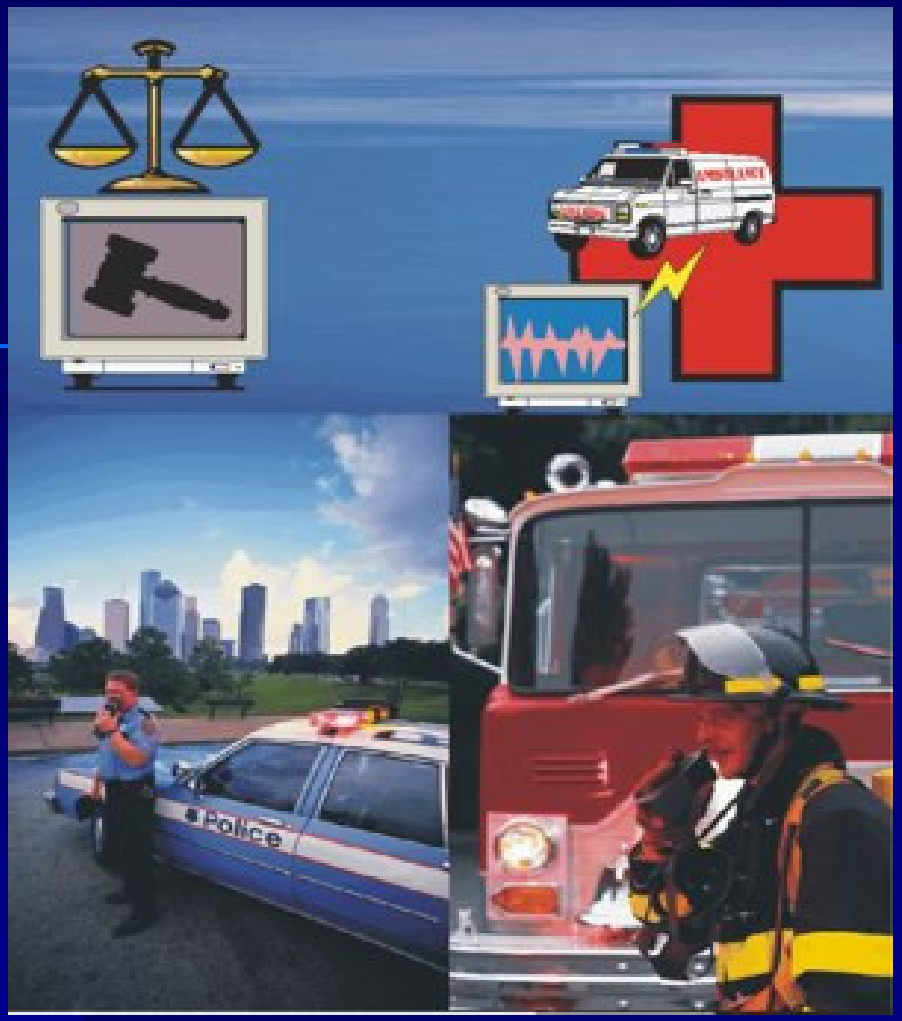


The Mercatus Center
Conference on
The Crisis in Public Safety Communications

December 8, 2006

Communicating After the Disaster: Convergence in Information Systems for Emergency Responders

Why Can't We Talk?

- Defining Interoperability
- The Classic Cure For Interoperability
- The New Technology Cure
- The Intergovernmental Strategy To Make It Happen

I. Defining Interoperability

A Robust Definition

Senate bill (S. 1725) defines "interoperable communications" as "the ability of emergency response providers and relevant Federal, State, and local government agencies to communicate with each other as necessary, utilizing information technology systems and radio communications systems, and to exchange voice, data, or video with one another, in real time, as necessary."

II. The Classic Solution

- The Project 25 solution—to develop digital, shared trunked radio systems that could interoperate "at the physical layer." This required commonly adopted standards, equipment, and compatible uses of radio frequencies.

- Until January 2006, many of the relevant "interfaces had either remained undefined, or lacked enough specificity to allow for a common implementation of the interface; in other words, each manufacturer's implementation of the interface would be different and proprietary thus resulting in systems that would not meet the 'interoperability' requirements as defined by the steering committee."

Derek Orr, NIST Program Manager (in Senate testimony)

III. The New Technology Cure

Five Emerging Technologies

- Multi-Mode Radios
- Internet Protocol-Based Networking
- Cognitive ("Smart") Radio Systems
- Broadband
- Rights Management

Multi-Mode Radios

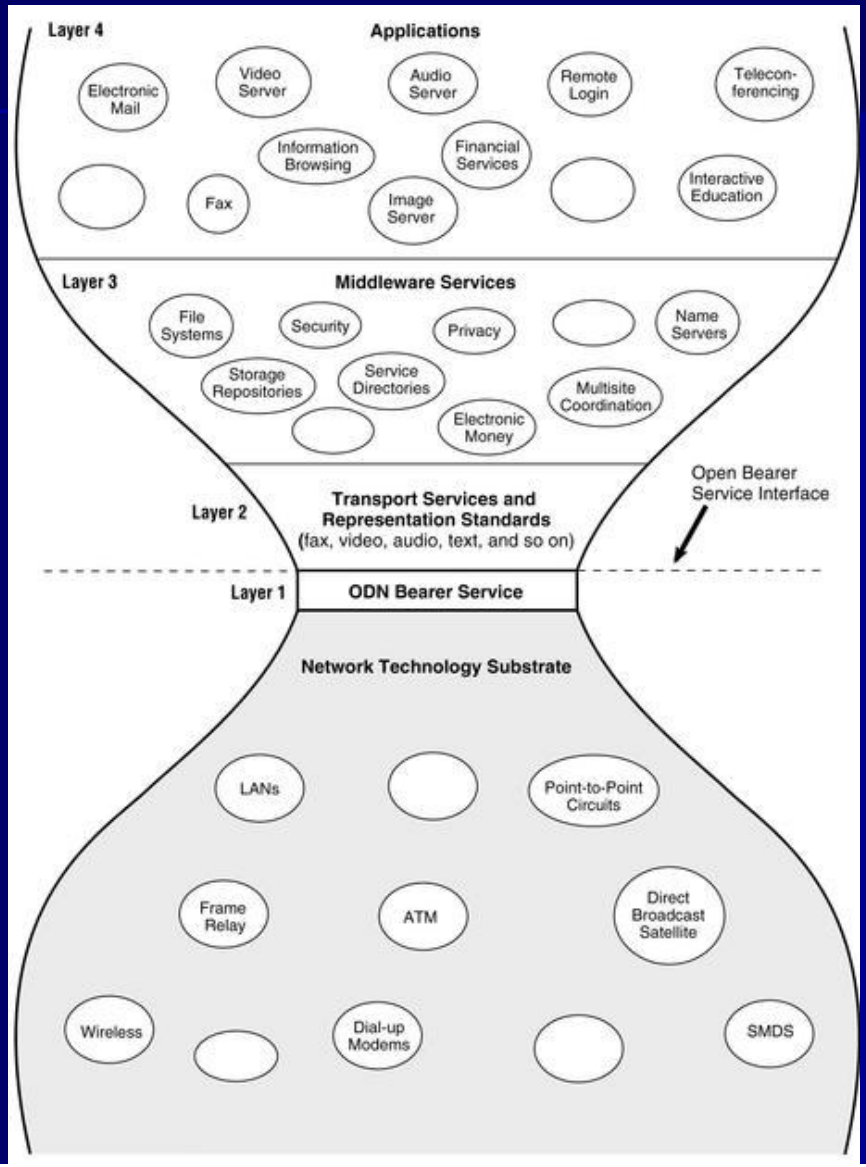
"From Katrina, we learned that we cannot rely on any specific infrastructure: PSTN, radio tower, or other. We need the option of reconstituting communications from a disaster recovery site that is on a different power grid, with different phone providers."

- **Kevin Ross, Assistant Director for Technology, New York State Emergency Management Office**

"If we learned anything from Hurricane Katrina, it is that we cannot rely solely on terrestrial communications."

- **FCC Chairman Kevin Martin**

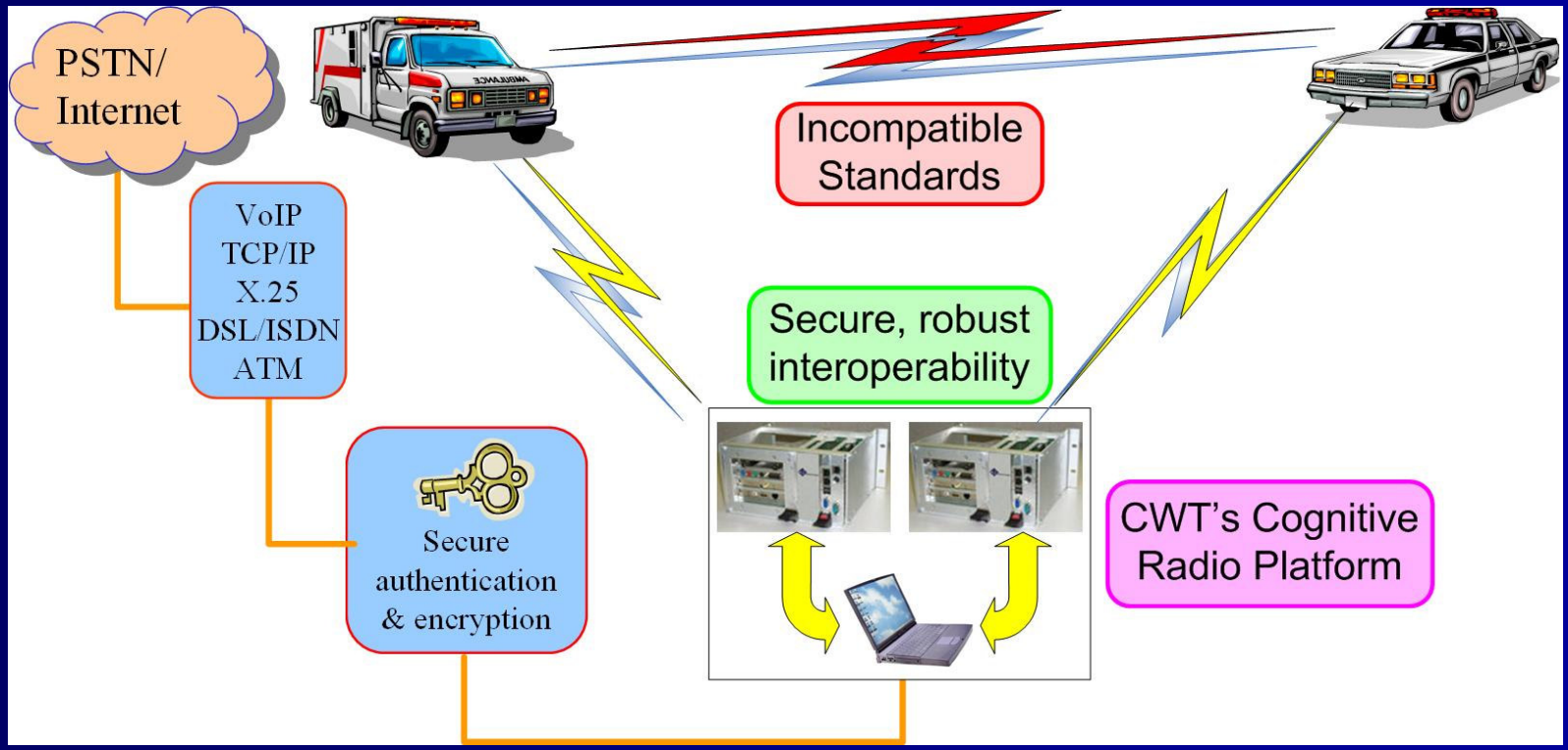
Internet Architecture 101



"With an IP network you can carry traffic from a PC, camera, or cell phone, so why not an 800-MHz radio?"

- Gordon Bruce, CIO, city and county of Honolulu

Cognitive Radios



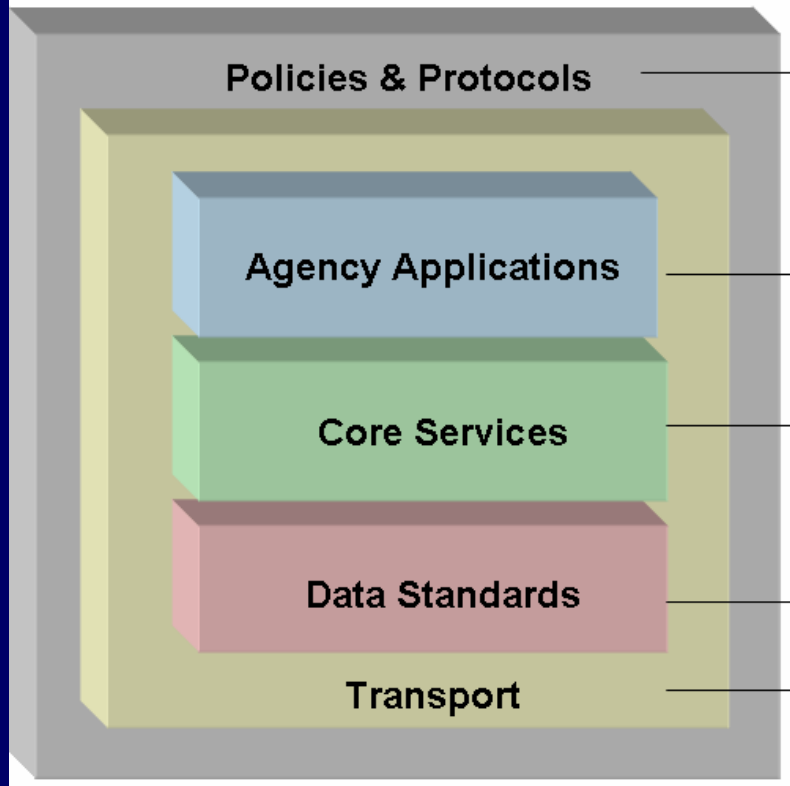
By adopting cognitive radio technologies, public safety agencies would be able to use "multiple frequencies in multiple formats" and benefit from a more "flexible infrastructure"

-FCC Chairman Kevin Martin

Broadband Systems

A recent survey of US and Canadian consumers concluded that broadband is “the communication service they can least live without.”

Rights Management



Policies & Protocols
- Multi-level governance
- Distribution and response protocols
- Policies for Core Services

Agency Applications
- Software to support agency operations
- Tools to manage data, enhance data and support decision making
- Local/regional network services

Core Services
- Shared utilities available to all authorized agencies, such as Authentication, Authorization, Locator, Discovery, Transformation and Diagnostic services

Data Standards
- Standard message structures, profile and data content so information is universally understood
- Legacy system interfaces to standardized center

Transport
- Connect all agencies and organizations
- Physical connections (wired and wireless)
- Management of data delivery between network devices

IV. A New Intergovernmental Strategy

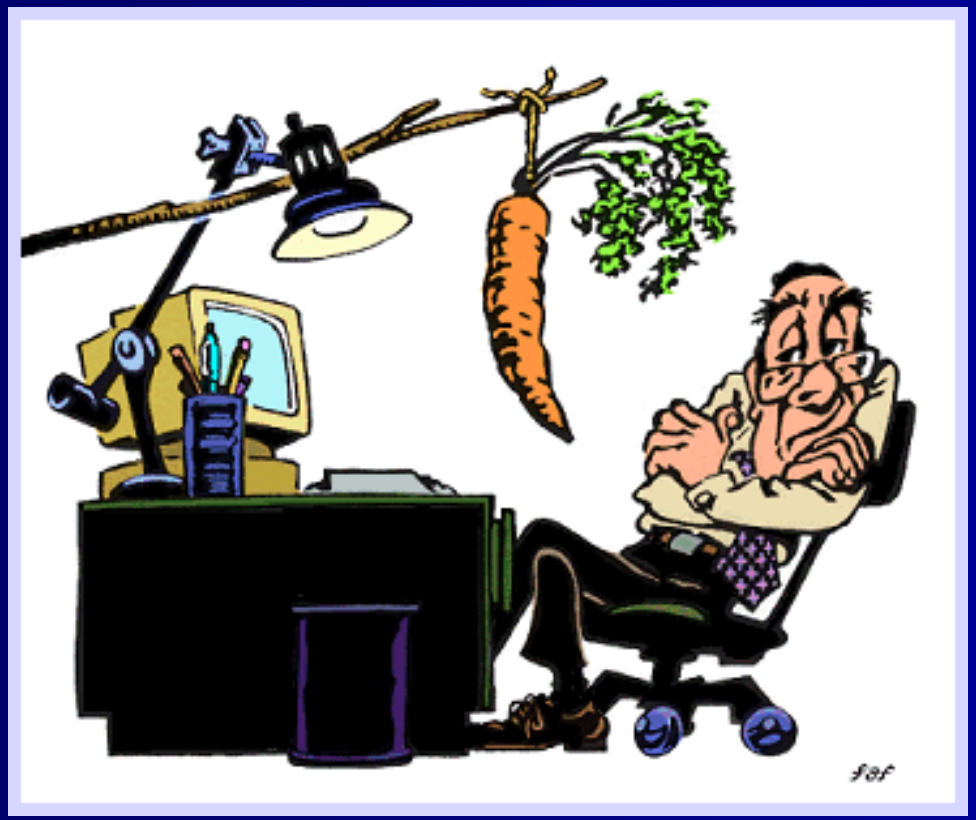
A. The Failings of the Old Model

"State and local governments [continue to be] responsible for designing and coordinating their efforts, and [have] failed to make meaningful progress *despite knowledge of the problem for years and the expenditure of millions in federal funds*."

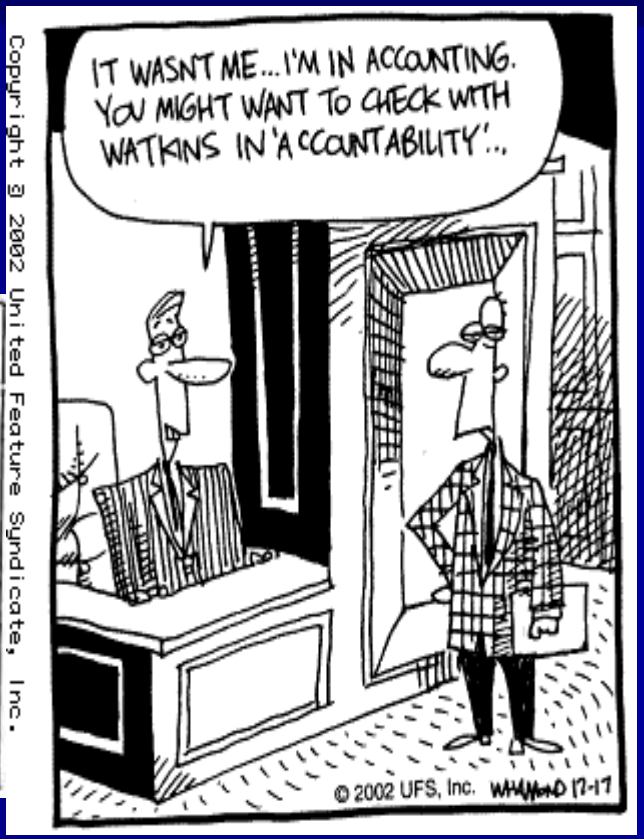
-House of Representatives Committee Report Investigating the Katrina Disaster

B. Localities Need A Push: The Importance of Leadership At Both the Federal and State Levels

C. The Centrality of Incentives: The Role of Spectrum Licenses and Interoperability Grants



D. Accountability



Questions?