



# **The Sensor Web: Embedded Situational Awareness**

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[www.SensorWareSystems.com](http://www.SensorWareSystems.com)

# SensorWare Systems

- Spun out of NASA/Caltech
- Large federal investment (DoD, DHS, NASA, DARPA, ...)
- 2 patents granted (additional patents pending)
- Completed extensive beta field-testing (over 30 deployments)
- Selected: Top-5 North America Security Start-Up
- Selected: Worked with Federal & CA EPA
- Selected: DHS UnderSec briefed Congress on technology



# The Problem: How to Monitor Large Areas

## Examples:

- Monitor Explosive Gases
- Identify Contamination Sources
- Locate First-Responders
- Track Flow in Pipelines
- Secure Perimeters



Recent Explosion (Port of Gibraltar)

**It's too late once an incident happens!**

# The Solution: The Sensor Web

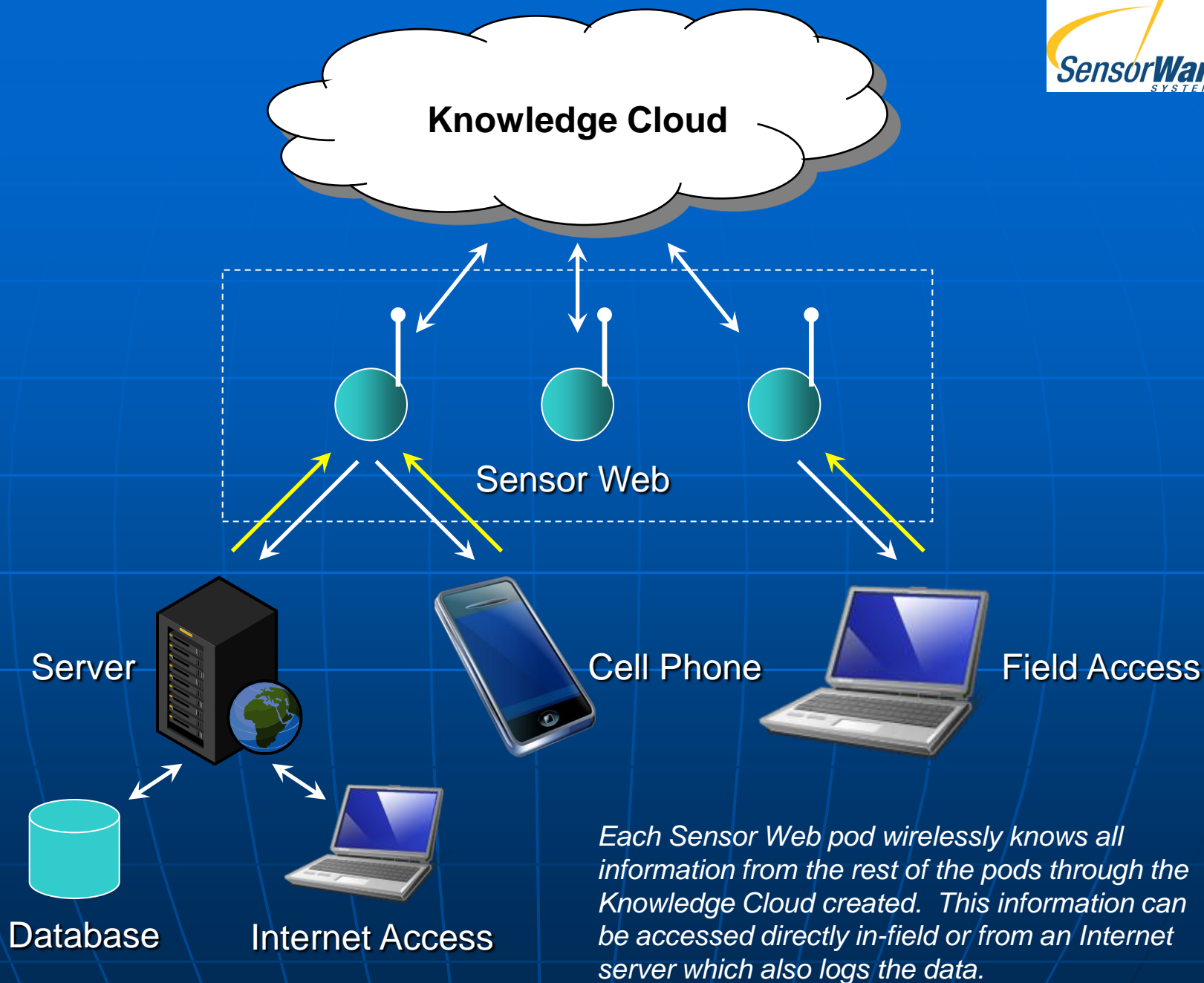
- **Invented at NASA**
- **Creates “Knowledge Cloud”**
  - Real-Time
  - Always present
  - Situational Awareness
- **Decision-making sentinel**
- **Best way to monitor**
  - Economical
  - Robust
  - Reliable



Sensor Web Pod attached to  
Alaska Pipeline (Fairbanks, AK)

**Prevent incidents before they happen!**





# Environmental Forensic Solutions



- Environmental management  
(air/water quality, remediation)
- Protect first-responders / Life-safety  
(track personnel, situational awareness)
- Hazardous material tracking  
(plume discharges, pipeline, explosives)



# Sensor Web Advantage

- Patented Network
- No IT overhead (hubs, routers)
- No training required (deploys in minutes)
- No hackable wireless
- No trenching required
- Seamless integration
- Fuse pixels (pod)
- Networks with no
- Non-Line of sight
- Low maintenance



**➔ Easy, Turnkey**

# Multiple Sensors & Types per Pod

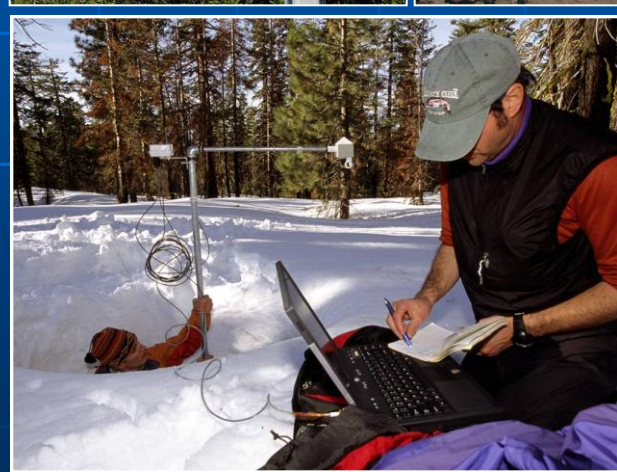
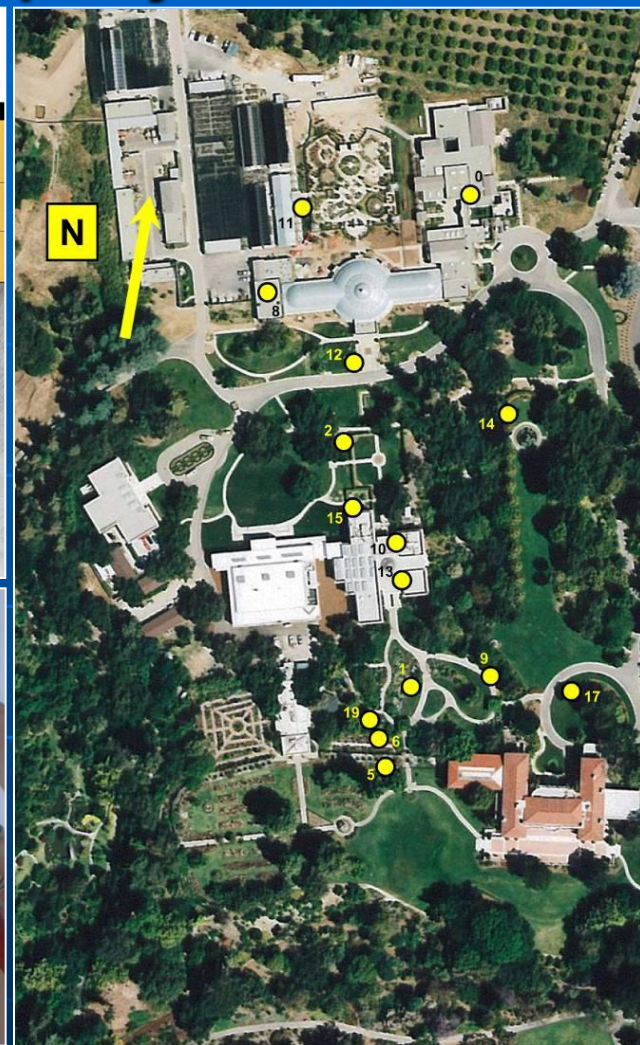
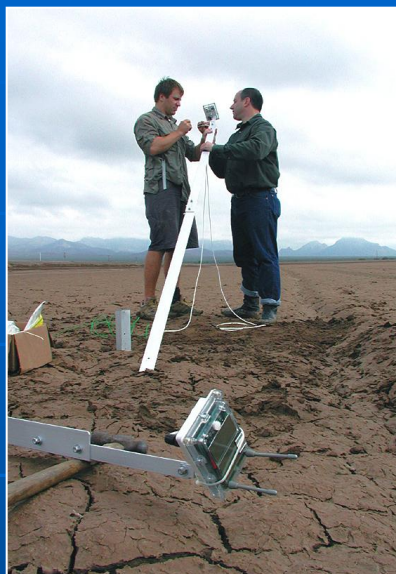
## **Already Demonstrated:**

- 4 Gas Detector: O<sub>2</sub>, CO, H<sub>2</sub>S, Lower Explosive Limit
- Smoke Detector
- Chlorine Dioxide (anthrax decontamination)
- Tiltmeter
- Water Conductivity (total dissolved solids)
- Sonic Pinger for Water/Snow depths
- Temperature (air, soil, water)
- Relative Humidity
- Light (visible)
- Soil Moisture

**... and many others are possible!**



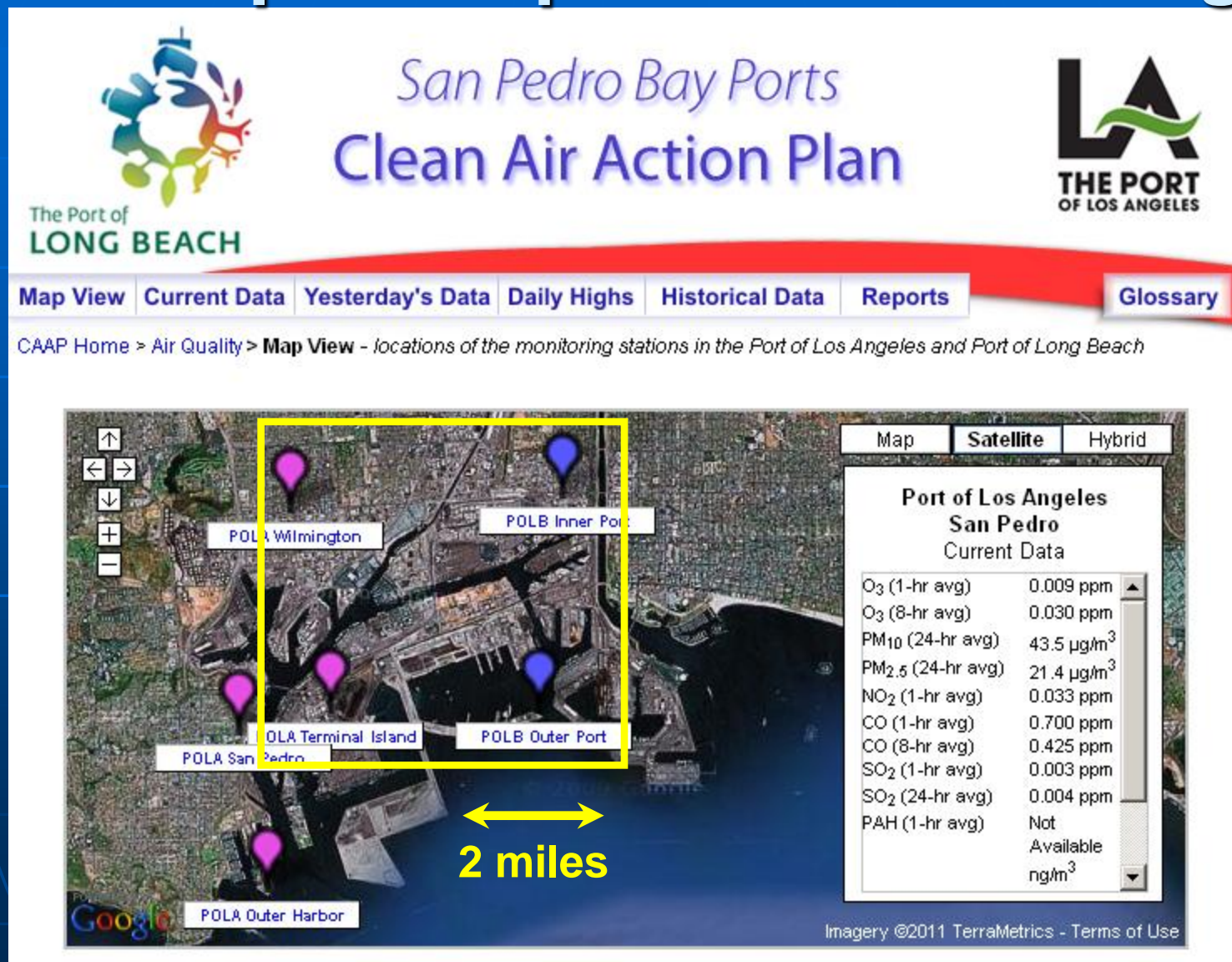
# Over 30 Real-World Deployments



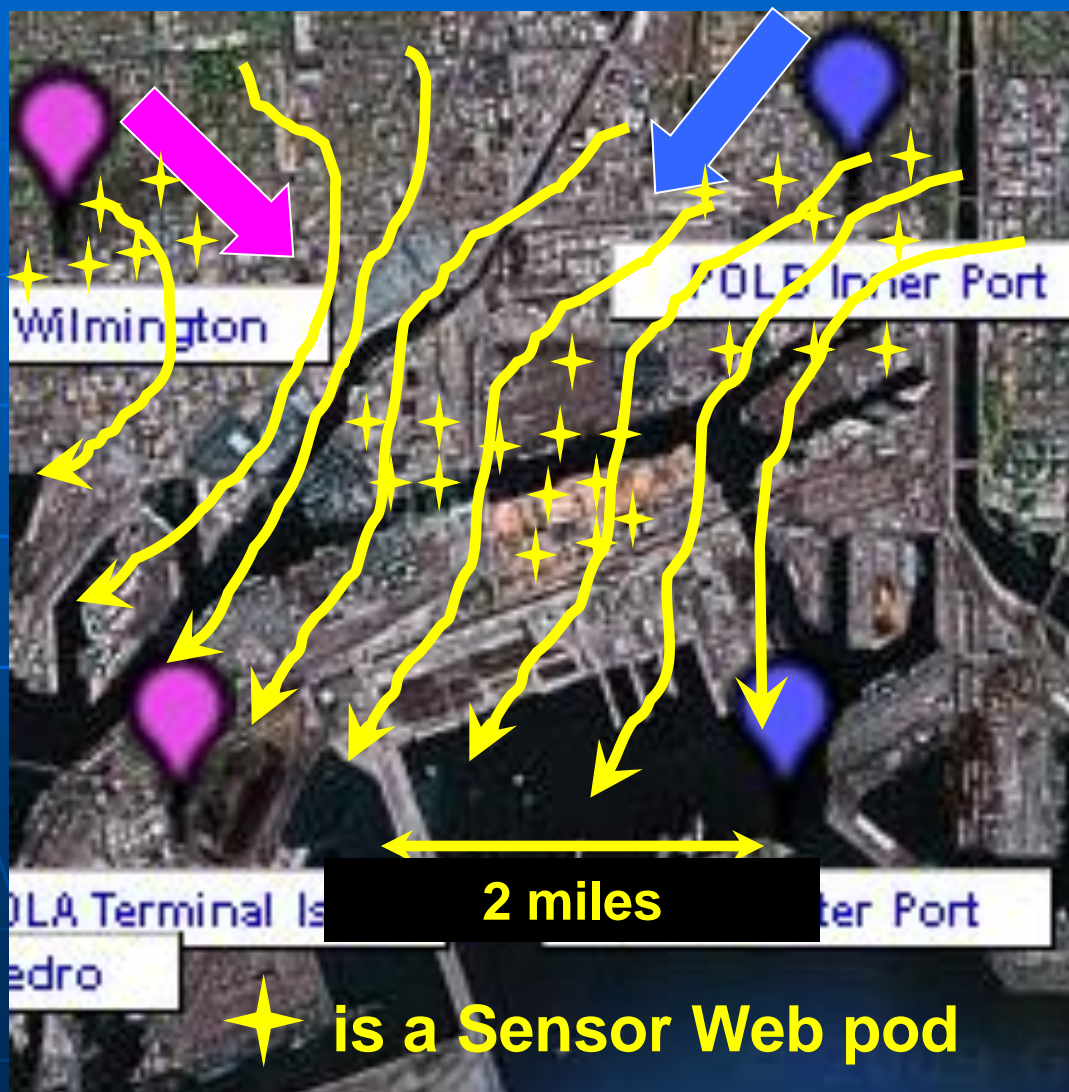
Streaming, real-time data :  
<http://www.SensorWareSystems.com>



# Port Op Example: Air Monitoring



# Improve Air Monitoring



Current monitoring:

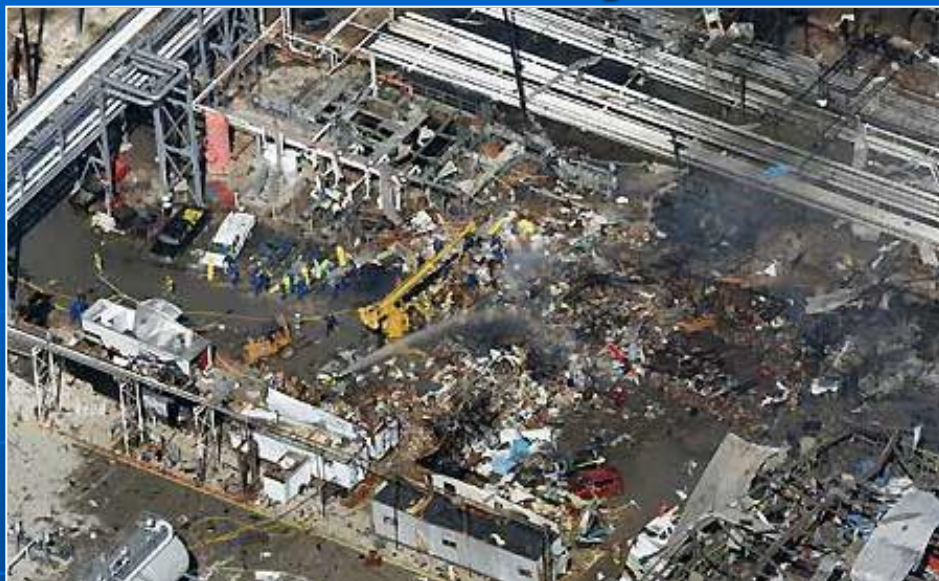
- coarse grained
- requires modeling

Sensor Web adds:

- fine grained
- real-time results
- micro-contours
- plume tracking
- source detection
- stronger evidence



# Port Op Example: Refinery



\$1.0B in repairs/upgrades  
\$80M in fines  
\$1.6B in settlements  
170 injured  
15 dead  
Preventable!



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