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Technical Workshops | July 14, 2011

Esri Tracking Solutions: Working with real-time data

Adam Mollenkopf

David Kaiser

Working with real-time data

Agenda

- Introduction
- Managing
- Visualizing
- Analyzing
- Client Applications

Introduction

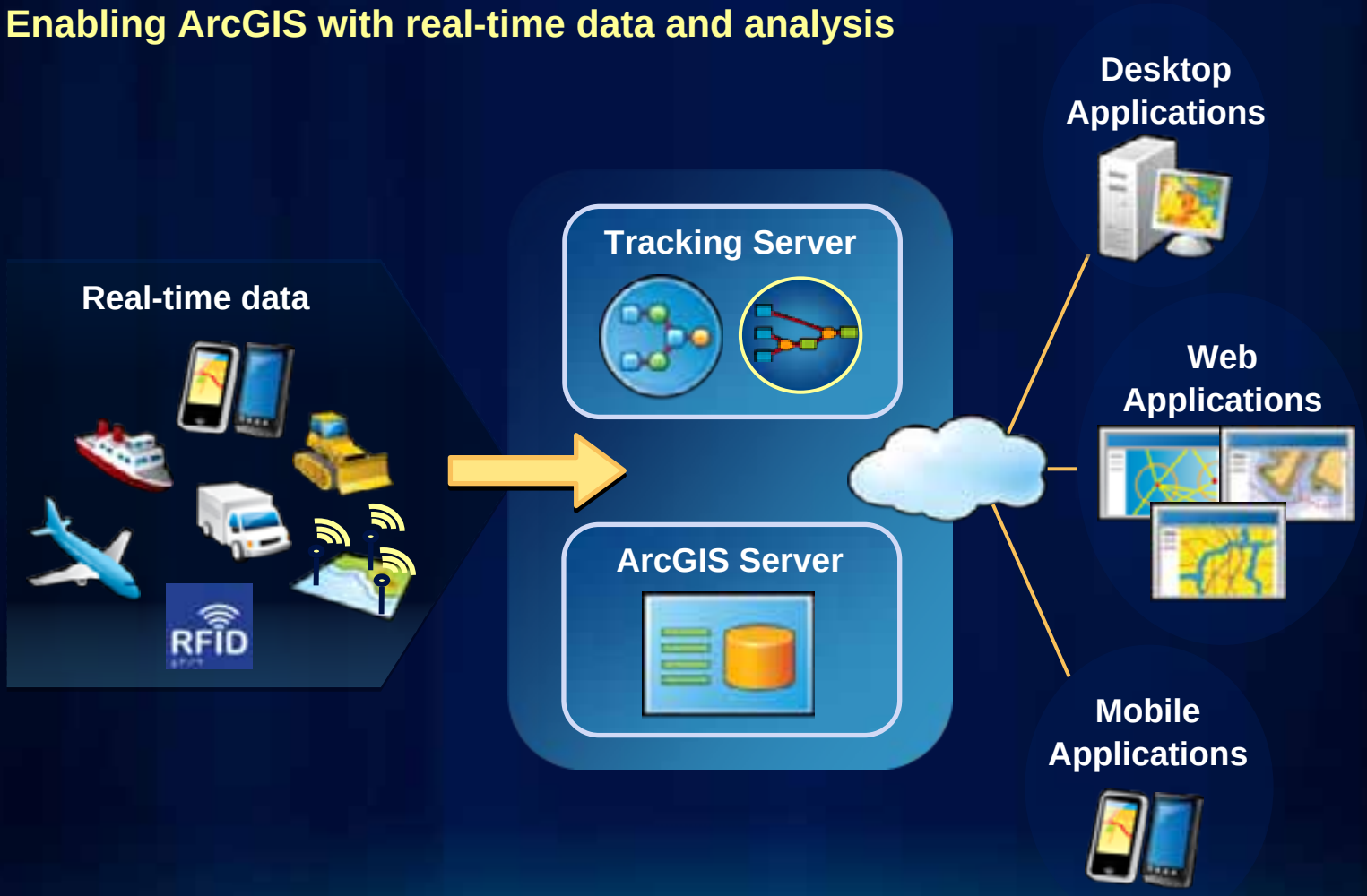
Adam Mollenkopf

Working with real-time data

Common Applications

Working with real-time data

Enabling ArcGIS with real-time data and analysis

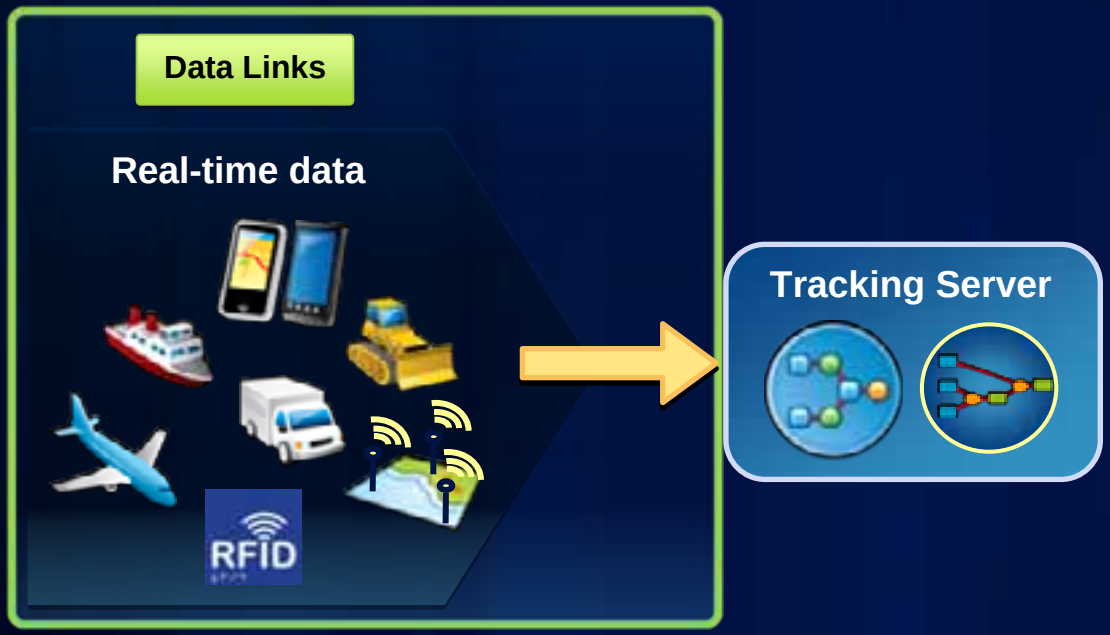


Managing real-time data

Adam Mollenkopf

Bringing real-time data in

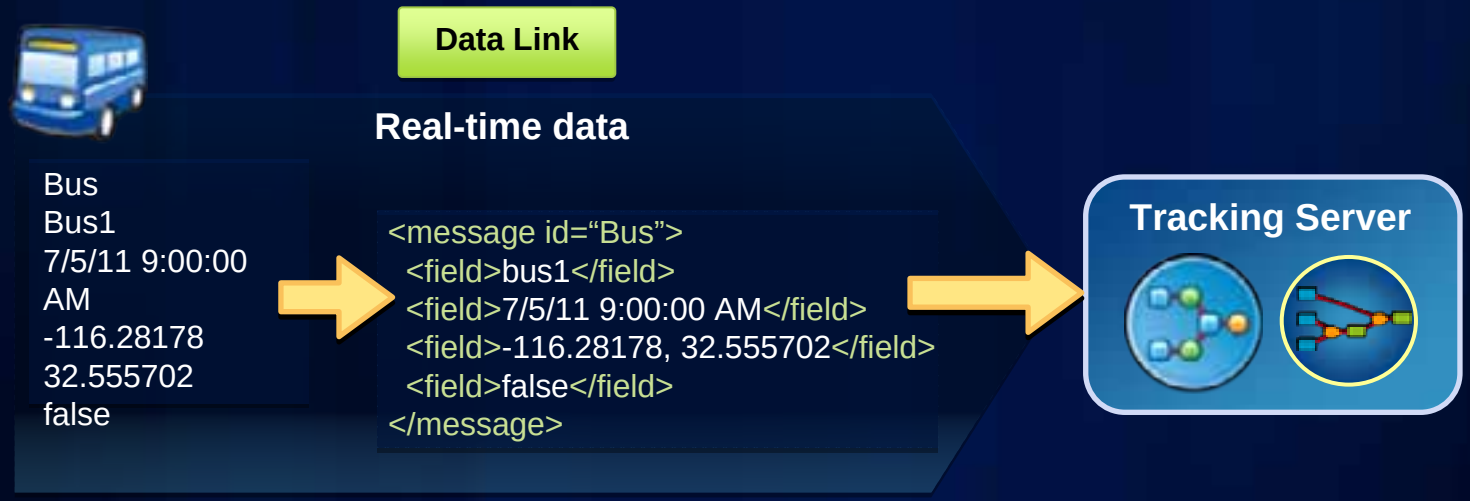
Data Links **acquire** real-time data from tracked entities and **transfers** them to Tracking Server.



Bringing real-time data in

Data Messages coming into Tracking Server must have a format that matches a Message Definition in order to be processed.

The Generic Input Data Link allows text (CSV or XML) data messages to be pushed into Tracking Server.



'Bus' Message Definition:

Name	Type
trackId	String
observedTime	TimeStamp
shape	Point
panic	Boolean

Applying analysis to real-time data

Actions apply analysis and operations to incoming messages as they are received by Tracking Server.

A Filter action keeps (or discards) messages that meet the criteria of attributes or location.

Data Link

Real-time data

Bus
Bus1
7/5/11 9:00:00 AM
-116.28178
32.555702
false

```
<message id="Bus">
  <field>bus1</field>
  <field>7/5/11 9:00:00 AM</field>
  <field>-116.28178, 32.555702</field>
  <field>false</field>
</message>
```

Actions

Tracking Server

Actions include:
- **Filter**
- **Data Modification**
- **Email Alert**
- **Data Partition**
- **Data Summary**

'Bus' Message Definition:

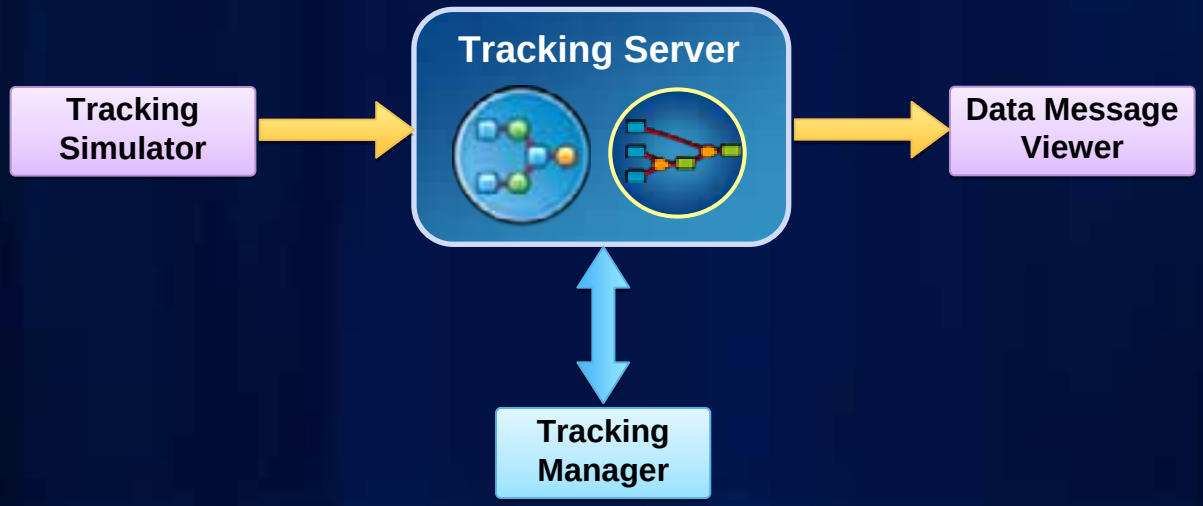
Name	Type
trackId	String
observedTime	TimeStamp
shape	Point
panic	Boolean

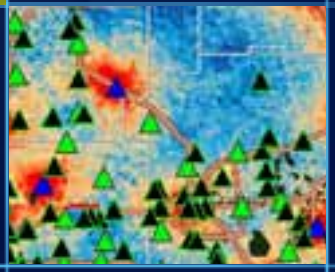
Tracking Server Utilities

The Tracking Simulator sends Data Messages into Tracking Server.

The Data Message Viewer receives messages from Tracking Server.

Tracking Server is configured via Tracking Manager.





Demo: Managing real-time data

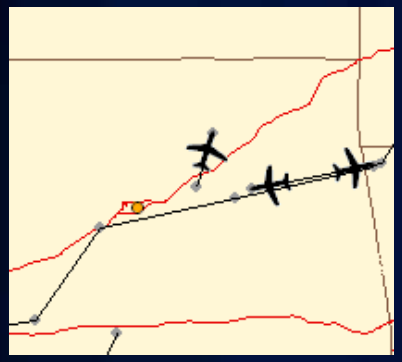
Adam Mollenkopf

Visualizing real-time data

David Kaiser

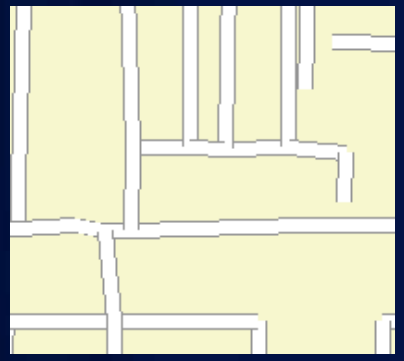
Real-time GIS Patterns

Dynamic
something that moves



- Planes
- Vehicles
- Animals
- Satellites
- Storms

Discrete
something that "just happens"

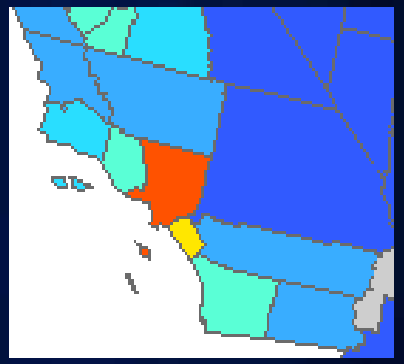


- Crimes
- Lightning
- Accidents

Stationary
stands still but records changes

- Weather Stations
- Traffic Sensors

Change
change or growth



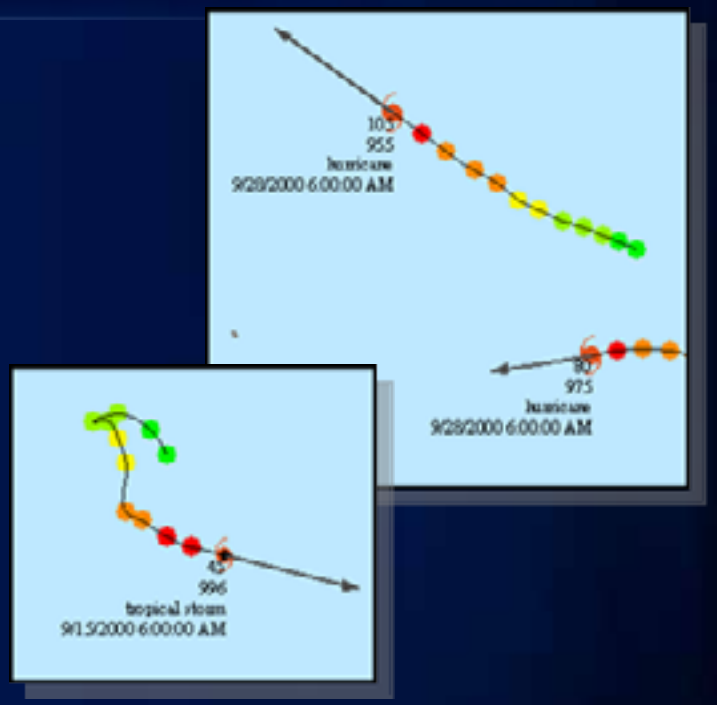
- Population
- Distribution
- Fire Perimeter

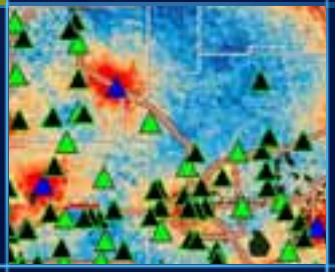
Real-time Mapping

- Rendering of Live Feature Data
- Track-Aware Symbology
- Actions

Tracking Symbology Options

- Smooth tracks
- Multiple attribute display
- Directional Vector
- Most Current





Demo: Visualizing real-time data

David Kaiser

Analyzing real-time data

David Kaiser

Analyzing real-time data

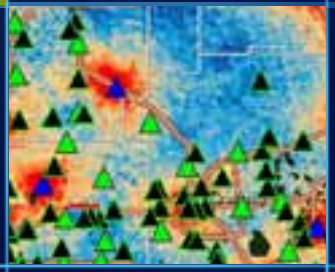
Detecting Conditions

- Actions run pre-configured analysis
- Symbols can be triggered based on ‘Action’
  - E.g. when a track intersects a polygon

Analyzing real-time data

Alerting

- Tracking Server actions run in server context
- Broadcast e-mail alert
- Perform data modification
- Call external application



Demo: Analyzing real-time data

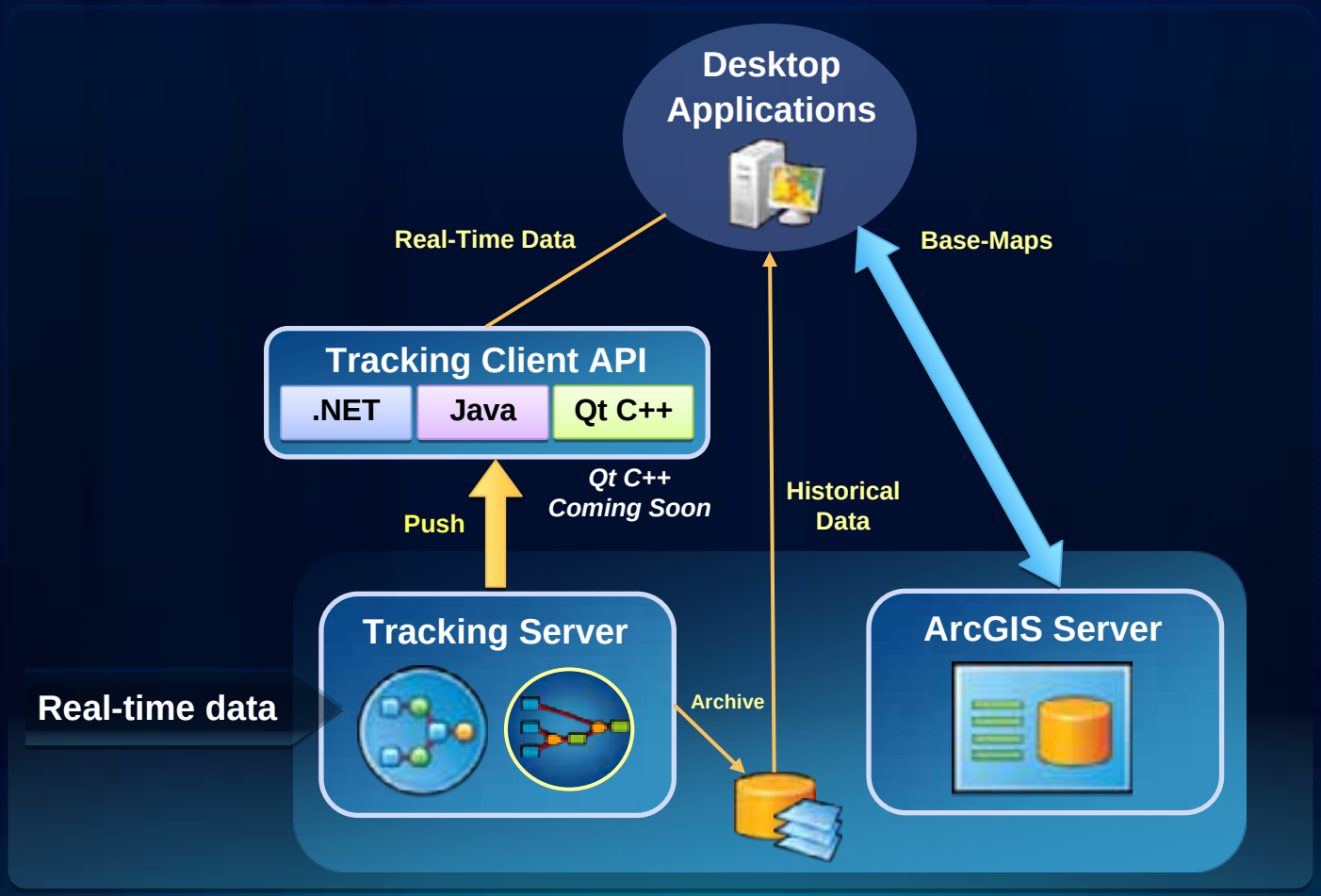
David Kaiser

Client Applications with real-time data

Adam Mollenkopf

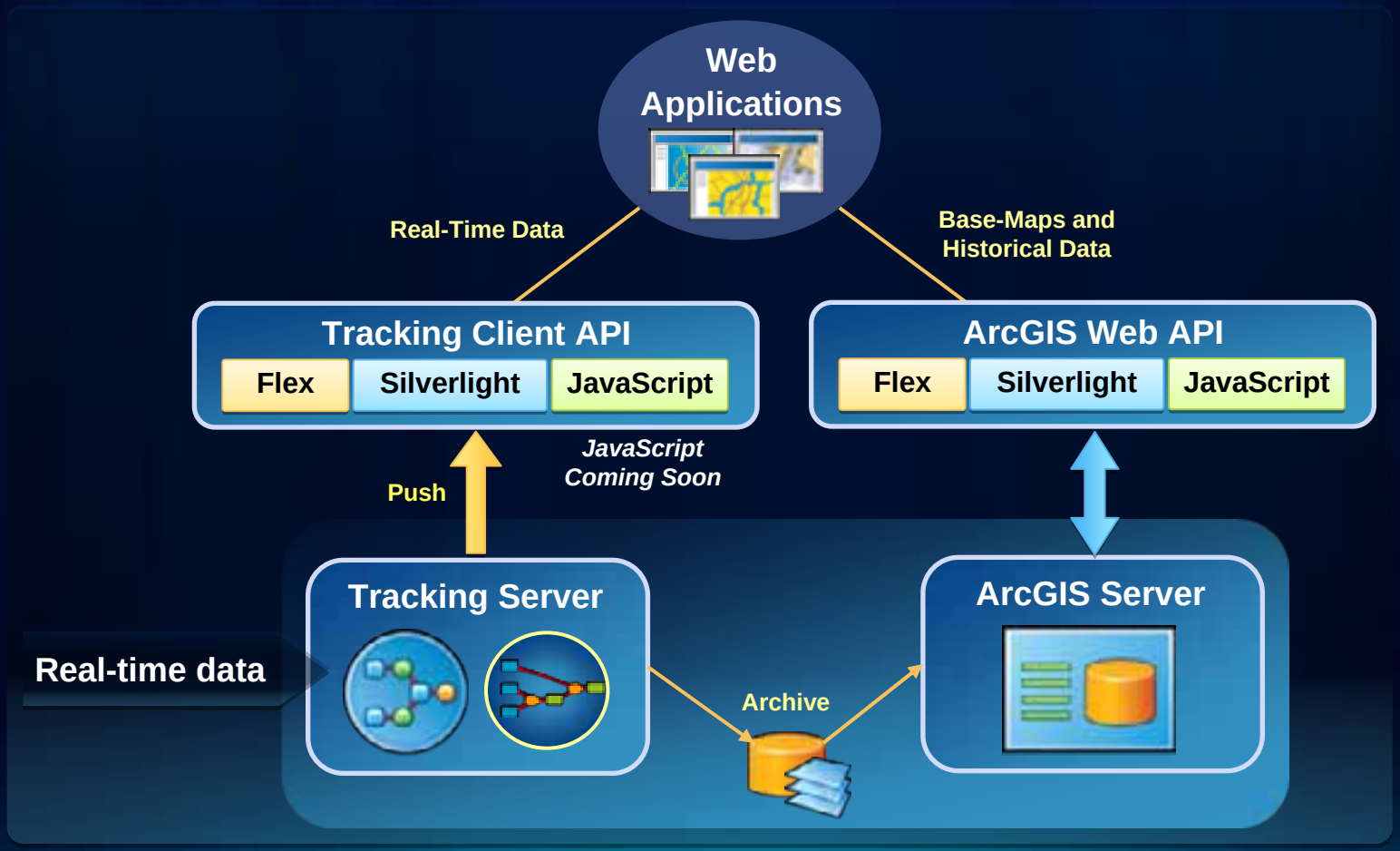
Desktop applications with real-time data

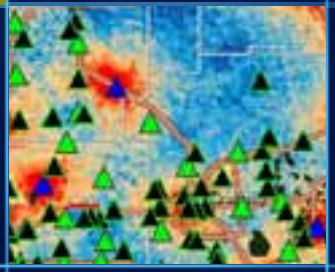
The **Tracking Client API** enables **desktop applications** to monitor entities through time, as they move or change.



Web applications with real-time data

The Tracking Client API enables web applications to monitor entities through time, as they move or change.



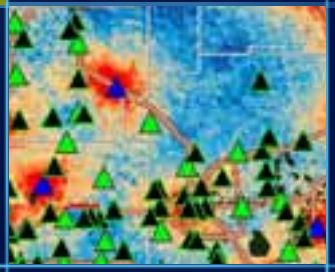


Demo: Tracking Viewer for Flex

Adam Mollenkopf

Mobile Applications with real-time data

The Tracking Client API enables mobile applications to monitor entities through time, as they move or change.



Demo: Android Mobile Sample

Adam Mollenkopf

Tracking @10.1

- **Tracking Analyst @10.1**
  - **Single list of tracks across multiple layers**
  - **Proactively monitor services**
  - **Generate track statistics for analysis**

- **Tracking Server @10.1**
  - **Tracking Widget for ArcGIS Viewer for Flex**
  - **Apply spatial filters to conserve client resources**
  - **Industry Standards support: KML, JSON**
  - **Application Templates for Tracking**

Summary

- **Esri Tracking Solutions:**
  - **enable ArcGIS with real-time data and analysis**
  - **provides capabilities for Managing, Visualizing, and Analyzing real-time data**
  - **can be applied in a variety of environments including:**
    - **Desktop, Web, and Mobile**
  - **offers unified functionality across a variety of developer platforms including:**
    - **.NET, Java, *Qt C++ (new)***
    - **Flex, Silverlight, *JavaScript (new)***

Resources to get started

- **ArcGIS Tracking Analyst:**
  http://www.esri.com/trackinganalyst

- **Resource Center for Tracking Server:**
  http://resources.arcgis.com/ (click 'Tracking Server')

- **Please submit a session survey:**
  http://www.esri.com/sessionevals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