



Using ArcGIS GeoEvent Processor for Server *to Power Real-Time Applications*

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GeoEvent Processor – An Introduction

Agenda

- Real-time GIS Overview
- Working with Real-time Data
- Performing Continuous Processing and Analysis

Real-time GIS Overview

GIS Data

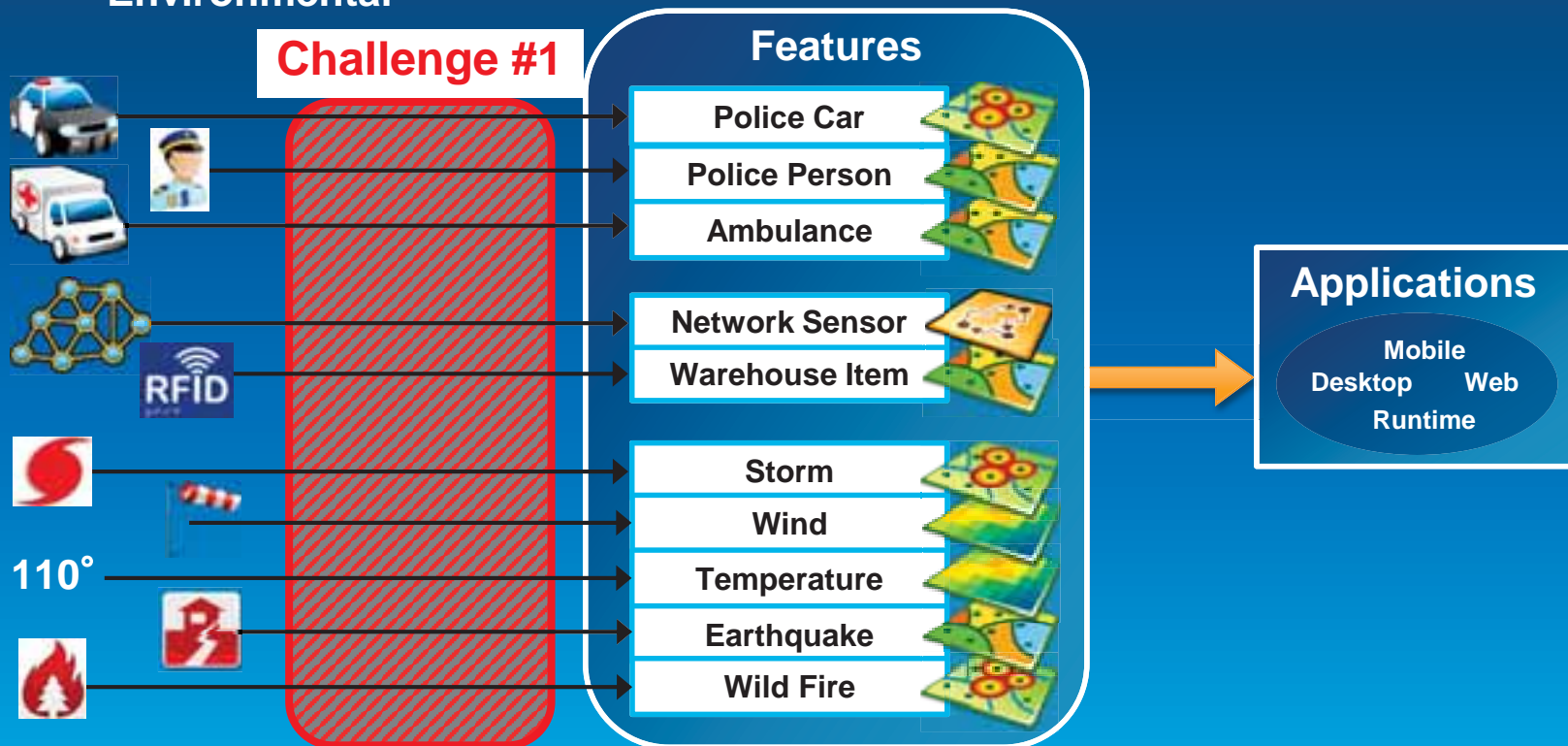
- GIS data typically represents state at a specific moment in time: “historic”, “current”, or “future”.



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

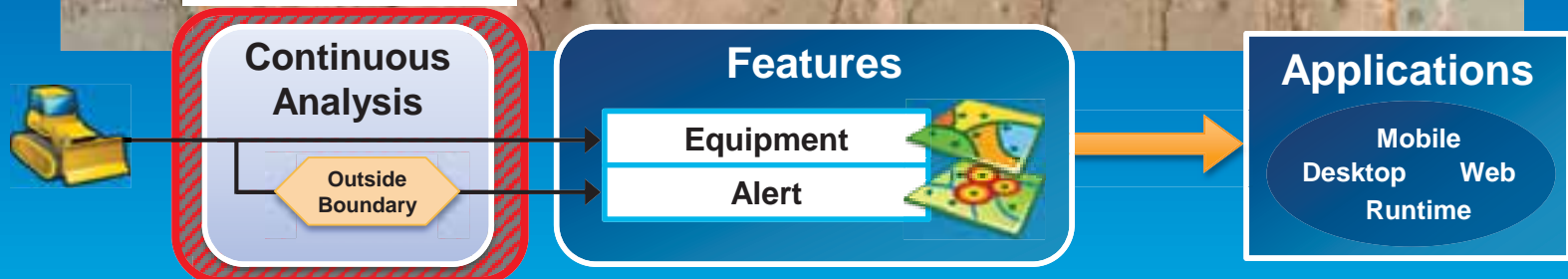


Analyzing Real-time GIS Data

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

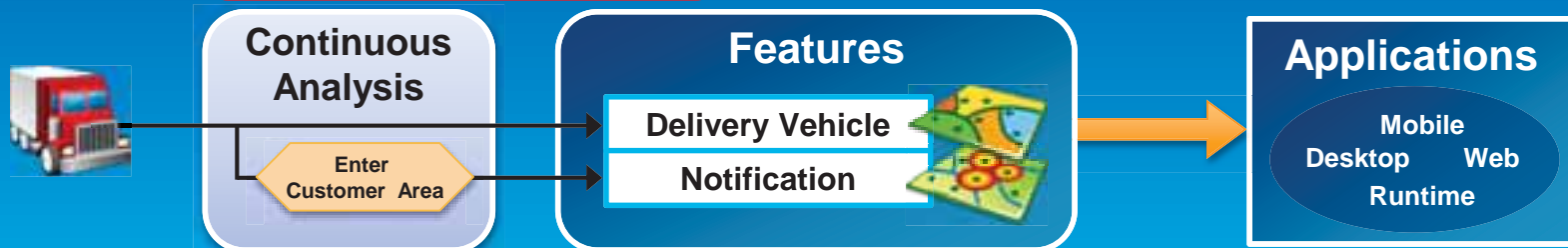
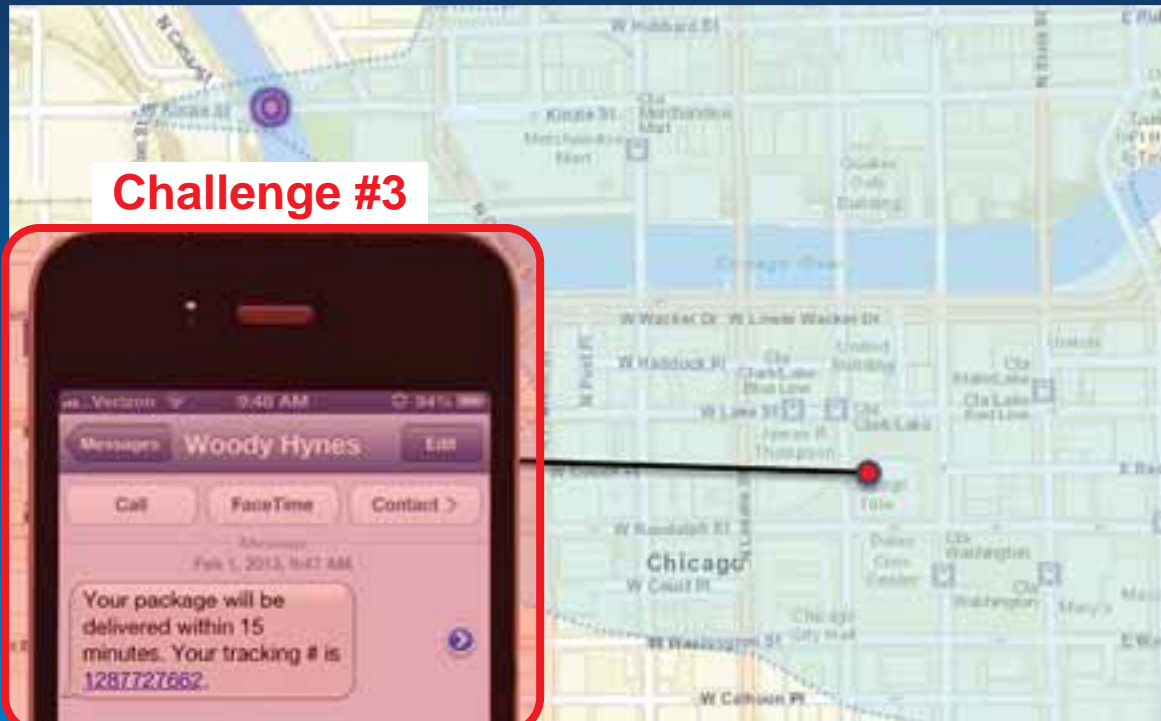


Challenge #2

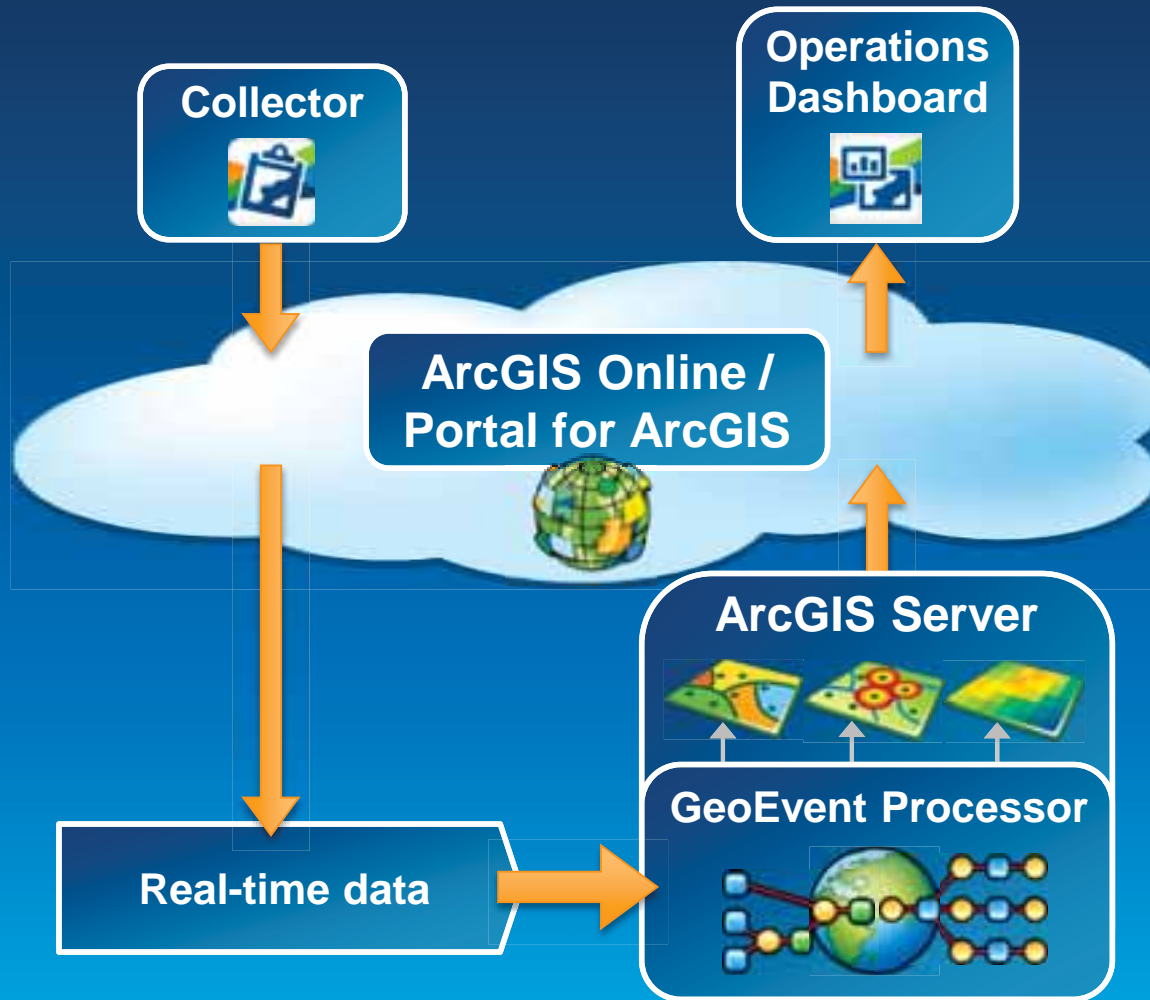


Analyzing Real-time GIS Data

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

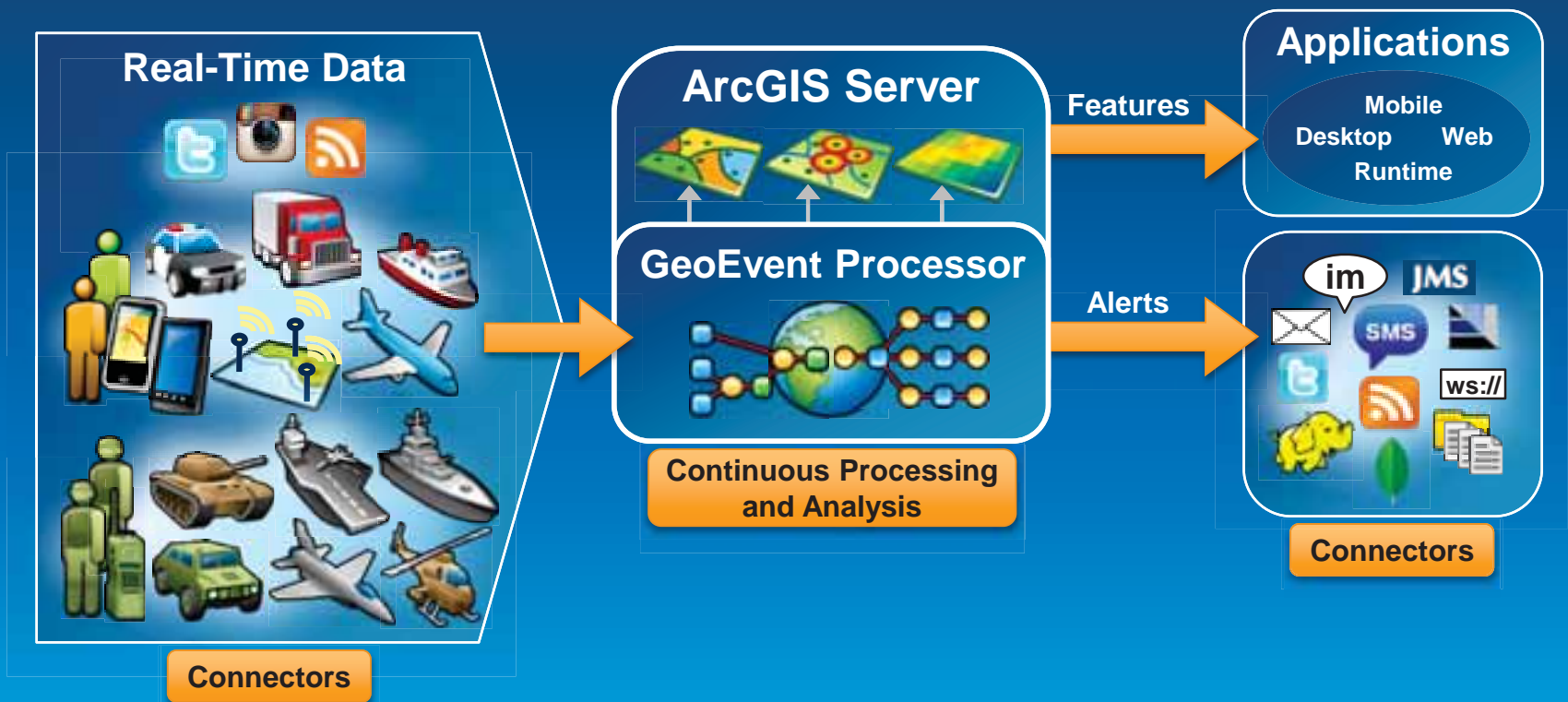


ArcGIS Supports Real-time GIS



ArcGIS GeoEvent Processor for Server

- Receives real-time streaming data
- Performs continuous processing and analysis
- Sends updates and alerts to those who need it where they need it

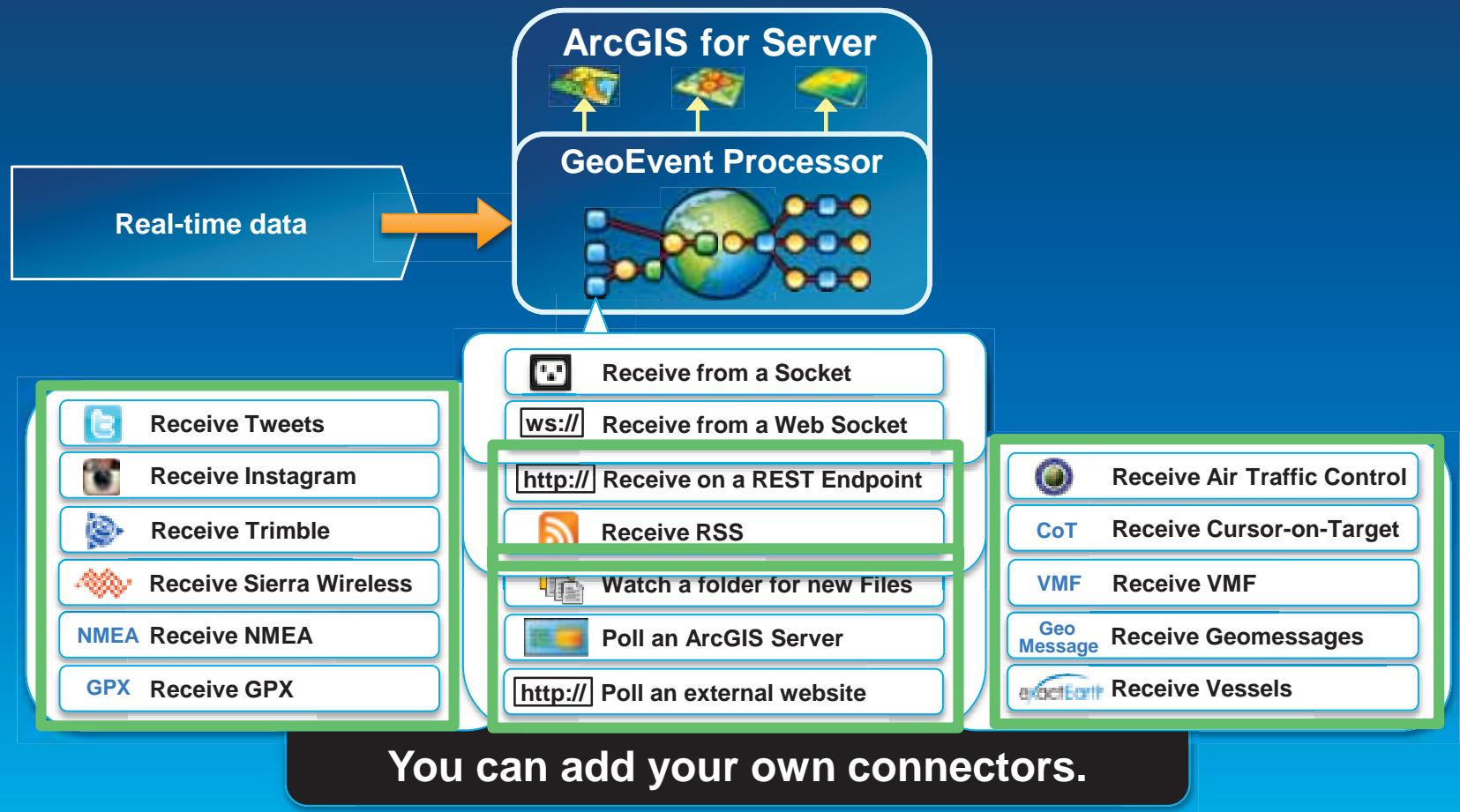


Working with Real-time Data

Receiving Real-time Data

Input Connectors

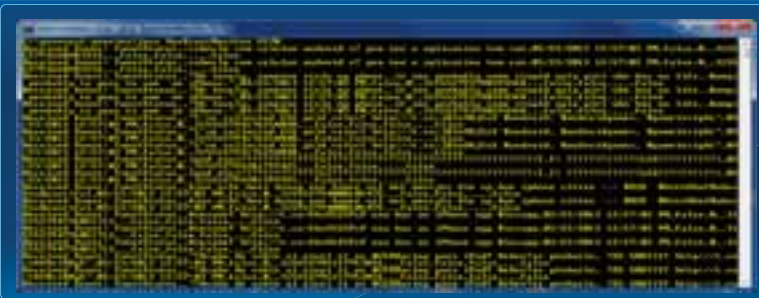
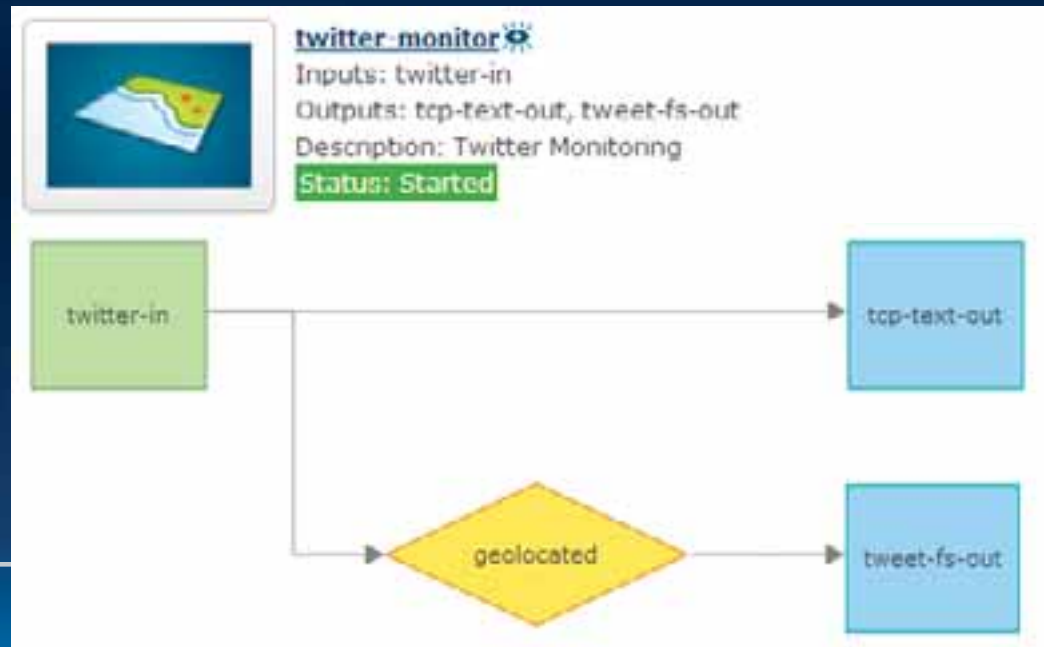
- You can easily integrate real-time data with ArcGIS by using a **connector** that meets your needs.





Demo

Demonstration

Twitter Monitoring

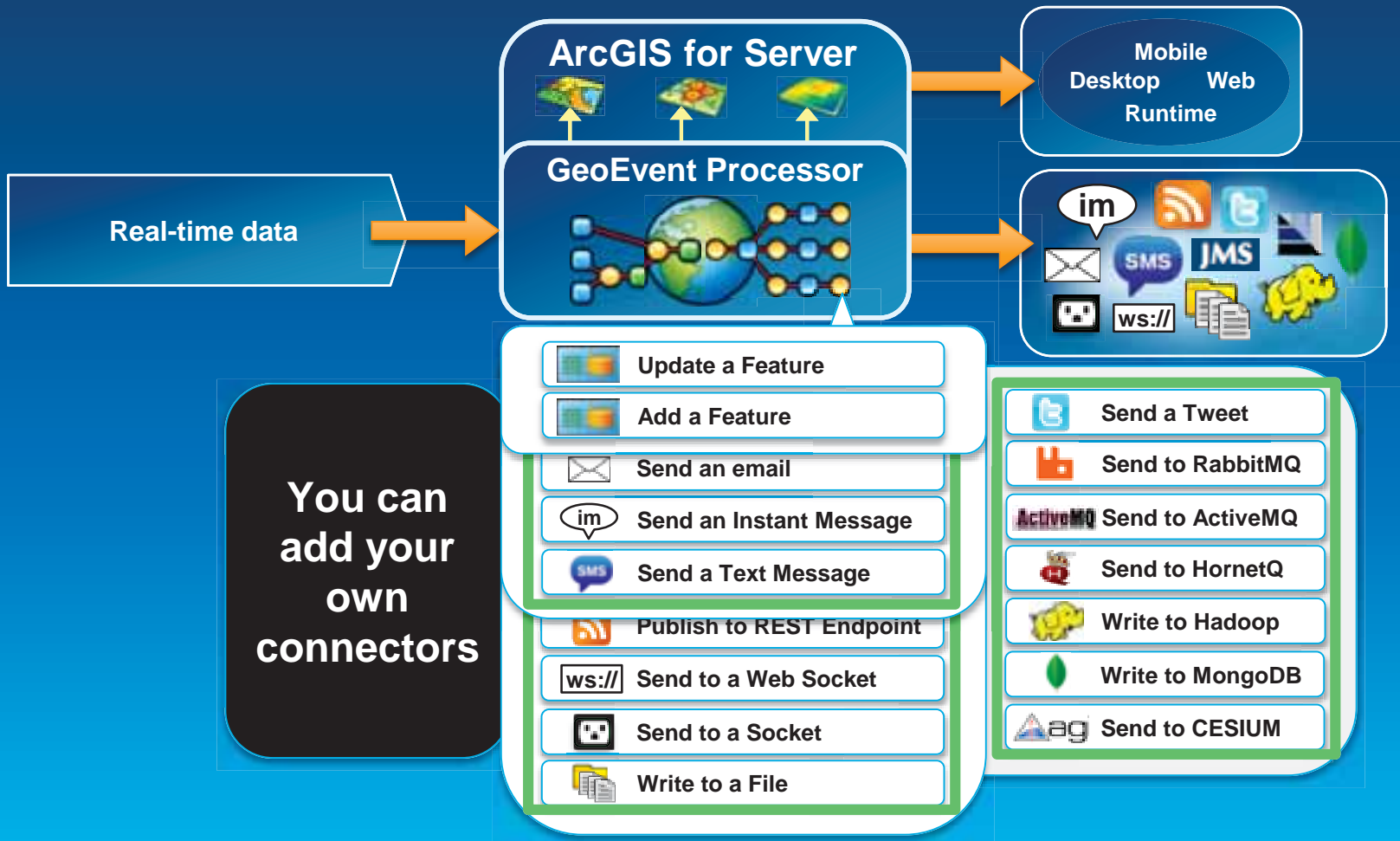


Name	Status	Count	Rate (over last 5 mins)	Max Rate	Time Since Last
tweet-fs-out	STARTED	40	0.39 /sec	 0.64 /sec	00:00:00
tcp-text-out	STARTED	6566	64.37 /sec	 65.07 /sec	00:00:00

Sending Real-time Data

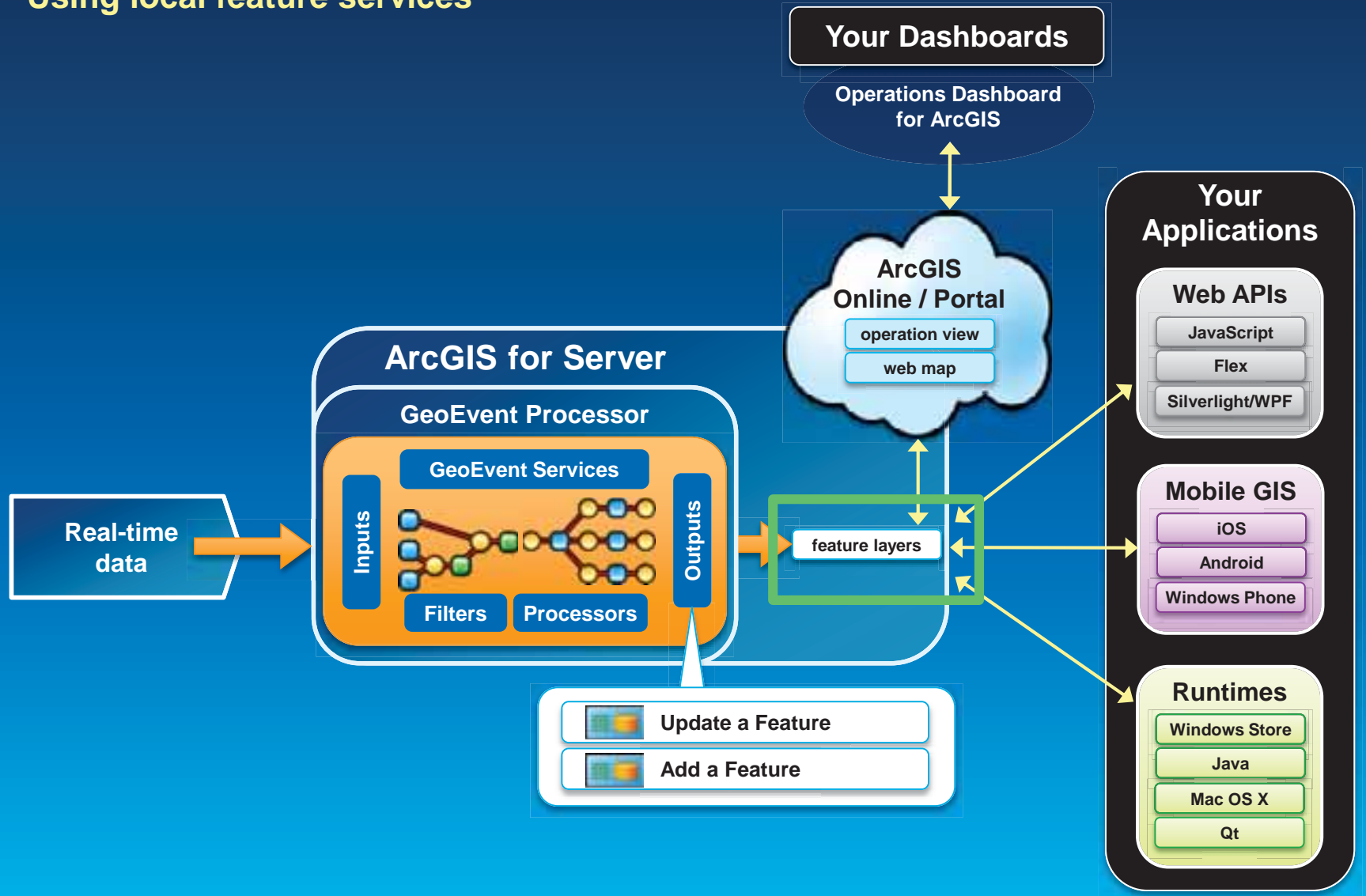
Output Connectors

- You can easily send resulting streams to those who need it where they need it using a **connector**.



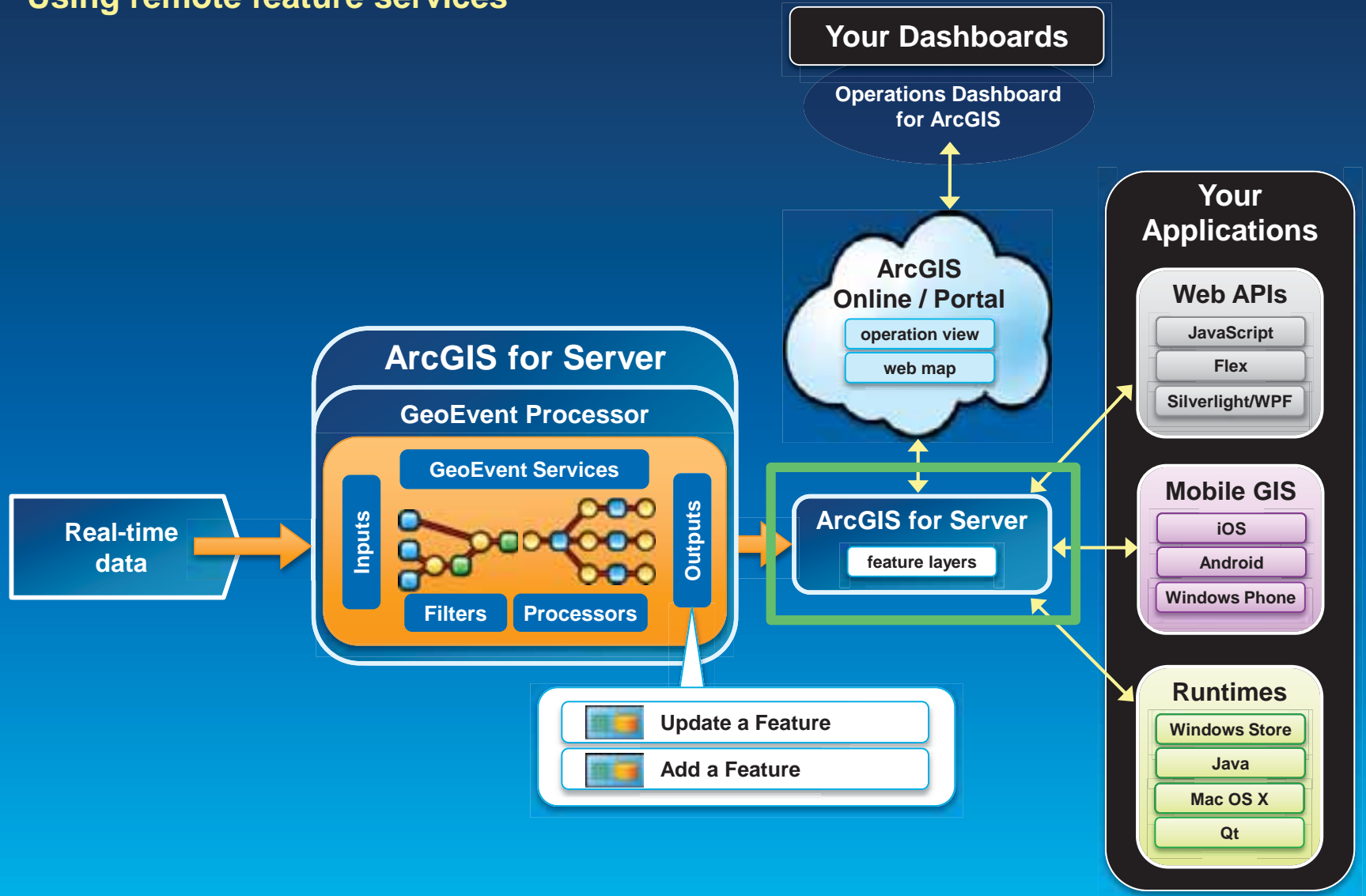
Sending Real-time Data to Features

Using local feature services



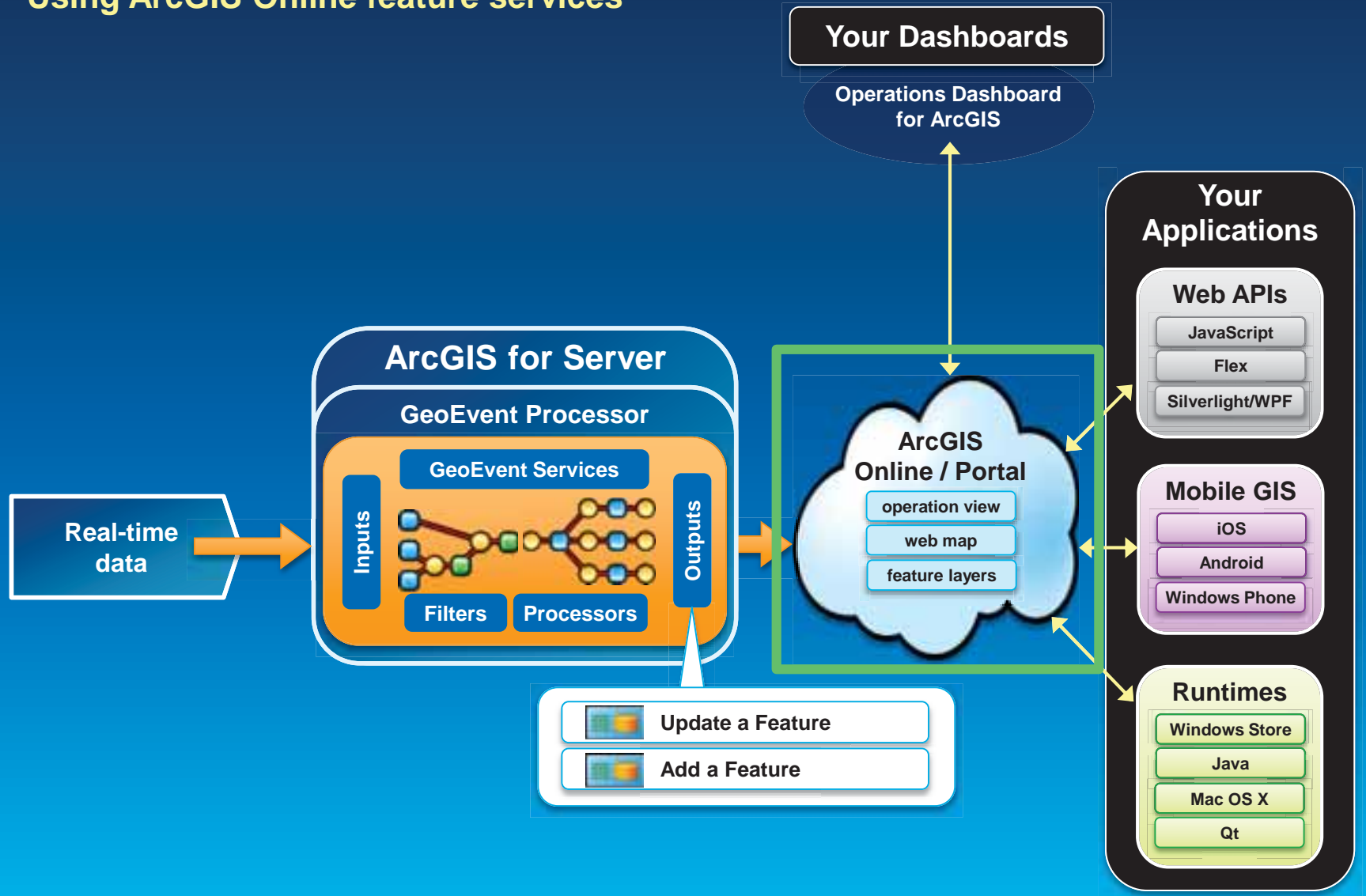
Sending Real-time Data to Features

Using remote feature services



Sending Real-time Data to Features

Using ArcGIS Online feature services



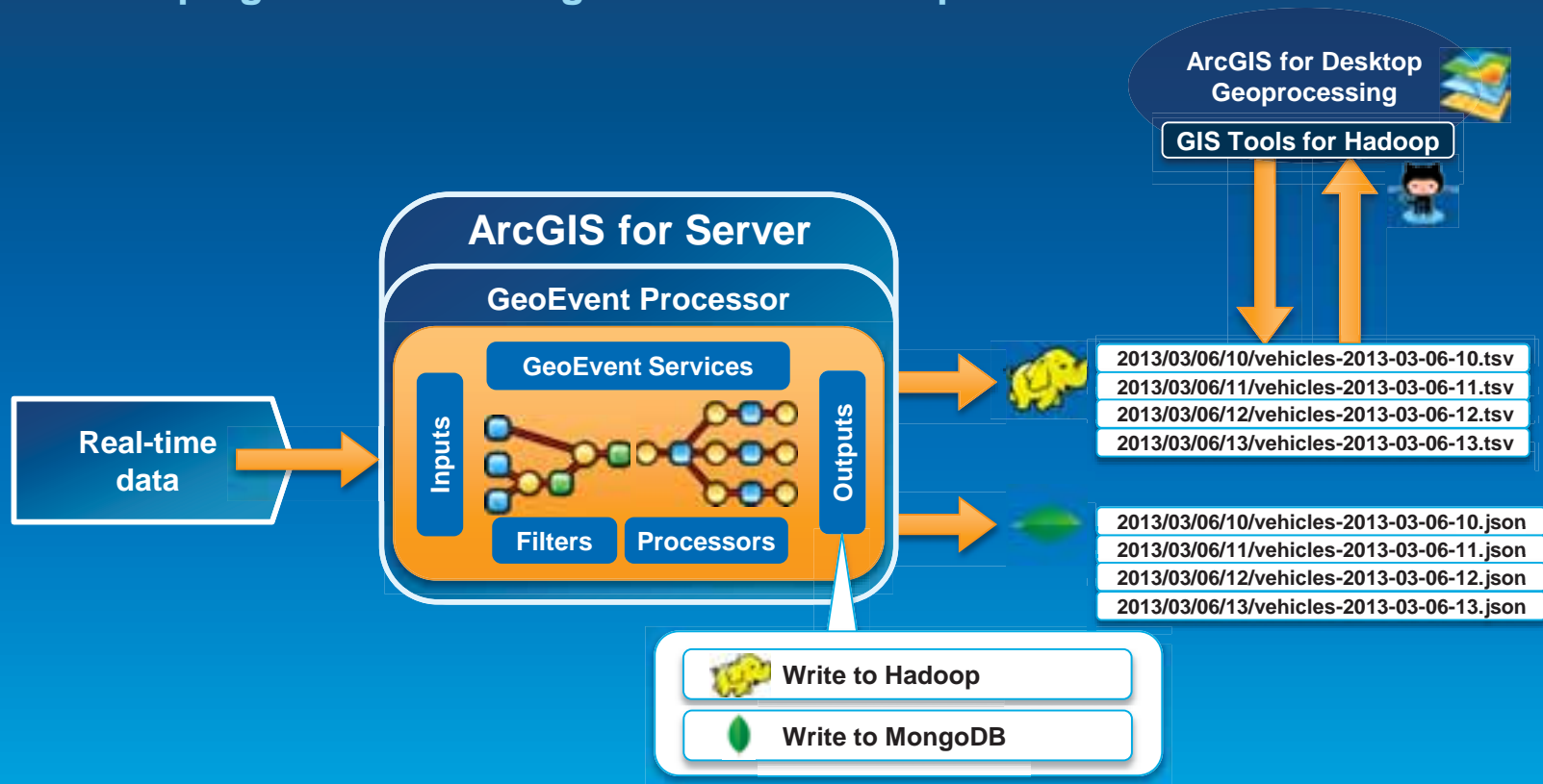
Sending Real-time Data to Big Data Stores

Write to a Hadoop Distributed File System (HDFS)

Write to a MongoDB Document Store

- GIS Tools for Hadoop

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

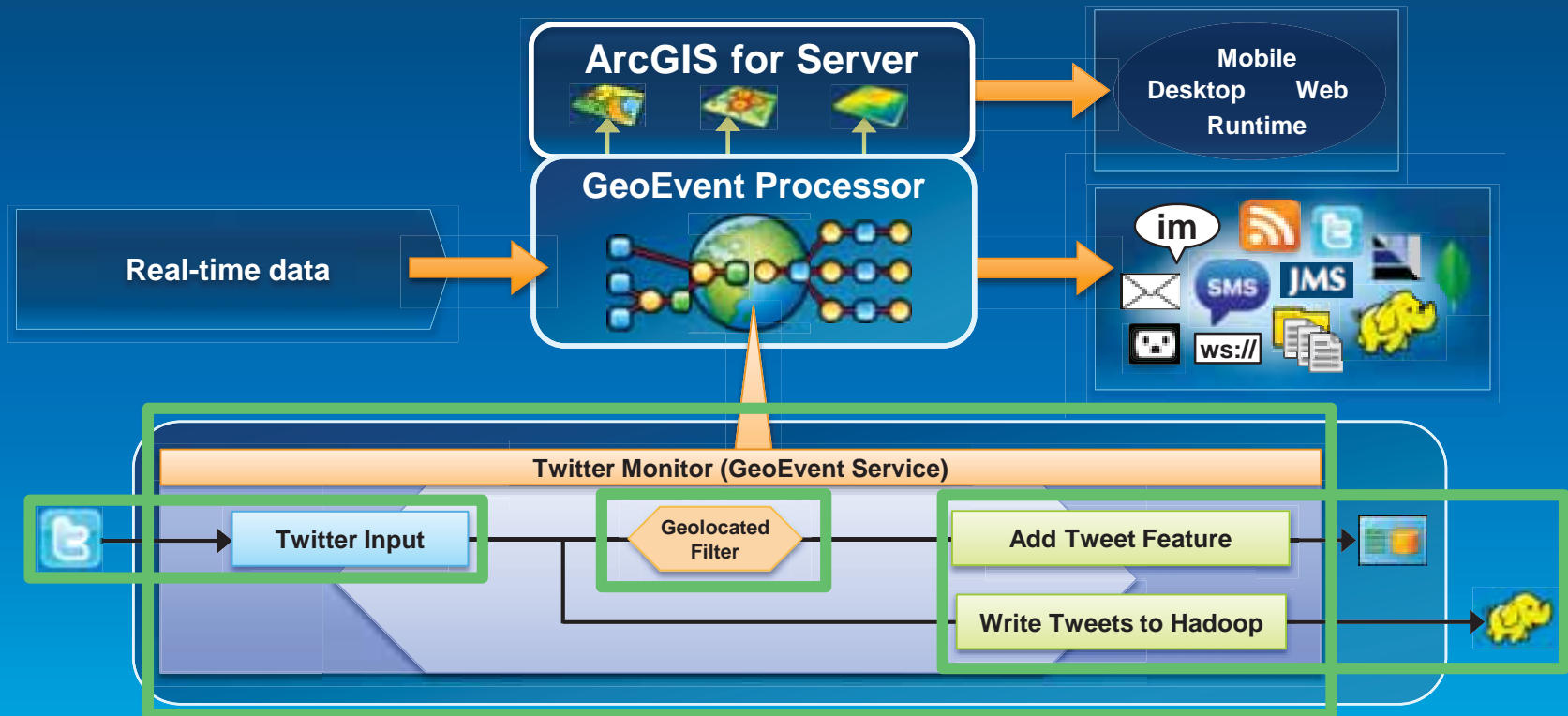


Performing Continuous Processing and Analysis

Continuous Processing and Analysis

GeoEvent Services

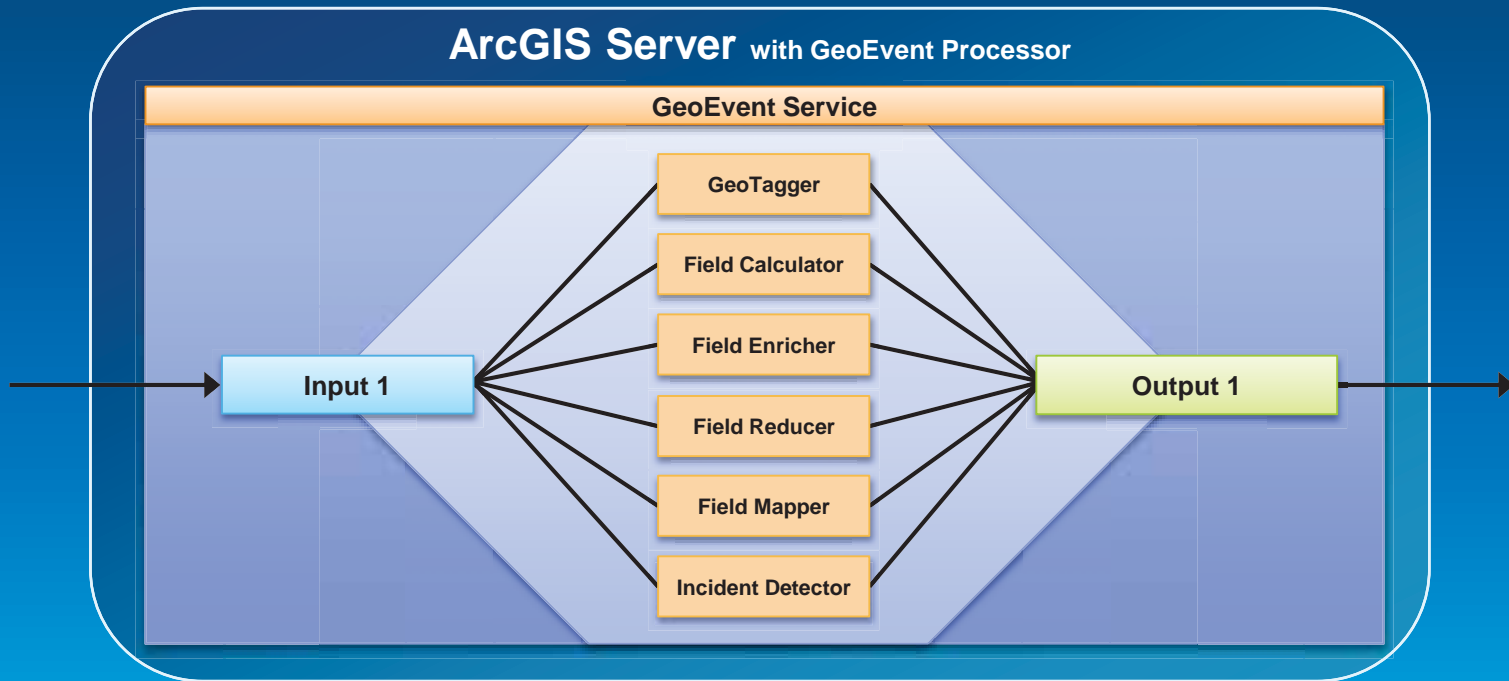
- A **GeoEvent Service** configures the flow of geoevents,
 - the **Filtering** and **GeoEvent Processing** steps to perform,
 - what input(s) to apply them to,
 - and what outputs(s) to send the results to.



Continuous Processing and Analysis

Processors

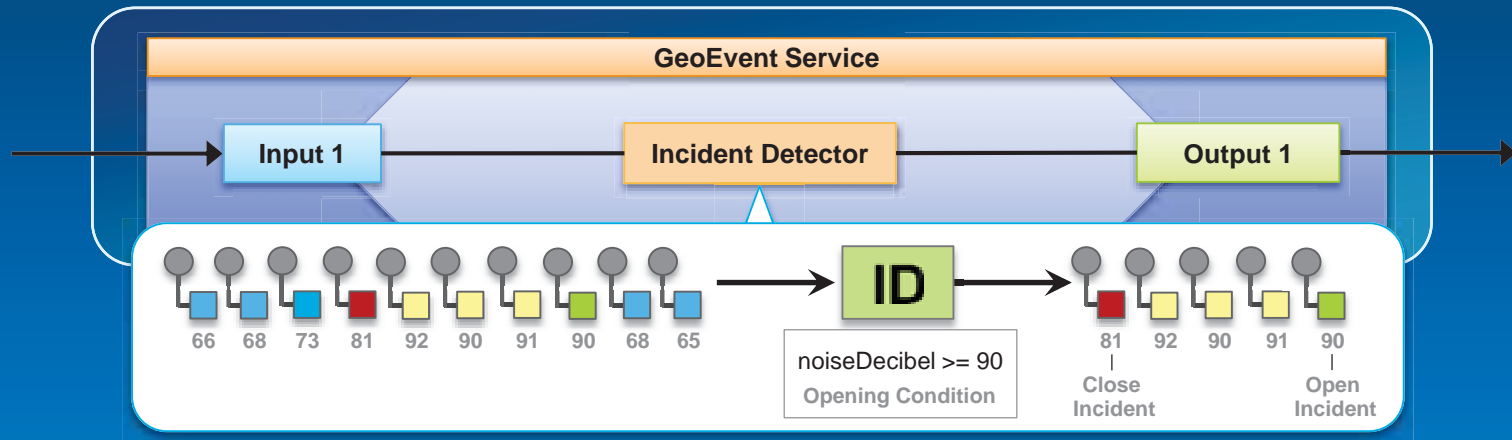
- Calculate new fields on a geoevent: **GeoTagger**, **Field Calculator**
- Modify a geoevent: **Field Enricher**, **Field Reducer**
- Derive a new geoevent: **Field Mapper**, **Incident Detector**



Continuous Processing and Analysis

Derive a new geoevent

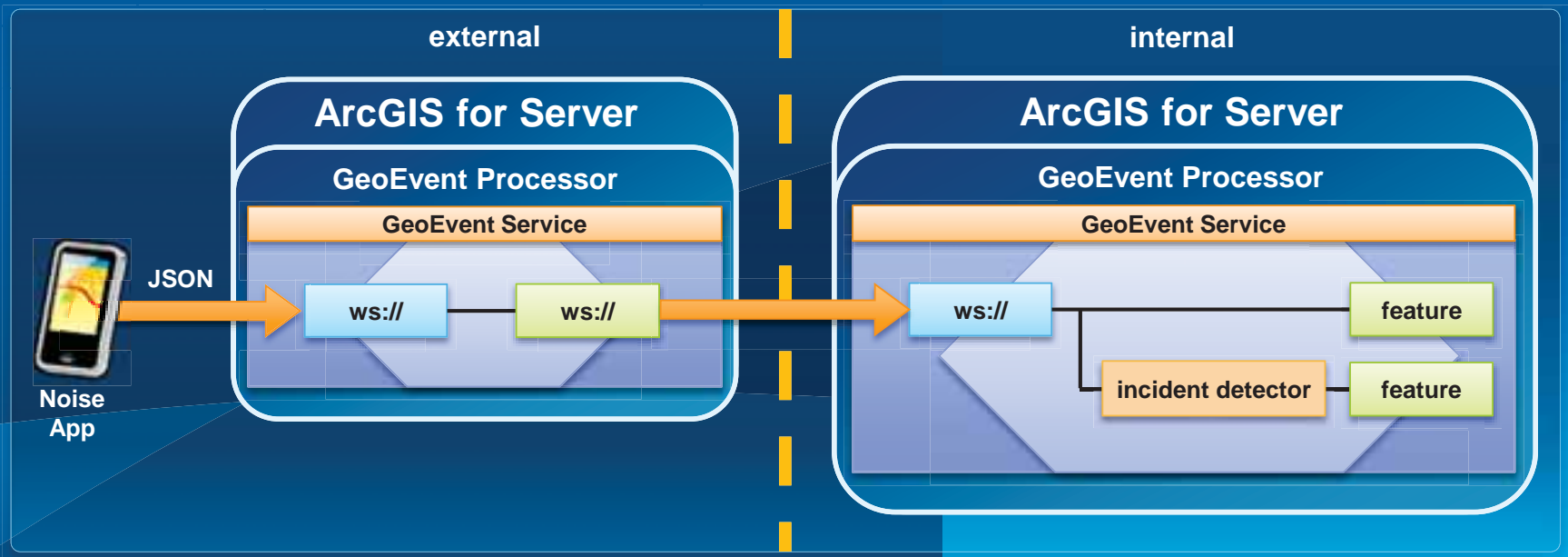
- An **Incident Detector** processor
 - creates an incident upon an opening condition being met,
 - maintains state for the duration of the incident,
 - closes the incident based on a closing condition or expiration.



Demo

Demonstration

Noise Incident Detection



Solutions and Sample Applications

Applying real-time GIS

- A number of **solutions** and **sample applications** 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






Demo

Demonstration

Asset 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.



What's Coming?

- High Availability Support
- More Connectors
- Solutions Templates

GeoEvent Processor – An Introduction

Summary

- **ArcGIS is a dynamic platform that enables real-time visualization, continuous analysis, and understanding of our world.**
- **GeoEvent Processor allows you to:**
 - know what is happening, as it happens
 - react and make smarter decisions faster
 - be alerted when interesting events occur
- **Product Page**
 - <http://pro.arcgis.com/share/geoevent-processor>
- **Twitter for GeoEvent**
 - <https://github.com/Esri/twitter-for-geoevent>



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Understanding our world.