ArcGIS GeoEvent Extension for Server: An Introduction

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Technical Workshop

What is Real-Time GIS?

GIS Data

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

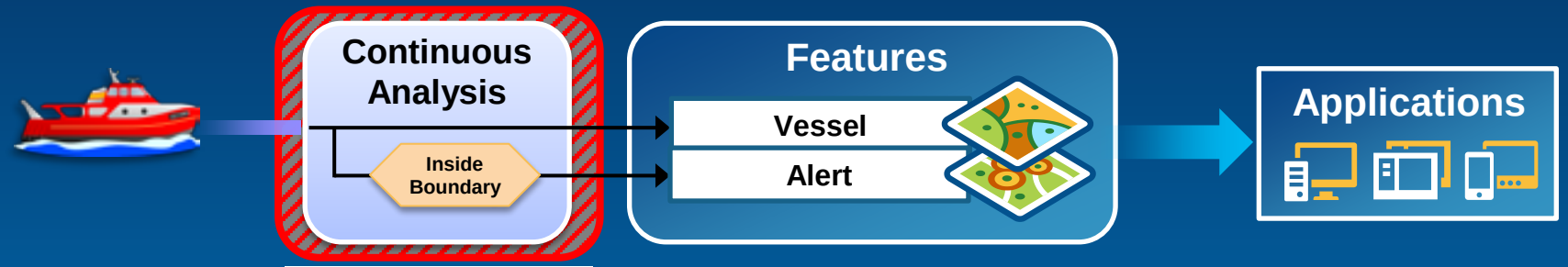
Credit: iStockphoto/chris_lemmens

Real-Time GIS Data

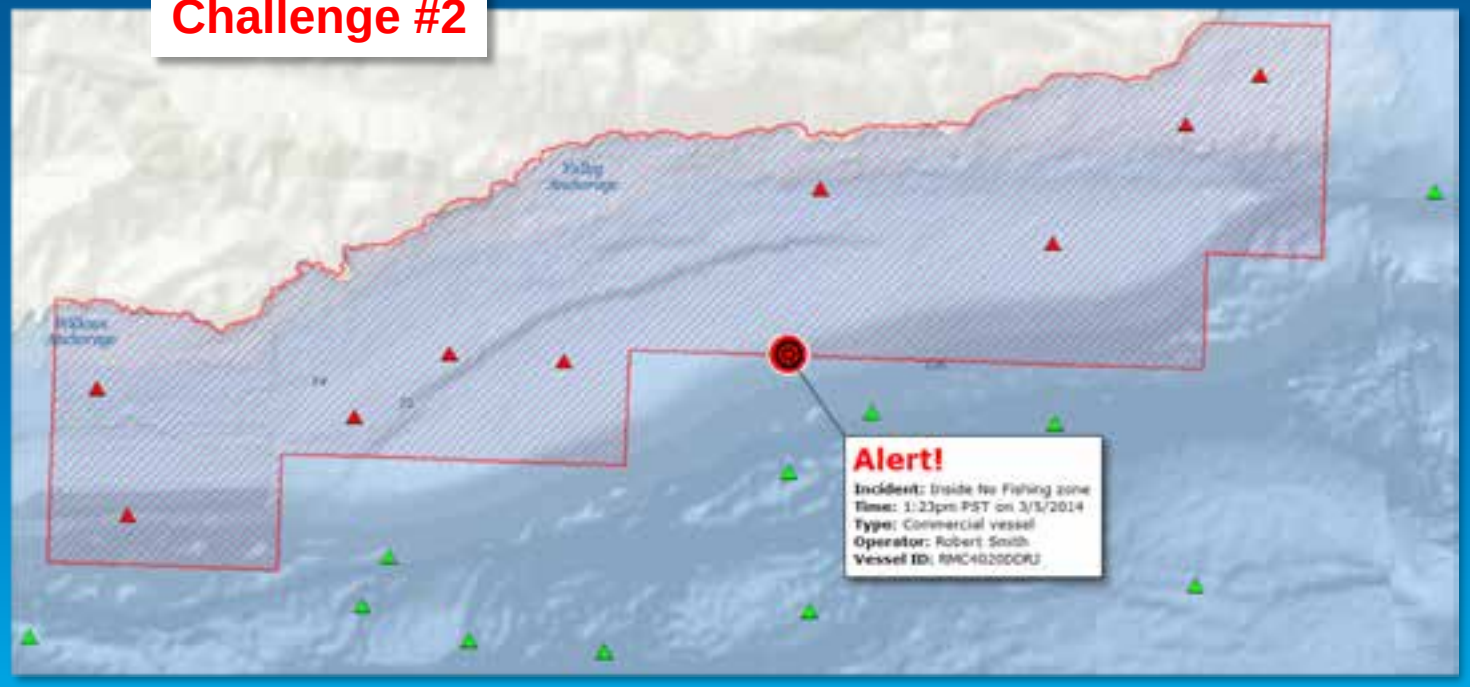
- Real-time GIS data is a continuous stream of events flowing from sensors, where each event represents the latest state of the sensor.
  - Emergency response
  - Utility networks
  - Warehouses
  - Environmental

Real-Time Analytics

- What fishing vessels are inside designated “no fishing” zones?

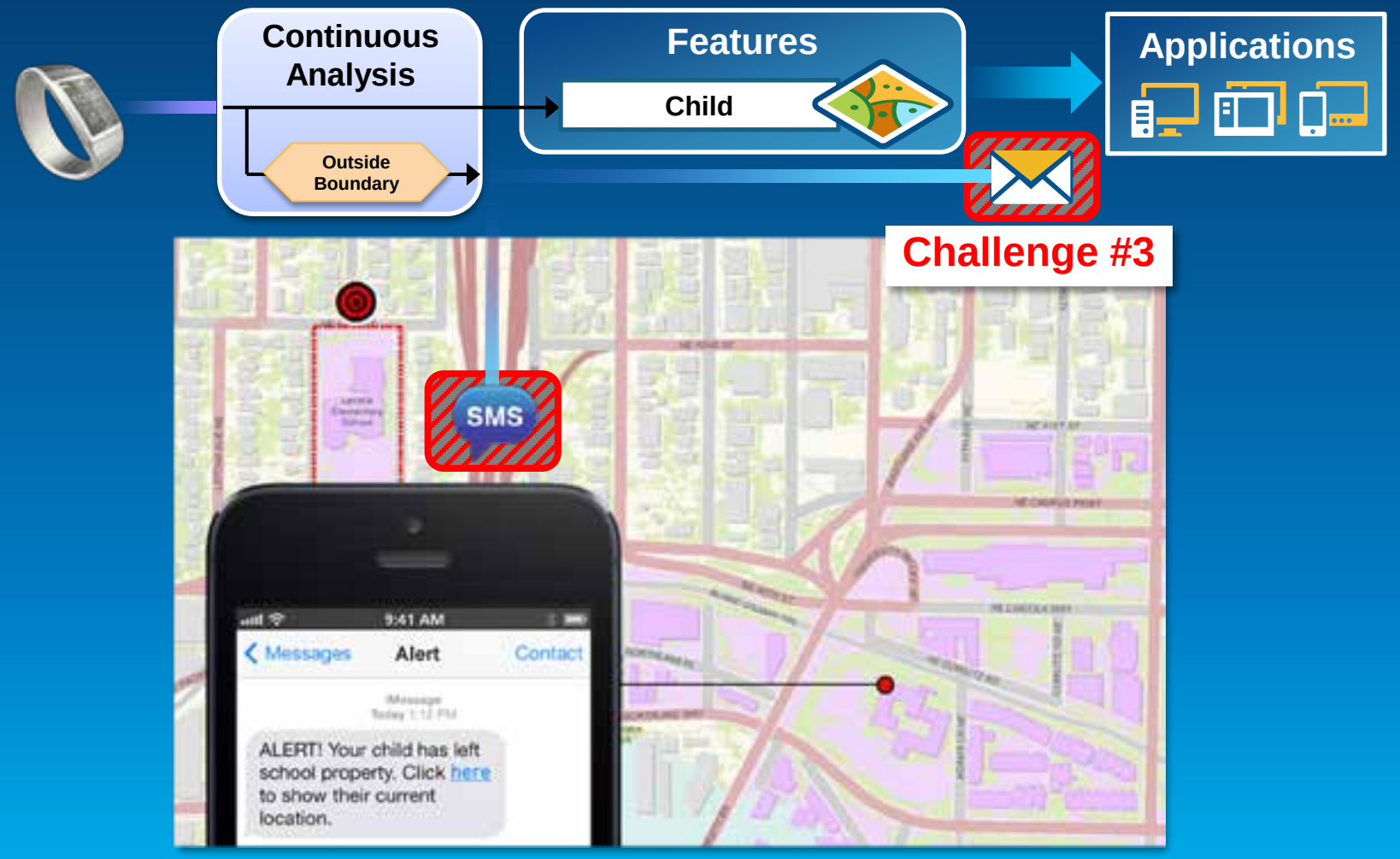


Challenge #2



Real-Time Notifications and Alerting

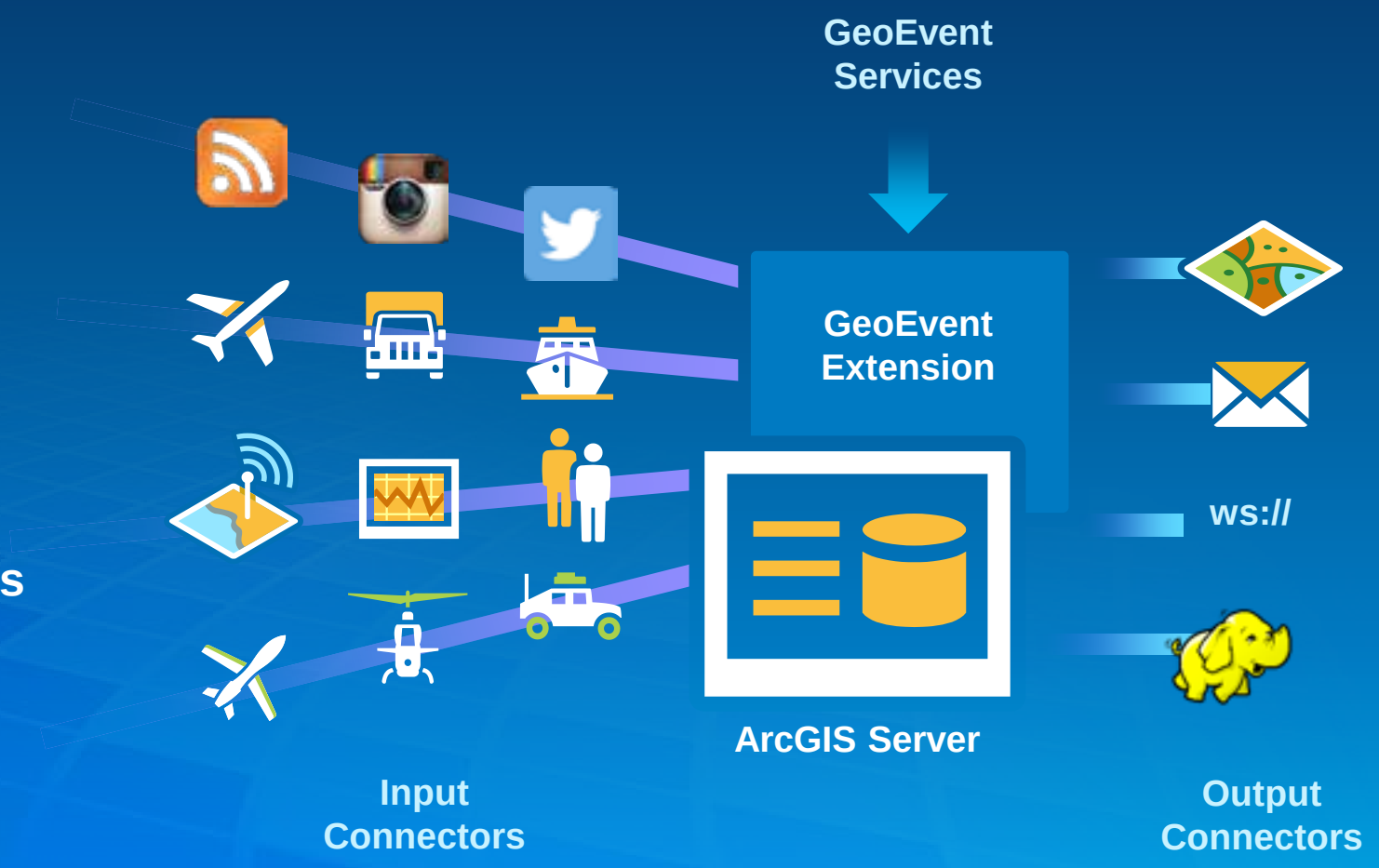
- Tell a parent when their child leaves school property.



ArcGIS GeoEvent Extension 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

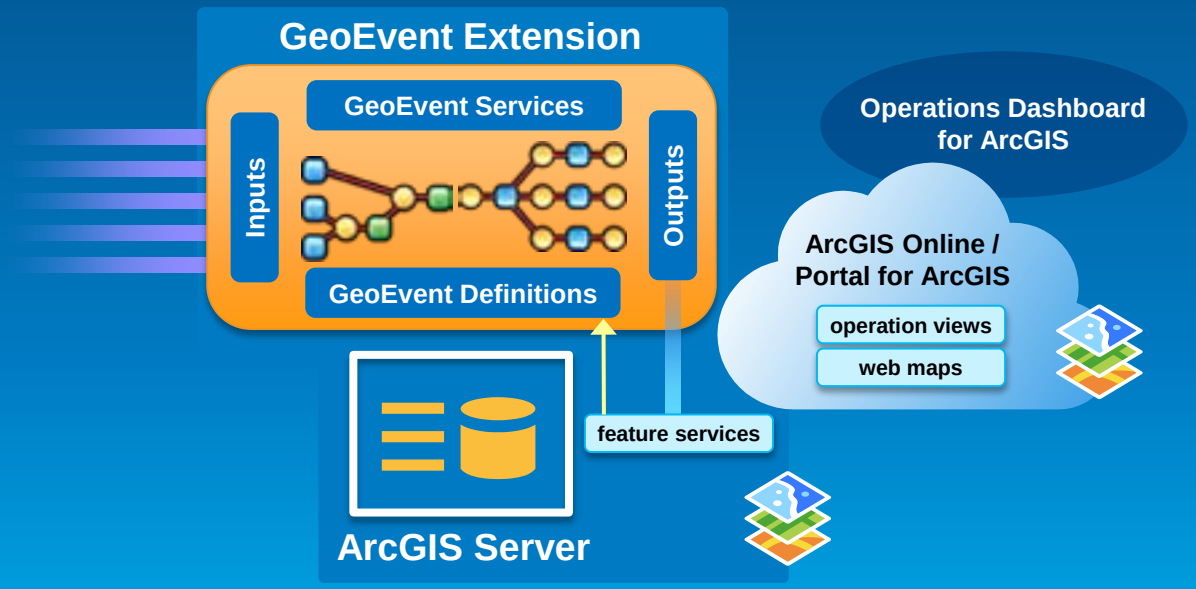


Working with Real-Time Data

Working with Real-Time Data

Making features come alive

- Connect an **output** to your feature
- Import the schema of your feature as a **GeoEvent Definition**
- Configure an **input** to receive real-time data
- Author and publish a **GeoEvent Service**
- Visualize your real-time feature



Demo

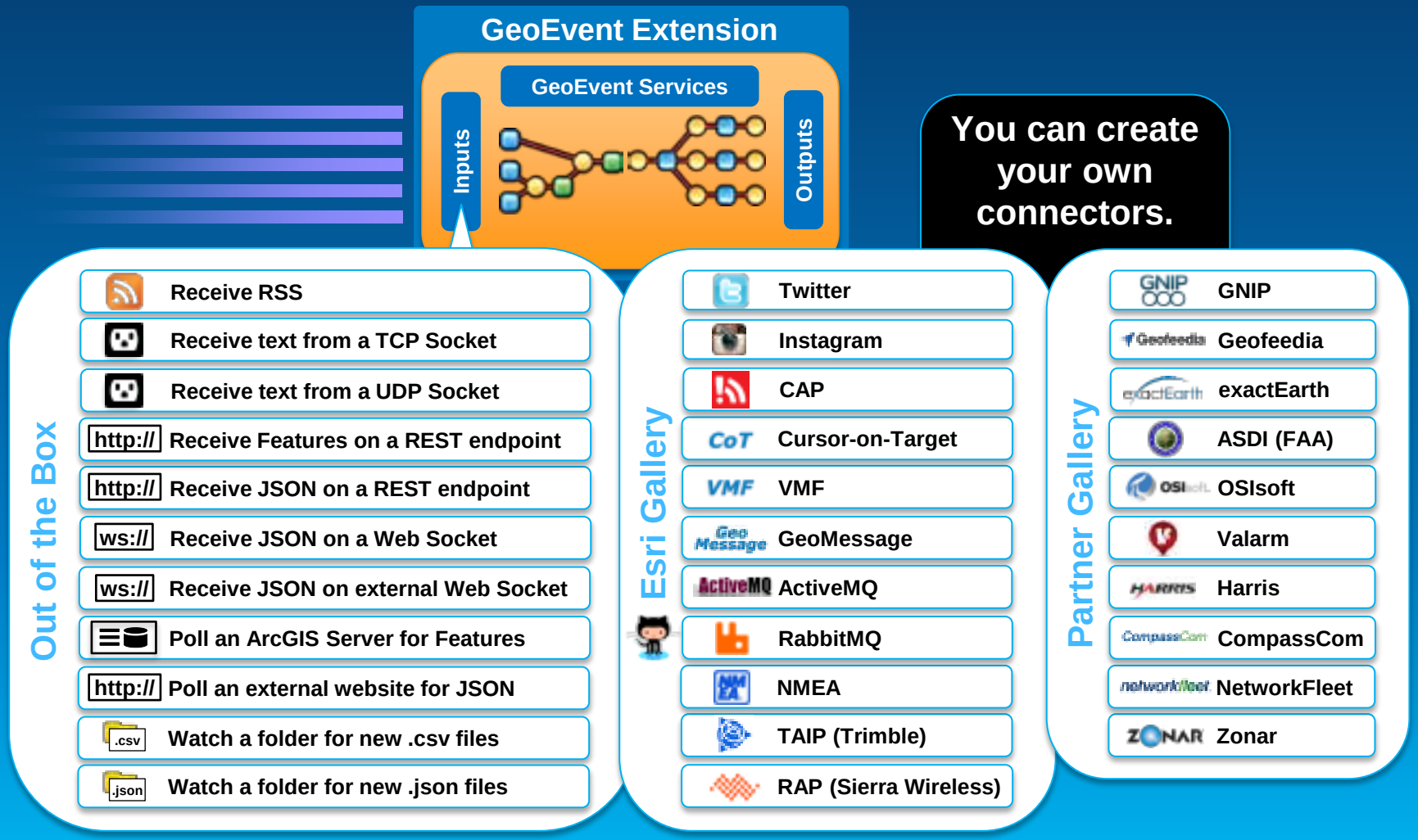
Making Feature Come Alive

Vehicles

Receiving Real-Time Data

Input Connectors

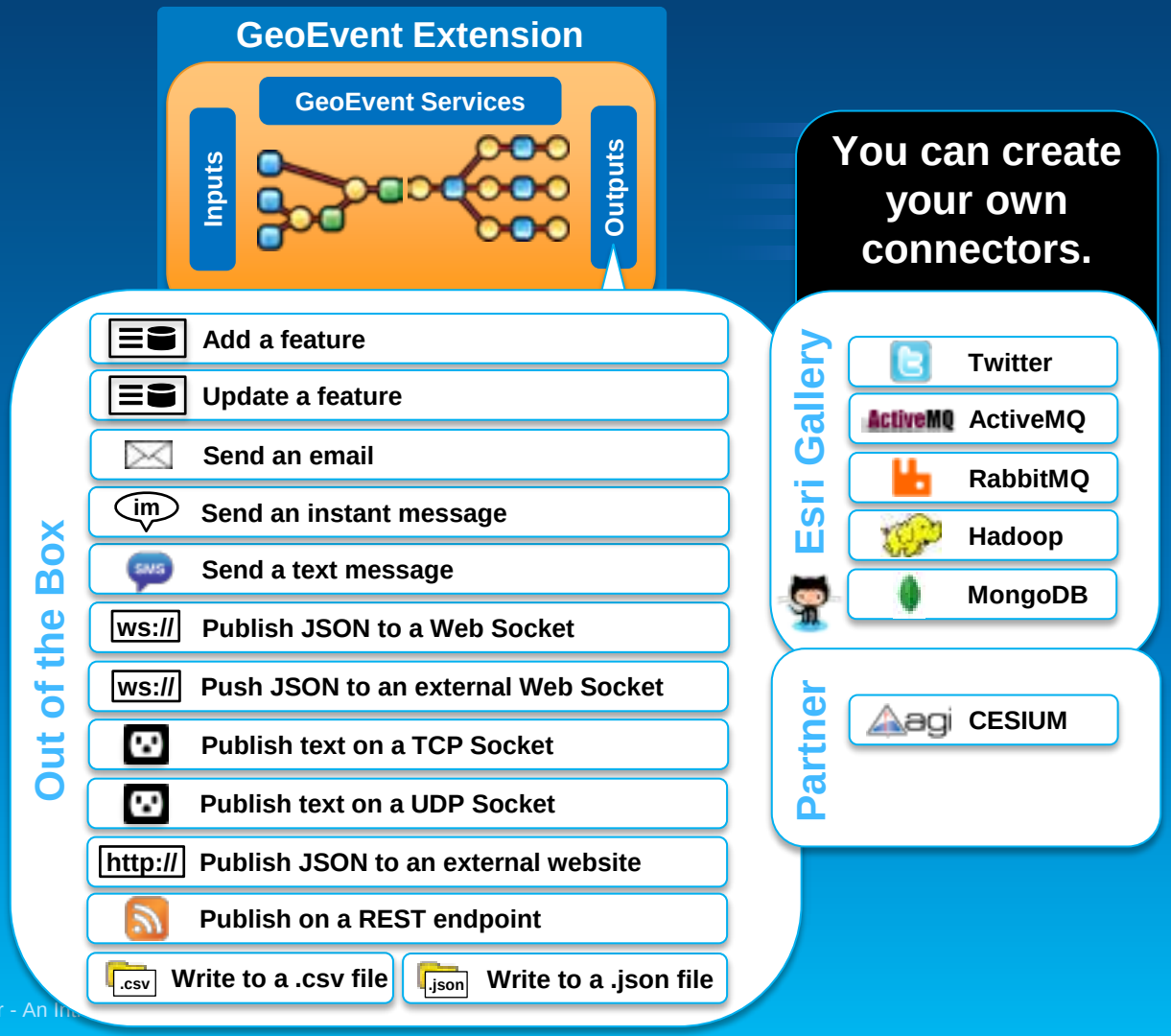
- **Easily integrate real-time streaming data with ArcGIS by using an input connector.**



Sending Real-Time Data

Output Connectors

- **Easily send updates and results to those who need it, where they need it using an output connector.**

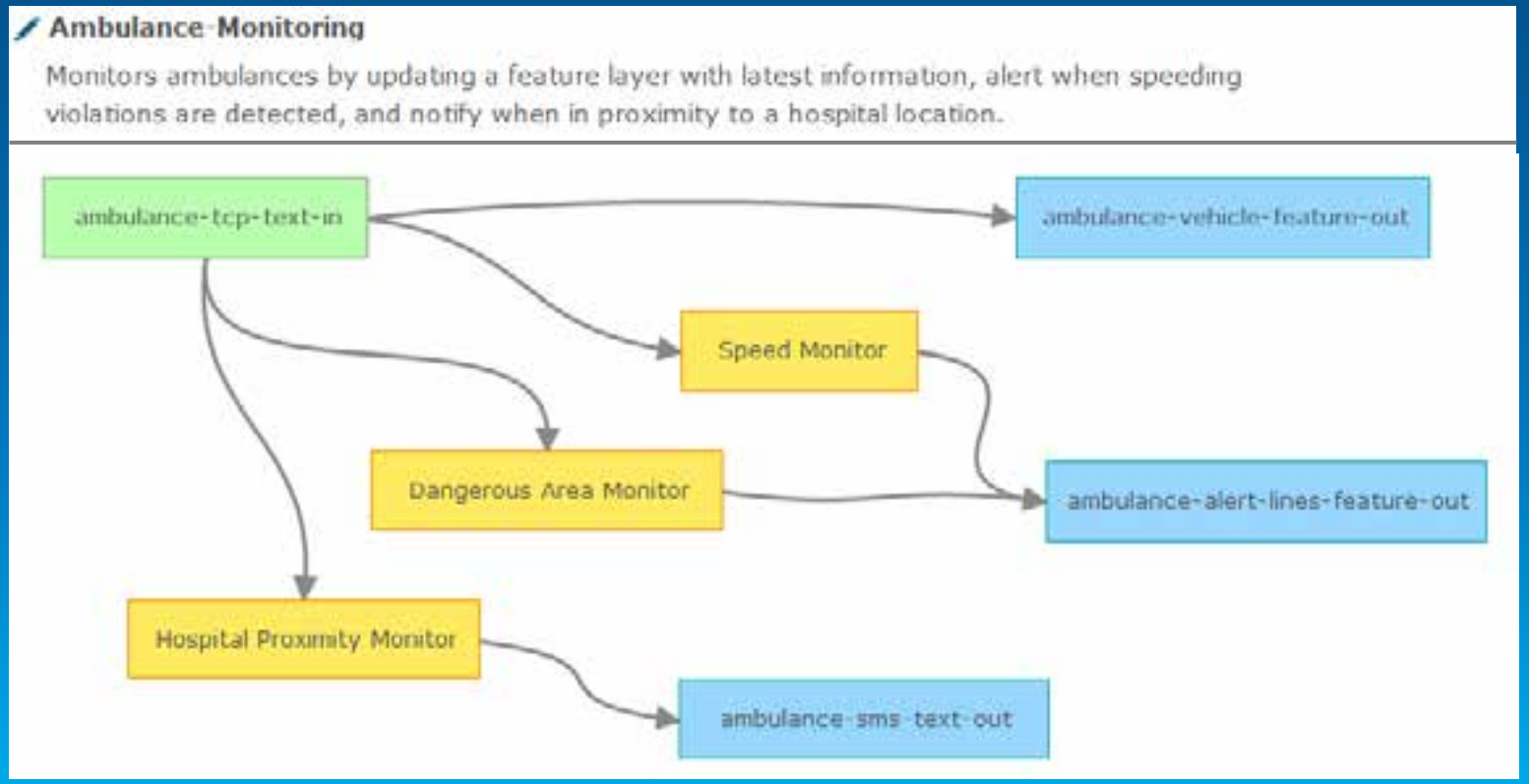


Applying Real-Time Analytics

Applying real-time analytics

GeoEvent Services

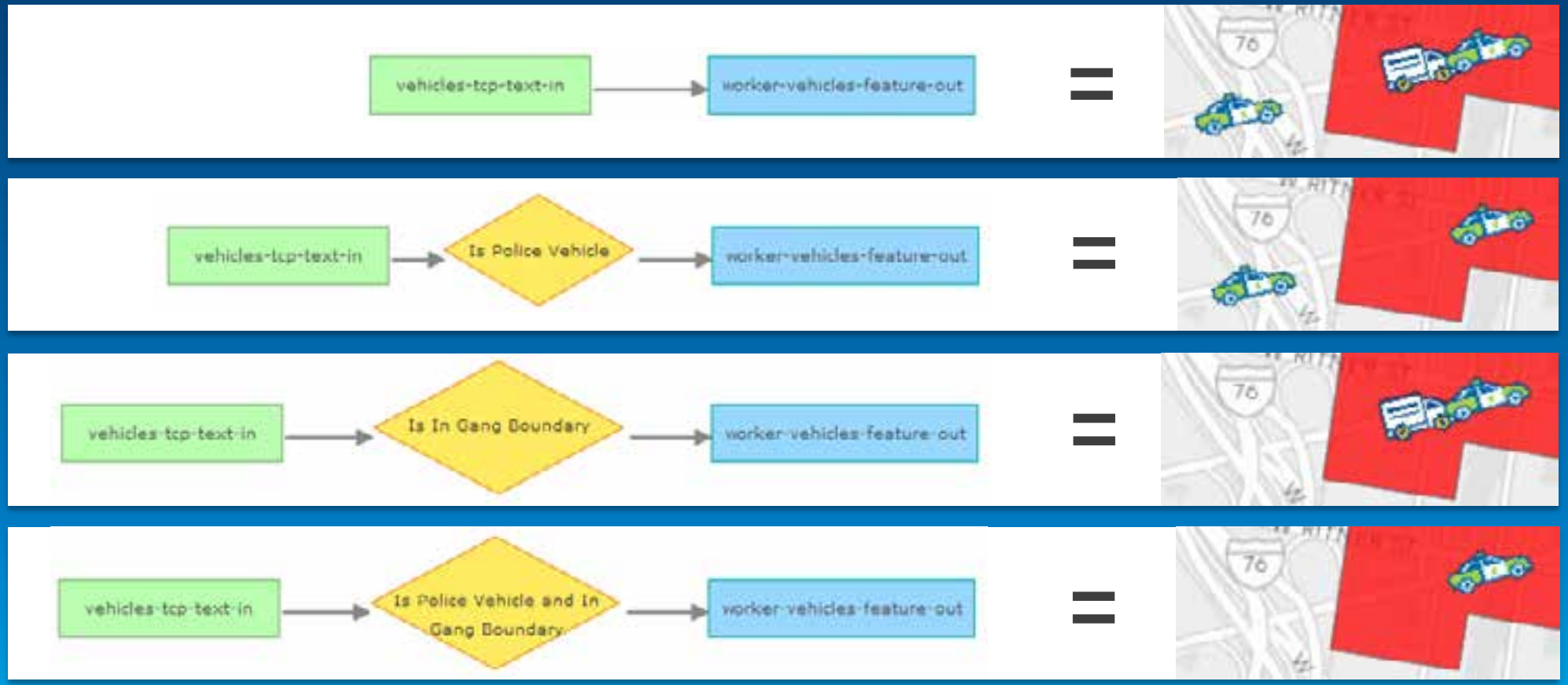
- A **GeoEvent Service** configures the flow of GeoEvents,
  - The **Filtering** and **GeoEvent Processing** steps to perform,
  - what input(s) to apply them to,
  - and what output(s) to send the results to.



Applying real-time analytics

Filtering

- A **Filter** eliminates GeoEvents based on an expression.



Demo

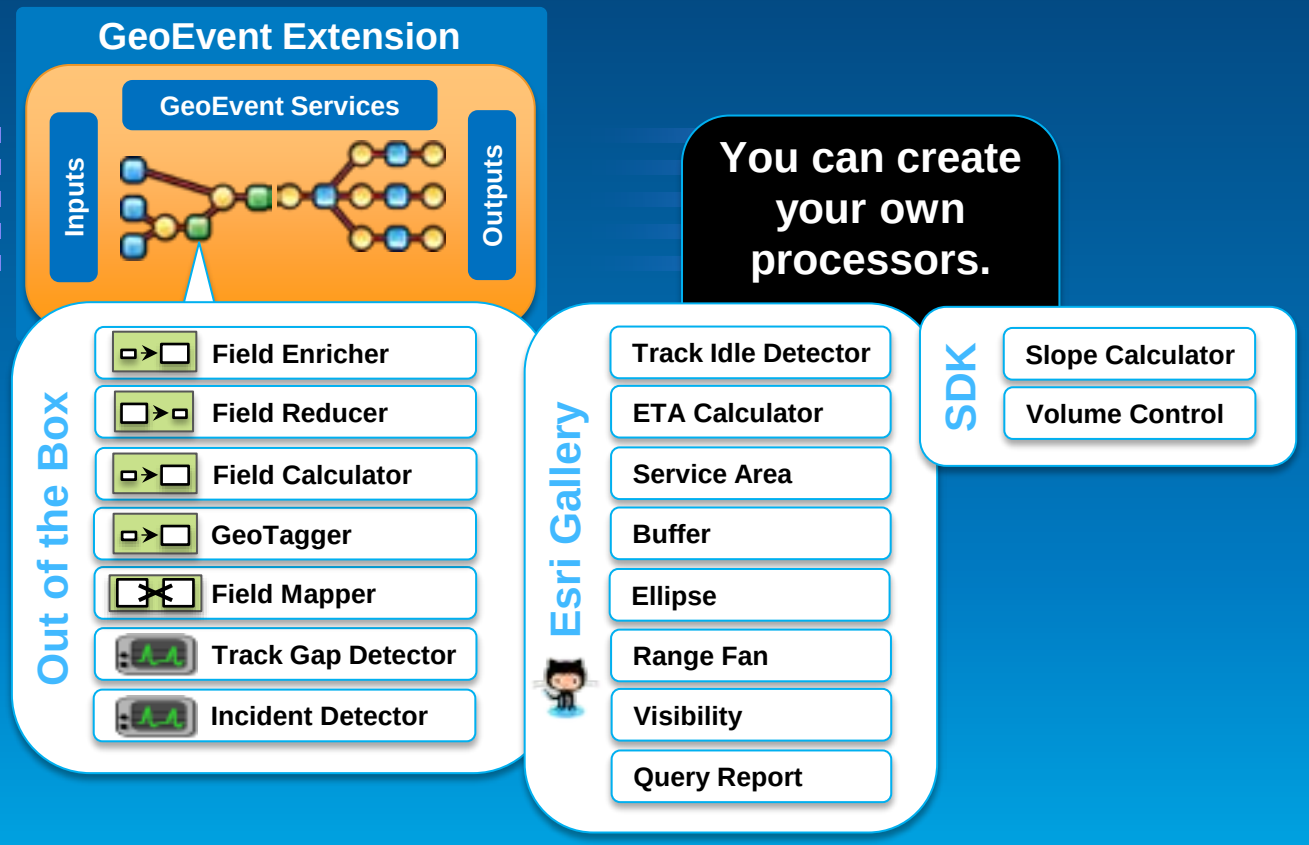
Filtering

Attribute, Spatial and Combined Expressions

Applying real-time analytics

GeoEvent Processing

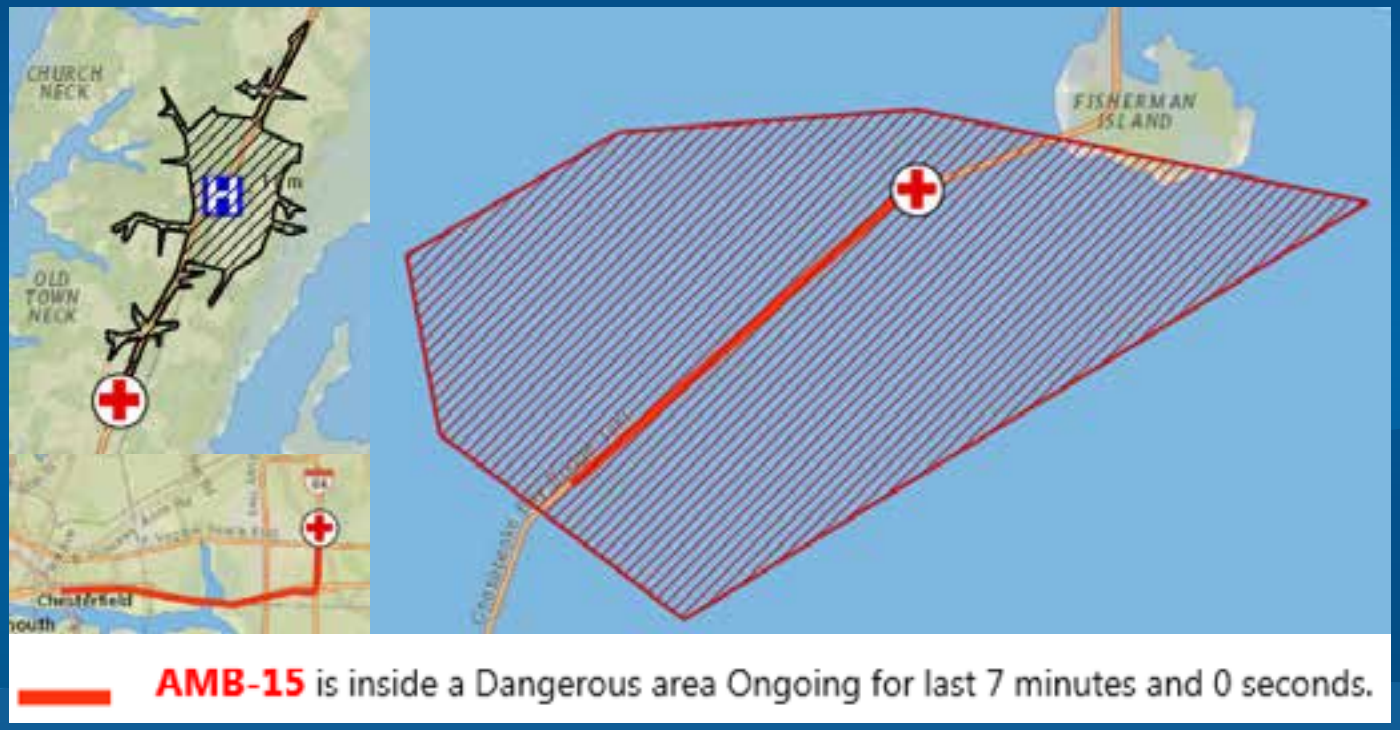
- **You can perform continuous analytics on GeoEvents as they are received using a processor.**



Demo

GeoEvent Processing

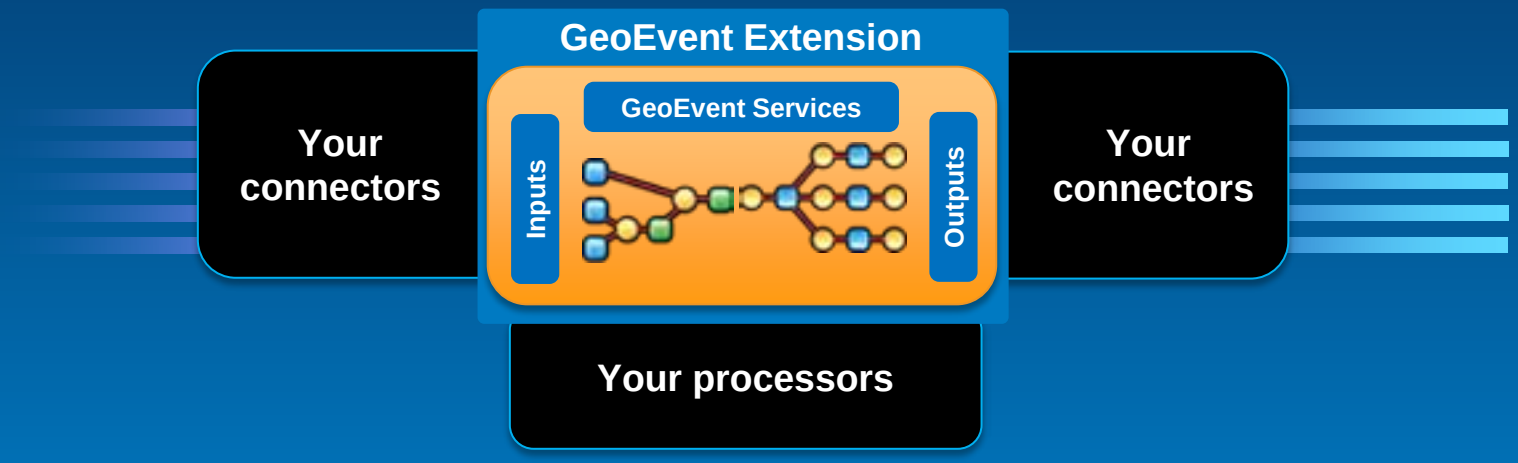
Incident Detection



Extending GeoEvent

Software Development Kit (SDK)

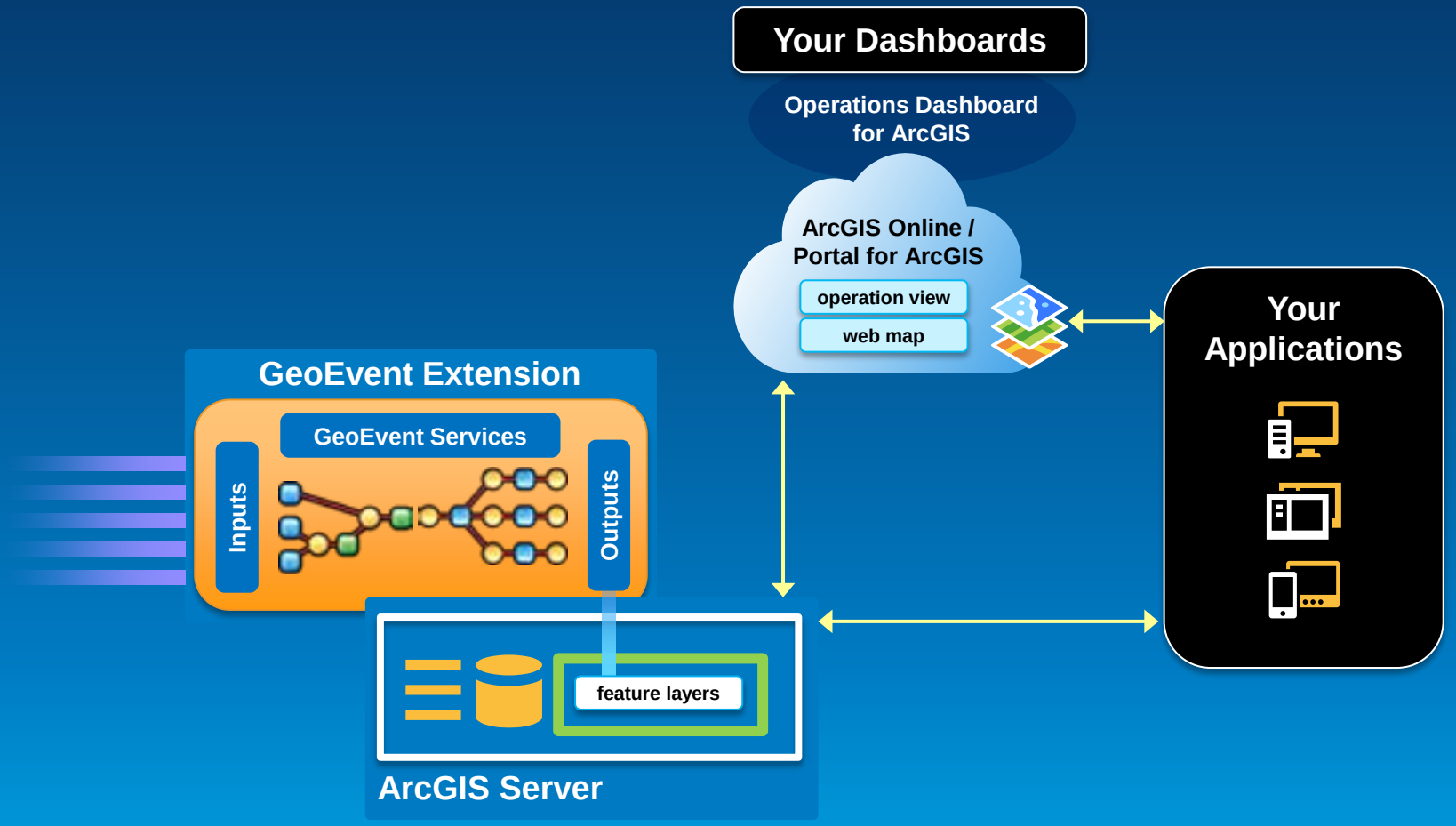
- You can create your own connectors and processors using the GeoEvent SDK.



Deployment Patterns

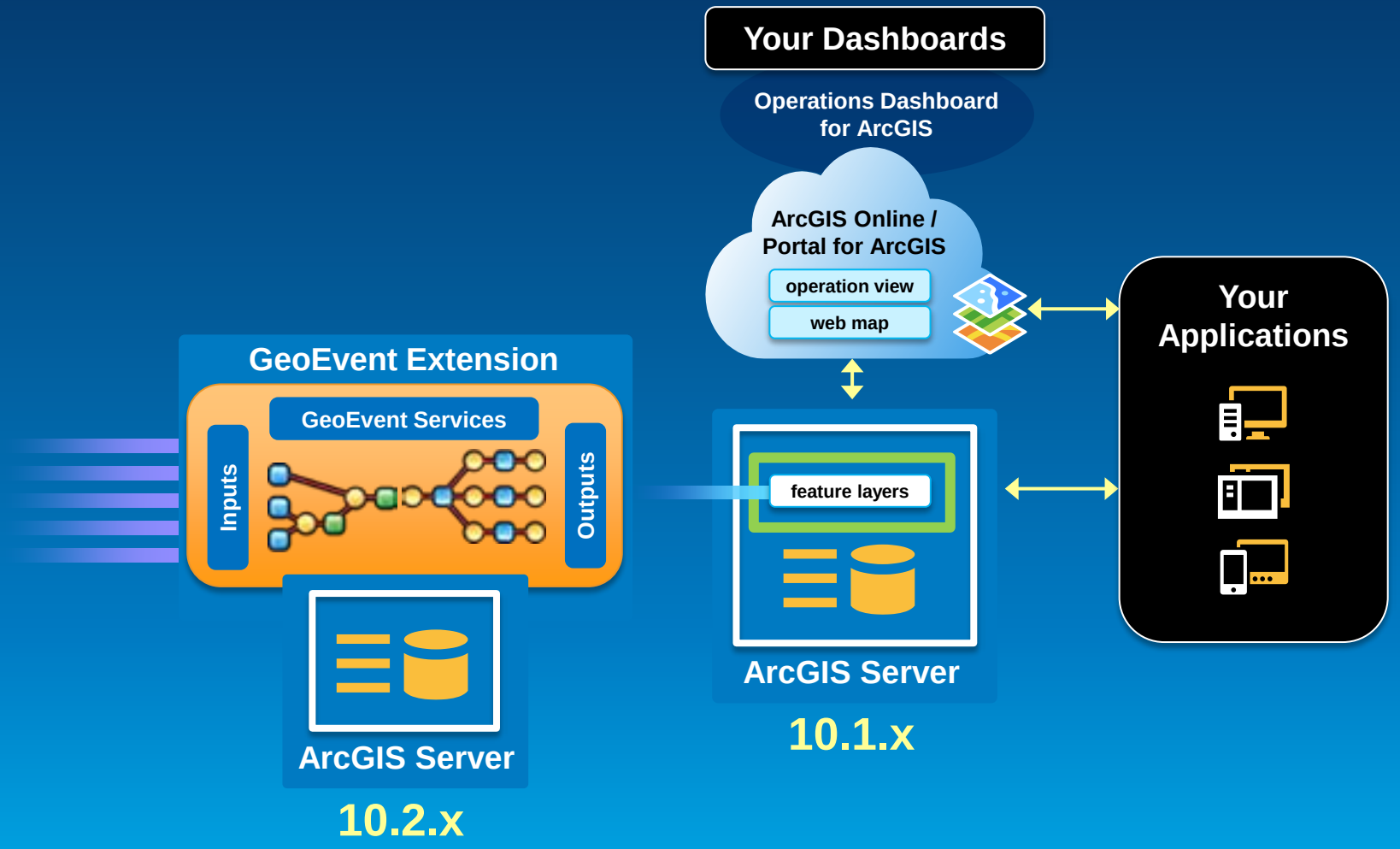
Deployment Patterns

Using local feature services



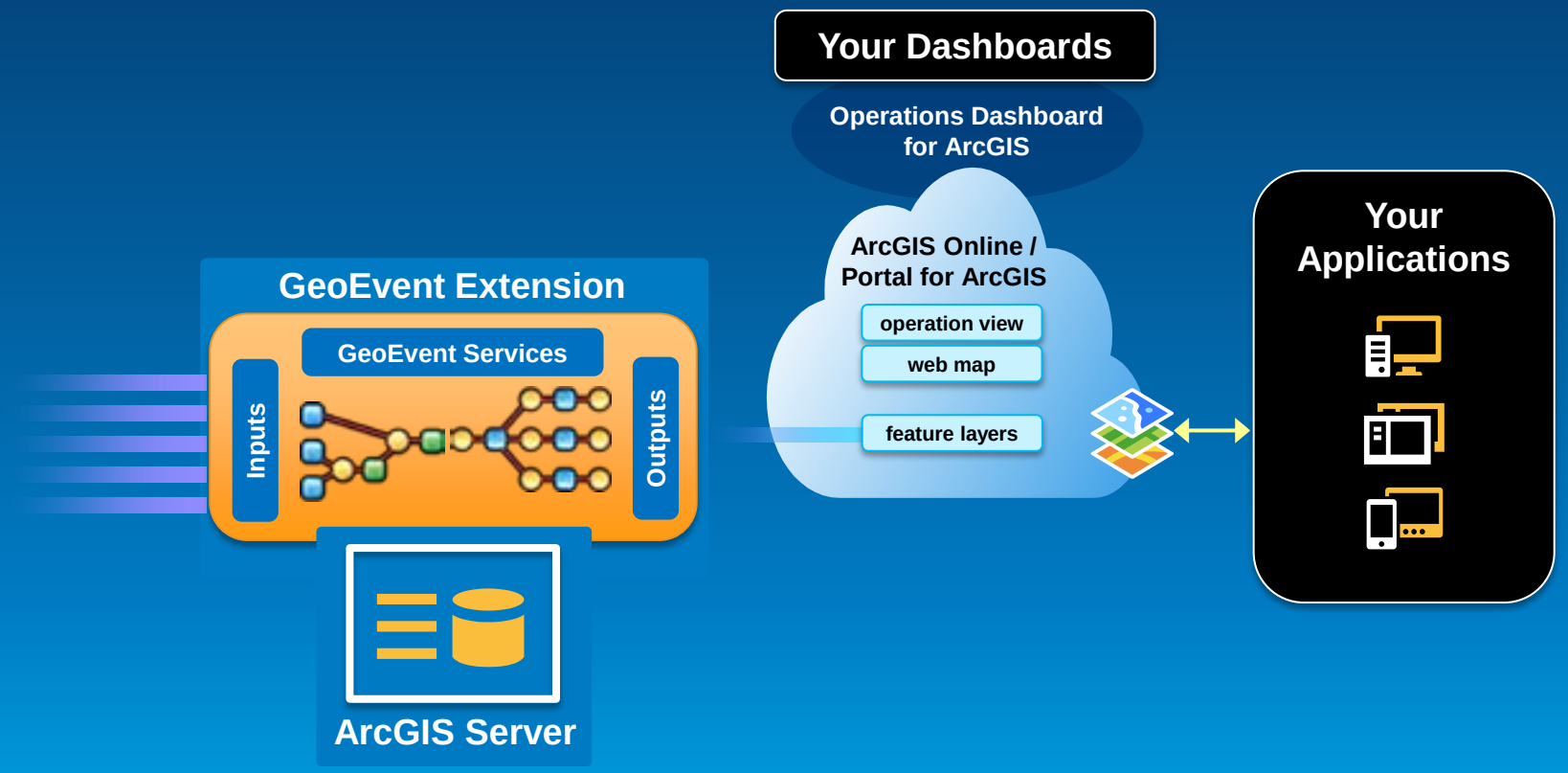
Deployment Patterns

Using remote feature services



Deployment Patterns

Using ArcGIS Online / Portal for ArcGIS feature services

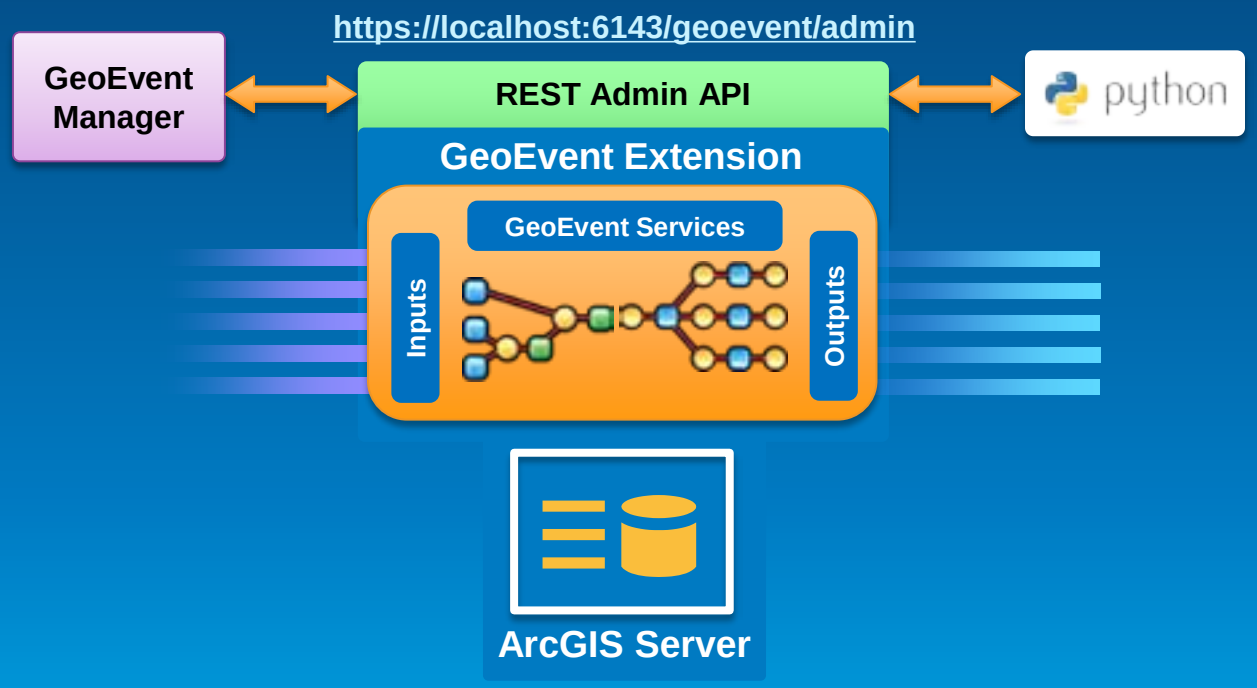


Administering GeoEvent

Administering GeoEvent

REST Admin API

- **You can manage GeoEvent programmatically using a complete set of REST administrative endpoints.**
  - ***GeoEvent Manager* exclusively uses the REST Admin API**



ArcGIS GeoEvent Extension for Server

Summary

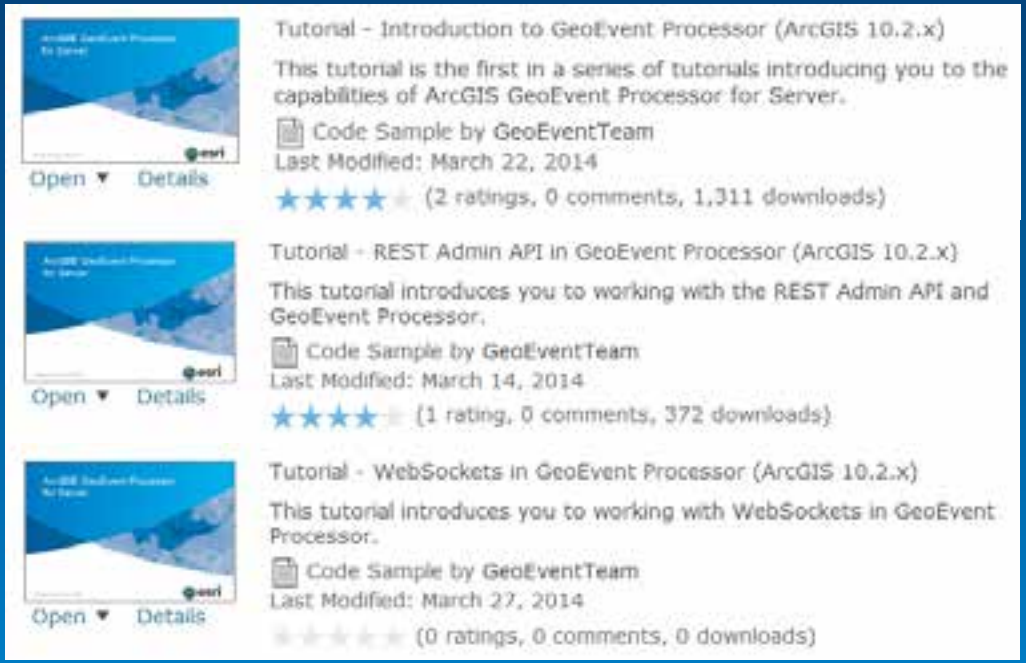
- **ArcGIS is a dynamic platform that enables continuous analytics and real-time visualization for better understanding of our world.**

- **The GeoEvent extension allows you to:**
  - **to know what is happening, as it happens**
  - **be alerted when interesting events occur**
  - **react and make smarter decisions faster**

Where to learn more?

Resources

- To learn more, visit the tutorial in the Esri Gallery:
  - http:///links.esri.com/geoevent
    - Introduction
    - Notifications
    - RSS
    - Web Sockets
    - Working with HTTP
    - GeoEvent Caches
    - REST Admin API



- GeoEvent Forum is on GeoNet
  - https://geonet.esri.com/community/gis/enterprise-gis/geoevent

Where to learn more?

Remaining Sessions

- **Building Real-Time Web Applications**
  - Tue 10:15-11:30am (Ballroom 6B)
- **Applying Real-Time Analytics**
  - Tue 1:30-2:45pm (Ballroom 6E), Wed 3:15-4:30pm (Ballroom 6A), Fri 9:00-10:15am (Room 7A/B)
- **The Internet of Things (IoT)**
  - Tue 3:15-4:30pm (Ballroom 6E)
- **Extending with New Processors and Connectors**
  - Wed 10:15-11:30am (Room 3)
- **Using Community Connectors**
  - Wed 12:30-1:00pm (Exhibit Hall C – Geodata Management Demo Theater)
- **ArcGIS for Server and Portal for ArcGIS: The Road Ahead**
  - Wed 1:30-2:45pm (Ballroom 6A)
- **Applying Real-Time GIS to Fire, Ice, and Sustainable Mobility**
  - Wed 3:15-4:30pm (Room 23C, Moderated Paper Session)
- **Real-Time GIS SIG**
  - Wed 5:30-7:00pm (Room 10)
- **Applying Real-Time GIS to Asset Protection**
  - Thu 3:15-4:30pm (Room 24A, Moderated Paper Session)

Thank you…

- **Please fill out the session survey:**

Offering ID: 1131

Online – www.esri.com/ucsessionsurveys

Paper – pick up and put in drop box

Questions / Feedback?

To learn more:
http://links.esri.com/geoevent-processor

https://geonet.esri.com/community/gis/enterprise-gis/geoevent

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