envision
the future of emergency communications
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** – will place 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 PSTs, PSAPs, 9-1-1 authorities, elected officials, and others in the public safety community better leverage existing technology capabilities and prepare for the evolving broadband communications technologies that will impact PSAP operations and improve support to emergency responders.
The process

- Launched in April 2016
- 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 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”

“A common definition of “NG9-1-1”

- “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 PSAP – an end-to-end system
- Ensures PSAPs 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 PSAPs 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 PSAPs

• 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
• PSAPs 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 PSAP personnel
- Review existing best practices and guidance related to GIS
- Update existing and develop new curricula related to broadband implications for PSAPs
- 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