Current and Future IBW for Public Safety

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Overview

- Requirements on IBW to meet public safety needs
  - Public safety demands on neutral host systems
  - Local code requirements for Public Safety radio coverage
- Future: SAFECOM vision for Public Safety networks
- Locating emergency responders using IBW

Current systems for Public Safety radio coverage

- Large building with dead spots in radio coverage
  - What kind of IBW will meet the needs?
- Trunked radio system—single cell is most efficient
  - DAS with repeater to nearest PS radio base station
- Each facility has unique needs, example: NIST AML
  - Active DAS in designated hallways
  - Public safety specific system (de-activated until time of building emergency)

Public safety demands on neutral host systems

- Coverage in building areas that would not normally be covered based on a profit motive: stairwells, parking garages, utility spaces;
- A system designed for emergency power back-up, redundancy, reliability and survivability;
- Unlimited access to the IBW to allow disabling interference and enabling additional coverage,
- and consent and approval authority on any system changes

Local Public Safety demands on IBW

- Variation between jurisdictions on radio systems
  - Different radios with different frequencies and coverage needs
  - Different local codes
- Becoming more common for municipalities to require public safety RF coverage in large buildings
  - So, building owners who want IBW for cell phone, Wifi, and other applications now have to include public safety
  - And building owners who weren't thinking about IBW now have to meet public safety requirements and might be more open to a neutral host IBW to serve other applications

Example local code

- Montgomery County, MD requires (new construction over 25,000 sf or underground):
  - Signal measurement -95dbm or above at all points;
  - 95% coverage, 95% of the time (includes: basement, elevators, stairways, etc);
  - In-building signal amplification system provides coverage at Delivered Audio Quality (DAQ) 3.4 level or above. DAQ 3.4 is defined as “speech understandable without repetition. Some noise/distortion present.”
  - Measurements performed using the Montgomery County Frequency Chart

Meeting Public Safety needs

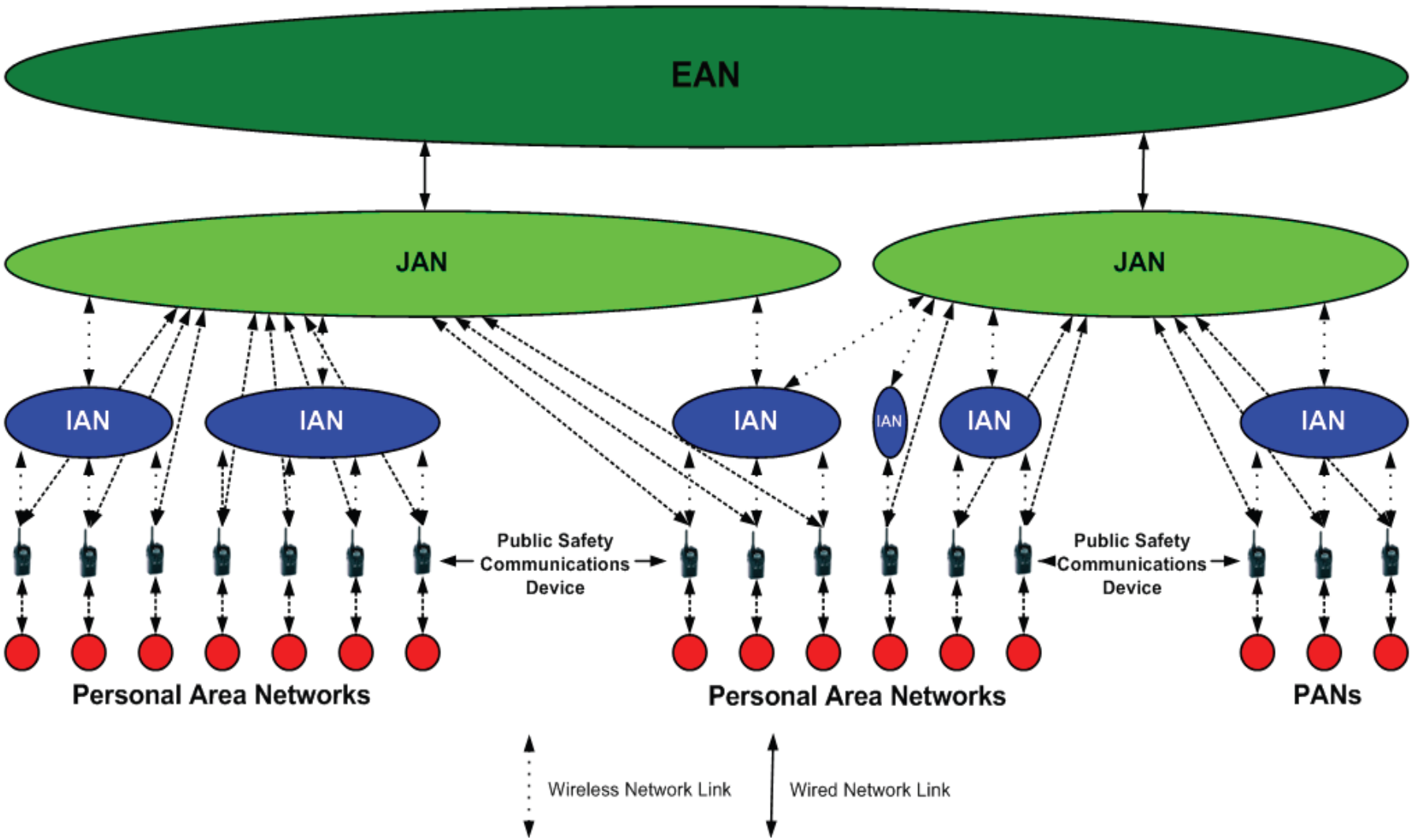
Summary:

- If a neutral host system is to meet the requirements of local public safety, then local public safety must be consulted at design stage.

Federal government interoperability efforts and the future public safety network

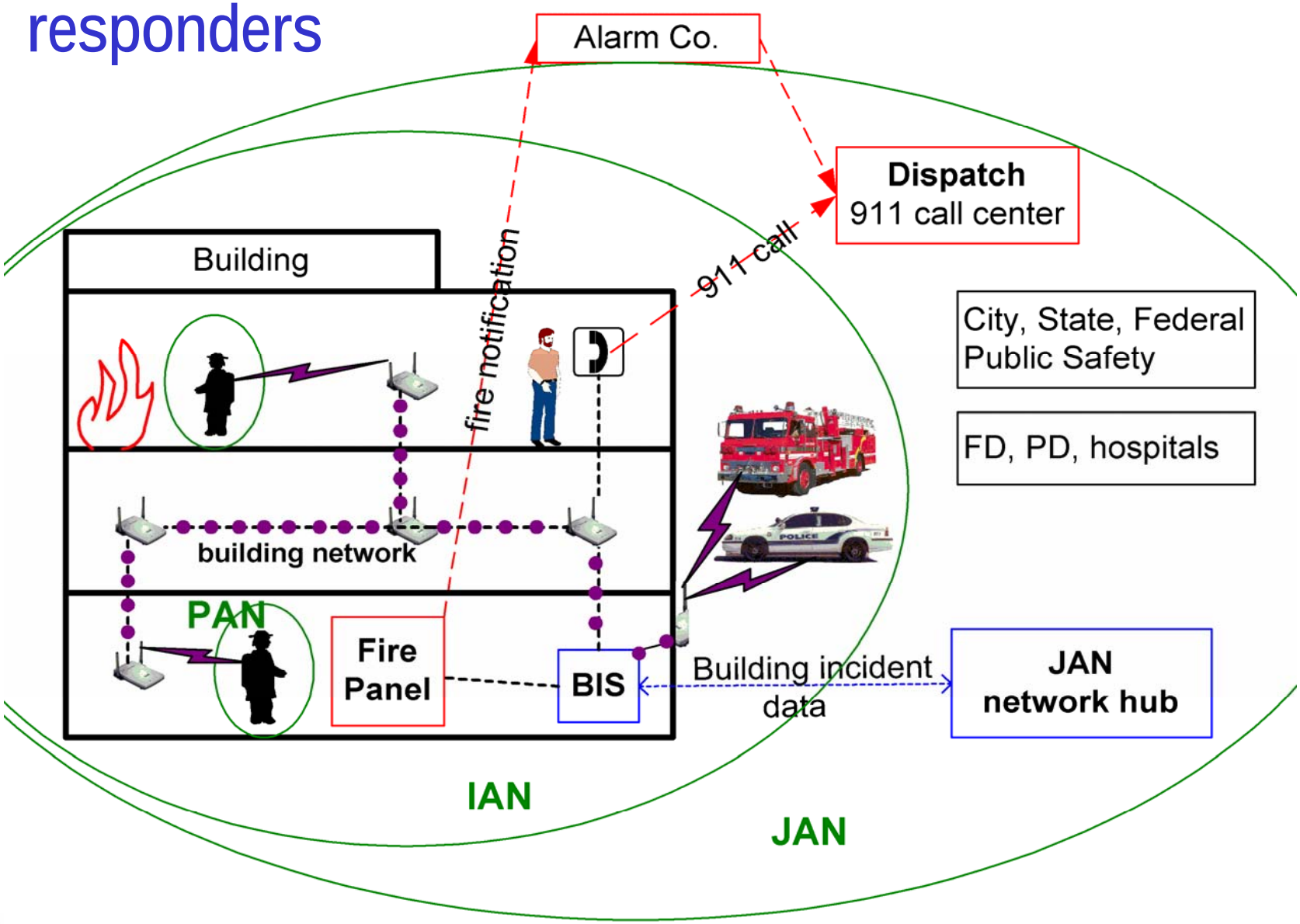
- SAFECOM (under DHS) is leading the effort to specify a future public safety interoperable network
- Vision for a network of networks
  - Jurisdiction Area Network (JAN)—similar to what public safety uses now.
  - New Incident Area Network (IAN)
  - And Personal Area Network (PAN)
- Discussed in the SAFECOM Statement of Requirements

SAFECOM SoR networks



From SoR v1.2, p.50

Future IBW radio connections to emergency responders



IBW and future public safety radios

- Pay attention to SAFECOM Statement of Requirements
- Work with SAFECOM to allow for IBW in IAN
- Look at potential for emergency responder location capability
  - Small IBW cells may be useful in a building when there is a high concentration of emergency responders
  - If we have small cells, then can look at ways to use these for locating emergency responders
  - Need to think about how to communicate location information to incident commander on the IAN.

Recommendations

- Look at local code requirements and design DAS to meet needs of local public safety
- Follow what SAFECOM is doing and look for ways to get IBW on the SAFECOM radar screen in order to tackle the location issue
- Work with Chief Greif and his effort to get IBW for public safety into national codes