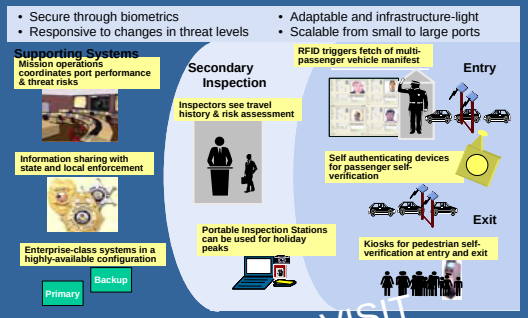
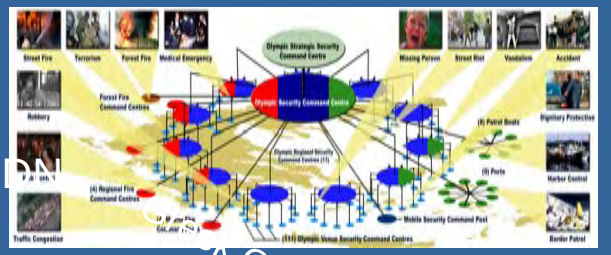
Global Security: Land/Sea/Air Applications

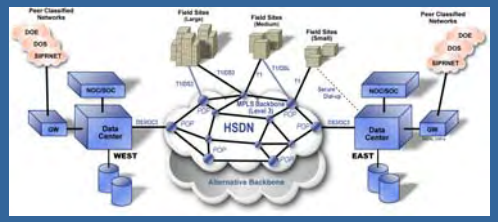


U.S.-VISIT

- Information Analysis/Infrastructure Protection (Detect) ⇒ RedWolf, HSDN
- Border, Transportation and Physical Security (Protect) ⇒ U.S.-VISIT, DTTS, Greek Olympics, Guardian, Ukraine Border Security
- Emergency Response (Respond) ⇒ Incident Command System



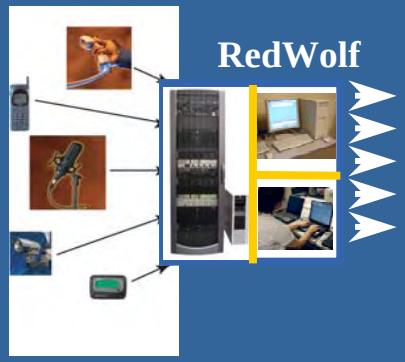
Greek Olympics



HSDN

Secure Truck

Incident Command Board



Panel

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John Hensley	SAIC Corporate Vice President
Tim Josiah	Vice Admiral USCG (ret) Raytheon Company Director – Border, Transportation and Physical Security
Mark Bauckman	Qualcomm, Inc. Director – Business Development

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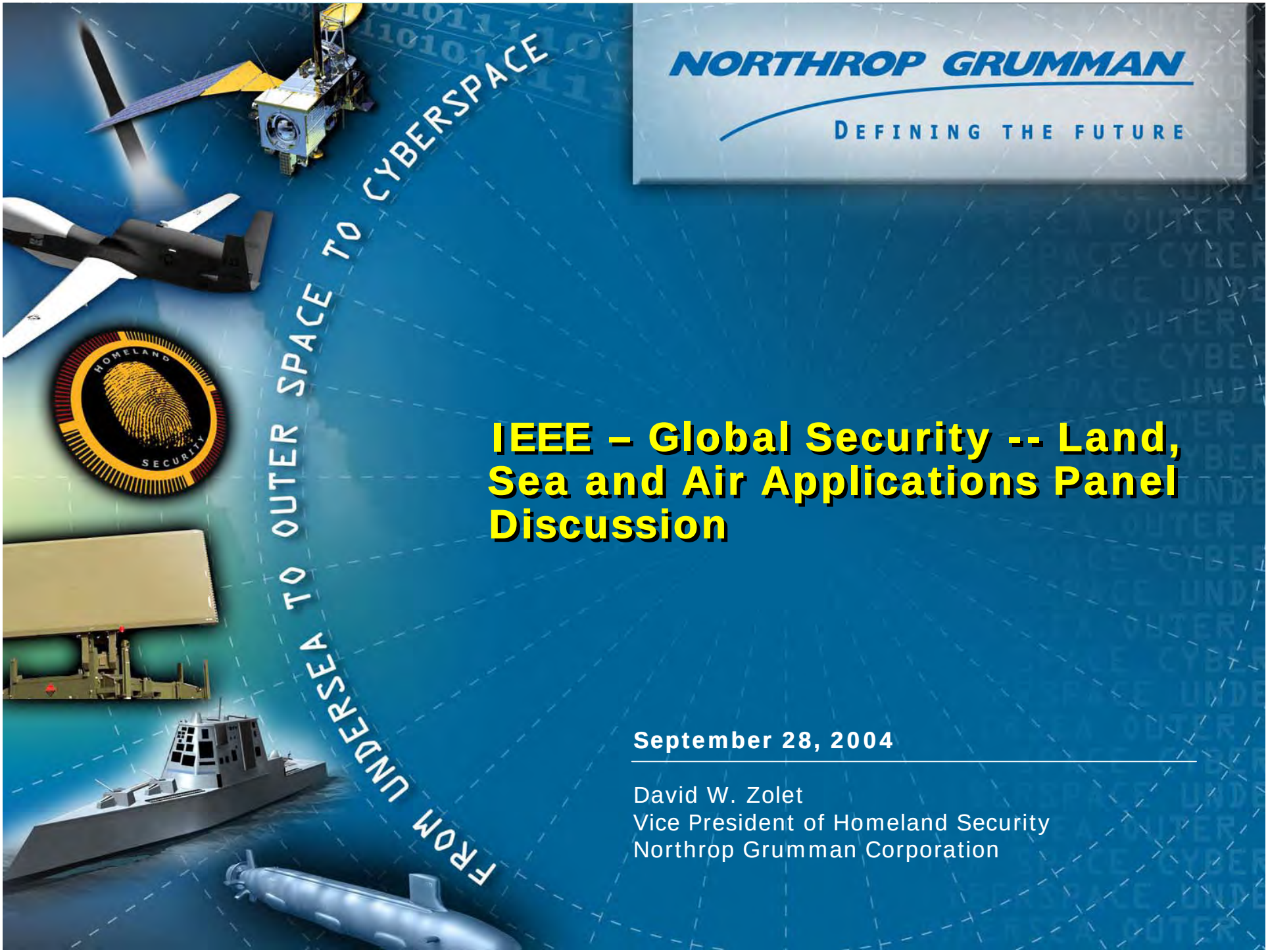


NORTHROP GRUMMAN

DEFINING THE FUTURE

IEEE – Global Security -- Land, Sea and Air Applications Panel Discussion

September 28, 2004

David W. Zolet
Vice President of Homeland Security
Northrop Grumman Corporation

The New Northrop Grumman

Undersea | Sea | Land | Air | Space | Cyberspace

Ship Systems/ Newport News

2003 Sales $5.5B
35,500 Employees

Electronic Systems

2003 Sales $6.0B
24,000 Employees

Integrated Systems

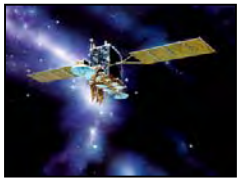
2003 Sales $3.8B
13,000 Employees

Mission Systems

2003 Sales $4.1B
15,000 Employees

Information Technology

2003 Sales $4.8B
22,000 Employees



Space Technology

2003 Sales $2.8B
9,000 Employees

System-of-Systems Thinking

Securing the homeland is like securing a home; technology alone is not the solution. When technologies are integrated with people, processes, training, and policies, however, the result is a practical, effective solution that allows everybody to sleep safe at night.

Homeland Security Programs

Awareness

Prevention

Protection

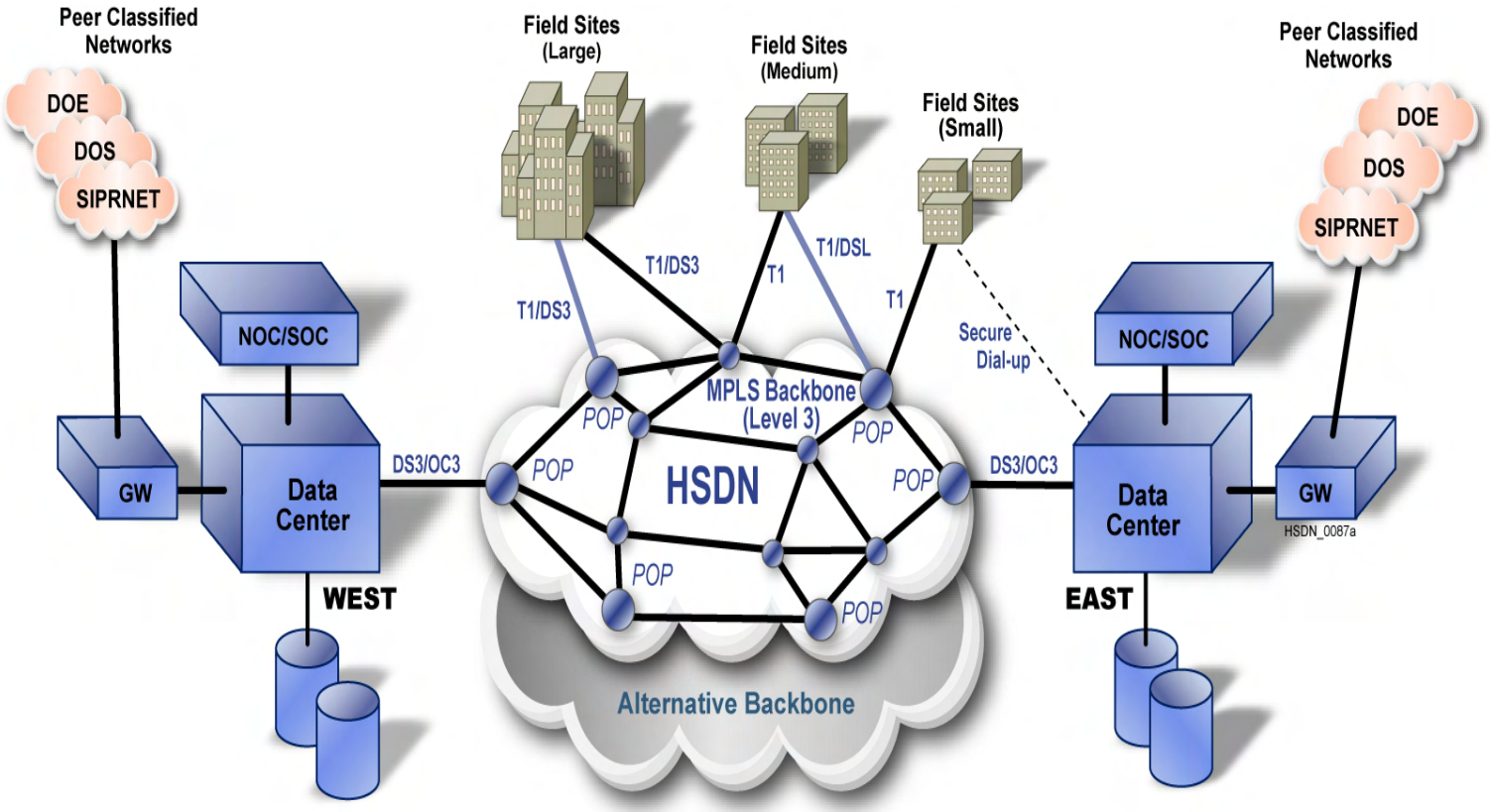
- Joint Warning & Reporting Network (JWARN)
- DTRA Advisory & Assistance Services Contract
- Terrorism Threat Integration Center (TTIC) SETA Support
- CDC Data Management Program
- Geospatial Intelligence Systems for DHS (EISWGI)
- Homeland Security Data Network (HSDN)
- DHS BCIS Application Support Centers (ASC)
- U.S. Postal Service Bio-Detection System (BDS)
- Bio-agent Autonomous Networked Detector (BAND)
- Mobile Chemical Agent Detection (MCAD) Lot 6
- Handheld Isothermal Silver Standard Sensor
- INS Starlight
- E-Seal container program for PA NY/NJ
- Counter-MANPADS SSD Phase 1 & 2
- Integrated Base Defense Security System (IBDSS)
- DHS Office of Security BPA
- Joint Harbor Operations Centers for U.S. Coast Guard
- Financial Crimes Enforcement Network
- E-911 Centers in 7 of the Top 20 US Cities
- Ohio MARCS Public Safety Wireless Communication System
- Chem-Bio Incident Response Force (CBIRF)
- DHS FEMA Chemical Exercise Program
- TEAMS – DHS Information Technology infrastructure
- MAXHR – DHS Human Resources system
- U.S. Coast Guard Deepwater

Response

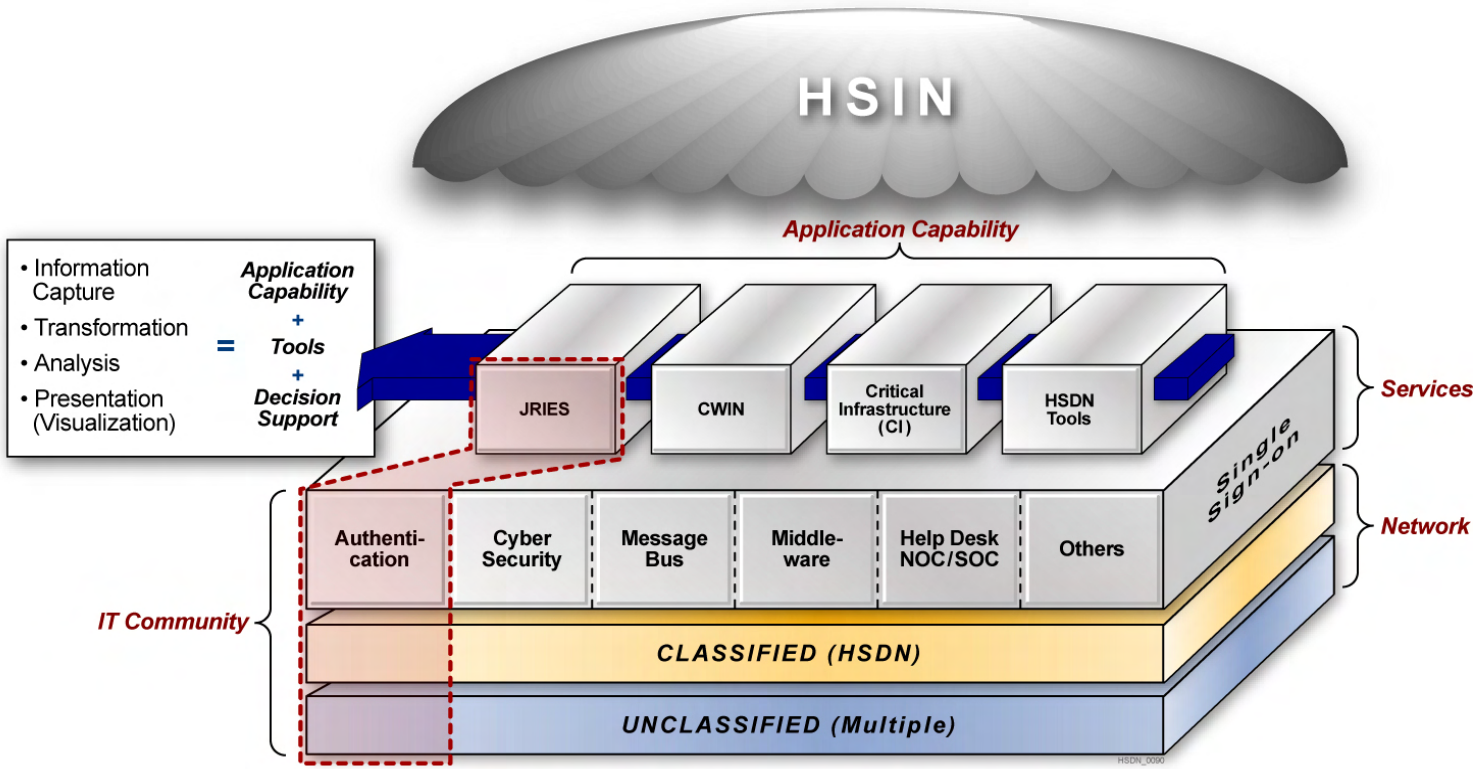
Recovery

Service

Homeland Secure Data Network

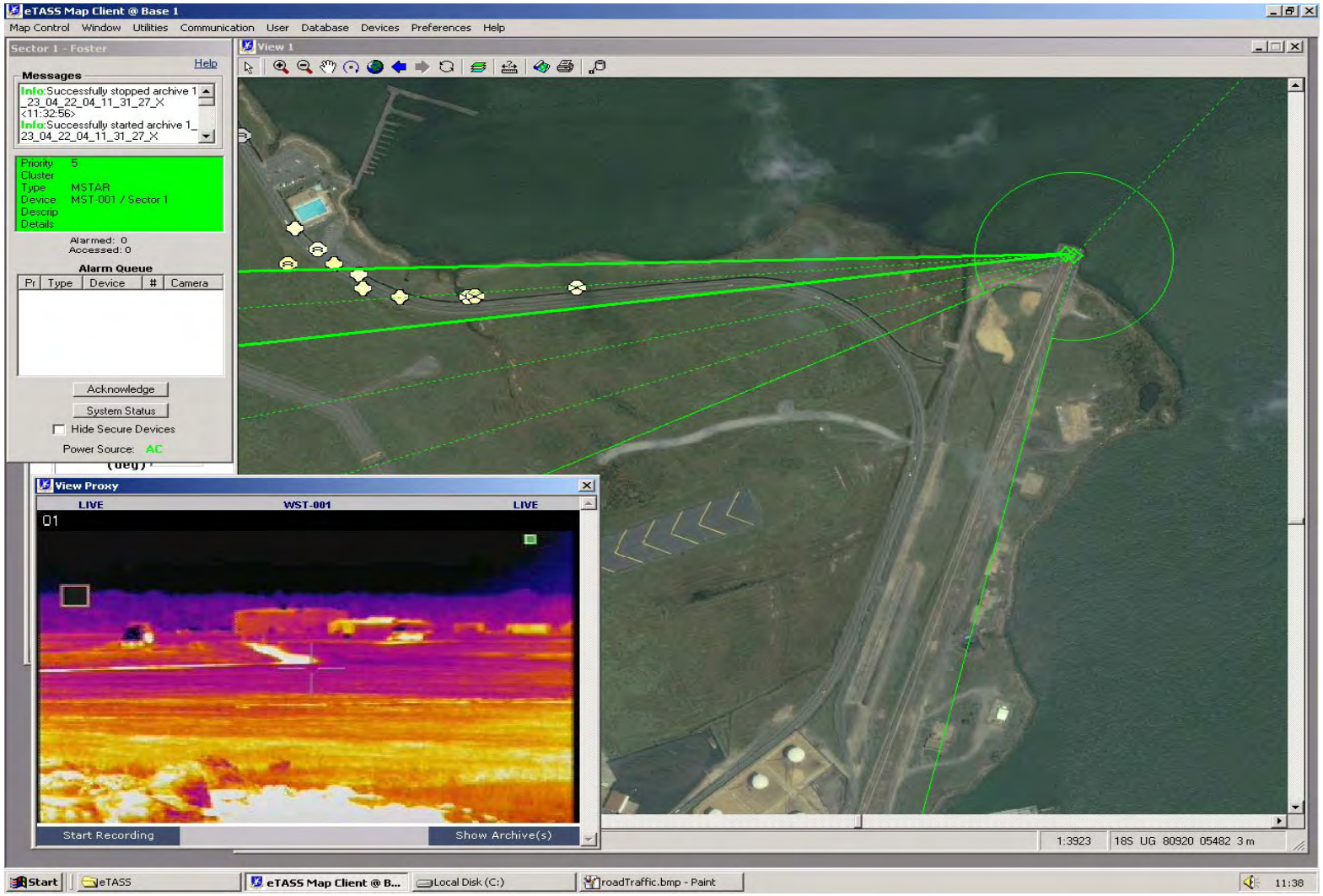


HSDN, cont'd

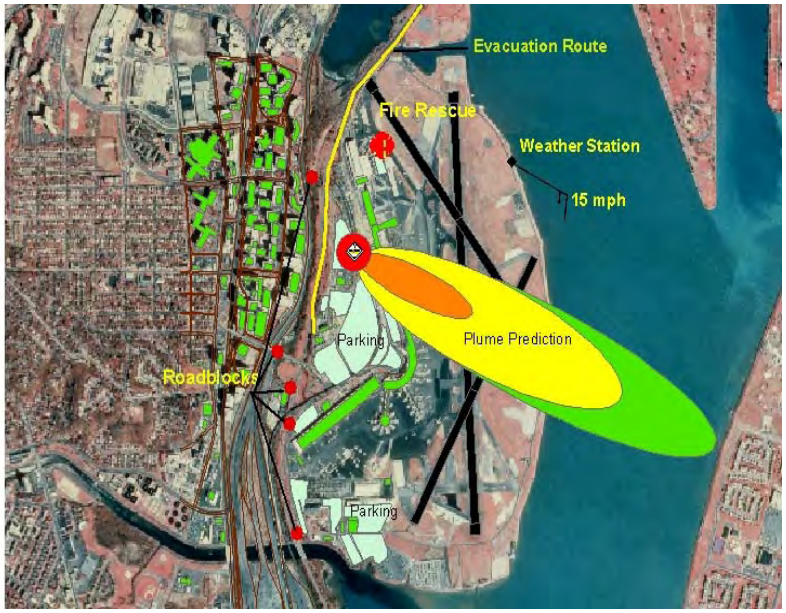


"Phase 1" delivers capability at the 125 Sites to 56 states and territories and 69 DHS Sites by 31 December 2004

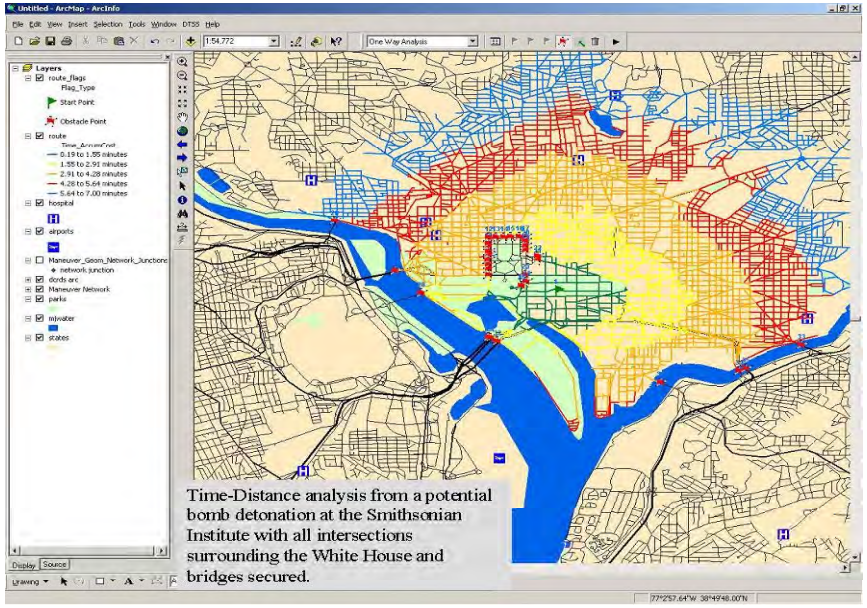
Integrated Base Defense Security System



DHS Geospatial Information Pilots

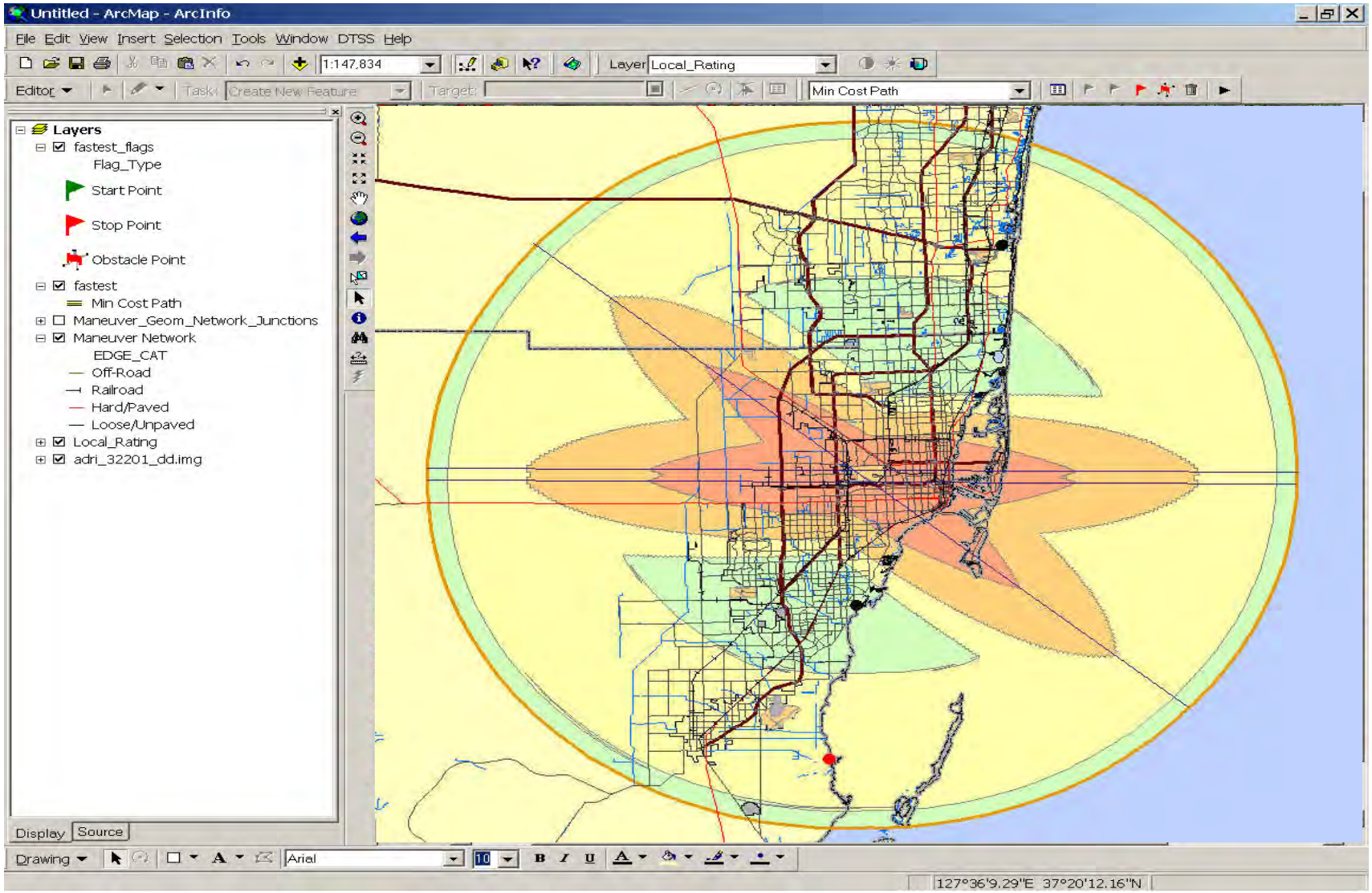


Current weather-based Plume modeling in response to a Chemical Attack

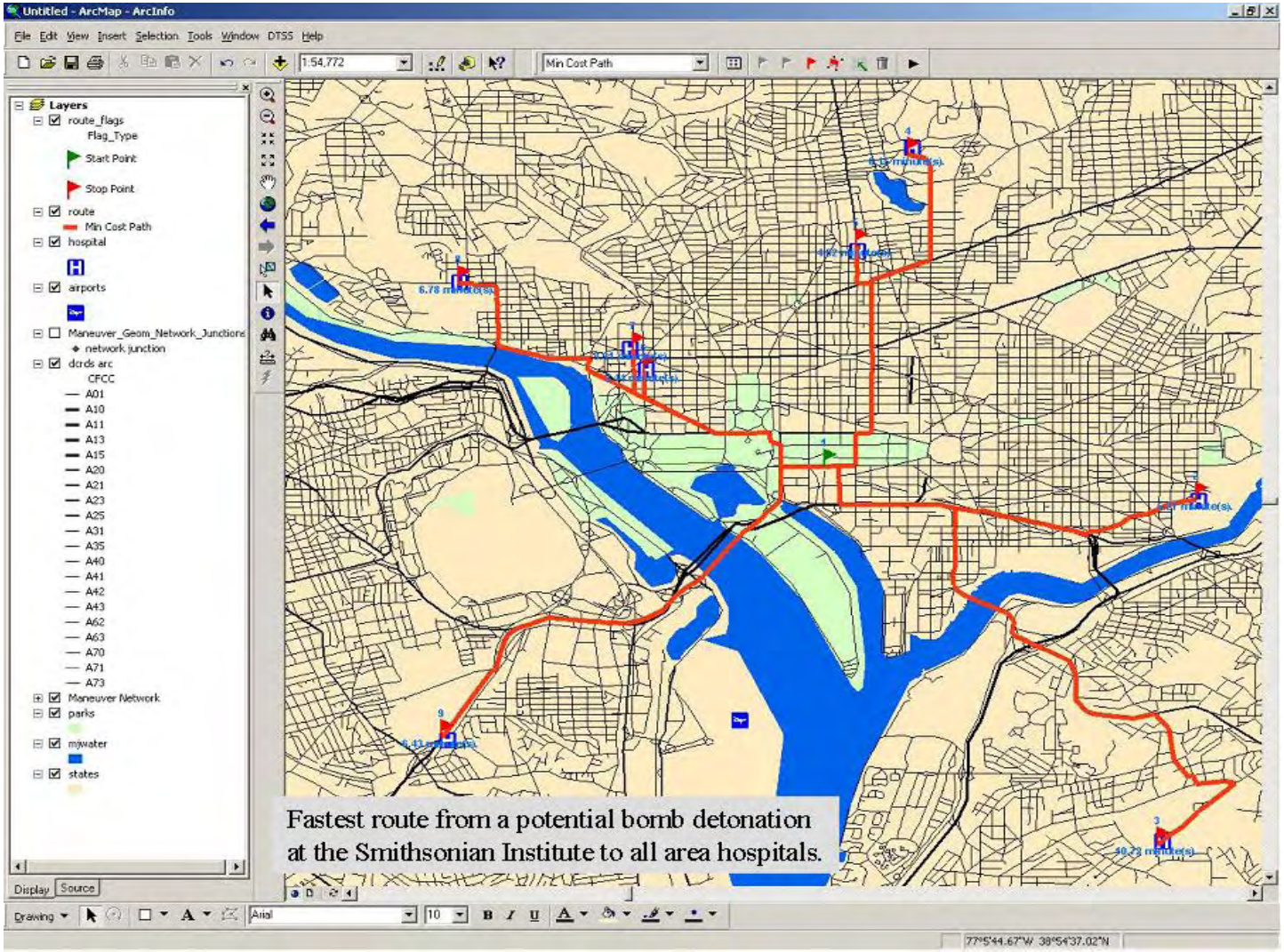


Time Distance Analysis for tracking terrorist escape routes

Search prioritization for possible MANPAD locations



Emergency Evacuation Route Analysis



DEFINING THE FUTURE

Panel

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John Hensley	**SAIC** **Corporate Vice President**
Tim Josiah	Vice Admiral USCG (ret) Raytheon Company Director – Border, Transportation and Physical Security
Mark Bauckman	Qualcomm, Inc. Director – Business Development

Major Security Events in 2004, The Greek Olympics and Guardian

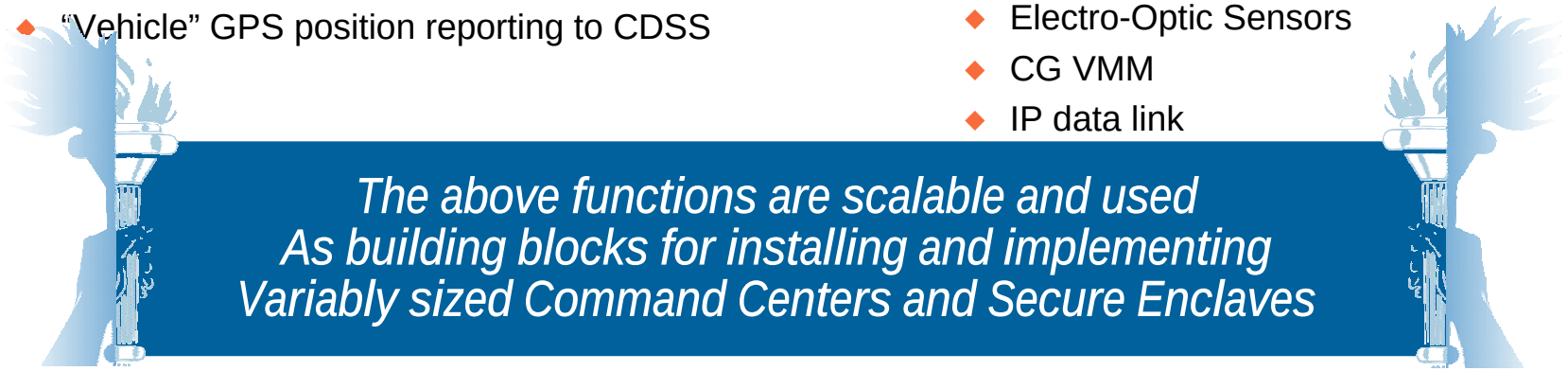
- Briefing for IEEE VTC2004 Fall
- September, 2004

John Hensley

Corporate Vice President

Technical Scope—Olympic Security C4I Systems Functions

- Command & Decision Support System (CDSS)
  - Situational Awareness
  - Decision Making
  - Command and Control
- Olympic Security Data Network (OSDN)
  - Wide Area Data Network
- Terrestrial Trunked Radio System (TETRA)
  - Public Safety Radio Network
  - "Vehicle" dispatch terminals
  - CG Vessels
- Automatic Vehicle Locator System (AVL)
  - "Vehicle" GPS position reporting to CDSS
- Perimeter Security and Security Management Systems
  - CCTV
    - Traffic Surveillance
    - Olympic Venue Surveillance
    - Perimeter Security
  - Baggage Screening
  - Perimeter Intrusion Detection
  - Fire Detection
  - "Secure-M" Security Management System
- Mobile (Airborne & Shipboard) Surveillance Systems
  - Video Cameras
  - Electro-Optic Sensors
  - CG VMM
  - IP data link



Deployment Scope

The Olympic Security C4I System is being deployed to:

- Large Command Centers -7
- Olympic Venues - 116
  - Olympic Village with Police Regional Command Center
  - Olympic Stadium Complex with Police Regional Command Center (OAKA)
  - Other Venues with Police Regional Command Centers – 9
  - Other Venues with Police Local Command Centers - 105
- Ground Mobile Command Posts – 5 (1 Police, 4 Fire Brigade)
- Fire Brigade Regional Command Centers - 4
- Sea ports with Coast Guard Regional Command Centers – 9 + MMM
- Airship - 1
- Police Helicopters – 3 (2 equipped at any one time)
- Police, Fire Brigade and Emergency Medical vehicles - 9262
- Coast Guard vessels - 36
- Attica Roads highway system – 293 locations for CCTV
- TETRA Base Station Locations – 92
- TETRA users –30K
- Airborne Video downlink locations – 2

The number and location of "Other Venues with Police Local Command Centers" is being Reevaluated by the Customer

Overall Contract Scope

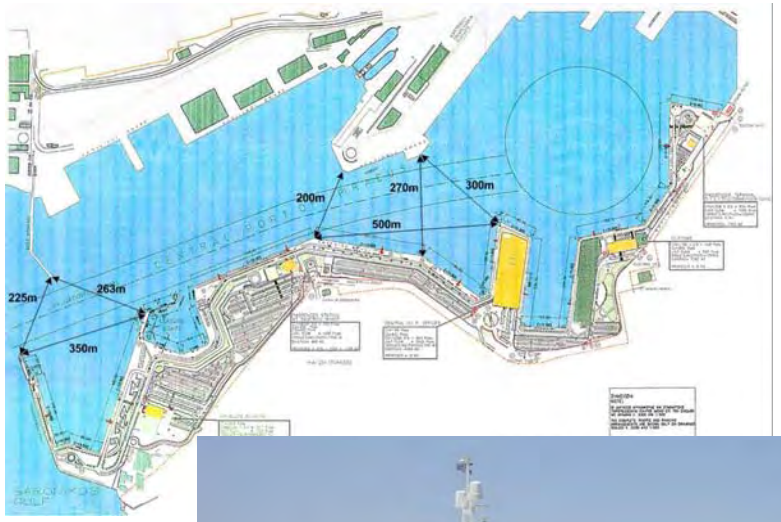
- The contract defines 30 “subsystems” which must be developed or procured, integrated into a unified capability, and installed at a substantial number of locations
- The contract requires training for 3600 CDSS operator seats and “Train the Trainer” 30K TETRA users
- The contract requires delivery of documentation to support the operation and maintenance of the 30 “subsystems”
- Maintenance services must be provided for 5 years
- Terrestrial Trunked Radio System (TETRA) leased services must be provided for 10 years

Overall Contract Scope

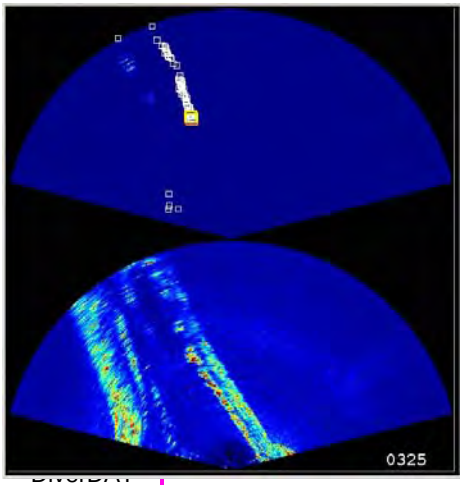
- Contract Value: 259.990 Million Euros
- Period of Performance: May 29, 2003 – May 28, 2004
  - I Year

Locations of 9 Ports

Diver Detection Sonar



Sonar Display Station



QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

TacCON

Ethernet Switch

7P Processor

F/O Data

F/O Data

QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

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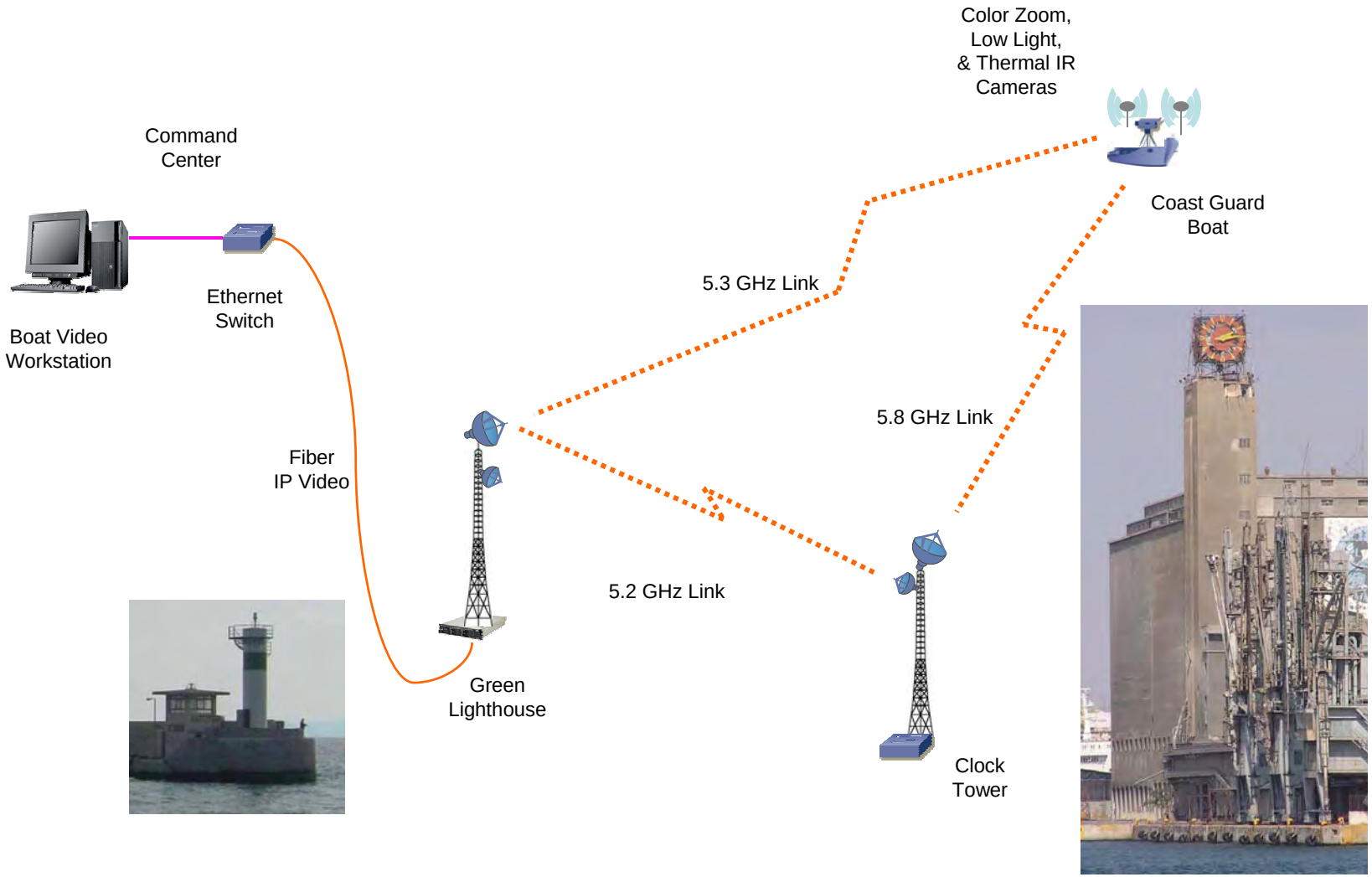
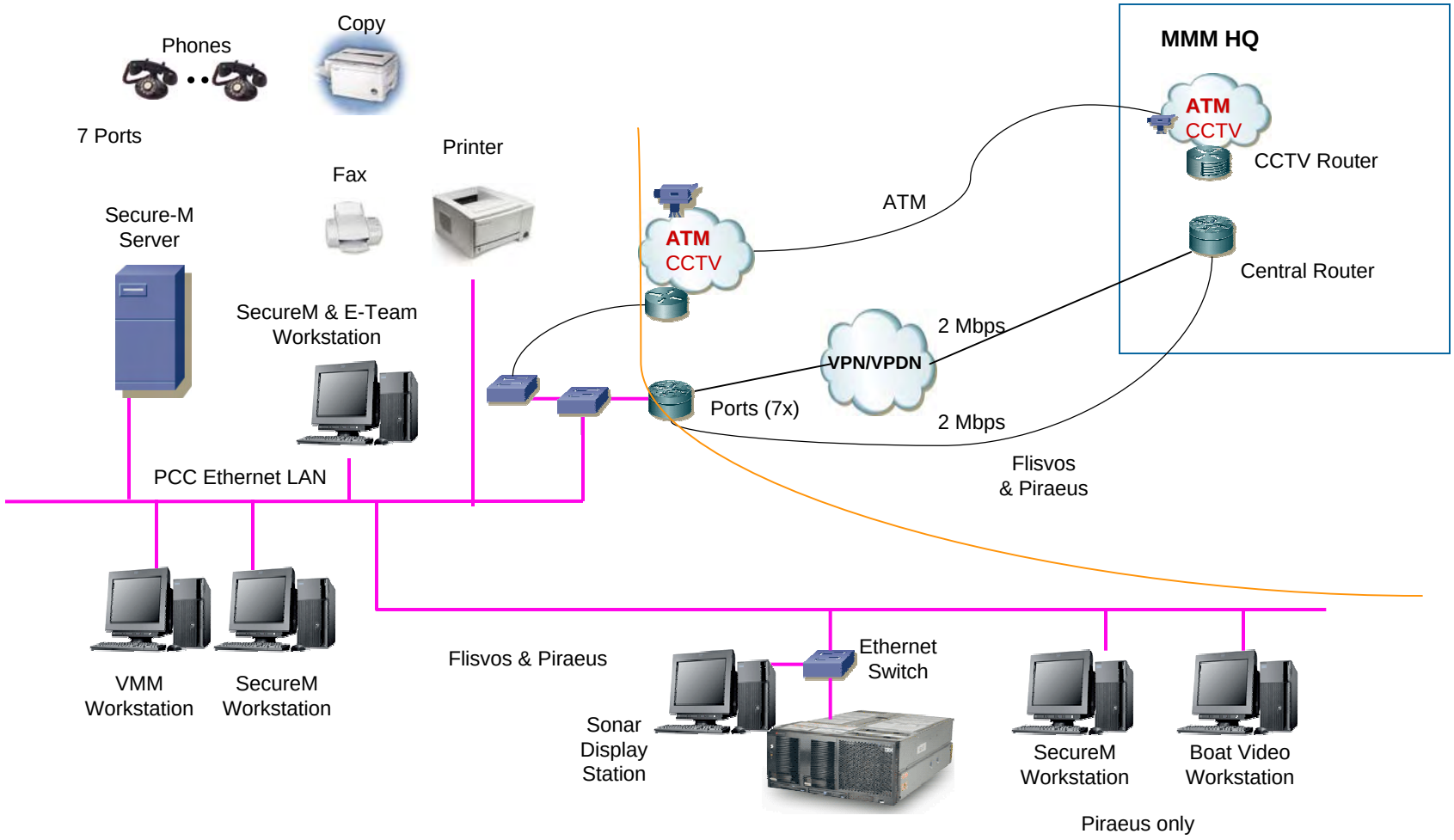
Planned High Speed Wireless Video



Port Command Center & Links to HQ



Guardian

Customer: U.S. Army, Joint Program Executive Office—Chemical Biological Defense

Program: Installation Protection Program (IPP) Lead Systems Integrator

Description: Design and implement a family of systems for chemical, biological, radiological, and nuclear (CBRN) protection at 200 DoD installations. Family of systems includes: detection, identifying, warning, reporting, decision support, individual protection, collective protection, decontamination, medical surveillance, and countermeasures.

Teaming Partners: Johnson Controls & Midwest Research Institute plus 13 small business partners

Awarded: April 2004, a 3 year term fixed cost plus fee contract with a cumulative value of $390 million

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Homeland Security Solutions

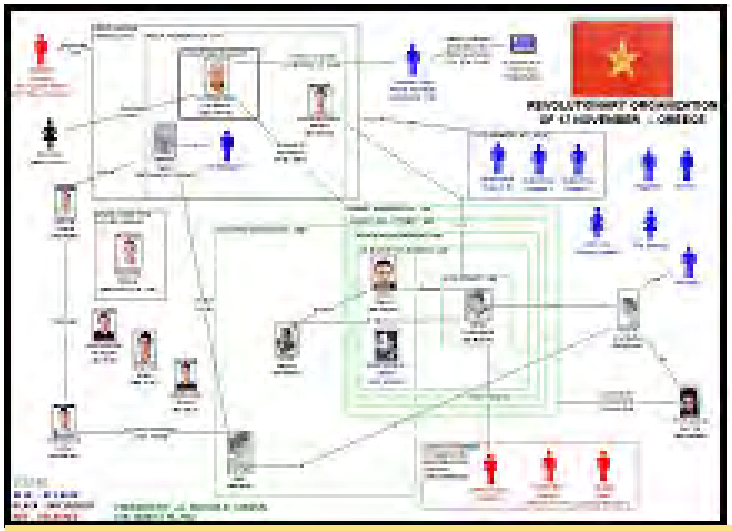
Raytheon
Customer Success Is Our Mission

Border, Transportation and Energy Security

Vice Admiral Tim Josiah

Homeland Security
Rosslyn, VA

28 Sept 04



Intelligence and Information Analysis

Security and Public Safety Solutions

"Solving Homeland Security Problems Today"

Raytheon Company

Raytheon
Customer Success Is Our Mission

- **Major locations**
  - **California 13,000**
  - **Massachusetts 12,000**
  - **Arizona 10,000**
  - **Texas 9,000**
  - **Kansas 8,000**
  - **Wash DC area 6,000**

- **2003 sales: $18.1 billion**
- **Employees: 78, 000**
  - **Engineers 43,000**
  - **Manufacturing 15,000**
  - **Info Tech 9,000**
  - **Other 12,000**
  - **Prof Staff 2,000**

Raytheon Company
Bill Swanson
CEO and President

- **Strategic Business Area (SBA)**
  - **Intelligence, Surveillance and Reconnaissance**
  - **Missile Defense**
  - **Precision Engagement**
  - **Homeland Security**

Missile Systems




Space and Airborne Systems





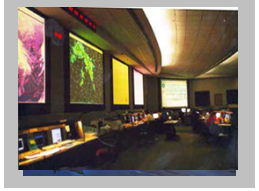
Integrated Defense Systems



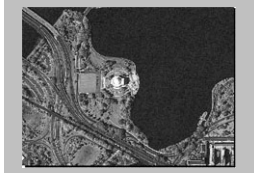


Network Centric Systems



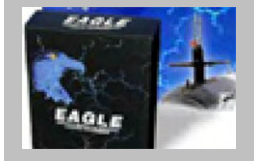



Intelligence & Information Systems

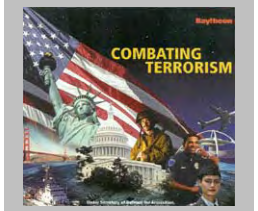



Raytheon Technical Services Company



Homeland Security




Aircraft

Working as One Company Focused on the Customer

Key Concepts of the US-VISIT Vision

Raytheon
Customer Success Is Our Mission

	Today	Vision
● Virtual Border 	■ Land exit uses paper I-94 ■ Biometric ID at select ports ■ Final manifest not processed until in-flight	■ RFID detects land exit ■ Biometric ID at <u>all</u> ports for <u>all</u> traveler encounters ■ Approve travel, assess risk early and often
■ **Integrated Traveler Information** 	■ User queries several systems ■ Border officers can't access travel history	■ Seamless navigation for in-depth traveler info ■ Traveler history, relationships, deviations from routine
■ **System of Systems** 	■ Critical data locked in departmental stovepipes ■ Duplicated data inconsistent	■ Enterprise-class systems used throughout DHS ■ Automated tools keep data consistent and clean

US-VISIT Vision at the Land Border

Raytheon
Customer Success Is Our Mission

- Secure through biometrics
- Responsive to changes in threat levels
- Adaptable and infrastructure-light
- Scalable from small to large ports

Supporting Systems

Mission operations coordinates port performance & threat risks

Information sharing with state and local enforcement

Enterprise-class systems in a highly-available configuration

Primary

Backup

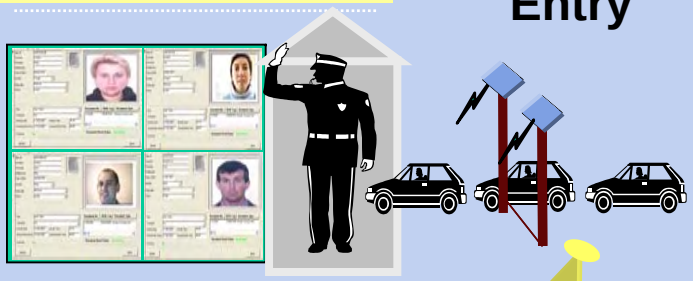
Secondary Inspection

Inspectors see travel history & risk assessment

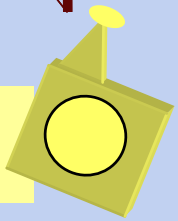
Portable Inspection Stations can be used for holiday peaks

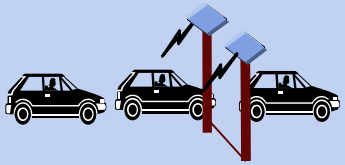
RFID triggers fetch of multi-passenger vehicle manifest

Entry



Self authenticating devices for passenger self-verification





Exit

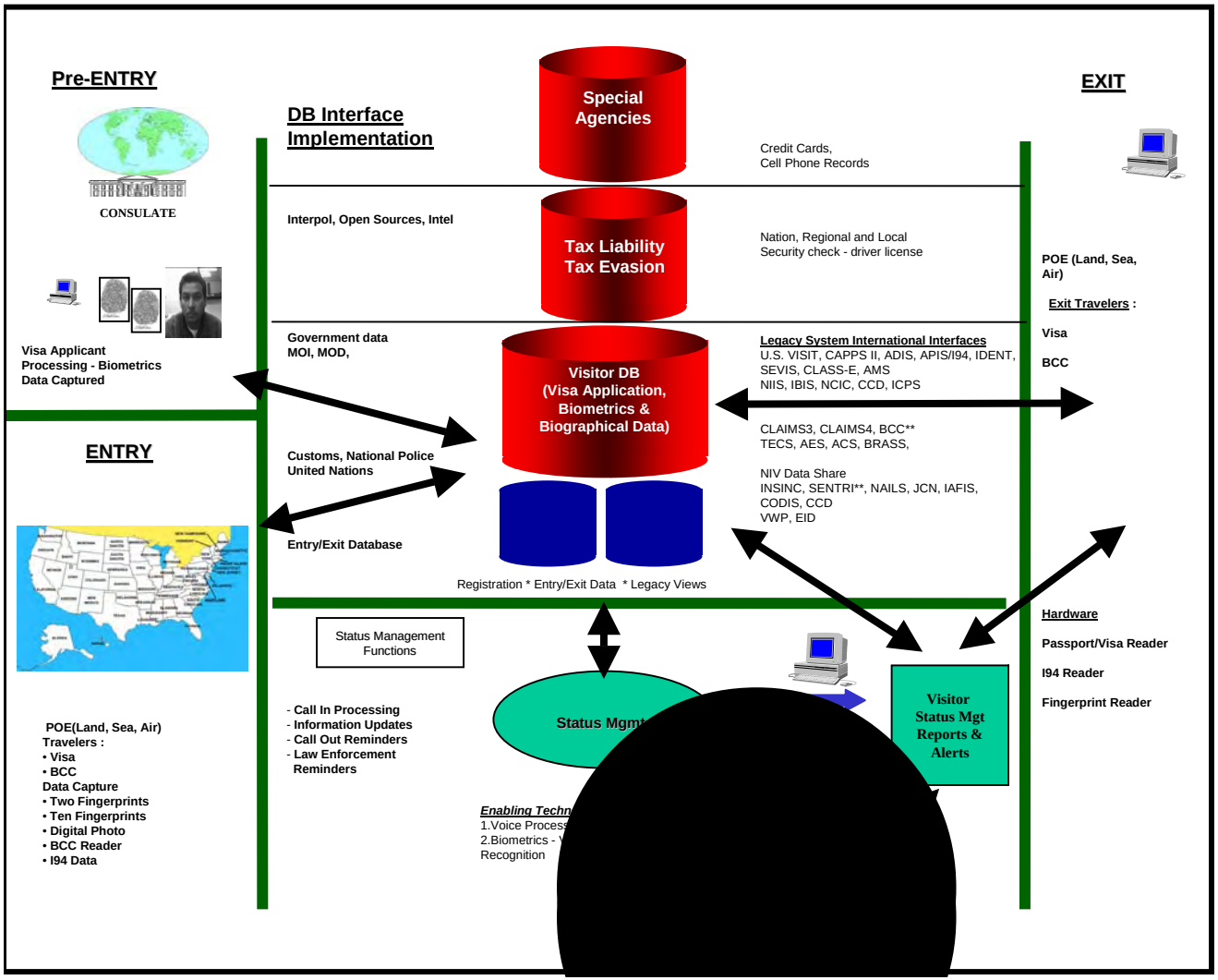
Kiosks for pedestrian self-verification at entry and exit

Global Architecture for Foreign Traveler Management

Raytheon

Customer Success Is Our Mission

500,000,000 Transaction per year



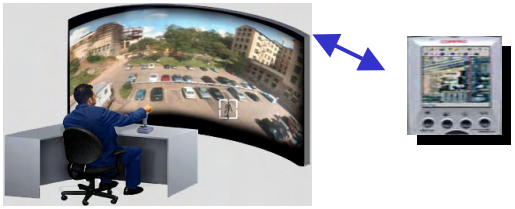
- **Entry Management**
  - Name
  - Nationality
  - Biometrics
  - History File
- **Travel Transaction**
  - Port of Entry
  - Port of Exit
- **Information Sharing**
  - Airlines
  - Government Agencies
  - Foreign Governments
- **Document Control**
  - Tamper Resistant
  - Advanced RFID
- **Information Security**
  - Data
  - Network

Border, Transportation & Physical Security Technology

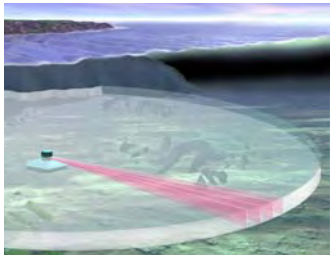
Raytheon

Customer Success Is Our Mission

Biometrics

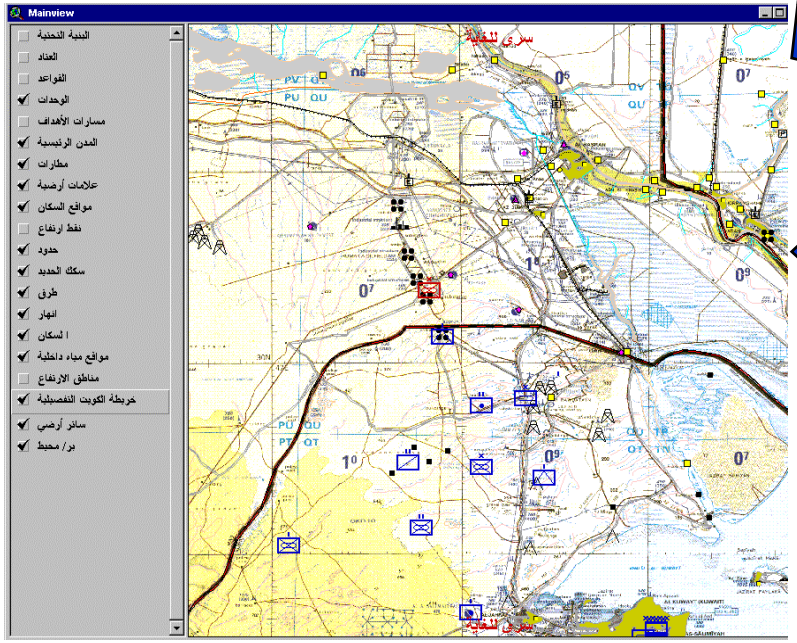


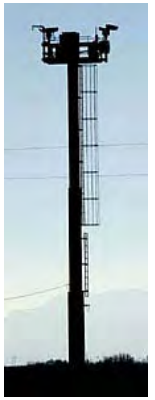
Operational and Environmental Information



Swimmer Detection

Infrared & Imaging Sensors



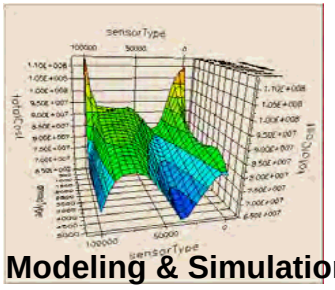


Towers

Communications Interoperability

IT Infrastructure & Cyber Security

Smart Fiber



Modeling & Simulation

Smart Fence

Border Surveillance - Modeling & Simulation Efforts

Raytheon
Customer Success Is Our Mission

1 - Threat Models:
- Signature and target density
- Desired detection perimeter

2 - Terrain Models:
- Venues / Geology
  - Desert
  - Mountainous
  - Maritime
  - Forest
- LOS models
- GIS Databases

3 - Sensor Models:
- Performance
- Coverage
  - Detection capabilities
  - Accuracy
  - False alarms
- Infrastructure support
- Total Life Cycle Cost

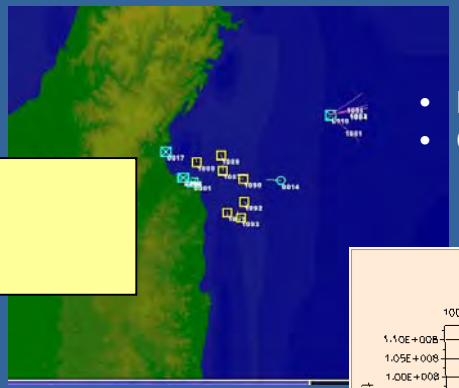
Sensor Terrain Analysis Tool

4 - Communication Models:
- Architecture
- Performance
  - Range
  - Bandwidth
  - Quality of service / Bit Error Rate
  - Security
  - Power Requirements
- Infrastructure support / networking issues
- Total Life Cycle Cost

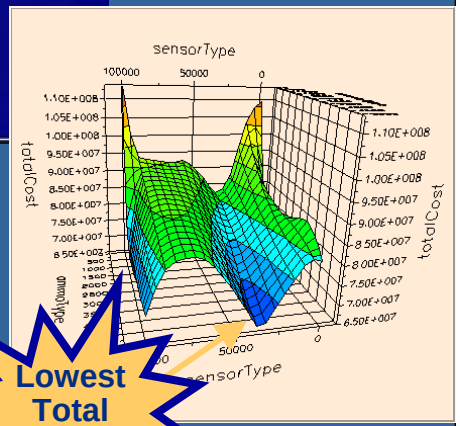
5 - Concept of Operations:
- Threat operations
- Country's response force location and organization
- Response procedures

Border Command

Integrated Tool Set



- **BORDER COMMAND**
- **CASTFOREM**



Requirements and Flowdown
Recommended Configurations
Simulation
Cost Assessment

Lowest Total Cost

PRICE Cost Model

Ukraine-Moldova Border Security

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Contract for border security
1200KM Ukraine side
of border only

Transnistria

Sensors, communications,
Concept of Operations
Training,

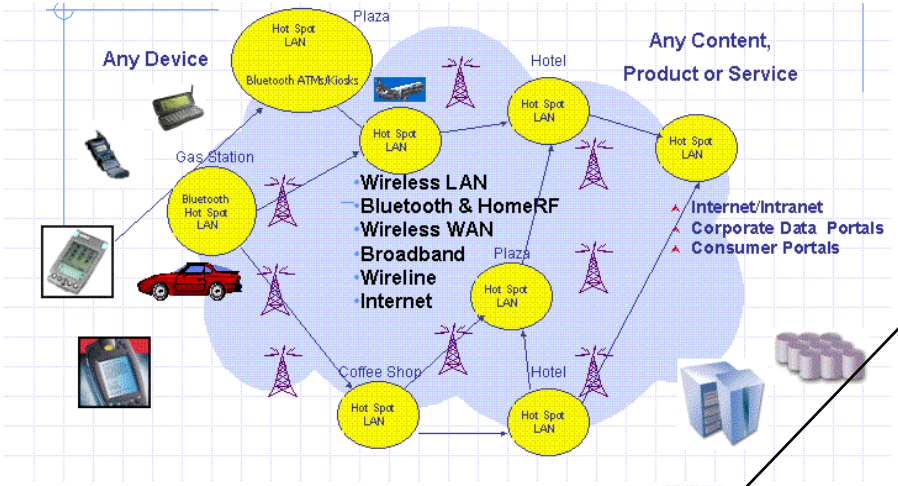
Both POEs and “green
Border”

Transnistria presents
Political, mafia issues

Interoperable Architecture for Emergency Services

Raytheon

Customer Success Is Our Mission



EMS

Fire

Police

Public Works

Attributes

- **Event Management**
  - Name
  - Address
  - Status
  - Biometrics
  - History File
- **Real-Time Transaction**
- **Uses Existing Low-Cost National Architecture**
- **Information Sharing**
  - Law Enforcement
  - MC&G, GIS, CAD
  - Non-Government Organization
  - Health Care Provider
- **Document Control**
- **Secure Information Environment**

NYC - 1,269,000 Runs (2002)

Electronic Command Board (ECB)

Raytheon
Customer Success Is Our Mission

Citywide Public Safety Answering Point (PSAP)

Telephone

Street Corner Fire Alarm Box System

Interior Building Fire Alarm or Detection System

Other Agencies

Walk-in/ Verbal From the Public

Appropriate FDNY Borough Communications Office
- Manhattan
- Brooklyn
- Bronx
- Queens
- Staten Island

STARFIRE

FDNY Computer Aided Dispatch (CAD) System

Units Dispatched

FDNY Data Center

Emergency Patient Tracking System

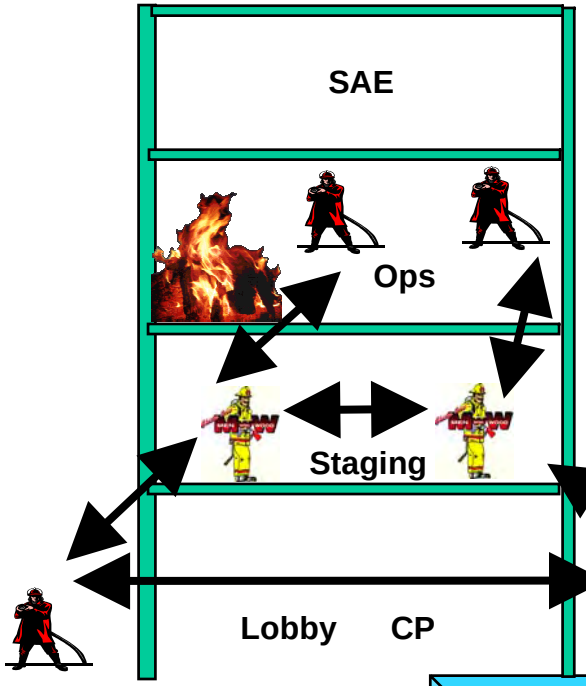
Primary Electronic Command Board

Activation by Battalion or Division Chief

Command Vehicle With Transmitter

Arrives on scene & Begins Command of Incident From Vehicle

Handheld Secondary Electronic Command Board



Fire Scene

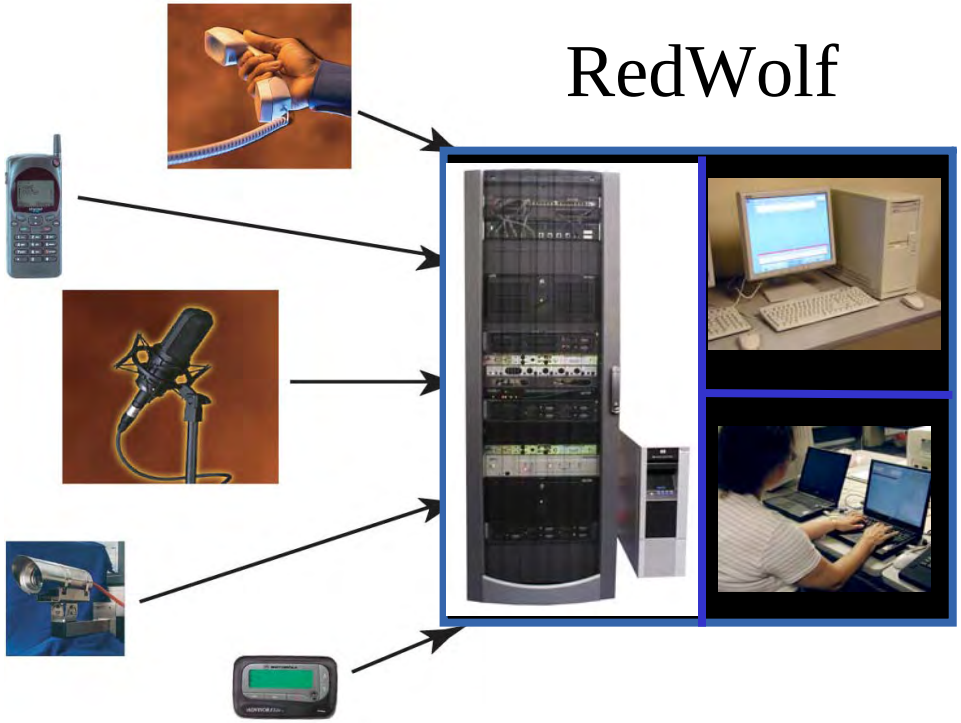
Fire Emergency Information Flow

ECB Contract Requirement

Telecommunications Surveillance

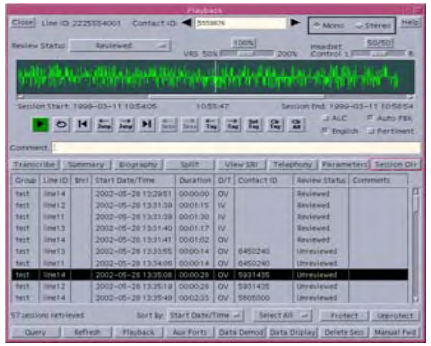
Raytheon

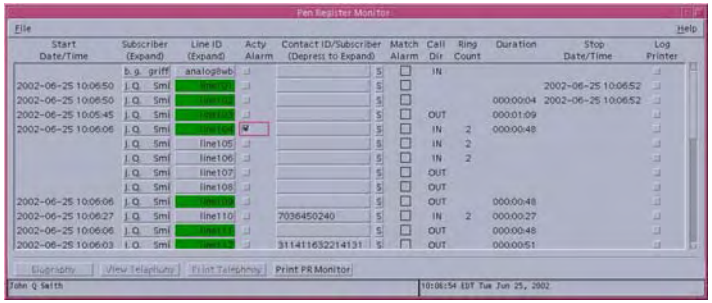
Customer Success Is Our Mission



RedWolf

- **Transcripts**
- **Translations**
- **Surveillance Reports**
- **Audio Recordings**
- **Fax & Internet Documents**





Provides a unified approach to collecting, analyzing and reporting electronic surveillance for national security and law enforcement operations

Conclusion

Raytheon
Customer Success Is Our Mission

- **Homeland Security is a Global Problem, … thus a Global Market**
- **Integrated Commercial-of-the-Shelf (COTS) Solutions are the best way to address the Customer's Requirements -- must be Affordable, Modular, and Technology Agnostic**
- **Interoperable Wireless Technologies provide Framework and Path for Public Safety Market Solutions and Growth**

Panel

Dave Zolet	Northrop Grumman Corp. Vice President, Homeland Security
John Hensley	SAIC Corporate Vice President
Tim Josiah	Vice Admiral USCG (ret) Raytheon Company Director – Border, Transportation and Physical Security
Mark Bauckman	**Qualcomm, Inc.** **Director – Business Development**

Wireless Technologies for Safeguarding Sensitive Shipments

2004 IEEE Vehicular Technology Conference

Panel – Global Security Land, Sea, Air Applications

Mark Bauckman, QUALCOMM, Director of Business Development

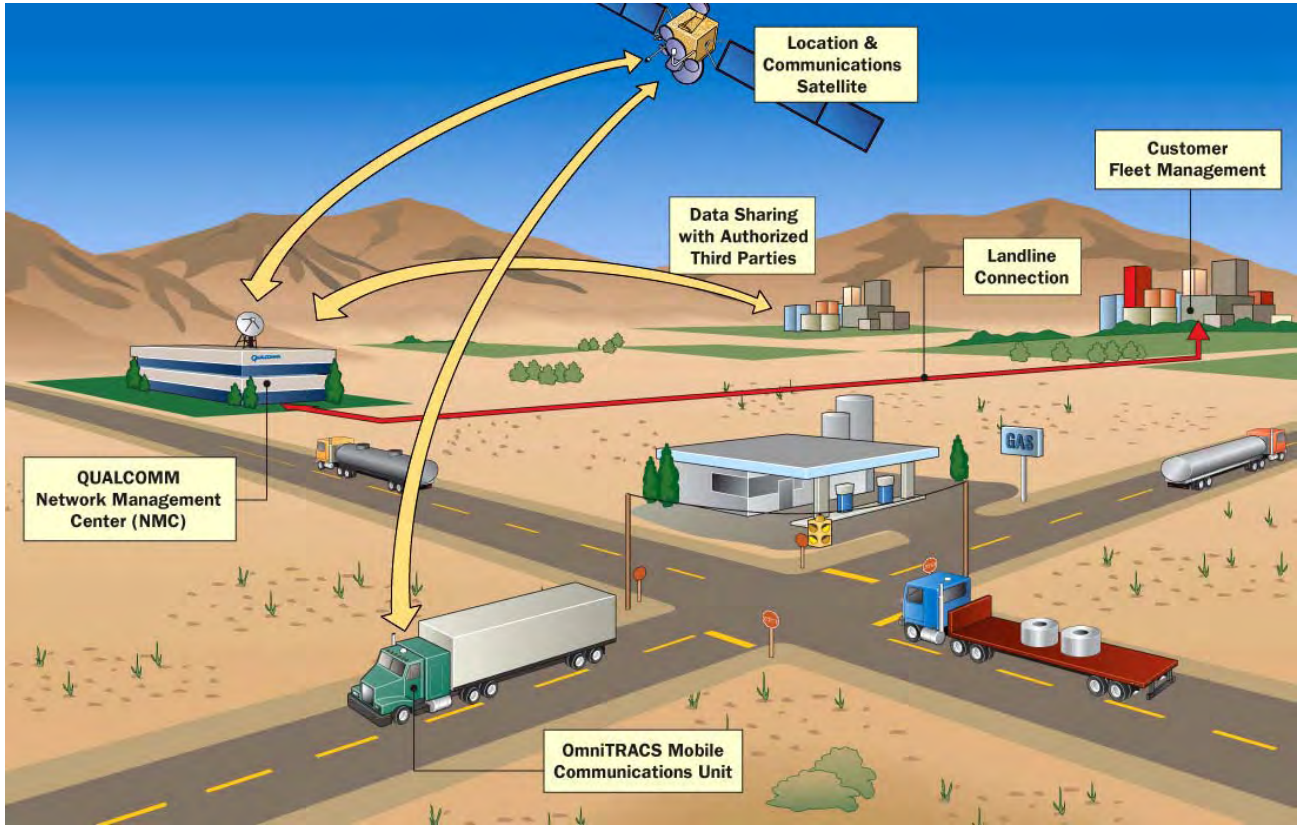
QUALCOMM Mobile Communications Solutions

Market Presence

- Nearly 500,000 units worldwide
- Over 1,700 U.S. fleets
- 70% U.S. market share
- 475 hazmat carriers (DOT)
- 8 million messages/positions daily

Key Competencies

- Network Management
- System Reliability
- System Redundancy
- Security Solutions Expertise
- Integration Capabilities
- Data Sharing Capabilities
- Industry Knowledge
- Customer Service & Support



Safeguarding Hazardous Materials Shipments

Problems

- Nearly 800,000 hazmat shipments daily in the U.S.
- Approximately 4,300 hazmat incidents a year in the U.S.
- Department of Homeland Security (DHS) believes that hazardous material shipments may be targeted and used as Weapons of Mass Destruction (WMD)
- Valuable, real-time hazmat incident notification and related data (i.e., location, contents, volume, etc.) often not shared with first responders in a timely, effective manner

Solutions

- Cost-effective technology investments that enhance both productivity and security, coupled with common-sense security procedures

Safeguarding High-Value Cargo Shipments

Problems

- $12B in direct costs annually related to cargo theft
- Under-reported, doesn't include indirect costs
- Potential customer loss, negative publicity, higher insurance costs
- Homeland security concerns limiting law enforcement resources
- Viewed as low risk, high return activity for organized crime and gangs

Solutions

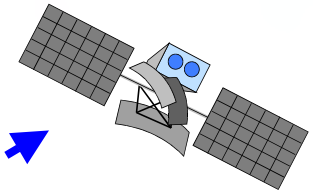
- Cost-effective technology investments that enhance both productivity and security, coupled with common-sense security procedures

NAVSUP
NAVAL SUPPLY SYSTEMS COMMAND
NAVAL OPERATIONAL LOGISTICS SUPPORT CENTER

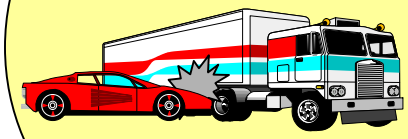
Defense Transportation Tracking System (DTTS)

- **DTTS Mission: Ensure safe and secure movement of all DoD munitions shipments in the continental U.S. via satellite technology and 24-hour oversight**
- **When a DTTS-related shipment begins, position reports and shipment status information are automatically provided to DTTS**
- **All vehicles are equipped with panic buttons for emergency event notifications**

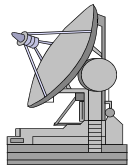
Panic Button Alert



In-Transit
EMERGENCY



Motor Carrier Dispatcher



QUALCOMM

Immediate Push to DTTS

DTTS

First Responders

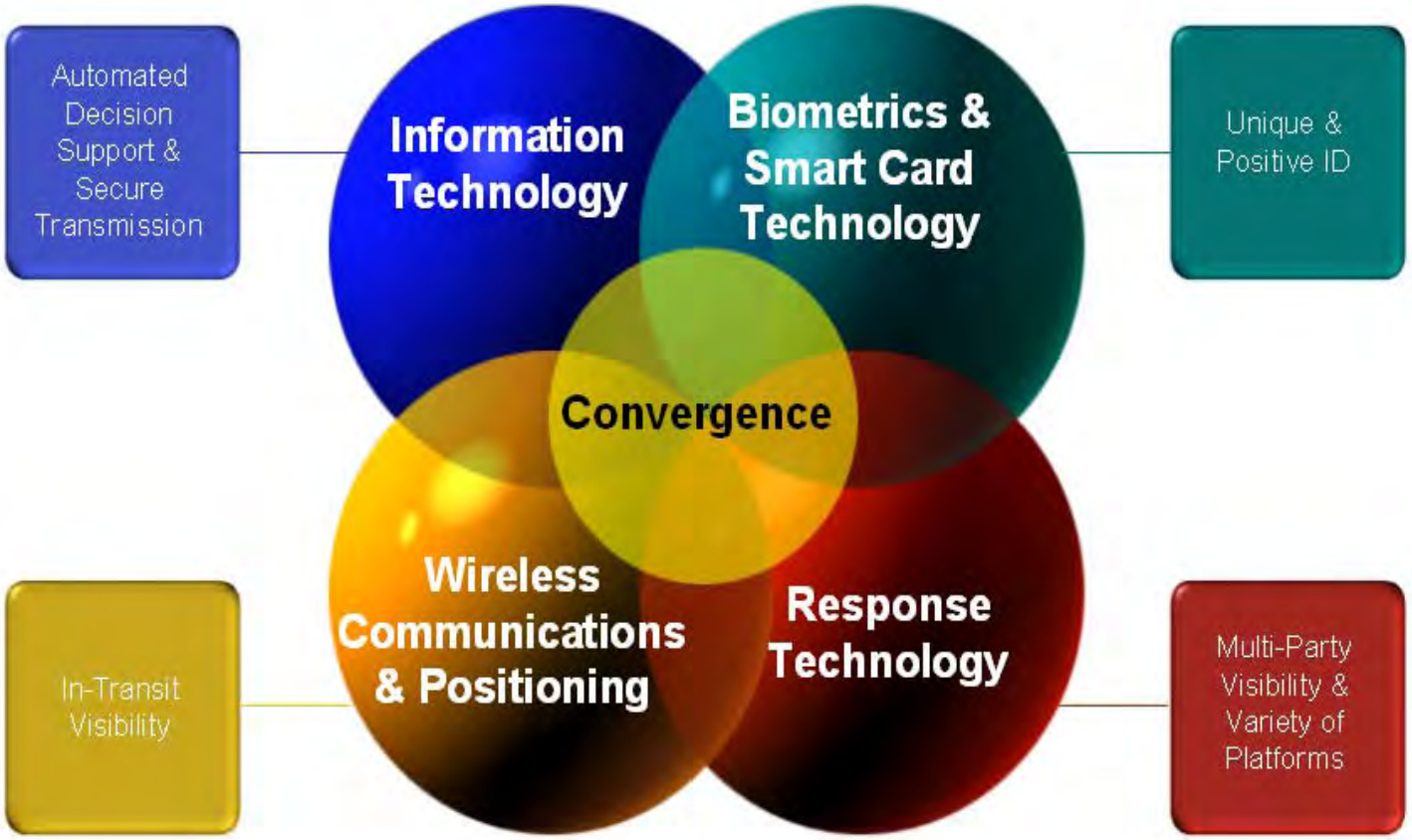
Critical Information Flow

Notification

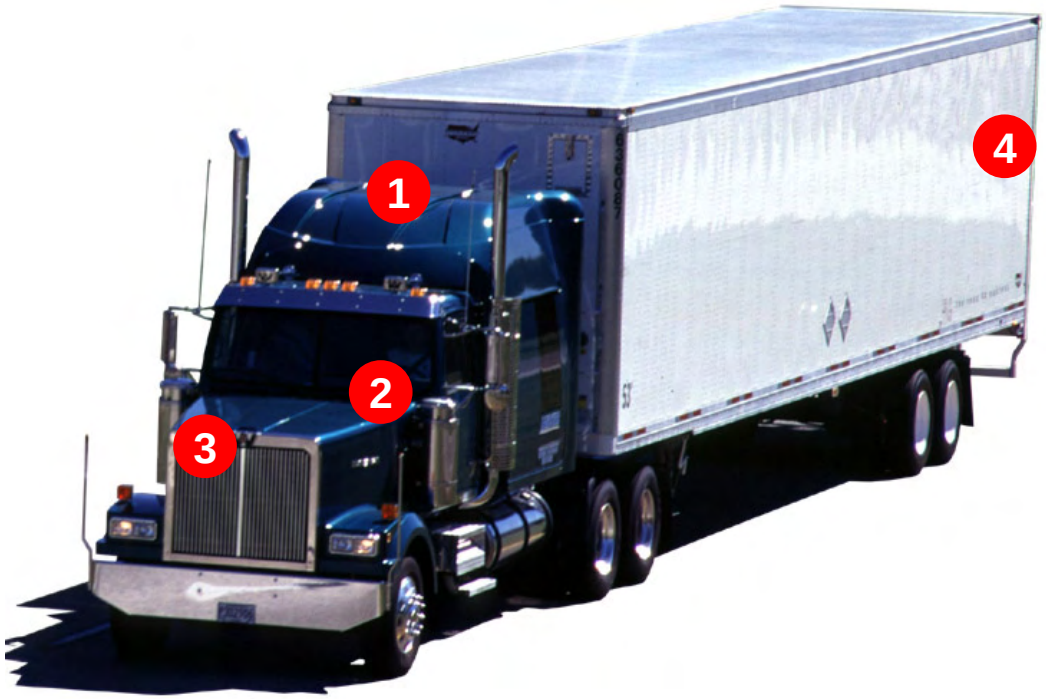
Clarification

Response

Convergence of Technology & Capabilities



The Secure Truck



1 Mobile Communications System

- Real-time, Two-way Data
- Position Location
- Over-the-air Vehicle Sensor & Emergency Alert Transmission
- Driver Authentication

2 Wireless & In-cab Emergency Panic Buttons

- Over-the-air Emergency Notification
- Audible Alarm
- Ancillary Local Shut-down Device

3 Vehicle Shutdown

- Tamper Detection
- Driver-Initiated Shutdown
- Carrier-Initiated Shutdown

4 Cargo Security

- Wireless Electronic Seal
- Trailer Lock
- Door Sensor
- RFID Tag
- Audible Alarms

Data Sharing -

Data Management and Information Distribution to Create a Common Operational or Tactical Picture

State and Local First Responders, PSAPs

- Emergency notification
- Incident location
- High-risk commodity description
- Response procedures

Shippers/Consignees

- Automated status updates
- Bill-of-lading information sharing
- Enhanced inventory control (i.e., JIT)
- Improved customer service

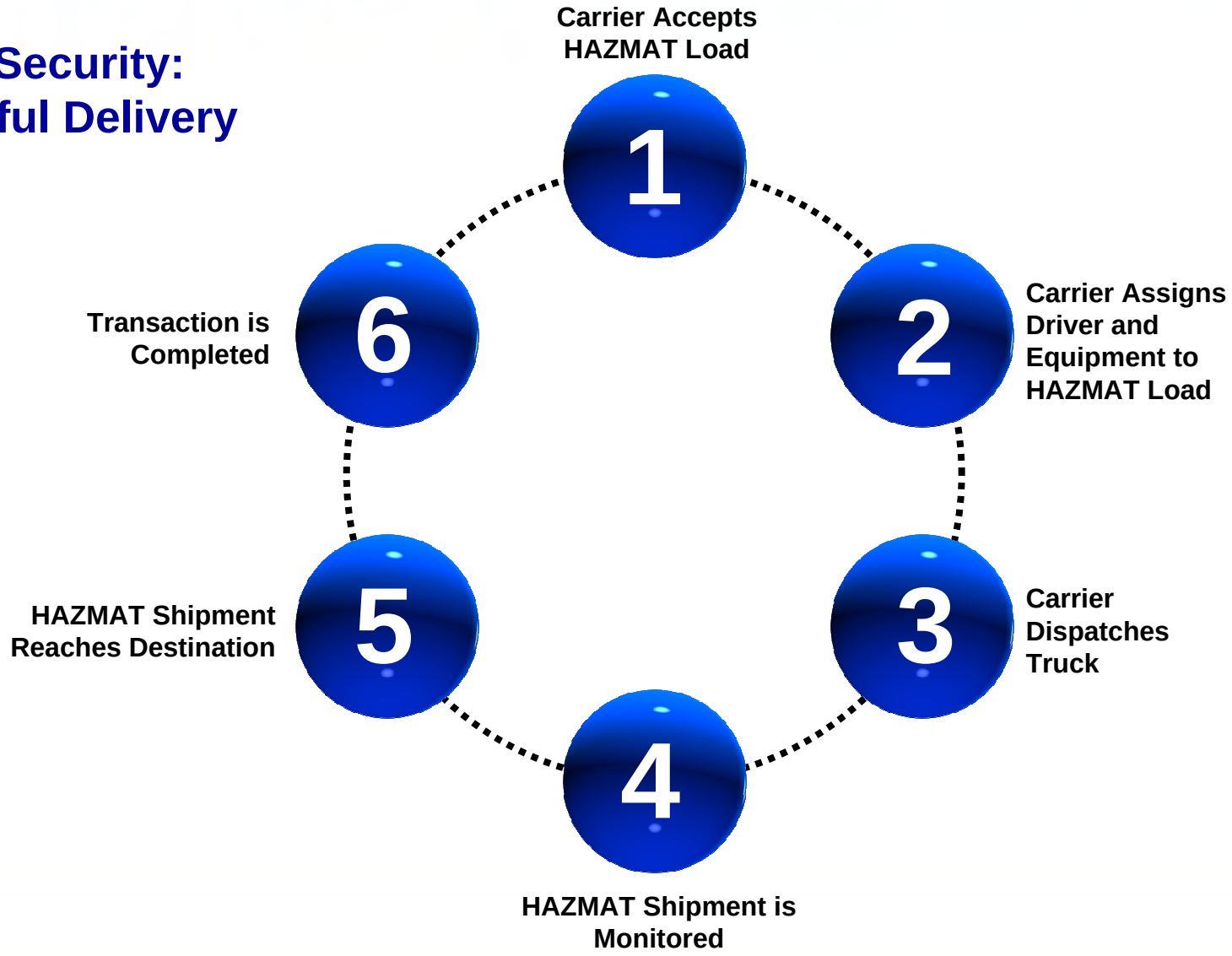
Federal Oversight

- Monitoring and driver authentication
- Threat assessment
- Situational analysis
- Domain awareness

Fleet Vehicles/ Carrier Operations

- In-transit visibility
- Dynamic re-routing
- Command and control
- Improve safety and security

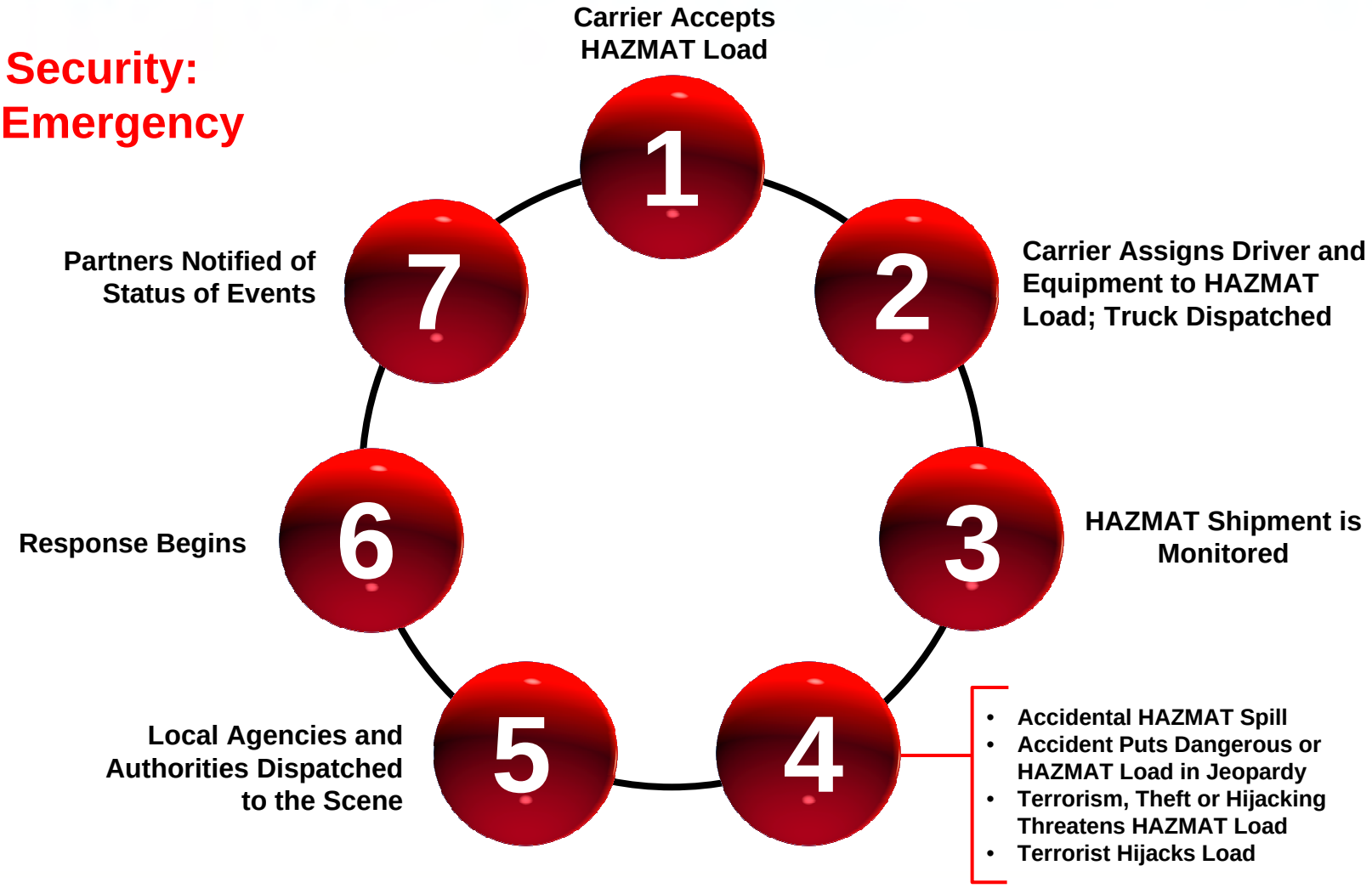
Circle of Security: Successful Delivery

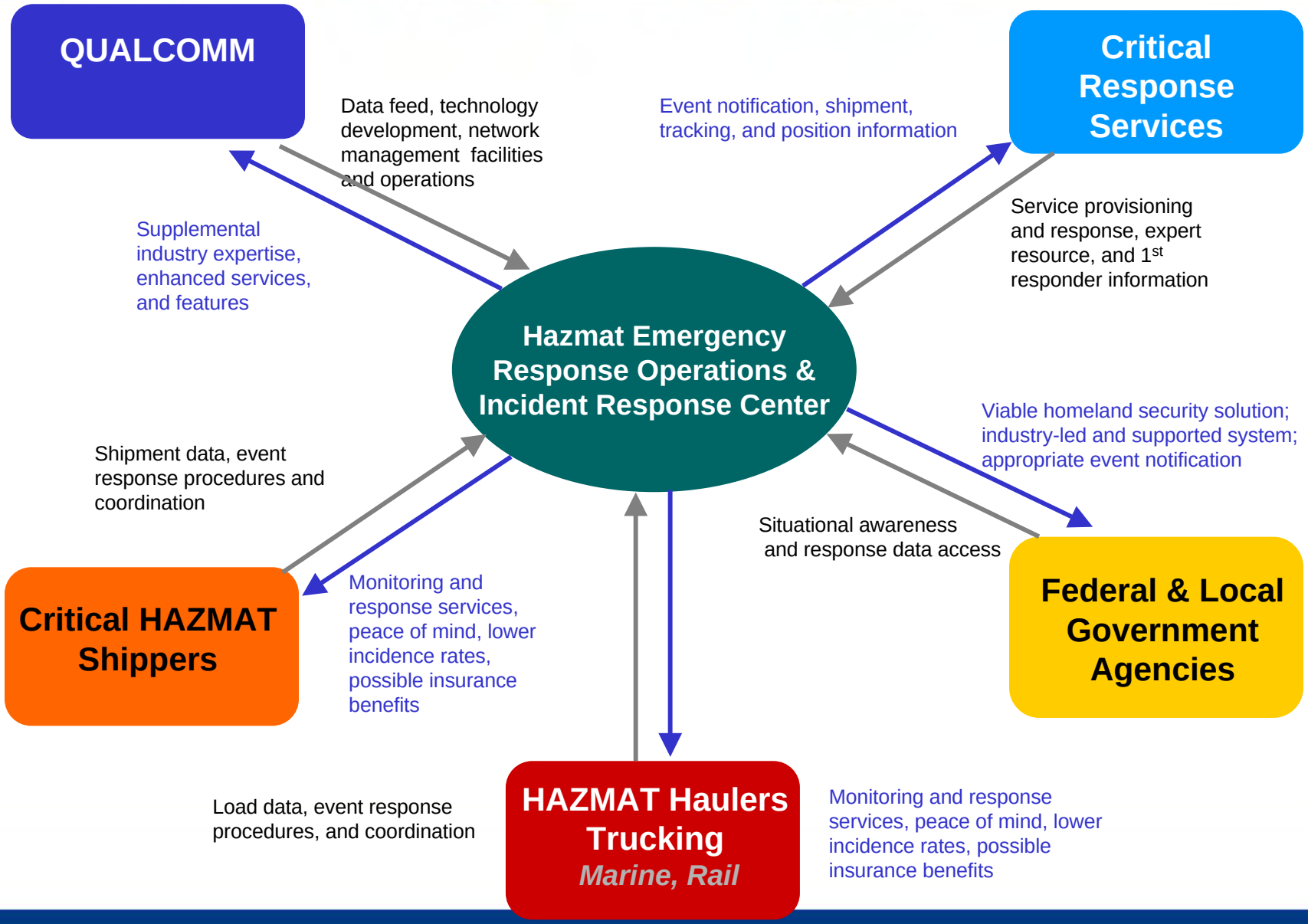


SCOTT LINNETT / Union-Tribune

A chemical spill from this tanker truck paralyzed 7-22-04 evening commute on Interstate 15 at state Route 78.

Circle of Security: Delivery Emergency




QUALCOMM
Critical Response Services
Data feed, technology development, network management facilities and operations
Event notification, shipment, tracking, and position information
Supplemental industry expertise, enhanced services, and features
Service provisioning and response, expert resource, and 1st responder information
Hazmat Emergency Response Operations & Incident Response Center
Viable homeland security solution; industry-led and supported system; appropriate event notification
Shipment data, event response procedures and coordination
Situational awareness and response data access
Critical HAZMAT Shippers
Monitoring and response services, peace of mind, lower incidence rates, possible insurance benefits
Federal & Local Government Agencies
Load data, event response procedures, and coordination
HAZMAT Haulers Trucking
Marine, Rail
Monitoring and response services, peace of mind, lower incidence rates, possible insurance benefits

Technology Benefits – User Perspectives

"We can lose as much as $50,000 per month in revenue as a result of the overall security measures that have been put in place in the United States. With new security measures in effect, having this technology on our tractors really helps out because we can demonstrate to our customers exactly where the load is and why it is being delayed. We also know where our drivers stand with hours of service".

(A large transporter of jet fuel and other hazardous materials --- 100 trucks.)

Ensuring supply chain security and preventing cargo theft is more important than ever before. Not only do we depend on these solutions for operational efficiency and in-transit visibility, but we're leveraging our technology investment to address these security concerns.

(A leading manufacturer of personal and automotive sound systems --- 20 trucks.)