美国公共安全网络
Public Safety Network in USA

Lessons on Communication from 911 Attacks

- First responders couldn’t communicate among each other
  - When police officials concluded the twin towers were in danger of collapsing and ordered police to leave the complex, fire officials were not notified.
- Cell phone network crashed
  - After the attack, the cell phone network of New York City was rapidly overloaded as traffic doubled over normal levels. Cell phone traffic also overloaded across the East Coast, leading to crashes of the cell phone network.

New York City "NYCWiN" - Highlights

- Dedicated, mission critical public safety and Government network
- Optimized for urban public safety; Supports 19+ municipal agencies & 50 discrete applications
- ~ 400 cell sites providing > 95% of coverage across 5 NY Boroughs
- 1,400 police vehicles already connected early in rollout
- Licensed 2.5GHz spectrum covering 300+ square miles and 5,800 miles of roadway
- Includes end-to-end security

This is a model for all US cities, counties, and states for their broadband strategies

System Provider's Capabilities

EXPERTISE

Products-Programs

- Wireless Network Infrastructure
- Cell on Wheels
- Diverse client devices
- Rugged Computing
- Mobile Command Posts
- Cameras & Remote Sensors
- Command & Control
- System integration
- Network management and operation
- Network build-out

BUILD PRIVATE LTE NETWORKS

EQUIP

MISSION CRITICAL

- Federal Systems
- Critical Infrastructure
- Public Safety
- Industry

NYCWiN Technology Attributes

- **Large cells**, Lower cost, higher reliability, with coverage overlap
- **High-cell edge throughput**
- **High Uplink Throughput**. Supporting large numbers of video surveillance cameras
- **Stability in overloaded conditions** during incident tests
- Support for **High speed vehicular mobility**
- **N=1 Frequency reuse system**. Large scale deployment in a single 10MHz channel
- **TOS (user priority)** in addition to QOS (application priority) on the air interface to give **absolute priority to first responders**
- **Excellent indoor coverage** – good first wall penetration in most buildings

Think Beyond Public Safety Networks

Public Safety Applications

- Priority Access [Tos, Qos]
- Field Communications
- Full IT applications access in the field
- Uplink Video
- Downlink Video
- Mobile Control Centers
- Remote Telemetry
- Dispatch & Control

+

Other Government Applications

- Automatic Meter Reading
- City Worker Communications
- Public Access
- Traffic Control
- .....

NYCWiN - Network Applications

- Mobile access to Agency "desktop" applications
  - Real Time Crime Center
  - Criminal databases
  - Automated Warrants
- Automatic Vehicle Location (AVL)
- Voice-over-IP (Call Box)
- Traffic Signal Monitoring & Control
  - Controls 8,000 traffic lights
  - Monitors 2,400 key intersections
- Video Surveillance
- Automated Meter Reading

Operational Applications

Covert
Wireless
CCTV

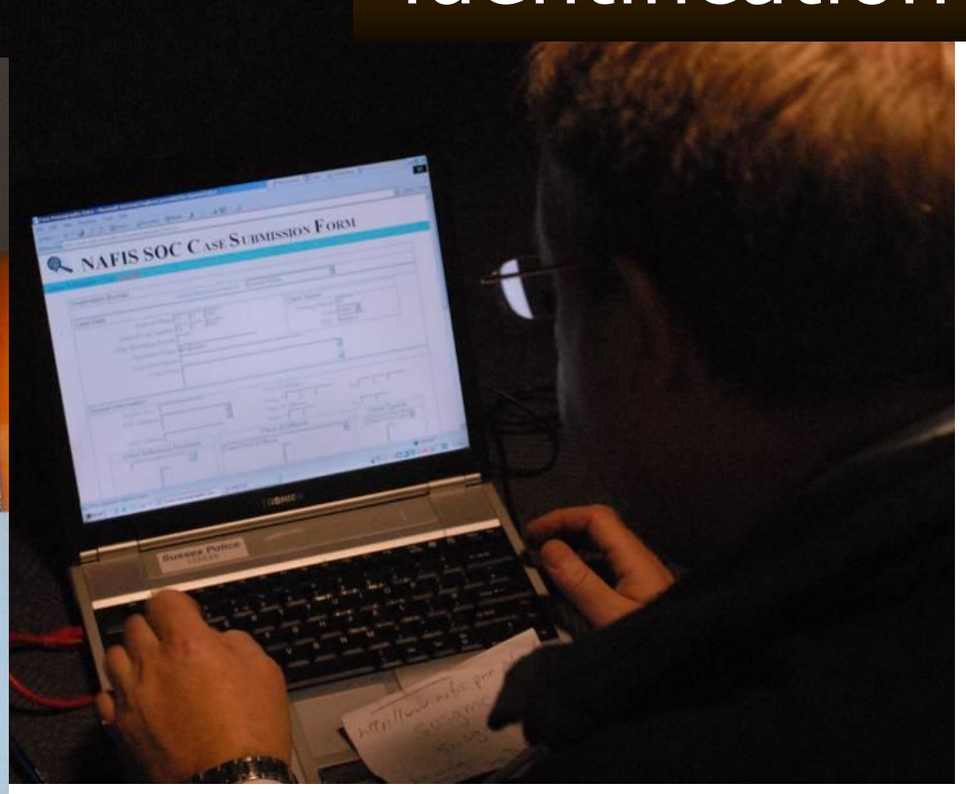
Body worn
Video

Mobile data to
Tablet PCs
And PDAs

Procession
Tracking

Forensic Recovery at Scene & Direct submission

Upload of forensic data direct from scene of crime to enable faster identification



Remote Monitoring of Scene with Wireless

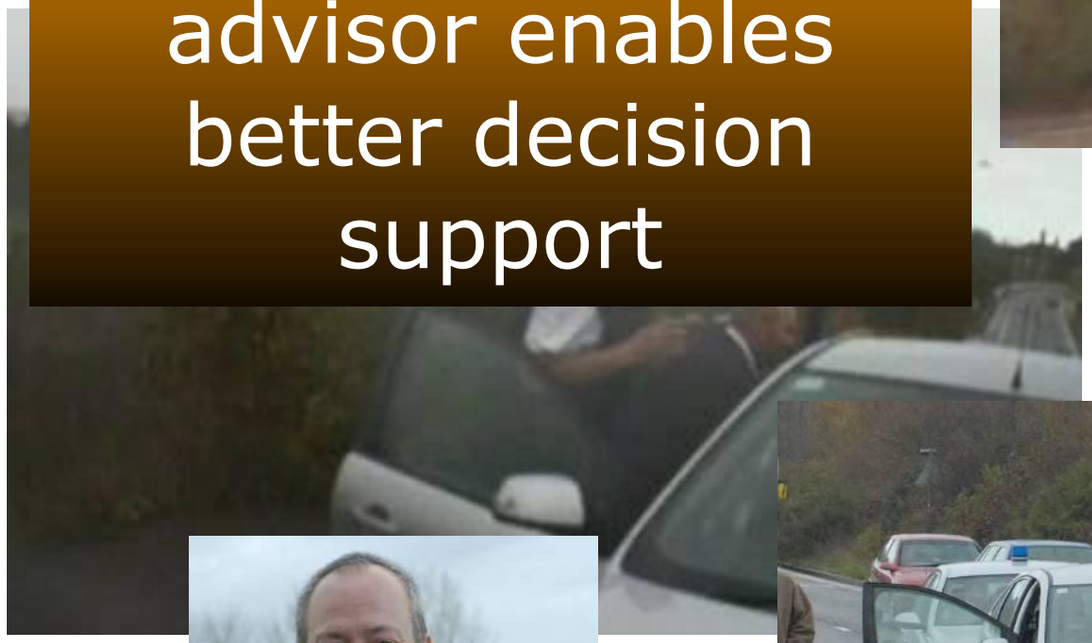
Rapid deployment of Wireless camera – enabling real-time visibility of locations remotely

Real Time Identity

Automatic live data updates to / from mobile resources enables faster identification and arrest

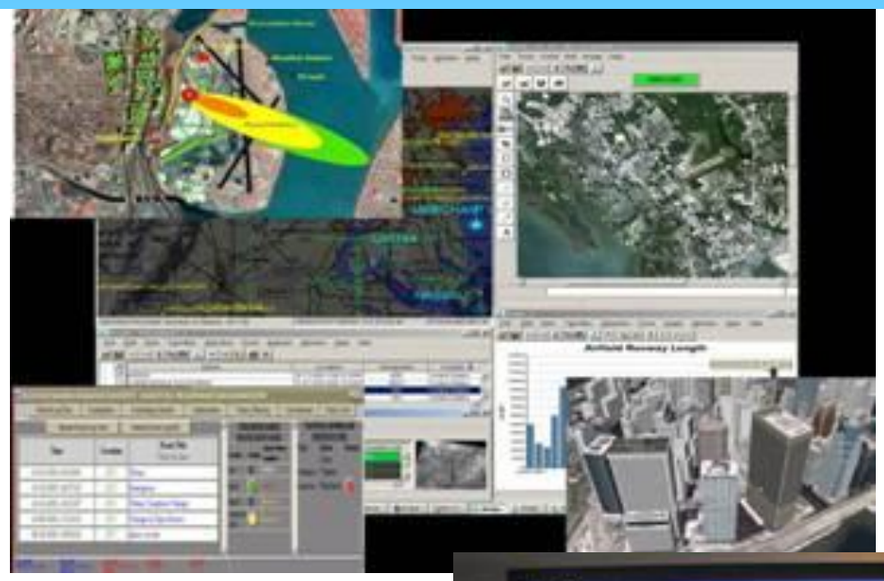
Tactical Pursuit and Control

Integrated Situational awareness delivered to a mobile tactical advisor enables better decision support

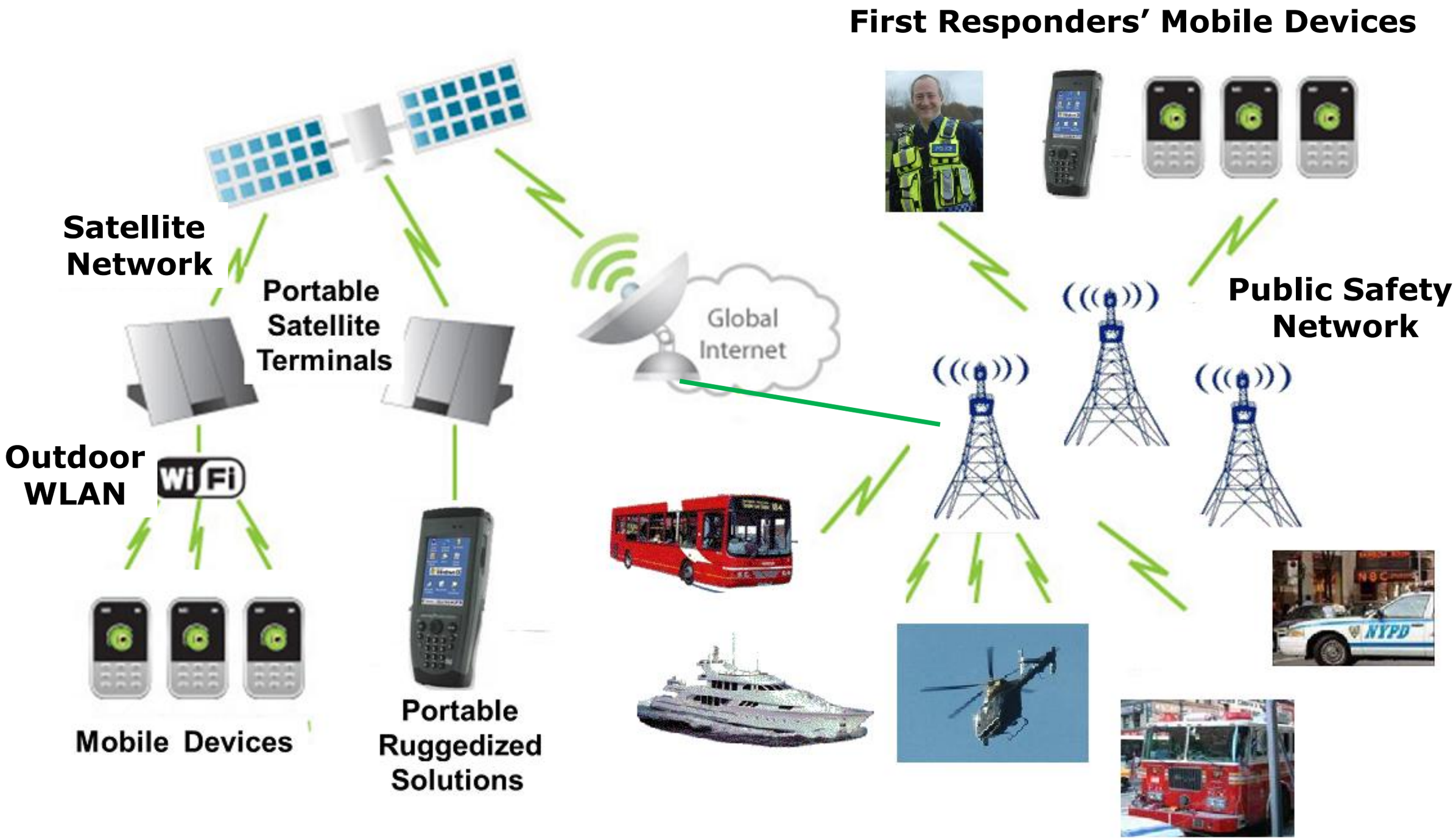


NYCWiN – Operational Benefits

- Situational Awareness
  - On-scene access to integrated geospatial information
  - Rapidly deployable sensors (chem/bio/rad/nuclear) for major incidents with command center access
- Collaboration
  - Inter-agency data sharing
  - Integrated video management
- Workforce Mobilization
  - On-site reporting – digital forms, image capture, real-time issuing of permits & licenses



Satellite and Public Safety Networks



Conclusions

- Mobile Broadband Technology is mature and well suited to the requirements of public safety
  - Public safety mission supported by broadband capacity, mobility and prioritization,
  - Dedicated networks can be designed to be secure, robust and resilient
- *Mobile Broadband yields substantial operational benefits*
  - Real-time information sharing between field officers and centralized commanders
  - Rapid deployments in support of major incidents/events
  - *Right information to the right officer at the right place at the right time*

Thanks