Broadband Summit

PUBLIC SAFETY
BROADBAND REQUIREMENTS

NATIONAL PUBLIC SAFETY
TELECOMMUNICATIONS COUNCIL

May 7, 2014

NPSTC Panel

- **Harlin McEwen**, NPSTC Governing Board - IACP
- **Paul Patrick**, NPSTC EMS WG Chair
- **Andy Thiessen**, NPSTC Broadband WG Chair
- **Barry Luke**, NPSTC

Presentation Overview

- **Broadband Update**, Harlin McEwen
- **EMS Broadband Applications Project**, Paul Patrick
- **Statement of Requirements Update**, Andy Thiessen
- **NPSTC SOR Process**, Barry Luke
- **Question & Answer** Session

Nationwide Public Safety Broadband Network

Nationwide Public Safety Broadband Network

Public Safety Advisory Committee
41 Members

PSAC Executive Committee

PSAC Chair Harlin McEwen (Police-IACP)

PSAC Vice-Chair Bill McCammon (Fire-Metro Chiefs)

PSAC Vice-Chair Paul Patrick (EMS-NASEMSO)

PSAC Vice-Chair Thomas MacLellan (State-NGA)

PSAC Vice-Chair Tom Sorley (Local-USCM)

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Nationwide Public Safety Broadband Network

- **PSAC's Current Activities**
  - **Human Factors** – The Human Factors Report was accepted by the FirstNet Board on March 11, 2014.

Nationwide Public Safety Broadband Network

- **PSAC's Current Activities**
  - **Use Cases** – The PSAC is finishing this report and will be submitting it to the FirstNet Board in the near future.

Nationwide Public Safety Broadband Network

- **PSAC's Current Activities**
  - **Identity Management** – Planning underway for a National IdAM Strategy Summit to be sponsored by the PM-ISE and DHS S&T.
    - Not a FirstNet project but FirstNet will benefit from it.

Nationwide Public Safety Broadband Network

- **PSAC's Current Activities**
  - **Early Builder Working Group** – FirstNet has requested the PSAC EC to create an Early Builder Working Group and that process is underway.

Nationwide Public Safety Broadband Network

- **PSAC's Current Activities**
  - **Tribal Working Group** – FirstNet has requested the PSAC EC to create a Tribal Working Group and that process is underway.

Nationwide Public Safety Broadband Network - Video

- Video Technology
- VQiPS: Video Quality in Public Safety
  - Sponsored by DHS S&T
- Annual Conference, Houston, TX
- Increasing awareness of video capabilities
  - Law Enforcement, Fire/Rescue, EMS
- New features and functionality
  - Video analytics
  - Evolving video compression standards

NPSTC Launch SOR - Qualitative

4.1.9   Video Services

The use of video technology by public safety is extensive, and is expected to grow significantly over the next 10 years. NPSTC's Public Safety Communications Assessment 2012 – 2022, June 5, 2012 [8], explored numerous video needs. The following text is referenced from NPSTC's June 2012 assessment:

Table 34. NPSBN Enabling PSEN-Deployed Video Requirements

#	Requirement
1	The NPSBN SHALL support the ability for a PSEN to deploy one or more video applications.
2	The NPSBN SHALL provide the ability for one or more PSENs to stream video traffic in real-time to one or more other PSENs. The intent is to support the sharing of fixed and mobile video assets between PSEs.
3	The NPSBN SHALL provide the ability for NPSBN-Us belonging to different PSENs to exchange real-time video streams from a PSEN-deployed video service.

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Video Bandwidth Concerns

Table 6: Broadband Modeling Spectrum Needs Summary

Notes	Toxic Gas Leak Washington, DC		Hurricane Event Orlando, Florida		Chemical Plant Explosion Houston, TX	
	Downlink	Uplink	Downlink	Uplink	Downlink	Uplink
Sum of all required application throughput (kbps)	10,263	7,516	6,974	4,085	7,479	4,564
Percentage of total from video sources	97%	92%	97%	92%	98%	94%

*NPSTC AFST Report 2012-2022 Analysis

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EMS Broadband Applications Project

EMS Broadband Applications Project

- FirstNet was interested in what types of applications would be requested or desired by public safety.

- NPSTC EMS Working Group created a list of patient care and EMS operations applications.

- 37 applications were identified which include a use case.

- These were sorted into categories and ranked according to a High, Medium and Low priority.

- Applications were also marked as "available today" or "conceptual".

EMS Broadband Applications Project

- How do we enhance EMS operations?

- Many others are engaged in this discussion.

| By King Philip Waters

IN SEARCH of Wireless Monitoring

Homeland Security project aims to sever the tether

EMS providers base many lifesaving decisions upon patients' vital signs.

While there are many portable instruments for monitoring pulse

EMS Broadband Applications
Partial List

1. Speech to Text Reporting
2. Video Assisted Patient Care
3. Third Party Video Integration
4. Vehicle Design/Extrication Guide
5. Vital Signs Transmission to Hospital/Trauma Center
6. MCI Intelligent Patient Monitoring
7. Patient Tracking
8. EMS Crew Tracking

EMS Broadband Applications Partial List

9. Specialized physiologic monitoring (patient/responder)
10. EMS Database access
11. Hazard Placard Identification
12. Resource Management (Units, Hospitals, Support)
13. Automatic Vehicle Location
14. Incident Command White Board
15. Automated Quality Assurance
16. Vehicle Crash Telemetry Interface

EMS Applications List - Example

Application Category Application Name	PRIORITY LEVEL HIGH Year 1/Launch MEDIUM - Year 2-3 LOW > Year 3 +	EXISTING APPLICATION Or CONCEPTUAL	USE OFF NETWORK?	GENERAL DESCRIPTION	USE CASE
Interface/Application for automatic transmission of real time vital signs data to receiving hospital	MEDIUM	CONCEPTUAL Phillips MRx Monitor PCDT, http://www.cs.harvard.edu/~mdw/papers/monitoring-embs05.pdf	N	Application integrates information from a variety of patient monitoring devices to include blood pressure, pulse, respiratory rate, EKG rhythm, ETcO; uses intelligent processing to watch for abnormalities, critical trends while providing several levels of alert and alarm. Data stream is created for transmission to receiving hospital or specialty hospital for medical direction.	Rescue 1 arrives on scene of a patient with severe respiratory distress. The patient has a history of COPD and needs CPAP to prevent further deterioration. A critical care application collects and compares the patient's vital signs, including pulse oxygenation and carbon dioxide levels and alerts the paramedic that existing treatments are not working. The information helps the paramedic make an early decision to intubate the patient prior to a catastrophic event and consults with a ER physician who has been monitoring the patient's vital signs remotely.

EMS Broadband Applications Project

- FirstNet PSAC has worked to add Law Enforcement and Fire/Rescue applications in order to create a master list.

- The full list will be finalized by the PSAC and made available at a later date.

- EMS Applications list is current available on the NPSTC web site.   www.NPSTC.org

Public Safety Broadband Statement of Requirements

Broadband SOR Reports

- Original 700 MHz Broadband SOR created in 2007.

- 700 MHz Broadband SOR revised in 2012 by working group of more than 170 public safety and industry participants.

Broadband SOR Reports

- Revised 700 MHz Broadband SOR Feedback
  - New SOR reviewed by NPSTC Board.
  - FirstNet requested NPSTC provide a document covering only public safety requirements needed at network launch.
  - Launch SOR Qualitative Report was finalized on December 2, 2012.

Broadband Work In Progress

- Launch SOR **Quantitative**
  - Revising Launch SOR Qualitative document to insert required performance metrics.
  - 11 sub groups are identifying public safety requirements that need modification.
  - There are 487 total requirements in the SOR.
  - "First Pass" review completed in March 2013

Launch SOR – Total Requirements by Chapter/Category

Chapter	Requirements
Network	56
Governance	8
SOP	39
User Services	92
Transport	47
System Design	40
User Equipment	9
Local Support	43
Migration & Evolutio	10
Security	104
Priority QOS	39
Total Requirements	487

Console LTE Task Team

- Examining impact of FirstNet features and functionality on dispatch center workstations:
  - Receipt, Sharing and Transmission of video.
  - Processing sensor data from smart devices (M2M).
  - Adding authorized users to an incident for priority access.

Console LTE Task Team

- The group is <u>not</u> documenting existing console functionality (CAD, 911, Radio).

- The group is <u>not</u> recommending the creation of a single new console that will provide all features and functionality.

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Console LTE Task Team

- Initial meeting, November 2013.

- Face-to-face meeting, March in Boulder.

- Use cases developed, action items reviewed, requirements developed.

- 29 public safety requirements identified.

- Report completion, Spring 2014.

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Broadband Work Pending

- Broadband Requirements Work not yet started:
  - Public Safety Messaging
  - Public Safety Telephony
  - Public Alerting Requirements in 3GPP
  - Year 2-3 Qualitative
  - Year 2-3 Quantitative

Global Eco System

- Globalization of LTE Standards
  - Role of the United Kingdom
  - Update on 3GPP Work
    - Push to Talk issue
    - Off Network issue
    - Elements of next release
  - Strengths of global partnerships
  - Weaknesses of global partnerships

Public Safety SOR Process

Public Safety SOR Process

- All Committee & Working Group activities are open to all interested parties.

- Industry, commercial, and general government entities are welcome to join public safety representatives in all groups.

- Participants can join a process at any time, up through the final week of the project.

Public Safety SOR Process

1. NPSTC task teams, including industry and public safety, develop requirements statements:
   - Qualitative
   - Quantitative.

2. A Public Safety Review team, including "new eyes", conducts a final review of the document
   - Readability
   - Comprehension
   - Public Safety need articulated

Public Safety SOR Process

3. Final draft document is sent back to the larger working group for comments, concerns and edits. Document is also sent to the Federal ECPC.

4. Final draft is sent to the NPSTC Governing Board for review.

5. Approved document is posted on the NPSTC web site and is sent to the FirstNet Public Safety Advisory Committee (PSAC)

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NPSTC Broadband Reports

- All reports are located on NPSTC website:

  www.npstc.org

  – Master 700 MHz Broadband SOR

  – Launch SOR Qualitative

  – Mission Critical Voice Over LTE

  – Multi-Media Emergency Services Use Case Report

  – Local Control Definitions

  – Priority and Quality of Service

  – Push to Talk Requirements for Public Safety

Q & A

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