

**2013 Esri Europe, Middle East,
and Africa User Conference**

October 23-25, 2013 | Munich, Germany

ArcGIS GeoEvent Processor An Introduction

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GIS Data

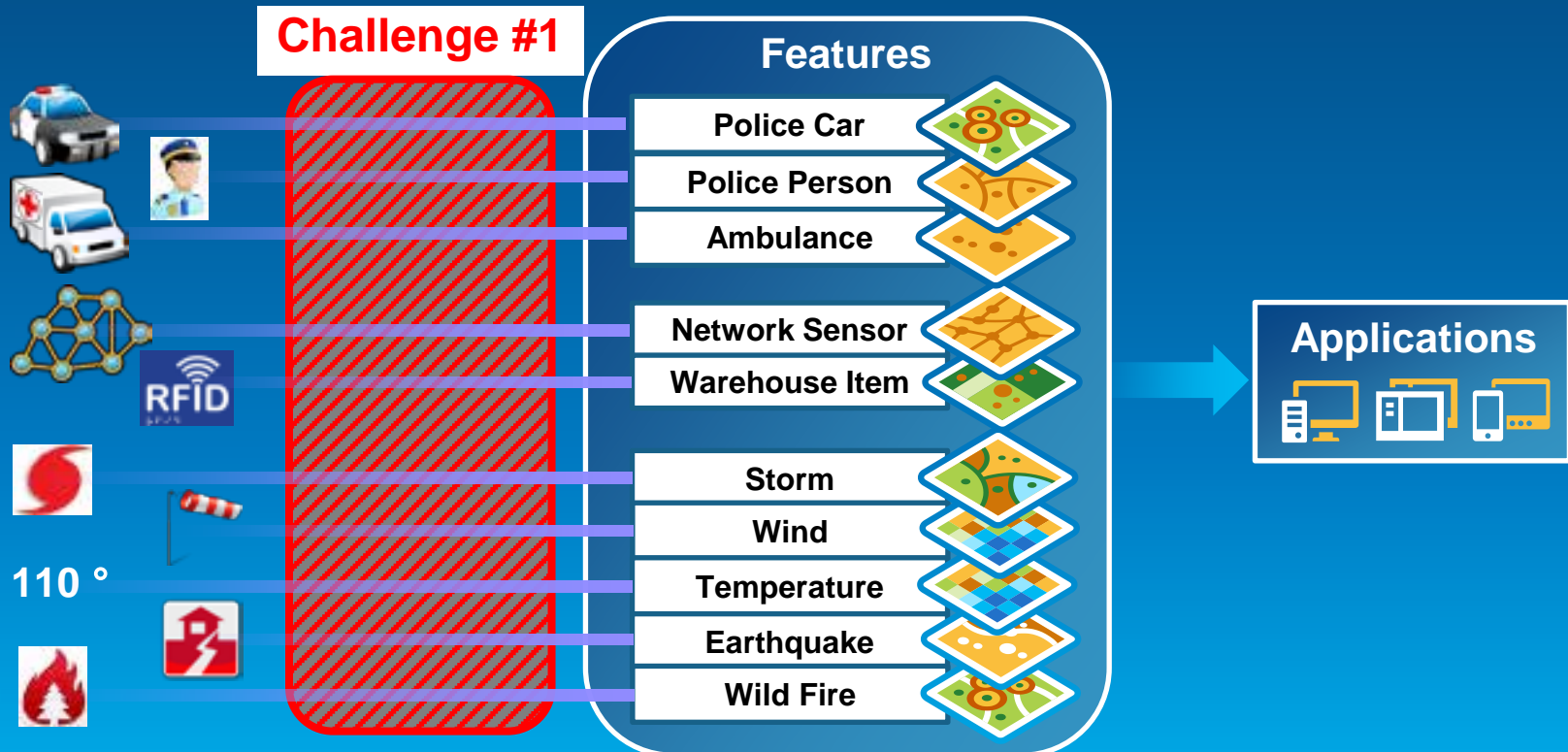
- GIS data typically represents state at a specific moment in time: “historic”, “current”, or “future”.



Credit: iStockphoto/chris_lemmens

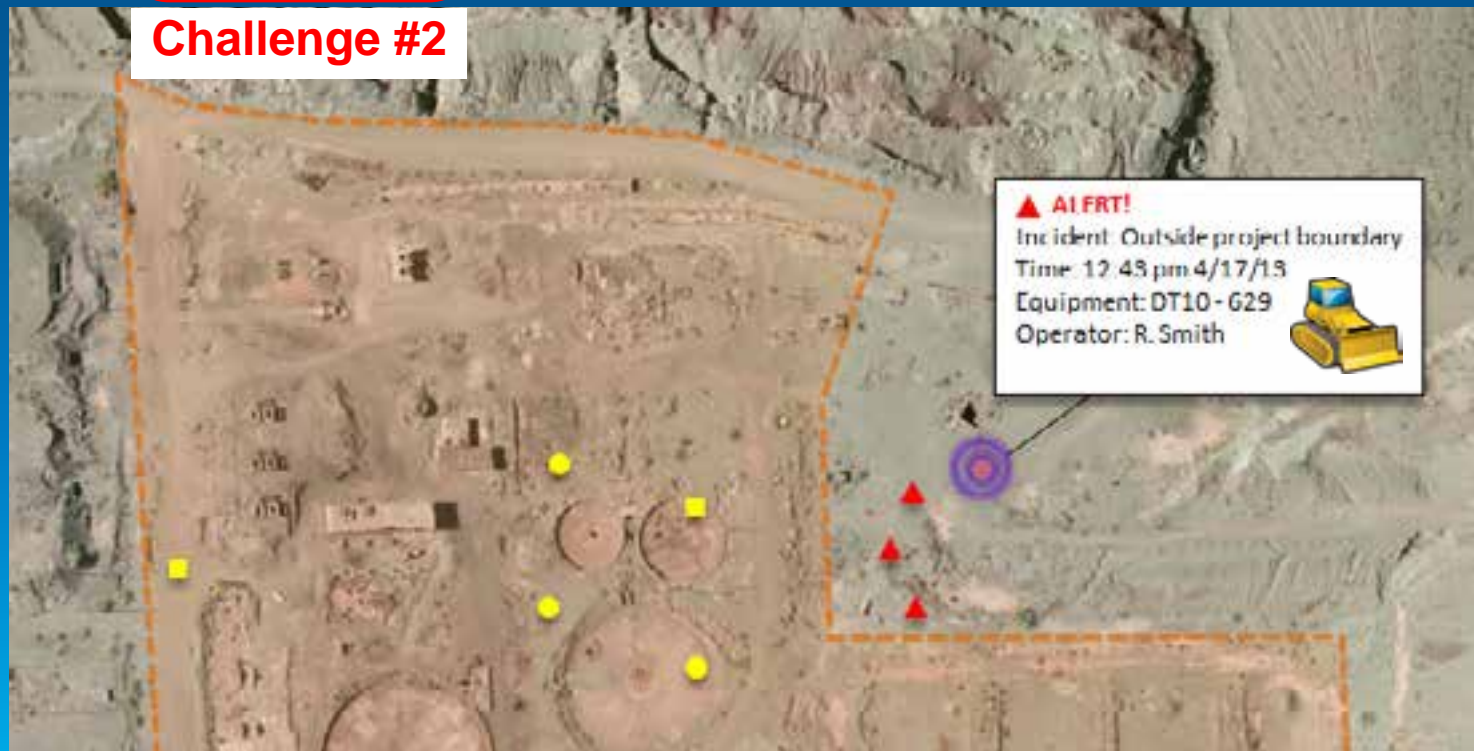
Real-time GIS Data

- Real-time GIS data is a continuous stream of events flowing from sensors where each event represents the latest state of the sensor.
 - Emergency Response
 - Utility Networks and Warehouses
 - Environmental



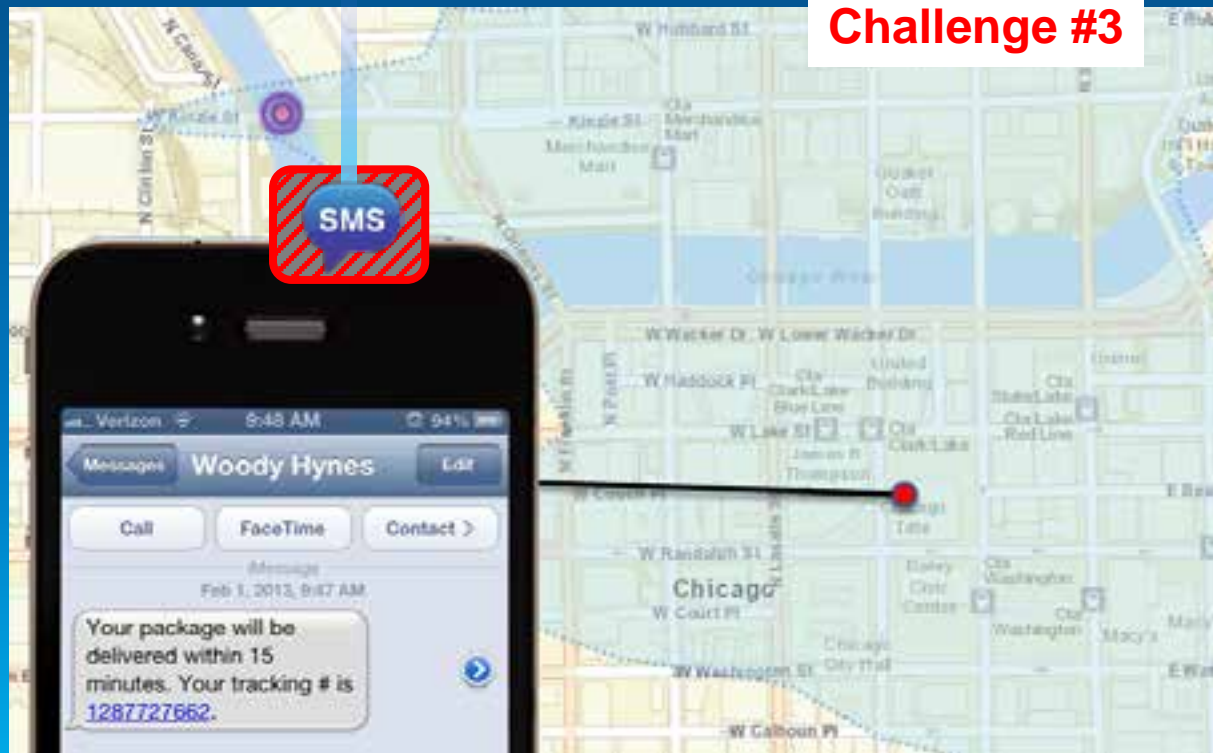
Real-time Analytics

- Are my field personnel working within the designated project area?



Real-time Notifications and Alerting

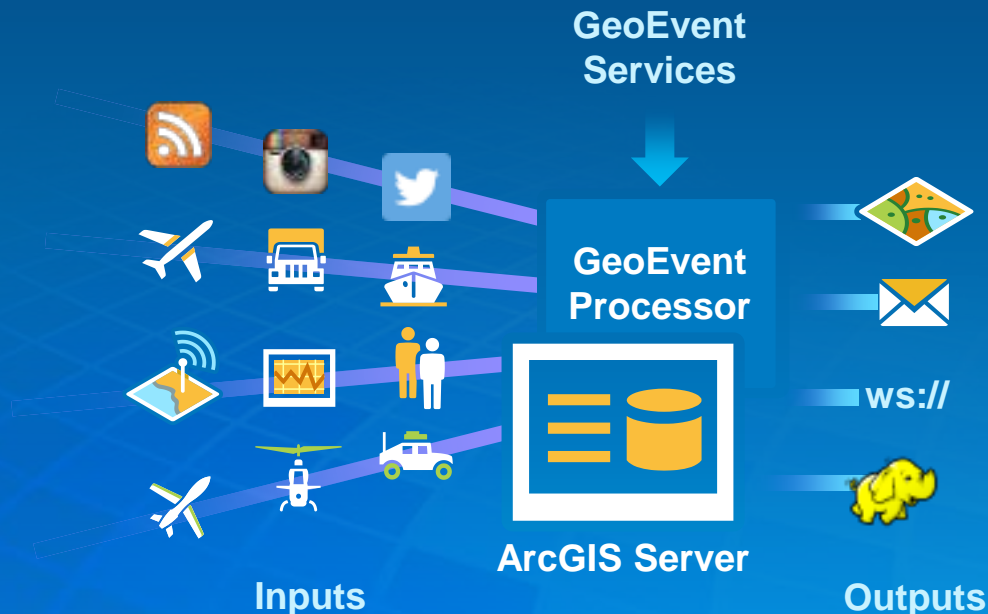
- Tell customer when their delivery truck is 15 minutes away.



ArcGIS GeoEvent Processor for Server

Integrates and Exploits real-time data

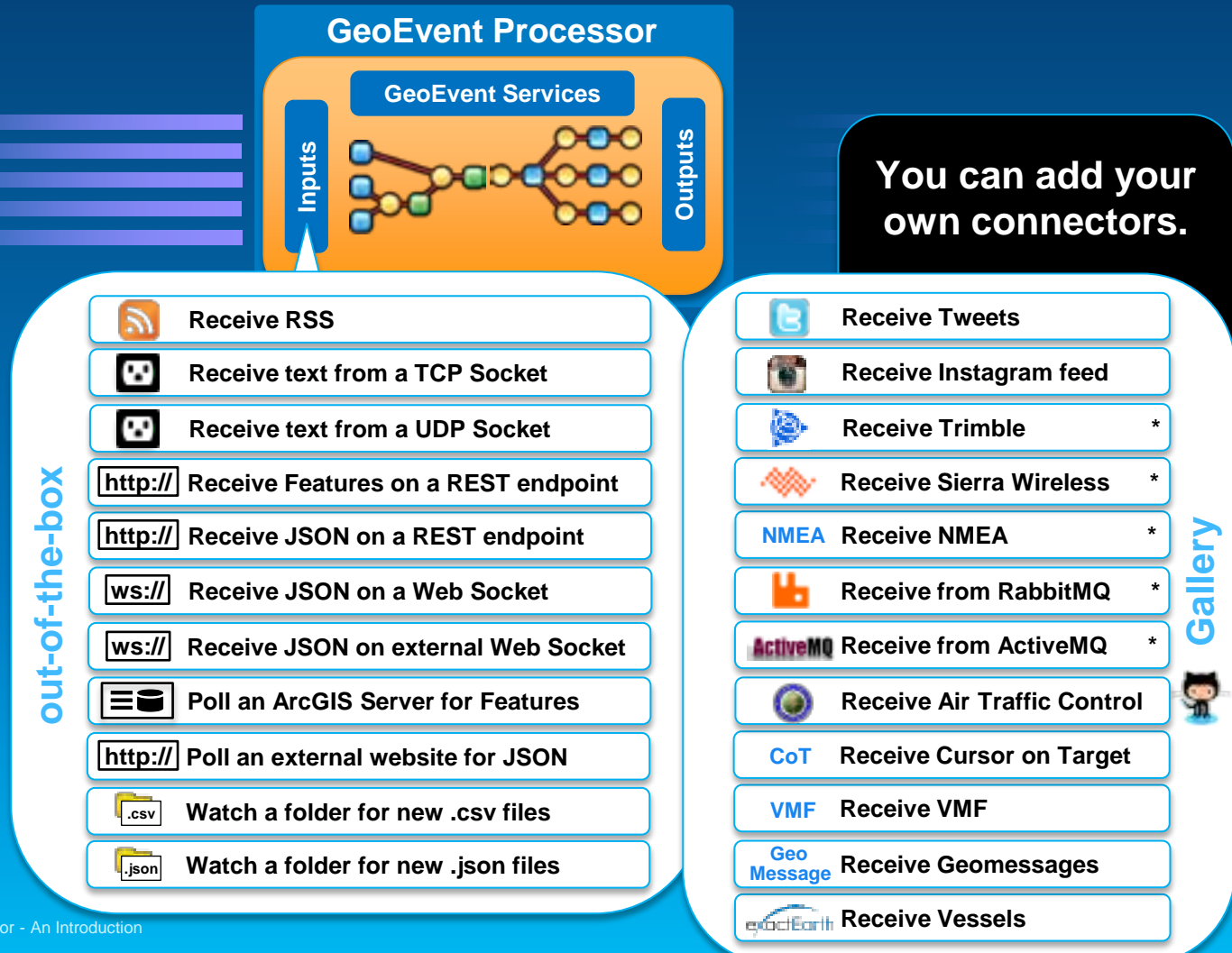
- Integrates real-time streaming data into ArcGIS
- Performs continuous processing and real-time analytics
- Sends updates and alerts to those who need it where they need it



Working with real-time data

Receiving real-time data

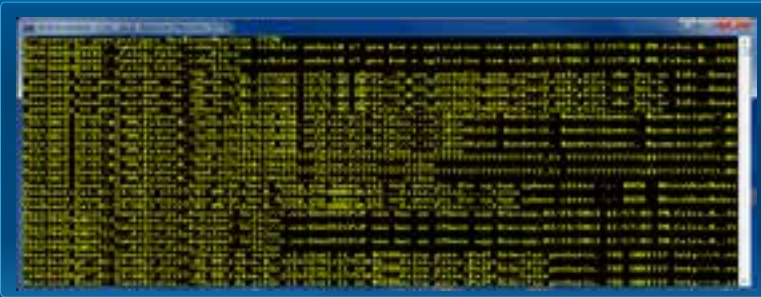
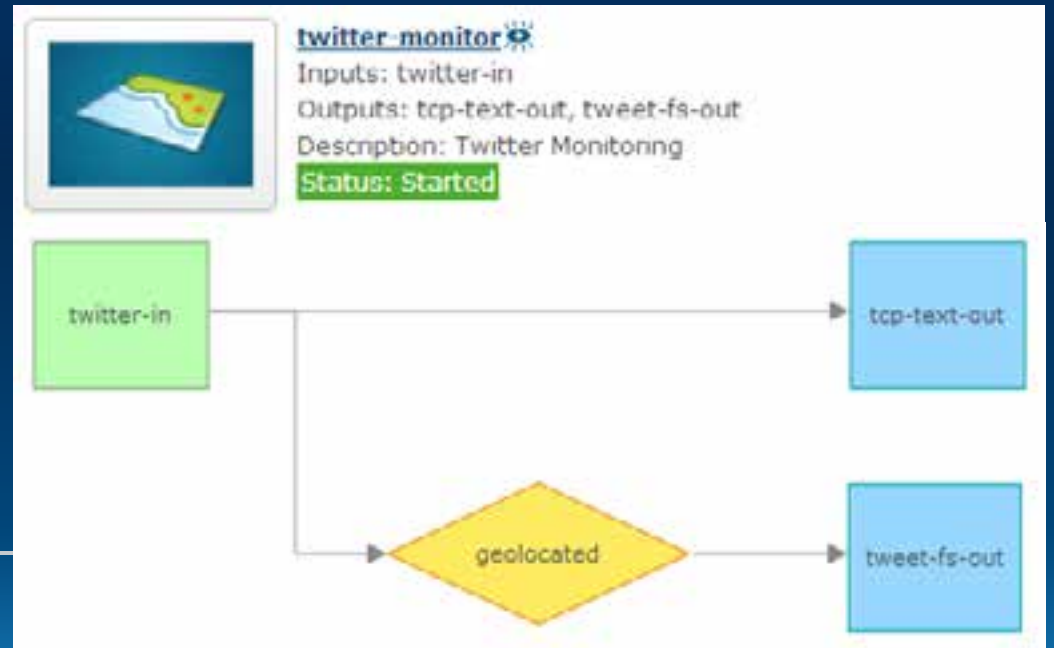
- You can easily integrate real-time streaming data with ArcGIS by using an input **connector**.



Demo

Demonstration

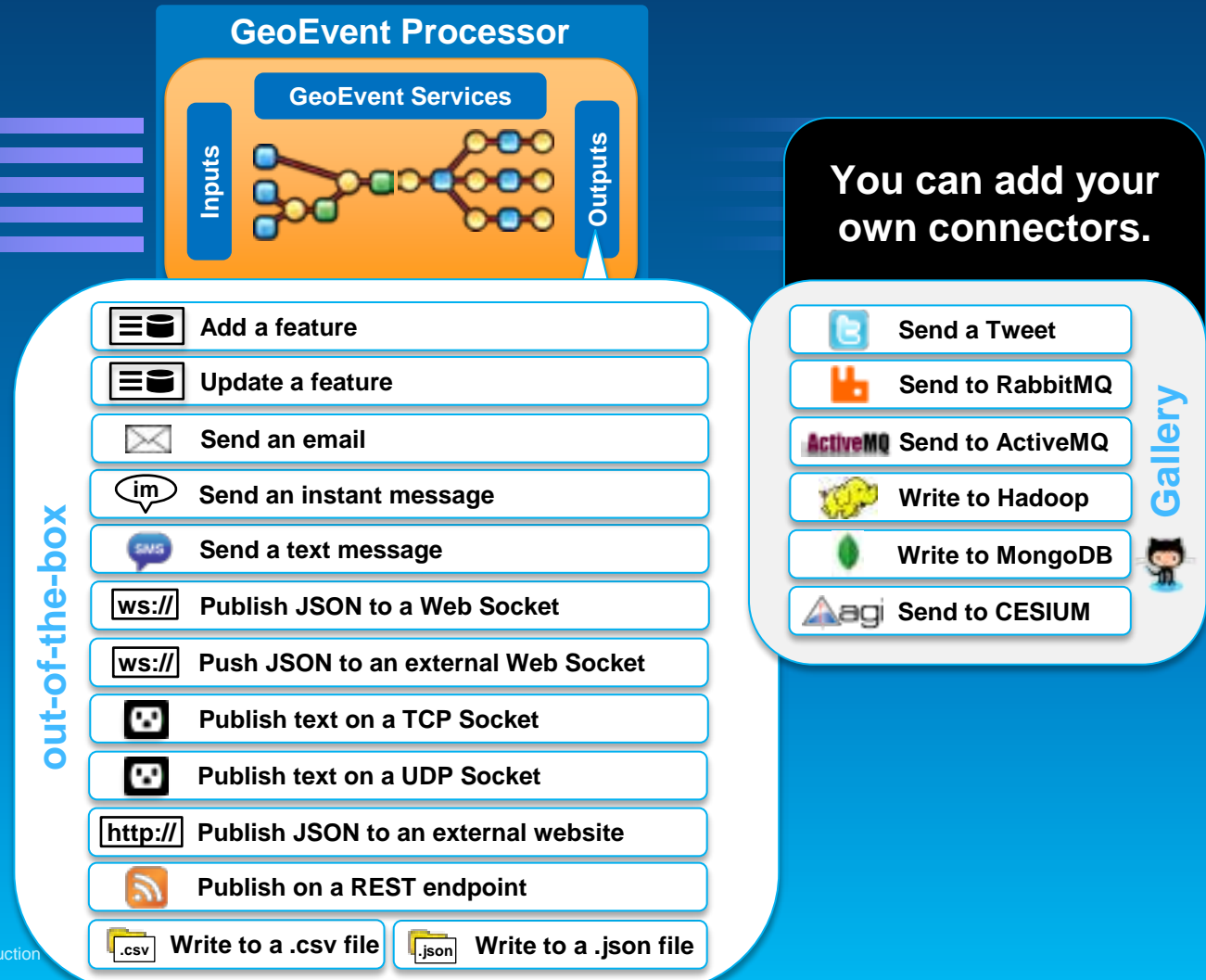
Social monitoring



Name	Status	Count	Rate (over last 5 mins)	Max Rate	Time Since Last
tweet-fs-out	STARTED	40	0.39 /sec	0.64 /sec	00:00:00
tcp-text-out	STARTED	6566	64.37 /sec	65.07 /sec	00:00:00

Sending real-time data

- You can easily send updates and results to those who need it where they need it using an output **connector**.



Sending real-time data to features

Using local feature services

Your Dashboards

Operations Dashboard
for ArcGIS

ArcGIS Online /
Portal for ArcGIS

operation view
web map

Your Applications



JavaScript

Flex

Silverlight/WPF

iOS

Android

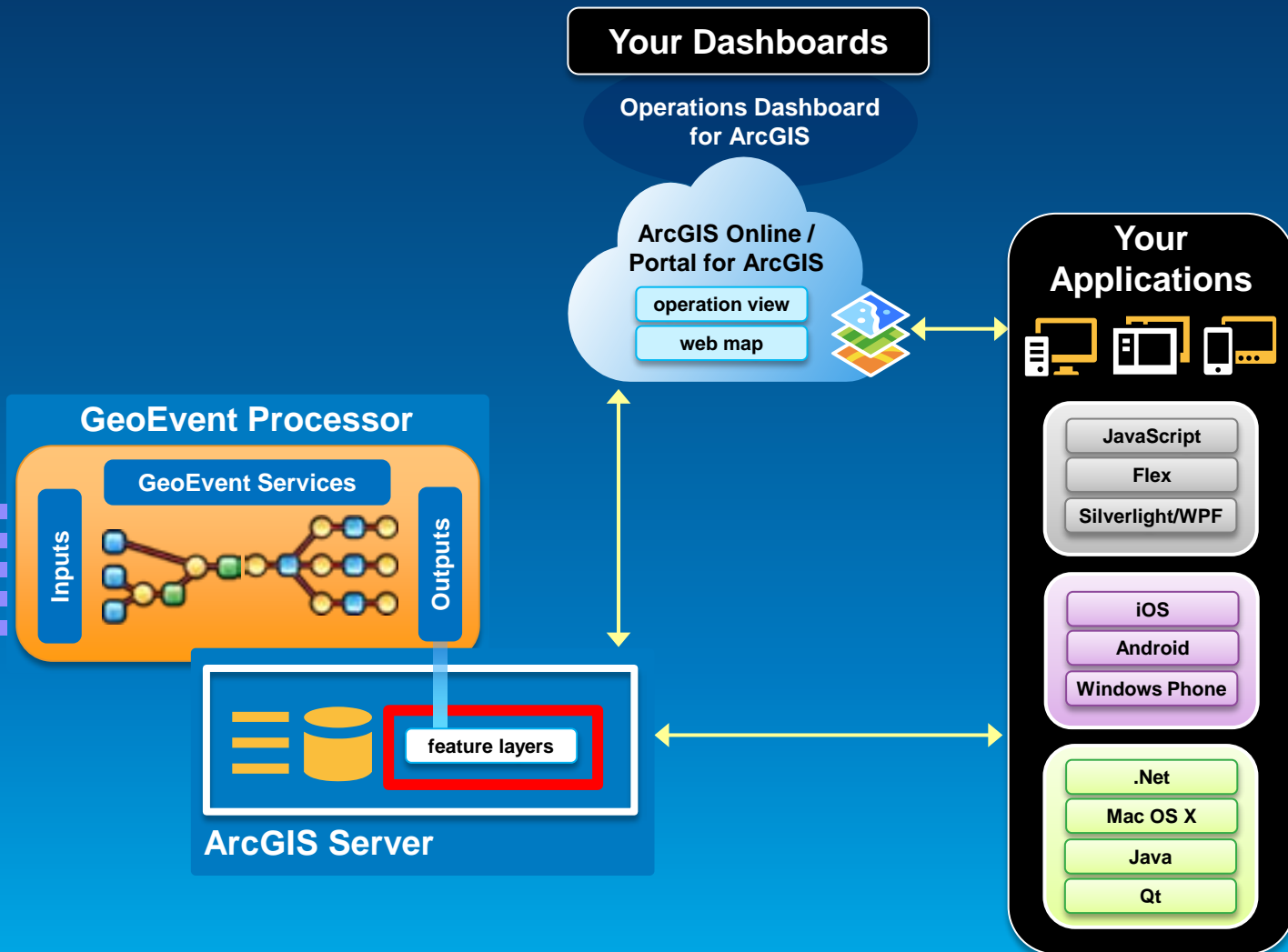
Windows Phone

.Net

Mac OS X

Java

Qt



Sending real-time data to features

Using remote feature services

Your Dashboards

Operations Dashboard
for ArcGIS

ArcGIS Online /
Portal for ArcGIS

operation view
web map

Your Applications



JavaScript

Flex

Silverlight/WPF

iOS

Android

Windows Phone

.Net

Mac OS X

Java

Qt

GeoEvent Processor

GeoEvent Services

Inputs

Outputs



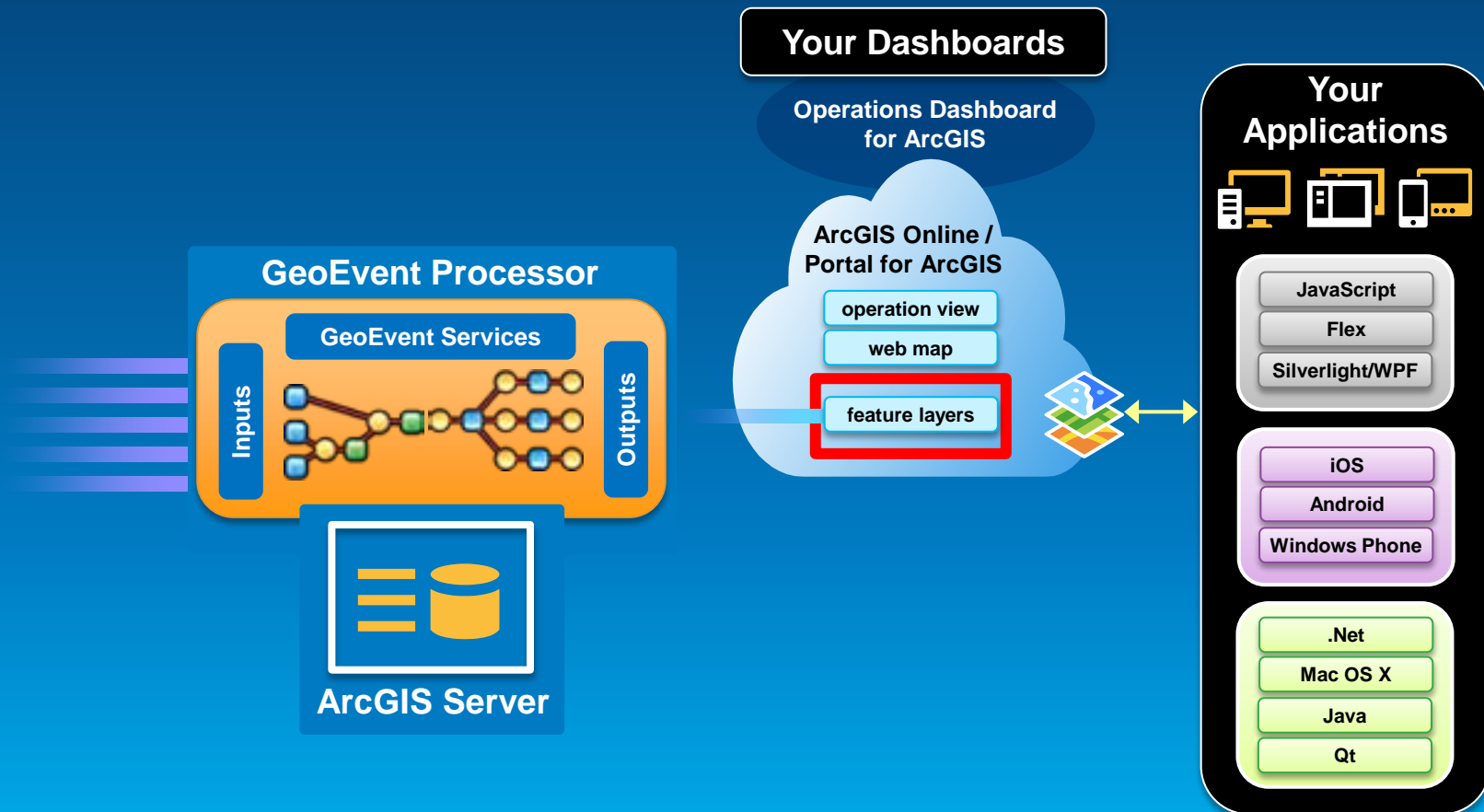
ArcGIS Server

feature layers

ArcGIS Server

Sending real-time data to features

Using ArcGIS Online / Portal for ArcGIS feature services

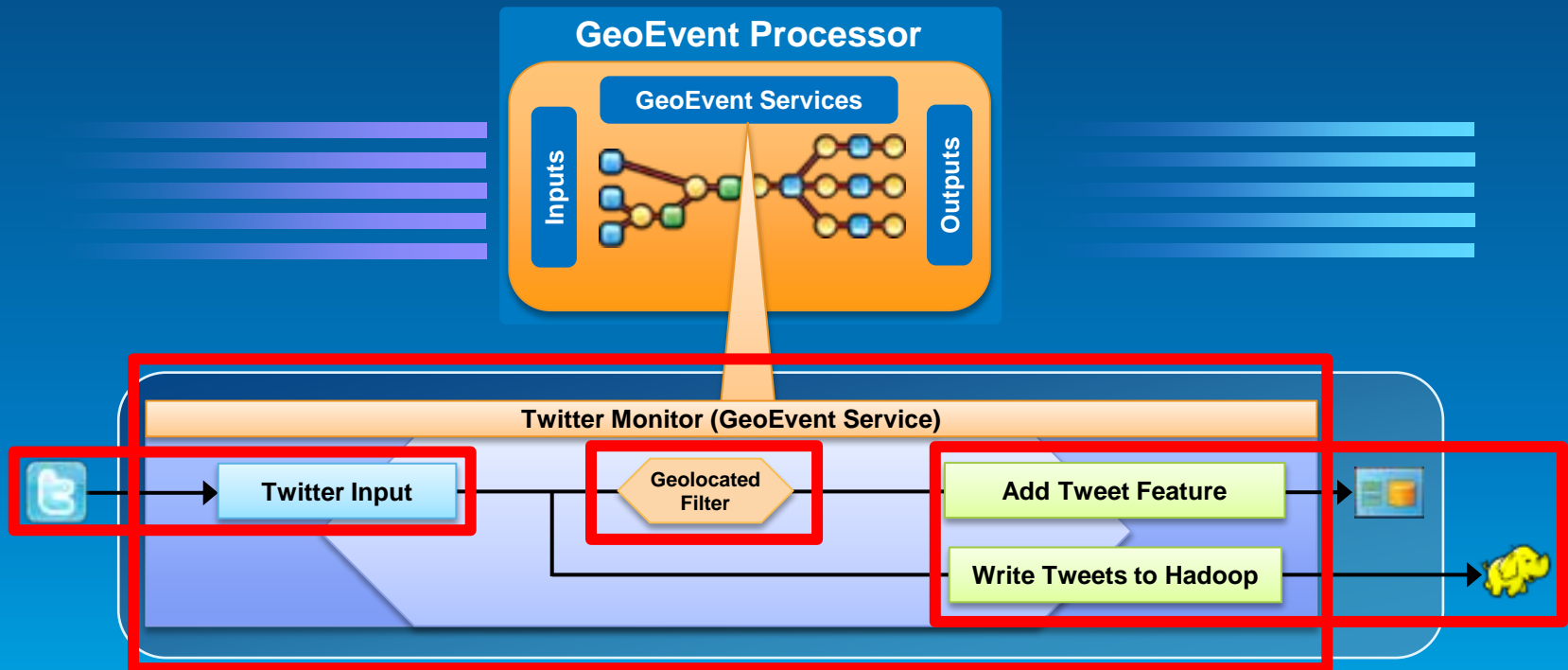


Performing continuous processing and real-time analytics

Continuous processing and analytics

GeoEvent Services

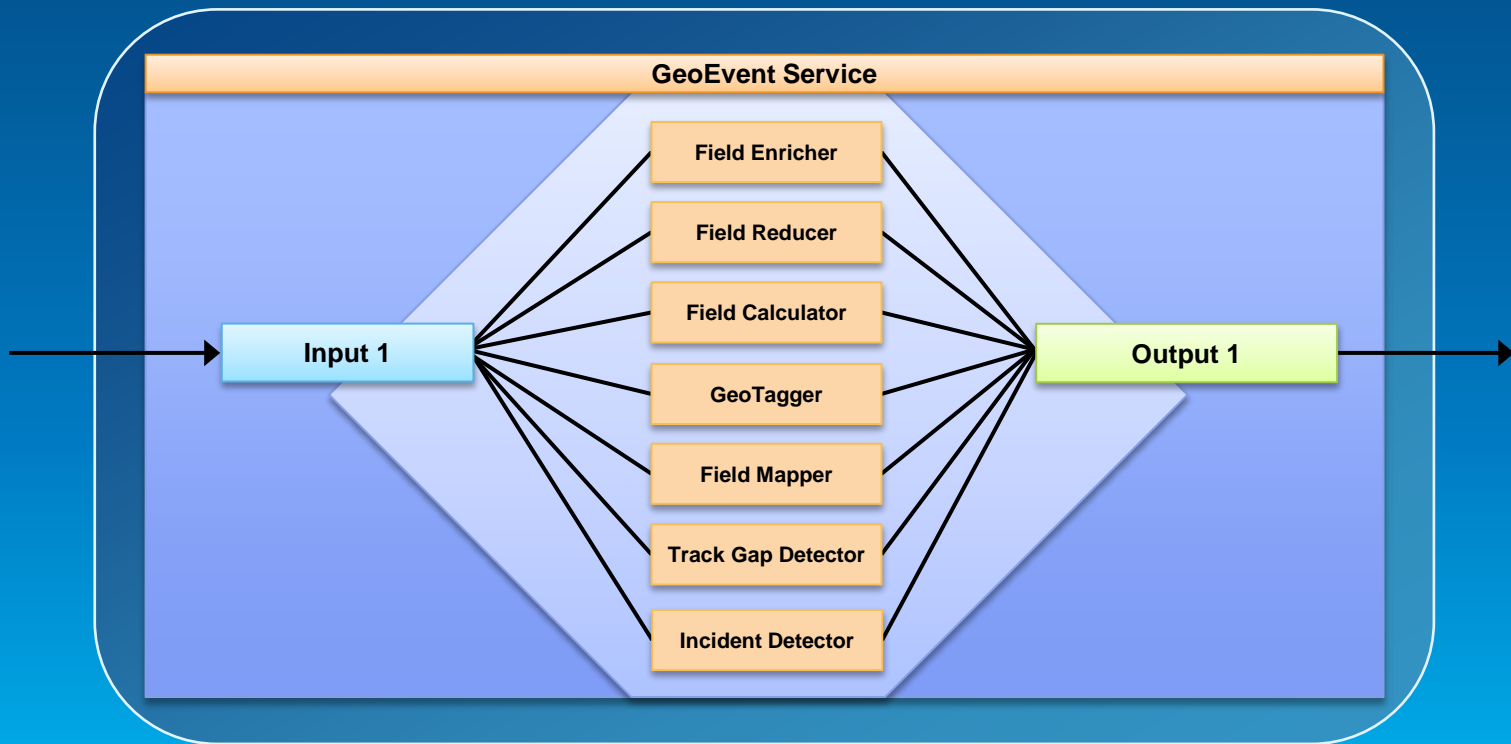
- A **GeoEvent Service** configures the flow of GeoEvents,
 - the **Filtering** and **GeoEvent Processing** steps to perform,
 - what input(s) to apply them to,
 - and what outputs(s) to send the results to.



Continuous processing and analytics

Processors

- Modify a geoevent: **Field Enricher, Field Reducer**
- Calculate new fields on a geoevent: **Field Calculator, GeoTagger**
- Derive geoevent: **Field Mapper, Track Gap Detector, Incident Detector**

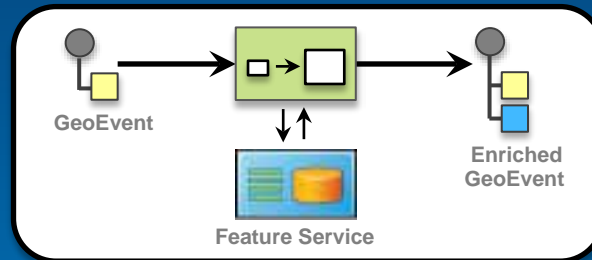


Continuous processing and analytics

Processors – modify a geoevent

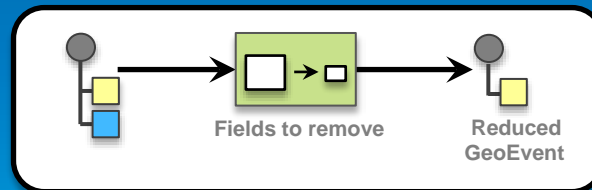
- A **Field Enricher** processor

- enriches the **geoevent** with new fields derived from a data source: feature service or file.



- A **Field Reducer** processor

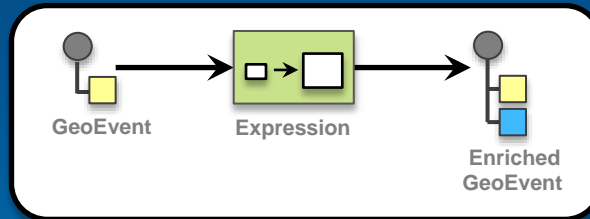
- removes fields from a **geoevent**.



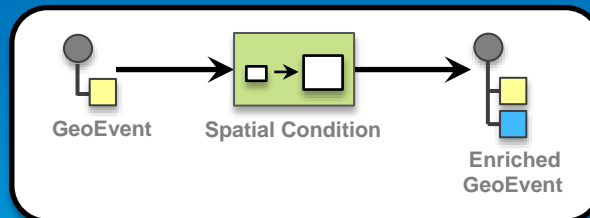
Continuous processing and analytics

Processors – calculate new fields on a geoevent

- A **Field Calculator** processor uses an expression to
 - calculate a new field or update an existing field.
 - Expressions can be mathematical expressions or regular expressions.



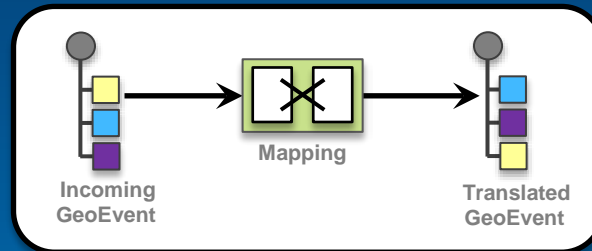
- A **GeoTagger** processor
 - uses a spatial condition to tag the event with related geometries.



Continuous processing and analytics

Processors – derive a new geoevent

- A **Field Mapper** processor
 - translates from one geoevent format to another.



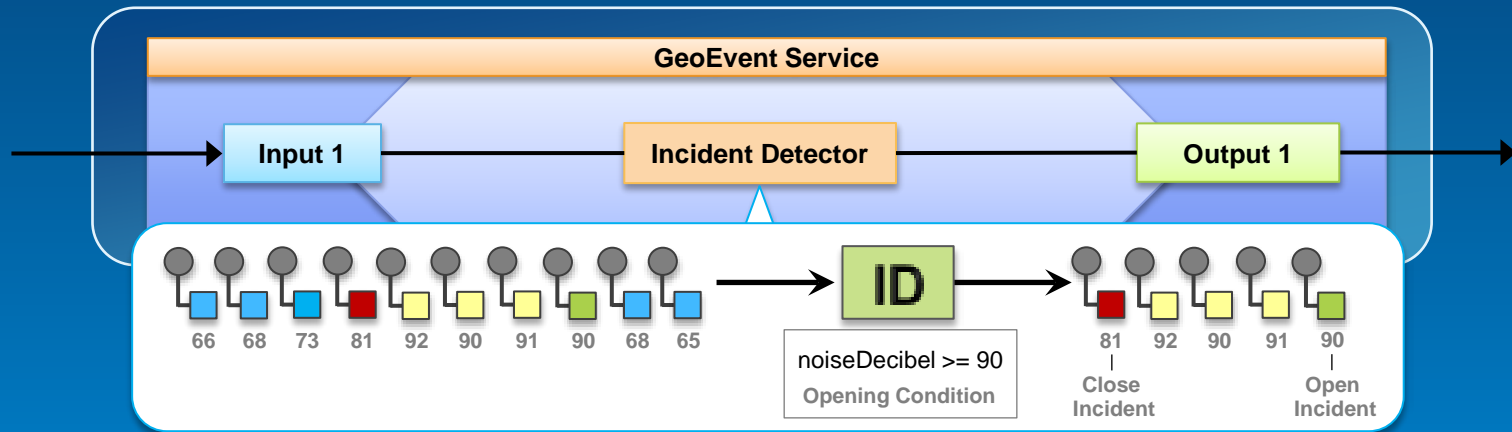
- A **Track Gap Detector** processor
 - Detects the absence of events and alerts about the situation.

Continuous processing and analytics

Processors – derive a new geoevent

- An **Incident Detector** processor

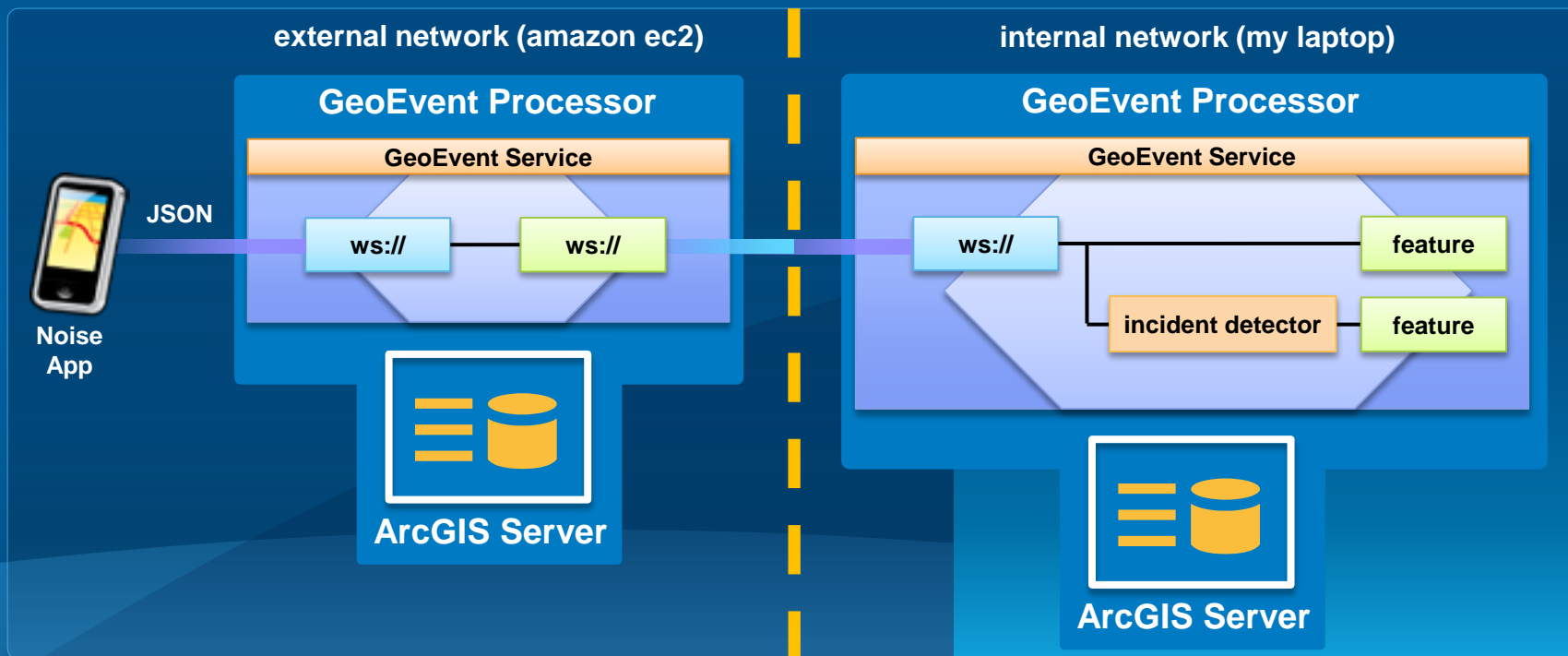
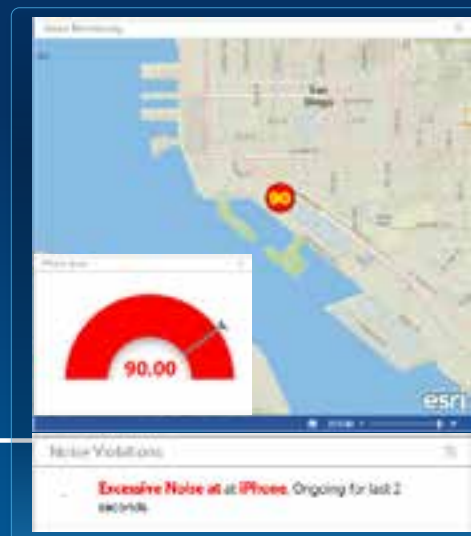
- creates an incident upon an opening condition being met,
- maintains state for the duration of the incident,
- closes the incident based on a closing condition or expiration.



Demo

Demonstration

Noise violation alerting



Solutions and sample applications

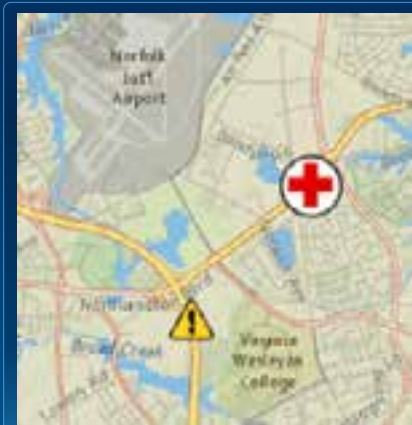
Applying real-time GIS

- A number of **sample applications** and **solutions** leverage GeoEvent Processor to enable real-time GIS capabilities within them including:
 - **Defense and Intelligence:** <http://resources.arcgis.com/en/communities/defense-and-intelligence/>
 - ArcGIS for the Military
 - ArcGIS for the National Guard
 - ArcGIS for Intelligence
 - **Asset Monitor**
 - **Route Monitor**





Demonstration

Ambulance monitoring



Alerts

-  AMB-15 is approaching Hospital. Started at Sun Mar 24 02:19:00 PDT 2013
-  AMB-15 is inside a Dangerous area. Ended at Sun Mar 24 01:56:00 PDT 2013 and lasted for 13 minutes.
-  AMB-15 is speeding. Ended at Sun Mar 24 01:25:00 PDT 2013 and lasted for 8 minutes.



ArcGIS GeoEvent Processor – An Intro

Summary

- ArcGIS is a dynamic platform that enables real-time visualization and continuous analytics to better understanding of our world.
- GeoEvent Processor allows you to:
 - be alerted when interesting events occur
 - react and make smarter decisions faster
 - to know what is happening, as it happens
- To learn more, visit the tutorials in the Gallery:
 - <http://pro.arcgis.com/share/geoevent-processor>



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Understanding our world.

<http://pro.arcgis.com/share/geoevent-processor>