

Emergency Communications Training

Anticipating the Challenges of Next-Generation 9-1-1



A Verint Systems White Paper

Preface

As Next-Generation 9-1-1 (NG9-1-1) evolves from a conceptual vision into a defined, architected set of standards, its impact on EMS, 9-1-1 centers, and other public safety answering points (PSAPs) is expected to be significant.

In addition to triggering major changes to the technological infrastructure currently used for emergency communications, NG9-1-1 will necessitate new processes, procedures—even skill sets—within communications centers. The extent of these changes will almost certainly make training call takers and dispatchers vital to NG9-1-1 success. However, this poses a potential problem, since funds for training are in short supply, and training programs tend to be among the first items trimmed from the budget when agencies must redirect their resources.

This paper examines these challenges and proposes an innovative way for agencies to address them using Impact 360® for Public Safety Powered by Audiolog™. With mission-critical recording, investigation and analytics, quality assurance, eLearning and coaching, and citizen survey functionality, Impact 360 for Public Safety can help emergency communications centers take advantage of their current infrastructure as well as harness the technology and processes that will be deployed in their NG9-1-1 initiatives. Through flexible, extensible functionality that can operate in mission-critical environments, Impact 360 for Public Safety can help PSAPs train and optimize their workforce to meet the demands of NG9-1-1 and other emergency communications initiatives.

About Verint

Verint® Systems Inc. is a leading provider of Actionable Intelligence® solutions for an optimized enterprise and a safer world. More than 10,000 organizations in over 150 countries rely on Verint solutions to perform more effectively, build competitive advantage, and enhance the security of people, facilities, and infrastructure.

The 9-1-1 System: In Need of Rescue

Today's consumers can communicate using an unprecedented array of devices that may be wireless, mobile, and capable of conveying more than just voice calls. These include:

- Cell phones with voice, video, photo, sound, and text capabilities
- PCs with voice, video, sound, and applications such as "soft" phones
- Automobiles equipped with telematics systems (such as OnStar) that can provide crash or vehicle location information automatically
- Automated alarm and sensor systems for homes and businesses
- Personal devices—such as clothing or ankle monitors—that are equipped with sensors

As these devices become increasingly popular, it is not surprising that the public assumes they can be used to communicate with the existing 9-1-1 system. Unfortunately, this is not the case.

The current 9-1-1 system was designed and built some 40 years ago using analog technology over copper land lines. Although many basic 9-1-1 systems were upgraded in the 1980s to "Enhanced 9-1-1"—which incorporates automatic number identification (ANI) and automatic location identification (ALI)—the basic system infrastructure has remained unchanged. Now, the U.S. faces a situation in which individuals can use text messaging to order a pizza, but not to contact 9-1-1.¹

Next-Generation 9-1-1

Government agencies and public safety organizations are taking action to update the 9-1-1 network. The term Next-Generation 911 (NG9-1-1) is commonly used to refer to this modernization. According to the U.S. Department of Transportation (DOT), the long-term goal of the NG9-1-1 project is "to enable the general public to make a 9-1-1 'call' (any real-time communication—voice, text, or video) from any wired, wireless, or Internet Protocol (IP)-based device, and allow the emergency services community to take advantage of Enhanced 9-1-1 (E9-1-1) call delivery and other functions through new internetworking technologies based on open standards."²

Essentially, NG9-1-1 is a complete overhaul of the system from the ground up. It promotes integration and interoperability, making possible a unified emergency services network that can handle large-scale disasters, assist the smallest PSAPs with after-hours coverage, broadcast emergency alerts and notifications, and more.³

Some of the most significant differences between the current E9-1-1 system and NG9-1-1 system are shown in the following table.

¹U.S. DOT Next Generation 9-1-1 Project: A National Framework and Deployment Plan, "Briefing for NENA NG Partner Program," March 6, 2008, slide 2.

²Ibid., slide 3.

³e911.utah.gov, "Utah 911 Committee and NG9-1-1 Preparation," August 18, 2008.

Comparison of E9-1-1 and Next-Generation 9-1-1

E9-1-1	Next-Generation 9-1-1
All communications involve voice callers using telephones and analog lines.	Voice, text, or video information from many types of communication devices is sent over IP networks.
Hardware, software, and network are specific for E9-1-1.	Hardware and network are not specific for 9-1-1.
Most information is transferred via voice.	Advanced data-sharing is performed automatically.
Calls are routed based primarily on address and location through legacy selective routers, with limited forwarding and backup capability.	The physical location of the PSAP is immaterial. "Calls" are routed automatically based on geographic location and enhanced lookup capabilities.
There is limited ability to handle overflow situations, resulting in the possibility that callers may receive a busy signal.	PSAPs can control "call" congestion, including rerouting calls automatically to other PSAPs based on location, other data, and business rules.

Sources: U.S. DOT Next Generation 9-1-1 Project: A National Framework and Deployment Plan, "5th Standards Development Organizations Emergency Services Workshop," October 10, 2008 and NG9-1-1 and Impacts, NG Partner Program, www.nena.org, March 6, 2008.

Impact of NG9-1-1 on Public Safety Answering Points

NG9-1-1 is expected to necessitate sweeping changes to the current 9-1-1 system. These will go far beyond equipment replacement and new software—they will also entail changes in operational procedures, training, funding models, and state—and possibly federal—regulations and laws.⁴ While specifying and implementing NG9-1-1 technology is clearly a priority for system rollout, training the call takers and dispatchers who will use it is also important. PSAPs must be prepared for new processes and procedures resulting from:

- New equipment and software
- New forms of information, including real-time text, images, and video, any or all of which may arrive simultaneously
- New call transfer capabilities
- New databases
- New decision support tools to help control and interpret data
- New data security requirements
- New connectivity with other PSAPs, as well as with local, regional, and national emergency agencies⁵

⁴Emergency Communications: The Future of 911, CRS Report for Congress, Linda K. Moore, Congressional Research Service, November 21, 2008, p. 2.

⁵ NG9-1-1 and Impacts, op. cit., slide 15.

NG9-1-1 is being designed to support the use of virtual PSAPs, as well as to be capable of routing calls (meaning requests for assistance, as opposed to telephone calls) to emergency entities other than PSAPs⁶. These may include suicide prevention and poison control hotlines, as well as “N11” numbers. Although codes in use vary from city to city, they include:

- 211:** Community social services
- 311:** Non-emergency police call and city services
- 411:** Directory assistance
- 511:** Traffic and transit information
- 611:** Repair service
- 711:** Telecom Relay Services (hearing/speech impaired)
- 811:** Phone company customer service
- 911:** Emergencies

This level of inter-agency routing and connectivity will translate into a profound change in PSAP operating procedures. Defining these new procedures, communicating them to PSAP employees, and then evaluating their subsequent performance in adhering to them will be a significant effort.

Going further, NG9-1-1 may require PSAPs to rethink some of the skill sets required in their communications centers. For example, in an IP environment, the need for IT (as opposed to telecom) resources and data security expertise will be critical. New sources of data will mean more information to store and access, making database skills important.

With evolving procedures and skill sets, the need to coach staff will be more critical than ever—not only to help enhance PSAP performance, but also to foster a better working environment and help reduce employee attrition. Quality assurance will remain important, but inherently provides an internally focused view of performance. External measurements—such as citizen surveys—can help provide an outside perspective by showing how the public perceives 9-1-1 and NG9-1-1 services.

PSAP Training in the NG9-1-1 Environment

Today, training for PSAP dispatchers and call takers can take several forms, including coursework created internally or externally, certification programs offered by organizations such as the National Emergency Number Association (NENA), and college courses and degree programs. Historically, training programs for emergency communications center personnel have been stymied by a lack of federal grants to pay for them. Moreover, federal grant programs tend to focus on funding equipment expenditures, rather than training, which is often the first budget item to be cut by local governments.⁷

⁶ NG9-1-1 and Impacts, NG Partner Program, www.nena.org, March 6, 2008, slide 3.

⁷ Written statement of Wanda McCarley, President of the Association of Public-Safety Communications Officials (APCO) International, before the U.S. Senate Committee on Commerce, Science, and Transportation, April 10, 2007, pp. 11 – 12.

of developing 9-1-1 services for unserved communities, the proposed rules for the grant program would favor purchases of hardware and software for E9-1-1 and IP-enabled systems, as well as training in connection with these investments.⁸

Presumably, training programs for IP-enabled systems deployed as part of NG9-1-1 would qualify to receive funds. There is, however, a challenge associated with the ICO funding: The ICO is a temporary organization whose authorization expires on October 1, 2009. Under the proposed rules of the grant program, states have until 2012 to use the funds granted to them, but only 60 days in which to submit their requests.⁹

This timetable is to help ensure that the grant process is completed before the ICO's authorization ends. The bottom line is that funding for NG9-1-1 training is by no means secure. PSAPs and their governing organizations must plan carefully to help ensure that training is available when needed.

Impact 360 for Public Safety: A Workforce Optimization Solution

One innovative way to help address training is through the acquisition of equipment or systems that offer functionality supporting skills development.

Impact 360 for Public Safety Powered by Audiolog is a next-generation public safety offering designed to help meet the stringent and mission-critical requirements of PSAPs. The solution is offered by Verint®Systems, an experienced provider of public safety solutions whose portfolio includes proven and patented technologies for 9-1-1 emergency services and workforce optimization.

Impact 360 for Public Safety brings together functionality for voice and screen recording, quality assurance, analytics, scorecards, call taker training, and citizen surveys into a flexible, easy-to-use, packaged workforce optimization offering. The solution is built on an open architecture and uses standard PC components. In addition to helping PSAPs comply with state standards, board, or agency mandates for call handling evaluation and reporting, Impact 360 for Public Safety can offer deeper insight into calls to help reconstruct incidents and facilitate investigations.

The foundation of the solution is Verint Audiolog, a proven multimedia call recording, quality assurance, retrieval, and archiving solution. Audiolog features a single platform across IP, TDM, and radio, integrated quality assurance for call takers and dispatchers, a multi-channel player for incident replay, screen recording, and instant recall for playback of current and recent calls. In addition to recording telephone and radio interactions through Audiolog, Impact 360 for Public Safety also features:

⁸Moore, op. cit., p. CRS-18.

⁹47 CFR Part 400, E-911 Grant Program, Section 400.10. Federal Register, October 3, 2008

- **Multimedia Recording**—Captures telephone and radio interactions and related data—including phone numbers and locations—and helps increase immediacy, accuracy, quality and overall service. It also provides the option for capture of console PC screens.
- **Quality Assurance**—Enables efficient call review and scoring to help ensure call taker proficiency, skills enhancement, and regular performance feedback, along with compliance with state and agency standards. Flexible form creation, embedded call playback, and dynamic reporting provide maximum impact from invested quality assurance time.
- **Incident Reconstruction and Analytics**—Enable call searches and make the retrieval of important recordings easier through Application Event Triggers that tag calls with key information, such as CAD incident ID or call taker name. The result is the potential for better investigative insights.
- **eLearning and Coaching**—Deliver training and timely communication to call takers' desktops, addresses skill gaps, and helps increase productivity and staff retention.
- **Performance Scorecards**—Empower call takers and dispatchers to view personal performance in relation to agency goals.
- **Citizen Surveys**—Deliver outbound surveys as follow-up to citizen calls, introducing a proactive approach to quality reinforcement and citizen satisfaction, and helps to build citizen confidence.

A New Dynamic for Quality Assurance, Training, and Coaching

Unlike call logging systems, Impact 360 for Public Safety provides quality assurance, training, and coaching functionality that can work separately or together to help address staff performance and skills enhancement.

Whether deployed in today's 9-1-1 environment or in an NG9-1-1 communications center, the solution's easy-to-use quality assurance functionality can help agencies enhance service levels while facilitating compliance with industry standards and government mandates on call handling evaluation. The solution can measure, analyze, and document the performance of call takers, dispatchers, and supervisors.

Templates help simplify the creation of evaluation forms and questions, while optional, role-appropriate scorecards provide a library of predefined key performance indicators (KPIs) or the ability to create custom KPIs for measuring and tracking employee performance.

Supervisors can play back and score calls and console screens easily using the embedded, browserbased interaction assessment tool. Scoring can be calibrated among evaluators, helping agencies prepare more consistent evaluations.

Going further, Impact 360 for Public Safety provides eLearning functionality that can help PSAPs train call takers, communications center personnel, and dispatchers. The solution allows captured interactions to be edited easily into "learning clips" highlighting best practices. These can be emailed directly to the calltaker desktop or stored for later review. In a profession in which the timeliness and appropriateness of response can literally make the difference between life and death, the value of listening to "real world" examples of best practices can be significant.

Additionally, Impact 360 for Public Safety provides coaching functionality that can help supervisors schedule, track, review, and report on individual development opportunities. Automating the workflow associated with coaching helps ensure that coaching sessions occur on a regular basis and can help improve staff performance and morale. Supervisors can even attach files to coaching session records, simplifying the administrative tasks necessary for accountability.

The value of coaching can extend beyond helping employees enhance their performance: It can also provide PSAPs with a pathway for cultivating the supervisors and managers of the future.

A recent survey of the EMS workforce funded by the National Highway Traffic Safety Administration and the Health Resources and Services Administration's EMS for Children program found that participating agencies were concerned by the approaching retirements of employees in the baby boomer generation.¹⁰ This issue goes beyond day-to-day staffing—it poses a major concern because of the organizational knowledge and expertise that may be lost. Survey respondents reported that more than half (50.3 percent) of their managers fell into the baby boomer demographic, and within that group, 40.8 percent are eligible to retire in the next 10 years. This underscores the importance of recruiting, coaching, and mentoring staff—processes that are made easier with tools in place to support them.

Along the same lines, coaching can help address dispatcher/call taker stress and potentially reduce attrition. Stress is inherent to the emergency response field; however, dispatcher and call taker stress is not always caused by the same things as the stress experienced by police officers, fire fighters, and EMT/paramedics.¹¹ A routine run for field units might be extremely stressful for the dispatcher, and viceversa. Dispatchers may not always know the outcome of a situation, or sometimes may be aware that there has been a negative outcome in spite of their best efforts. These situations can be traumatizing—and the dispatcher may not have a way to discharge the anxiety. Often, he or she must remain at the console and continue to handle calls.

Coaching—particularly when augmented with “learning clips”—can help call takers and dispatchers work through their stress, pinpoint areas of specific concern, and provide a springboard for issues and ideas that might not otherwise be addressed. By analyzing specific situations and the manner in which they were handled, coaches and call takers/dispatchers can gain a broader perspective and discuss strategies for handling similar events in the future.

By building on the interrelationship among quality assurance, training, and coaching—as opposed to treating them as discrete activities—Impact 360 for Public Safety can help PSAPs foster a cycle of continuous performance improvement.

¹⁰ Journal of Emergency Medical Services, “JEMS 2008 Salary & Workplace Survey,” October 1, 2008, p. 5.

¹¹ “9-1-1 Magazine, “The Top 10 Things You Should Know About Dispatcher Stress,” Francis X. Holt, November/December 1997, p. 18.

A Broader Perspective from Surveys

Assessing the public's opinion of 9-1-1 services can be challenging, but may well be crucial for benchmarking as NG9-1-1 begins deployment. A joint research program conducted by the Journal of Emergency Medical Services (JEMS) and Fitch & Associates surveyed 200 of the most populated U.S. cities on a variety of issues pertaining to EMS. Three-quarters (75.2 percent) of respondents reported measuring customer service data. Of this group, 84.8 percent used self-created survey tools, including paper surveys and random, follow-up phone calls.¹²

From an internal perspective, surveys can provide agencies with an efficient way to assess employee sentiment and satisfaction. The EMS workforce survey referenced earlier found that 23.5 percent of participating EMS providers deployed in-house employee satisfaction surveys.¹³ Understanding how employees feel can provide agencies with valuable input for policy making and employee retention initiatives.

Impact 360 for Public Safety provides innovative survey functionality that can add a new dimension to assessing internal morale as well as public opinion of 9-1-1 services. Surveys can be created quickly and easily using Web-based templates and sent to recipients via email or phone. By providing a simple, but effective means for creating and conducting surveys, Impact 360 for Public Safety can introduce a proactive approach to quality reinforcement and citizen satisfaction, helping to build staff morale and citizen confidence.

A Foundation for Future Initiatives

Communications methods and the types of data they convey have evolved steadily since 1968, when the first 9-1-1 call was placed in Haleyville, Alabama. NG9-1-1 represents a significant step forward in emergency communications and is expected to provide PSAPs with a broader set of richer data, as well as a more flexible pathway to meet future requirements.

Solutions such as Impact 360 for Public Safety can help PSAPs better prepare for and manage this transition by bringing together functionality for voice and screen recording, quality assurance, analytics, scorecards, call taker training, and citizen surveys into a packaged offering. By combining multiple functions into a scalable, extensible platform, Impact 360 for Public Safety can help EMS, 9-1-1, and other PSAPs better meet their current mission while positioning themselves to take on the new challenges that lie ahead.

¹² Journal of Emergency Medical Services, "2007 JEMS 200-City Survey: Is The Status Quo Acceptable?" David M. Williams, February 2008, p. 63.

¹³ Journal of Emergency Medical Services, op. cit., p. 4.