HELP! I CAN'T CALL 9-1-1: COPING WITH A 9-1-1 OUTAGE

Improving communication between carriers and ECCs is the key to mitigating outages.

By Megan Bixler and Crystal Lawrence

It is a Saturday afternoon and you are working the day-shift in your emergency communications center (ECC). Incoming calls are steady, but nothing that your shift can't handle. After a few hours, you notice that your call volume is decreasing and, eventually, there are nearly no incoming calls at all. Through some investigation, you determine that you are experiencing a 9-1-1 outage. A quick check with neighboring jurisdictions reveals they are experiencing the same issue.

This is a big deal. Your citizens cannot reach 9-1-1. You locate your continuity of operations plan (COOP) and determine that you should notify your citizens to contact emergency services through a 10-digit number, which should be advertised to the public through a variety of methods, including emergency alerts, social media and reverse 9-1-1 calling/texting. Your center may also take other steps as appropriate, for instance if the outage prevents any calls even to 10-digit numbers. This can involve pre-staging emergency responders throughout your service area and even recommending that citizens

in need of emergency response physically visit nearby police or fire stations.

9-1-1 outages can occur for a variety of reasons, including a trunk failure at an ECC, wireless network carrier problems or failure of a wireline component. The causes can range from human error, equipment failure or physical damage caused by natural or man-made disasters. Outages can restrict the ability of citizens to dial 9-1-1 from certain wireless carriers or landline telephones and/or affect the delivery of automatic location information (ALI) or automatic number identification (ANI) information to the ECC. Often, the cause, nature, extent or estimated repair time of the 9-1-1 outage is not initially known. Thorough investigations by federal, state and local authorities are usually conducted after the fact to uncover the cause and circumstances of the outage.

Unfortunately, these types of 9-1-1 outages are more common than you might expect. In 2018, the Federal Communications Commission (FCC) investigated a nationwide 9-1-1 outage[1] that lasted 37 hours and impacted as many as 17 million customers across 29 states.[2] In 2019, a nationwide 9-1-1 outage that lasted several hours,[3] impacted citizens on a cellular network in several states. In January 2020, a widespread 9-1-1 outage left several Michigan agencies without 9-1-1 service for more than five hours.[4] The list of impacted states, instances and timeframes seems almost endless. So if this is such a problem, what is being done about it?

FCC EFFORTS

The Commission defines an "outage" as "a significant degradation in the ability of an end user to establish and maintain a channel of communications as a result of failure or degradation in the performance of a communications provider's network,"[5] and a "9-1-1 outage" as one that "potentially affects a 9-1-1 special facility."[6] While the FCC's rules require service providers to timely notify ECCs of 9-1-1 outages, the triggering criteria are based on very high thresholds. Any outages that don't reach these thresholds, while still serious, are often unreported to ECCs, and you are left discovering and mitigating these on your own.

APCO has pointed out the need for the FCC to close this gap and establish additional rules to require service providers to provide outage notifications in many more circumstances. The FCC has taken several actions towards mitigating 9-1-1 outages in the United States. On September 11, 2017, the FCC hosted a workshop to discuss best practices for improving situational awareness during 9-1-1 outages.[7] Members of APCO staff, ECC directors, service providers, carrier network representatives and other associations participated in two round table meetings aimed at identifying best practices for communicating 9-1-1 service outage information among:

- 9-1-1 service providers
- Originating service providers
- Emergency communications centers (ECCs).
- Affected citizens

The outcome of this meeting led to a best practices document on these major topics:[8]

- ECC notification of 9-1-1 outages
  ➢ Service providers should provide ECCs with "actionable information" whenever 9-1-1 is down.
  ➢ Service providers should send an authoritative outage notification that reliably gets to everyone who needs it.
  ➢ Service providers should ensure outage notifications are provided in an effective format.
- Promoting public awareness of 9-1-1 outages
  ➢ Send a consistent and authoritative public message about the outage.
  ➢ Use social media to supplement but not replace television or radio broadcasts to inform the public of the outage.
  ➢ Make sure your message is accessible to all citizens, including those with limited English proficiency, hearing, speech, or visual impairment or other disabilities.

This best practices document led to other work to ensure proper notification of 9-1-1 outages. In May 2018, the Alliance for Telecommunications Industry Solutions (ATIS) launched a task force to guide providers of all types that report service impacting outages to the PSAP community.[9] As part of this work, ATIS published "Standard Operating Procedures (SOP) for Updating Public Safety Answering Point (PSAP) Outage Contact Information."[10] This document provides information on how ECC contact information is to be collected and documented in the event of a 9-1-1 outage. The SOP describes what information service providers need to collect, and the frequency of the information collection, to ensure contact databases are accurate.

Additionally, during a widespread 9-1-1 outage, the FCC often investigates to promote the reliability and availability of 9-1-1 services. The investigation looks at the overall impact, effect on other providers, root cause, corrective actions that the service provider took and the next steps. This can lead to an FCC fine on the service provider. In May 2017, the FCC fined AT&T $5.25 million for two nationwide 9-1-1 outages that prevented 15,200 calls from reaching 9-1-1.[11]

APCO INTERNATIONAL EFFORTS

Consumers experiencing a utility or internet outage can usually easily report it to their service provider and access outage maps and restoration status through an application on their smartphone or computer. Typically, the service provider is already aware of this power outage and can provide an estimated time that your power will be restored. Unfortunately, the public and ECCs do not experience this when it comes to 9-1-1 service. This is where APCO has been persistent in pressing the FCC to adopt additional outage reporting requirements so that ECCs have the situational awareness they need to take corrective actions.

In addition, APCO has pressed the FCC to ensure that accurate contact information is available for both service providers and

> **"Outages can restrict the ability of citizens to dial 9-1-1 from certain wireless carriers or landline telephones and/or affect the delivery of automatic location information (ALI) or automatic number identification (ANI) information to the ECC.**

ECCs. This is especially important since ECC directors often learn that there is a problem with the public's ability to call 9-1-1 before the service provider or carrier notifies the ECC, if they do so at all. When a wireless network outage could be preventing calls to 9-1-1, the ECC needs to know how to contact the carrier to gather information that will assist with mitigating the outage's impact. APCO continues to advocate that wireless service providers should establish a secure two-way contact database to ensure that ECCs know who to contact when they suspect an outage and for carriers to know the best way to promptly notify ECCs of known and suspected outages. ECCs can also proactively think about reevaluating the frequency of updating their internal contact lists of service providers.

RECENT LEGISLATION

Recently, and based on APCO's advocacy activities, the House Energy and Commerce Committee voted unanimously to pass H.R. 5918.[12] This bill, among other items, directs the FCC to require service providers to provide ECCs with timely notifications of network disruptions that prevent the origination of 9-1-1 calls or the delivery of ANI or ALI, in a format that facilitates situational awareness. If enacted into law, this legislation should lead to new reporting requirements that extend beyond the currently high triggering thresholds. With more stringent 9-1-1 outage reporting requirements, ECCs will be able

to notify their citizens of alternate methods for reaching emergency services and implement their COOP sooner.

In the meantime, ECCs should ensure their COOPs account for widespread 9-1-1 outages. Some of the additional considerations should be how to notify the public, who to call if an ECC is experiencing an outage, and what additional steps should be taken to provide the public with additional options to reach emergency assistance. While a 9-1-1 outage cannot be completely mitigated, it can be planned for. ●

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1. When informing the public of a 9-1-1 outage, the ECC should consider:
   a. Broadcasting messages that can be understood by those with limited English proficiency
   b. Using captioned videos or other models for those with hearing disabilities
   c. Ensuring auditory messages for citizens with visual impairments
   d. All the above

2. A widespread 9-1-1 outage is best described as:
   a. The inability of the public to dial 9-1-1 in an emergency
   b. The ECC closing due to short staffing
   c. Landline telephones do not have 9-1-1 access
   d. None of the above

3. ECCs can prepare by:
   a. Advising wireless callers not to use 9-1-1
   b. Maintaining current contact information for service providers
   c. Including procedures for 9-1-1 outages in their COOP
   d. B and C only

4. During a 9-1-1 outage, citizens should be advised to contact emergency services by:
   a. Texting 9-1-1
   b. Calling the fire or police department directly
   c. Dialing a 10-digit telephone number
   d. Using only wireline phones

5. The "Standard Operating Procedures (SOP) for Updating Public Safety Answering Point (PSAP) Outage Contact Information" was published by which organization?
   a. APCO
   b. FCC
   c. ATIS
   d. HECC

6. APCO's efforts regarding 9-1-1 outages include:
   a. Working with the FCC to adopt additional outage reporting requirements
   b. Providing service providers with ECC contact information
   c. Writing legislation
   d. None of the above

7. In part, H.R. 5918 directs the FCC to require service providers to provide ECCs with timely notifications of network disruptions that prevent the origination of 9-1-1 calls or the delivery of ANI or ALI, in a format that facilitates situational awareness.
   a. True
   b. False

8. When a widespread 9-1-1 outage occurs, the organization responsible for investigating is:
   a. ATIS
   b. FCC
   c. APCO
   d. HECC

9. APCO advocates that wireless service providers should establish a secure two-way contact database so that:
   a. Investigations can be completed in a timely manner
   b. The public is notified not to call 9-1-1
   c. ECCs know who to contact when an outage is suspected
   d. ECCs can monitor the wireless providers' network

10. ECC directors often learn that there is a problem with the public's ability to call 9-1-1 before the service provider notifies the ECC.
    a. True
    b. False

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