Full NPSTC Meeting
Washington, DC

Wednesday, May 6, 2015

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

Webinar Access Information: https://join.me/NPSTCsupport1

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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

Pledge of Allegiance

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 Chief 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)

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)

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)

Federal Partners Update

Federal Partners Update

- Department of Homeland Security (DHS), Office for Interoperability and Compatibility – John Merrill, Director
- Department of Homeland Security (DHS), Office of Emergency Communications (OEC) – Dusty Rhoads

Office for Interoperability & Compatibility (OIC) Update

National Public Safety Telecommunications Council Meeting – May 6, 2015

Homeland Security
Science and Technology

John Merrill

OIC Director
First Responders Group (FRG)
Science and Technology Directorate

OIC Mission

To provide the science and technology that enables emergency communications and facilitates the seamless exchange of information to save lives and protect property.

Homeland Security
Science and Technology

Organization Updates

John Merrill
OIC Director / NGFR Apex Program Manager

- NGFR Apex Program
- Voice & Data Communications
- Apex Communications & Networking Engine (CNET)
- Responder Technology Alliance
- Prize Competition

Jeff Booth
Information Applications & Standards (IAS) Director

- Alerts, Warnings & Notifications (AWN)
- Information Sharing
- Apex Situational Awareness & Decision Support Engine (SANDS)
- SLTT Information Sharing Governance
- Social Media

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Science and Technology

Broader FRG View

First Responders Group

Office for Interoperability and Compatibility

Leads RDT&E of technical solutions for public safety communication and information sharing challenges

Responder Technologies

Manages technology development; disseminates information on products and services; facilitates innovation

Information Applications & Standards

Leads development of technology and standards to meet the challenges of providing first responders with timely, valid, actionable information

National Urban Security Technology Laboratory

Leads radiological/nuclear response and recovery effort; provides testing, evaluation, analysis and technical assistance

System Assessment & Validation for Emergency Responders (SAVER)

Communications, Outreach & Responder Engagement (CORE)

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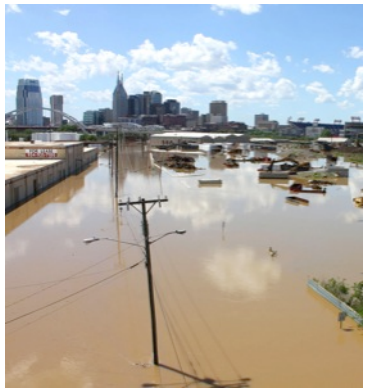
Apex Programs

Border Situational Awareness	Next-Generation First Responder
Real-Time Bio Threat Awareness	Next-Generation Cyber Infrastructure
Screening	Flood Awareness



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Next Generation First Responder (NGFR)

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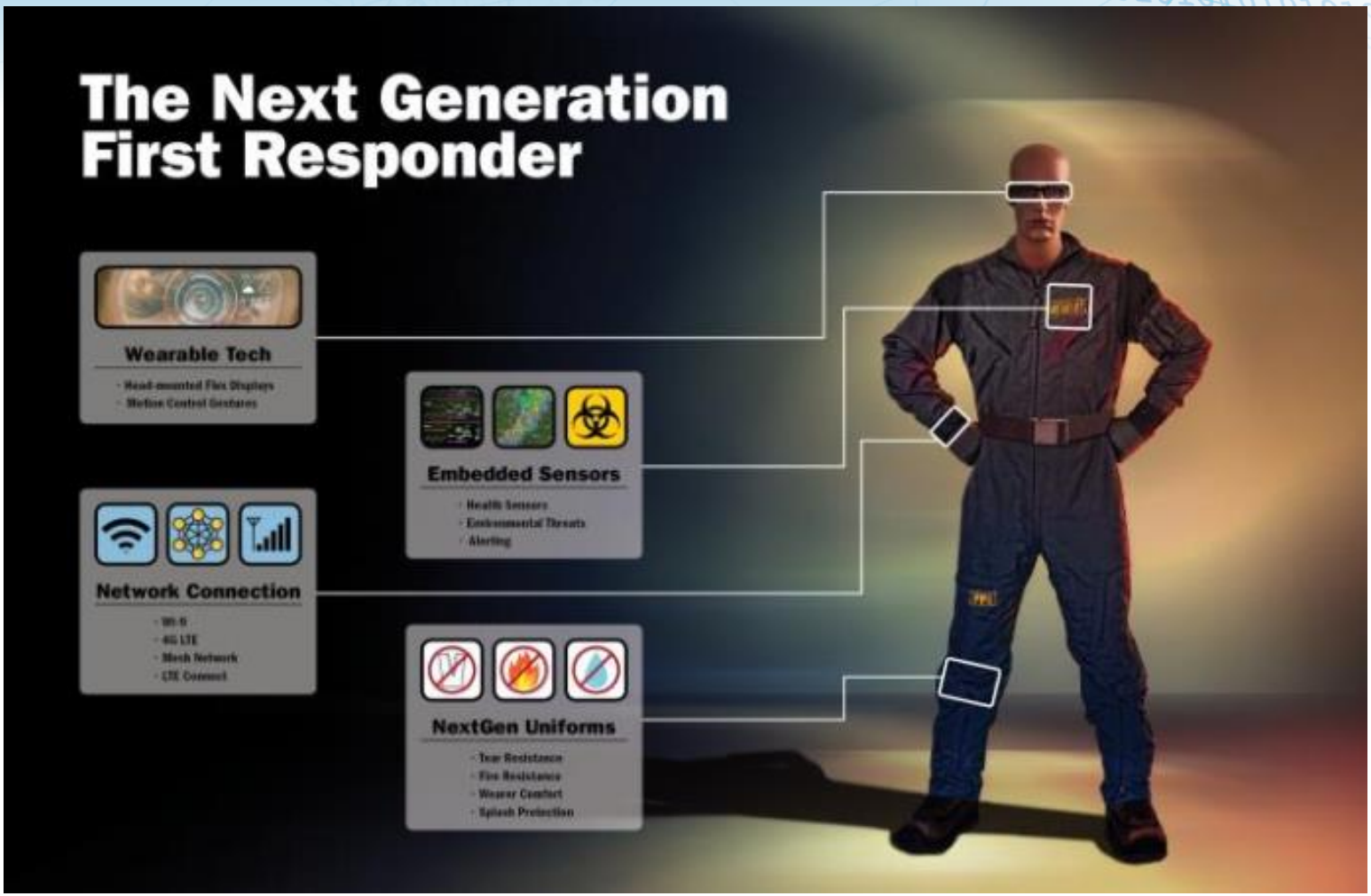
NGFR Major Components



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Communication & Networking Engine (CNET)

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Situational Awareness/Decision Support (SANDS)

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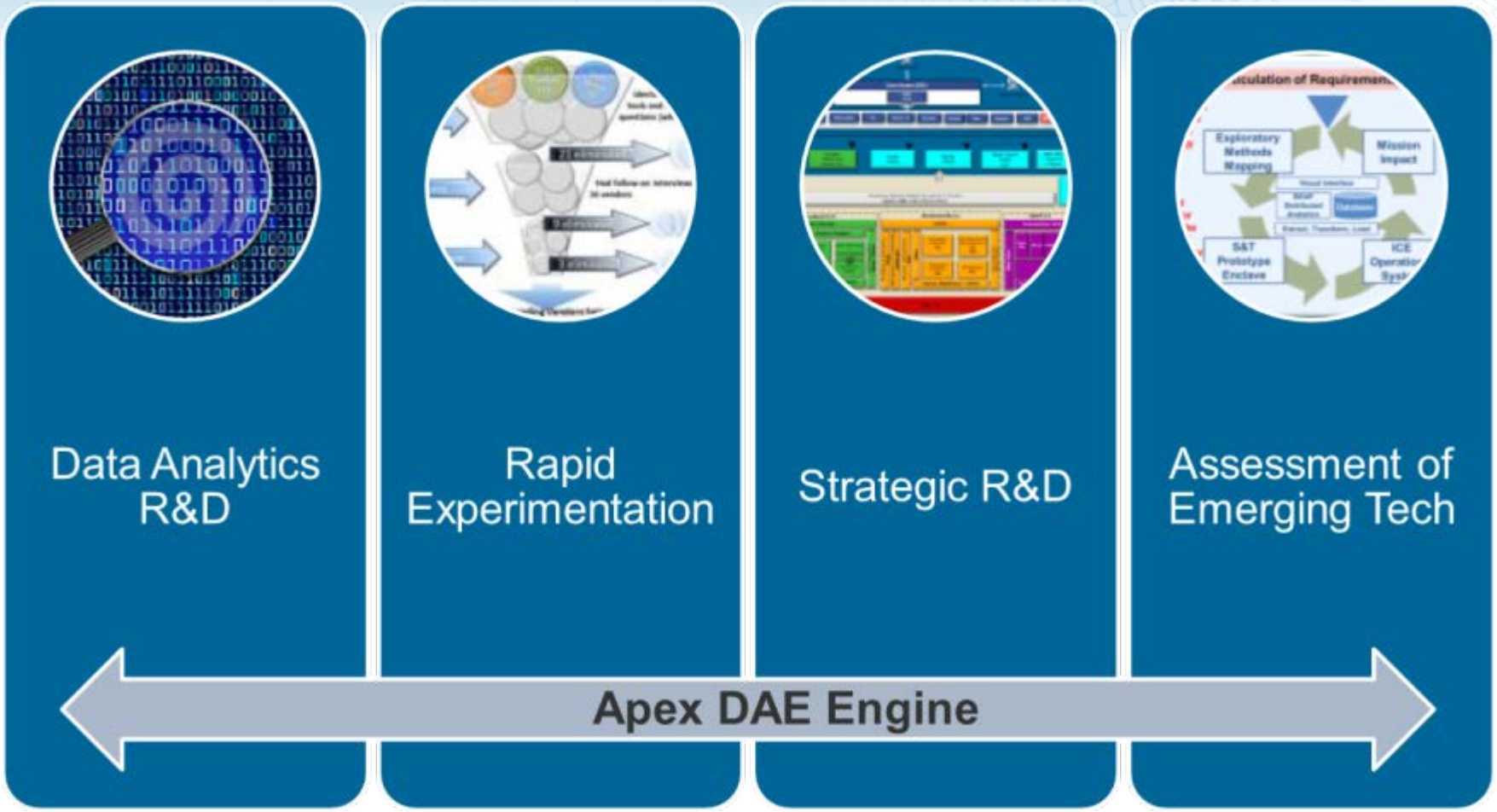
Data Analytics Engine (DAE)



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EMERGE! Accelerator Program

Description

- Intense training program for early-stage companies
- Aimed at innovators in industrial and consumer markets whose wearable technology could be adapted for first responder operations
- First program is EMERGE! on wearable technologies, such as body-worn electronics, advanced sensors and integrated voice and data communications embedded in responder's gear

Value

- Helps innovators develop and launch ideas into investable companies by providing early market validation, mentoring and access to private investment
- Accelerates development of commercial wearable technologies and provides path to introduce those technologies to variety of markets

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EMERGE
WEARABLE TECHNOLOGY

NGFR Prize Competition

Indoor Tracking of the Next Generation First Responder

- Focuses on finding solutions for real-time, robust indoor tracking of first responders to answer the questions:
  - “Where am I?”
  - “Where is my team?”
- Solvers required to tackle the “z” challenge
- Submissions under review

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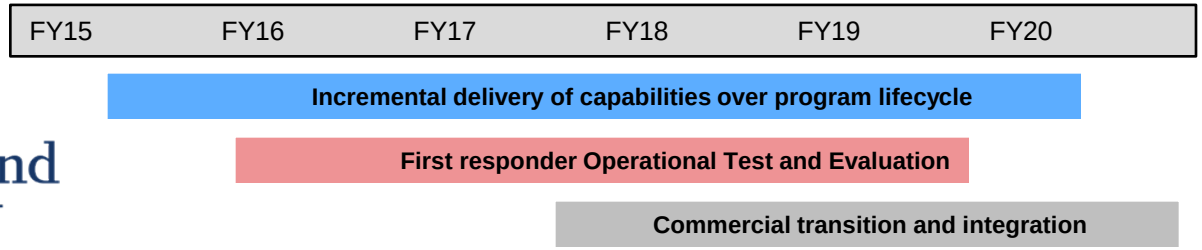
NGFR Near-Term Objectives

Objectives:	FY 2015	FY 2016
Real-time Situational Awareness	Develop baseline requirements, assess technologies, define an architecture and build a technology roadmap	Demonstrate Wearable technology / Mobile Ad Hoc Networking / Long Term Evolution Prototype
Duty Uniforms and Personal Protective Equipment (PPE)	Define performance criteria and identify operational, testing and evaluation requirements for duty uniforms and PPE	Produce 150 “America's Missing: Broadcast Emergency Response” prototype garment ensembles for DHS
Responder Technology Alliance	Develop Responder of the Future: Industrial Visionary Design	Develop systems-engineered solution management plans and launch responder technology accelerators



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NGFR Performance Metrics

- **By 2020, first responders:**
  - **Adopt FRG-transitioned, commercialized cross-functional wearable uniforms** that provide for effective environmental and mission specific safeguards.
  - **Adopt FRG-transitioned, commercialized interoperable communications technologies that are seamlessly connected** to enhance voice, video and data for all public safety agencies as well as state, local and federal partners.
  - **Can visualize a situation in real-time before, during, and after a mission response** including blue force tracking, locations of local and cross jurisdictional resources and any threats of immediate concern.

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Incident Management Information Sharing Subcommittee (IMIS SC)

Information Sharing and Access Interagency Policy Committee (ISA IPC)

IMIS-SC

Co-Chair: Dr. Robert Griffin (DHS Science &Technology)
Co-Chair: Chief Charles Werner (National Information Sharing Consortium)

Provide strategic direction, guide project initiatives and leverage professional networks to operate and maintain information sharing capabilities and capacity across the Public Safety community.

Use Case / Requirements Working Group

Future State Working Group

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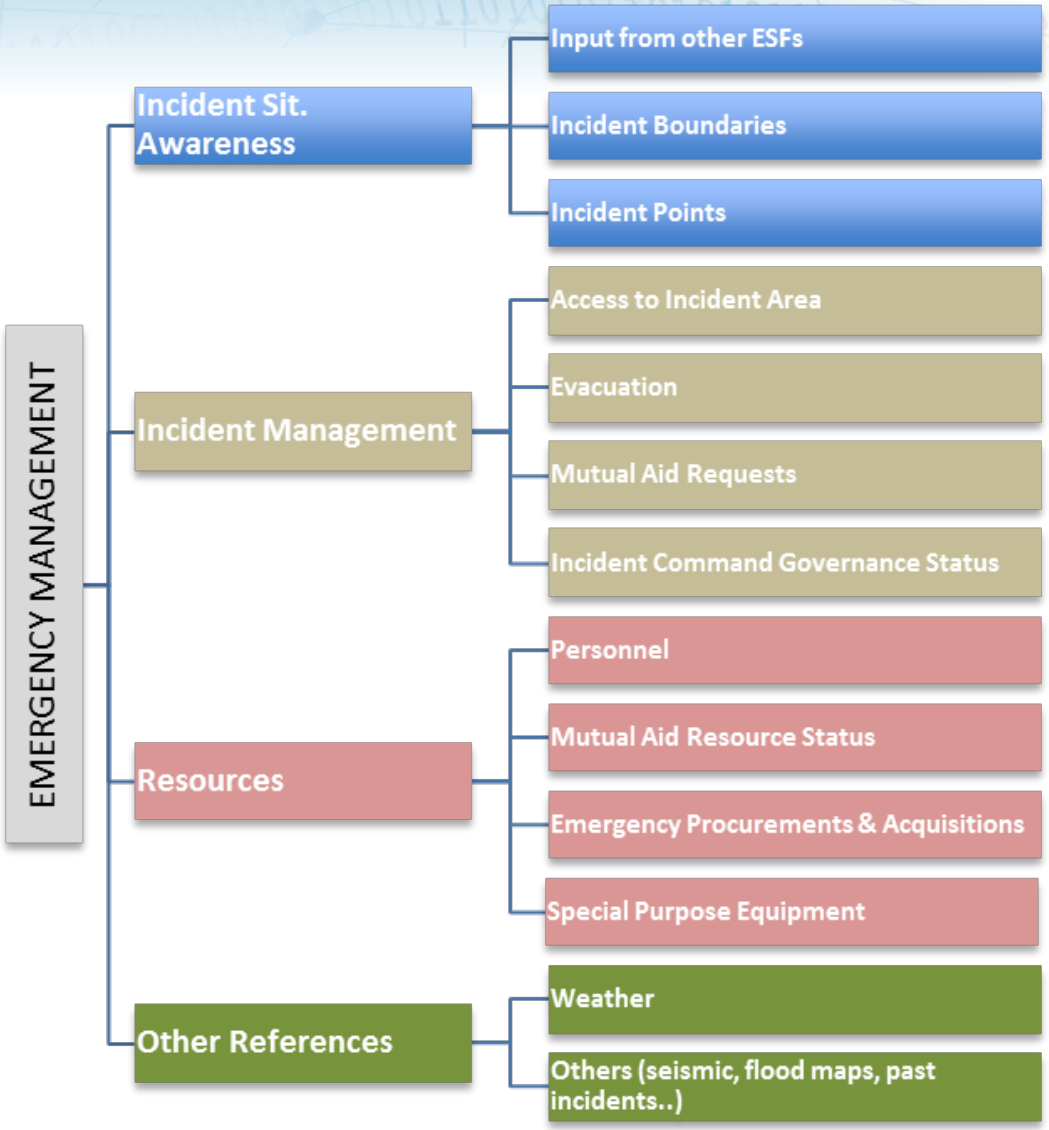
Essential Elements of Information (EEIs)

- Goal: Expedite the institutionalization of consistent, well-defined, sharable, digitally-sourced EEIs for emergency response at the national, state and local levels
- Four-part framework for arraying EEIs across the emergency support functions



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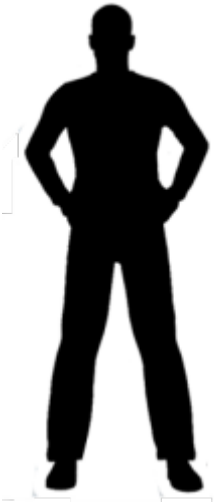
Continuum & Maturity Model Alignment

As-Is



	Limited Leadership, Planning, and Collaboration Among Areas with Minimal Investment in the Sustainability of Systems and Documentation						High Degree of Leadership, Planning, and Collaboration Among Areas with Commitment to and Investment in Sustainability of Systems and Documentation
Governance		Individual Agencies Working Independently		Informal Coordination Between Agencies	Key Multi-Discipline Staff Collaboration on a Regular Basis	Regional Committee Working within a Statewide Communications Interoperability Plan Framework	
Standard Operating Procedures		Individual Agency SOPs		Joint SOPs for Planned Events	Joint SOPs for Emergencies	Regional Set of Communications SOPs	National Incident Management System Integrated SOPs
Technology		DATA ELEMENTS: Swap Files		Common Applications	Custom-Interfaced Applications	One-Way Standards-Based Sharing	Two-Way Standards-Based Sharing
		VOICE ELEMENTS: Swap Radios		Gateway	Shared Channels	Proprietary Shared System	Standards-Based Shared System
Training & Exercises		General Orientation on Equipment and Applications		Single Agency Tabletop Exercises for Key Field and Support Staff	Multi-Agency Tabletop Exercises for Key Field and Support Staff	Multi-Agency Full Functional Exercises Involving All Staff	Regular Comprehensive Regionwide Training and Exercises
Usage		Planned Events		Localized Emergency Incidents	Regional Incident Management		Daily Use Throughout Region

To-Be

Define Need… **Assess Landscape…** **Develop Solution…** **Deliver to Community…**

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Response & Defeat Operations Support (REDOPS)

State & Local Bomb Squad (SLBS) Support

- Develops new capabilities and performance requirements
- Facilitates enhanced training standards to help protect and save lives (bomb techs, public)
- Provide SLBSs with technology and tools to perform activities associated with response and defeat operations

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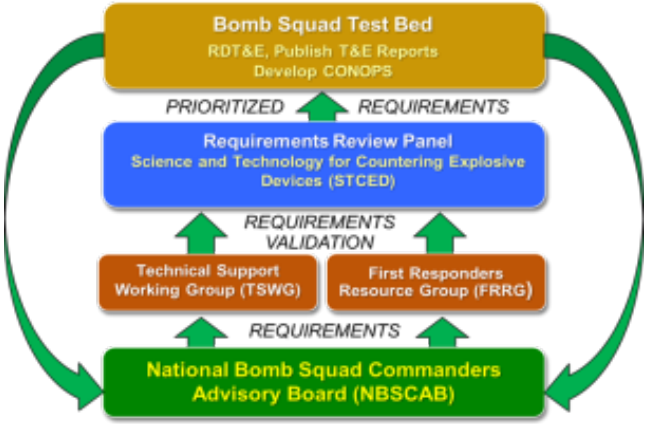
REDOPS Thrust Areas

Roadmap Development



Electronic Counter Measures

Research & Development

Testing & Evaluation

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OIC / OEC Collaboration

- Responders First
- Complementary work and collaboration
- Ongoing organizational information sharing

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Engage With Us

WEBSITES

scitech.dhs.gov
firstresponder.gov

NATIONAL CONVERSATION

STAKEHOLDER ENGAGEMENT

SOCIAL MEDIA

PRIZE AUTHORITY

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S&T
NATIONAL CONVERSATION
ON HOMELAND SECURITY TECHNOLOGY

JOIN THE CONVERSATION.
BE THE FUTURE OF R&D.

http://scitech.dhs.gov

START TALKING

TODAY!

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Office of Emergency Communications (OEC)

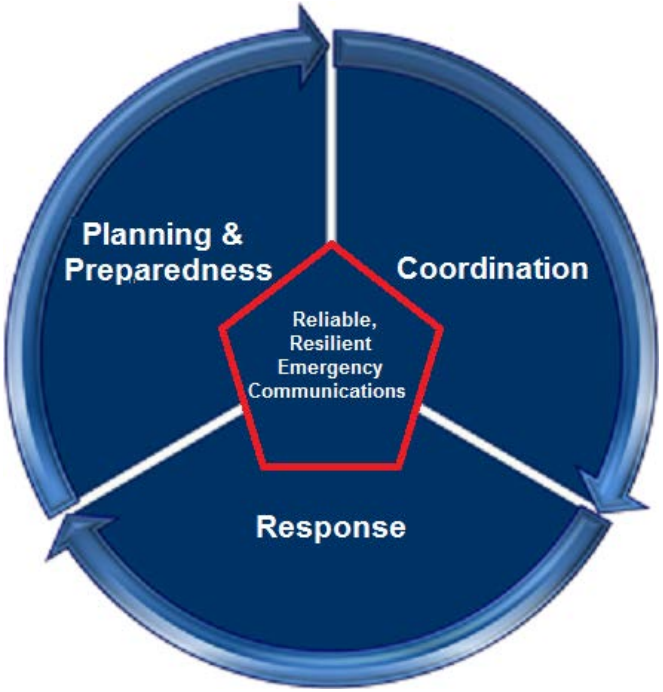
May 6, 2015

Dusty Rhoads
Office of Emergency Communications

OEC Serves Public Safety Through Interoperable Emergency Communications

Planning & Preparedness

- **National Emergency Communications Plan**: Nation's roadmap to improve emergency communications interoperability.
- **Statewide Communication Interoperability Plans**: Locally-driven, multi-jurisdictional, multi-disciplinary strategic plans (implemented in all 56 States and territories).
- **NS/EP Executive Committee:** Oversee the development, implementation, testing, exercise and sustainment of National Security/ Emergency Preparedness communications that support Continuity of Government, FSLTT emergency preparedness and Emergency Support Function -2 response communications.



Coordination

- **Technical Assistance**: Provides no-cost, specific training, exercise, governance and usage support and communications engineering assessments across land mobile radio, broadband and 9-1-1 aspects of interoperable emergency communications through Statewide Interoperability Coordinators and other requestors.
- **Regional Coordination**: Collaborate with regional and local SLTT stakeholders to strengthen emergency communications
- **Partnerships**: Support FSLTT stakeholder groups (SAFECOM, National Council of Statewide Interoperability Coordinators, Emergency Communications Preparedness Center,)
- **Guidance Documents**: Publishes standards, grant guidance, templates, best practices, and information regarding interoperable emergency communications.

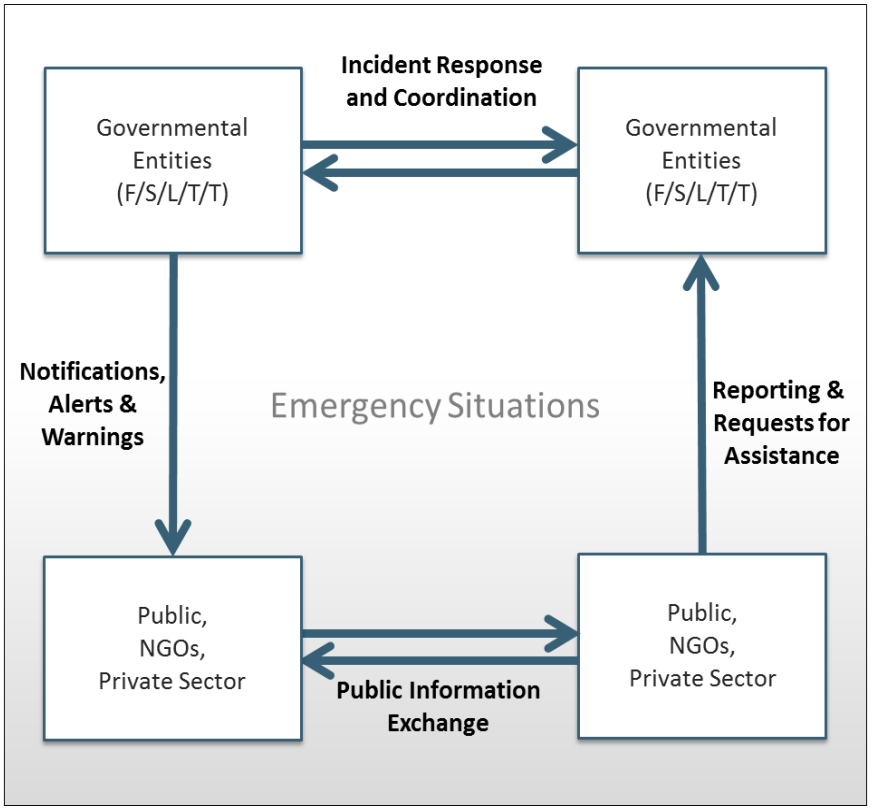
Response

- **Priority Telecommunications Services**: Provides operable and interoperable communications for national security/emergency preparedness community during all-hazards events. Programs include landline (Government Emergency Telecommunications Service), and wireless (Wireless Priority Service) priority and repair/installation of vital voice/data services through Telecommunications Service Priority.

The Evolving Operating Environment

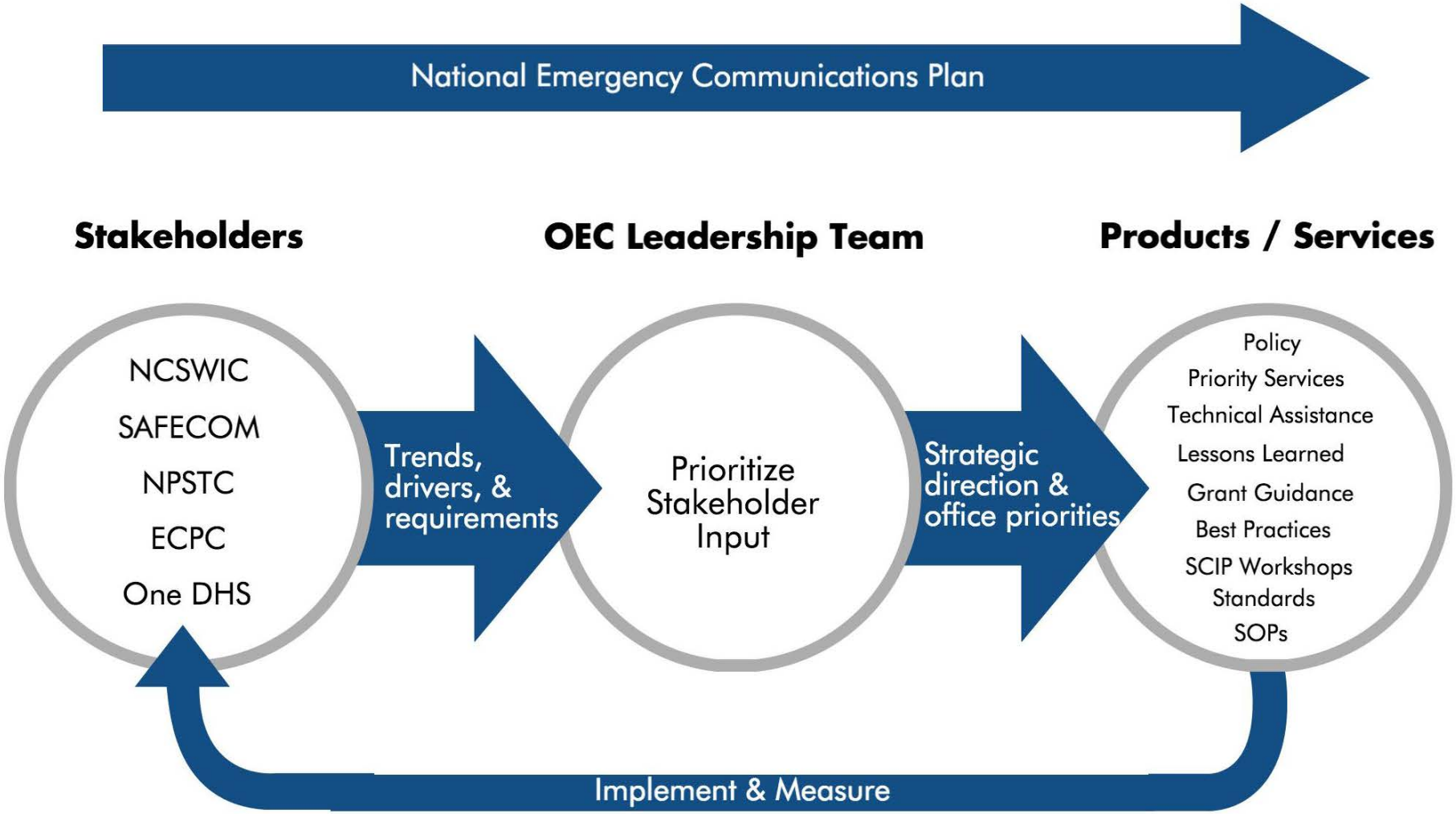
- The National Emergency Communication Plan (NECP) identifies emergency communications systems, functions, and stakeholders as becoming more interconnected:
  - Greater emphasis on "whole community;" recent events show more disciplines are being integrated into emergency response
  - Internet Protocol-based technologies are transforming the content and flow of communications and information during incident response
  - Modernization of communications and information systems (i.e., National Public Safety Broadband Network, NG9-1-1, Alerts & Warnings) is changing

Emergency Communications Ecosystem



Communications During Emergencies
(with or without warning)

OEC's Service Delivery Model



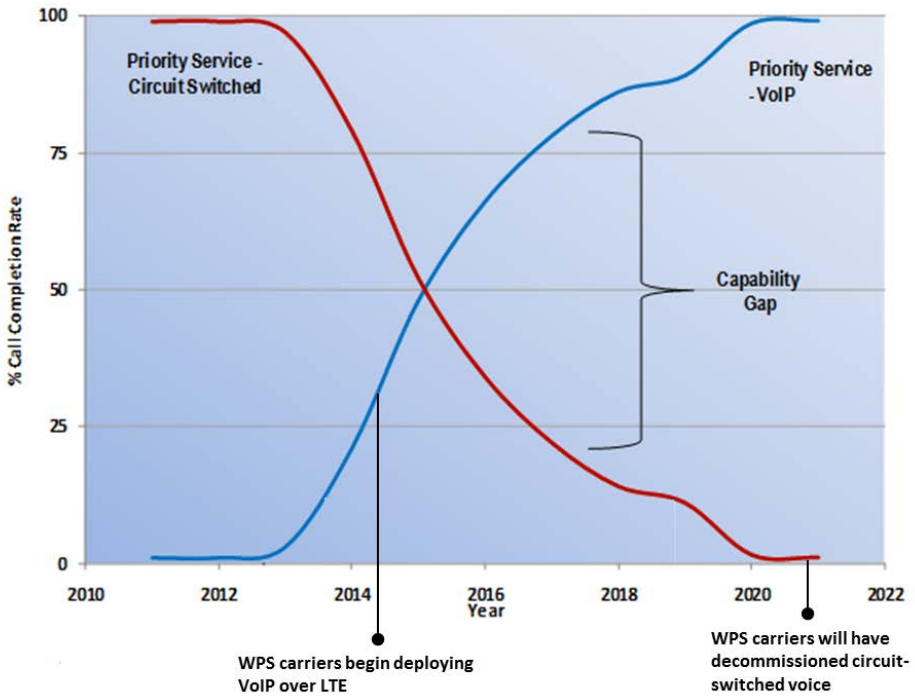
Expanded Communications Unit Training

- New COMU training courses:
  - Radio Operator (RADO)
  - Incident Dispatcher (IDT)
  - Incident Communications Center Manager (INCM)
- Available through TA/SCIP Catalog
- OEC is coordinating the development with FEMA
- New ideas on horizon: COML and COMT “of the future”
  - Increasing use of digital/broadband communications
  - New ICS Form 205

Standards Development

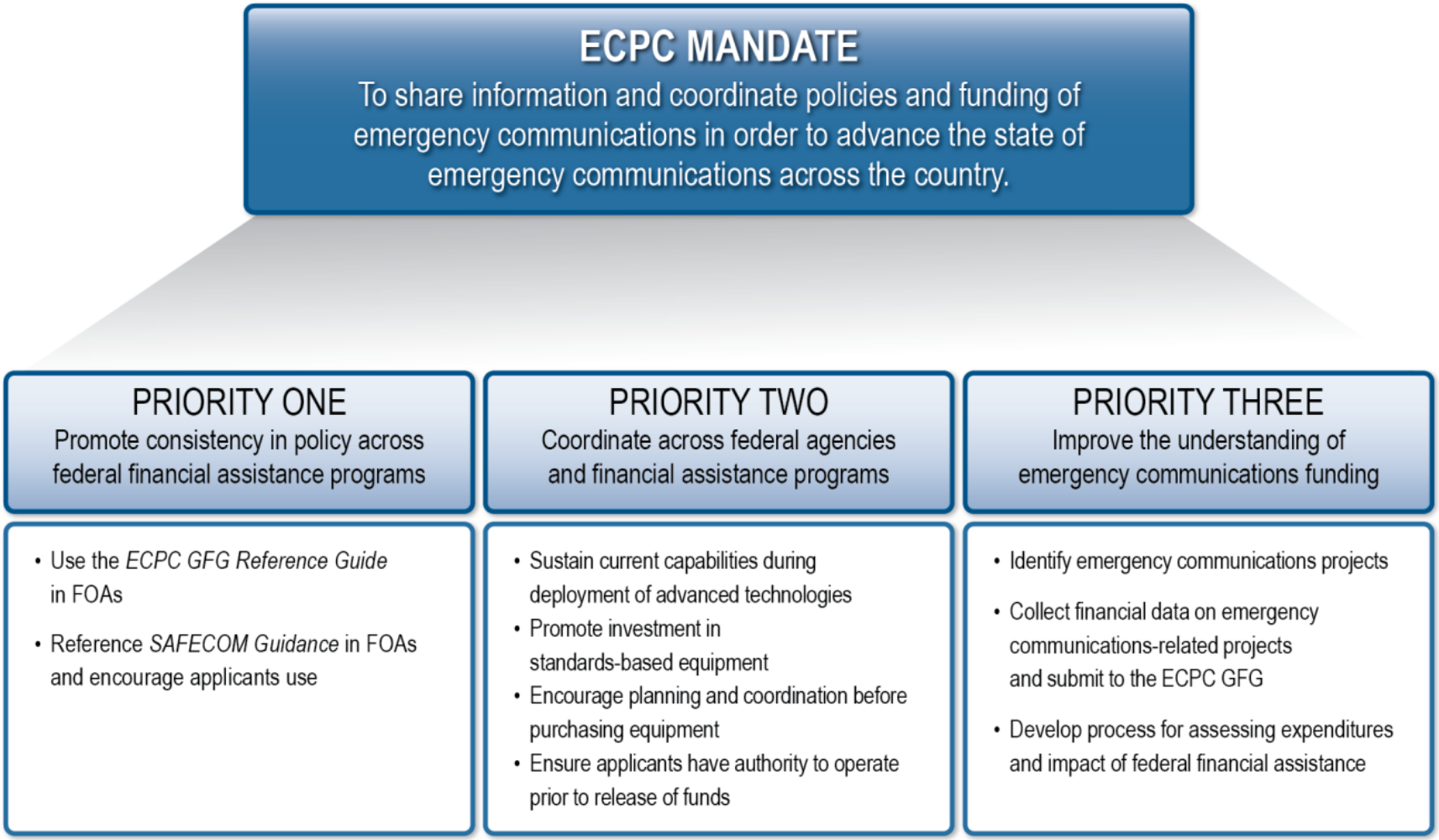
Priority Telecommunications Services (PTS) need to provide priority communications for national security and emergency preparedness (NS/EP) stakeholders in Next Generation Networks (such as Internet Protocol)

- Current circuit-switched wireless priority service (WPS) will cease by 2017 for AT&T, 2020 for Verizon, and 2021 for all service providers
- Developing standards and working with carriers to ensure PTS will continue to operate in Next Generation Networks
- Supporting the Public Safety Communications Research (PSCR) Lab



Next Generation Network WPS Service Gap

Emergency Communications Preparedness Center Grants Focus Group



Emergency Communications Preparedness Center 9-1-1 Focus Group

Recent developments have prompted the need for better coordination of Federal 911 policy

- The Next Generation 911 (NG911) transition has created new challenges for States and localities that traditionally have overseen 911 activities
- Ongoing conversations with State and local officials showed that many States lack the governance and coordination structures necessary to successfully help them to transition to NG911

- The ECPC saw a need last year to bring together agencies with 911 equities on a regular basis
  - Better coordinate 911 initiatives and develop consistent messaging, given the different policy lanes that Federal agencies work within regarding 911
  - Pursue joint projects that can provide insights, recommendations, and thought leadership to 911 stakeholders on various issues, particularly the deployment of Next Generation 911

- The ECPC Steering Committee approved the creation of the Federal 911 Focus Group in Dec. 2014

Homeland Security

Technology and Broadband Discussion

Tom Sorley, Committee Chair | Andy Thiessen, Vice Chair *via teleconference*

Technology and Broadband Discussion

- LTE Global Standards/3GPP Update – Andy Thiessen, *via teleconference*
  - 3GPP Standards Process Update – SA6 Working Group
    - Dedicated 3GPP web site established for SA6
    - Updates from recent meetings

Technology and Broadband Discussion

- Broadband Working Group Updates – Barry Luke, NPSTC Deputy Executive Director
  - Priority & Quality of Service Working Group
  - Local Control Working Group
  - Broadband Deployable Systems Working Group

Break

Technology and Broadband Discussion

- Radio Programming Compatibility Requirements – Tom Sorley
  - Worked with DHS S&T to review the PAM Tool capabilities
  - Looking at longer term vision for the PAM Tool
    - Data transition from one spreadsheet to newer version
    - Ability to create/edit single channel in pop-up window
    - Error checking utility that identifies problems with frequency, channel name, CTCSS, etc.
    - Auto generation of ICS 205 and ICS 217 forms
    - Spreadsheet vs. Cloud Based Application
  - Continuing work on webinar training and outreach

Technology and Broadband Discussion

- Video Technology Advisory Group – John Contestabile
  - Continuing to work with DHS S&T Video Quality in Public Safety (VQIPS) group
  - Work plan expanded beyond video technology to video policy, standards and wireless systems
    - Recent events in the law enforcement community have brought renewed urgency for video policy and standards
  - VQIPS Handbook revised with up to date information on video system design and procurement recommendations
  - VQIPS Annual Workshop to be held on June 17-18, Newark, N.J. (information on the NPSTC web site home page)
    - Joint VTAG/VQIPS leadership team meeting will be held on June 16th in advance of the workshop

Technology and Broadband Discussion

- FirstNet/NG9-1-1 – Barry Luke
  - NPSTC Governing Board requested a Task Force examine the intersection of NG911 and FirstNet to "demystify" process where messages and data leave public network and enter public safety network
  - Two page outreach and education document for local agencies was created as the output of the Task Force
  - John Wright (APCO) and Sharon Counterman (NENA) co-chair Task Force
  - Provide report highlights
  - Request feedback from Governing Board prior to report finalization.

Technology and Broadband Discussion

- NG9-1-1 System Features
  - Provides network route for 9-1-1 caller voice and data (metadata, images, and video) to the appropriate PSAP. Also provides dynamic routing controlling NG9-1-1 features.
  - Provides ability to share 9-1-1 caller voice and data between multiple PSAPs
  - Provides ability to control 9-1-1 call flows and to dynamically rearrange NG9-1-1 call routing zones
  - Provides interface capability to hand off 9-1-1 call data to CAD systems supporting PSAPs
  - Is not intended to provide network connectivity to public safety first responder units
  - Provides network connectivity between PSAPs, while FirstNet will provide networks and connectivity between PSAPs and Responders.

Technology and Broadband Discussion

- NG9-1-1 System Features
  - Requires the creation of a public safety terrestrial IP network, called an “Emergency Services IP Network” (ESInet), which can support NG9-1-1 services and other public safety oriented applications. The ESInet is not specific to NG9-1-1, but requires a network with backhaul capability connecting call and data originators and various PSAPS, as well as other entities that need to receive calls, or data about calls (examples could be EOCs, trauma centers, Coast Guard, etc.). Other additional data sources can be connected to the NG9-1-1 system, such as call, caller, or data providers needed for access by PSAPs or other entities.
  - The ESInet requires network connectivity to wireless, wireline and VoIP telecommunications provider networks, behind which are the cellular service tower itself, Wi-Fi, Bluetooth, and other originating service devices.

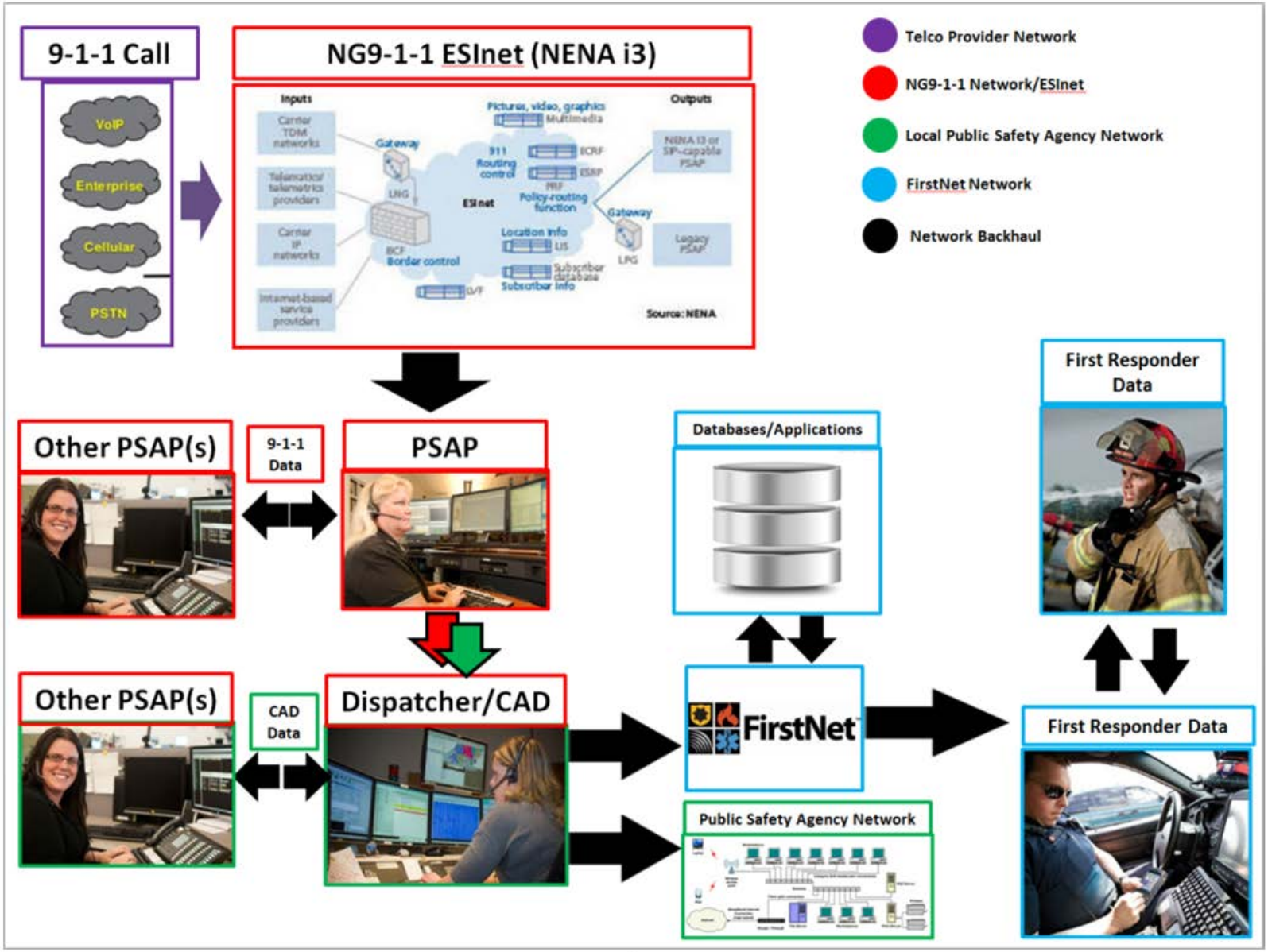
Technology and Broadband Discussion

- FirstNet Network Features
  - Provides public safety grade connectivity from PSAPs to and between first responder's resources.
  - Provides secure network access for first responders to public safety agency systems and interfaces (CAD, NCIC, RMS).
  - Provides network connectivity between public safety agencies (wired and wireless network access to systems, interfaces, and databases)
  - Allows wireless and wired access to agency and FirstNet applications and services
  - Requires the creation of a FirstNet wireless IP network which also comprises the features of the aforementioned ESINets thus facilitating interoperability, and linking public safety agencies. The FirstNet network requires backhaul capability to connect public safety agencies.

Technology and Broadband Discussion

- Flowchart showing connection between the various networks
  - Telco provider network sends 9-1-1 emergency call from wireline, wireless, VoIP network into the NG9-1-1 service system via ESInet(s)
  - NG9-1-1 on the ESInet sends 9-1-1 call to correct PSAP and allows sharing of 9-1-1 call data with other PSAPs
  - 9-1-1 call data is transferred to public safety agency systems via interface (red/green arrows)
  - Call Taker/Dispatcher completes call in their internal system (generally CAD or a combination of CAD, NG9-1-1 and Radio console systems), accessing remote databases and files as necessary
  - PSAP systems send data using FirstNet, which routes the secure data to first responders via voice or data transmission.
  - First responders can communicate between themselves and also access remote databases connected through FirstNet. These may include data sources from both NG9-1-1, local, state and federal systems.

Technology and Broadband Discussion



Technology and Broadband Discussion

- Data crosses through the following demarcation points
  - Carrier network to the NG911 Network
  - NG911 network to the local public safety agency network (e.g. their CAD system)
- Local agency network to the FirstNet network the demarcations may require data standardization
  - For example, a CAD system must be programmed to accept a standardized NG911 data stream.
  - Other demarcations may only be passing IP traffic to the next network. For example, the public safety agency CAD system may send an IP message through FirstNet to a fire truck's mobile data terminal.

Technology and Broadband Discussion

- Governing Board Discussion
  - Does the draft paper communicate the desired message?
    - High level overview to a general audience
    - “Demystify the black box”
  - Should other documents and reports be referenced to provide more in depth context?
  - What is the optimal report length?

Topical Presentations

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

Topical Presentations

- MutuaLink – Joe Boucher, Chief Technology Officer
- Federal Partners for Interoperable Communications (FPIC) – Jimmy Downs, Supervisory Manager, Office of Emergency Communications (OEC)
- National Information Sharing Consortium (NISC) – Charles Warner, Chair

Federal Partnership for Interoperable Communications

NPSTC Briefing on FPIC Activities

May 6, 2015

Federal Partnership for Interoperable Communications (FPIC)

- The FPIC serves as a coordination and advisory body to address technical and operational wireless issues relative to interoperability within the federal emergency communications community, as well as interfaces with State and local agencies.
- The FPIC includes more than 200 Federal, State, local, and tribal public safety representatives from over 45 Federal agencies, as well as representatives from State, Tribal and local entities, focusing on improving interoperability among all levels of government and addressing common public safety related communications issues.
- Address topics and questions concerning:
  - Interoperable communications
  - Security Services
  - Spectrum
  - Standards

Active FPIC Membership and Participation

- Active members and participants include:

- DOJ-OCIO
- Department of the Interior National Program Management Office
- DHS-OIC
- DHS-OCIO
- DHS-OEC
- US Marine Corps
  - HQ Marine Corps Installations and Logistics Department
  - Marine Corps Installation Command
- US Navy
  - Enterprise LMR Management Office
  - NCIS
- US Air Force
  - Spectrum Management Office
  - OSI
- National Guard Bureau J6
- USDA Animal and Plant Health Inspection Service (APHIS)
- NIST Computer Security Division
- Department of Homeland Security
  - CBP, NPPD/FPS, ICE, USSS, USCG
- Department of Justice
  - ATF, DEA, FBI, US Marshals
- Department of the Interior
  - BLM, NPS, U.S. Park Police, NIFC
- Department of the Treasury
- State of South Carolina - Statewide Program Manager/SWIC
- State of Kansas SWIC
- Montana State Highway Patrol
- State of Wisconsin WISCOM
- State of Connecticut - Statewide Program Manager
- State of Wyoming - Statewide Program Manager/SWIC
- District of Columbia SWIC
- State of Maryland – MD First Program Manager
- State of Oregon – Statewide Interoperability Coordinator
- State of Texas DPS and DoT
- San Diego Sheriff Department
- City of Phoenix AZ Police Department
- Metro DC COG
- Fairfax County Police and IT
- Montgomery County
- Loudoun County
- Prince William County

FPIC's Commitment to Encrypted Communications

- Federal agencies have had long standing requirements to provide encrypted communications
  - Security Policies vary by department and component, but are typically driven by National Institute of Standards and Technology (NIST) Federal Information Processing Standards (FIPS) requirements
  - FIPS requirements have been addressed in the Project 25 Standards

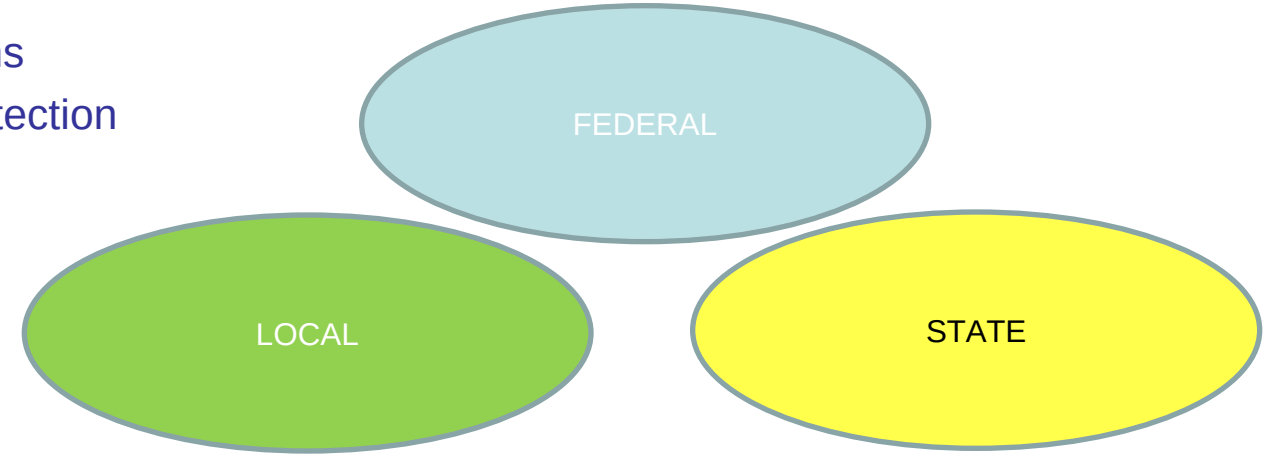
- FPIC continues to be an active participant in the development of security services within the P25 Suite of Standards
  - Introduced the requirements for the Inter-Key Management Facility Interface (IKI)
  - Driving updates to the Over-the-Air Rekeying standards and test procedures, link layer encryption and the Security Services Overview

FPIC's Commitment to Encrypted Communications (continued)

- Federal agencies have seen a surge in encrypted communications as state and local agencies begin to implement security services
  - Increased requirements for privacy to protect law enforcement operations and personal identifiable information (PII)
  - Response to academia white papers discussing challenges with land mobile radio security
  - Requires significant coordination between agencies still requiring interoperable communications
  - Reduced cost delta in providing encryption with digital technologies although the system complexity increased
  - Problems with analog encryption are no longer relevant for digital
    - Coverage loss
    - Reduced audio quality

Why do we need encrypted interoperability?

- Encryption and interoperability are NOT mutually exclusive!
  - Law Enforcement
  - Task Force Operations
  - Operations with other agencies
- Fire and Emergency Medical Services
- Public Health
- Homeland Security
  - Sensitive operations
  - Environmental Protection



Encrypted Interoperability Requires

- A desire to interoperate between agencies
  - Project 25 Standards-based security solution using Advanced Encryption Standard (AES 256-bit)
- Knowledge and understanding of encryption and key management
- Coordination between agencies
  - Planning
  - Implementation
  - Following standards and templates
  - Communication
  - Cooperation
- Coordination with the National Law Enforcement Communications Center (NLECC) and/or Statewide Interoperability Coordinators (SWIC) for I/OP keys
- A key distribution system
  - Key Fill Device (KFD) and/or OTAR
  - KFD configured in accordance with NLECC Guidelines

Security terms we need to know

- Traffic Encryption Key (TEK)
  - The TEK is the unique hexadecimal key used to encrypt and decrypt voice and data traffic. The length of the TEK depends on the algorithm used.
- Key ID (KID)
  - Provides a unique address to identify a Traffic Encryption Key. This is expressed as a hexadecimal value between 0000 and FFFF (65,535 keys total, some are reserved for Over-the-air rekeying [OTAR] system use). The KID, along with an algorithm identification value, is as part of the P25 data stream. The radio uses the KID to understand which key to use to decrypt information received. The KID is EXTREMELY important and can be more important than the SLN number!
- Storage Location Number (SLN)
  - A common method to refer to an encryption key slot in a subscriber unit. In an OTAR system, each SLN contains two TEK keysets (one active/one inactive). This is a decimal value between 0 and 4095. The SLN is used mostly for subscriber programming. When the radio is trying to decrypt messages, the radio ignores the SLN.
  - Note: Motorola uses the term Common Key Reference (CKR) interchangeably with SLN

Encryption Interoperability Planning

- Theoretically, different entities could have different SLNs refer to the same Traffic Encryption Keys
- Storage Location Number (SLN)
  - A common method to refer to an encryption key. In an OTAR system, each SLN contains two TEK keysets (one active/one inactive). This is a decimal value between 0 and 4095.
- Example:
  - Agency A: SLN 0001 KID: 12AF TEK:1234567890ABCDEF
  - Agency B: SLN 1234 KID: 12AF TEK:1234567890ABCDEF
  - Agency C: SLN 4095 KID: 12AF TEK:1234567890ABCDEF
  - These all refer to the same traffic key!
  - Even though the SLNs do not match, the radio ***will*** decode the audio since the KIDs and TEKs are the same

Note: Single key radios will increase the operational complexity and require additional coordination.

Encryption Interoperability Planning (continued)

- Different agencies with uncoordinated SLN/KID/TEK assignments can create an interoperability nightmare.
- Example:
  - Agency A: SLN 0001 KID: 0001 TEK:ABCDEF1234567890
  - Agency B: SLN 0001 KID: 0001 TEK:1234567890ABCDEF
  - Agency C: SLN 0001 KID: 0001 TEK:ABC1234567890DEF
  - Same SLN and KIDs all refer to different traffic keys!
  - The radio will attempt to decode audio with unsuccessful results and ***will not*** interoperate.

Note: Multi-band environments will increase the operational complexity and require additional coordination.

How do we manage encrypted interoperability on a national level?

- DHS-CBP National Law Enforcement Communications Center in Orlando, Florida
  - Generates, manages, and distributes operable and interoperable encryption keys on a national level
    - Manages SLN assignments
    - Manages KID assignments
- Coordination with Regional Coordinators and SWICs
- Establish a Public Safety Communications Security Advisory Council
  - Consists of Federal, State and Local representatives
  - Focus on land mobile radio operational and technical security services

FPIC Security Working Group Recommendations

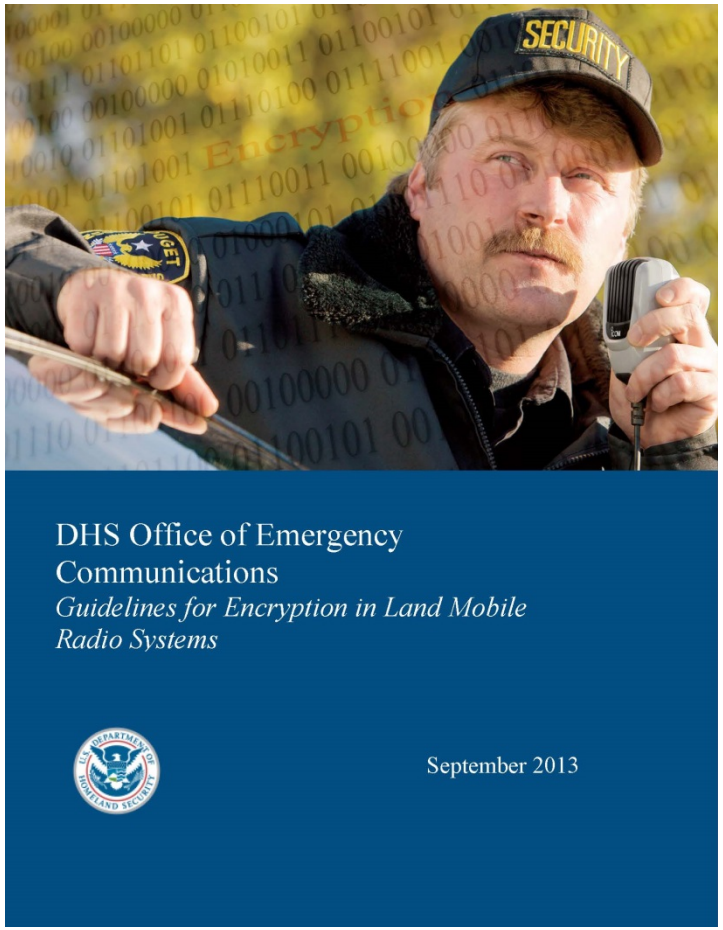
- Developing nationwide best practices white paper for the use of Storage Location Numbers (SLN) and associated KeyIDs.
  - DES-OFB
  - AES
- Recommends the use of interoperability keys generated by the National Law Enforcement Communications Center (NLECC) in Orlando, Florida.
- Recommends adoption of the SLN Database for national use for Federal, State and Local SLNs.
- Adopt the KeyID database for national distribution and use
  - Protection of information needs to be addressed

Reserved SLN Assignments

SLN	Algorithm	Use	Crypto Period
1	DES	Interoperable	Annual
2	DES	Federal Interoperable	Annual
3	AES	Interoperable	Annual
4	AES	Federal Interoperable	Annual
5	DES	National Law Enforcement State and Local Interoperable DES	Static
6	AES	National Law Enforcement State and Local Interoperable AES	Static
7	AES	US – Canadian Fed Law Enforcement Interoperability	Static
8	AES	US – Canadian PS Interoperability	Static
9		SLN 9	
10		SLN 10	
11	DES	Multiple Public Safety Disciplines	Static
12	AES	Multiple Public Safety Disciplines	Static
13	DES	National Fire/EMS/Rescue	Static
14	AES	National Fire/EMS/Rescue	Static
15	DES	National Task Force Operations	When needed by operational requirement
16	DES	Law Enforcement Task Force (one time only operation)	One time use as needed for Special OPS
17	AES	Law Enforcement Task Force (one time only operation)	One time use as needed for Special OPS
18		SLN 18	
19	AES	Federal – International Law Enforcement Interoperability	When needed by operational requirement
20	AES	Public Safety – International Law Enforcement Interoperability	When needed by operational requirement

FPIC and Secure P25 Communications

- The FPIC Security Working Group has developed a series of documents addressing Secure Communications in a P25 environment
  - *Considerations for Encryption in Public Safety Radio Systems* – ready for publication
  - *Guidelines for Encryption in Land Mobile Radio Systems* – Sept 2013 – revised version pending publication
  - *Key Management Guidelines and Best Practices* – under development



Contact Information

- Bob Salmon (convener)
  - US Coast Guard
  - Robert.f.salmon@uscg.dhs.gov

- Jim Downes (Security Working Group convener)
  - DHS OEC
  - James.downes@dhs.gov
  - (703) 235-4096

Questions?

Lunch *(on your own)*

FirstNet NPSBN Development

Harlin R. McEwen

Chief of Police (Ret) - City of Ithaca, NY
FBI Deputy Assistant Director (Ret) - Washington, DC
chiefhrm@pubsaf.com 607-227-1664

Chairman, Communications & Technology Committee
Life Member and Honorary President
International Association of Chiefs of Police (IACP)

Life Member and Communications Advisor
National Sheriffs' Association (NSA)

Life Member & Member Broadband Committee
APCO International

Chairman, Public Safety Advisory Committee (PSAC) First Responder Network Authority (FirstNet)

Public Safety Advisory Committee (PSAC)

- Current Assignments
  - Priority and Preemption Task Team (Kicked Off 2/26)
    - FirstNet seeking advice from PSAC regarding an initial framework for implementing access prioritization, user preemption, and prioritized application use in the NPSBN. *The PSAC Task Team is basing their work on a report and recommendations from NPSTC.*
  - Public Safety Grade Task Team (Kicked Off 2/27)
    - FirstNet seeking advice from PSAC regarding an initial methodology and framework for prioritizing and implementing NPSTC's public safety grade recommendations in the NPSBN. *The PSAC Task Team is basing their work on a report and recommendations from NPSTC.*
  - User Equipment Tasking (Kicked Off 3/4)
    - FirstNet seeking advice from PSAC on functional objectives for and ergonomic considerations of Band 14 broadband user equipment that will meet the operational needs of first responders. *The PSAC EC is currently addressing this task.*

Public Safety Advisory Committee (PSAC)

- Next PSAC meeting: San Diego, June 1, 2015, prior to the FirstNet Board Meetings and Public Safety Communications Research (PSCR) Workshop
- Meeting open from 8:30 am – 3:00 pm only to PSAC members, FirstNet Board Members, and FirstNet staff
- Meeting open from 3:00 pm – 5:00 pm to those members of public safety and the public who pre-registered to attend

Governing Board Representatives

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

Governing Board Representatives

- ATIS IP Transition Task Force – Paul Patrick, NPSTC 2nd Vice Chair

Governing Board Representatives

- ATIS IP Transition Task Force – Paul Patrick, NPSTC 2nd Vice Chair
- Task Force studied various technology and policy issues affecting the IP Transition including those specifically impacting public safety.
- An RFI was released, with a goal to:
  - Develop an overall picture of solutions for public safety related applications in the all IP-transition;
  - Provide a catalogue summarizing currently available solutions, with the goal of providing an array of alternative solutions for specific applications; and
  - Identify roadblocks and challenges that highlight areas that lack technical solutions.
- RFI closed on April 30th. ATIS compiling results.

Federal Partners Update (continued)

Federal Partners Update

- Federal Communications Commission (FCC) – William Davenport, Deputy Chief, Enforcement Bureau

Award Presentation

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

Award Presentation

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

Interoperability Discussion

John Lenihan, Interoperability Committee Chair | Don Root, Vice Chair

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

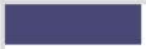
Interoperability Discussion

- Emergency Medical Services – Paul Patrick, Chair
  - Currently reviewing prehospital video capabilities and use cases
  - Differences in how EMS, Medical Directors and Hospitals see video and image implementation
  - EMS Video Telemedicine Questionnaire released by NPSTC for 30 days, ended April 24th
    - 670 responses received
      - 491 from EMS
      - 170 from Physicians, Medical Directors, Hospitals

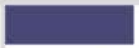
Interoperability Discussion

NPSTC

Are you a/an:

Answer	0% 100%	Number of Response(s)	Response Ratio
EMS System Responder.		402	59.2 %
EMS System Medical Director.		113	16.6 %
Hospital Emergency Department or Trauma Center Director.		22	3.2 %
Hospital ED online medical control physician.		8	1.1 %
Other		128	18.8 %
No Response(s)		6	<1 %
	Totals	**679**	**100%**

Please describe the population of the area served by your EMS organization or hospital:

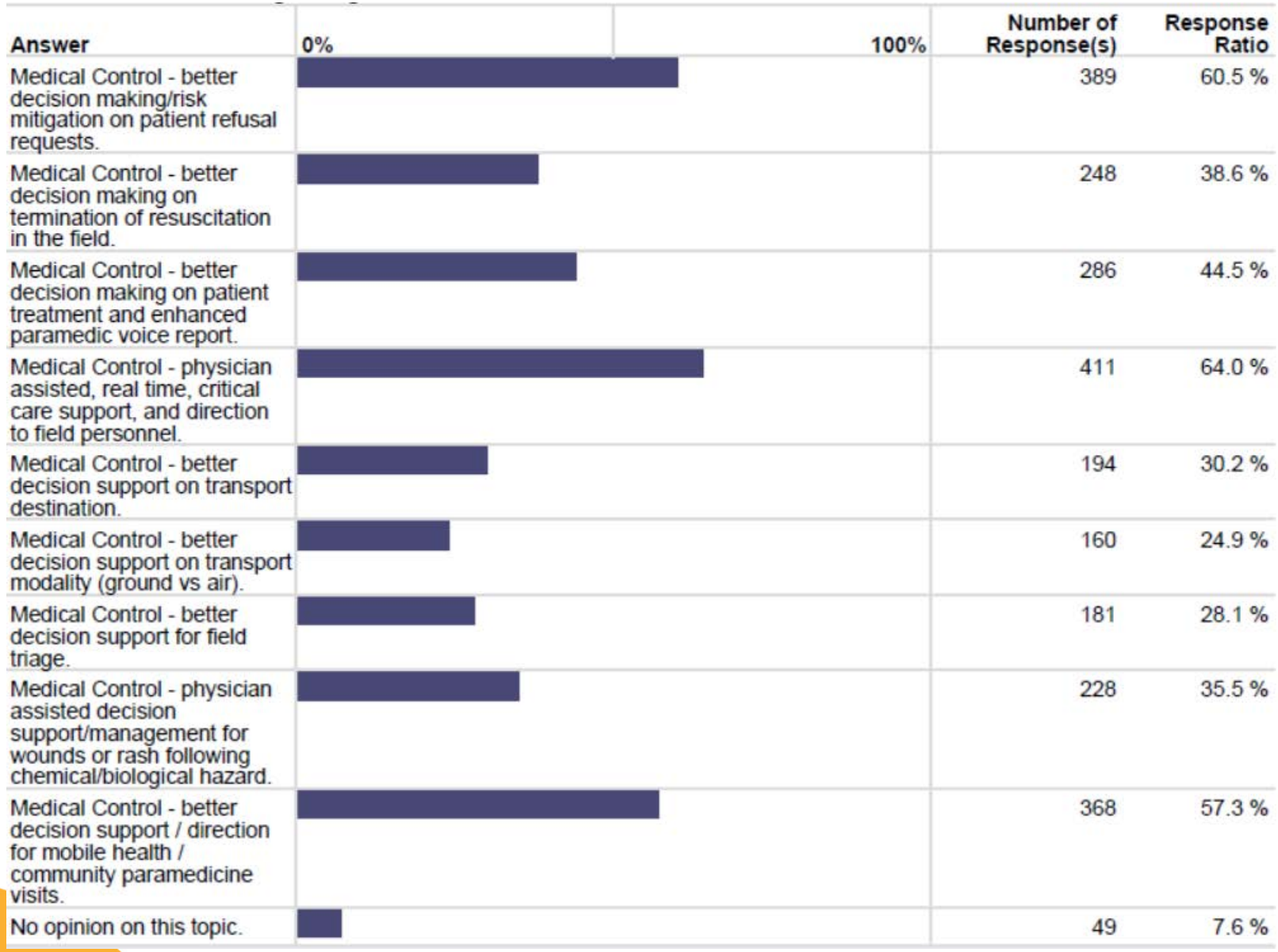
Answer	0% 100%	Number of Response(s)	Response Ratio
< 50k.		310	45.6 %
50k to 100k.		104	15.3 %
100k to 250k.		84	12.3 %
250k to 500k.		68	10.0 %
> 500k.		106	15.6 %
No Response(s)		7	1.0 %
	Totals	**679**	**100%**

Interoperability Discussion

What are the typical
transport times from the scene to the receiving hospital?

Answer	0% 100%	Number of Response(s)	Response Ratio
< 15 minutes.		300	44.1 %
15-30 minutes.		303	44.6 %
> 30 minutes.		66	9.7 %
No Response(s)		10	1.4 %
	Totals	**679**	**100%**

Interoperability Discussion

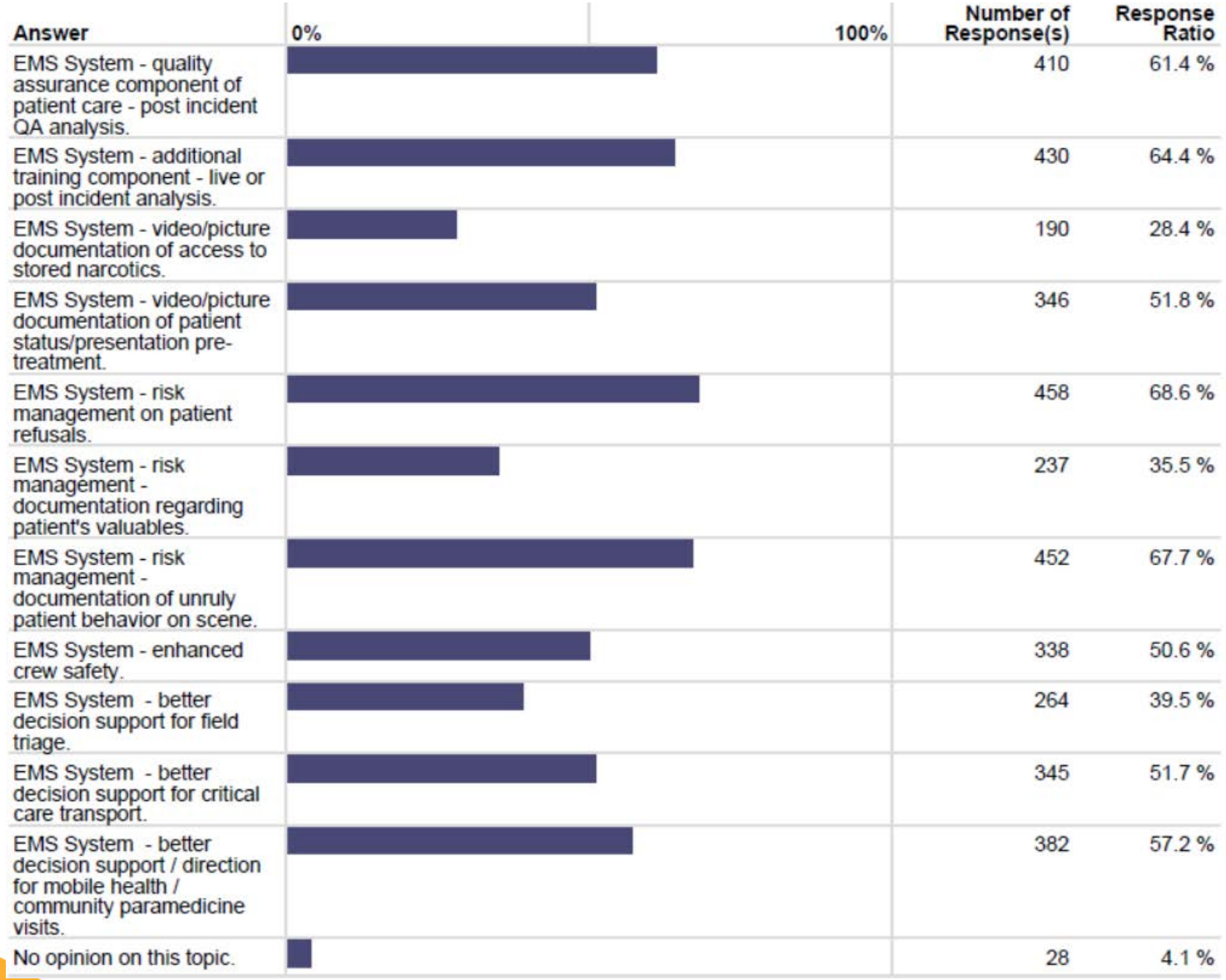


Answer	0% 100%	Number of Response(s)	Response Ratio
Medical Control - better decision making/risk mitigation on patient refusal requests.		389	60.5 %
Medical Control - better decision making on termination of resuscitation in the field.		248	38.6 %
Medical Control - better decision making on patient treatment and enhanced paramedic voice report.		286	44.5 %
Medical Control - physician assisted, real time, critical care support, and direction to field personnel.		411	64.0 %
Medical Control - better decision support on transport destination.		194	30.2 %
Medical Control - better decision support on transport modality (ground vs air).		160	24.9 %
Medical Control - better decision support for field triage.		181	28.1 %
Medical Control - physician assisted decision support/management for wounds or rash following chemical/biological hazard.		228	35.5 %
Medical Control - better decision support / direction for mobile health / community paramedicine visits.		368	57.3 %
No opinion on this topic.		49	7.6 %

Interoperability Discussion

Answer	0% 100%	Number of Response(s)	Response Ratio
Hospital ED - greater awareness of incoming patient status - critical care patient.		425	67.0 %
Hospital ED - video/picture documentation of patient status/presentation pre-treatment.		317	50.0 %
Hospital ED - enhanced decision making on when to activate trauma team/stroke team/stemi team.		380	59.9 %
Hospital ED - enhanced notification / activation of trauma team/stroke team/stemi team.		360	56.7 %
Hospital ED - improved patient care from visualization of scene or mechanism of injury.		384	60.5 %
Hospital ED - additional quality assurance component of patient care - post incident QA analysis.		271	42.7 %
Hospital ED - additional training component - live or post incident analysis.		307	48.4 %
No opinion on this topic.		48	7.5 %

Interoperability Discussion



Answer	0% 100%	Number of Response(s)	Response Ratio
EMS System - quality assurance component of patient care - post incident QA analysis.		410	61.4 %
EMS System - additional training component - live or post incident analysis.		430	64.4 %
EMS System - video/picture documentation of access to stored narcotics.		190	28.4 %
EMS System - video/picture documentation of patient status/presentation pre-treatment.		346	51.8 %
EMS System - risk management on patient refusals.		458	68.6 %
EMS System - risk management - documentation regarding patient's valuables.		237	35.5 %
EMS System - risk management - documentation of unruly patient behavior on scene.		452	67.7 %
EMS System - enhanced crew safety.		338	50.6 %
EMS System - better decision support for field triage.		264	39.5 %
EMS System - better decision support for critical care transport.		345	51.7 %
EMS System - better decision support / direction for mobile health / community paramedicine visits.		382	57.2 %
No opinion on this topic.		28	4.1 %

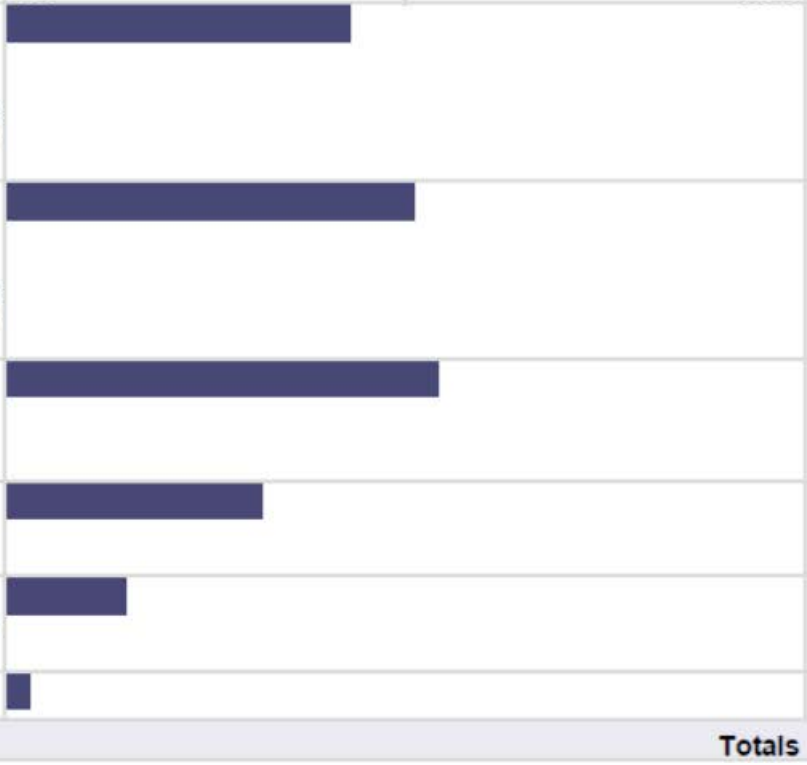
Interoperability Discussion

Patient Refusal Scenario. EMS personnel have arrived at the scene of an adult diabetic patient who is unconscious. They start an IV and administer glucose and the patient is now awake and refusing transportation to the hospital. The paramedic advises that the patient is being monitored by family and will contact their primary care physician.

Answer	0% 100%	Number of Response(s)	Response Ratio
Live video - consultation directly with the physician and patient.		334	50.0 %
Live video - from paramedic (allows doctor to see the patient, but no interaction).		125	18.7 %
Picture image of the patient (to see skin color and overall condition).		104	15.5 %
Video clip to document the summary and refusal acknowledgement.		284	42.5 %
No video/picture is needed, voice consultation is fine.		184	27.5 %
No opinion on this topic.		50	7.4 %
	Totals	**667**	**100%**

Interoperability Discussion

Trauma Patient - Mechanism of Injury Scenario. Paramedics are at a vehicle crash scene and report a 40-year-old female with low blood pressure complaining of abdominal pain.



Answer	0% 100%	Number of Response(s)	Response Ratio
Live video sent to ED/Trauma Center from the paramedic's wearable camera of the incident scene to show vehicle damage and mechanism of injury.		292	43.9 %
Video clip sent to ED/Trauma Center from the paramedic's wearable camera of the incident scene to show vehicle damage and mechanism of injury.		343	51.6 %
Picture image of vehicle damage and mechanism of injury sent from incident scene to ED/Trauma Center.		365	54.9 %
Still image or video clip shown by paramedic upon arrival in the ED.		218	32.8 %
No video/picture needed - paramedic voice radio report is all that is needed.		103	15.5 %
No opinion on this topic.		21	3.1 %
	Totals	**664**	**100%**

Interoperability Discussion

Patient Assessment Scenario. A basic life support unit is on the scene of a patient who is semi-conscious and was reported by the family to have stroke like symptoms.

Answer	0% 100%	Number of Response(s)	Response Ratio
Live video - consultation directly with doctor and patient's family while viewing the patient.		388	58.1 %
Live video - from EMT (allows doctor to see the patient, but the only interaction is with the EMT).		293	43.9 %
Video clip of the stroke assessment showing how patient presented on scene.		302	45.2 %
Still image of patient.		43	6.4 %
No video/picture is needed, voice consultation is fine.		96	14.3 %
No opinion on this topic.		32	4.7 %
	Totals	**667**	**100%**

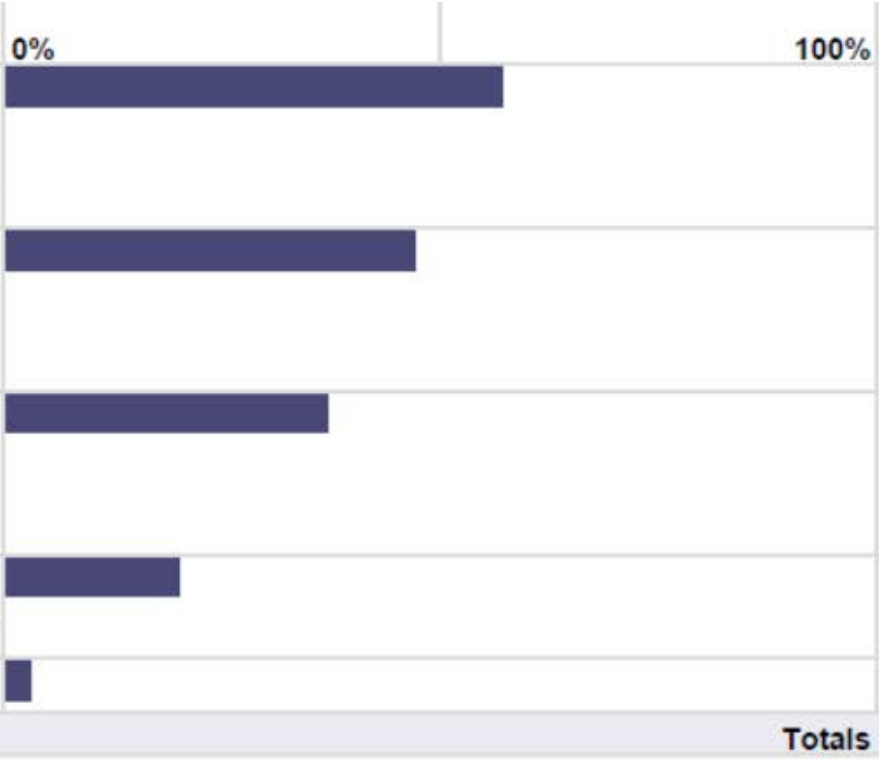
Interoperability Discussion

Physician Assisted Patient Care Scenario. EMS personnel are transporting a pediatric asthma patient from a rural area with an extended transport time. The paramedic sees that the patients condition is deteriorating and is requesting advice on the proper course of treatment.

Answer	0% 100%	Number of Response(s)	Response Ratio
Live video consultation with paramedic using a helmet camera, allowing physician to visualize patient's overall condition and provide step by step instructions if necessary (ie: video laryngoscope).		424	63.7 %
Video clip from paramedics camera showing patient condition (skin color, degree of respiratory distress).		316	47.5 %
Still image patient.		41	6.1 %
No video or image data is necessary; the physician can talk the paramedic through the necessary procedure.		100	15.0 %
No opinion on this topic.		37	5.5 %
	Totals	665	100%

Interoperability Discussion

Mass Casualty Incident Scenario. A paramedic supervisor contacts medical control and/or local hospitals from the scene of a school bus crash to provide an update on the number and severity of a range of patients.



Answer	0% 100%	Number of Response(s)	Response Ratio
Live video - showing the crash scene, the number of patients, and a general indication of the status of the patients.		383	57.3 %
Video clip - sent to ED/Trauma Center showing the number of patients and general conditions at the scene.		315	47.1 %
Picture image or series of pictures of the crash scene sent to the Emergency Department to assist in triage or preparation.		250	37.4 %
No video or pictures are needed, radio voice report is sufficient.		134	20.0 %
No opinion on this topic.		24	3.5 %
	Totals	668	100%

Interoperability Discussion

- Feedback Themes
  - ✓ Live video is needed for stroke assessment validation/enhancement
  - ✓ Best use for Community Para-medicine and “gray zone” patient presentations
  - ✓ Best use for patient refusals and risk management documentation
  - ✓ Situational awareness from EMS to PSAP and ED will be enhanced
  - ✓ Best use in rural areas with extended transport times, EMS staff who do not have high call volumes for skills maintenance.
  - ✓ Cameras create a more professional interaction (EMS and patients “behave” better)
  - χ Time delay for EMS to use the equipment (activation time, process time)
  - χ Time needed in ED to conduct video consultations (physicians are too busy)
  - χ Big Brother syndrome, surveillance, over reach by Medical Control
  - χ Liability, HIPPA
  - χ Cost
  - χ Will not improve medical care outcome (protocols handle all situations now)

Interoperability Discussion

- Feedback Themes
  - ✓ Physician and Hospital responses tracked EMS results
  - ✓ Physicians and ED's expressed more interest in live video than in a video clip or still image
    - ✓ Especially true for stroke patient assessment
  - ✓ Physicians saw the greatest benefit in:
    - ✓ Community Para-medicine Programs
    - ✓ Patient diversion to Urgent Care or Clinic vs. ED
    - ✓ Patient Refusal risk management
    - ✓ Enhanced patient care documentation
  - ✓ Respondents expressed concern:
    - ✓ HIPPA compliance (who owns the video?)
    - ✓ Potential for increased litigation
    - ✓ Time to manage video conference calls (staffing)

Interoperability Discussion

- Common Channel Naming – Don Root, Chair
  - Channel Naming updates finalized and distributed to Board
  - Approved document to be submitted to APCO for use in updated ANSI standard.
  - Updates to this document include:
    - Updated introduction to acknowledge 2014 FCC order
    - Integrate 700 MHz Air-Ground Channels “AG” (7AG78, 7AG80,7AG85, 7AG88 including “D”)
    - Reformat Appendix Tables to follow NIMS ICS-217A format
    - Add 155.1600 as a common-use channel for SAR (VSAR16)
    - Clarified PL code of 156.7 with allowance for 136.5 for transportable relay stations on the VTAC channels.
    - Correct a number of typos in the tables
  - **Governing Board Action Item: Vote to approve report**

Interoperability Discussion

- Common Channel Naming – Don Root, Chair
  - 700 MHz Transportable Trunking System Talkgroups
    - Working to identify common Talkgroup (TG) names
    - Two Zones support flexible operations and use of two systems
    - Calling TG, Command TG, Emergency TG and 13 Tactical TG’s assigned by the COML

Interoperability Discussion

- Common Channel Naming – Don Root, Chair
  - 700 MHz Low Power Channels
    - Starting work on common channel naming best practices
  - Statewide Interop Channel Naming Best Practices
    - Reviewing existing document

Interoperability Discussion

- Cross Border Working Group – Barry Luke
  - Report approved by NPSTC Governing Board and released in March
  - Presentations
    - SAFECOM EC, March 26th in Portland, OR
    - CANUS CIWG, April 30th in Washington, DC
    - SAFECOM ERC, May 13th in Jacksonville, FL
    - APCO Canada, November 4th in Niagara Falls

Interoperability Discussion

- 700 MHz Deployable Trunked Systems Task Group – David Buchanan, Chair
  - NPSTC and NRPC filed joint comments with FCC identifying six nationwide channels for deployable trunked systems
    - FCC issued a Public Notice April 23rd approving the NPSTC/NRPC recommended channels
  - Working on several operational and technical issues
    - WCN ID number assignment
    - Subscriber ID number management
    - Licensing options (managed by the states)
    - Talkgroup channel names (with NPSTC Channel Naming WG)
  - Working on a best practices document

Interoperability Discussion

- Radio IO Best Practices Working Group – Mark Schroeder, Chair
  - 13 Best Practice Statement concepts identified
  - Each Best Practice statement continues to be developed by volunteer sub groups
  - Completed Best Practices statements will be routed to full Interoperability Committee for feedback before being submitted to the Governing Board for approval
  - Approved Best Practices Statements
    - Will be packaged in an individual report
    - Will be posted on NPSTC's website
    - Will be searchable by key words (ex: "radio cache")

Interoperability Discussion

- Radio IO Best Practices Statements
  - BP # 1: Nationwide I/O Channel Naming and Usage
  - BP # 2: Radio Channel Assignment and Use within High Risk Incident Environments
  - BP # 3: Documentation of Availability and Use of National I/O Channels by local, state and regional authorities.
  - BP # 4: Change Management on I/O infrastructure
  - BP # 5: Time Phased Deployment of I/O Resources
  - BP # 6: Infrastructure management – Readiness, Resiliency, and Availability
  - BP # 7: Subscriber Management

Interoperability Discussion

- Radio IO Best Practices Statements (continued)
  - BP # 8: I/O Channel assignment based on system coverage.
  - BP # 9: Critical Incident Communications talk path control and staffing
  - BP # 10: Competency based training for use and management of I/O systems
  - BP # 11: After Action Reviews to identify operational and technical issues.
  - BP # 12: Governance and formal relationships.
  - BP # 13: Managing encryption during interoperable events.

Executive Session Level Four

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

Executive Session Level Four

- Level 4
  - NPSTC Chair
  - NPSTC Vice Chairs
  - Committee Chairs and Vice Chairs
  - Voting Organization’s Representative and Alternate
  - Executive Director
  - Deputy Executive Director

Recess

Questions?

support@npstc.org | 1.800.807.4755

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.

Full NPSTC Meeting
Washington, DC

Thursday, May 7, 2015

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

Webinar Access Information: https://join.me/NPSTCsupport1

Submit Questions Online
Send email to support@npstc.org

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Full NPSTC Meeting

- Reconvene – Ralph Haller

Federal Partners Update *(continued)*

Federal Partners Update (continued)

- Federal Communications Commission (FCC) – Roberto Mussenden, Attorney-Advisor, Policy and Licensing Division, Public Safety Homeland Security Bureau (PSHSB)

Spectrum Management Discussion

David Buchanan, Chair | Stu Overby, Vice Chair

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Spectrum Management Discussion

- FirstNet Public Notice # 2 Response – Stu Overby
- FirstNet Public Notice # 3 – Stu Overby
- Interference Protection Working Group
  - Clarification of Scope of Working Group – Don Root
  - Federal Frequency Issues – David Buchanan
  - FCC NPRM on 800 MHz Interstitials – David Buchanan
  - Energy-Efficient Lighting Interference – David Buchanan
- Potential 700 MHz Commercial Spectrum for UAVs – Stu Overby
- Filing Summary Recap – Stu Overby

Spectrum Management Discussion

- FirstNet Public Notice # 2 Response – Stu Overby
  - Complicated public notice
  - Two major themes: Devices and State's Opt Out Issues
  - NPSTC response filed on April 28
    - General concurrence with FirstNet interpretations regarding devices
    - Public safety will need various types of interoperable devices
    - FN Network policies, proposed coverage/capacity, spectrum lease requirements, and business plans need to be available to the Governor for proper decision making
    - Information should be made available concurrently when plan is presented to a state

Spectrum Management Discussion

- FirstNet Public Notice # 3 – Stu Overby
  - Public Notice Issued April 24, 2015
  - Major theme: Who is eligible as public safety on the network
    - Furthers the discussion and interpretation on this issue from FirstNet Notice #1, to which NPSTC responded 10/27/15
    - FirstNet Preliminarily concludes there can be employees or groups of employees eligible in an organization even if the organization as a whole is not eligible
    - FirstNet seeks comments on this interpretation, and on how to administer it
  - Comments on Notice #3 are due 30 days after publication in Federal Register:

Spectrum Management Discussion

- Interference Protection Working Group
  - Clarification on Scope of Working Group – Don Root
    - Focus on policy and regulatory issues involving interference
    - Focal point in NPSTC for policy discussions on Federal/Non-Federal spectrum sharing
    - Not involved in interference issue with an individual licensee or individual frequency coordination
  - Federal Frequency Issues – David Buchanan
    - BLM request for use of VMED28/155.340 MHz
    - DHS proposal for assignment of a VHF and UHF I/O nationwide pair
    - FCC/NTIA proposal for I/O sharing

Spectrum Management Discussion

- Interference Protection Working Group
  - FCC NPRM on 800 MHz Interstitials – David Buchanan
    - Comments due May 11, Reply Comments due May 26
    - Comments drafted and distributed to Governing Board. Issues addressed:
      - Support for proposed addition of interstitials
      - Need for Protection of Main channel licensees through frequency coordination
      - Use of standard contours/mileage separations first, with option for engineering studies if that fails to allow interstitial
      - Eligibility
      - Need for protection criteria among interstitials
    - Additional technical information provided to frequency coordinators in LMCC for their consideration

Spectrum Management Discussion

- Interference Protection Working Group
  - Energy-Efficient Lighting Interference – David Buchanan
    - First draft of report completed
    - Preliminary discussion with FCC staff scheduled
    - Working Group will review and finalize report

Spectrum Management Discussion

- Potential 700 MHz Commercial Spectrum for UAVs – Stu Overby
  - Ex Parte filed March 16th by Access 700, LLC notes potential use of 700 MHz commercial upper A block spectrum for control of UAVs
  - A block (757-758/787-788 MHz) sits between the 700 broadband block used primarily by Verizon and the Public Safety broadband spectrum
  - Access 700 has offered to present concept to NPSTC at future meeting.

NPSTC Filings Summary

Date	Filing	Topic
4/30/15	Comments (FCC)	AT&T Cellular PFD Waiver Request
4/28/15	Comments	FirstNet Second Notice
3/16/15	Recommendation to FCC	700 MHz Trunked Deployable Channels
2/23/15	Reply to Recon Request (FCC)	P25 CAP
2/20/15	Reply Comments (FCC)	Cellular PFD/Minimizing Interference
2/13/15	NPSTC/NRPC Letter (FCC)	700 MHz Deployable Channels
1/5/2015	Comments (FCC)	Public Safety Frequency Coordination
12/17/2014	Comments (FCC)	Part 22 Rules
10/27/2014	Comments (FirstNet)	FirstNet Public Safety User Definition
10/16/2014	Ex Parte Comments (FCC)	4.9 GHz National Plan Proposal
7/14/2014	Reply Comments (FCC)	Wireless 9-1-1 Location Accuracy
6/30/2014	Comments (FCC)	Part 90 Frequency Coordinators
5/16/2014	Petition for Rule Making (FCC)	Railroad Police Access to PS I/O Channels

Anticipated NPSTC Filings

Date	Filing	Topic
5/11/15	Comments (FCC)	800 MHz Interstitials
5/26/15	Reply Comments	800 Interstitials
TBD	Letter (FCC)	LED Lighting Interference
TBD	Comments	FirstNet Third Notice

Governing Board Representatives

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Federal Partners Update

- FCC PSAP Architecture Task Force – Bob Brown, NPSTC Representative, *via teleconference*
  - More than 6,000 PSAPs exist in the U.S.
  - April 28th Status Meeting with the FC
  - Three Sub Groups created:
    - Optimal cyber security for PSAPs
    - Optimal PSAP architectures
    - Optimal resource allocation

Closing Remarks and Administrative Discussion

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Closing Remarks and Administrative Discussion

- Closing Remarks
  - John Wright, President, APCO International
- Administrative Discussion
  - Upcoming Meetings
    - September 9-10, 2015, Norman, OK

Executive Session Level 4

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

Executive Session

- Level 4
  - NPSTC Chair
  - NPSTC Vice Chairs
  - Committee Chairs and Vice Chair
  - Voting Organizations, Representatives and Alternates
  - Executive Director
  - Deputy Executive Director

Lunch *(on your own)*

Adjourn | Thank you!

Questions?

support@npstc.org | 1.800.807.4755

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