NPSTC

Full NPSTC Meeting | Washington, DC

Wednesday, September 06, 2017

Voice: (510) 227-1018 | Conference ID: 192 7086

Visual : https://join.me/NPSTCsupport1

Submit Questions Online

Send email to support@npstc.org

The member organizations of the National Public Safety Telecommunications Council are grateful to the Department of Homeland Security's Science and Technology Directorate, Office for Interoperability and Compatibility (OIC) and the National Protection and Programs Directorate, Office of Emergency Communications (OEC) Points of view or opinions expressed are those of the originators and do not necessarily represent the official position or policies of the U.S. Department of Homeland Security.

Welcome and Opening

- Ralph Haller, NPSTC Chair
  - Call to Order
  - Pledge of Allegiance
  - Moment of Silence
- Technical Tips
  - Webinar Access Information: https://join.me/NPSTCsupport1
  - Online participants submit questions to support@npstc.org. Do NOT use the the join.me chat bubble, it will be displayed to all.
  - To mute your phone, press *6, NOT hold.
  - Email attendance to attend@npstc.org.

NPSTC is a federation of organizations whose mission is to improve public safety communications and interoperability through collaborative leadership.

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Pledge of Allegiance

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Role Call
Governing Board Organizations

- American Association of State Highway Transportation Officials (AASHTO)
- American Radio Relay League (ARRL)
- Association of Fish & Wildlife Agencies (AFWA)
- Association of Public-Safety Communications Officials-International (APCO)
- Forestry Conservation Communications Association (FCCA)
- International Association of Chiefs of Police (IACP)
- International Association of Emergency Managers (IAEM)
- International Association of Fire Chiefs (IAFC)
- International Municipal Signal Association (IMSA)
- National Association of State Chief Information Officers (NASCIO)
- National Association of State Emergency Medical Services Officials (NASEMSO)
- National Association of State Foresters (NASF)
- National Association of State Technology Directors (NASTD)
- National Council of Statewide Interoperability Coordinators (NCSWIC)
- National Emergency Number Association (NENA)
- National Sheriff's Association (NSA)

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Welcome

- Associate Organizations
  - Canadian Interoperability Technology Interest Group (CITIG)
  - Utilities Telecom Council (UTC)

- Affiliate Organizations
  - Alliance for Telecommunications Industry Solutions (ATIS)
  - Open Mobile Alliance (OMA)
  - Telecommunications Industry Association (TIA)
  - TETRA Critical Communications Association (TCCA)

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Welcome

- Liaison Organizations
  - Federal Communications Commission (FCC)
  - Federal Emergency Management Agency (FEMA)
  - Federal Partnership for Interoperability Communications (FPIC)
  - National Telecommunications and Information Administration (NTIA)
  - Public Safety Communication Europe (PSCE)
  - SAFECOM Program
  - U.S. Department of Homeland Security, Office for Interoperability and Compatibility (OIC)
  - U.S. Department of Homeland Security, Office of Emergency Communications (OEC)
  - U.S. Department of Justice (US DOJ)
  - U.S. Department of the Interior (US DOI)
  - University of Melbourne Center for Disaster Management and Public Safety (CDMPS)

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Federal Partners Update

Department of Homeland Security (DHS), Office of Emergency Communications (OEC) – Jim Downes, FPIC Manager

Department of Homeland Security (DHS), Office for Interoperability and Compatibility (OIC) – Sridhar Kowdley, Program Manager

(See outside presentation on the www.NPSTC.org website Meeting Page.

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Technology and Broadband Committee

Kim Coleman Madsen *via teleconference*, Committee Chair; Andy Thiessen, Vice Chair, Dr. Michael Britt, Vice Chair

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3rd Generation Partnership Project (3GPP)

Andy Thiessen, Technology and Broadband Committee Vice Chair

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3rd Generation Partnership Project (3GPP)

- Release 15 Work Underway
  - LMR LTE Interworking is one of the work items in Release 15, whose primary scope is creation of a 5G standard.
  - Goal in Release 15 is to create standards that allow connectivity between public safety LMR radio systems and LTE Mission Critical Push To Talk (MC PTT) services.
  - This will allow MC PTT to connect to other technologies, including P25, TETRA, and other digital radio protocols.
  - The interface should also support analog and conventional radio systems.

3rd Generation Partnership Project (3GPP)

- Release 15 Work Underway
  - Work is continuing to standardize core to core connections (e.g. how to interconnect Mission Critical services like PTT, Video, and Data from one core to another core.)
    - This is important in Europe to accommodate the myriad of boundaries between different countries.
  - Conformance test standards for Mission Critical services are also being developed.
    - Conformance testing for Release 13 MC PTT should be completed by the end of 2017.

3rd Generation Partnership Project (3GPP)

- Release 15 Timeline
  - Stage 2 work should be completed by the end of the calendar year.
    - Stage 2 is an overall description of the organization of the network functions to map service requirements into network capabilities.
  - Stage 3 work will commence and may take six to nine months (possibly ending in third quarter 2018).
    - Stage 3 is the definition of switching and signaling capabilities needed to support services defined in stage 1.

3rd Generation Partnership Project (3GPP)

- ATIS/TIA Working Group – TR 8.8
  - Created in September 2012 to study interconnection between LMR radio systems and LTE MC PTT.
  - Published a report on definition and terminology differences found in LMR communications and LTE networks.
  - The Working Group paused their work to wait for 3GPP to define what would be included in their “side” of the interface.
    - 3GPP envisions an Interworking Function (IWF) that will manage data exchange between LMR and LTE to include ID translation, call set up, call control, etc.
  - This group will need to restart their work in order to define a standard on how LMR systems will connect to the IWF.
    - This may include standards for the ISSI, CSSI, BSI.

Video Technology Advisory Group (VTAG)

John Contestabile, Chair

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Video Technology Advisory Group (VTAG)

- Working with DHS S&T VQiPS as they plan their annual conference.
  - Tentatively scheduled for November/December.
  - Full details to be announced soon.

Video Technology Advisory Group (VTAG)

- Monitoring advances in video and analytics to support public safety.
  - First Responder devices that analyze the words and behavior of a suspect stopped on the side of the road.
    - Research project in association with Washington State University.
    - Ultimately develop a system that could detect an escalation and send a data alert.
  - First Responder devices that analyze images and text.
    - Working in association with NIST
    - System will “read” a hazardous material placard and pull data automatically.

Broadband Emerging Technologies Working Group

Kim Coleman Madsen, Chair

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Broadband Emerging Technologies

- FirstNet Applications and Devices presentation
  - Presentation given by FirstNet team on August 23rd.
- Many issues were raised by public safety agencies.
  - How will agencies manage applications on user devices?
    - Shared devices:
      - A Mobile Data Terminal (MDT) used by two officers in a patrol car.
      - A device used by a patrol officer on day shift and used by a patrol supervisor on evening shift.
      - A cache device that may be used by law enforcement, fire or EMS first responders.
    - Updates to applications and the Operating System.

Broadband Emerging Technologies

- How will Bring Your Own Device (BYOD) be managed?
- Will internet access be provided for users whose agency does not provide it?
- How is VPN traffic prioritized when a VPN connection may carry multiple message streams (video, data, and voice)?
- How will apps be interoperable?
  - Three fire departments are on scene of a building fire and each agency has selected a different situational awareness app.
  - A fire department is working with the police department at the scene of a hostage event and each agency is using different apps to track personnel location.

Broadband Emerging Technologies

- How will Mission Critical Push To Talk (MC PTT) be managed?
  - Will MC PTT be a single nationwide PTT service that is common and interoperable across all agencies?
  - How will MC PTT be interoperable with other PTT services offered by FirstNet (Kodiak and WAVE)?
    - How will Kodiak users on FirstNet communicate with WAVE users on FirstNet?

LMR to LTE Integration Working Group

Chris Kindelspire, Chair

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LMR to LTE Integration Working Group

- The LMR LTE Integration and Interoperability Report is still being finalized.
- Some early conclusions of the working group include:
  - Mission Critical Voice services are an essential element of the NPSBN.
  - An open standards environment is required so public safety agencies may access a robust multi-vendor eco system.
  - Integration of LMR and LTE push to talk voice services will be required.
  - 3GPP Standards on Direct Mode communications are not keeping pace with the speed of deployment of PTT networks.
  - Encryption is an important component for certain tactical voice communications.

LMR to LTE Integration Working Group

- Some early conclusions of the working group include:
  - A nationwide standard to define PTT ID is needed.
  - A set of LTE Talkgroup names for nationwide interoperability talkgroups is needed.
  - There is uncertainty in how 3GPP standards will be implemented by manufacturers and network operators.
  - The phrase “mission critical” has not been adequately defined and is in widespread use by vendors.
  - Video chat with full duplex voice is an important capability for EMS and other first responders.
  - LTE consoles will play an important role in the evolution of PTT voice and (eventually) all mission critical services (MC PTT, MC Video, MC Data).

Unmanned Aircraft Systems (UAS)/Robotics Working Group

Dr. Michael Britt , Chair

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Unmanned Aircraft Systems (UAS)/Robotics Working Group

- Continuing to examine the public safety role for UAS.
- Coordinating with the National Council on Public Safety UAS.
- Monitoring the rapidly expanding use of UAS devices.
- Documenting the use of UAS as a communications platform.

Unmanned Aircraft Systems (UAS)/Robotics Working Group

- AT&T Presentation on Flying Cow

- Hurricane Harvey
  - AT&T Tower Site Inspection Drones
  - 46 deployed and 58 on stand by
  - The FAA has authorized 43 drone operators to use UAS in the area.

Flying COWs (tethered drone with LTE radios)

Advantages

Rapid deployment, relocation, and recovery

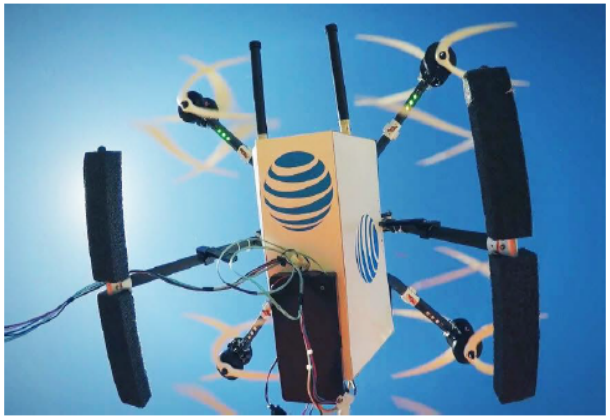
Highly transportable

Greater payload without batteries

Antenna height up to 400 feet

Unlimited flight time

Secure datalink



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Unmanned Aircraft Systems (UAS)/Robotics Working Group

- US Army Bans DJI Drone Units.

The U.S. Army has ordered troops to stop using consumer drones made by Chinese manufacturer DJI, according to an Aug. 2 memo.

> *"Cease all use, uninstall all DJI applications, remove all batteries/storage media from devices, and secure equipment for follow on direction," reads the memo from Lt. Gen. Joseph H. Anderson, the Army's deputy chief of staff for plans and operations.*

Why? The memo cited "increased awareness of cyber vulnerabilities associated with DJI products." Service officials declined to elaborate.

Unmanned Aircraft Systems (UAS)/Robotics Working Group

- Africa is now the world's testing ground for commercial drones

> The world's first commercial drone delivery service operates from a hill almost smack dab in the middle of Rwanda. A barbed wire fence surrounds a field, a white tent, and a control tower. From here, Zipline, a San Francisco-based robotics company, delivers blood by drone to almost half of all Rwanda's blood transfusion centers. Orders are made online, by text, phone, or WhatsApp. A technician sits in a refrigerated room where the blood—specifically red blood cells, platelets, plasma, and cryoprecipitate—are stored, communicating with his team over Slack. An order has come in for a hospital about two hours away by car. The drone delivers the package in 20 minutes.

Radio Programming Compatibility Requirements Working Group

Dan Robinson, Chair, *via teleconference*

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Radio Programming Compatibility Requirements Working Group

- DHS S&T have completed their testing of the PAM Tool and it will be posted to the SAFECOM website soon.
  - NPSTC is making a final quality assurance check and relocking the spreadsheet.
- NPSTC is working with TIA on a project to create a standardized way for radio manufacturers to export and import basic radio programming data.
  - Jim Holthaus is leading this project.

TIA Update on Interchange Standard

Jim Holthaus, TIA Representative, *via teleconference*

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Radio Programming Compatibility Requirements

- TIA Update – Jim Holthaus
  - A draft data exchange schema was distributed in February, which would standardize the data field names and sequence to support import and export of code plug (programming) information between P25 manufacturers.
  - Originally proposed to be a TIA Technical Bulletin, but the group felt it should instead be a TIA Standard.
  - Comments have been received from TIA members and are being incorporated into a draft revision.
  - A revised draft of the standard will be presented at the October TIA meeting.
    - October 17-19, 2017 San Diego, CA
  - Normal TIA process would then be to conduct a 30 day ballot.
    - Additional revisions could result from the ballot process.

Public Safety Internet of Things (IoT) Working Group

Barry Fraser, Chair

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Public Safety Internet of Things (IoT) Working Group

- Continuing to schedule educational presentations for the working group.
- Examining the complexity of IoT data that may be available to first responders.

Public Safety Internet of Things (IoT)
IoT Sensor Data Flows

1. IoT data from **government entities** may flow through government IT networks to the appropriate government entity (e.g. traffic sensors, lake level monitoring). Some of this data may be shared with a PSAP.

2. IoT data from **companies and industry** may flow through their networks to a local control center or to a third party monitoring center; and some of that data may need to be shared with a PSAP or directly with first responders.

3. IoT data from **citizens** (wearable technologies and home systems, including medical monitoring) may flow to third party monitoring centers and/or directly to a PSAP.

Public Safety Internet of Things (IoT) Working Group

4. IoT data from certain systems may flow **directly to the PSAP** (first point of transmission), including voice, video and data supporting a 911 call.

5. IoT data from **first responders** that would flow through FirstNet to the PSAP.

6. IoT data may be shared by different organizations and eventually be routed to a PSAP or to a first responder. This includes data from hospitals, fusion centers, and government and private analytics centers.

Public Safety Internet of Things (IoT) Working Group

- What level of trust do public safety agencies place in IoT data?
  - Is the sensor owned/operated by a government entity vs. a public sensor?
  - Is there sufficient security (cyber and physical) to prevent the sensor data from being manipulated?
  - Is the data transmitted by the sensor consistent with results expected for the incident?
  - Is the data from the sensor consistent with data from other nearby sensors and devices?

Public Safety Internet of Things (IoT) Working Group

- What do agencies need to know to answer these questions?
  - Device and network technical standards and minimum requirements.
  - Operational standards, analytics and AI lead to “actionable intelligence”, data limitations.
- Other Issues
  - Privacy, confidentiality, data ownership, data sharing across agencies, etc.

Public Safety Communications Research (PSCR)

Dereck Orr, Division Chief, *via teleconference*

Verizon

Don Brittingham

Vice President, Public Safety Policy

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Putting Public Safety First.

verizon

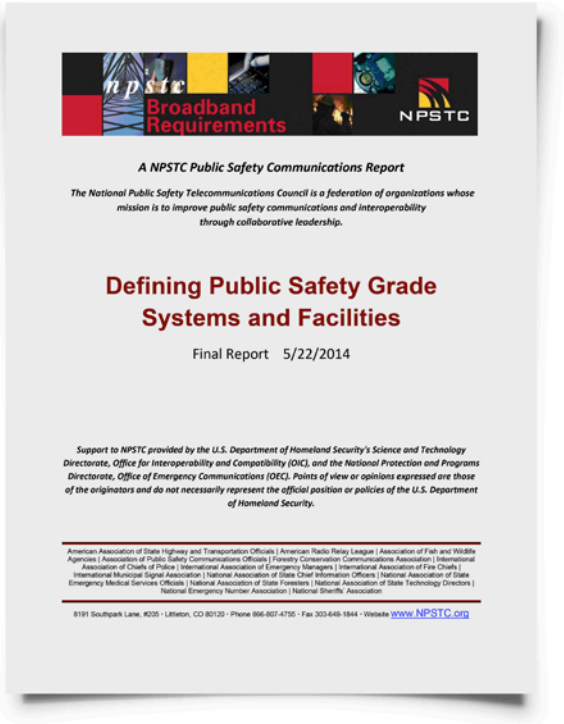
Our public safety mission

Verizon's commitment to public safety is as strong as it's ever been. Verizon will continue to make investments and partner with state, local and federal agencies to support public safety needs because better matters.

verizon

Public Safety Grade.

- Verizon meets or exceeds the vast majority of NPSTC's Public Safety Grade requirements.
- In fact, many of Verizon's network and facility design requirements (e.g., environmental protections and back-up power) exceed the requirements recommended by NPSTC.
- Some requirements, such as deployables with standalone capability, mission critical push-to-talk, and other applications are evolving but are being developed to address public safety's rigorous requirements.



The best network for public safety continues to get better.

Our network is the foundation for the products we offer and our ability to support our partners in public safety. Verizon is committed to remaining the nation's #1 network.

Verizon investments for public safety

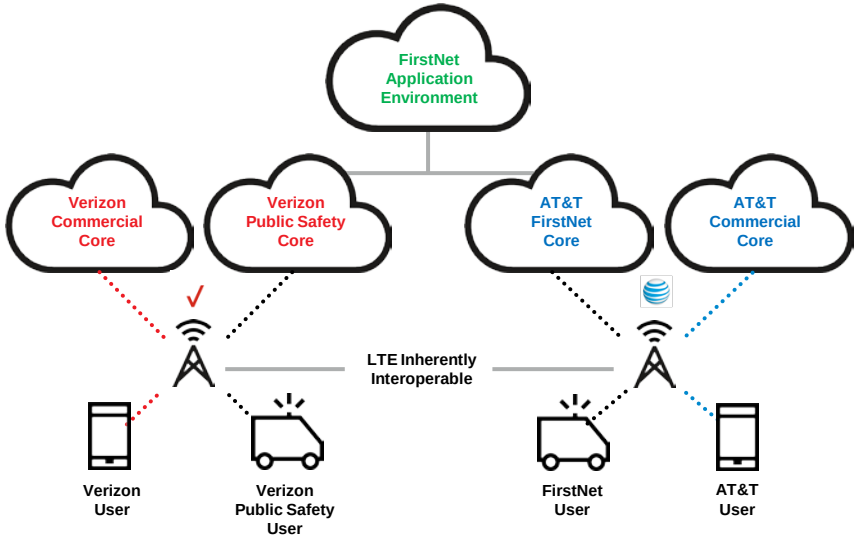
- Dedicated public-safety network core investment at zero cost
- Priority and Preemption services at zero cost
- Push to Talk Plus (PTT+) with Land Mobile Radio (LMR) interoperability, and future investment in mission-critical voice
- Band class 14 device portfolio
- Enhanced Data Plans

verizon

Verizon commitment and proposal

Achieving a comprehensive FirstNet interoperability agreement is in the best interest of Public Safety.

- The Verizon public safety core will be dedicated to public safety communications.
- No CAPEX/OPEX expenditure for public safety; Verizon will make the infrastructure investment.
- Competitive alternatives will result in greatest ongoing innovation and best pricing for public safety.



Verizon Interoperability Proposal

Thank you.

verizon

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Break

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Topical Presentation

NextNav

Gary Parsons, Chairman

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3D Location Indoor & Improved Location Outdoor

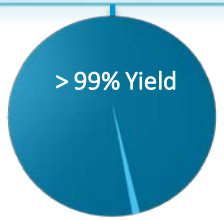
Problem

- ***When a First Responder is trapped inside a building or needs help and cannot describe their exact location other First Responders may not be able to respond to assist.***
- ***Geolocation & Situational awareness is paramount in emergencies & incident management***
- ***Today, GPS is used to provide that for the Outdoors with some success, however until now no solution has existed for the Indoors.***

Required Elements for 'Mission Critical' Location Indoors

Mission Critical/Yield

- Ability to operate in the absence of power & withstand extreme weather conditions
- Ability to deliver location for every attempt



Horizontal Accuracy ('x-y' Axis)

- High accuracy (x-y)
- Identify building, Room/Zone, Store etc.

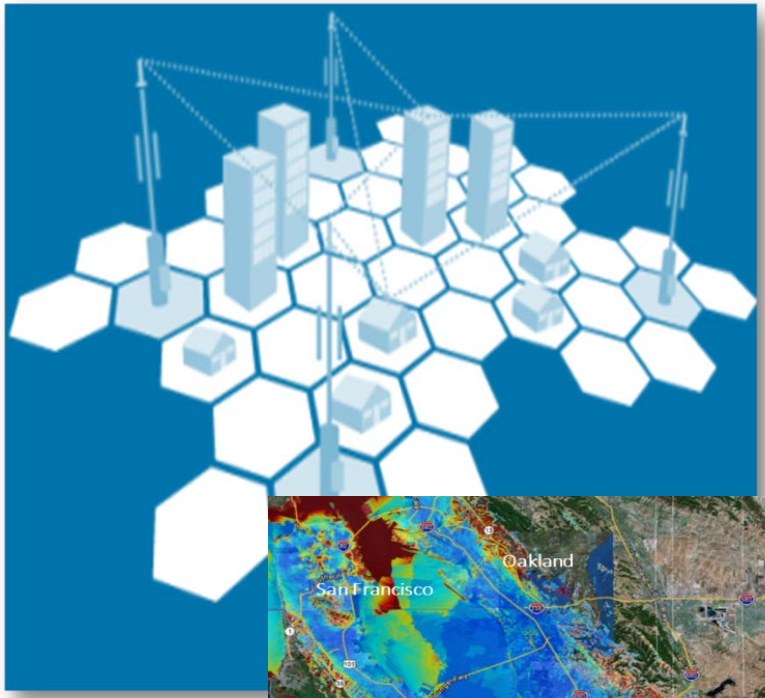
Vertical Accuracy ('Z' Axis)

- 1-3 Meter Vertical Accuracy
- Floor-level Positioning

Ubiquity and Consistency

- CONSISTENT experience in EVERY building within an entire metropolitan/suburban area
- Available in vast majority of end-user devices

‘GPS’ Performance Indoors



Current SF Bay Area Coverage

- An overlay network, dedicated to provide 3D (X,Y & Z axis) positioning with unique, proven floor-level vertical and horizontal accuracy
- Wide area coverage – can cover an entire market, much smaller than a Cellular Build
  - SF Bay Area is built to cover over 900 sq. miles with ~ 100 beacons
- Long-range, low-cost broadcast beacons placed on cell towers and rooftops – not building specific
  - Typical range 0.5-5 miles (depending on environment)
- Deployed and managed to deliver ‘Mission Critical’ (ability to withstand power outage & storms) location with multi-layer reliability
  - Beacon redundancy – Master & Slave Transmit
  - Battery backup to ensure continuity during power outages
- Complementary to GPS
- Designed to be built into phones standard – no accessories required
- Initial beacon network operational for six years in Top 47 markets

MBS is essentially a network of low-cost terrestrial “satellites” broadcasting from roof-tops and towers

Network Equipment

NextNav Beacon

- Designed for deployment in unconditioned space
- Small form factor 37.78” Hx 30.70” W x 19.68” D
- No special power requirements or backhaul
- Management link via LTE or POTS

Beacon Interior

- Battery backup ensures continued operation without power
- Duel redundant power supply & components
- Internal rubidium clock backs up GPS

Omni Antenna

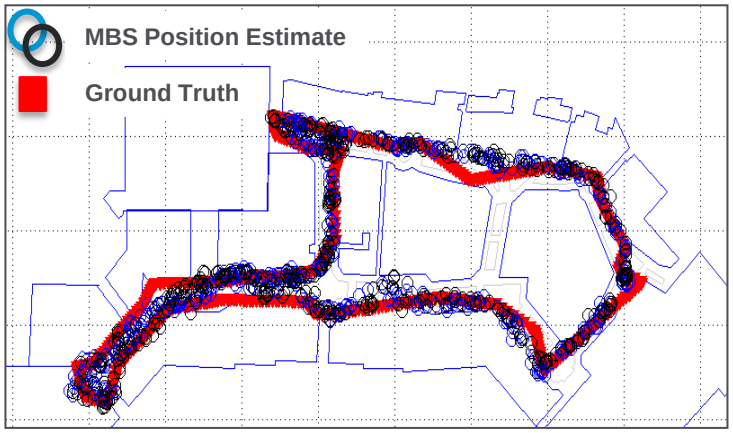
- Low-impact omni antenna
- Eases zoning, and creates placement flexibility
- Omni antennas are ideal for location

Weather Station

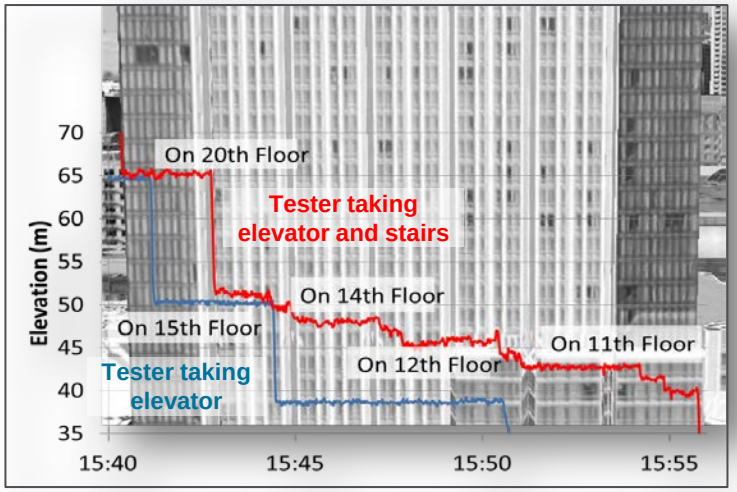
- Weather stations deployed across NextNav network
- Enables high-accuracy pressure altitude

Indoor Location & Navigation

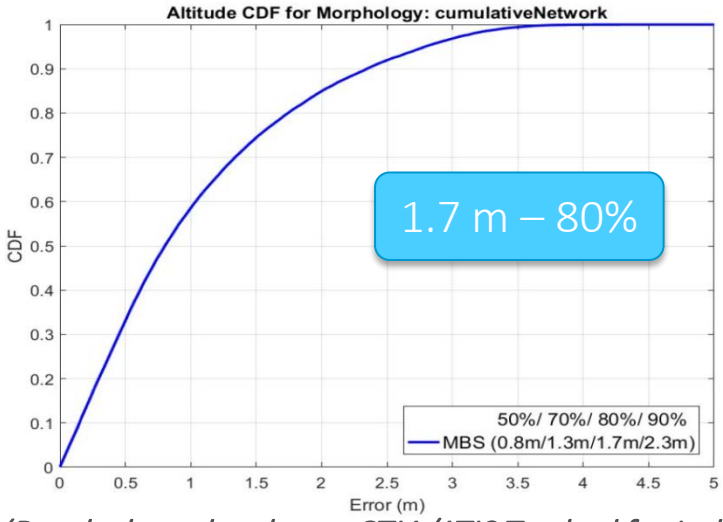
Accurate Horizontal (X-Y) Tracking



Reliable Floor-Level Altitude (Z) Tracking



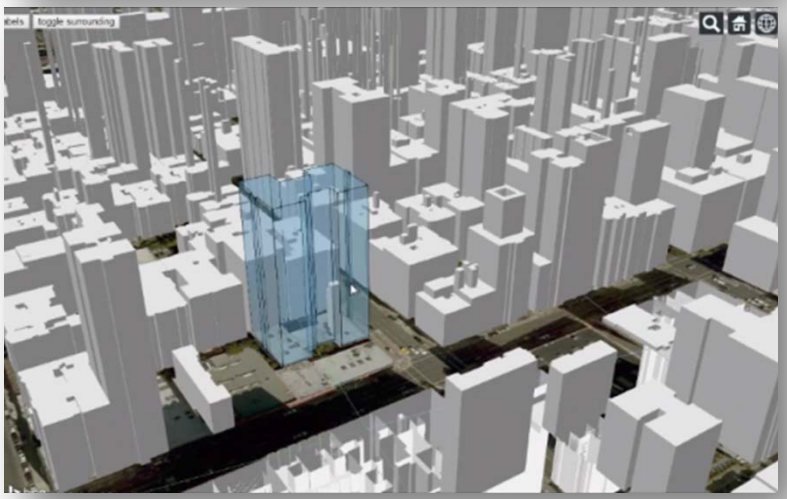
- Delivers < 9 ft (3m) Vertical position (floor level) and <30 ft (<10m) Horizontal position.
- MBS signal provides location and navigation in any part within it's coverage instantaneously
  - No building specific information required
  - Maps are optional
- No Pre-Planning required – Wide area system



(Results based on latest CTIA/ATIS Testbed for Indoor Location Technologies)

3D Context & Visualization Service: Companion Service

- **3D Context Visualization Service**: Supports real time 3D tracking of 9-1-1 callers and first responders
  - Accurate 3D representations of all structures
  - Floor plans ingested into hosted platform where available
- In addition to visual display, supports user context information and other building details where available (e.g., address, floor, suite/room)
  - Could be integrated with Body Camera systems & other sensors
- Information can be displayed via web interface, dedicated tablet/phone application
  - Fully-featured UI: breadcrumbing, pan/tilt/zoom, prioritized identification of individuals or groups, buildings etc.
- APIs available for integration into existing tools and applications where preferred

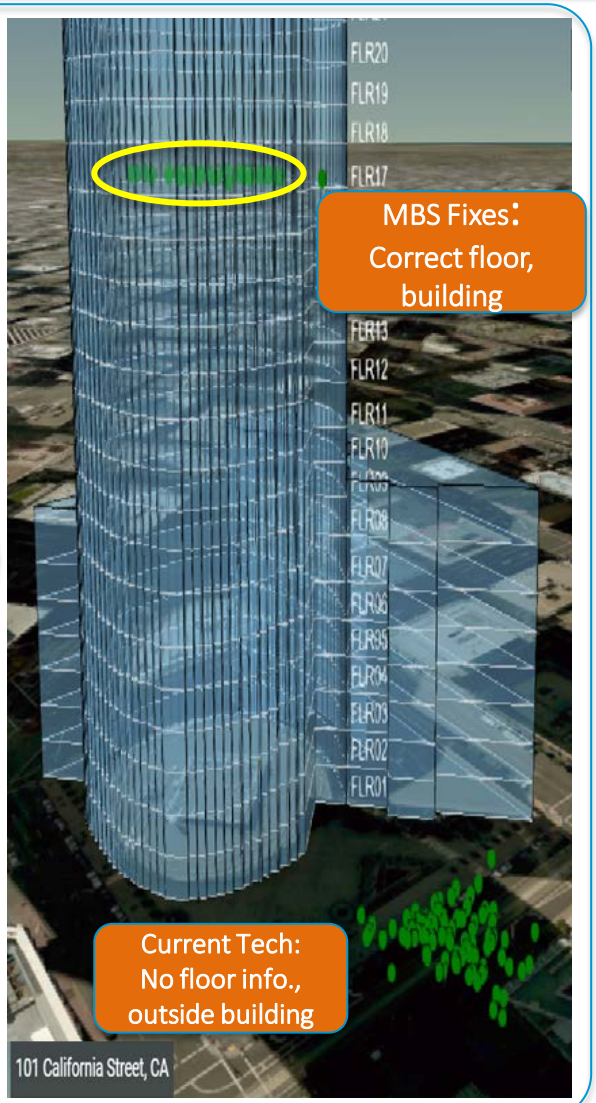


User Experience – Video

To play go directly to https://vimeo.com/222454215

E911 Requirement & Industry Benchmark

- MBS - Reliable 3D location
  - Independent of Venue
  - Independent of Broadband penetration
  - Works when power is out



- In 2015 FCC introduced new rules for location accuracy (indoor & outdoor) when dialing 911
  - Six year phase in for X-Y
  - 50m (164 ft) 'X-Y' – 80% of Calls
  - 3m (10 ft) 'Z' – 80% of calls (Desired)
- Based on Blind Government and Carrier Tests (AT&T & Verizon) NextNav's MBS technology is the only solution that meets/exceeds all FCC's metrics in all environments
  - Proven floor level accuracy; < 6 ft (2m) vertical 80% of time
  - 99% Yield

MBS Service

```
"type": "Feature",
"geometry": {
  "type": "Point",
  "coordinates": [-
74.006393, 40.714172]
},...
```

MBS 3D location system, with beacon coverage designed to meet first responder objectives. Access to Spectrum

3D Context & Visualization service to enable real-time 3D tracking

- *Hosted back-end service for tracking 9-1-1 callers and First Responders*
- *Tablet / phone and web-based applications for tracking First Responders at an Incident*
- *Ability to upload city and building maps*
- *3D building model rendering*

APIs for integration into first responder applications and workflows

Devices with MBS Built-In

GPS Independent Timing

- *Presence of high precision Rb clock self-synchronizes MBS technology independent of GPS*
- *Provides LTE network hardening & GPS resiliency for FirstNet*

Deployables for remote areas

Conclusion

- Satisfies Public Safety's needs for '***Enhanced Mission Critical Location with Z axis capability***'
  - Only Mission critical location that delivers high precision X-Y-Z; GPS (Does not work Indoors), OTDOA (not accurate)
  - Best performing 3D location technology as demonstrated in CTIA/ATIS (2016) & FCC/CSRIC (2013) tests
  - Ability to withstand power outages & not dependent on Broadband penetration
- Technology designed for mass market applications
  - Mass market Chipsets with MBS capability coming into market from Tier 1 GPS chipset providers (e.g: Broadcom, Intel etc)
  - No impact to Overall Device cost (sub Dollar)
  - MBS enabled on server end by Ericsson and TCS
  - Technology standardized in 3GPP (Rel 13) and OMA (2.0.3)
- Using Context & Visualization Service will provide improved 'Situational Awareness' for First Responders
- Can provide a reliable backup to GPS in Urban Areas in a Commercial form factor
- Broadcast Network across multiple applications ensures lowest cost solution

NPSTC

Governing Board Member Update

ARRL, National Association for Amateur Radio

Tom Gallagher, NY2RF, Chief Executive Officer

Mike Corey, KI1U, Emergency Preparedness Manager

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Executive Level IV Session

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Executive Level IV Session

- LEVEL IV
  - NPSTC Chair
  - NPSTC Vice Chairs
  - NPSTC Executive Director
  - NPSTC Deputy Executive Director
  - Committee Chairs
  - Committee Vice Chairs
  - Voting Organization Representatives and Alternates
  - Associate Representatives

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Lunch *(on your own)*

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FirstNet NPSBN Development

FirstNet

Amanda Hilliard, Deputy Chief Customer Officer and Kevin McGinnis, Board Member

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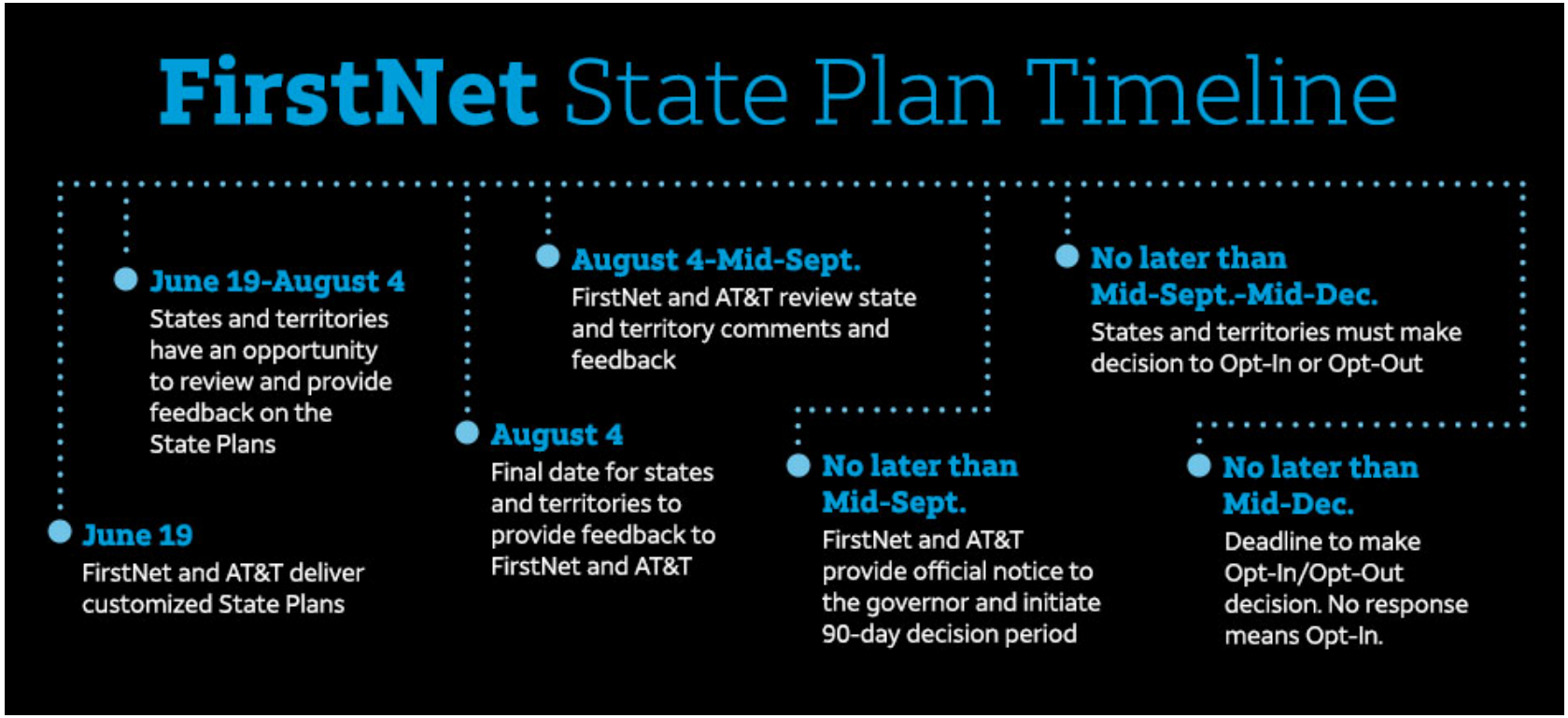
FirstNet Update to the National Public Safety Telecommunications Council (NPSTC)

September 6, 2017



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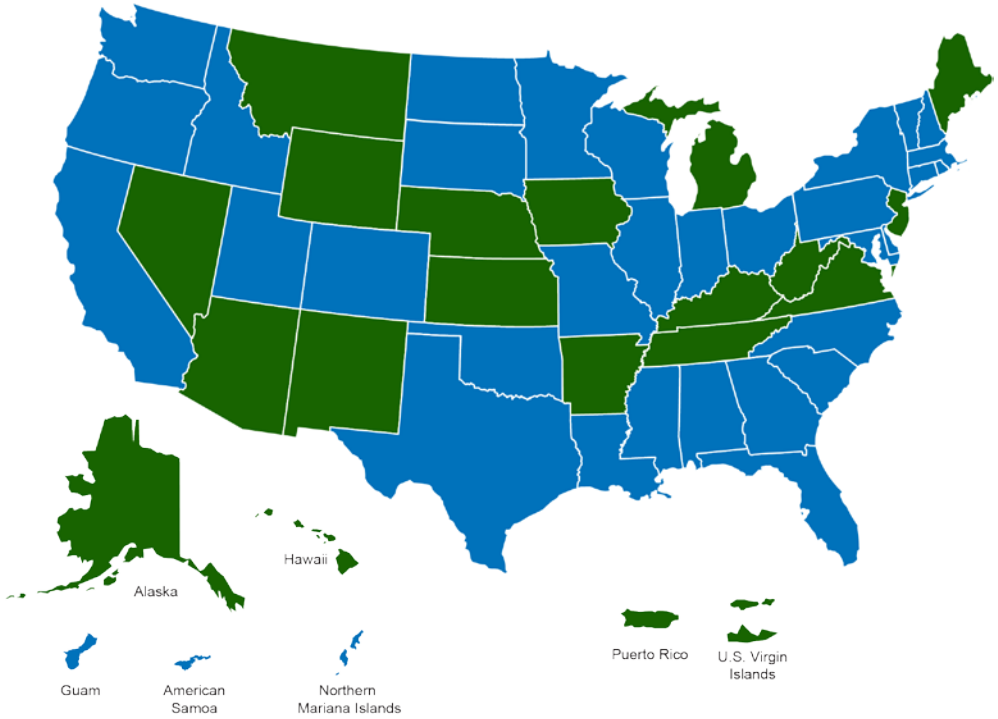

- Alaska
- Arizona
- Arkansas
- Hawaii
- Iowa
- Kansas
- Kentucky
- Maine
- Michigan
- Montana
- Nebraska
- Nevada
- New Jersey
- New Mexico
- Puerto Rico
- Tennessee
- U.S. Virgin Islands
- Virginia
- West Virginia
- Wyoming

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Chief Customer Office: What's next?

- **Consult** with public safety
- **Engage** around network experience and use cases
- **Advocate** for enhancements, upgrades, and improvements

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FirstNet Public Safety Advisory Committee (PSAC)

Paul Patrick, Committee Vice Chair

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FirstNet®

Public Safety Advisory Committee (PSAC) Update

Paul Patrick
PSAC Executive Committee

September 6, 2017

July 24-25 TWG In-person Meeting & TIBC Recap

Sessions Included

- TWG In Person meeting
  - FirstNet Solution Overview
  - Tribal Consultation Policy
  - Rights-of-Way Streamlining
  - Federal Agency Participation and Contract Vehicles
- Presentations to Navajo Nation Council, Navajo Nation Leadership, and Tribal-Interior Budget Council (TIBC) Public Safety and Justice Subcommittee Meeting
  - FirstNet and AT&T Solution Overview
  - Governors Decision
  - SPOC Team presentations and
  - FirstNet Consultation and Outreach

Thank you FirstNet Board Member Kevin McGinnis for your participation in the TWG and TIBC Meetings

Upcoming PSAC Meetings

- PSAC webinar – Wednesday, September 27, 2:00pm ET

- In-person PSAC meeting – Week of December 11, Atlanta, Georgia

Anticipated topics:

-Federal Working Group workshop

-Briefings with AT&T on past PSAC task teams

-PSAC participation on State Plan review teams

AT&T

Chris Sambar

Senior Vice President

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Interoperability Committee Discussion

John Lenihan, Interoperability Committee Chair

Jason Matthews, Vice Chair *via teleconference*

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Interoperability Committee Discussion

- Monitoring the P25 CAP Advisory Panel
  - Meeting held on August 16 at APCO
    - 2017 Baseline Common Air Interface (CAI) Testing Requirements Compliance Assessment Bulletin (CAB) is online.
    - Published a draft minimum feature requirements CAB for a 30-day public comment period that ended August 21.
    - Implementation of the Encryption Requirements Compliance Assessment Bulletin (CAB) is ongoing (which requires P25 AES encryption if encryption is offered in a radio).

Interoperability Committee Discussion

- Monitoring the increased adoption of non P25 Digital systems by government and public safety agencies.
  - Agencies on VHF and UHF are more likely to adopt NXDN, DMR and IDAS.
    - Rural agencies deal with local radio shops who typically do not deal with P25.
    - Local radio shops may recommend systems that they can install and support.
    - Cost of non P25 devices is a significant factor
      - $700 for a Tier 3 DMR radio with GPS, non standards encryption, and Emergency Button functionality.
  - Some agencies are having to purchase DMR equipment to supplement their interoperability resources in order to support adjoining areas using that technology.

Common Channel Naming Working Group

Don Root, Chair

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Common Channel Naming

- Completing the scope of work for the new LTE Interoperable Talkgroup Naming Standard.
  - FirstNet will provide a nationwide interoperable network that will eventually provide Mission Critical Push to Talk (MC PTT).
  - MC PTT systems use virtual radio channels called LTE talkgroups.
  - A nationwide set of LTE interoperability talkgroups will be needed to support first responder communications.
- Face to face meeting held yesterday.
  - Finalized list of issues to be considered by the Working Group.
  - Will be announcing a call for participation in September
  - Will begin regular meetings of the working group in October.

Emergency Medical Services Working Group

Paul Patrick, Chair

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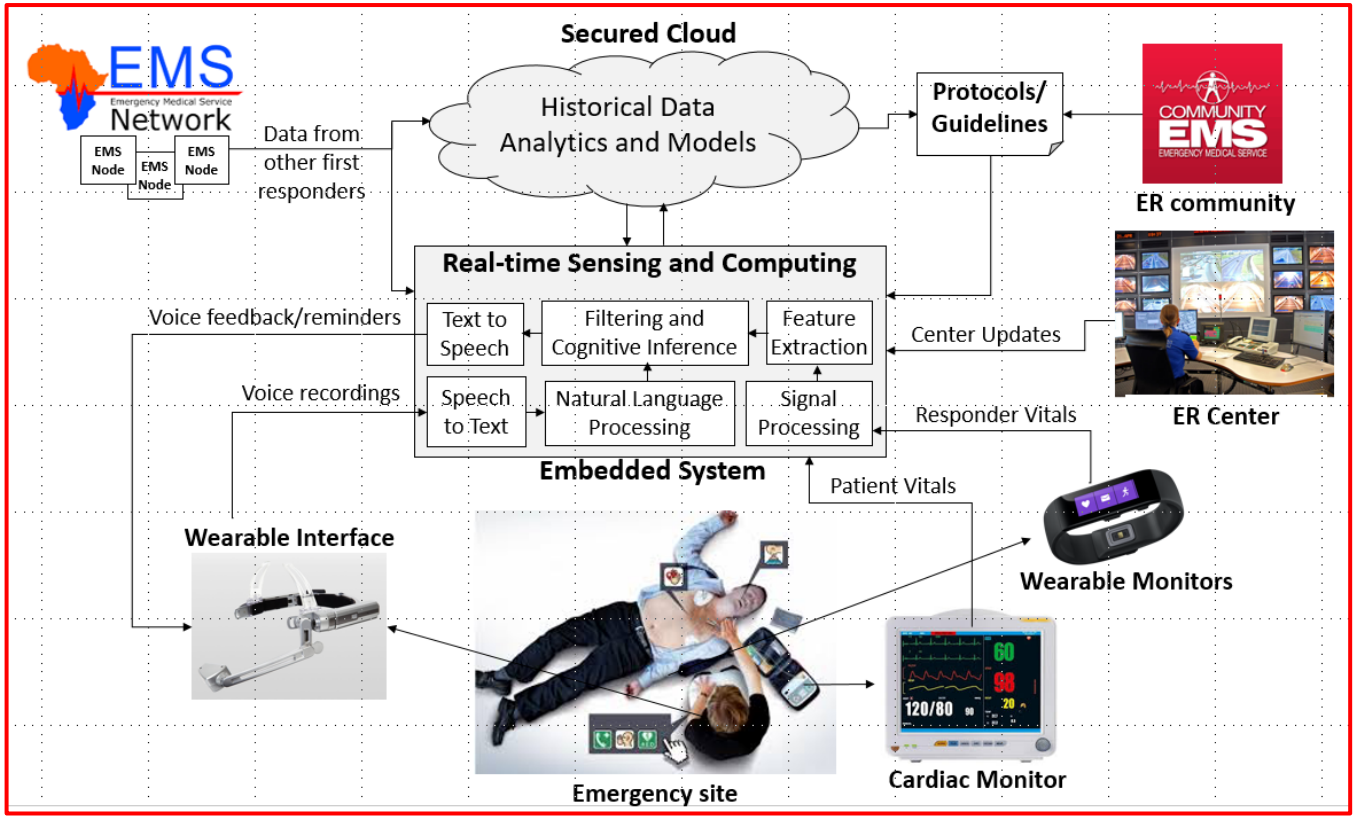
Emergency Medical Services Working Group

- Monitoring how new technology is changing EMS.
  - New products, services and solutions are available for first responders.
  - Analytics to support first responders.
  - IoT and sensors to track citizens with medical conditions.
  - Emerging role for UAS/drones to support EMS.

Emergency Medical Services Working Group

- University of Virginia is working on an analytics and communications hub for EMS personnel.



Emergency Medical Services Working Group

- Working Group is finalizing an outreach report on Mobile Personal Emergency Response Systems (mPERS).
  - GPS enabled pendant.
  - Works on commercial cellular networks.
  - Automatically detects a fall and sends a data alert.
- This is the first of many medical sensor alert devices that will impact the PSAP and EMS agencies.

Emergency Medical Services Working Group

Home > More Tools and Technology > Tanzania to use drone network to deliver critical medicines

Tanzania to use drone network to deliver critical medicines

08/24/2017

Tanzania's government is working with U.S. logistics company Zipline to launch what they call the world's largest drone delivery service for emergency medical supplies.

In the first quarter of 2018, Tanzania's government will begin using drones to make up to 2,000 deliveries per day to more than 1,000 health facilities, Zipline said in a statement Thursday.

Cross Border Working Group

John Lenihan, Interoperability Committee Chair

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Cross Border Working Group

- Draft report on 911 Data Sharing has been sent to U.S. and Canadian carriers requesting feedback.
- Working Group is creating a list of all interoperability frequencies that are available at the U.S./Canadian border.
- The report will also identify which specific channels and/or systems are in use in each region.
- Goal is to extend outreach to agencies along the border and educate them on available options.

Cross Border Working Group

British Columbia Province
State of Washington
State of Idaho

Alberta Province
State of Montana

Saskatchewan Province
State of Montana
State of North Dakota

Manitoba Province
State of North Dakota
State of Minnesota

New Brunswick Province
State of Maine

Ontario Province
State of Minnesota
State of Wisconsin (water)
State of Michigan
State of Ohio (water)
State of Pennsylvania (water)
State of New York

Quebec Province
State of New York
State of Vermont
State of Maine

Nova Scotia Province
State of Maine (water)

Radio Interoperability Best Practices Working Group

Mark Schroeder, Chair, *via teleconference*

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Radio Interoperability Best Practices Working Group

- Best Practice #7 on After Action Reviews has been completed.
  - Any After Action Review (AAR) generated when Interoperability resources are used to support a significant/working incident or event should include both operational and technical components.
  - This Best Practice includes an AAR Checklist as a companion document to illustrate the many areas of inquiry during an incident review.
- Action Needed:
  Governing Board approval of Best Practice #7

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Spectrum Management Committee

Don Root, Chair

Charlie Sasser, Vice Chair

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Spectrum Committee Update

- FCC Notice of Inquiry on 3.7 GHz to 24 GHz
  - A key focus is the 5.925 GHz – 6.425 GHz band.
    - FCC records show over 27,000 point-to-point licenses.
    - Key band for public safety microwave (MW).
- The NOI seeks info on the potential for additional flexible broadband use of the band:
  - Unlicensed use to expand the 580 MHz U-NII devices can already access at 5 GHz.
  - Licensed broadband.
  - Protection of existing Fixed operations.
  - Possibility and cost of repacking existing Fixed operations.

Spectrum Committee Update

- FCC Notice of Inquiry on 3.7 GHz to 24 GHz
  - Comments due Monday, October 2; Replies due November 1, 2017.
  - Spectrum Committee Approach:
    - Raised on August Spectrum call; input invited.
    - Gathering information on 6 GHz MW link reliability requirements.
    - Plan a specific call to discuss further.
  - Will provide draft of NPSTC Comments to GB by Sept. 22, 2017.
  - Any rule changes would require a subsequent NPRM with opportunity to comment again.

Spectrum Committee Update

- Follow-up on 800 MHz Cellular Power Level Decision
  - FCC issued a decision March 24, 2017 allowing cellular systems to use power flux density and higher power.
  - The decision directed the Bureaus to assemble a “multi-stakeholder” meeting to address co-existence.
    - Public Safety, Carriers, Equipment Manufacturers.
  - Meeting tentatively set for November 6, 2017.
    - NPSTC and APCO have offered representatives to participate.
  - The Spectrum Committee will help with planning for NPSTC’s participation.

NPSTC Regulatory Filings 2017

Date Filed	Topic	Type of Filing
10/2/17	3.7 - 24 GHz NOI (6 GHz Focus)	Comments (anticipated)
7/31/17	Blue Alerts	Comments
7/31/17	Arizona Pub Svc Co (Utility)	Comments
6/03/17	WRC-19/LMCC 460-470 MHz	Letter, FCC
5/24/17	Broadband Healthcare	Comments, FCC
5/01/17	700 MHz A-G Border	Comments, FCC
4/12/17	V2V Mandate & Standardization	Comments, DOT/NHTSA
3/24/17	Wilson/Cellular Boosters	Comments, FCC
3/06/17	Higher Ground	Comments, FCC
1/27/17	North Dakota on-VLAW 31	Comments, FCC
1/22/17	P25 Encryption Capabilities	Letter, DHS/OIC

NPSTC

Federal Partners Update *(Continued)*

Federal Communications Commission (FCC)

David Furth, Deputy Bureau Chief

Charles Cooper, Field Director

Department of Homeland Security (DHS), Office of Emergency Communications (OEC)

Jim Downes, FPIC Manager

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Federal Partnership for Interoperable Communications

Update of Key FPIC Activities

Jim Downes, FPIC Program Manager

Three Key Current Priorities

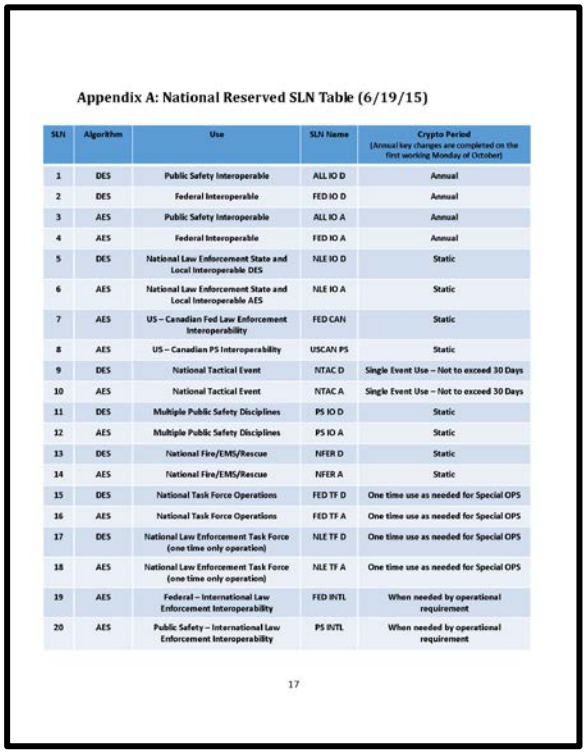
- Encrypted interoperability and key distribution
- P25 Inter RF Subsystem Interface (ISSI) and Console Subsystem Interface (CSSI) implementation challenges and resolutions and suggested improvements toward interoperability
- Memorandum of understanding for public safety access to NTIA VHF/UHF I/O channels

Encryption Guidance

- The FPIC Security Subcommittee, in coordination with the National Law Enforcement Communications Center (NLECC) and other public safety agencies, developed a standardized SLN assignment list for National Encrypted Interoperability (June 2015)

- OEC and FPIC continues to encourage PS agencies to coordinate SLN and KeyID assignments with the NLECC. An accurate database can minimize conflicts resulting in improved encrypted interoperability

- As a result of challenges identified during recent implementations, the NLECC and FPIC are evaluating key distribution procedures and the SLN Table



Appendix A: National Reserved SLN Table (6/19/15)

SLN	Algorithm	Use	SLN Name	Crypto Period (Annual key changes are completed on the first working Monday of October)
1	DES	Public Safety Interoperable	ALL IO D	Annual
2	DES	Federal Interoperable	FED IO D	Annual
3	AES	Public Safety Interoperable	ALL IO A	Annual
4	AES	Federal Interoperable	FED IO A	Annual
5	DES	National Law Enforcement State and Local Interoperable DES	NLE IO D	Static
6	AES	National Law Enforcement State and Local Interoperable AES	NLE IO A	Static
7	AES	US – Canadian Fed Law Enforcement Interoperability	FED CAN	Static
8	AES	US – Canadian PS Interoperability	USCAN PS	Static
9	DES	National Tactical Event	NTAC D	Single Event Use – Not to exceed 30 Days
10	AES	National Tactical Event	NTAC A	Single Event Use – Not to exceed 30 Days
11	DES	Multiple Public Safety Disciplines	PS IO D	Static
12	AES	Multiple Public Safety Disciplines	PS IO A	Static
13	DES	National Fire/EMS/Rescue	NFER D	Static
14	AES	National Fire/EMS/Rescue	NFER A	Static
15	DES	National Task Force Operations	FED TF D	One time use as needed for Special OPS
16	AES	National Task Force Operations	FED TF A	One time use as needed for Special OPS
17	DES	National Law Enforcement Task Force (one time only operation)	NLE TF D	One time use as needed for Special OPS
18	AES	National Law Enforcement Task Force (one time only operation)	NLE TF A	One time use as needed for Special OPS
19	AES	Federal – International Law Enforcement Interoperability	FED INTL	When needed by operational requirement
20	AES	Public Safety – International Law Enforcement Interoperability	PS INTL	When needed by operational requirement

17

Current FPIC Encryption Activities

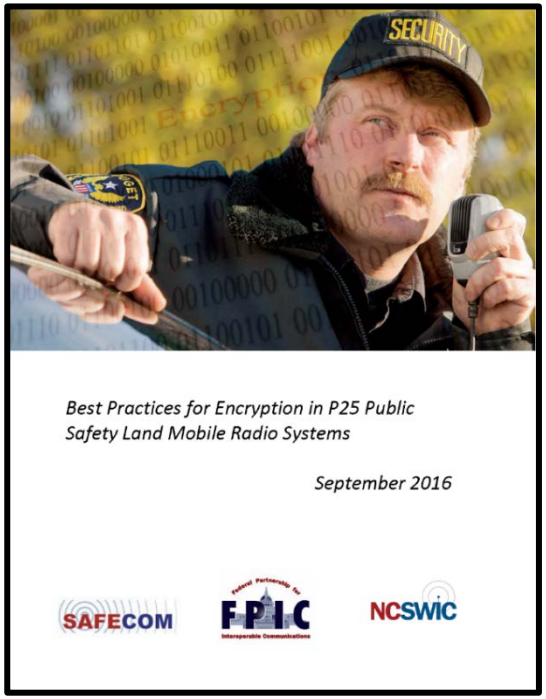
- The FPIC Security Subcommittee is working closely with the NLECC and key PS Agencies to address the challenges recently identified that impact interoperability. Subcommittee efforts include:
  - Addressing specific recommendations to revise the standards relevant to encryption
  - Recommending more stringent requirements for compliant standards (Minimize optional standards)
  - Minimizing the use of non-standard solutions
  - Accelerating the standards development for two key interfaces
  - Reevaluating key distribution procedures and the use of “static keys” for I/O

Current FPIC Encryption Activities

- The FPIC Security Subcommittee formed a small focus group comprised of knowledgeable SMEs to address the following topics:
  - Major areas relevant to standards, including, P25 standard adoption by manufacturers and minimize optional standards that impact interoperability
  - The Subcommittee is also considering more effective methods to educate the user before implementing encryption
  - There is a Focus Group meeting scheduled on September 14-15, at the NLECC in Orlando to develop recommendations and draft a position paper to be presented to TIA TR8 in October

Identify & Adopt Best Practices for Encryption

- SAFECOM, FPIC, and NCSWIC partnered to develop the following three documents, with accompanying facts sheets, to provide guidance to public safety agencies who are considering implementing encryption
  - *Guidelines for Encryption in Land Mobile Radio Systems*
  - *Considerations for Encryption in Public Safety Radio Systems*
  - *Best Practices for Encryption in P25 Public Safety Land Mobile Systems*
- http://www.dhs.gov/technology



ISSI Overview

- The Inter RF Subsystem Interface (ISSI), a P25 Phase 2 technology, enhances public safety's ability to interconnect multiple P25 systems

- Many users have successfully implemented ISSIs, and to a lesser extent the console subsystem interface (CSSI), to expand coverage and provide enhanced interoperability between P25 systems regardless of vendor

- Because ISSI is a relatively new technology, there is a learning curve for users and manufacturers alike to understand ISSI expectations and standards

Developing Solutions Through User Engagement

- The standards supporting the P25 ISSI and CSSI are still in progress and both user and manufacturer involvement is critical
- The FPIC is leading an effort to address misunderstandings and miscommunications concerning the ISSI/CSSI
- In May 2016, the FPIC sponsored a working session to share ISSI/CSSI implementation successes, challenges, and experiences between users and manufacturers

FPIC Sponsored ISSI/CSSI User Focus Group

- The ISSI/CSSI User Focus Group was established to consolidate/consider information from users and identify successes, challenges, and mitigation experienced during implementations (the good, the bad, and the ugly)
- Participants identified several action items for consideration by the group. Two of the more immediate actions are to:
  - Develop an action plan and baseline interoperability requirements
  - Develop discussion topics and hold follow-up working sessions between users and manufactures
- Initial discussions revealed challenges were both technical and governance/funding related

Preliminary Findings

- Preliminary findings revealed a wide range of misunderstandings, including:
  - Users may not understand the functionality covered by the standard
  - Some manufacturers may not have implemented standard functionality desired by the user
  - Manufacturers and users may have different interpretations of the standard definitions of functionality desired by the user;
  - Manufacturers may have different interpretations of the users' desired standard functionality
  - Manufacturers may have implemented the functionality requested by the user, but not covered the by standard
- Some challenges are not technical, but deal with governance and funding
- The best time to identify these misunderstandings is during the planning or testing process.

Upcoming In-Person Working Session

- The upcoming FPIC ISSI/CSSI User Working Session is scheduled for September 19-20, in Arlington, TX
- This meeting is open to any user employed by a government user agency (both days) and any manufacturer (second day) that provides or supports ISSI/CSSI
- This meeting will focus on suggestions and recommendations developed by the Focus Group in a collaborative environment with both users and manufacturers
- If you are interested in attending the upcoming working session, please email FPIC@hq.dhs.gov

Memorandum of Understanding (MOU) for Interoperability Channels

- FPIC is working with state, local, and Federal users to enhance interoperability across the nation
- The NTIA revised procedures within the NTIA Manual to allow the PS Agencies easier access to the NTIA I/O Channels
- DOI led an effort in coordination with the DOJ, DHS Spectrum Management Offices, and FPIC Spectrum Subcommittee to develop an MOU. The MOU was accepted by FCC, NTIA and the SWICs to share interoperability channels in each state
- Chris Lewis, DOI, is the federal signatory and the SWIC (or designated representative) will sign on behalf of the state
- To date, five states have executed the MOU and several others are coordinating efforts with DOI

QUESTIONS ????

For additional information about the FPIC and their initiatives please send an email or visit the FPIC website

FPIC Email: FPIC@HQ.DHS.GOV

FPIC Website: WWW.DHS.GOV/SAFECOM/FPIC

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Award Presentation and Break

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Award Presentation and Break

- **Participant's Award** *Sponsored by NASEMSO*
- **Leadership Award** *Sponsored by NASEMSO*
- **Atkinson Technical Award** *Sponsored by Jeff Bratcher*
- **Hertz Award** *Sponsored by APCO International*
- **Lifetime Achievement Award** *Sponsored by NENA*
- **Chairman's Award** *Sponsored by Ralph Haller*
- **Richard DeMello Award** *Sponsored by IMSA*

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Administrative Discussion

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Administrative Discussion

- Future Meetings
  - Teleconference | January 2018
  - Meeting at IWCE in Orlando, FL | Friday, March 9, 2018

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Executive Level IV Session

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Adjourn

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