ROADMAPPING: Deep Dives into Key Public Safety Communications Technology Areas

1) Indoor Mapping, Pre-Incident Planning, and Data Policies

Facilitator: Joe Grasso, NIST PSCR

Pre-Incident Planning can lead to data products that could be considered sensitive (maps of critical infrastructure, images inside manufacturing facilities, etc.). Adoption of 3D mobile mapping technologies will lead to an increase in the amount of data being collected and the number of sites for which data is available. You are invited to help brainstorm challenges associated with developing and maintaining 3D indoor building maps and to share lessons learned based on current pre-incident planning processes. Join in a high-level discussion to identify opportunities available for the R&D community supporting public safety such as the development of new location-based services best practices, data policies, or 3D / indoor mapping technologies.

2) It's Any O'clock…Do You Know Where Your First Responders Are?: A deep dive into Location-Based Services (LBS) for public safety operations

Facilitator: Randy Kerr, First Responder Network Authority

This session focuses on the operational benefits of technologies that can locate first responders, in real time, when they are out of their vehicles. We will prioritize features these solutions could include to make them more desirable for public safety operations.

3) Transition of Land Mobile Radio to Broadband: Evaluating Mission Critical Device-to-Device (D2D) and Vehicle-to-Everything (V2X) Communications for Public Safety

Facilitators: Chunmei Liu, Yishen Sun, NIST PSCR

This session seeks to better understand stakeholder interest in research opportunities and mission critical communications applications supported by device-to-device (D2D) and Vehicle-to-Everything (V2X) networks. NIST PSCR Mission Critical Services (MCS) researchers will describe current research capabilities within the context of recent 3GPP activities supporting D2D and V2X broadband services for first responders. Participants are invited to provide feedback on recent MCS research projects to inform future planning and brainstorm new D2D and V2X communications capabilities within land-mobile radio, long-term evolution, and NextG network environments that would provide the largest operational impact to public safety.

4) What's Stopping You?: A deep dive into current blockers and obstacles to adopting mission critical push-to-talk (MCPTT) solutions

Facilitator: Jennifer Harder, First Responder Network Authority

This session gets to the heart of the next immediate additions, improvements, or changes needed in MCPTT solutions to make them adoptable by personnel in various roles across primary public safety disciplines, and extended primary entities, or those who have other public safety roles. We will prioritize features in these solutions to make them more desirable for public safety operations.

5) Leveraging User Interface / User Experience Technology from an Operational Perspective

Facilitator: Scott Ledgerwood, NIST PSCR

Communications tools used by first responders during an emergency response must be designed around their specific context, tasks, and operational constraints. Stakeholders are invited to brainstorm how low-burden user interface technologies, such as vocal interaction/engagement, could improve public safety's use of advanced communications systems during a response. Help identify how first responders could effectively interact and obtain information from various data sources—through next-generation user interface technology—to increase situational awareness and response effectiveness while accounting for operational challenges inherent to future emergency scenarios.

6) Agency-Deployed Mobile Applications

Facilitator: Shawn Shahidi, First Responder Network Authority

This session will dive into how public safety agencies use mobile applications, both ones they choose from the ecosystem at large and those they choose to create or design in-house. We will discuss the decision process agencies use to select their mobile applications.

7) What's with Wearables for Public Safety?

Facilitator: Travis Hull, First Responder Network Authority

Explore the intersection of wearables and public safety as we delve into the potential benefits they bring. Gain valuable insights into the ways in which wearables can revolutionize public safety operations by optimizing the user experience and improving overall efficiency. Join this discussion to unlock new perspectives on leveraging wearable technologies for enhanced public safety outcomes. Don't miss this opportunity to be at the forefront of cutting-edge advancements in UI/UX and contribute to the evolution of public safety practices.

8) Security Impacts on Public Safety Operations

Facilitator: John Beltz, NIST PSCR

Security controls are necessary to protect sensitive public safety data but can sometimes be viewed as a hinderance to efficient operations. This discussion will focus on possible negative impacts of security controls and how to reduce those negative impacts or even provide positive impacts. This session will begin by defining several key concepts related to NIST PSCR's recent research into Identify, Credential, and Authentication Management (ICAM) technologies such as mobile single sign-on, federation, multi-factor authentication, encryption, and Identity as a Service (IDaaS). After defining these concepts, participants will be asked to brainstorm technologies that public safety wants—but cannot use—due to security concerns. This will inform future portfolio planning. After identifying common security barriers to technology adoption, help us identify high-value security capabilities that would make the adoption of new communications technologies more convenient.

9) How can FirstNet Make it Easy for the Ecosystem to Innovate for Public Safety?

Facilitator: Anu Appaji, First Responder Network Authority

This session provides a comprehensive exploration of the key pain points faced by innovators during the development of solutions for the FirstNet. It offers a deep understanding of the challenges encountered throughout the process, allowing all participants to gain valuable insights into the experiences of these creative minds. Additionally, the session focuses on unraveling the critical pain points experienced by public safety decision makers, including IT professionals and leadership personnel, as they navigate the evaluation and adoption of FirstNet solutions. By gaining a thorough understanding of these challenges, participants can foster a collaborative environment and advance innovative solutions within the FirstNet ecosystem. Join this dynamic session to broaden your knowledge and contribute to the evolution of public safety communication technologies.

10) Integrating Uncrewed Aircraft Systems into Tomorrow's First Responder Toolbox

Facilitator: Terese Manley, NIST PSCR

Uncrewed Aircraft Systems (UAS) have the potential to supplement public safety operations under dangerous and life-threatening circumstances by increasing network coverage, capacity, and resilience; collecting situational awareness data; and enabling first responders to focus on high-impact operational tasks. This session will identify UAS applications that would increase the efficiency and effectiveness of public safety operations, and brainstorm how UAS technologies must evolve to integrate into future first responder communications systems. For example, first responders may operate with greater autonomy and reduced cognitive burdens by leveraging goggles rather than a handheld device to control uncrewed aircrafts, or by automating flight plans with methods such as machine learning to increase their ability to focus on the incident. Other possible use cases include taking vital health scans using a drone after locating the victim or locating missing persons using z-axis coordinates collected from multiple drones. This session will focus on exploring new UAS applications for public safety and identifying the technologies required to make these applications a reality.

11) FirstNet Coverage for Public Safety Incidents and Events: Adhoc Solutions for On-scene Coverage

Facilitator: Chuck Murph, First Responder Network Authority

Open to all, this session would focus on gathering public safety feedback regarding the use, capabilities, procedures, and effectiveness of utilizing a range of available FirstNet deployable assets. The session would also solicit public safety feedback on ideas to make FirstNet deployable assets better meet their mission requirements.

12) Multi-Access Edge Computing and the Potential Impact on Public Safety Operations

Facilitator: Arshad Syed, First Responder Network Authority

Explore Multi-Access Edge Computing as a way to enhance and evolve communications for first responders in a 5G environment. The discussion will revolve around the public safety benefits of reduced communication latency, increased data processing, expanded access to IoT devices, and integrated applications.