

The Need for Fundamental Reform in Public Safety Spectrum and Communications Policy

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The Failure of Incremental Changes

- Americans have died due to problems with public safety communications systems
 - in large-scale disasters, e.g. 9/11 and Hurricane Katrina
 - in small incidents, occurring regularly throughout the US
- This has prompted policy-makers to propose incremental improvements, e.g.
 - Grants to local agencies to “fix” interoperability problems
 - Minor adjustments to spectrum bandplans
- Incremental changes have limited impact.

Outdated Assumptions of Today's Public Safety Infrastructure

- Each local agency should make independent decisions about its own communications system
- Only government infrastructure can serve public safety
- Public safety cannot share either spectrum or infrastructure
- Voice communications is the dominant application

Consequences of These Assumptions

- Unnecessary interoperability failures
- Wasted spectrum, unnecessary spectrum shortages
- Fragile undependable systems
- Lack of advanced capabilities
- Excessive costs, wasted tax-payer dollars
- These limitations are not tolerable after 9/11

DTV Transition Is An Opportunity

- Transition to digital TV will make additional spectrum available for public safety
 - Currently 24 MHz, roughly doubling spectrum below 2 GHz
- No incumbent users or legacy equipment
- A place for a new system with superior technology and effective policy.
- Once new system is in place, users of outdated technology and fragmented spectrum may migrate to new system over time.

- But only if new policies prevail in public safety's new spectrum

A Nationwide Network

- We need a nationwide broadband network with a consistent architecture
- Should meet public safety requirements and take advantage of all wireless networks that are available.
 - A primary system to guarantee support for mission-critical communications.
 - Secondary systems where available, e.g.
 - Commercial cellular
 - Municipal wifi
 - Ad hoc networks
 - Satellite

The Primary System

- Primary system could be run by
 - A federal government agency or organization
 - A confederation of regional government entities
 - using a common architecture and coherent design
 - A commercial company
- A government-run network is feasible and more cost-effective than what we have now.
- With a commercial company, potential benefits are greater, challenges and risks are greater.
 - Could save money and spectrum, especially if public safety shares infrastructure with general public.
 - Commercial company may be unwilling to adequately serve rural areas.
 - A monopoly commercial provider may choose to raise prices and neglect dependability, security, coverage

What Policy-Makers Can Do

- Federal government should proceed on two fronts
 - Advance government-run nationwide network
 - Evaluate proposals from industry
- Begin defining the architecture of next-generation nationwide broadband network based on open standards.
 - with leadership from federal government.
- Take advantage of experts outside of government by funding research programs in HSARPA, NSF, perhaps elsewhere
- Reevaluate Integrated Wireless Network (IWN) program
 - This is a nationwide network to serve federal agents only
 - Possibly expand program to support *all* first responders.
 - Possibly terminate program, using funding and spectrum for a more complete solution to public safety problems.

What Policy-Makers Can Do

- Provide spectrum for a public safety network
 - In this spectrum, all infrastructure must be consistent with national architecture.
 - FCC must reject current plans and proposals, all of which emphasize flexibility over standards and regional planning.
- Further consider allocating some spectrum to be shared by public safety and other users,
 - Public safety has priority, but rarely needs the spectrum.
- Examine proposals from potential commercial providers.
 - Determine whether provisions can be established to insure that public safety requirements are met without deterring commercial providers.

For more information, see

www.ece.cmu.edu/~peha/safety.html and
www.newamerica.net/events/2006/from_tv_to_public_safety

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