



# Awareness Fusion

Knowledge Vector  
August 2003



Knowledge Vector, formerly Topic Radio, began R&D efforts on the Knowledge Switch in 2001. The original design intent was to enable the free flow of highly tailored information to individuals and groups on-demand. This application applies to commercial and public organizations alike.

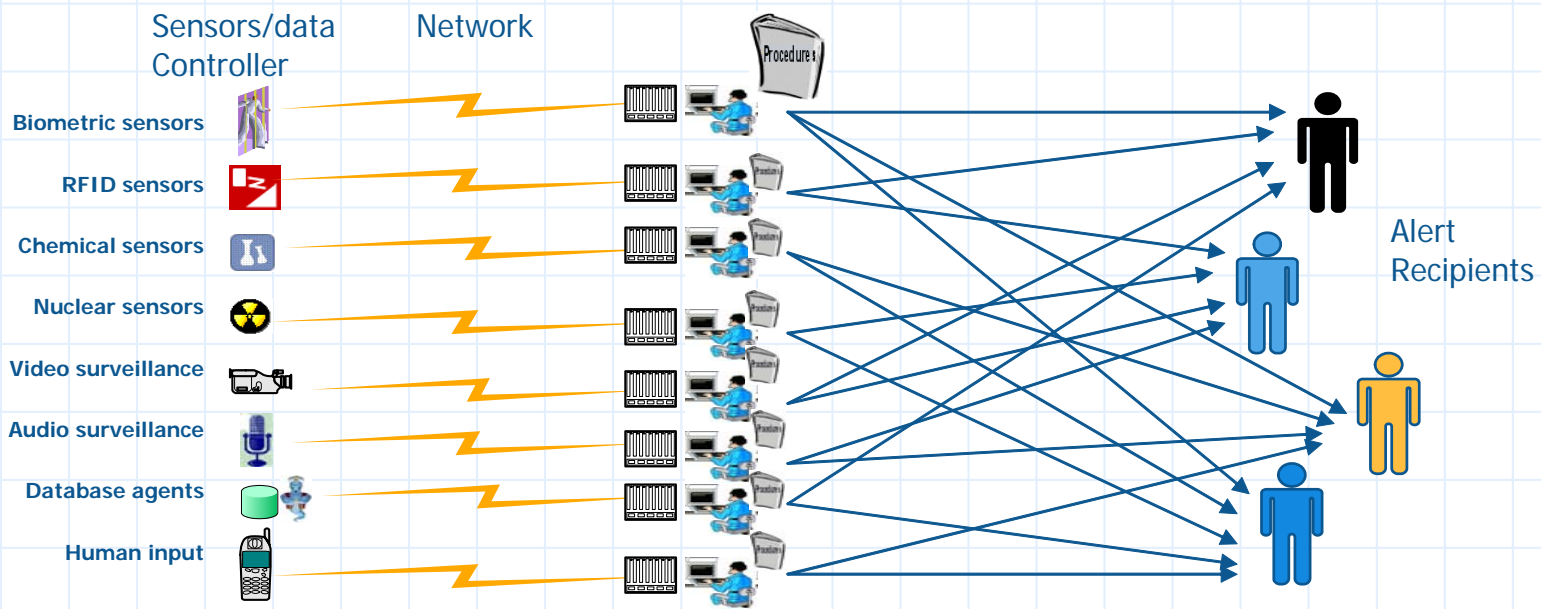
September 11th heightened our efforts to complete the development of the Sentinel application; that couples highly tailored, specific information to first responders under defined alert scenarios.

The combination of these efforts culminate in a product called the Knowledge Switch and our motto; “now...you’re aware”.



Knowledge Vector has developed an integrated alert management and communication system for businesses and government agencies tasked with threat protection of public and private infrastructure.

- ☹ Too much undifferentiated data from sensors and other input
- ☹ Alerting the right people at the right time quickly and with certainty
- ☹ Limited logic
- ☹ Difficult to program and maintain

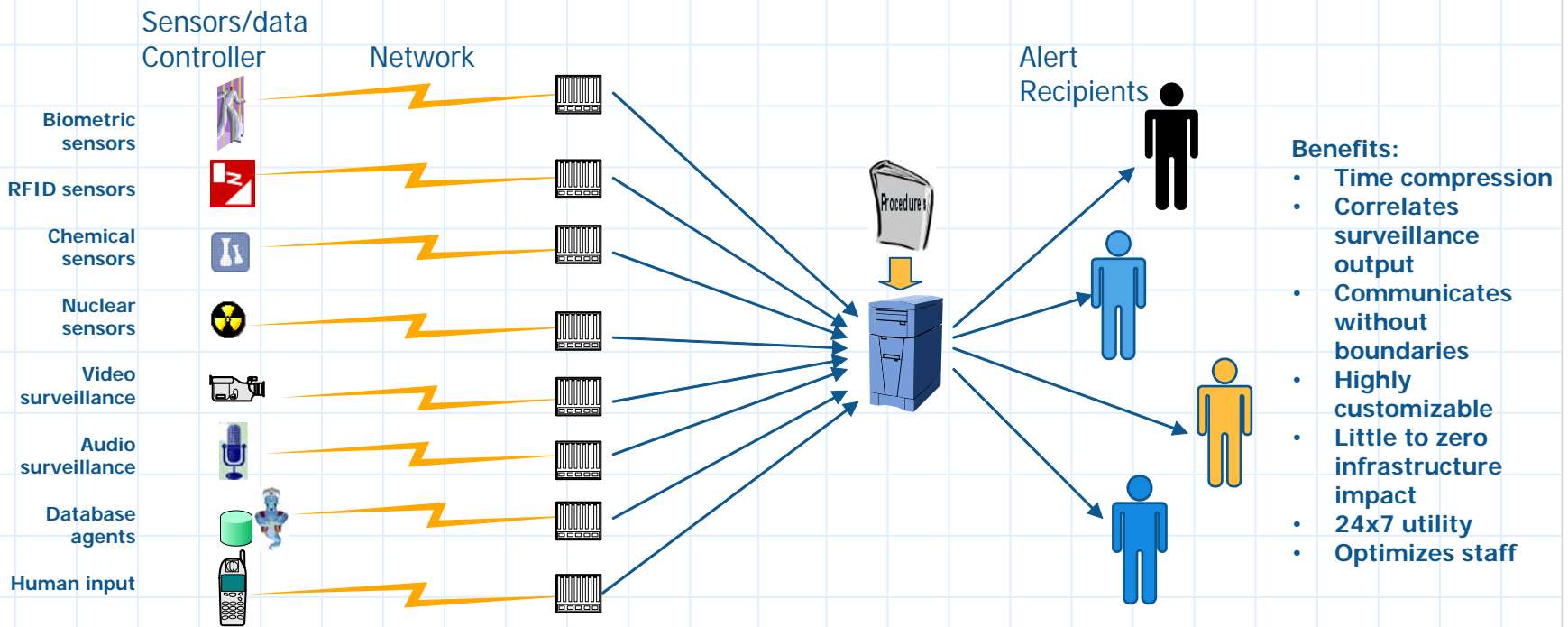




# Knowledge Vector Solution

## Knowledge Switch (KSX)

- Aggregates data from sensor subsystems and data sources, creating a simplified and context-rich view of the situation being monitored,
- Automatically routes customized information (text alerts, video streams, etc.) of the event to responders
- Uses the most appropriate medium (voice, text, video), and to the most appropriate device(s), thereby meeting the specific requirements of the situation.

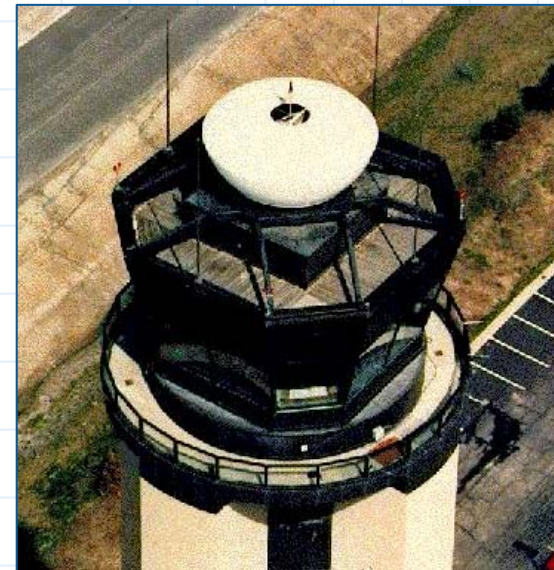


- Benefits:**
- Time compression
  - Correlates surveillance output
  - Communicates without boundaries
  - Highly customizable
  - Little to zero infrastructure impact
  - 24x7 utility
  - Optimizes staff



## ☺ Secure Perimeter Awareness Network (SPAN)

- Knowledge Switch integrates ground surveillance radar with video and additional surveillance and security technologies
- Applicable in commercial and military airports, oil fields, royal palaces and other large perimeter facilities
- Variants applicable at seaports, military bases, container security, and bio-surveillance

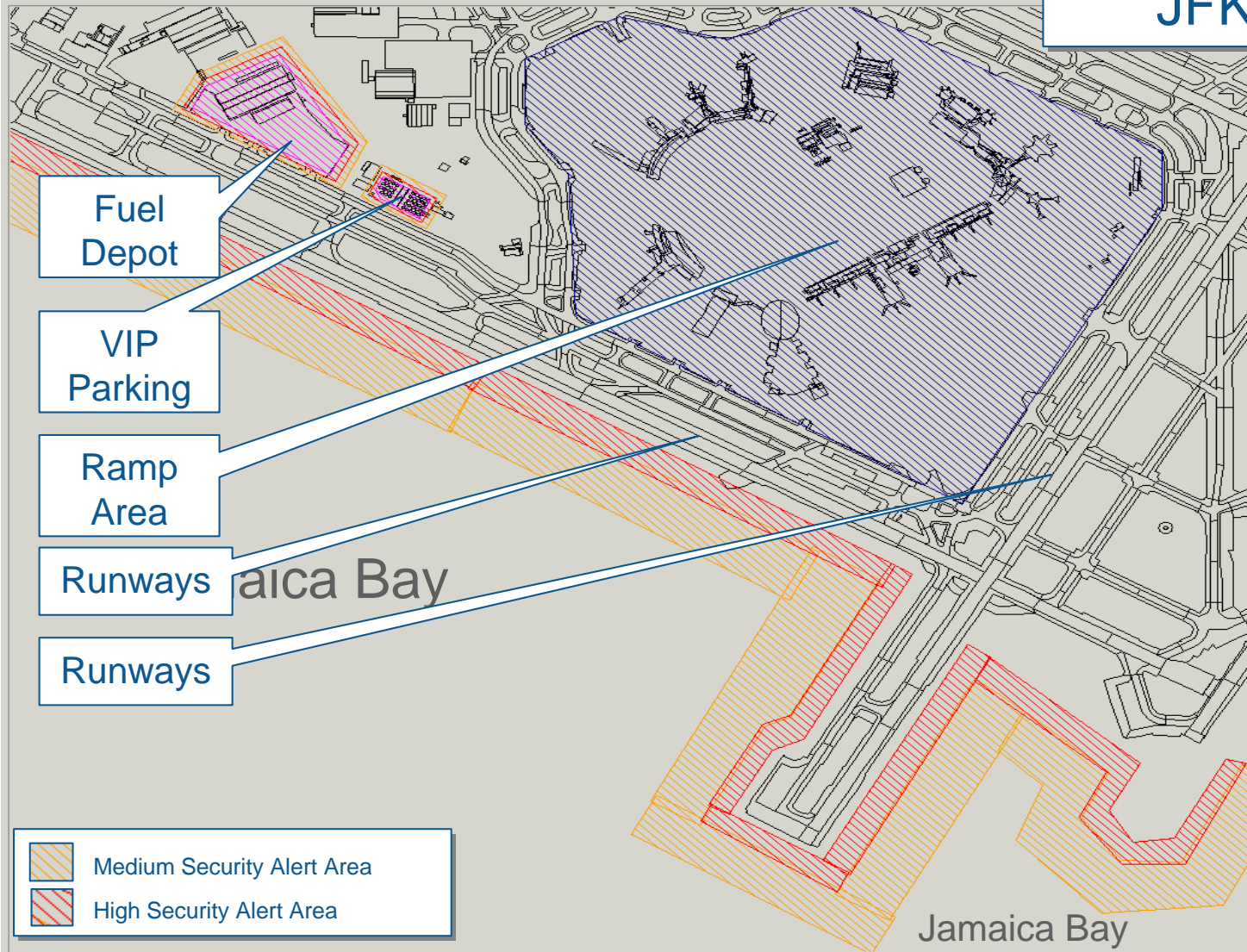


Typical ASDE-3 Radar System Installation



## JFK Airport

ASDP  
File Help



Map Controls  
Zoom Center Reset

Display  
 Track Histories  
 Tracking Zones  
 CCTV Areas  
 Exclusion Zones

Summary  
Contacts: 3  
Tracking: 3  
Threats: 0

Tracks

Track 1	Low
Track 2	Low
Track 3	Low

Selected Track

ID:

Threat Level:

Status:

Acquired:

In Track:

Inside Zones:

Tracker

METEX Status: Active

Tracker Status: Active

Start Stop

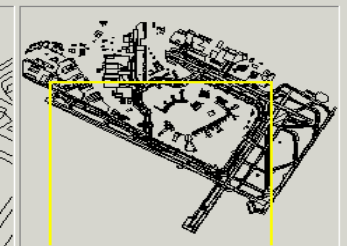
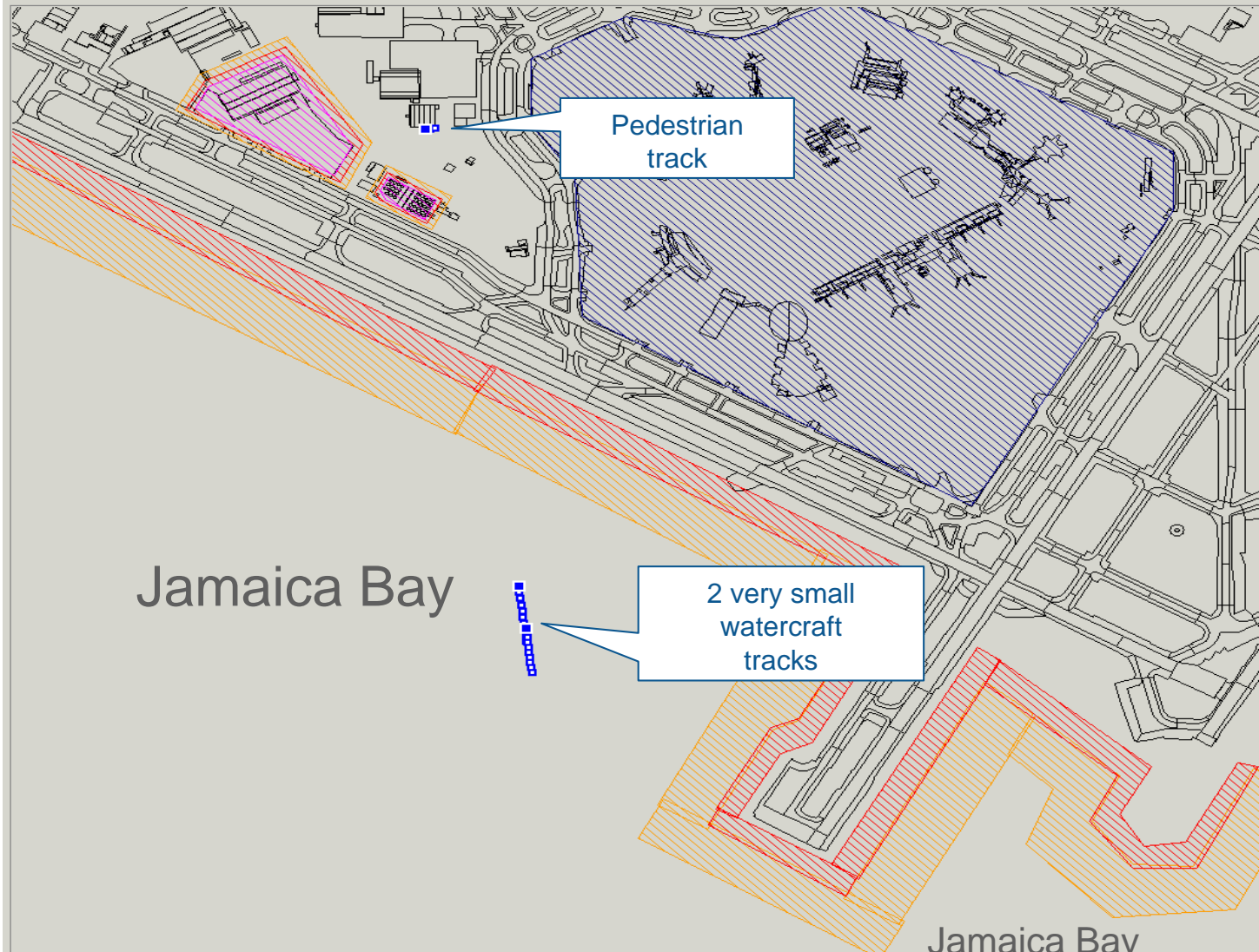
Current Config File: JFKWithZones.cfg

Current Map File: JFKWithZones.amf



ASDP

File Help



Map Controls

Display  
 Track Histories  
 Tracking Zones  
 CCTV Areas  
 Exclusion Zones

Summary  
 Contacts: 3  
 Tracking: 3  
 Threats: 0

Tracks  
 Track 1 Low  
 Track 2 Low  
 Track 3 Low

Selected Track  
 ID:  
 Threat Level:  
 Status:  
 Acquired:  
 In Track:  
 Inside Zones:

Tracker  
 METEX Status: Active  
 Tracker Status: Active

Current Config File: JFKWithZones.cfg

Current Map File: JFKWithZones.amf



**AA**

**BB**

**1<sup>st</sup> watercraft enters medium security zone**

**Pedestrian enters medium security alert zone**

Sent to security personnel in area AA:  
**"JFK Advisory Alert: Intrusion alert in area AA. Video available."**

Sent to security personnel in area BB:  
**"JFK Advisory Alert: Unidentified individual alert in area BB."**

KSX Receives		KSX Action
1	Radar intermediate alert: watercraft target id 123 entered zone AA	<ol style="list-style-type: none"> <li><b>Intermediate</b> security alert sent to security: simultaneous intrusions in zone AA and BB (plus details)</li> <li>Radar provides location, heading, and speed information to video tracking via Mobile agent.</li> <li>Mobile agent checks DOT database for "authorized" activities.</li> <li>Knowledge Switch issues <b>advisory</b> alerts to geo-specific personnel with streaming video. Secure receipt insured via DAT LSDF authentication.</li> </ol>
2	Radar intermediate alert: pedestrian target id 438 entered zone BB	

Selected Track ID:

Active  
Active  
Stop



# Sentinel Alert Web

14:30:00 hrs:  
Same driver attempts to make unauthorized delivery to EWR. Alert generated to regional Port Authority KSX.



© Getty Images

**EWR (Newark)**

Two local events, seemingly disconnected, generate a "regional" alert to all port authority security.

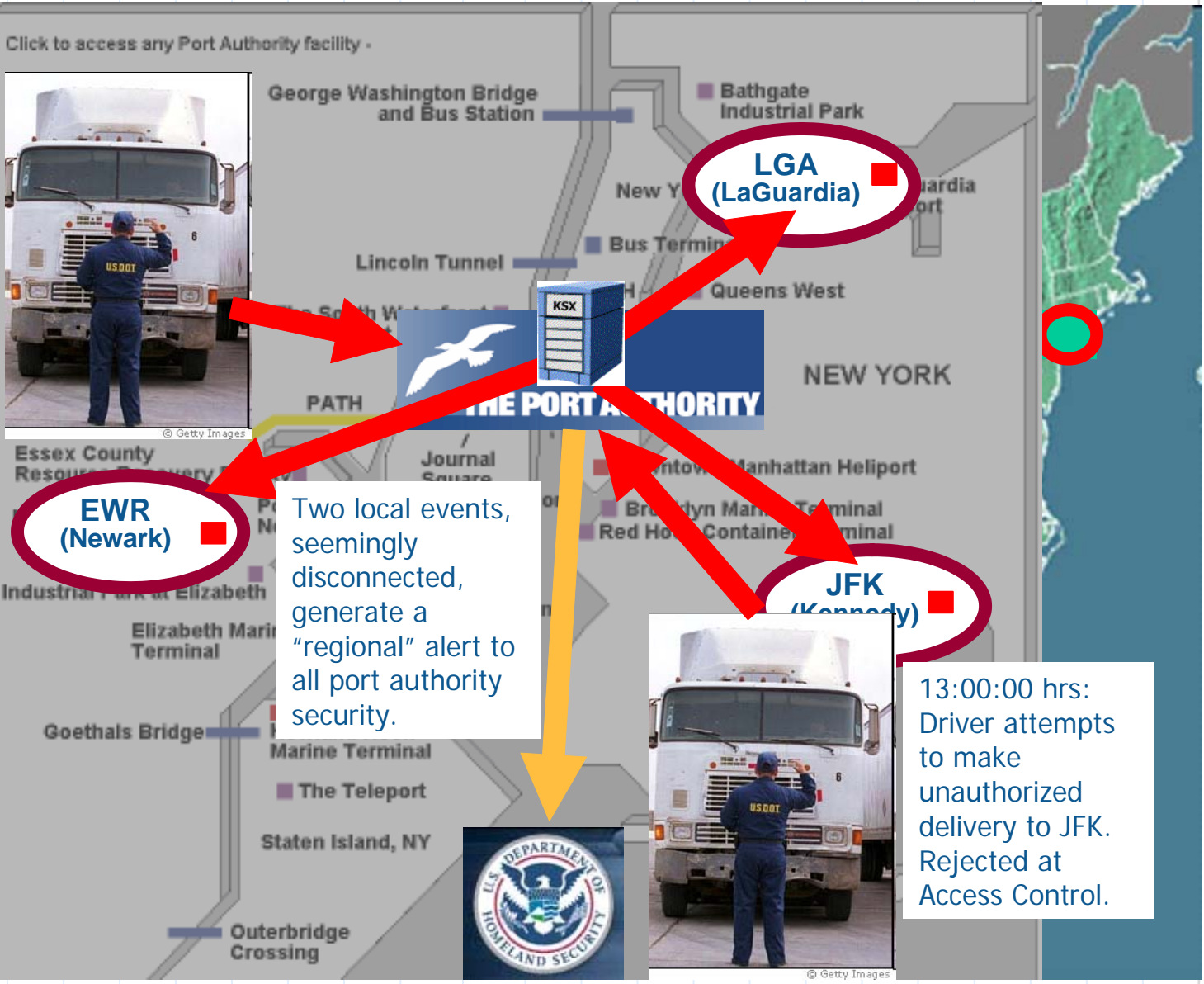
**LGA (LaGuardia)**

**JFK (Kennedy)**

13:00:00 hrs:  
Driver attempts to make unauthorized delivery to JFK. Rejected at Access Control.

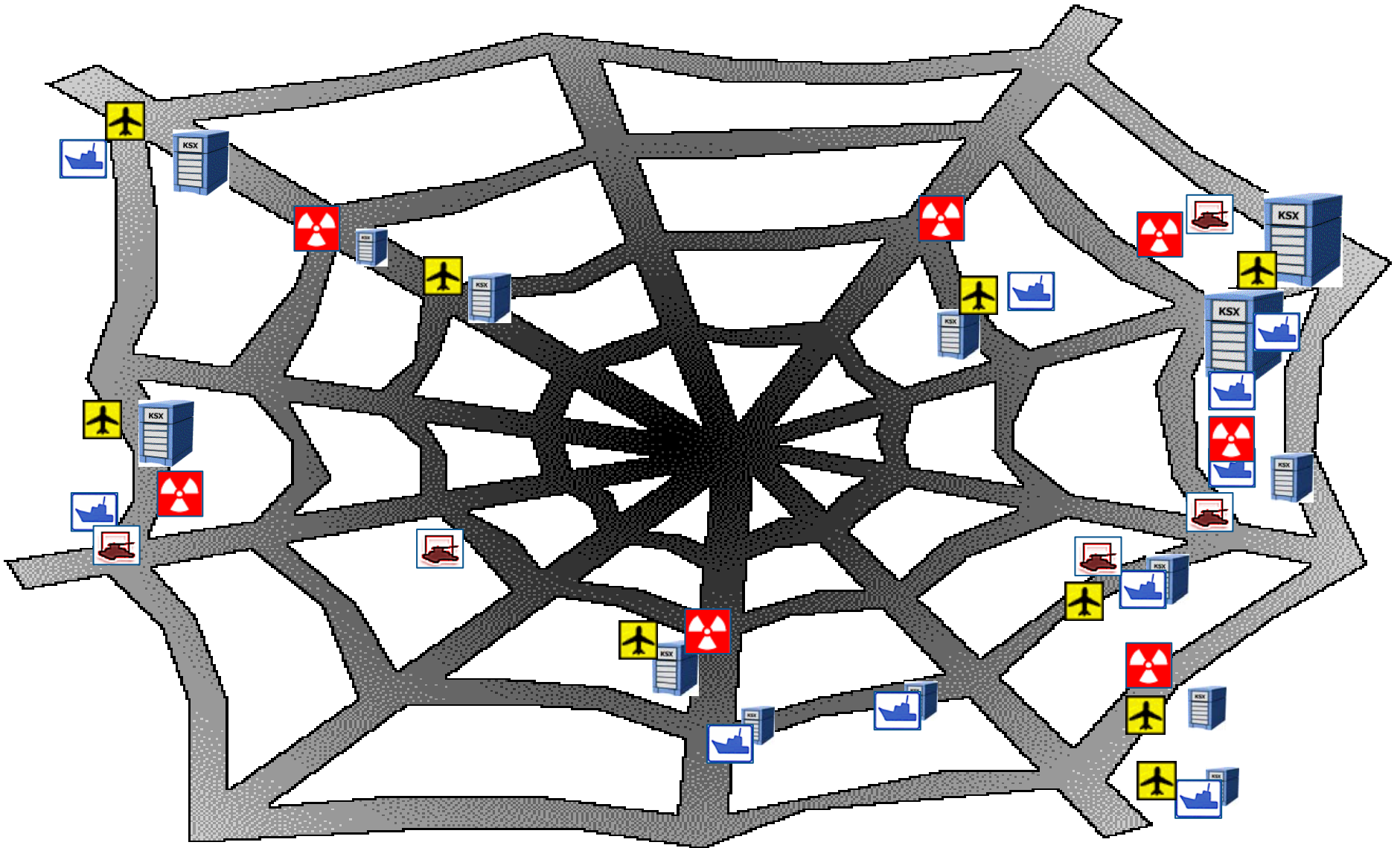


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# Sentinel Alert Web





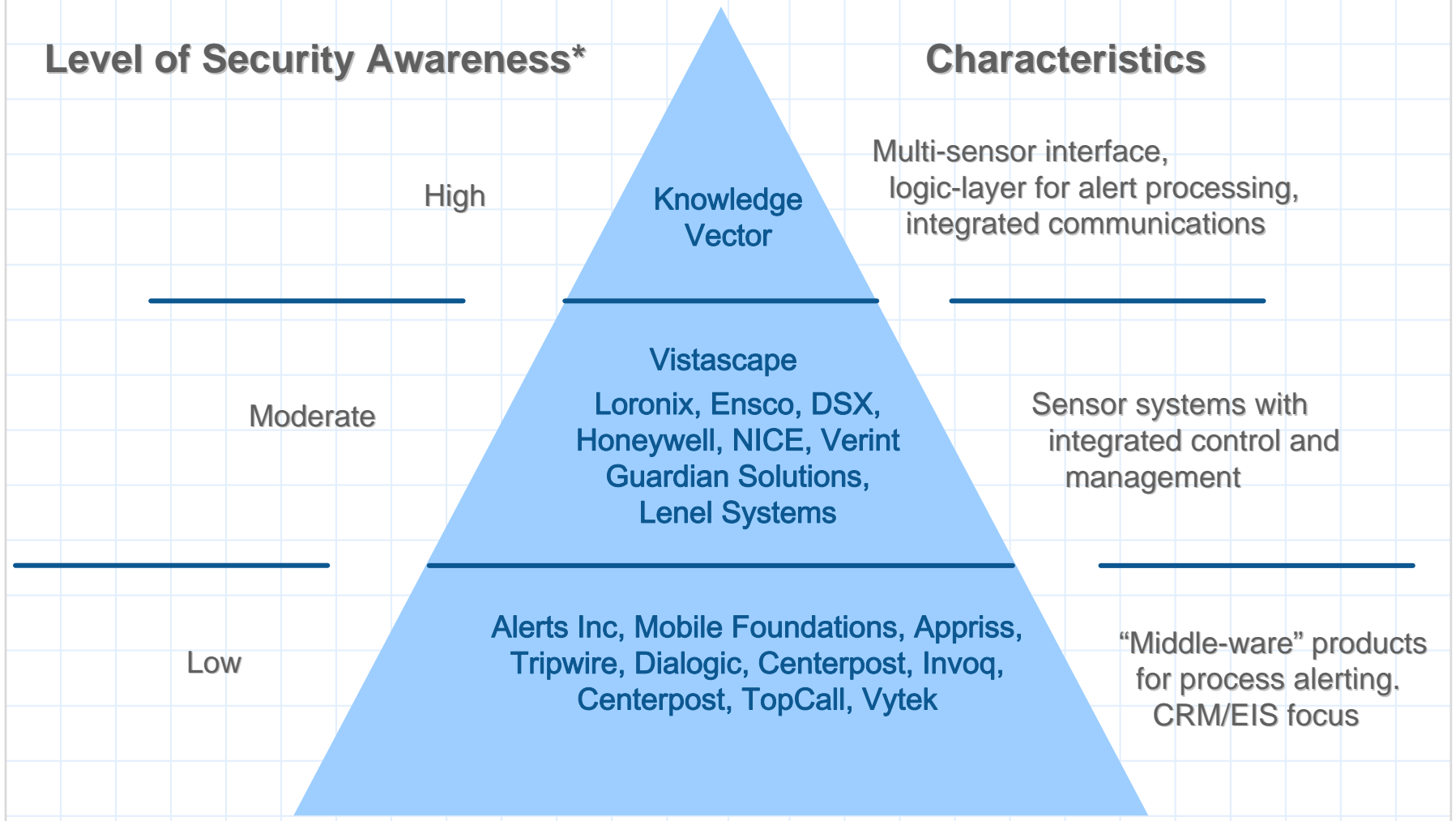
# Differentiators

Knowledge Switch	Alerting/Messaging Competition
Open API to define any sensor input (voice/data)	Custom development per sensor system – data only
Aggregate and correlate alerts from multiple sensors	Aggregate sensor inputs – no correlation
Rules (Policy) engine to create alarm scenarios from sensor signals for true situational awareness	Display only of multiple alerts – logic via custom programming only
Communicate over any voice or data network/device (email, SMS, pager, RF, cell, WiFi, ISDN, POTS, IP/VoIP)	Typical = email, SMS, page – no voice
Deliver sensor/alarm related content along with alert message – Knowledge on how to respond	Alert only
Tiered configurations – ability to treat entire sites as a single sensor input – and make regional/national awareness decisions	Local applications with remote notification – no hierarchical capabilities (independent systems)
Interactive – present query/response options to responders – provides dynamic knowledge base creation	Limited voice navigation of back-end systems (CRM system status, e.g.)
Personalized topic creation per user with automated “push” options	No content delivery capabilities



## Level of Security Awareness\*

## Characteristics



\* Awareness is a total of highest probability of detection (PD), plus lowest false alarm rate (FAR), plus lowest vulnerability to defeat (VTD) protection



# Knowledge Vector Summary

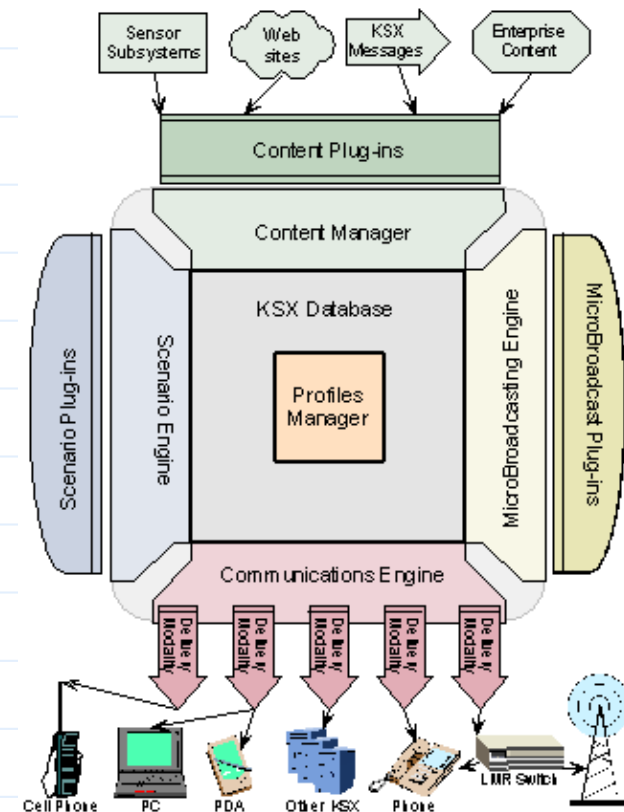
## Product Offering

- An integrated threat alert and awareness management solution
  - Aggregates data from existing security and surveillance systems
  - Converts the data into situational and user specific information
  - Communicates this information to and from first responders using existing communications infrastructure

## Current Engagements

- Sole source contract with DoD Intel. community
- Contract with a leading system integrator (SI) to provide airport perimeter alert management as part of an existing TSA contract
- Initiatives underway: “Bad Bug” scenario and container security

## Knowledge Switch Architecture





# Awareness Fusion

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August 2003

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now...you're aware