# Are You Ready for the New 911 Regulations?

By: Lydia Runnels

Implementing and managing 911 technology—a critical component for overall employee safety—has never been more complicated. The FCC estimates that for every minute reduced on emergency response times, 10,000 lives could be saved each year. Trends in the workplace increasingly complicate the process of protecting employees with support for emergency calling.
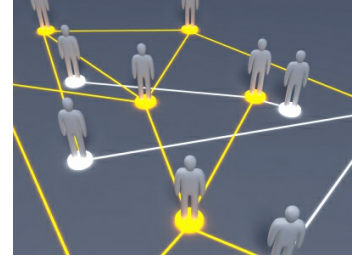
Workers are more mobile and more distributed than ever before, relying on a variety of devices for communication and, potentially, 911. Companies are juggling a mixture of cloud, on-premise, or hybrid telephony solutions along with a variety of unified communications (UC) platforms. And amid all this complexity, the FCC recently adopted new rules in response to comprehensive E911 legislation at a federal level that will affect nearly every organization in the United States at some point in the near future.

Many companies across the United States have grappled with these challenges firsthand. As an example, Bandwidth's headquarters occupies three separate buildings on the North Carolina State University campus in Raleigh. There are regional offices in Denver and Rochester plus dozens of remote, work-at-home employees scattered around the country. Transparent communication and in-person interaction are encouraged at the company, which means employees are moving frequently between buildings, floors and rooms to meet and collaborate. All of this mobility makes for a stimulating and fun place to work but creates problems when it comes to locating callers in an emergency. Adding to this, many (but not all) employees have transitioned away from desk phones to laptop and mobile-based softphone applications. Employees may be, quite literally, anywhere during an emergency. A critical question is how to determine their location if they need help and subsequently call 911?

Moving telephony to the cloud requires careful planning and preparation to retain the integrity of 911 access, so let's start with an understanding of how enterprise 911 works in a little more detail.

911 Location Management

The performance of 911 technology begins and ends with the integrity-of-location

information for the user endpoint (phone). Managing all 911 endpoints locations within an enterprise today requires an IT administrator to accurately provision location information for all the 911 endpoints in the organization into an Automatic Location Information (ALI) database, which is maintained by the local phone company in that jurisdiction. This provisioning process is straightforward enough but is also labor-intensive. Every time a new user is added, moves or leaves the organization, that endpoint information must be added or updated—ideally, as quickly as possible. In addition, the administrator has to keep location information up to date in all the local ALI databases anywhere the company has offices with employees. Any organization—even one that has an adequately staffed IT department—will find this process challenging and a potential distraction from other mission-critical responsibilities.

Serious problems can occur when organizations don't provision accurate address information specific to each enterprise location. In most cases, a default location—usually the billing address for the PBX or VoIP switch—will be used to route the call to public safety. It's this information that will appear to the 911 call-taker. This address may or may not be near where the call originates. This means that incomplete or incorrect address information can result in 911 calls routing from a regional office to a local public safety answering point (PSAP) across the country. As one might imagine, this can dramatically slow 911 response times, as these calls must be manually transferred to the appropriate PSAP. During an emergency, address inaccuracy wastes valuable and potentially life-saving seconds and even minutes. This risk is more pervasive than most organizations realize. In 2013, NENA, the public safety industry association, estimated that 70 percent of all multi-line telephone systems (MLTS) were not compliant with correctly provisioned location information.

911 in an On-Premise Environment

To support voice and 911, IT departments historically maintained expensive TDM, PRI, or POTs circuits from their PBX or VoIP server into the local PSTN. In fact, this is how many companies manage their telephony today. When a 911 call is made, it reaches the PSTN and is directed to a special 911 tandem (called a Selective Router), which uses location information provisioned by the organization to route the call to the appropriate PSAP responsible for dispatching first responders.

Moving Telephony and 911 to the Cloud

Organizations of all sizes are transitioning some or all of their telephony to the cloud. This shift helps organizations gain more control over their voice solution while reducing infrastructure costs. Without proper planning and implementation, however, this move can have negative consequences for 911.

By replacing dedicated circuits with cloud-based SIP trunking, companies are replacing previously essential connections to the PSTN and public safety wherever they have employees. This is where having a 911 service provider—like Bandwidth—capable of supporting cloud-based communications with interconnection into all of public safety becomes critical and can even simplify some 911 workflows. Keep in mind that there are roughly six thousand 911 call centers in the US and Canada, so the numbers are staggering. Companies will be able to provision all of the 911 endpoints in all of their locations in a centralized database and service providers can populate the regional ALI databases and use the location information to route the call to public safety, making it available to the 911 call taker for emergency dispatch.

Relying on Dynamic 911 Location

Increasingly, companies are moving away from desktop phones in favor of more flexible and cost-effective softphone applications. For many employees, desk phones are still an essential tool for productivity. Others rely on in-person interactions, instant messaging, and email for their primary means of communication, with softphone

applications filling in the gaps. These users may spend less time at their assigned workstation and more time collaborating in teams or working alone on solo projects.

These types of enterprises require more "dynamic" 911 location determination—that is, the 911 location that is not pre-assigned to one user per an assigned workstation but is instead determined at the time of a 911 call. Dynamic 911 solutions leverage Presence Information Data Format-Location Object (or PIDF-LO) technology, which allows organizations to pair their 911 callers with a current location at call time. The dynamic location is used to route the 911 call and is made available to the PSAP for emergency response. It is the most accurate method available today to help organizations support highly mobile IP-based users while meeting both existing state and new federal E911 legislative requirements.

Understanding 911 Regulations

[Just last August,](#) the FCC adopted two new rulings applicable to 911 calls originating from multi-line telephone systems (MLTS). These new rules are Kari's Law and Section 506 of RAY BAUM's Act.

Kari's Law requires direct dialing to 911. In other words, it eliminates a prefix such as an "8" or "9" required to get a trunk access line. Kari's Law also requires notification of designated personnel when a 911 call has been made. This may include a security team or front desk attendant. These notifications allow someone within the enterprise to potentially guide first responders as they arrive on-scene, help them navigate the entrances and building and may even be able to provide initial medical support such as CPR to callers. Kari's Law goes into effect on February 16, 2020.

Section 506 of RAY BAUM'S Act requires that a "dispatchable location" be provided to public safety. A dispatchable location is more precise than just the street address of the organization; it may include such additional information as building name or number, floor, suite and/or room number, if applicable. First responders value this location information above all other data points because it represents the door that they need to find to assist 911 callers.

Even in the absence of mandatory federal regulations, companies may be at risk for litigation and negative media attention if end users are not able to connect to 911 quickly and accurately during an emergency. Employees may have an expectation that any phone in their organization has 911 calling enabled. Instructing employees to "only call 911 from your mobile device" may not, in all cases, be the most practical or natural response when a panicked employee is involved in a serious incident or emergency. Furthermore, wireless 911 calling carries its own set of location determination challenges, particularly in complex urban environments, which may further impact how easily first responders can reach callers.

Final Thoughts on 911

In the case of enterprise-based 911 calling, it is important that CIOs or CTOs fully understand how changes within the network environment can affect the efficacy of their 911 support. The conversation regarding upgrades to communications services and systems is usually initiated by the IT or technology teams but must also include guidance from legal counsel to ensure that the organization creates processes that adhere to the new federal mandates. In addition, HR representatives and facilities teams can help establish a safety-centric policy as part of a larger emergency preparedness plan.

911 calling is a uniquely important service that demands solutions that align with and even somewhat anticipate regulatory changes. It must also be cost-effective and easy to manage. For the safety of employees, it must perform instantly with the highest reliability and accuracy that an enterprise can provide. Then, once implemented and fully tested, the best-case scenario is that it will never have to be used.