

使用Flex开发WebGIS应用

贾庆雷

jiaqinglei@gmail.com

Flex API

- google map flash api
- openscales
- arcgis api for flex

WebGIS Flex demo

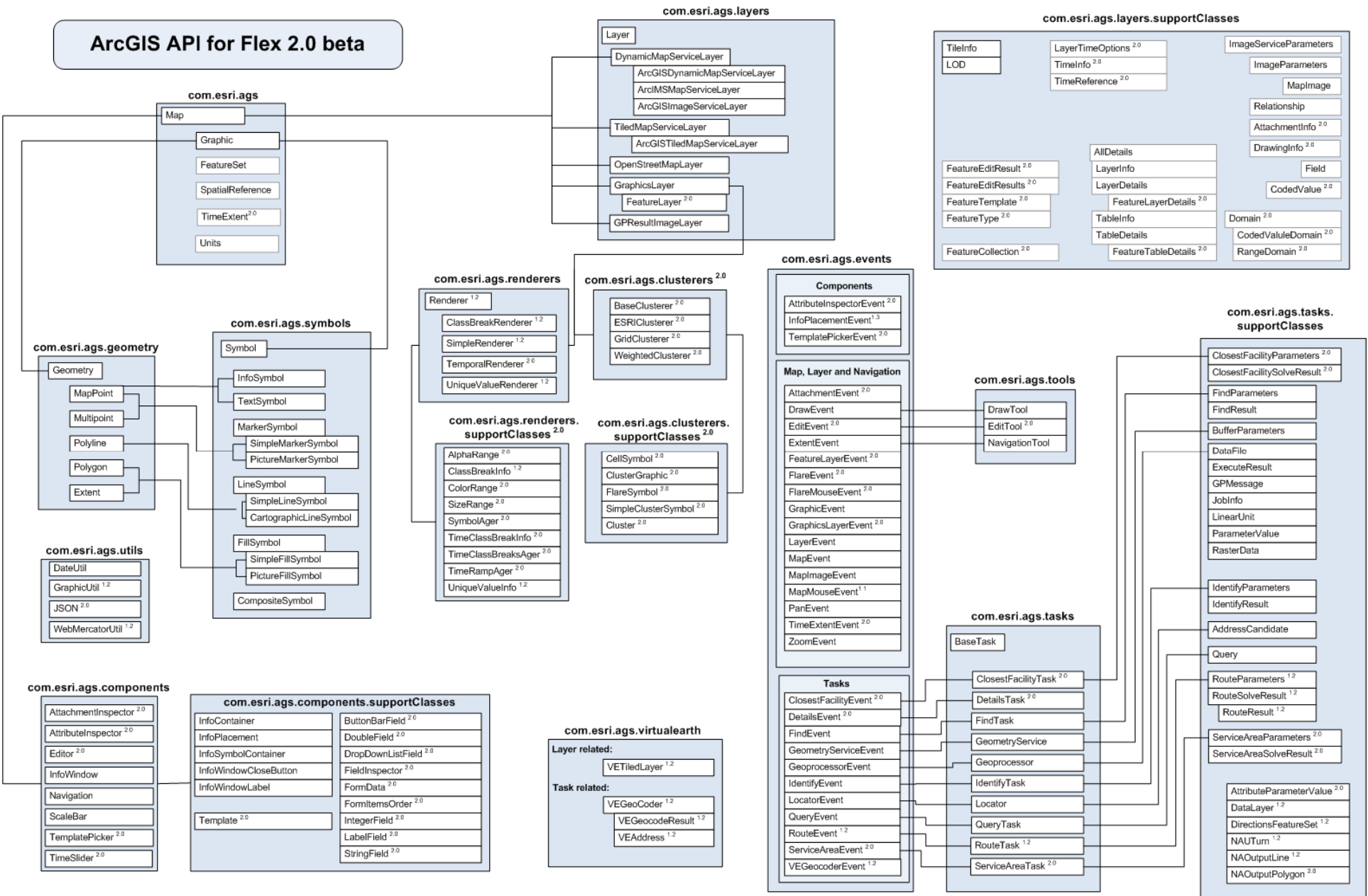
- Google map flash api
- Oakland
- Flex Viewer



ArcGIS API for Flex 2.0

- 开发环境
 - Adobe Flash Builder 4
- 运行环境
 - Flash Player 10
- 服务器
 - ArcGIS Server 10

ArcGIS API for Flex 2.0 beta



ArcGIS Server 10 REST API

- 编辑 (FeatureService)
- 具有时间特征的图层
- 独立的表格
- GeometryService (12个新功能)
 - Autocomplete, Convex Hull, Cut, Densify, Difference, Distance, Generalize, Intersect, Offset, Reshape, Trim/Extend, and Union.

Flex API 2.0

- FeatureLayer
- 编辑功能支持
- Clustering
- 地图、图层
- 工具条
- 查询
- Geoprocessing
- Graphic
-



地图 图层

- 图层
 - ArcGISDynamicMapServiceLayer
 - ArcGISTiledMapServiceLayer
 - FeatureLayer
 - GraphicLayer
 - OpenStreetMapLayer
 - ...

```
import com.esri.Map;  
public var map:Map = new Map();  
map.showSlider = true;
```


工具条 – 导航

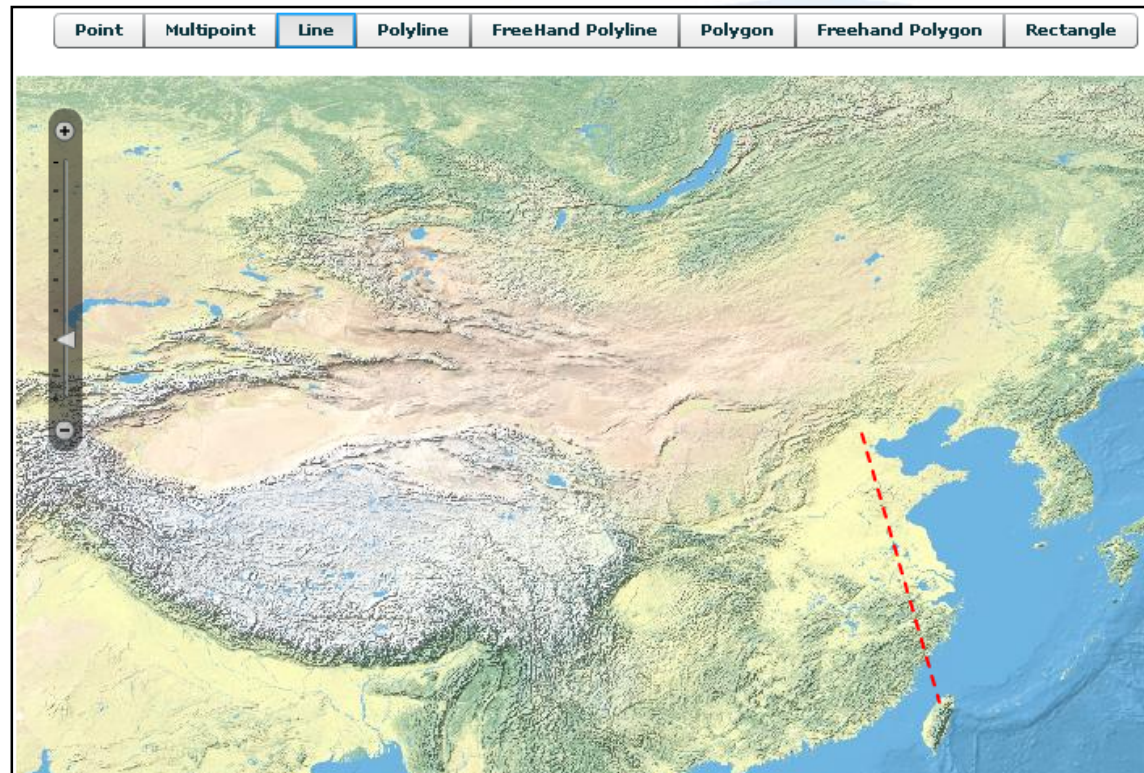
- Zoom in
- Zoom out
- Pan
- Previous Extent
- Next Extent
- Full Extent



```
navToolbar.activate(Navigation.ZOOM_IN);
```

工具条 – 绘制

- Geometry Type
 - Point
 - MultiPoint
 - Line
 - Polyline
 - Polygon
 - Rectangle
 - Free Polyline
 - Free Polygon
- Events
 - drawEnd
 - drawStart



```
drawToolbar.activate(Draw.POLYLINE);
```

查询

- Query

```
<esri:Query id="query" outFields="[STATE_NAME, POP2000, POP2007]"  
returnGeometry="false" text="{stateName.text}"/>
```

- QueryTask

```
<esri:QueryTask id= "queryTask"  
url= "http://actc/ArcGIS/rest/services/World/MapServer/5" useAMF= "true"/>
```

- FeatureSet

查询性能优化

- 查询结果
 - 绘制速度 Point >> Polyline, Polygon
- 控制返回内容
 - Query : outFields
 - Query : returnGeometry
- 防止恶意访问
 - where 1=1
- 控制最大返回记录数
 - MaxRecordCount

FeatureLayer

- 父类：Graphics layer
- 数据下载到客户端
- Flash Player 负责完成绘制
- 类似WFS对象（OpenScales）
- 服务器端：ArcGIS Server 10

```
<esri:FeatureLayer  
  graphicAdd="featurelayer1_graphicAddHandler(event)"  
  outFields="[FIPS,POP2000]" "  
  url="http://localhost/ArcGIS/rest/services/World/MapServer/0">  
</esri:FeatureLayer>
```

FeatureLayer

- 查询
- 选择
- Web编辑
- 响应鼠标事件
 - click, hover.
- 设置条件，过滤显示要素
 - Definition expressions

FeatureLayer

- 获取要素的方式
 - On demand mode(默认值)
 - 按照当前地图范围请求必要的要素
 - Snapshot mode
 - 用于小数据量的图层
 - Selection mode
 - 用于选择、查询结果展示等

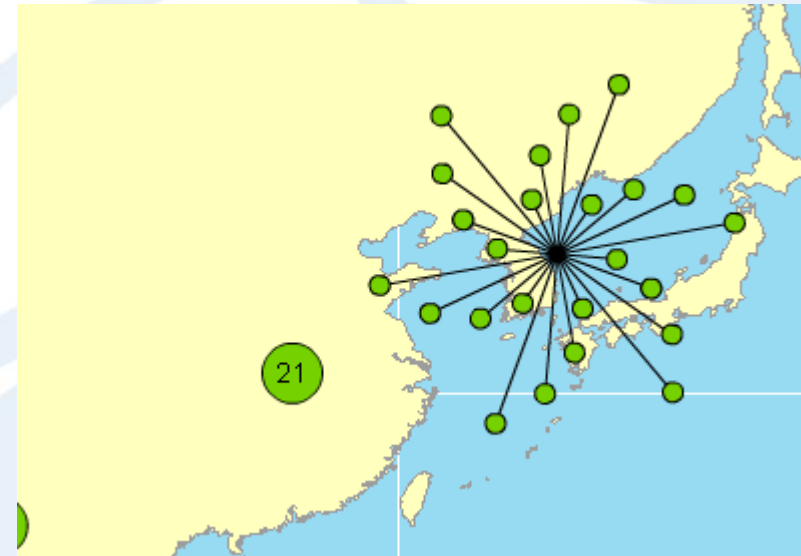
编辑

- FeatureService
- 数据源 ArcSDE geodatabase
- 最后提交原则

```
<esri:Editor id="myEditor"  
geometryService="{myGeometryService}"  
height="200" featureLayers="[airline]"  
map="{myMap}"  
width="100%"/>
```


Clustering

- FeatureLayer : clusterer
- WeightedClusterer
- FlareSymbol



```
<esri:FeatureLayer id="featureLayer"  
  clusterer="{clusterer}"  
  mode="snapshot"  
  url="http://localhost/ArcGIS/rest/services/World/MapServer/0"/>
```

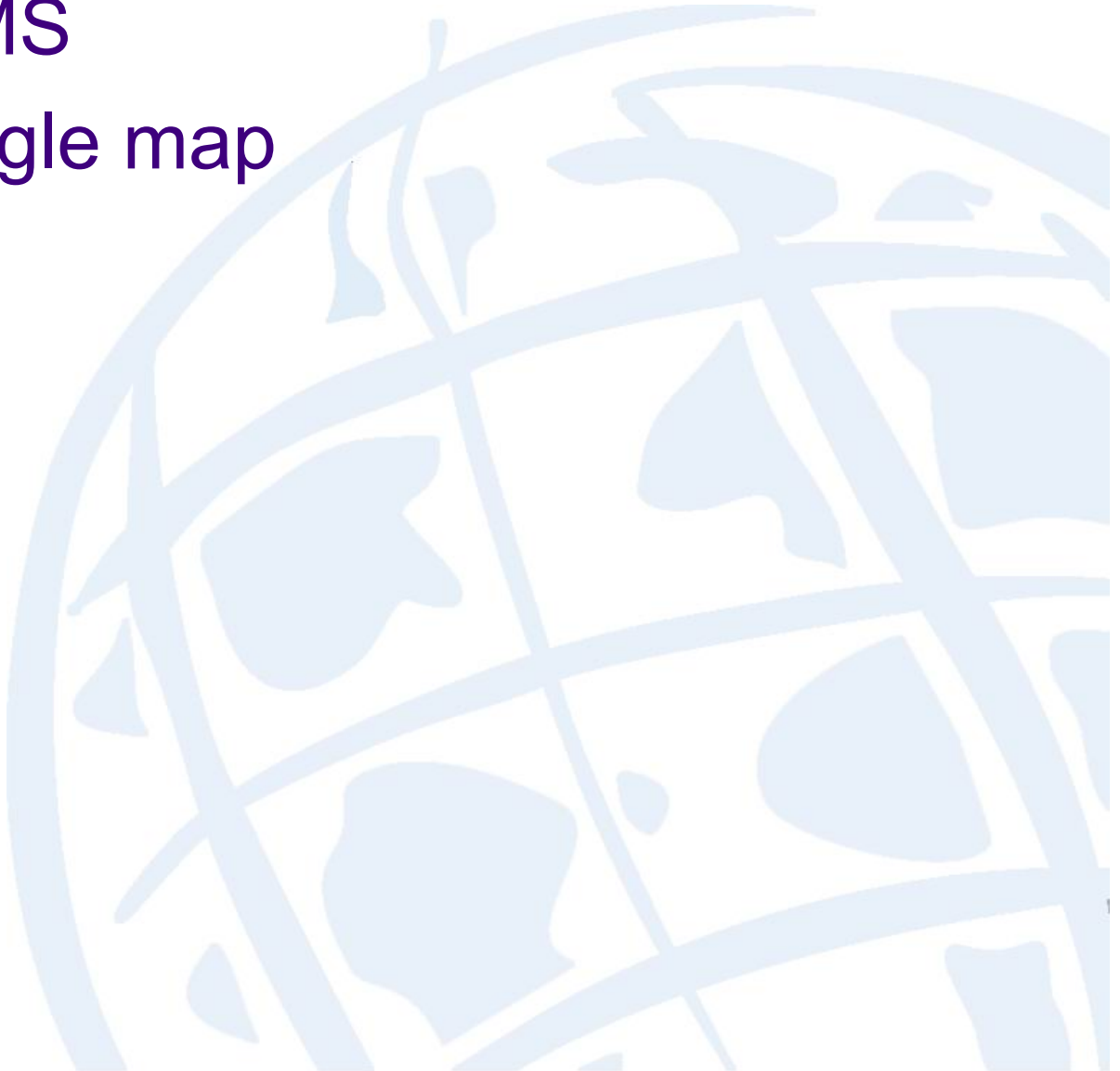
WMS图层

- **extends DynamicMapServiceLayer**

```
_params = new URLVariables();  
_params.request = "GetMap";  
_params.format = "image/png";  
_params.exceptions = "application/vnd.ogc.se_inimage";  
_params.version = "1.1.1";  
_params.layers = "diversity";  
  
// GeoServer地图服务  
var url:String = "http://localhost:8080/geoserver/wms";  
_urlRequest = new URLRequest(url);  
_urlRequest.data = _params
```

实例演示

- GeoServer WMS
- Flex API + google map
- Clustering





谢 谢

ESRI 中国（北京）培训中心
ESRI China(Beijing) Learning Center