



# Case Study: A statewide, integrated approach to next-generation 9-1-1

## Overview

Establishing the infrastructure for 9-1-1 service across the nation was a great achievement in the 20th century. Some estimates put the annual number of 9-1-1 calls at 240 million nationally. Today, the initiative to upgrade that infrastructure to Next Generation 9-1-1 service (often abbreviated to NG9-1-1) reflects the way the population now communicates with mobile phones and multimedia as well as across state lines. The more information first responders have the faster they can bring the right resources to bear and plan for incident response. The ubiquity of the mobile phone makes it possible for citizens to report issues from anywhere and supply information in numerous modes (e.g. text, video, pictures) beyond the traditional phone call.

The shift to NG9-1-1 is happening unevenly across the nation due to the complexity of technology, funding, training and management. Different jurisdictions and agencies can be involved, from local to state officials. Differing opinions on how to approach implementation must be bridged and a common path forward charted. The experience of one U.S. state provides an example of how to make a smooth transition to an efficient, integrated solution.

## Challenge: Bridging open spaces to emergency services requires the right network

First response is obviously a local activity. Police, fire and other responders must be close to the people they protect. They rely on Public Safety Answering Points (PSAP), the operations centers where calls are taken and emergency services are dispatched, to do their jobs. If the PSAP is the heart of the emergency response system, the networks leading to and from it are the nervous system making all actions possible.

One state's Public Safety Department faced significant challenges. It needed to upgrade 28 different PSAPs across the state, along with two backup sites. These served a combination of city and rural areas. Equipment was aging and could not handle the transition to next generation 9-1-1. The whole state needed to move together. State leadership stepped in to pull all agencies together into a unified plan.

One of the first agreements among the assembled officials was that the current 9-1-1 network provider did not have the reliability to build the necessary trust to be a partner for such an important transition. The state's most recent experience with another solution provider had been disappointing with several outages.

State and local officials coordinated on their next generation plans. They agreed they wanted a single new provider to manage the network and offer ongoing support to call routing systems in each PSAP. As the need to move forward on NG9-1-1 grew in importance, the state put out an RFP. They received 13 bids and selected CenturyLink to build the statewide system in part because of CenturyLink's commitment to the state over the years.

## Solution: Deploying the right tools on both ends of the PSAP system

Working with state and local officials, CenturyLink architected an end to end solution for the statewide NG9-1-1 network, a total of 28 PSAPs plus two backup locations. The PSAPs will be connected to each other and to the public via CenturyLink's carrier-class MPLS backbone network. The IP-based network brings the bandwidth to accept video, text and other digital inputs from the public. The network can route calls based on location to the appropriate PSAP.

Inside the PSAPs, CenturyLink is deploying the Managed Emergency Call Handling (MECH) system. This software framework sets up calls for dispatchers to handle and integrates any additional data such as geographic information or video for the dispatcher's use. MECH also provides a capability called "hot seating" that enables dispatchers who must abandon a PSAP that has been damaged or potentially under threat of disaster to log in at a backup site and maintain full functionality for their regional responsibilities.

This solution was enabled because the state was a CenturyLink customer for many years prior to moving to another 9-1-1 provider. CenturyLink kept its network infrastructure in place as a backup in case it was needed. So, CenturyLink staff had active relationships with state and local personnel, performing its own technological rescue operation more than once as the primary provider faltered. The RFP concluded with CenturyLink becoming the trusted advisor for the state's move to NG9-1-1.

There was no capital outlay required. Most of the network infrastructure was already in place and CenturyLink invested the capital where necessary so the state had no capital expense to get through appropriations. The CenturyLink team worked out a pricing model for the operations side that could be spread across the jurisdictions and the state.

## Results and future plans: More communication modes, more nodes on the network

CenturyLink set an aggressive schedule to bring up all PSAPs as quickly as possible. Once training commenced, CenturyLink teams worked with two to three sites per week, training personnel and testing systems at each of the 30 sites, including the backups.

The entire state will benefit from a fully managed NG9-1-1 system with no major capital outlay. The state can now predict monthly costs on an operating basis and focus its limited IT resources on citizen-facing investments rather than maintaining aging equipment.

The move to the IP network effectively future-proofs the entire state's 9-1-1 system because of the coordination between state and local agencies. Plans include adding text-911 service and the capability for devices or automated systems (such as OnStar® sensors in a car involved in an accident) to call PSAPs without human intervention. Eventually, cameras monitoring roadways can be linked to the MPLS backbone to increase the amount of information available to first responders. Longer-term plans also exist to connect the state's system to 9-1-1 systems in adjacent states to enable collaboration on region-wide disaster or recovery operations.

Because of visionary state officials, the entire citizenry will be safer and able to use modern tools to help first responders. It is a model that CenturyLink can help implement for other states.