Deploying Next Generation 911

BY ANNIE KITCH

For more than 50 years, the 911 emergency system has been the primary resource for the public to contact during emergencies. As mobile use and internet protocol (IP) have become standard forms of communication, the original 911 system and its outdated technology has become less effective, prompting lawmakers to work on bringing 911 technology up to date.

The National 911 Program's 2017 National 911 Progress Report shows that 80 percent of consumers use cellular phones to call 911 while roughly 16 percent use landline phones. The legacy 911 system was originally built to support calls from landline telephones that are then connected to a 911 call center, or public safety answering point (PSAP). The caller's phone number and address are automatically displayed on a screen, providing critical information for emergency personnel. As technology quickly evolves, however, this system does not enable PSAPS to receive or share photos or videos, or to transfer calls between PSAPs.

States and local governments are actively working to plan and implement next generation 911 (NG911) systems across their states. These systems will allow 911 telecommunicators to receive not only voice calls, but also data relevant to an emergency, such as photos, texts and videos. PSAPs will also be able to reroute 911 calls in the event of call overload or damage to a PSAP. This IP-based approach inputs a caller's information into the 911 system regardless of the device, providing complete, real-time information for 911 centers and emergency responders.

Currently, state and local governments that have begun deploying NG911 have implemented each system according to their own form of governance and cost restrictions. As technology continues to advance at a rapid pace, however, state and local governments are recognizing the need for standard guidelines for implementing NG11.

Did You Know?

• Ten out of 47 states can process and interpret 911 caller location and phone number data statewide using NG911 technology.

• Approximately 240 million calls are made to 911 in the U.S. annually, with 80 percent or more coming from wireless devices.

• There are roughly 100,000 emergency dispatchers working in nearly 6,000 public safety answering points in the U.S.

State Action

Because operating the nation's 911 system is the responsibility of state and local governments, they have largely been left to implement NG911 networks. States often deploy components of NG911 incrementally. For example, some states are working on processing emergency calls for more service types, such as wireless calls and text messages. Other states, however, are in the initial phases of convening a task force to develop a plan to implement NG911. According to the National 911 Program's 2017 report, 22 states reported being in the installation and testing phases of NG911 deployment—such as updating their IP system—and 20 states reported adopting a statewide NG911 plan.

Text-to-911 is viewed as a vital component to advancing 911 systems for people with disabilities and those who cannot make a voice call to request help. In every state except South Dakota, PSAPs provide or plan to deploy text-to-911 technology, which is generally supported by NG911, according to the FCC's PSAP Text-to-911 registry and 2017 Annual 911 Fee Report.

Iowa, Indiana, Maine and Vermont were the first states to offer text-to-911 technology statewide. Virginia was the most recent and only state to enact legislation relating to statewide text-to-911 in 2018. The state's new law requires PSAPs to receive and process text-to-911 requests for emergency assistance by July 1, 2020.

Other states do not offer NG911 features yet, as they are still in the planning phase. Colorado enacted legislation in 2018 that requires the creation of a "State of 911" report outlining the state's plan to transition to NG911. The report must also include information on the state's current funding sources and whether they adequately support the transition and implementation of NG911. Maryland and Nebraska also enacted legislation in 2018 that establishes a commission to advise on the deployment of statewide NG911.

States that have implemented components of NG911 have become models for lessons learned and successes experienced when deploying NG911. The National 911 Program's 2018 Next Generation 9-1-1 Interstate Playbook offers a comprehensive review of issues facing NG911, geographic information systems in the 911 system, text-to-911 and state best practices. The report uses the challenges and opportunities related to NG911 planning or implementation, such as preparing PSAPs for text-to-911 functions, as the foundation for its recommendations.

Federal Action

To develop potential strategies for a federal funding mechanism to implement NG911, Congress passed the Next Generation 911 Advancement Act of 2012. The act required the Implementation Coordination Office (ICO) to estimate the costs to implement NG911 service nationwide.

The NG911 cost estimate report, which ICO submitted to Congress in October 2018, estimates the cost for deploying NG911 to be between $9.5 billion and $12.7 billion. The ongoing costs for functions such as equipment refreshes and operating the systems—to be shared among localities, states and federal agencies—should be between $13.5 billion and $16 billion. The estimated period for implementation is 10 years, assuming no scheduling or funding delays.

The Federal Communications Commission (FCC) established wireless Enhanced 911 (E911) rules to support the transition of 911 services from landline-only to wireless and cellular technologies during the 1990s. The FCC is currently involved in facilitating the deployment of text-to-911 and increasing the accuracy of 911 call location data.

Recent efforts related to NG911 also include the establishment of the First Responder Network Authority (FirstNet), an independent authority housed within the U.S. Department of Commerce. FirstNet is required to develop a nationwide public safety network for first responders, using the same digital, IP-based model used for NG911. The National 911 Program and National Association of 911 Administrators' (NASNA) NG911 and FirstNet guide points to FirstNet's two components: a core network and a radio access network. FirstNet collaborated with each state to develop plans specific to state network needs. States were given the option for FirstNet to maintain both networks or to build their own radio network if it meets FirstNet's standards for interoperability with the network core. AT&T was selected to build the network in 2017.

Broadband allows both FirstNet and NG911 to respond to all 911 calls and support first responders by sharing digital information. The concept behind merging the two systems is that as critical information, such as photos, floor plans and medical records, are sent to PSAPs, call centers can make this real-time data accessible quickly and seamlessly to emergency responders. To use a simple example, if a 911 caller sends a photo of a suspect to the PSAP, both NG911 and FirstNet must be operational and interconnected for that photo to reach a police patrol car.

Evelyn Bailey, NANSA's executive director, stated in her letter to NG911 and FirstNet stakeholders, "Seamless interoperability between NG911 and FirstNet is not optional; it is elemental, foundational, essential to achieving the vision of both systems."

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