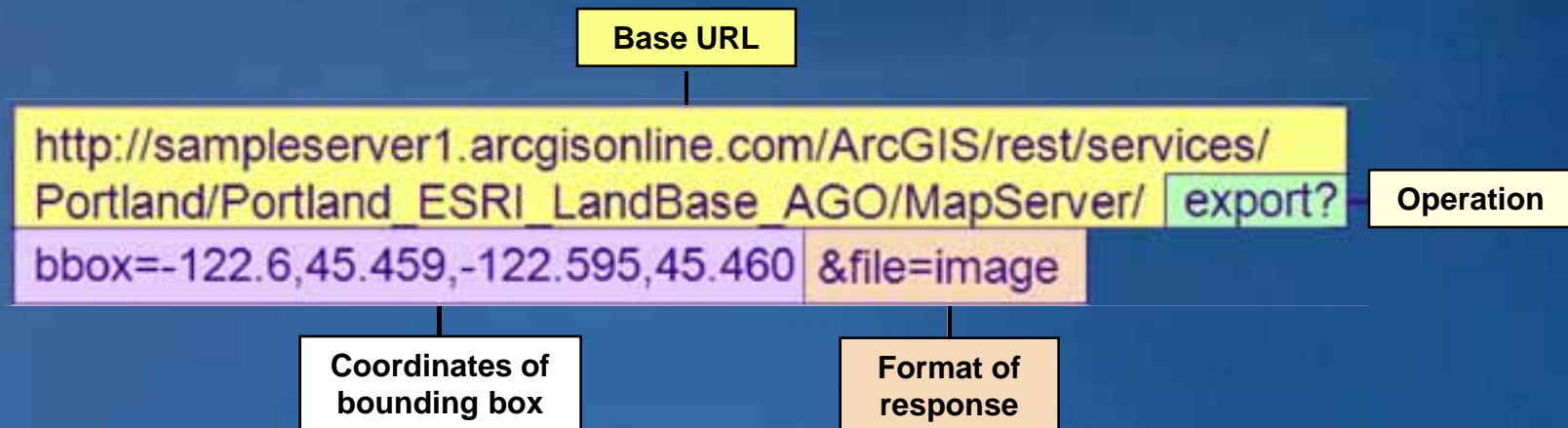
The Web as a GIS platform

ArcGIS Server Development Options



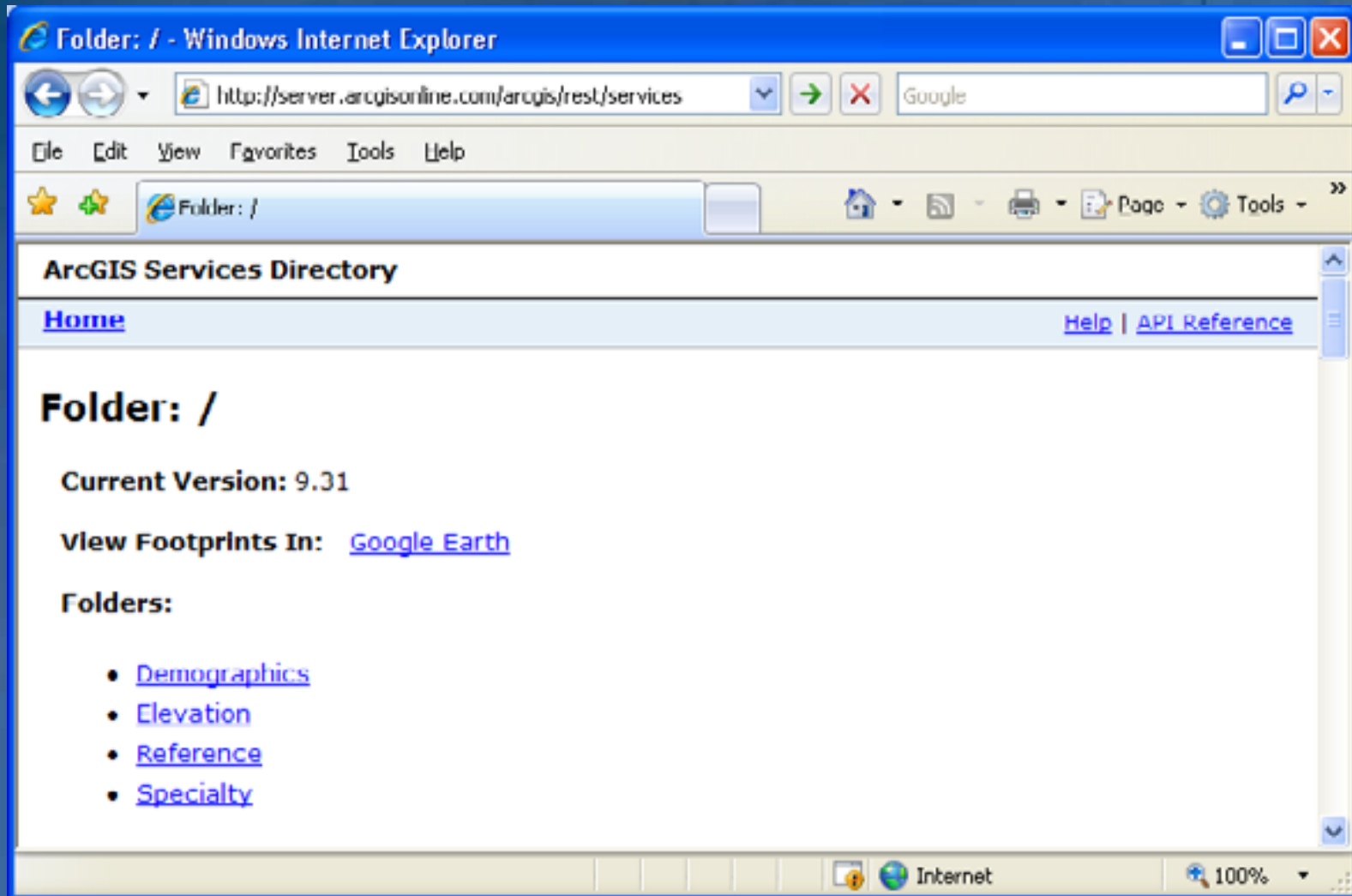
ArcGIS Server REST API

- Simple server-side interface
 - Requests to REST API via HTTP protocol
- ArcGIS APIs utilize REST communication interface
 - REST stands for **R**epresentational **S**tate **T**ransfer
- Internet browser as a command line



Demonstration

ArcGIS Services Directory



The screenshot shows a Windows Internet Explorer browser window. The title bar reads "Folder: / - Windows Internet Explorer". The address bar contains the URL "http://server.arcgisonline.com/arcgis/rest/services" and a search box with "Google". The menu bar includes "File", "Edit", "View", "Favorites", "Tools", and "Help". The toolbar shows "Folder: /", "Home", "RSS", "Print", "Page", and "Tools". The main content area displays the "ArcGIS Services Directory" page. The page title is "ArcGIS Services Directory". Below the title, there are links for "Home" and "Help | API Reference". The main heading is "Folder: /". Below this, it states "Current Version: 9.31". There is a link "View Footprints In: Google Earth". Under the heading "Folders:", there is a bulleted list of links: "Demographics", "Elevation", "Reference", and "Specialty". The status bar at the bottom shows "Internet" and "100%".

Folder: / - Windows Internet Explorer

http://server.arcgisonline.com/arcgis/rest/services

Google

File Edit View Favorites Tools Help

Folder: /

ArcGIS Services Directory

[Home](#) [Help | API Reference](#)

Folder: /

Current Version: 9.31

View Footprints In: [Google Earth](#)

Folders:

- [Demographics](#)
- [Elevation](#)
- [Reference](#)
- [Specialty](#)

Internet 100%

Functionality of ArcGIS APIs

- **Mapping**

- Mash up map services from different ArcGIS Servers
- Intuitive and fast map navigation

- **Querying**

- What is here? *Water towers*
- Where are water towers? *Here, here, and there*

- **Advanced GIS**

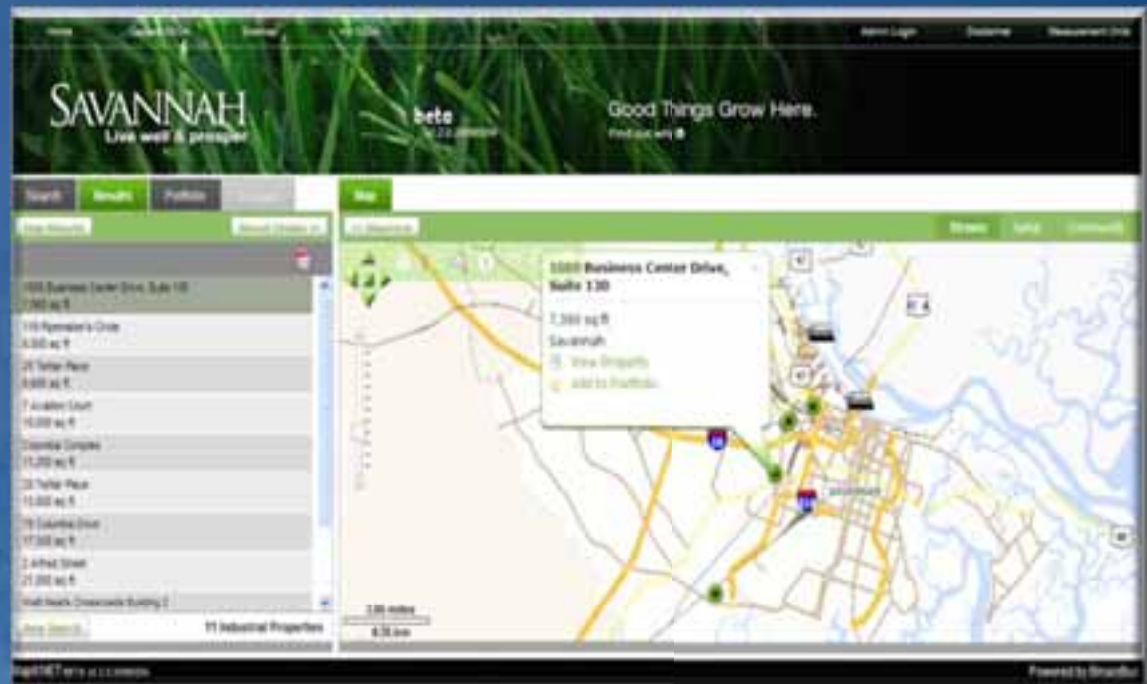
- Routing
- Geoprocessing services:
 - ◆ Spatial reporting, data extraction, and many others



ArcGIS Server API for JavaScript™

Collection of JavaScript classes

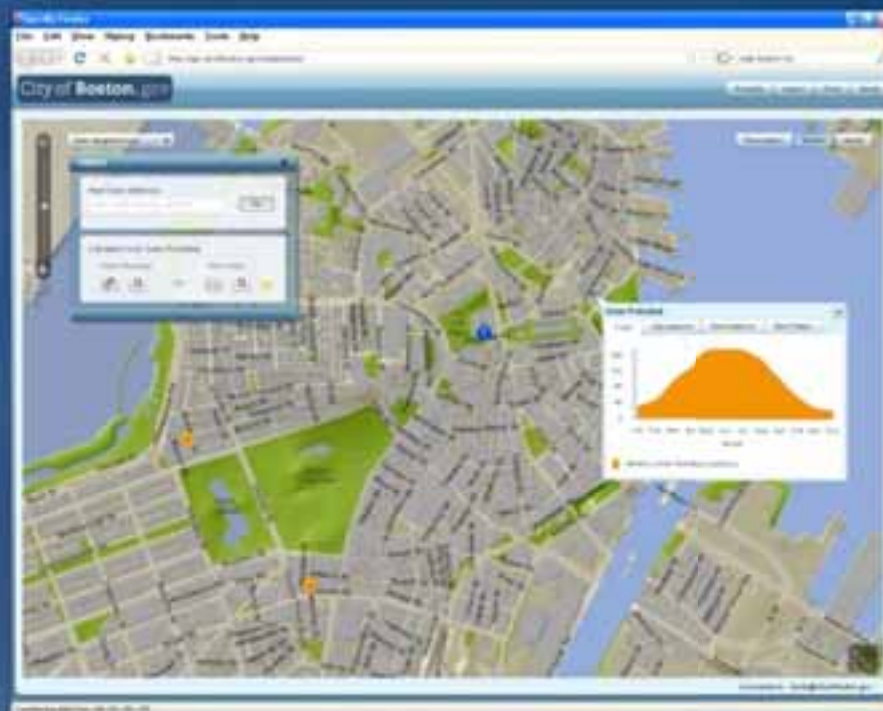
- Does not require Web application server (IIS, Apache/Tomcat)
- Compatible with all Web browsers
- No plug-in
- Develop in a text editor



ArcGIS API for Flex™

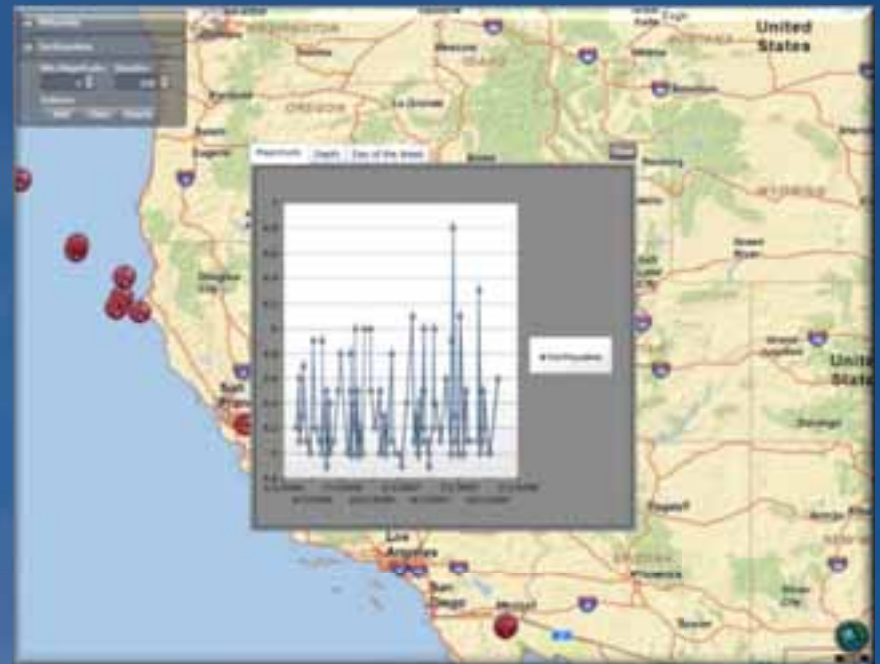
Collection of Action Script classes

- Popular development environment
- Flash Player installed on most computers
- Cross-browser compatibility
- Develop in IDE (Adobe Flex Builder 3)



ArcGIS API for Microsoft Silverlight™/WPF™

- Growing in popularity
- Silverlight plug-in included in Windows OS and applications
- Cross-browser compatibility
- Develop in IDE (Visual Studio, Visual Web Developer, Expression Blend)



Demonstration

Build A Web Map

The screenshot shows a Windows Internet Explorer browser window displaying the ArcGIS JavaScript API Samples website. The address bar shows the URL: http://resources.esri.com/help/9.3/arcgisserver/apis/javascript/arcgis/help/jsamples_start.htm. The page features the ArcGIS Resource Centers logo and navigation links for Customer Care, Support, and Careers. A search bar and a Login button are also visible. The main content area is titled "JavaScript API Samples" and includes a "Samples Overview" section. The overview text explains that the samples demonstrate various features of the ArcGIS JavaScript API, each with a live demo and source code. It mentions that samples are ranked by complexity (one, two, or three stars) and encourages users to start with one-star samples and work their way up. A "Getting Started Videos" box lists two videos: "Copy code and run on your machine" and "Extend a sample to create a starting point for your own application". The page footer shows "Done" and "Local intranet" status.

JavaScript API Samples - Windows Internet Explorer

http://resources.esri.com/help/9.3/arcgisserver/apis/javascript/arcgis/help/jsamples_start.htm

File Edit View Favorites Tools Help

JavaScript API Samples

Customer Care | Support | Careers

Search Login

Resources Gateway Concepts Samples Reference Community

JavaScript API Samples

- Samples Overview
- Map
- Map Configuration
- Layers
- Bing Maps
- Graphics
- Renderers
- Query Task
- Identify Task
- Find Task
- Geocode Task
- Geoprocessor Task
- Route Task
- Toolbars
- Utilities

Samples Overview

Email This Topic Print This Topic Give Us Feedback

These samples demonstrate how to use various features in the ArcGIS JavaScript API. Each sample page contains a live demo, a description of what happens in the sample, and the source code. [Watch a video](#) that shows how you can copy the code from the samples to run them on your machine.

The samples are ranked by relative complexity using one, two, or three stars. If you're just learning the ArcGIS JavaScript API, you will be able to better understand the samples if you start with the one star samples and work your way up. In many cases you can extend or combine the samples to create a starting point for your own applications. [Watch a video](#) to see how this is done.

The samples use services from the ESRI sample servers ([sampleserver1](#) and [sampleserver2](#)) and [ArcGIS Online](#). You can use the services from the ESRI sample servers in your own test applications as you learn the API. You can also use ArcGIS Online layers in your applications. See the ArcGIS Online home page for terms of use.

Getting Started Videos

- Copy code and run on your machine
- Extend a sample to create a starting point for your own application

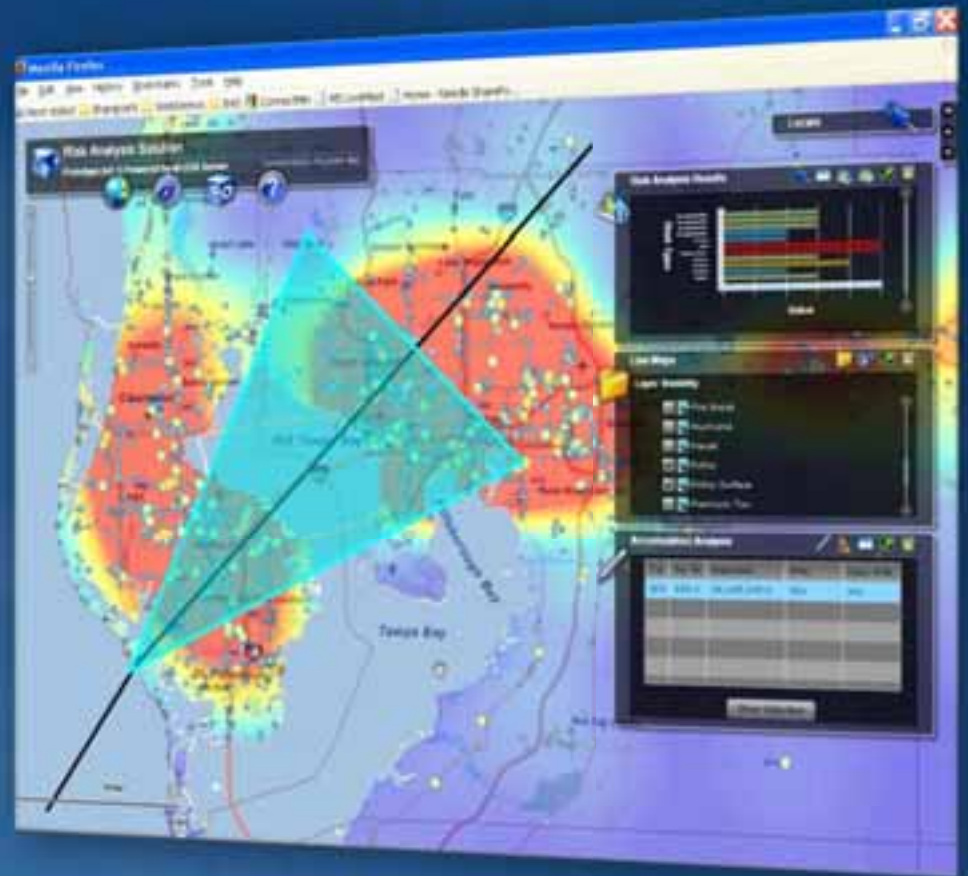
Done Local intranet 100%

Web map customization options

	ArcGIS Web ADF	ArcGIS API for JavaScript	ArcGIS API for Flex	ArcGIS API for Silverlight
Web interfaces	SOAP	REST	REST	REST
Execution	Client and server side	Client side (pure browser)	Client side (browser and Flash player)	Client side (browser and Silverlight player)
Development	Visual Studio or NetBeans	Any text editor or Aptana, Visual Web Developer, etc.	Flex Builder or text editor with Flex SDK compiler	Visual Studio or Visual Web Developer
Languages	.NET (C#, VB.NET) or Java	JavaScript and HTML	MXML and ActionScript	.NET(C#, VB.NET) and XAML

Sample viewers for ArcGIS Server

- **Configurable solutions**
 - No programming necessary
- **Extendable**
- **Modern-looking**
- **Available now for JavaScript and Flex APIs**
- **Strong community of users**



...20,000+ downloads!

Configuring the sample viewer

No coding required

- Includes an XML configuration file
- Make changes to the configuration file in a text editor (e.g., Notepad)
 - Point to your data
 - Customize or remove widgets

```
<<configuration>
- <userinterface>
  <banner>visible</banner>
  <title>Flex Viewer</title>
  <subtitle>Powered by ArcGIS Server</subtitle>
  <logo>com/esri/solutions/flexviewer/assets/images/logo.png</logo>
  <stylesheet>com/esri/solutions/flexviewer/themes/darkangel/style.swf</stylesheet>
  - <menus>
    <menu id="menuMap" visible="true" icon="com/esri/solutions/flexviewer/assets/images/icons/i_globe.png">Map</menu>
    <menu id="menuNav" visible="true" icon="com/esri/solutions/flexviewer/assets/images/icons/i_nav.png">Navigation</menu>
    <menu id="menuWidgets" visible="true" icon="com/esri/solutions/flexviewer/assets/images/icons/i_widget.png">Tools</menu>
    <menu id="menuHelp" visible="true" icon="com/esri/solutions/flexviewer/assets/images/icons/i_help.png">Help</menu>
  </menus>
</userinterface>
- <map initialExtent="-122.2 24.89 -70.59 46.92" fullExtent="-150 -50 150 50">
  - <basemaps menu="menuMap">
    <mapservice label="Street Map" type="tiled" visible="true" alpha="1"
      icon="com/esri/solutions/flexviewer/assets/images/icons/i_highway.png">http://server.arcgisonline.com/ArcGIS/rest/servic
    <mapservice label="Satellite Map" type="tiled" visible="false" alpha="1"
      icon="com/esri/solutions/flexviewer/assets/images/icons/i_shuttle.png">http://server.arcgisonline.com/ArcGIS/rest/servic
  </basemaps>
  - <livemaps>
    <mapservice label="Louisville Landbase" type="dynamic" visible="false"
      alpha="0.4">http://sampleserver1.arcgisonline.com/ArcGIS/rest/services/Louisville/LOJIC_LandRecords_Louisville/MapServer
  </livemaps>
</map>
```

Extend the sample viewer

No coding required


- Find additional sample code and widgets at the Resource Center
- Download and add them to your application
 - Same configuration process as sample viewer

Code Gallery

Identify Widget for Sample Flex Viewer

This sample widget was designed specifically to extend the functionality of the base Sample Flex Viewer with feature identify functionality.

Author	SampleViewerTeam
Date Submitted	12-09-2008
Date Last Updated	12-13-2008
Language	Flex
Product/Version	ArcGIS Server 9.3
Views	2261
Downloads	944
License Type	ESRI Attribution and License Agreement



```
<configuration>  
  <identifylayeroption>visible</identifylayeroption>  
  <identifytolerance>5</identifytolerance>  
  <zoomscale>5000</zoomscale>  
  <labels>  
    <identifylabel>Identify</identifylabel>  
    <resultslabel>Results</resultslabel>  
    <descriptionlabel>Use the identify tool to identify features on the map:</descriptionlabel>  
    <pointlabel>Identify</pointlabel>  
    <clearlabel>Clear</clearlabel>  
    <loadinglabel>Loading...</loadinglabel>  
    <selectionlabel>Features Identified:</selectionlabel>  
  </labels>  
</configuration>
```


Demonstration

Sample viewers

The screenshot displays a web browser window titled "Rich Spatial Flex Viewer - Windows Internet Explorer". The address bar shows the URL "http://serverapps.esri.com/publicsafety/". The browser's search bar contains "Google".

The main content is a map of St. Louis, Missouri, with several overlays and controls:

- Emergency Management COP:** A dark grey header box at the top left contains the logo, the text "Emergency Management COP" and "Emergency Operations Center", and the text "Current Action: Move Map". Below the text are icons for a globe, a map, and a wrench.
- Map Controls:** On the right side, there are four vertical buttons: "Report Layers" (with a map icon), "Bookmarks" (with a book icon), "Incidents" (with a red 'X' icon), and "Locate" (with a pushpin icon). A vertical scroll bar is visible to the right of these buttons.
- Map Features:** The map shows a grid of streets, major highways (60, 64, 150, 50), and landmarks such as "Sloggy Field", "Health Sciences Center", "Cave Hill Cemetery", "St. Louis Cemetery", and "St. Michael Cemetery". A yellow and orange shaded area covers a significant portion of the city center.
- Scale and Orientation:** A scale bar at the bottom left indicates 1 km and 0.5 mi. A north arrow is also present.
- ESRI Logo:** The "POWERED BY ESRI" logo is located in the bottom right corner of the map area.

The status bar at the bottom of the browser window shows "Done" on the left, "Local intranet" in the center, and "100%" on the right.

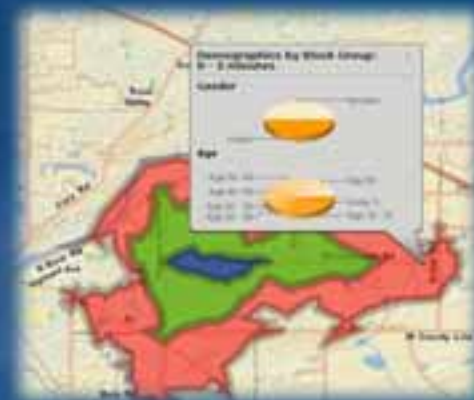
Industry-focused templates

- Solving common challenges
- Fostering communities of interest
- Starting point for your solutions
- Templates include
 - Geodatabase and basemap
 - Editing tools
 - Web-based operations dashboard
 - Mobile data collection



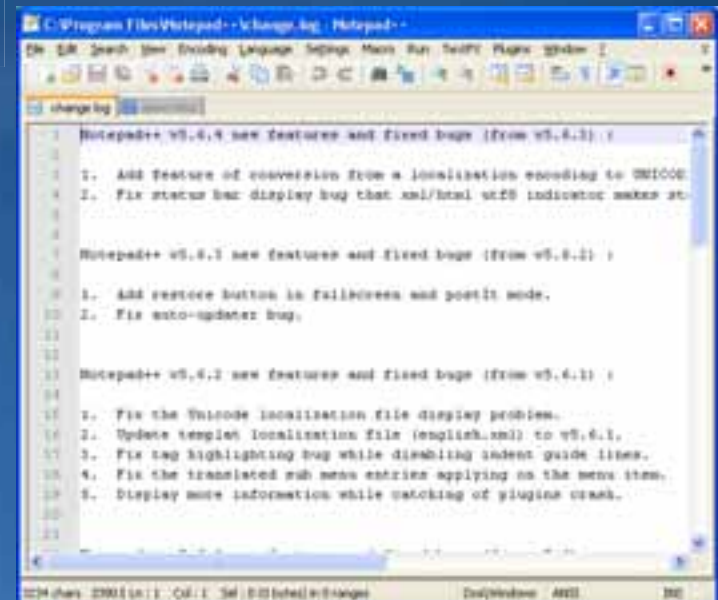
Choosing an ArcGIS API development kit

- Three options:
 - ArcGIS API for JavaScript
 - ArcGIS API for Flex
 - ArcGIS API for Silverlight
- Applications have different look and feel
- Similar GIS functionality
 - Mapping, querying, advanced GIS



Consideration: Your preferred development platform

- **ArcGIS API for JavaScript**
 - Many free IDEs available (Aptana, Notepad++, TextPad)
 - Good choice for existing ArcIMS JavaScript coders
- **ArcGIS API for Silverlight**
 - Uses Visual Studio or Expression Blend
 - Good choice for existing Microsoft developers
- **ArcGIS API for Flex uses Flex Builder**
 - Good choice for Flash developers



Consideration: Browser plug-ins and compatibility

- **Flex and Silverlight utilize browser plug-ins**
 - Both are commonly used by websites
 - Consider if your clients are allowed to install
- **JavaScript does not require a plug-in**
 - Consider browser compatibility issues
 - Refrain from using browser-specific JavaScript
 - Leverage Dojo framework



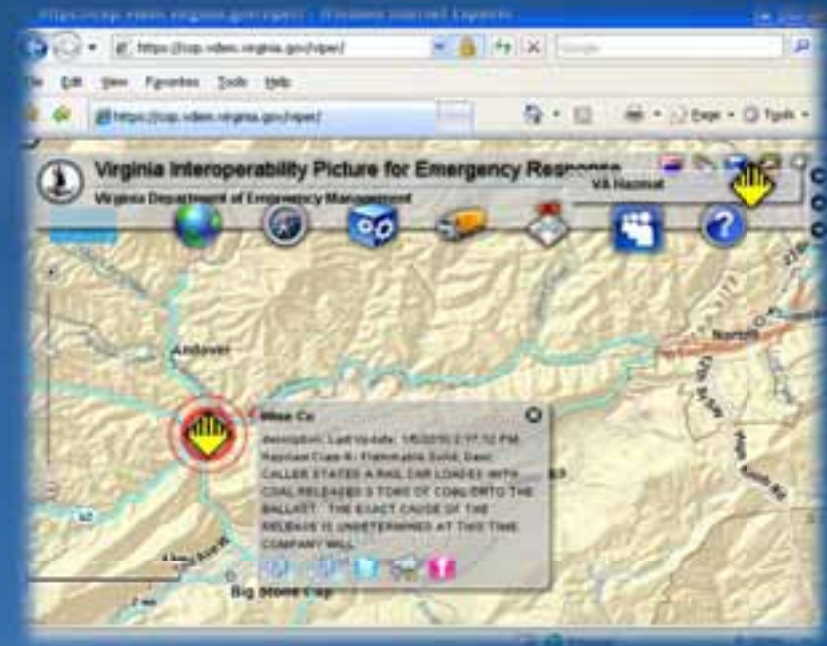
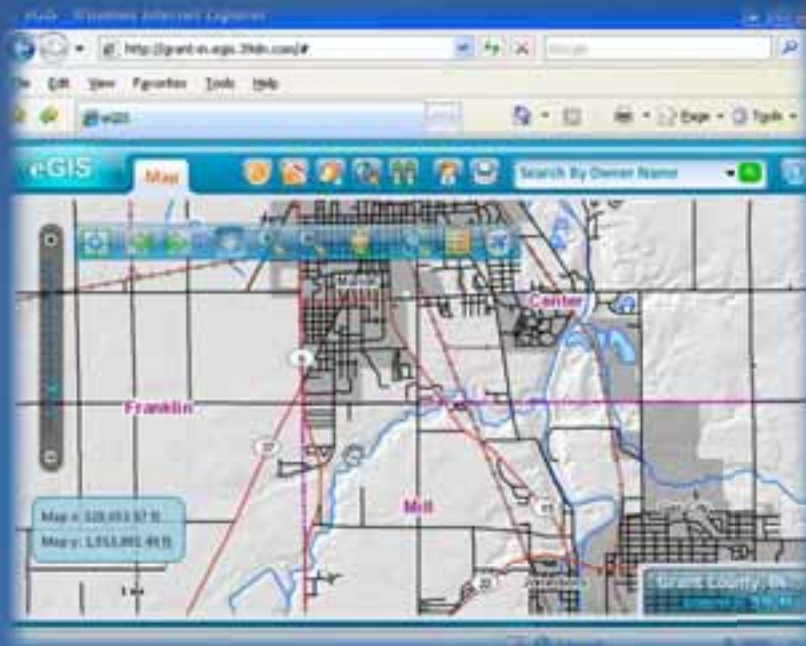
Consideration: Basemaps from Bing or Google Maps

- All three APIs support Bing basemaps
- ArcGIS JavaScript extensions for Bing Maps and Google Maps API
 - Utilize Bing or Google Maps viewer



Consideration: Look-and-Feel

- Have you looked at existing user sites?
 - ArcGIS Server Showcase: <http://www.esri.com/apps/showcase/>
- Do you like the Sample Viewer style?
- Have you talked to others who made this decision?



Get started!

- **ArcGIS Resource Centers**

- Getting started videos
- Sample Viewer downloads
- Templates
- Samples code

- **RUG Technical Sessions**

- ArcGIS Server - Best Practices for Creating Web Maps (Thu 8:30-10:00)
- ArcGIS Server - The Road Ahead (Thu 10:30-12:00)

- **Training**

- Introduction to ArcGIS Server (2 days)
- Building Web Maps using ArcGIS API for JavaScript (2 days)
- ArcGIS Server Web Administration for Microsoft .NET (3 days)