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The Future of Texting for PSAPs

A Solacom Brief



Texting Technology Will Continue to Evolve

Today, every public safety answering point (PSAP) recognizes they must evolve to support text-to-911 calls. The Federal Communications Commission (FCC) has already set and extended deadlines for mandatory text-to-911 service. Media coverage of high-profile emergencies where people were desperately trying to send text messages to 9-1-1 have underlined the requirement¹.

With the proliferation of smartphones and peoples' increasing reliance on them, it's become second nature for people to text one another when they want to communicate. Younger generations have grown up texting rather than calling. And, many people find texting to be a faster, more convenient, and less intrusive way to communicate compared to voice calls.

The hearing and speech impaired also rely heavily on text messages to communicate. For

this segment of the population, the ability to send text messages is a very welcome improvement over notoriously slow, error-prone, and unreliable TDD/TTY systems.

Some of the strongest cries for PSAPs to support text-to-911 have come from those who have been involved in dangerous situations but didn't feel safe making a 9-1-1 voice call. Domestic abuse situations, home invasions, kidnappings, and mass shooting attacks have all fallen into this category.



Text-To-911 Is Just the Beginning

Faced with the realities of modern-day communications, most PSAPs have either already implemented text-to-911 capabilities, or are actively working to develop and finalize their strategies to support text-to-911 calls as part of their evolution to Next Generation 9-1-1 (NG9-1-1) systems.

These are excellent first steps. But, like all technologies, texting will continue to evolve, and more advanced capabilities will soon become available. PSAPs can't simply implement text-to-911 support and think the job is done. People will expect PSAPs to keep pace with texting evolutions, supporting increasingly sophisticated texting capabilities as they become available.

Two of the texting advances that are closest on the horizon are multimedia messaging service (MMS) and real-time texting (RTT) technologies. Understanding the new capabilities these technologies enable and how those capabilities will benefit PSAP operations will help PSAPs lay the appropriate groundwork and develop a sound strategy for ongoing evolution as they migrate to NG9-1-1 emergency call handling and management solutions.



MMS Text Messages Will Include Photos and Video Clips

The requirement to support text messages that include photos and video clips is hardly a new one for PSAPs. In fact, it was part of the five-step deployment plan for a next-generation emergency 9-1-1 system that the FCC released back in September 2011.

Even at that time, the ability to support multimedia text messages was considered essential to ensuring PSAP operations align with the way people intuitively communicate in the modern age. In the press release issued at the time, the FCC noted that the “ability to send text messages, photos and video clips has become commonplace for users of mobile devices, but our legacy, circuit-switched 911 system does not support these forms of communication. Adding these nonvoice capabilities to our 911 system will significantly improve emergency response, save lives and reduce property damage².”

MMS technology extends the capabilities of text-only, short message service (SMS) technology to allow people to send text messages that are longer than 160 characters and include multimedia content. It was developed by the 3rd Generation Partnership Project (3GPP), a collaborative group that unites different telecommunications standards bodies to help ensure telecommunications technologies can be accessed globally on any mobile device with cellular network access.

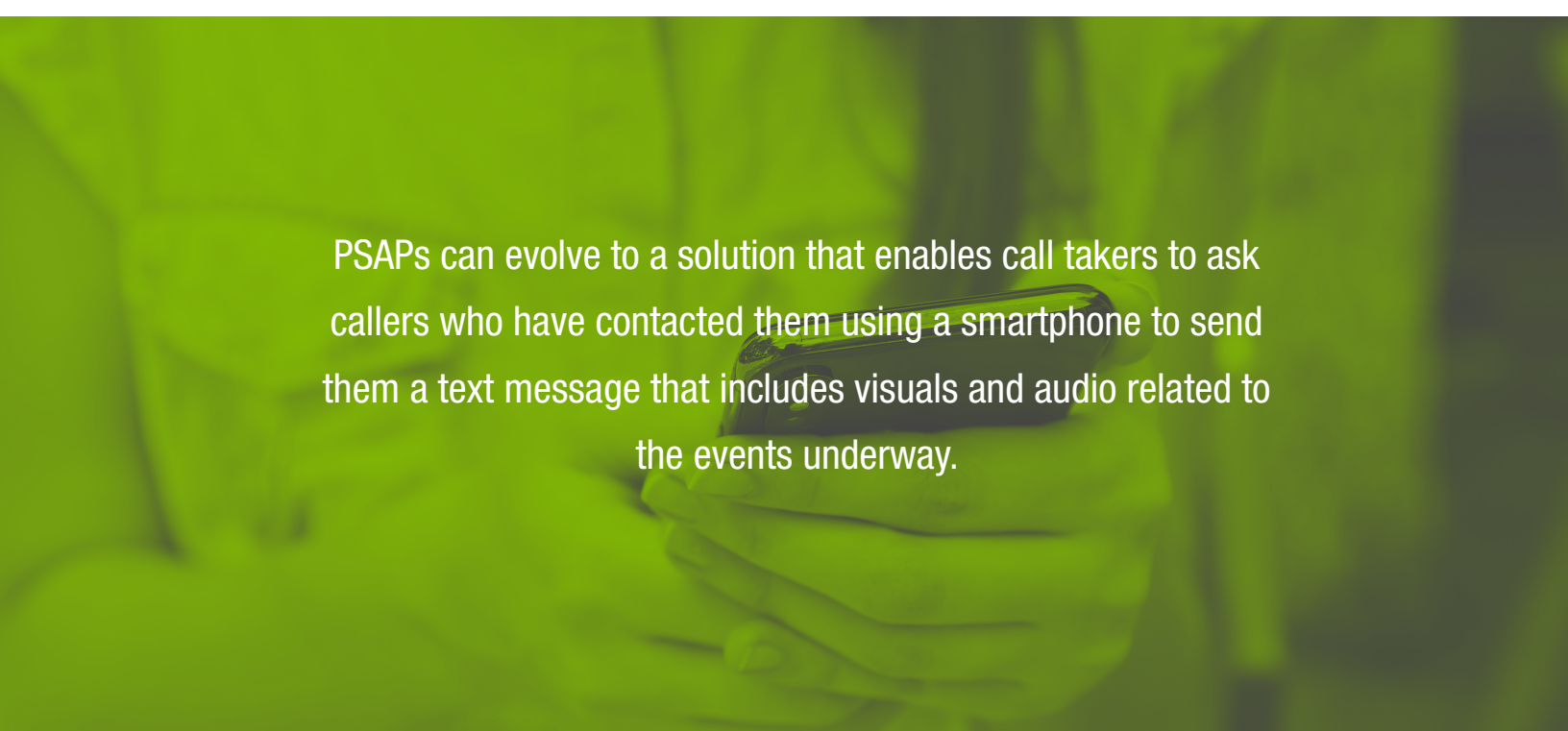
MMS Technology in PSAP Operations

As a first step toward supporting full multimedia texting capabilities, PSAPs can evolve to a solution that enables call takers to ask callers who have contacted them using a smartphone to send them a text message that includes photos or video clips related to the events underway. They can then use this visual content to more accurately assess the severity of an emergency situation and improve situational awareness.

With the option to request additional material rather than simply receive whatever is sent to them, call takers have more control over the content. This helps to ensure:

- Call takers are not overwhelmed with high volumes of information that must be filtered and evaluated
- The content that is sent is not overly graphic, upsetting, or in contravention of union rules about what call takers are allowed to see
- The content is as relevant as possible to what the call taker needs to know

In some cases, call takers may even have the opportunity to explain exactly which aspects of the situation callers should capture to accelerate and enhance decision-making. For example, they may ask the caller to take photos of both vehicles involved in a car crash or capture video footage of a street altercation or a building fire from across the street so they can see the full scale of the incident.

A person wearing a yellow uniform, likely a first responder, is holding a smartphone. The background is blurred, showing other people in similar uniforms. The text is overlaid on the image.

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Real-Time Texting Will Accelerate Text Calls

One of the drawbacks of standard SMS text communications is that it introduces delays in the conversation that don't occur in a voice call. It takes time to type a text message, and additional time for the recipient to receive it.

For coherent conversations, each participant should wait for the other to respond before sending additional information. When the parties in a text conversation don't wait for one another to respond, conversations quickly become disjointed and out-of-sync, which can lead to confusion, frustration, and misunderstandings. In the PSAP environment, these disconnects increase the risk that emergency responses will be delayed, inappropriate, or inadequate.

Real-time texting functions much more like a voice call, eliminating the communications challenges and risks these delays introduce. The technology runs over IP networks and its intended use and implementation are described in a number of [internet and telecommunications standards](#)³. RTT messages do not currently support inclusion of photos, audio, or video.

Because RTT technology functions like a voice call, the sender receives feedback confirming the recipient is being contacted and the RTT "call" has been "answered." In SMS exchanges, the sender only knows the message has been sent. In an RTT exchange, call takers can see what the caller is typing as it is being typed, including corrections that are inserted along

the way. Neither party is forced to wait for the complete message to be typed and sent before they can start reading it. The technology also allows simultaneous voice and text conversations, making it a better replacement for the hearing carry over (HCO) and voice carry over (VCO) features available in TTY technology than either SMS or MMS exchanges.

The FCC has recognized the many benefits of RTT, and in December 2016 adopted rules for the transition from TTY technology to RTT technology. Among other goals, the FCC rules are intended to ensure RTT users will be able to call 9-1-1 for emergency services and to establish a phased rollout of RTT for wireless networks from December 31, 2017 to June 2021⁴.

In response to the FCC mandate for RTT support in wireless networks, NENA put out a call for volunteers to participate in a work group to develop RTT implementation guidelines for PSAPs. In its communication about the work group, NENA pointed out that text messages from RTT-capable handsets will initially be converted to legacy TTY format and that a number of pieces must be put in place before PSAPs can request RTT service from mobile operators⁵.

Most of the major mobile operators have acknowledged the need for, and benefits of, RTT, and have shared their goals and progress in public statements. RTT capabilities are already built into the operating systems of leading smartphones, and many smartphone providers have published lists of the RTT-capable wireless devices they offer their customers.

RTT Technology in PSAP Operations

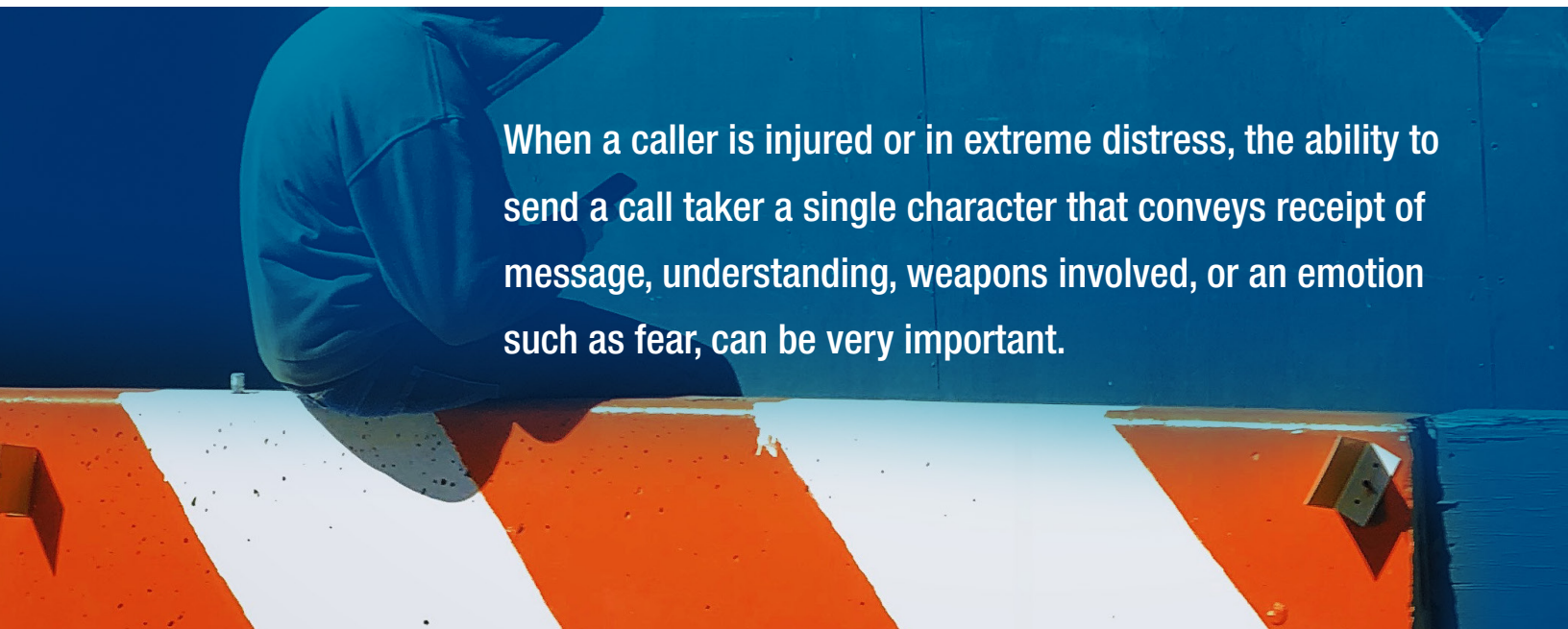
The hearing and speech impaired will be among the first to expect PSAPs to support RTT. For this segment of the population, the ability to enjoy natural, real-time conversations is a very welcome relief after struggling with the limitations of TTY technology where:

- Messages can take several minutes to arrive, introducing delays that could be deadly
- Static or noise on the line can lead to character mistranslations that make messages unreadable or lead to misinterpretations
- Limited character set support can lead to additional translation inaccuracies

- Transmissions can fail with no indication, increasing stress and risk for both parties in the conversation

While the immediacy of RTT conversations are the most obvious benefit of the technology to the public and to PSAPs, the ability to access a more complete character set, including emojis, is also extremely important. These commonly used short-form communications symbols allow anyone in distress to communicate faster, more easily, and naturally with PSAPs. When a caller is injured or in extreme distress, the ability to send a call taker a single character that conveys receipt of message, understanding, weapons involved, or an emotion such as fear, can be very important.

In addition, because call takers can see text messages as they are being typed, they are aware of partial messages — situations where the caller is still trying to communicate with them, but was unable or unwilling to complete the text message for some reason. With TTY and SMS messages, call takers have no way of knowing a caller has composed a partial message that was not sent.

A person wearing a blue long-sleeved shirt is sitting on a surface with red and white diagonal stripes. They are looking down at a smartphone in their hands. The background is a solid blue wall.

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Moving Smoothly Into the Future of Texting

There's no question PSAPs must evolve to support text-to-911 and more advanced forms of texting based on MMS and RTT technology. These intuitive forms of communications have been very enthusiastically embraced by the public and validated by governing agencies. They will all become mandatory aspects of PSAP operations in the not-too-distant future. Advanced texting technologies also bring important new benefits to PSAPs because they:

- Allow call takers to develop more detailed and accurate assessments of emergency situations faster, leading to more efficient and effective responses
- Reduce reliance on peoples' memories of event details during stressful situations
- Allow people to intuitively communicate with PSAPs without stopping to wonder whether the PSAP supports their preferred form of communications

PSAPs can only realize these benefits when texting capabilities are seamlessly integrated into their emergency call handling and management solution. With this approach, call takers don't have to switch platforms based on the caller's communications channel. And they don't have to learn new systems every time new technologies come along. Attempting to support advanced texting capabilities using a diverse collection of independent solutions will introduce latency, complexity, and incompatibilities that will slow

response times and increase the risk of human and system errors.

Solacom and PSAP Operations

Solacom understands PSAPs' need to continuously evolve to support more advanced texting capabilities within their NG9-1-1 emergency call handling and management solution. The Solacom Guardian 9-1-1 Call Handling solution is the most flexible, user-centric voice, data, and video emergency call management solution available to PSAPs.

The Guardian 9-1-1 Call Handling solution is a future-ready call handling and management system that is engineered to enable smooth and cost-effective integration of new technologies and capabilities as they emerge with no need to rip and replace hardware. The solution supports [text-to-911](#) calls and outbound text-from-911 capabilities today. And it can be easily upgraded to support more advanced text communications, such as MMS and RTT technologies, in the future.



Additional Information

[Click here](#) for more information about how Solacom can help you make the move to a fully integrated, future-ready NG9-1-1 call handling and management solution for your PSAP.

Contact Us

Solacom 9-1-1 call handling and management solutions are built on more than 30 years of research and innovation in the application of advanced hardware and software technologies for public safety. Today, Solacom Guardian 9-1-1 solutions support thousands of agencies affecting millions of lives annually — from dense urban environments to statewide deployments.

Contact us today to discover how our Guardian solutions can help your PSAP streamline 9-1-1 call handling and management processes and enable more efficient collection of critical information in emergency situations.

Visit our website: www.solacom.com

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1 <https://www.wavy.com/news/crime/orlando-shooting-shines-light-on-need-for-text-to-911/1100187534>

2 https://www.pcworld.com/article/240405/fcc_moves_toward_texting_video_for_emergency_calls.html

3 http://www.realtimetext.org/rtt_in_detail/standards

4 <https://www.fcc.gov/real-time-text>

5 <https://www.nena.org/news/418990/Volunteers-Sought-for-Real-Time-Text-Readiness-Work-Group.htm>