

Esri Federal GIS Conference

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esri.com/fedcon



ArcGIS Viewer for Flex ArcGIS Flex API

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Good Morning!

- **What is Flex?**
- **Viewer for Flex**
- **Flex API**
- **Roadmap**

Flex & the Adobe Flash Platform

- The leading solution for delivering rich apps and content across screens and devices
- Enterprise applications
- Consumer / Social applications
- Mobile devices
- <http://www.adobe.com/flashplatform/customers/>
- <http://www.adobe.com/flashplatform/>



ArcGIS Web Mapping APIs

- ESRI offers
 - **ArcGIS API for JavaScript**
 - **ArcGIS API for Flex**
 - **ArcGIS API for Silverlight**
- Provide a comprehensive framework for creating GIS enabled Web mapping applications
 - Work with ArcGIS Server and ArcGIS Online services
- Primarily geared towards developers
- Basis of Viewers & other configurable applications

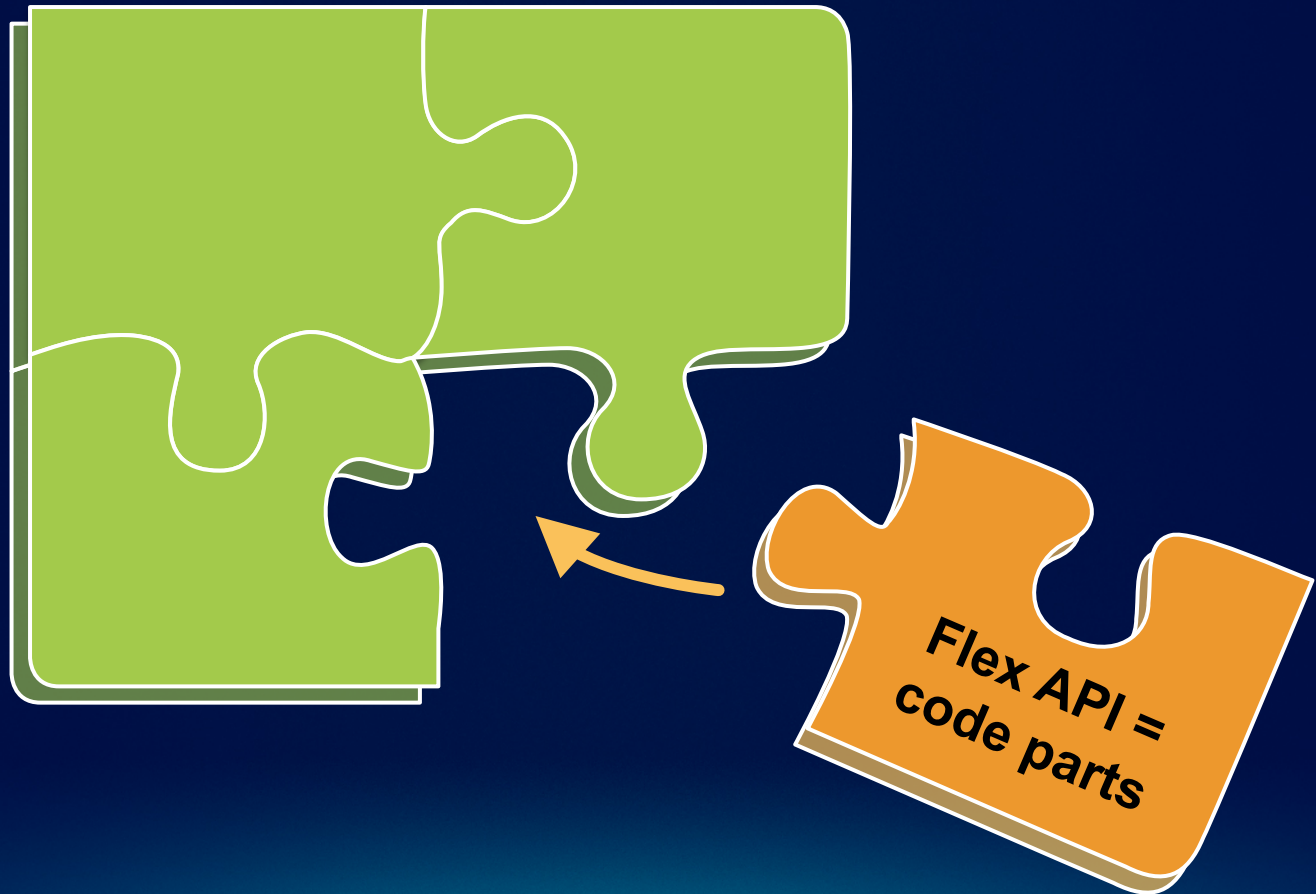


Why should I use Flex?

1. **Rich applications on all browsers (including IE 7/8)**
2. **Development generally quicker than HTML/JS development (no multiple browser tests)**
3. **Mobile device development- deploy native apps to iOS & Android from the same project**
4. **PC & Mac application from the same code (cross-platform AIR app).**

Viewer for Flex & the Flex API

Viewer for Flex = Application



ArcGIS – A Complete System

Easier
More Powerful
and Everywhere



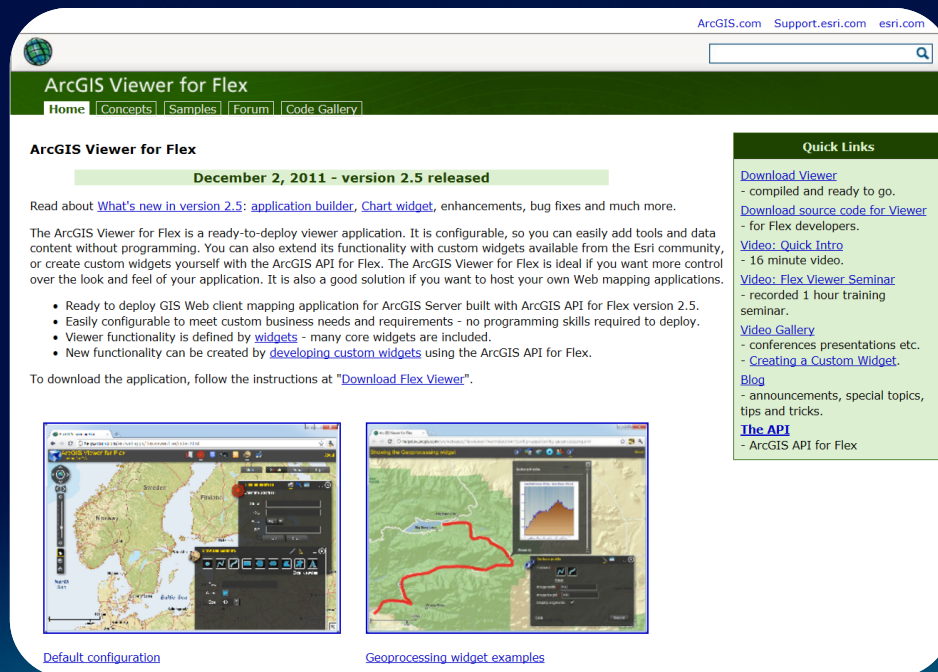
Getting Started – ArcGIS Resource Center

<http://links.esri.com/flex>

<http://links.esri.com/flexviewer>

<http://esriurl.com/FlexLive> (Flex Viewer Live Sites)

- Download the API Library, Viewer, Viewer Builder
- Help documentation, widget and configuration samples, and support forum



ArcGIS.com Support.esri.com esri.com

ArcGIS Viewer for Flex

[Home](#) | [Concepts](#) | [Samples](#) | [Forum](#) | [Code Gallery](#)

ArcGIS Viewer for Flex

December 2, 2011 - version 2.5 released

Read about [What's new in version 2.5: application builder, Chart widget](#), enhancements, bug fixes and much more.

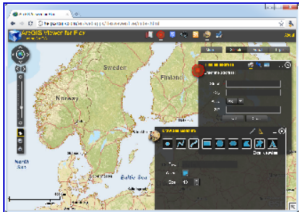
The ArcGIS Viewer for Flex is a ready-to-deploy viewer application. It is configurable, so you can easily add tools and data content without programming. You can also extend its functionality with custom widgets available from the Esri community, or create custom widgets yourself with the ArcGIS API for Flex. The ArcGIS Viewer for Flex is ideal if you want more control over the look and feel of your application. It is also a good solution if you want to host your own Web mapping applications.

- Ready to deploy GIS Web client mapping application for ArcGIS Server built with ArcGIS API for Flex version 2.5.
- Easily configurable to meet custom business needs and requirements - no programming skills required to deploy.
- Viewer functionality is defined by [widgets](#) - many core widgets are included.
- New functionality can be created by [developing custom widgets](#) using the ArcGIS API for Flex.

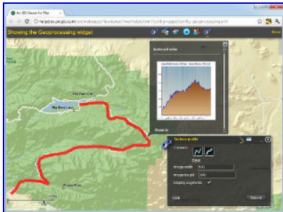
To download the application, follow the instructions at "[Download Flex Viewer](#)".

Quick Links

- [Download Viewer](#)
- compiled and ready to go.
- [Download source code for Viewer](#)
- for Flex developers.
- [Video: Quick Intro](#)
- 16 minute video.
- [Video: Flex Viewer Seminar](#)
- recorded 1 hour training seminar.
- [Video Gallery](#)
- conferences presentations etc.
- [Creating a Custom Widget](#).
- [Blog](#)
- announcements, special topics, tips and tricks.
- [The API](#)
- ArcGIS API for Flex



[Default configuration](#)



[Geoprocessing widget examples](#)

Viewer for Flex



ArcGIS Viewer for Flex



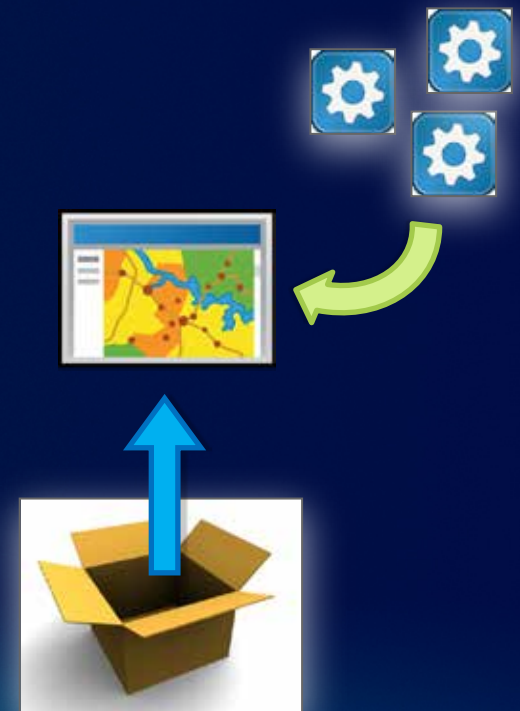
- Configurable *ready-to-deploy* Web client hosted on your servers
- **Easily and quickly** build and implement GIS Web mapping applications



- **No programming required**, designed with the “non-developer” in mind
- Supported by ESRI Technical Support

Working with the ArcGIS Viewer for Flex

- **Configuration** → enables changes to
 - Appearance
 - Functionality (via widgets)
 - Data content
- **Widgets** → modular functionality
 - Consist of
 - XML configuration file
 - Compiled Flash (.swf) file



ArcGIS Viewer for Flex functionality



- “Lego-like” approach to client development
- Viewer functionality enabled by widgets
- **21 configurable core widgets** included (no programming required)
- Select a group of widgets to create focused applications that address specific business workflows

ArcGIS Viewer for Flex – Users

1. **Novice Web application creators**

- Use application builder to configure and deploy the Viewer without programming
- E.g., GIS analysts, Managers



2. **Configurators**

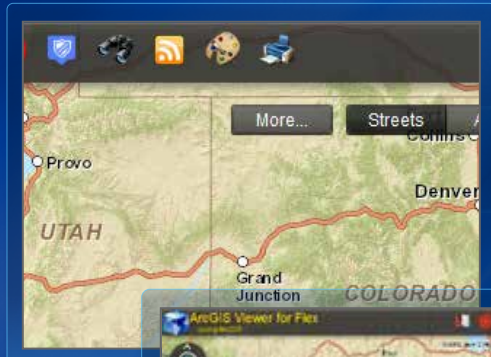
- Advanced Viewer configuration
- Leverage existing widgets
- E.g., GIS analysts, Website designers, Managers

3. **Developers**

- Extend Viewer functionality
- E.g., Business partners, Website developers, Flex API developers

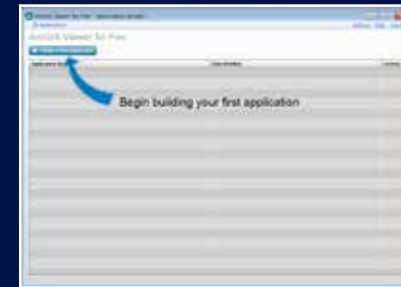


Viewer Tour

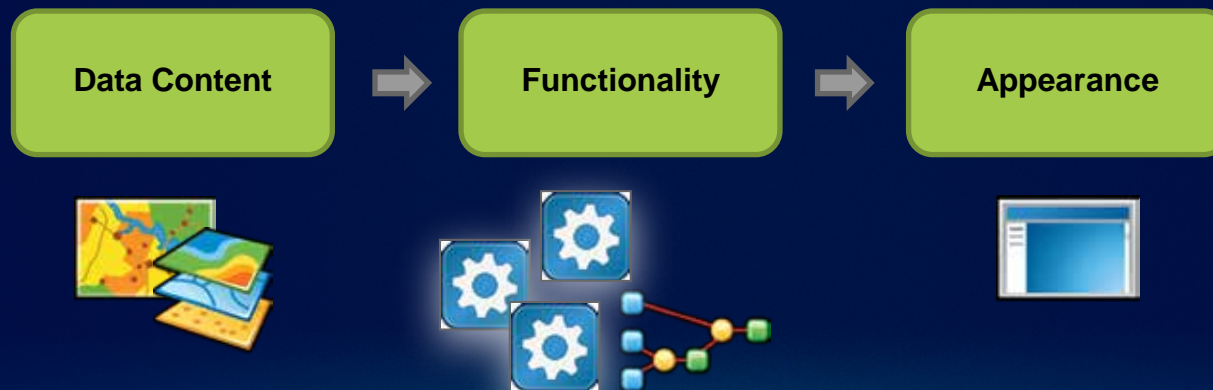


Viewer Builder

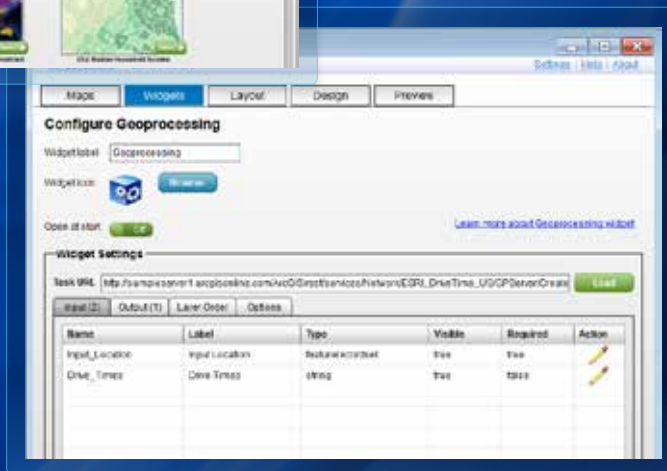
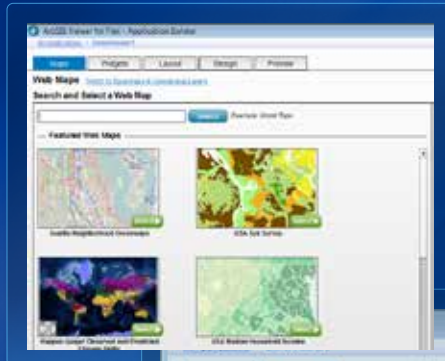
- Provides GUI user experience to configure and deploy the Viewer
- Built on Adobe AIR technology



Interactively configure:

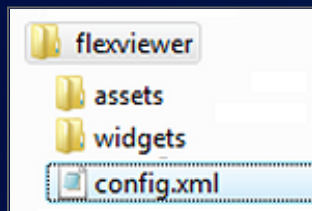


Build a Flex Application



Configure the ArcGIS Viewer for Flex

- Advanced customization by editing the Viewer configuration file



Edit *config.xml* file



- Appearance
- Functionality
- Data content



Widget Gallery @ Resource Center

ArcGIS Resource Center

ArcGIS Viewer for Flex

Home | Concepts | Samples | Forum | Code Gallery

Learn what others are doing and share your own work. This Flex Viewer code gallery contains widgets and applications available on ArcGIS.com.

Search [] widgets applications both widgets and apps

Quick Links

- [Upload your app](#) and tag as "flexviewer" and/or "widget".
- [How to](#) add your own widget or app to the code gallery.
- [Download Viewer](#)
 - compiled and ready to go,
 - or download [viewer source code](#)

Enhanced Search Widget version 2.5.1.2 for FlexViewer

Basemap Fader-Enhanced Map Switcher Widget version 2.5.1

Table of Contents and Legend widget Version 2.5 - For Flex

Street View and More - Widget for FlexViewer 2.*

Enhanced Splash Widget version 2.5 for FlexViewer 2.5

Enhanced Draw Widget Version 2.5 for FlexViewer 2.5

Attachment Relate Info Window Widget version 2.5.1 for

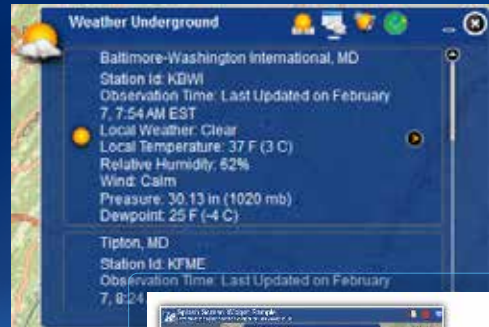
Advanced Drawing Widget for Flex Viewer 2.4

Dynamic Legend Widget version 2.5.0.1 For Flex Viewer

ArcGIS Viewer for Flex HeatMapWidget

1 2 3 4 5 6 7 8 9 10

Add a Widget



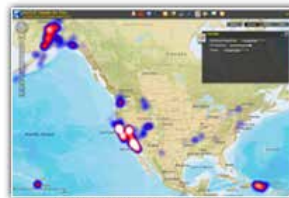
Enhanced Splash Widget
version 2.5 for FlexViewer 2.5



Enhanced Draw Widget Version
2.5 for FlexViewer 2.5



Dynamic Legend Widget
version 2.5.0.1 For Flex Viewer



ArcGIS Viewer for Flex
HeatMapWidget

Flex API

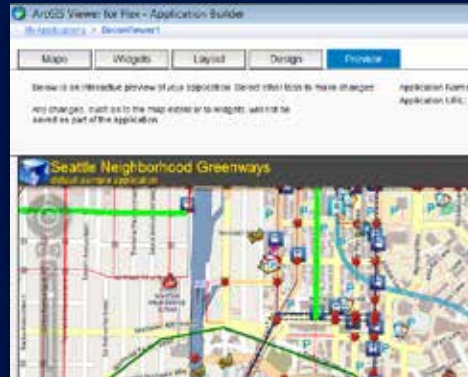


Sites & Apps

Smithsonian Wild



ArcGIS Viewer for Flex Builder



Solar Boston



Community Analyst



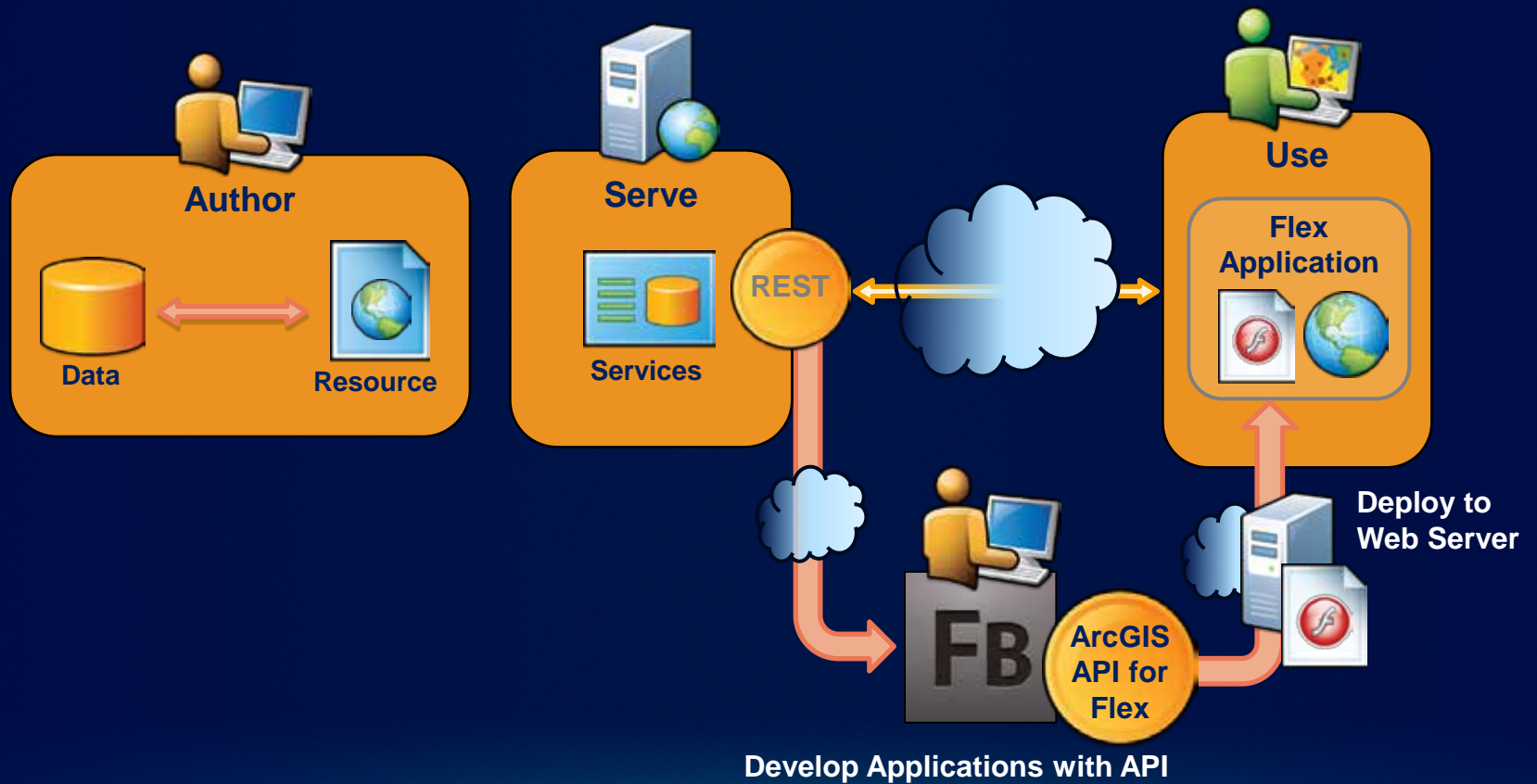
StateStat – Stimulus Recovery



Renewable Energy Atlas



ArcGIS Server and ArcGIS API for Flex



Developing with the ArcGIS Viewer for Flex

- Requirements

- Adobe Flex SDK 4.x
- Flash Player 10.0
- IDE (Flash Builder 4)
- ArcGIS API for Flex



Flash Player



Flash Builder

- Easy way to start: Modify Viewer

- **Application & widget source code is downloadable & open source**
- Change behavior of existing widgets
- Create new widgets
- Extend Viewer application



What will I need to know / learn?

- **MXML**
 - Declarative XML that gets converted to ActionScript
 - Components, Skinning and Layout
- **ActionScript**
 - Based on ECMAScript (JavaScript) specification
 - Programming language for Flash Player and Flex SDK
- **CSS**
 - Styling Applications, Components and Skins

Terms

- **Component:** A basic object in your application
 - **UIComponent:** Visible objects (buttons, maps)
- **Event:** What happens to a component
- **Script:** The logic of the program
- **View State:** Manage visual layouts in application
- **Skin:** Define visual layout of a component

Esri Components

- **Map**
- **Layers**
 - Images in map: **DynamicLayer, TiledLayer, ImageLayer**
 - Vectors in map: **GraphicsLayer, FeatureLayer**
- **Symbols & Renderers**
- **Tasks- QueryTask, EditTask, Geoprocessor**

Map

- **Main component of the ArcGIS Flex API**
- **Mouse & keyboard navigation**
- **Scale bar, pan arrows, cross hair, rubberband, zoomslider (Navigation) can all be styled**
- **Spatial reference & scale levels**
 - **Determined by the first visible layer**
 - **Or can be set explicitly**
- **Collection of layers**

Basemaps, operational layers, and graphics

- **Basemaps**
 - Provide geographic framework
 - Tiled (cached), static, multi-scale
- **Operational layers**
 - Focus map
 - Associated with tools and user interaction
 - Typically dynamic in content
- **Graphics**
 - Use for visualizing task results or user input
 - Client-side features
 - Two types: Graphics Layer and Feature Layer
- **Custom layers**

Symbol

- **Graphics are rendered using symbols**
- **Uses Flash graphics**
- **The symbol of a graphic is determined by (in order of preference):**
 - **The graphic's defined symbol**
 - **The renderer defined in the layer**
 - **The symbol defined in the layer**
 - **The default symbol defined by our API**

Renderers & Clusterers

- **SimpleRenderer (1 Symbol)**
- **ClassBreaksRenderer**
 - Array of **ClassBreakInfo**
- **UniqueValueRenderer**
 - Array of **UniqueValueInfo**
 - Support for multiple attributes
- **TemporalRenderer**
 - Use the time field of a **FeatureLayer**
- **Clusterers – aggregate features**
 - Simple & Flare clusters

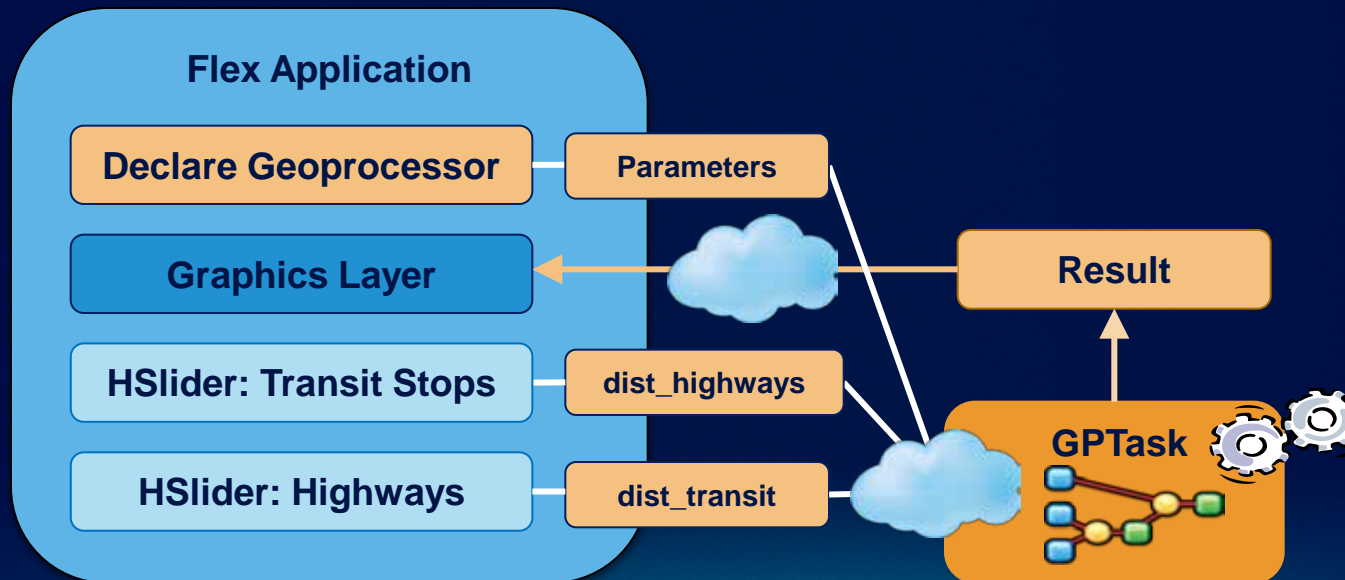


Locator Tasks

- **Capabilities / address styles are tied to the underlying address locator which is the source for the locator service**
- **Forward and reverse address lookup**
- **Get candidates for an address (forward)**
- **Get an address for a given location (reverse)**
- **Specify the output spatial reference**

Geoprocessing Task

- Exposes a Geoprocessing model through an ArcGIS Server service
- Execute = synchronous
- SubmitJob = asynchronous



Network analysis tasks

- Exposes Network Analyst functionality through an ArcGIS Server service



Service Area



Routing



Closest Facility

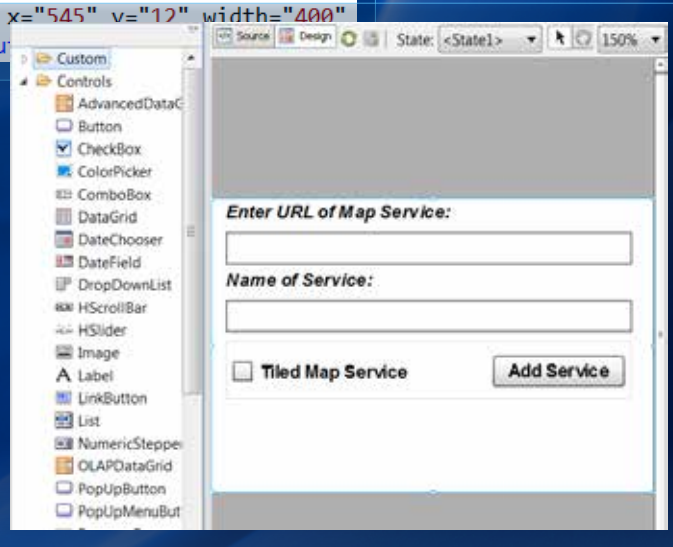
Geometry Service

- **A server-side processing and algorithmic resource**
- **Supports operations related to manipulating geometries**
 - **Project, buffer, simplify, cut, densify, difference, generalize, union, split**
 - **Many more**
- **Supports editing functionality with Feature service**

Create a Widget

```
xmlns:mx="library://ns.adobe.com/mx/2006/08/06/AdobeFlashPlayerAssemblers/
xmlns:esri="http://www.esri.com/arcgis/sdk/arcgiswidgets/
minWidth="955" minHeight="500"

<fx:Declarations>
  <!-- Place non-visual elements (e.g. Binding, mx:TextFields) here -->
</fx:Declarations>
<esri:Map left="0" right="0" top="0" bottom="0">
  <esri:ArcGISTiledMapServiceLayer url="http://server.example.com/arcgis/rest/services/World_Street_Map/MapServer"
</esri:Map>
<s:Panel x="545" y="12" width="400" height="100">
  <s:Button label="Add Service" x="430" y="65" width="80" height="25" />
  <s:Text x="290" y="45" text="Enter URL of Map Service:" />
  <s:Text x="290" y="60" text="Name of Service:" />
  <s:Text x="290" y="75" text="Tiled Map Service" />
  <s:Text x="290" y="85" text="Add Service" />
</s:Panel>
```



Thinking about deployment

- **Minimum Flash Player installation (10.x)**
 - Wrapper streamlines process
- **Export “Release build”**
- **Flash Player cross-domain issues**
 - `crossdomain.xml`
 - proxy page (for security)

Placement of the crossdomain file

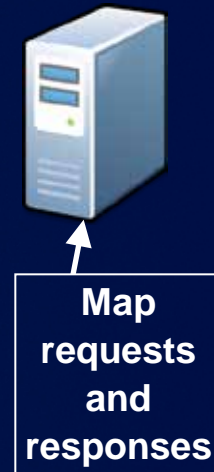
Web Server with application and ArcGIS Server



Web Server with application



ArcGIS Server with crossdomain.xml



Road Ahead



Road ahead: Version/Server matching

- **2.x API matched 10.0**
 - Current version 2.5 (December 2, 2011)
 - 2.6 version under consideration
- **ArcGIS API for Flex 3.0 – in Beta (matched w/ 10.1)**
 - Register at <http://beta.esri.com>
 - Adobe 4.5 SDK requirement
 - Flash Player 10.2 requirement
 - Beta 2 in March
- **'Dot' releases (2.5, 2.6, 3.1): ~3-4 months**
- **APIs are backwards compatible – 3.x API will work with 10.0, 9.3 server (some functionality missing)**

Where can I get more information?

Adobe and Esri resources

- **Esri**

- <http://resources.arcgis.com>
- **Forums, samples**
- <http://links.esri.com/flex>
- <http://links.esri.com/flexviewer>



- **Adobe**

- <http://www.adobe.com/devnet/flex.html>
- <http://www.adobe.com/devnet/flex/videotraining.html>
- <http://www.adobe.com/devnet/flex/tourdeflex.html>
- <http://groups.adobe.com>



Upcoming Events (www.esri.com/events)

March 8 - MeetUp at Esri (Vienna, VA)

April 12 - MeetUp in DC area (location TBD)

Mar 24-27 – Esri Partner Conference (Palm Springs, CA)

Mar 26-29 – Esri Developer Summit (Palm Springs, CA)

July 21-24 – Esri Homeland Security Summit (San Diego, CA)

July 23-27 – Esri International User Conference (San Diego, CA)



Friday Closing Session and Hosted Lunch

- **Join conference attendees for lunch and closing session**
- **11:30 am – 1:30 pm**
- **Ballrooms A-C, Third Level**
- **Closing Speaker – Chris Smith, United States Department of Agriculture**
- **Wrap-up and request for feedback with Jack Dangermond**



Thank You

Please complete session evaluation form





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