



Using the GeoEvent Processor for Server

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**Esri Developer
Summit Europe**

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Park Plaza Riverbank London



Geodata comes alive...

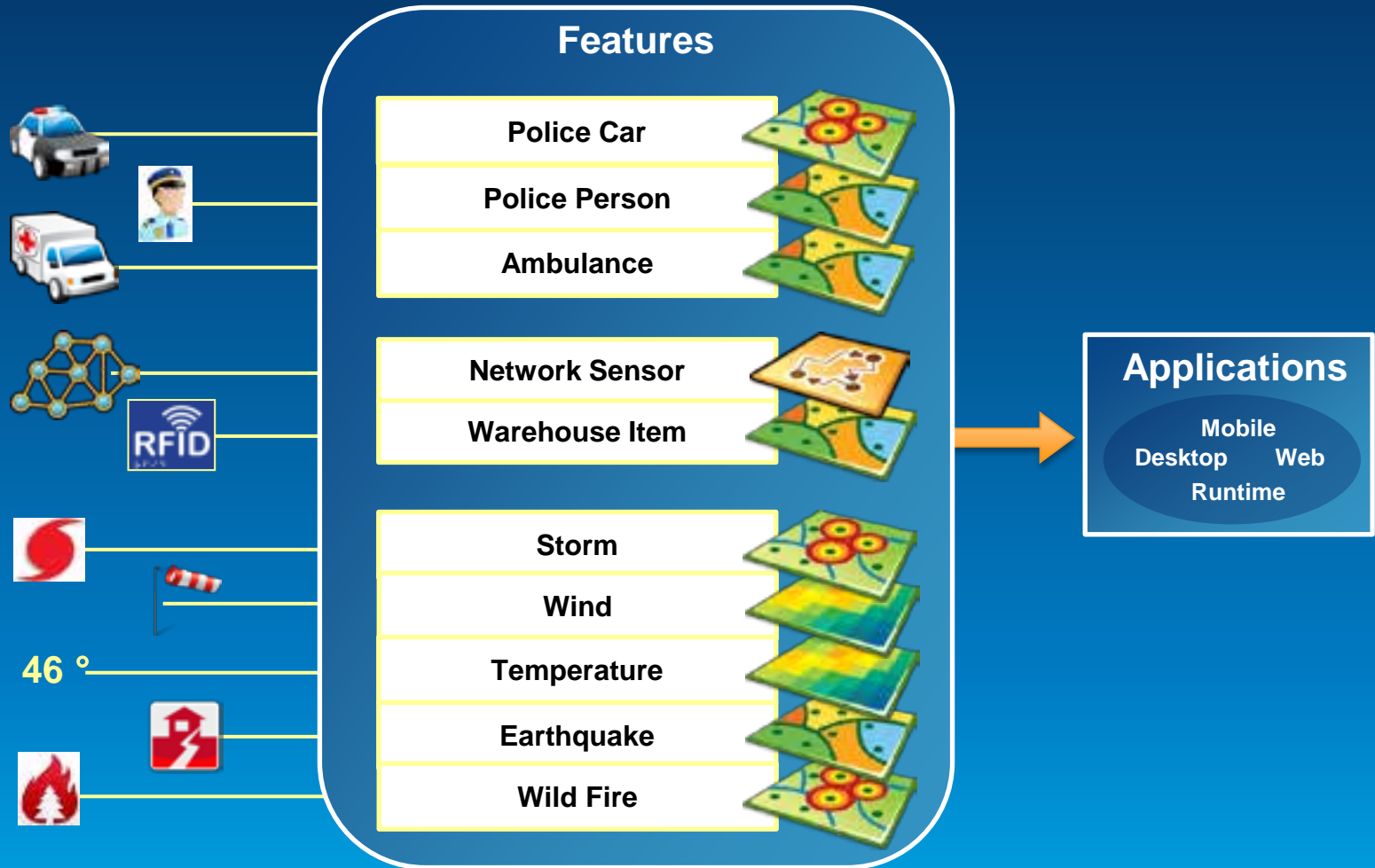


CINÉMATOGRAPHE LUMIÈRE

... in Realtime



Realtime Data



“Sensors in Motion” and or “Values in Motion”

Realtime GIS

- **Continuous stream of events**
- **Sensors (1...n) as Eventsource**
- **Event = Current state of the sensor**

Are my field personnel working within the designated area?

▲ **ALERT!**

Incident: Outside project boundary

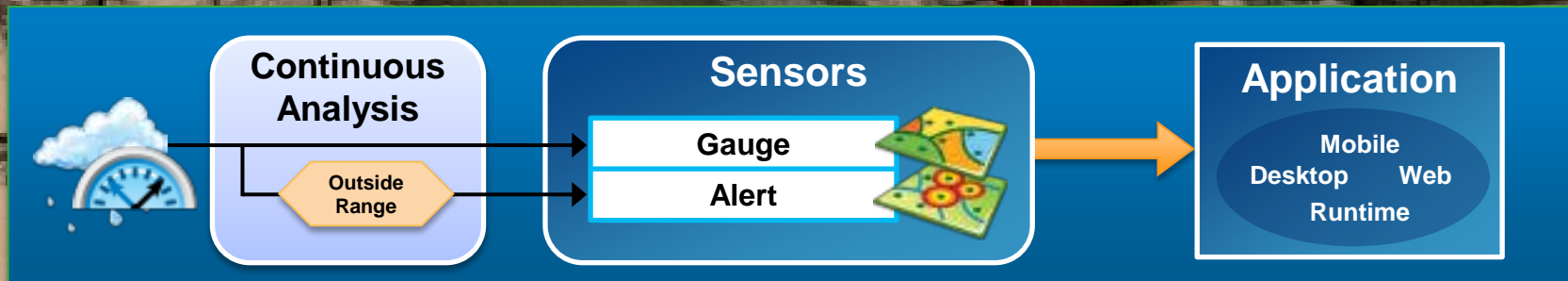
Time: 12:43 pm 4/17/13

Equipment: DT10 - 629

Operator: R. Smith



Is everything under control?



We will be with you in 15 minutes...



Continuous Analysis

Enter Customer Area

Features

Delivery Vehicle

Notification



Application

Mobile
Desktop Web
Runtime

Messages

woody hynes

Edit

Call

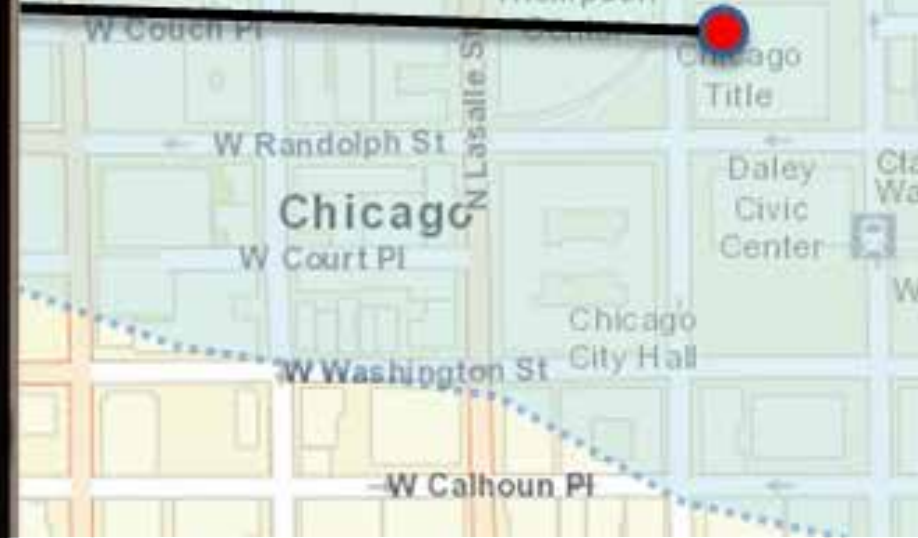
FaceTime

Contact >

iMessage

Feb 1, 2013, 9:47 AM

Your package will be delivered within 15 minutes. Your tracking # is [1287727662](#).



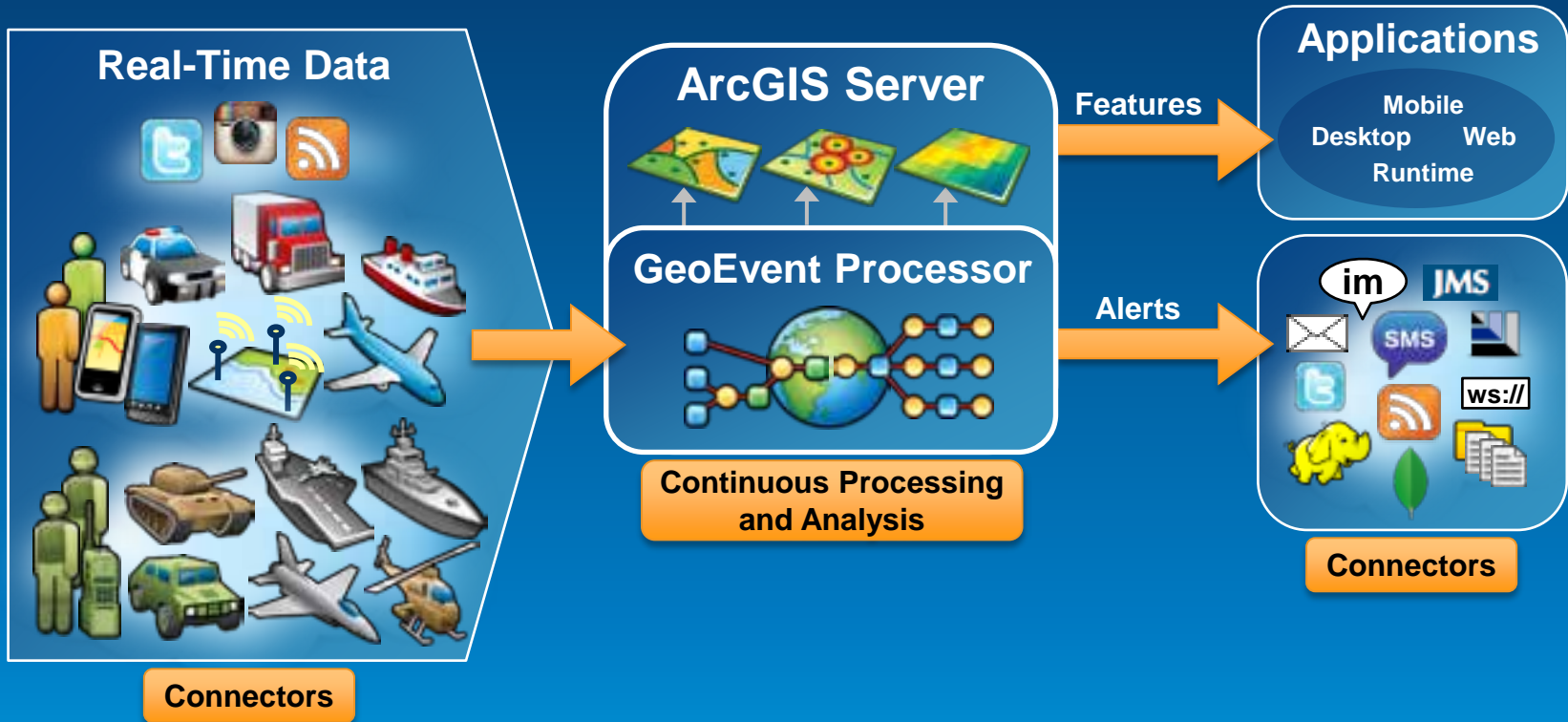
Challenges

- **How does data get into the system?**
- **Analysis: How/Where is data converted into information?**
- **How does the information get to the user?**

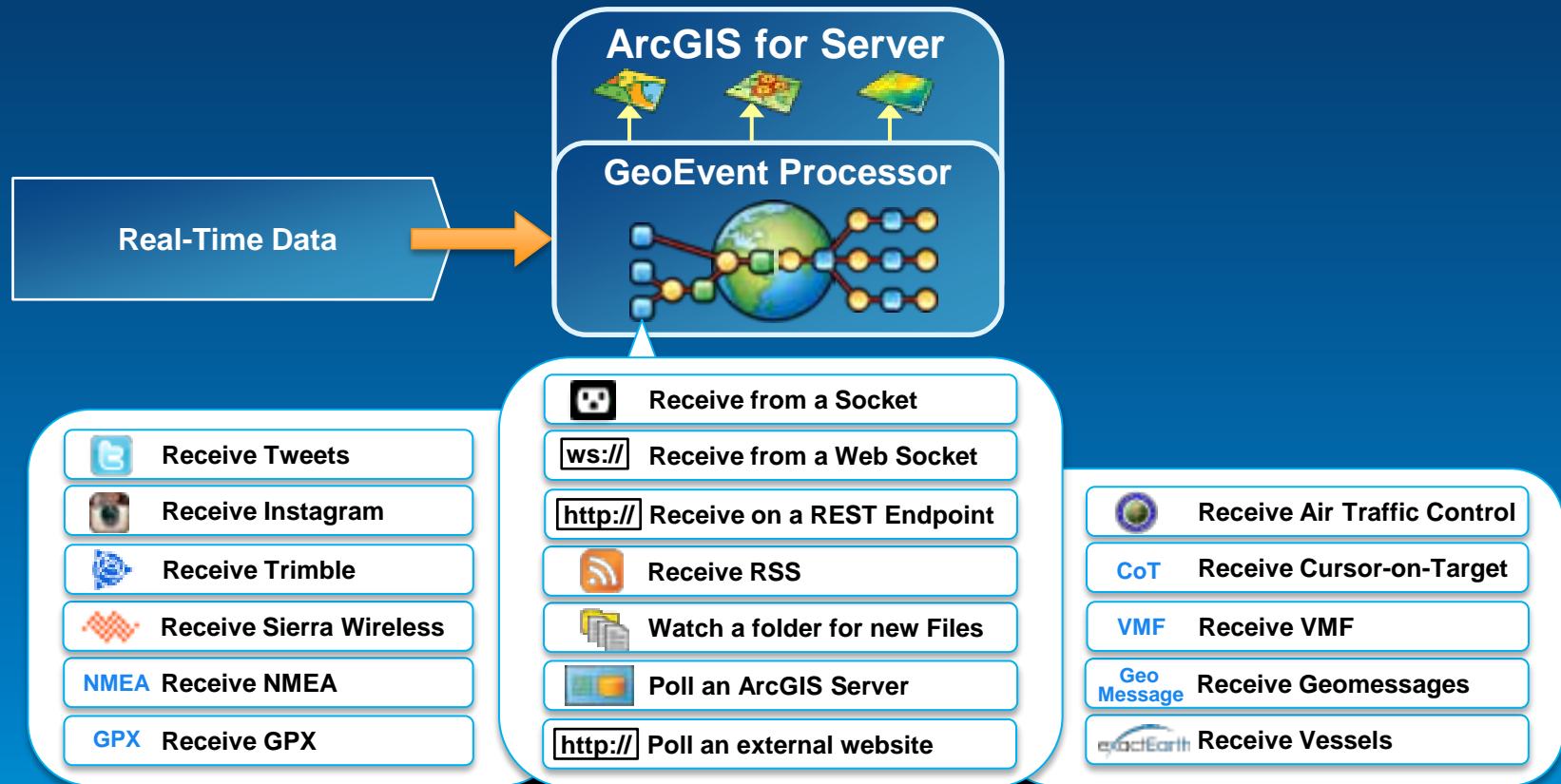
GeoEvent Processor Basics

Matthias Schenker

ArcGIS GeoEvent Processor for Server



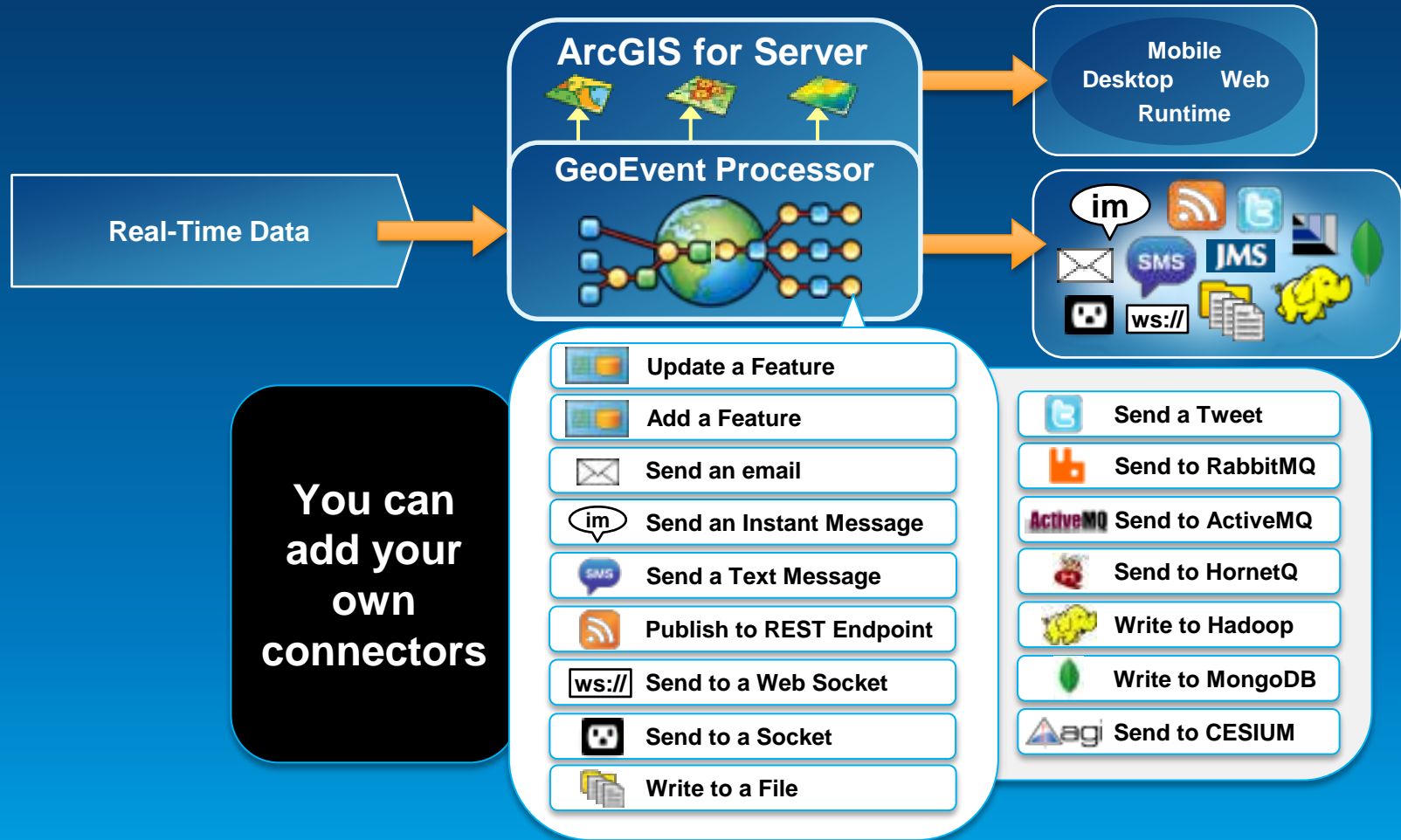
Receiving real-time data



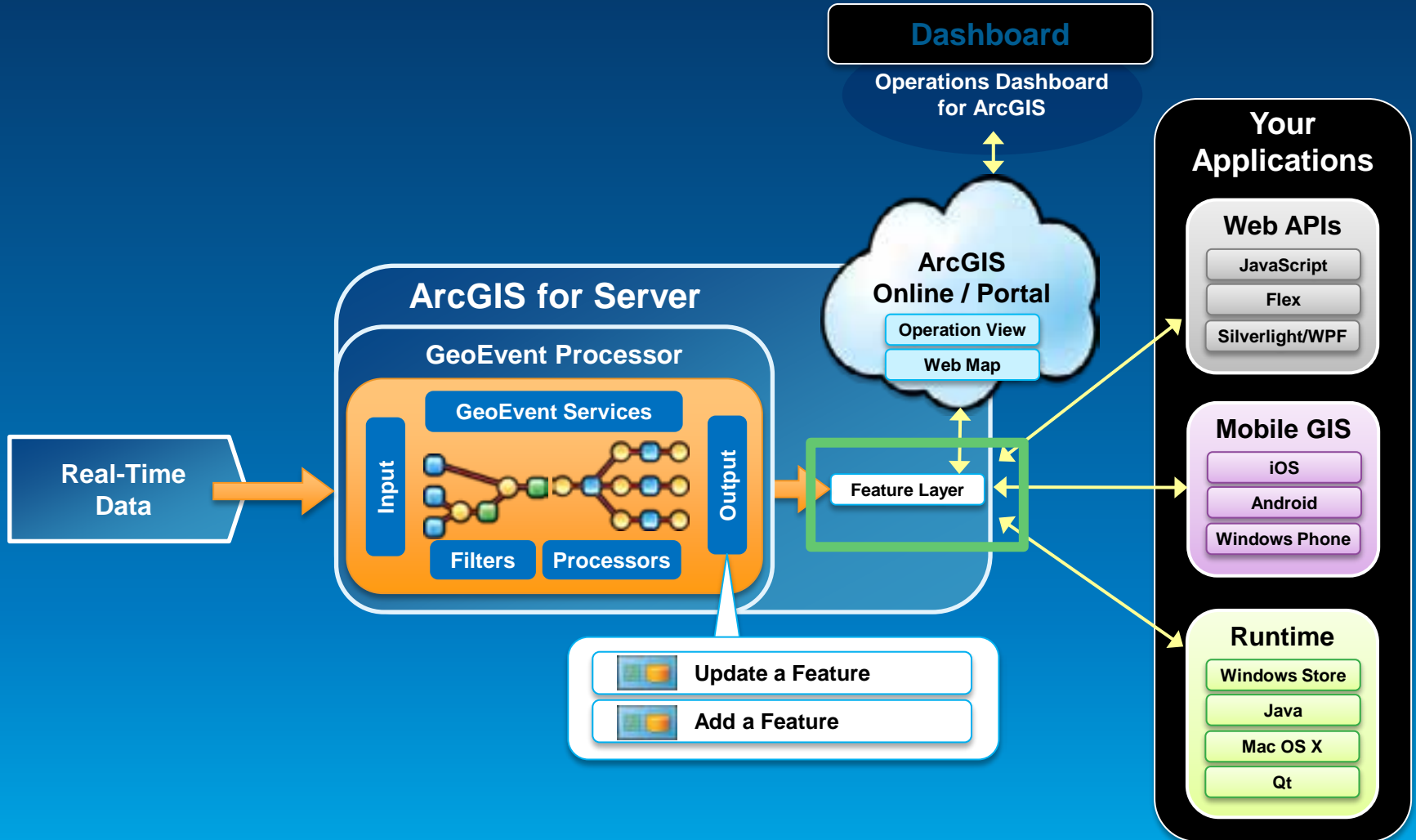
You can add your own connectors

<http://www.arcgis.com/home/group.html?owner=GeoEventTeam&title=ArcGIS%20GeoEvent%20Processor>

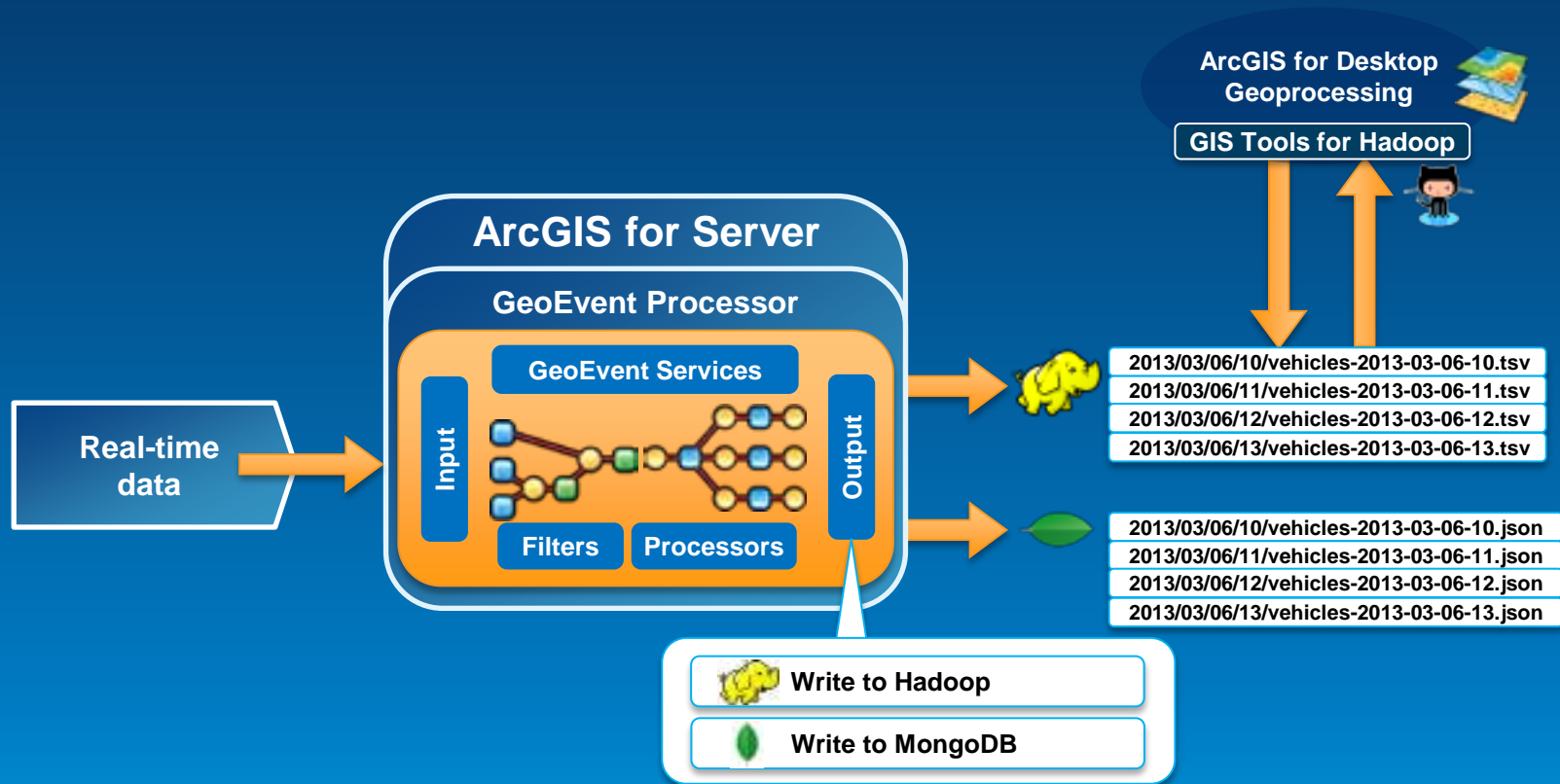
Sending real-time data



Sending real-time data to features



Real-time data is often “Big Data”



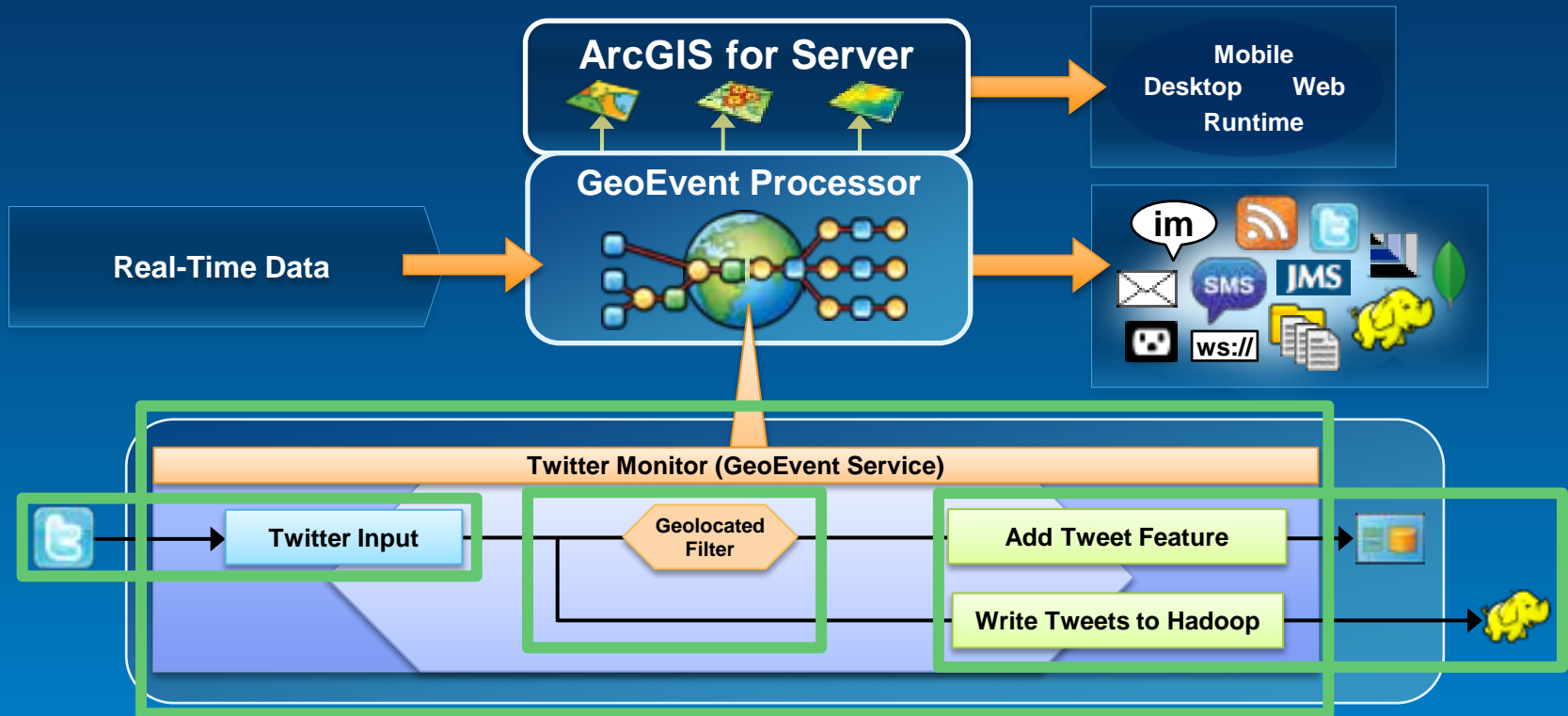
GIS Tools for Hadoop

<http://github.com/Esri/gis-tools-for-hadoop>

Filters and Processes

Javier Abadía

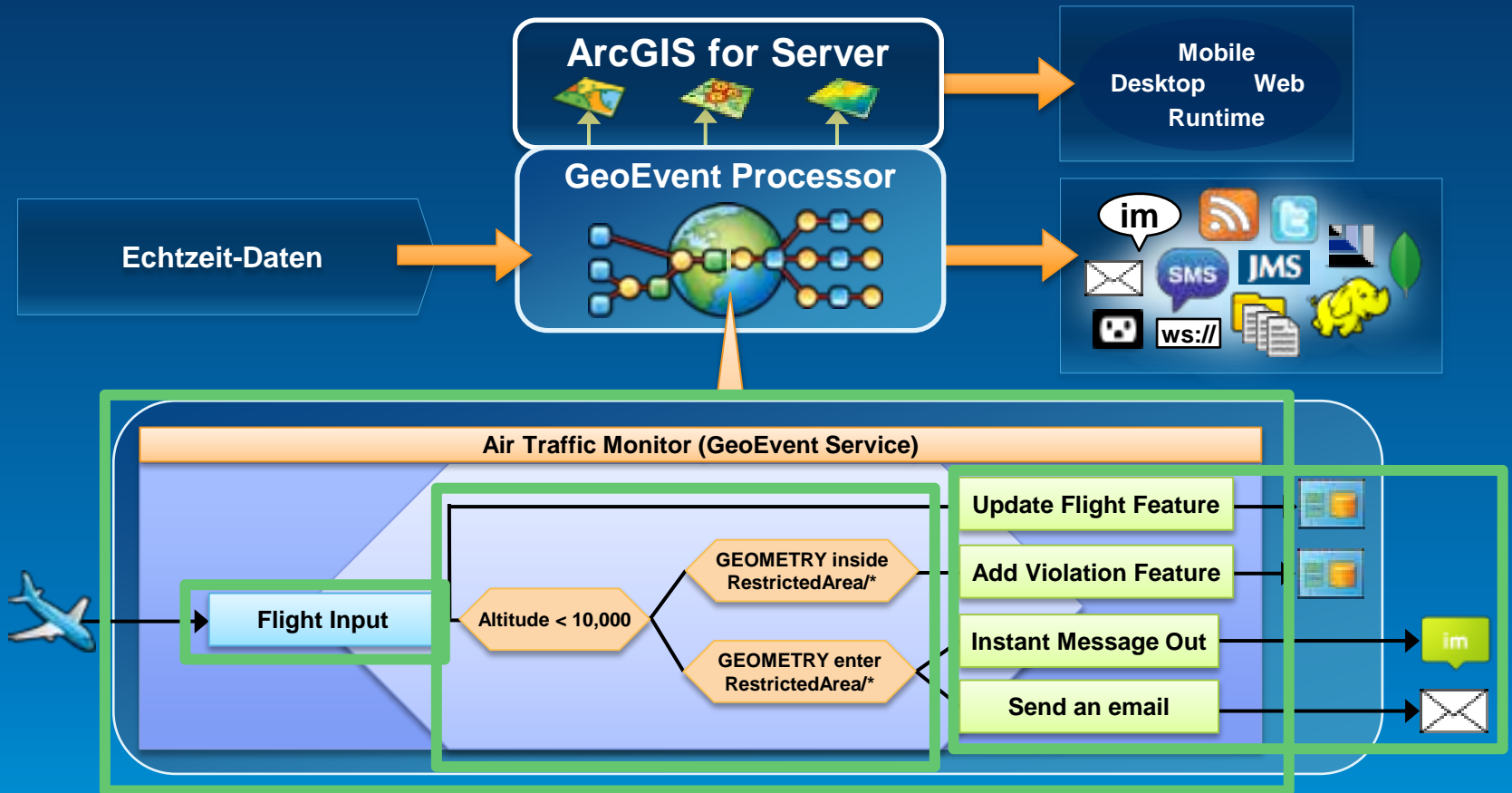
Continuous processing and analysis



A GeoEvent Service configures the flow of (geo-)events:

- Input
- Output
- Filters and processes

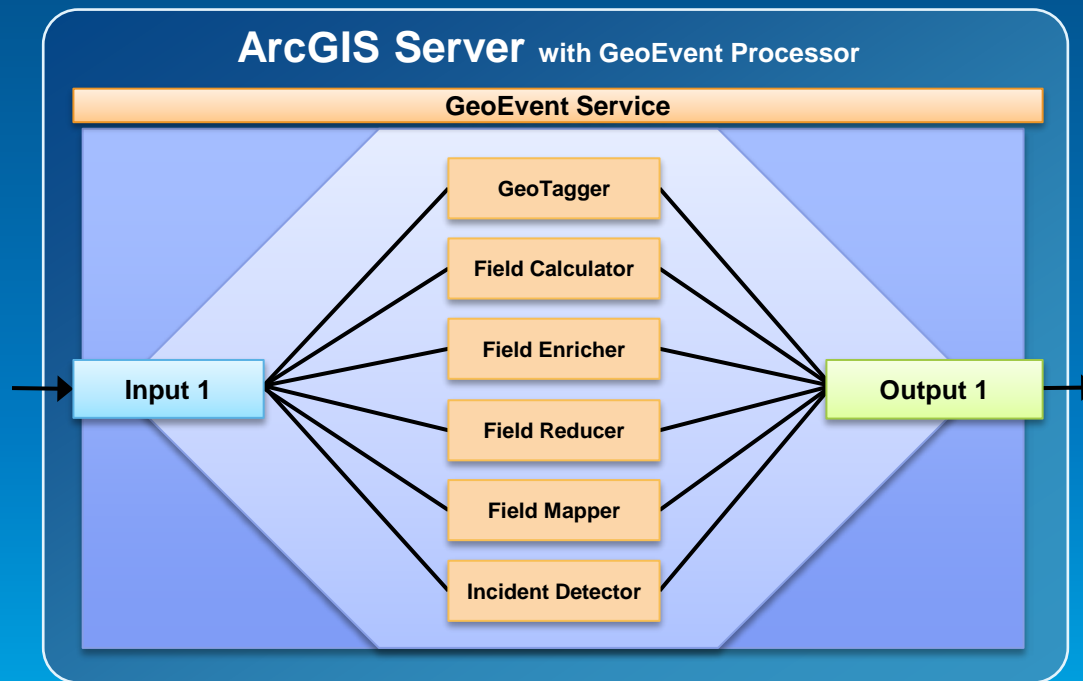
Continuous processing and analysis



- Input
- Output
- Filters and processes

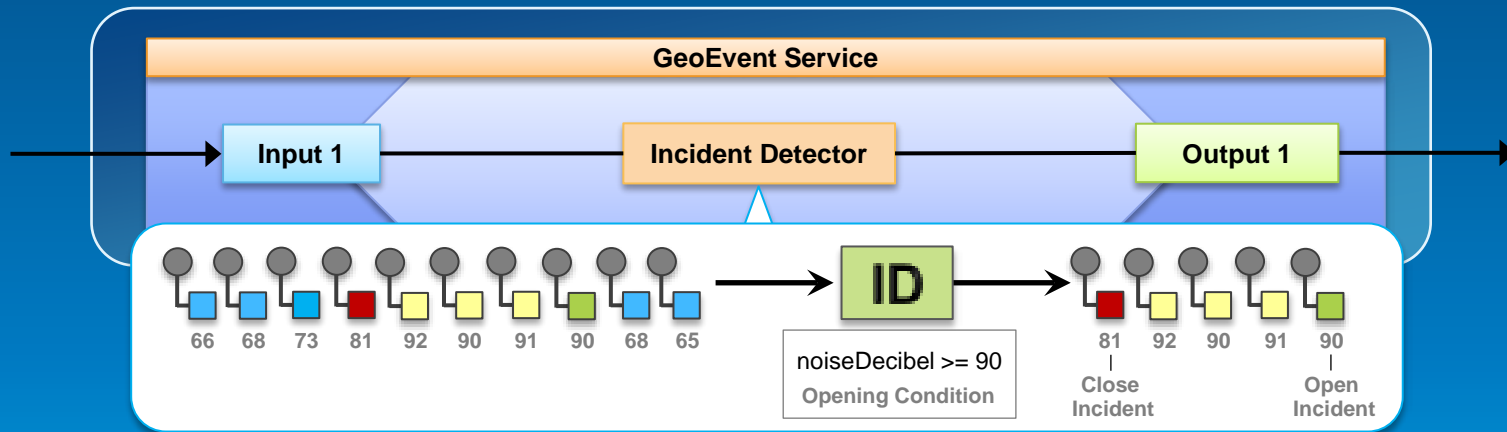
Processors

- Calculate new fields on a geoevent
- Modify a geoevent
- Derive a new geoevent



Incident Detector processor

- creates an incident upon an opening condition being met,
- maintains state for the duration of the incident,
- closes the incident based on a closing condition or expiration.



DEMO

Ship Tracking



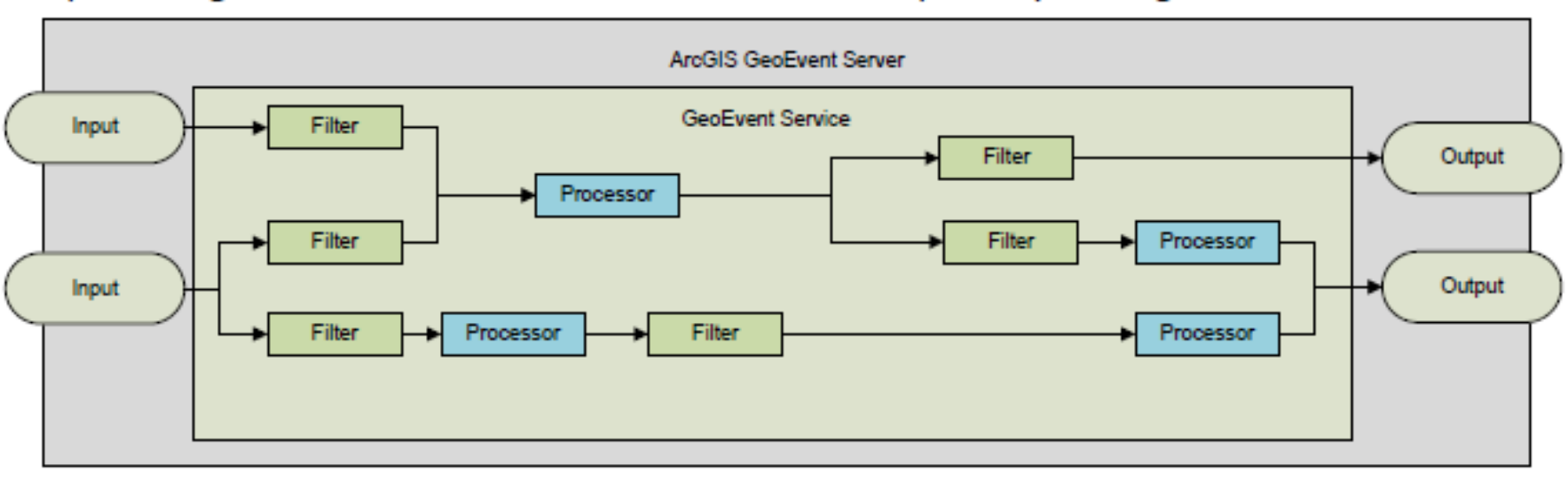
Custom Connectors and REST API

Matthias Schenker

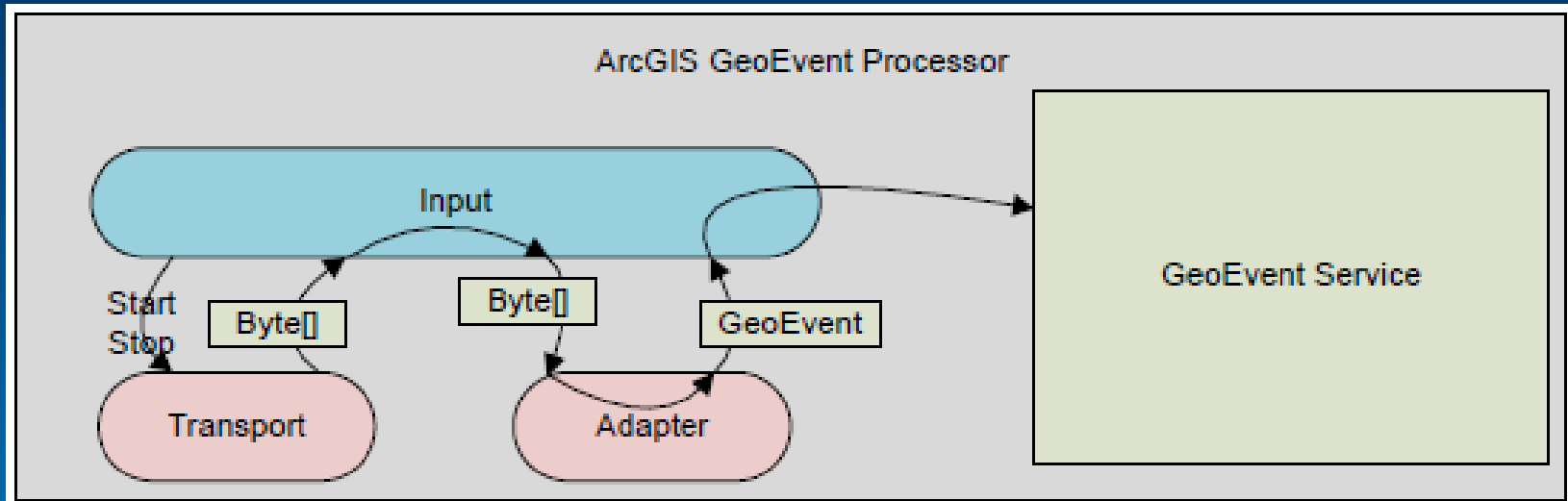
Geoevent Processor SDK

- **Included with the Setup**
- **Contains**
 - **Library files**
 - **Samples**
 - **Javadoc API reference**
 - **Developer Guide**
- **Build**
 - **Processors and Filters**
 - **Adapters**
 - **Transports**

Processors and Filters



Transport and Adapter



- **Transport: Generate raw Events in their native format**
- **Adapter: Generate Goevents out of raw events**

[Create](#) [Cancel](#)

Creating New Connector

Name: *



Label: *



Description:



Type:

 Input Output

Adapter:



Generic-JSON

Transport:



FeatureService

Default Input Name: *



Configure Properties

Shown Properties

- JSON Object Name
- Create GeoEvent Definition
- GeoEvent Definition Name (Existing)
- GeoEvent Definition Name (New)
- Expected Date Format
- Construct Geometry From Fields
- X Geometry Field
- Y Geometry Field
- Z Geometry Field
- wkid Geometry Field
- Well Known Text Geometry Field
- Refresh Interval
- Layer
- Folder
- ArcGIS Server Connection
- Query Definition
- Service Name
- Service Type
- Get Incremental Updates
- Method to Identify Incremental Updates
- Time Field to Identify Incremental Updates
- Delete Pooled Features



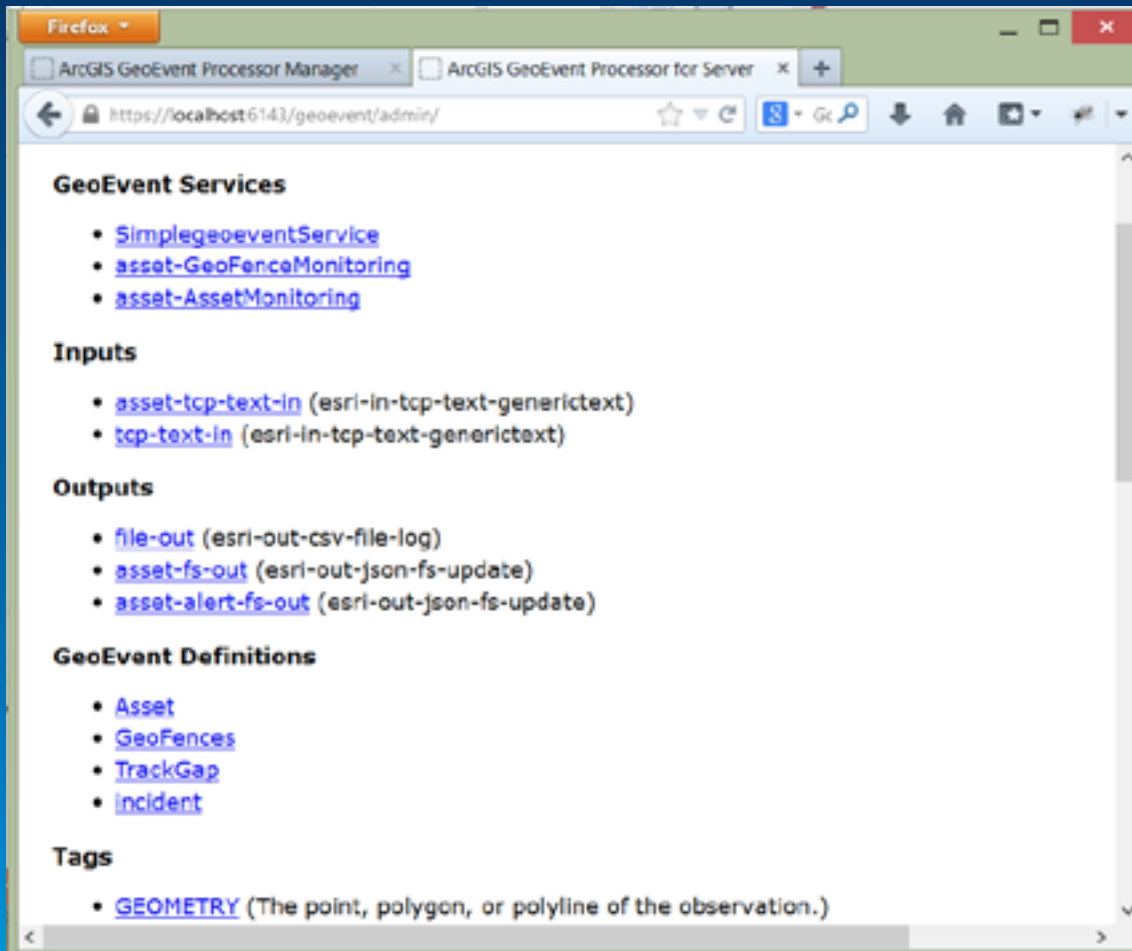
Advanced Properties



Hidden Properties



REST Admin API



[https://\[...\]/geoevent/admin/outputs/](https://[...]/geoevent/admin/outputs/) **CRUD**

[https://\[...\]/geoevent/rest/outputs/](https://[...]/geoevent/rest/outputs/) **Read-Only**

Operations

Administration Task	HTTP Method
▪ Read	GET
▪ Create	POST
▪ Update (or Create)	PUT
▪ Delete	DELETE

- Use e.g. Poster in Firefox

Receive JSON on a REST endpoint



Receive Generic JSON on a REST endpoint

Select

- GeoEvent Receiver
[http://\[...\]/geoevent/rest/receiver/<Input Name>](http://[...]/geoevent/rest/receiver/<Input Name>)

Publish GeoEvents on a REST endpoint



Creates a REST end point that can be used to query GeoEvents. The URL of the REST endpoint will be `http://server:port/geoevent/rest/cache/{output name}?f={text|json|kml|rss}`. For example, if you want to retrieve GeoEvents from an output called `rest-out` in JSON format, the URL would be `http://server:port/geoevent/rest/cache/rest-out?f=json`. Please refer to the tutorial documentation for the parameters of each format.

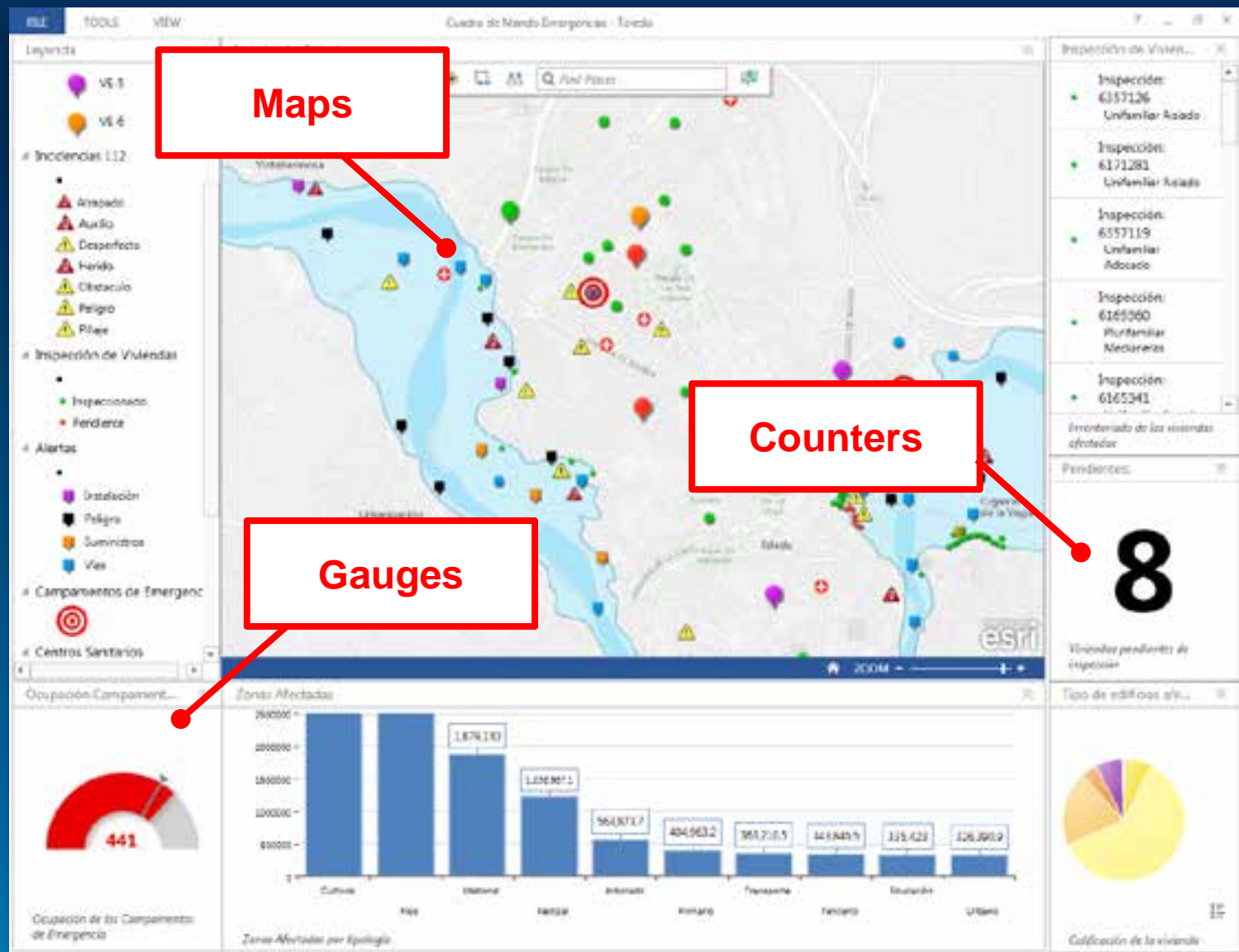
Select

- GeoEvent Cache
[http://\[...\]/geoevent/rest/cache/<Output Name>](http://[...]/geoevent/rest/cache/<Output Name>)

Real-Time Applications

Javier Abadía





Operations Dashboard














Dynamic Data Sources = Automatic Updates

DEMO

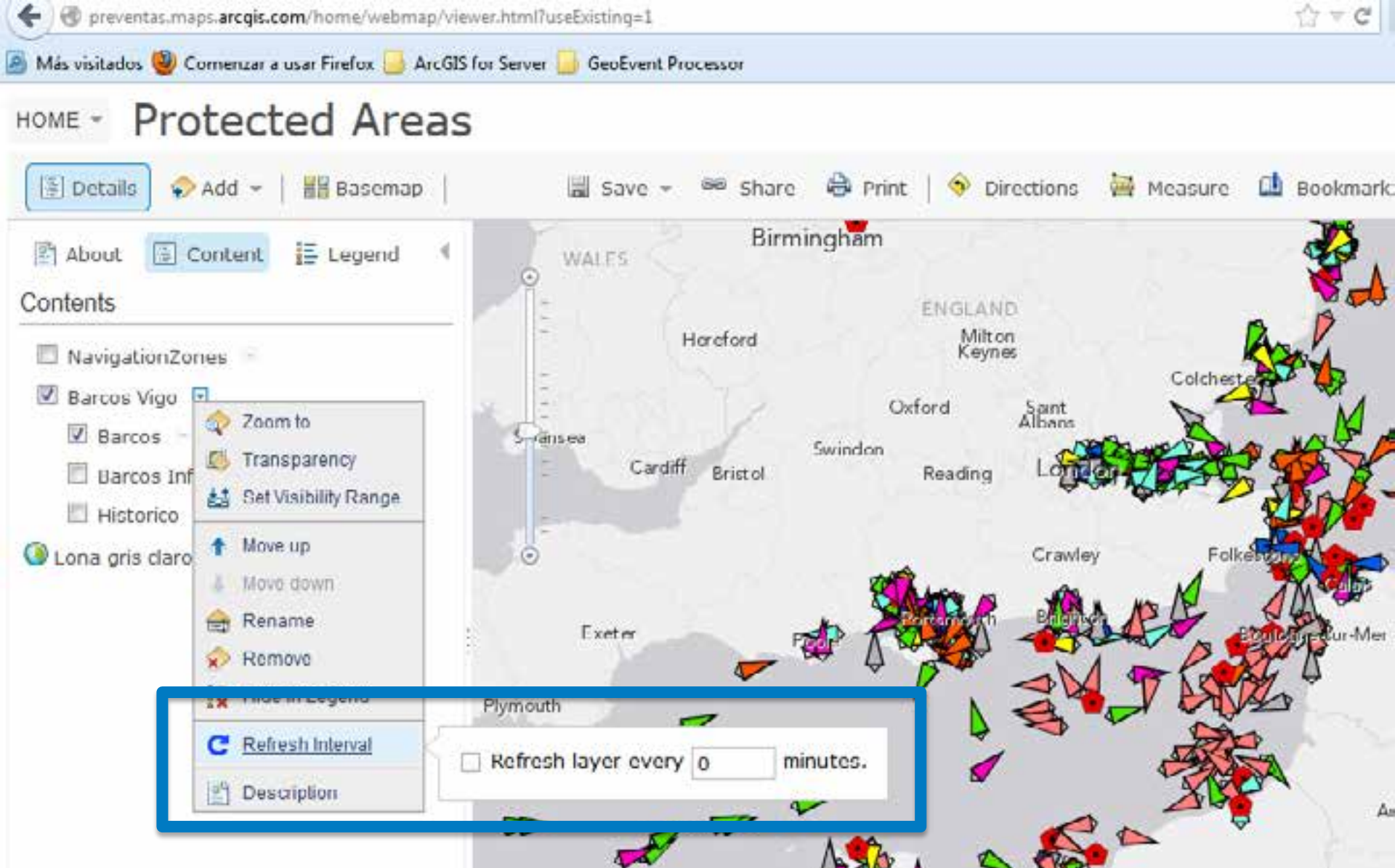
Real Time Dashboard

Add Widget

Select a widget to add to the operation view.

-  **Bar Chart**
Display numeric values as a series of vertical or horizontal bars.
-  **Chat**
Collaborate and communicate with others.
-  **Description**
Displays a description as static text.
-  **Feature Details**
Displays detailed information about a feature or row.
-  **Gauge**
Displays a value as a percentage of a target value.
-  **Histogram**
Graph distributions of values using intervals.
-  **Indicator**
A widget that depicts the state of the value of a certain attribute relative to some target value.
-  **Legend**
A widget that displays the legend of the map.
-  **List**
A widget that displays a collection of features as ordered items.
-  **Map**
A widget that displays the content of a web map with configuration tools.
-  **Pie Chart**
Display numeric values as a pie chart.
-  **Query**
Define a collection of queries to execute.
-  **Summary**
A widget that displays the value of a certain attribute field for a feature, or a summary statistic for a field for a collection of features.

OK



ArcGIS.com viewer

new Refresh Interval parameter

- < Hide Table of Contents
- API Reference Overview
- Code Assist Plugins
- Preferred Argument
- Allascs
- esri
 - Credential
 - Graphic
 - IdentityManager
 - IdentityManagerBase
 - IntoTemplate
 - InfoWindowBase
 - Map
 - OperationBase
 - ServerInfo
 - SnappingManager
 - SpatialReference

```
layer.setOpacity(0.5);
```

setRefreshInterval(interval)

Changes the layer's refresh interval to the given value (in minutes). Non-zero value sets up automatic layer refresh at the specified interval. Value of 0 stops auto refresh. *(Added at v3.7)*

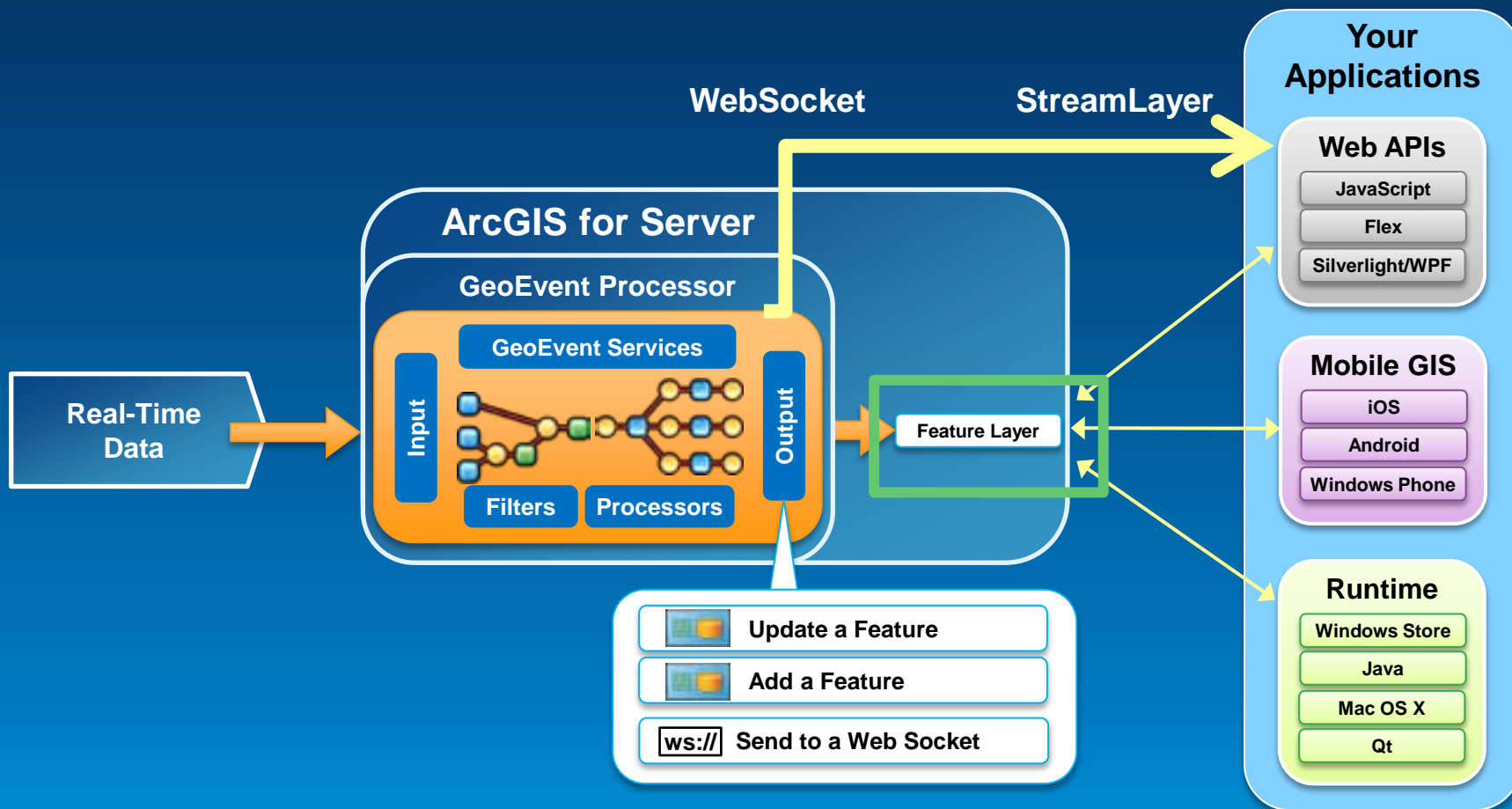
Return Value: [Layer](#)

Input Parameters:

<Number> interval	Required	Refresh interval of the layer in minutes. Non-zero value indicates automatic layer refresh at the specified interval. Value of 0 indicates auto refresh is not enabled.

Javascript API

★ setRefreshInterval() (v3.7)
StreamLayer (v3.6)



Javascript API

setRefreshInterval() (v3.7)
 ★ StreamLayer (v3.6)