Communication Interoperability: A Daily Problem

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Description of the problem

- Public safety requires that emergency responders be able to communicate in real time with all event participants
- Today, U.S. agencies cannot easily share information when responding to
  - routine operations
  - large-scale events, such as acts of terrorism or natural disasters
- Incompatible legacy communications equipment used by more than 60,000 federal, state, local, and tribal agencies
- Cost of new equipment prevents total replacement
- Interoperability essential to achieving full communications
Solutions in use today

– Quick solutions
  – side-by-side
  – swapping radios
  – sharing frequencies
– Some equipment necessary
  – radio cache
  – bridges and gateways
– Expensive equipment solutions
  – specially equipped vehicles
  – regional replacement of radios
  – Project 25 (P25)
– Voice and data solutions
  – Wi-Fi
  – 4.9 GHz
Quick solutions

Side-by-side

Responders standing next to each other relaying messages between multiple agencies

✓ Works for small incidents with few participants

- Ties up responders that were sent to help
- As more agencies arrive, this quickly gets unwieldy
Quick solutions (continued)

**Swapping radios**

Agencies give each other radios compatible with their own

- 🔄 Works for small incidents with few participants
  - Multiple radios at Incident Command Post becomes confusing
  - May require responders assigned to radios again
  - Only addresses agencies equipped in advance

**Sharing frequencies**

Agencies agree to use common frequency(ies) at incidents

- 🔄 Works for small incidents with few participants
  - Many responders needing to communicate causes congestion on one frequency
  - Only addresses agencies that have agreed and have been equipped in advance
Some equipment necessary

Radio cache
Region keeps a cache of radios saved for significant events

☑ Some number of responders at the scene can talk to each other
  - Does not help day-to-day
  - Handing out unfamiliar radios to responders at incident scene
  - Cache has to be inventoried and maintained

Bridges and gateways
Devices connect two or more frequencies

☑ Some number of agencies at the scene can talk to each other
  - Special training/knowledge required
  - Requires preplanning and coordination
  - Correct equipment must be on hand/on scene
Expensive equipment solutions

Specially equipped vehicles
Multiple radios with gateways mounted in special purpose vehicles

- When it works, it works well
- Expensive equipment, vehicle, personnel
- May be hours away; if available at all
- Only deployed for significant incidents
- Take time to set up; difficult to maintain

Regional replacement of radios
Purchase new radios for responders in a region

- All responders with compatible radios can talk to each other
- Only works within the region
- Expensive infrastructure and equipment
Expensive equipment solutions (continued)

Project 25 (P25)
Deploying new P25 radios to all responders in a region

✓ All responders with new, P25 radios can talk to each other
- Only works within the region
- Expensive infrastructure and equipment
- Currently P25 radios are not all compatible
Voice and data solutions

Wi-Fi
New devices designed to operate in the 2.4 GHz spectrum

✓ All responders with new, compatible devices can talk to each other

- Only works within the region
- Expensive infrastructure

4.9 GHz
New devices designed to operate in the 4.9GHz spectrum

✓ All responders with new, compatible devices able to talk
✓ 4.9 GHz range is reserved for public safety

- Only works within the region
- Expensive infrastructure and equipment
Does this matter to First Responders?

First responders need to communicate with each other

Lack of communications is unsafe
DHS is trying to help as well

SAFECOM Program
  – Established the Statement of Requirements (SoR) for public safety communications interoperability
  – Interoperability Continuum

National Baseline Survey
  – Defines current situation

Grant Programs
  – New focused on interoperability

Looking toward the future
  – Unified Incident Command and Decision Support (UICDS)
  – First Net
  – Emphasis on video and voice
Advanced solution compliant with SAFECOM SoR - First InterComm™ Solution

- First Responders use existing, familiar radios
- Useful every day
- Scales to incident size
- No infrastructure required
- Allows responders to follow standard operating procedures
- Connects civil and military radios
- Digital solution compatible with latest (P-25) radios