



Insight

Advancing Communications for First Responders

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Introduction

During the events following the 2013 bombing at the Boston Marathon, first responders experienced intermittent service in their public safety communications caused by congested commercial networks. The unreliable service delayed first responders from sharing high volumes of data with law enforcement agencies, including the video and photos which ultimately identified the perpetrators. The lack of a dedicated communications network for public safety in the United States has, at times, rendered first responders unable to share vital communications and data with one another due to network congestion. To address the shortcomings of public safety communications, Congress established the First Responder Network Authority (FirstNet) in 2012. Born from recommendations by the National Commission on Terrorist Attacks Upon the United States following the September 11 terrorist attacks, FirstNet is an independent authority within the U.S. Department of Commerce purposed to develop, build, and operate a nationwide public safety broadband network dedicated to America's police, firefighters, and emergency medical services.

The Need for a Nationwide Public Safety Broadband Network

First responders currently use commercial networks – the same networks used by businesses and consumers – for mobile data and applications. During public safety crises commercial networks can become quickly congested, causing first responder calls to be blocked or dropped. Additionally, first responders use more than 10,000 land mobile radio (LMR) networks for “mission critical voice.” This is public safety communications, including, but not limited to announcing incidents to responding agencies, updating incidents, declaring emergencies and requesting assistance, requesting resources to an event, and coordinating responses. These networks are not interoperable, meaning police officers on scene cannot communicate with firefighters or other public safety personnel on site.

When FirstNet launches its nationwide public safety broadband network, the network will initially provide first responders with mission critical, high speed data, video, image, and text capabilities to supplement the voice capabilities of LMR networks. The FirstNet network will also be used to send location information. Public safety entities will continue to rely on LMR networks for mission critical voice as the FirstNet network evolves. Eventually, the FirstNet network will offer mission critical voice that will fix the interoperability of the current network. However, delivery of mission critical voice over LTE is not expected until later phases of the network's build out.

An Innovative Public-Private Partnership

In March of 2017, the FirstNet authority board created a public-private partnership with AT&T to build out the FirstNet network. Under the 25-year agreement, FirstNet will provide 20 MHz of telecommunications spectrum and payments of \$6.5 billion over the next five years to support the network buildout, as construction goals are

met. AT&T will spend about \$40 billion over the life of the contract to build, deploy, operate, and maintain the network. Additionally, AT&T will connect FirstNet users to the company's telecommunications network assets, which are valued at more than \$180 billion.

All 50 states, the District of Columbia, and all U.S. territories received individual state plans in June 2017 outlining customized plans for the network buildout. States and territories were given 45 days to review the plans and exchange feedback with FirstNet. After the 45 days, state or territory governors were given 90 days to decide whether to opt-in or opt-out of the program. The decision by states and territories to opt-in transfers the financial, operational, and technical risks of building, operating, maintain, and improving the state's or territory's radio access network to FirstNet and AT&T. The opt-in/opt-out period for all 50 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands concluded December 28, 2017. Decisions from the territories of American Samoa, Guam and Northern Marianas Islands are not due until March 12, 2018.

Opting-in to FirstNet

All 50 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands have decided to opt-in to the FirstNet deployment plan. Since December 29, 2017, first responders in all 50 states, the District of Columbia and the two territories have had access to LTE coverage run on AT&T existing LTE infrastructure. First responders in these states and territories also have access to services already available on the FirstNet network, such as priority and preemption, that help to assure public safety communications will not be interrupted during network congestions. Priority moves first responders to the front of communications lines to prioritize their network needs, while preemption goes one step further and additionally shifts non-emergency traffic to another line when lines become occupied. FirstNet is currently the only broadband network to provide preemption for public safety. With the power of priority and preemption, first responders will no longer have to compete with non-emergency users for a connection. They'll be able to reliably connect to the network to get the information they need when they need it. Voice and text messages, images, videos, location information, data from apps and more will be supported in real time, helping first responders quickly work together to save lives.

Conclusion

The communications challenges public safety experienced during the national disaster, terrorist attacks, and even high-attendance events like the Super Bowl has made clear that first responders need their own network. The decision of all states, the District and Columbia, Puerto Rico, and the U.S. Virgin Islands to sign on to the FirstNet network gives first responders nationwide a reliable network. Payments by FirstNet and investment of roughly \$40 billion by AT&T will remedy the current communication challenges faced public safety officials and spur innovation, while creating over 10 thousand jobs. Ultimately the development of the nationwide public safety broadband network by the public-private partnership will improve safety for first responders who face incredible risks every day to protect the American people.