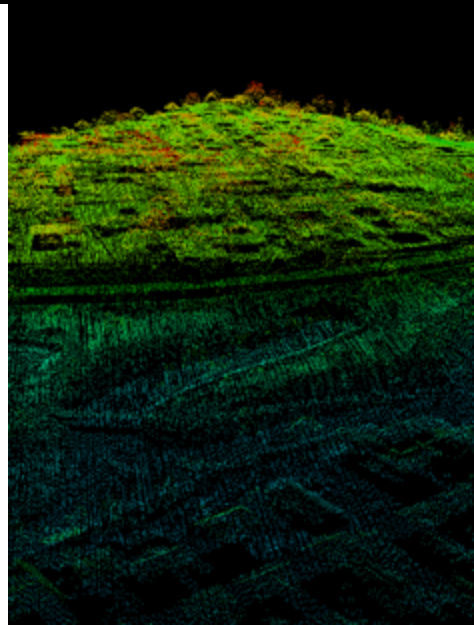


Applying Dynamic GIS to make Smarter Decisions

Mark Doherty
Vice President and CTO
Intergraph Corporation



THE WORLD IS ALWAYS CHANGING

The World is Always Changing



Rikuzentakata, Japan – March 11 2011
Magnitude 9.0 earthquake. 15341 dead. 8298 missing.
\$300 Billion in damages. 125,000 buildings destroyed

The World is Always Changing



Tuscaloosa, Alabama – April 27 2011
Tornados - 190 mph winds. 1.5 mile wide path of destruction. Path of 80.3 miles.
61 dead.

The World is Always Changing



Johnsons Landing, BC Canada – July 12 2012
Landslide 4 Dead

The World is Always Changing



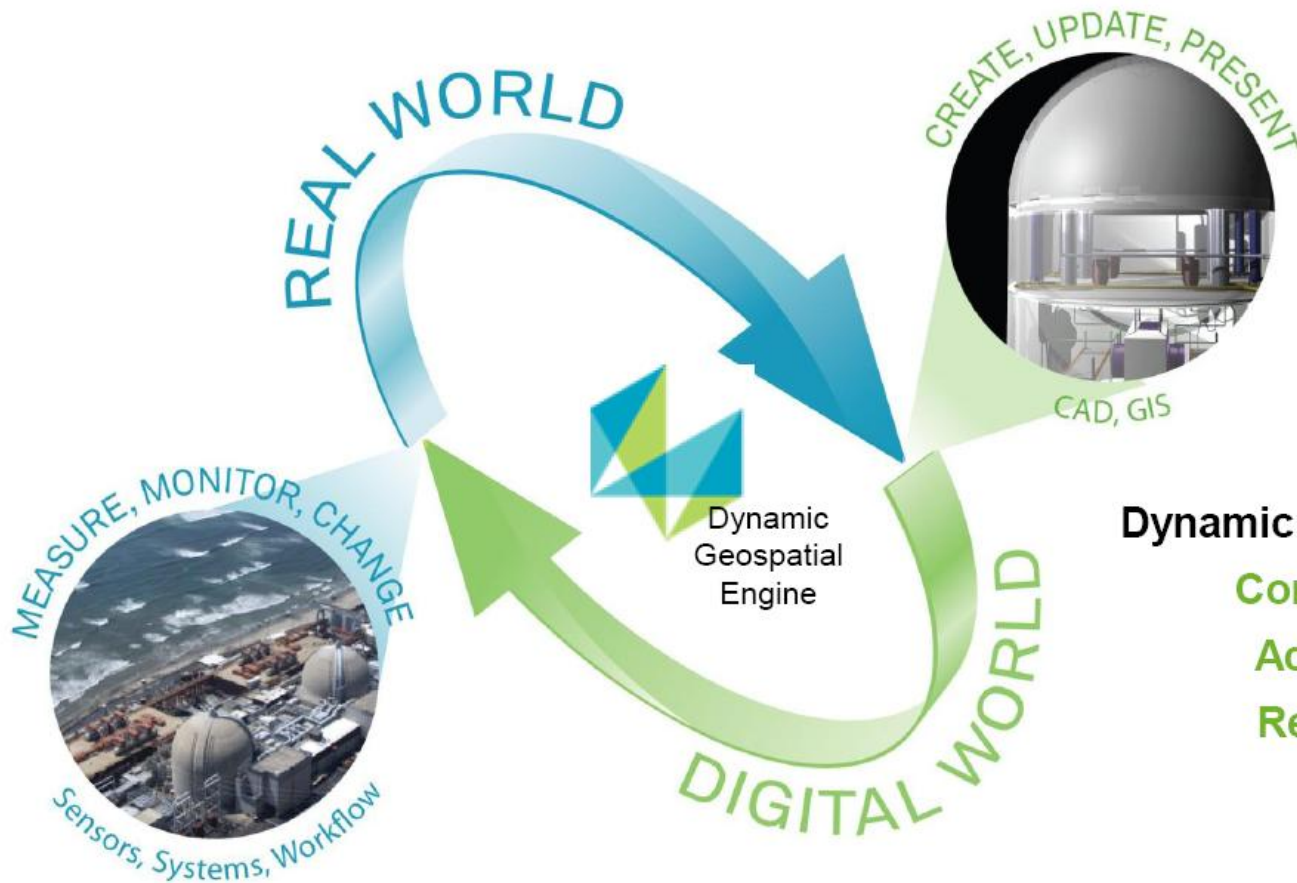
Crop Monitoring – US Drought 2012

The World is Always Changing



The pothole or damaged sign in my Neighborhood – 2012

WHAT IS DYNAMIC GIS?

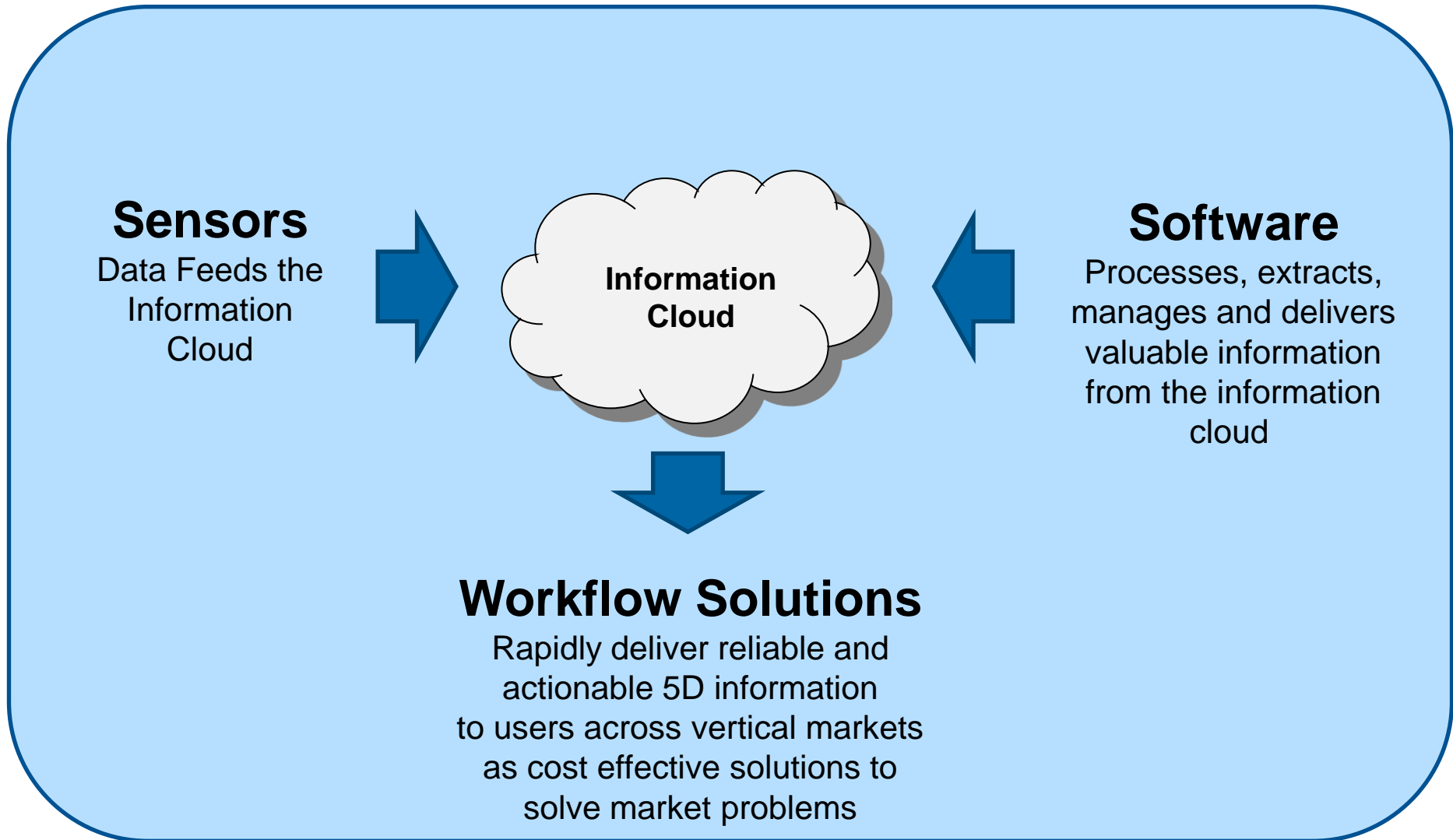


Dynamic Digital World

- Connected
- Accurate
- Relevant

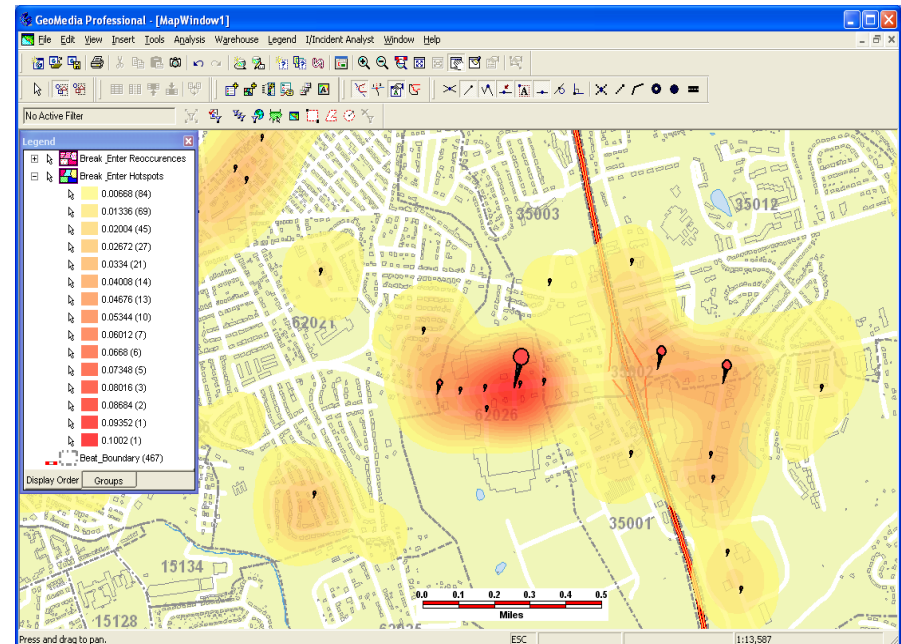
Transforming the Real World

**A Dynamic Earth
of Constant Change**

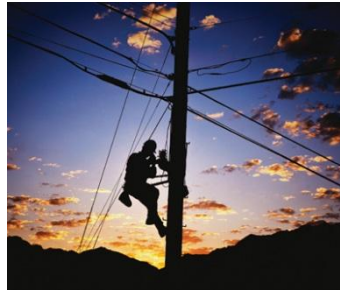


Key Elements of Dynamic GIS

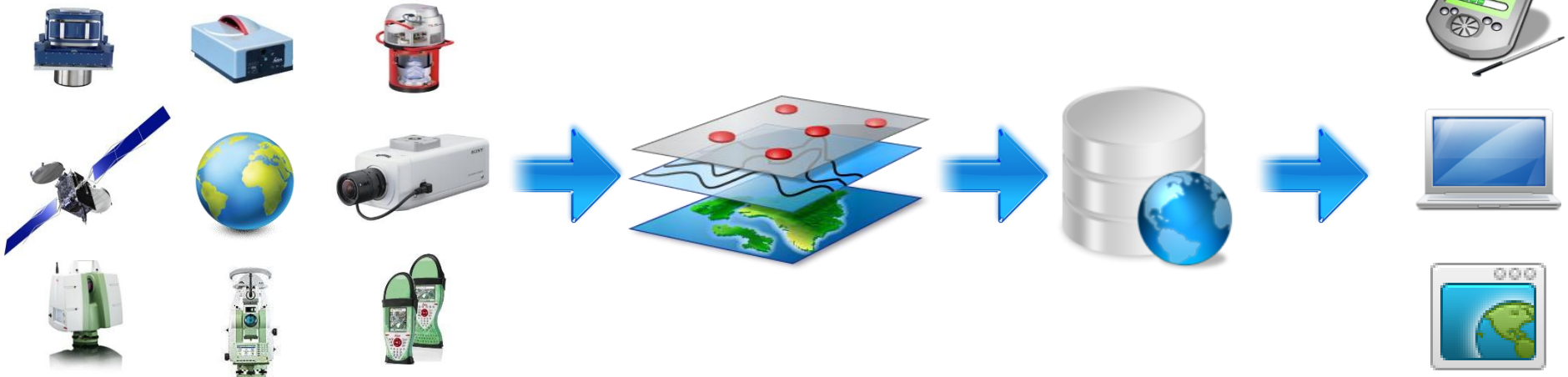
- Streamlining of existing workflows and data flows
- New combinations of data
- Integration of real time data: Sensors, Video
- Geo-processing of real-time data
- Effective Visualization



Measuring and Understanding Our Dynamic Earth



Geospatial Information Value Chain



Capture

Process

Share

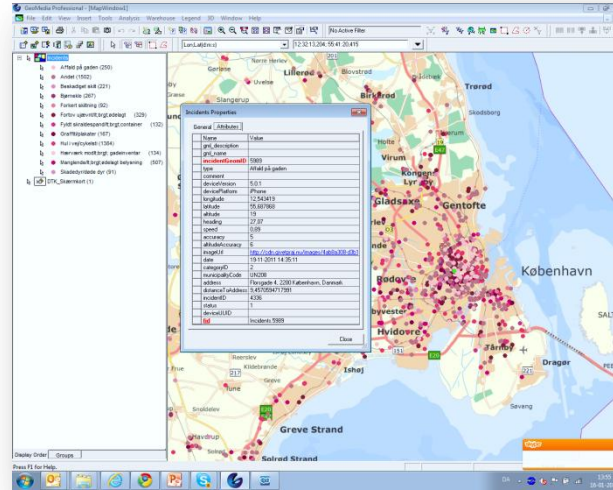
Deliver

HOW IS DYNAMIC GIS BEING USED TO MAKE SMARTER DECISIONS

Mapping Potholes in Copenhagen

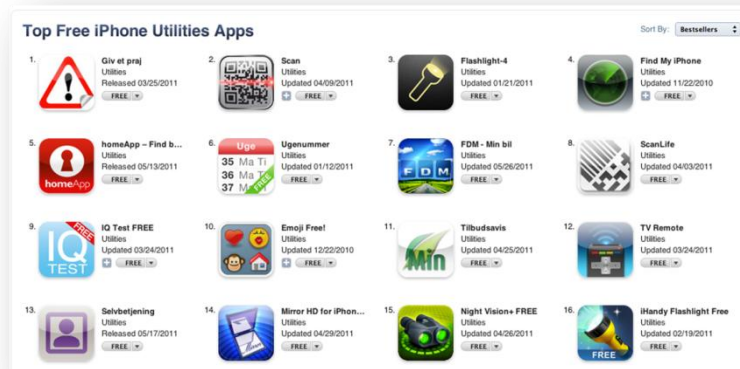


MOBILE ALERT APPLICATION



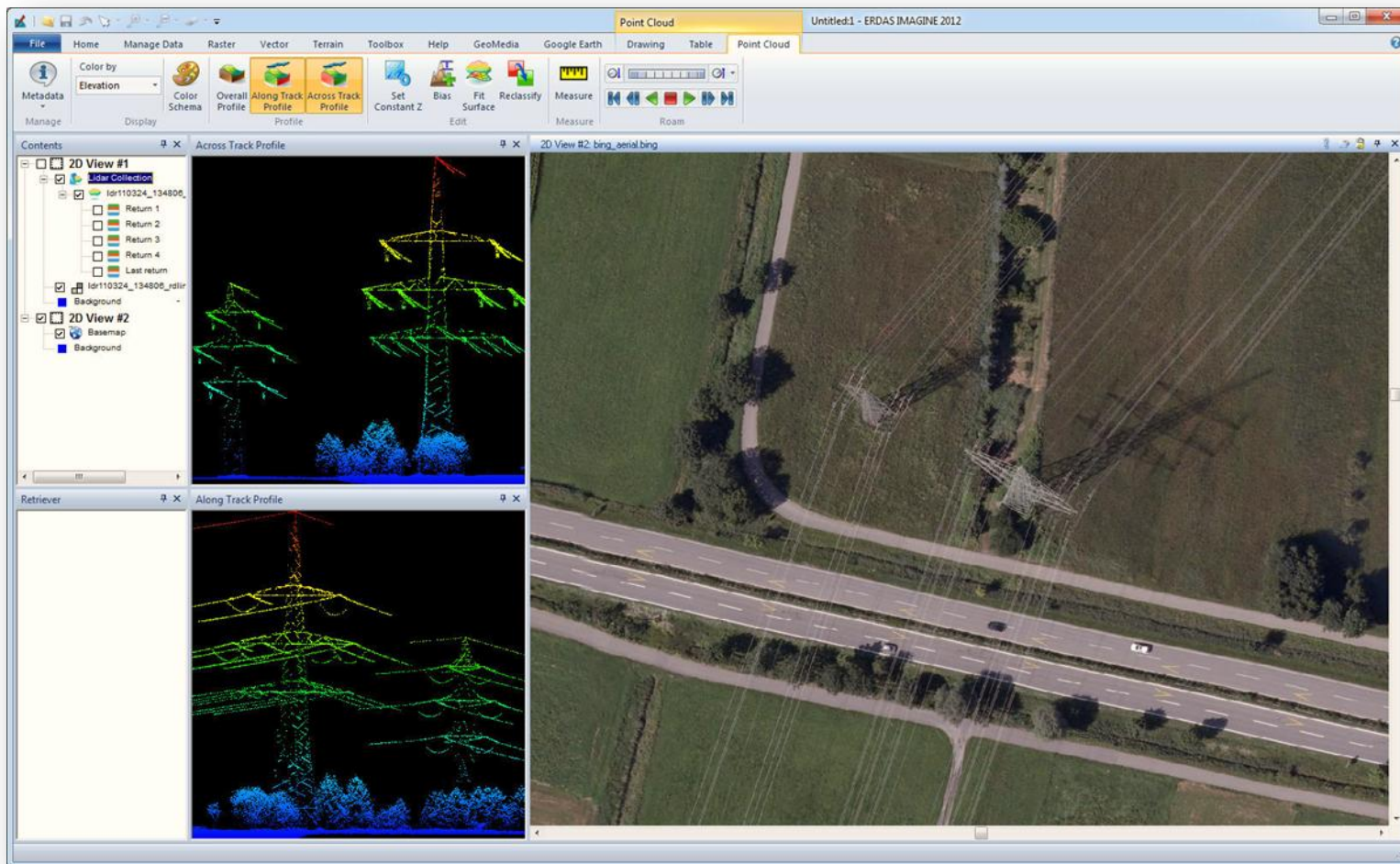
Create and Display Dynamically in a GIS Map

Identify & Report Pot Holes on the Road with an iPhone

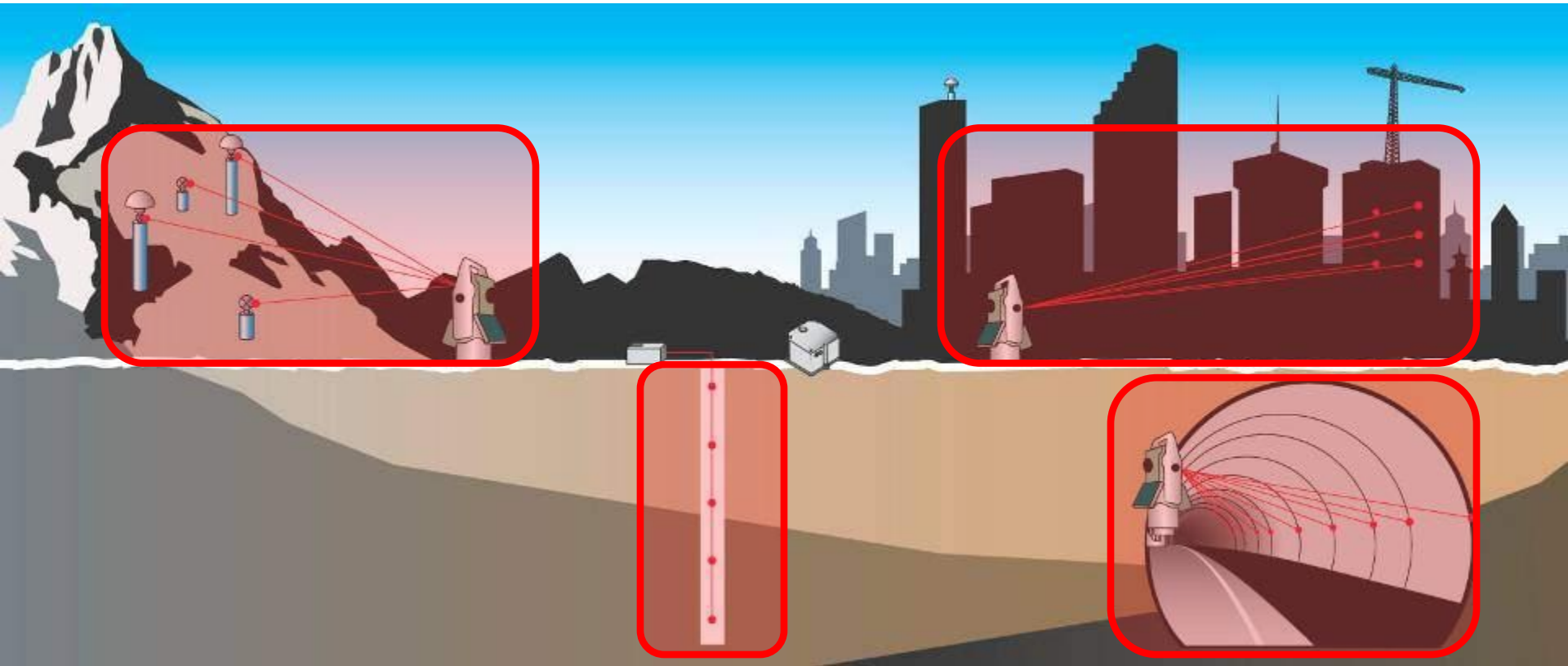


#1 Free iPhone Utility App in Denmark

GEOSPATIAL MIXING: Aerial Imagery + Terrestrial LiDAR = Dynamic Information



Utility Planning & Management



Systematic monitoring of deformations
integrated with visualization, analysis and
response.

Geo-referenced Sensors & Video Integration



Sel	Auth	Priority	Alias	Type	Latitude	Longitude	Level	First Reported	Last Reported	Description	Number of Alarms	Op
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4	2005 Demo (HID Prox w/Keypad) - Input 2	Reader Input	0.6068444	-1.5121417	0	03/12/2007 13:13:01	03/12/2007 13:13:02	Alarm Active	2	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4	2005 Demo (Alternate Reader)	Reader	0.6062385	-1.5111088	0	03/12/2007 13:13:04	03/12/2007 13:14:20	Door Held Open	2	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4	2005 Demo (Alternate Reader)	Reader	0.6072385	-1.5121998	0	03/12/2007 13:13:04	03/12/2007 13:14:04	Door Forced Open	2	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4	2005 Demo (HID Prox w/Keypad) - Input 1	Reader Input	0.6069605	-1.5121375	0	03/12/2007 13:13:00	03/12/2007 13:13:00	Alarm Active	7	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3	2005 Demo (HID Prox w/Keypad)	Reader	0.6069771	-1.5111088	0	03/12/2007 13:13:00	03/12/2007 13:13:00	Alarm Active	7	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4	2005 Demo (HID Prox w/Keypad)	Reader	0.6069771	-1.5111088	0	03/12/2007 13:13:00	03/12/2007 13:13:00	Alarm Active	7	

Step 1— Alarm Detection
Alarms received from external system

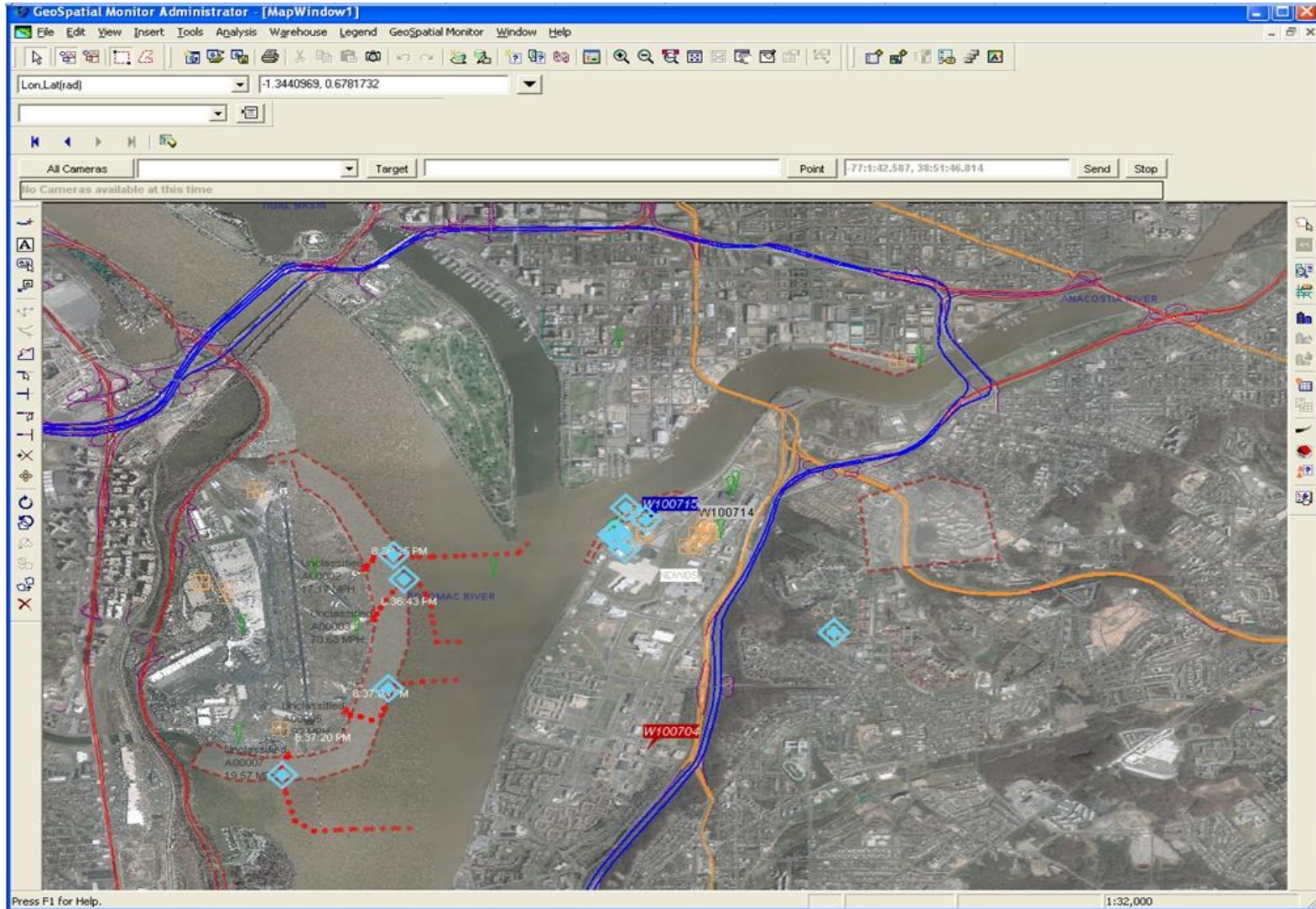


Step 3— Response
Event response is created if warranted



Step 2— Video Assessment
Event and alarm location can be associated with live camera feeds.
Dispatchers, calltakers, and security monitors can quickly view and assess the situation

Geospatial Security Monitor: Geo Enabled Alarm Zones and Radar Target Tracking



Geo-referenced Full Motion Video



The screenshot shows the GeoMedia Professional interface. A central window titled 'AdeLaida' displays an aerial map. To the right of the map is a data table with the following information:

Data Name	Value
Video URL	D:\Warehouses\...
KLV URL	D:\Warehouses\...
Mission ID	100
Vehicle ID	
Latitude	-34.8270622672
Longitude	138.5649592952
Altitude	3234.331583658
Roll	23.48102561021
Pitch	25.57480738713
Yaw	18.90064250505
Classification	
Stamp	27318600
GC 1 Lon	138.6462548375
GC 1 Lat	-34.7745523225

Below the data table is a 'Load configuration...' button. At the bottom of the window, there are checkboxes for 'Show annotations' and 'Show clip marks', along with a timeline and playback controls. The main map area shows an aerial view with yellow and blue lines overlaid, representing a flight path or data collection area.

- Dynamic GIS provides integration of real time data and streamlining of new and existing workflows
- Dynamic GIS allows decision makers to work with a more current, accurate model of the real world
- Ultimately they can make Smarter Decisions

