Broadband Implications for the PSAP

Analyzing the Future of Emergency Communications

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Why Launch a New Project?

• A number of major, broadband-based developments are leading to a paradigm shift in the role of the PSAP.
  • **FirstNet** – placing broadband communications in the hands of first responders.
  • **NG9-1-1** – will enable PSAPs to utilize broadband data in ways that will transform how the public reaches 9-1-1 and how PSTs interact with first responders.

• **Goal:**
  • To help all stakeholders – PSTs, PSAPs, 9-1-1 authorities, elected officials, and others in the public safety community prepare for the evolving broadband communications technologies that will impact PSAP operations and improve support to emergency responders.
The Process

• Launched in April 2016
• Report released in August 2017
• Nearly 80 experienced public safety and industry professionals participated
• Tasked with deliverables in 6 focus areas:
  • Operations
  • Governance
  • Cybersecurity
  • Technology
  • Training
  • Workforce
Report Overview

• Executive Summary
  o Introduces key concepts
  o Describes pre- and post-broadband environment with scenarios
  o Sets the vision of the future

• Chapter for each focus area
  o Familiarizes the reader with the subject matter
  o Includes Findings and Recommendations

• Conclusion & Next Steps
  o Lists Essential Findings and Recommendations
  o Summarizes APCO Next Steps Commitment
Executive Summary – Introducing Key Concepts

Shifts in terminology:

• “Public Safety Answering Point” → “Emergency Communications Center”
• “Dispatcher” → “Public Safety Telecommunicator”

“A common definition of “NG9-1-1”

“a secure, nationwide, interoperable, standards-based, all-IP emergency communications infrastructure enabling end-to-end transmission of all types of data, including voice and multimedia communications from the public to an Emergency Communications Center”

“PSAPs of the future will be a nerve center, managing data-rich communications via broadband technology with 9-1-1 callers and first responders.”
What’s to be Gained with a Common Definition of NG9-1-1?

- Leads to comprehensive and uniform deployments nationwide
- Accounts for network (IP) connectivity AND the functions and equipment necessary for broadband information to be received, processed, and acted upon at the ECC – an end-to-end system
- Ensures ECCs modernize 9-1-1 in a manner that remains familiar to the public
- Creates a shared understanding among all stakeholders of what’s needed to accomplish NG9-1-1
Executive Summary – Vision of the Future

- NG9-1-1 calls include streaming audio and video to PSTs
- PSTs receive precise location information and automated HAZMAT identification
- UAV transmits live video of the scene, improving situational awareness
- PSTs transmit information about the scene and patients to responders en route
- PSTs monitor biometric and HAZMAT sensors on responders throughout the incident

- Callers’ wearables with biometric sensors, in conjunction with automatic crash notification data and imagery from the scene, are used to determine patient priorities
- PSTs seamlessly dispatch units and share data with responders from multiple jurisdictions
Operations

Sample Findings
• Funding is key for initial and ongoing operational needs
• SOPs will need to account for:
  • Increased call or session times
  • Legitimacy of the info
  • Sending media back to callers
  • Triaging numerous sources of multimedia data
  • Public alerting
• Data storage, retention, and dissemination will require significant consideration

Sample Recommendations
• Develop new ANSI standards
• Create an online repository for ECCs to share NG best practices
• Build cases for resources and funding at all levels to modernize 9-1-1
• Expand public messaging and education
• Update QA/QI programs
Governance

Sample Findings

• Governance structures can facilitate NG9-1-1 deployments
  • They can be top-down and state-driven, decentralized and locally-driven, or another format – but a common feature is active engagement with local stakeholders, including ECCs
• Outdated laws and regulations can impede adoption of broadband and NG9-1-1 if they:
  • Lack sufficient funding or liability protection
  • Are legacy-focused
  • Forestall appropriate governance structures
• States lack a common definition of NG9-1-1

Sample Recommendations

• States should:
  • Establish a state-level coordinating entity
  • End 9-1-1 fee diversion
  • Update 9-1-1 funding mechanisms
  • Remove barriers to 9-1-1 modernization within existing legislation
• Congress should establish a substantial grant program to modernize 9-1-1 services across the country with incentives to achieve interoperability, drive economies of scale, and promote sustainable funding mechanisms
Governance - Avoid Historical Problems in Public Safety

- Technology is costly, siloed, & proprietary
- Relatively small vendor community, little bargaining power, and fewer options
- Interoperability is difficult and expensive to achieve, especially after-the-fact
  - Growing concern for pre-NG9-1-1 deployments
- Limited innovation and disruptive upgrades
- Disconnected from advances in consumer marketplace
  - Consumer expectations far from reality
Governance - Build Upon Existing Solutions

• Telecom networks and other industry sectors have already converted to digital, IP, broadband technology
  ▪ Smart cities, IoT, intelligent highways, are on the same path

• What do they have in common?
  ✓ Substantial range of companies innovating
  ✓ Seamless interoperability and data sharing without need for specialized interfaces
  ✓ Consumers get excited for technology upgrades
  ✓ World-wide economies of scale

NG9-1-1 needs the same
Governance - a Federal Legislative Approach

One-time injection of federal funding to upgrade legacy networks and equipment to IP-based, broadband-enabled, NG9-1-1 systems nationwide

Condition funding to achieve several objectives such as:
✓ Establishing and sustaining interoperability
✓ Leveraging widely deployed commercial standards
✓ Putting sustainable funding mechanisms in place
✓ Preventing 9-1-1 fee diversion
✓ Requiring use of open and competitive procurement practices
Training

Sample Findings

• The new opportunities and roles broadband will create for PSTs will require initial and ongoing training

• PSTs will need training in areas such as:
  • Using broadband to play enhanced roles in protecting the public and responders
  • Incorporating increased situational awareness & live video
  • Managing increased/new sources of stress

• Stakeholders (IT depts, app developers, elected officials, general public) will need training/education about broadband capabilities and limitations for public safety

Sample Recommendations

• Account for increased situational awareness
• Implement cybersecurity training
• Place greater emphasis on stress management training
• Adopt baseline training to account for resource differences
• Update training standards
Workforce

Sample Findings

• The workforce of the future will need to expand upon existing knowledge, skills, and abilities
• Recruitment and retention of tech-savvy personnel will be beneficial
• The experience of the aging workforce will remain critical
• PSTs need the appropriate level of recognition for the roles they play
• Technology adoption and staffing levels are intertwined

Sample Recommendations

• Implement recruitment and retention strategies to match the special public safety and technology skills of the PST profession
  • Support scholarship programs for the PST career
  • Increase job exposure during recruitment and training
  • Offer new professional development opportunities and incentives
• Explore new staffing models
Essential Findings and Recommendations

- Appropriate recognition and respect for Public Safety Telecommunicators is critical
- The community must work from a shared vision for the future of emergency communications
- ECCs as the “nerve centers” of emergency response
- Interoperability and standards are critical
- Federal support is needed to modernize 9-1-1
- ECCs need support to address cybersecurity challenges
APCO’s Next Steps Commitment

• Undertake an analysis to determine what new/modified standards may be needed
• Review existing training and certification programs and explore need for updates
• Create a Task Force on Public Safety Apps
• Develop an online repository for sharing next generation best practices
• Perform an occupational analysis of work performed by the next generation PST

• Develop and offer a cyber hygiene course for ECC personnel
• Review existing best practices and guidance related to GIS
• Update existing and develop new curricula related to broadband implications for ECCs
• Advocate for federal funding
• Consider a next iteration of Project RETAINS to address NG9-1-1 staffing issues
Resources

• You can access a digital copy of the report at www.apcoP43.org
• Comments are welcome and may be sent to broadband@apcointl.org
• Follow us @GRO_APCO