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Comtech Telecommunications Corp.



# 10

## Must-Have Features for Effective NG9-1-1 Call Handling and Management

A Solacom Guide



## PSAPs Can't Afford to Be Short-Sighted

**A**s public safety answering points (PSAPs) evaluate NG9-1-1 call handling and management systems, they have a wide range of features and capabilities to consider. While these aspects of the solution are extremely important and must be carefully considered, it's critical for PSAPs to start their evaluation process by looking at the broader value the solution provides.

Here's why it's so important to start with big-picture considerations.

### Total Cost of Ownership Tells the Whole Story

The initial cost of a solution can seem attractive, but it's not the whole story. PSAPs must look beyond the initial cost to consider the total cost of ownership (TCO) over the projected life of the solution.

When evaluating TCO, there are four key areas to consider.

- **Functionality costs:** The ideal 9-1-1 call handling and management solution provides the features and functions PSAPs need today and tomorrow. This backwards and forwards compatibility allows PSAPs to cost-effectively add and integrate NG9-1-1 functionality while leveraging legacy investments.
- **Maintenance costs:** Solutions that include all software and most hardware upgrades in pre-established annual maintenance fees reduce TCO. PSAPs no longer have to worry about unexpected upgrade costs and can confine hardware upgrade costs to planned refresh cycles.
- **Training costs:** Solutions that are engineered to virtually eliminate training requirements also help to reduce TCO. These solutions offer an intuitive and modular screen layout that can be customized to fit individual PSAP processes and call taker preferences and to mimic existing call taker interfaces.
- **Expansion costs:** Solutions that can be easily expanded to support more positions without replacing the backroom hardware and software platform reduce the per-position cost of the overall solution as PSAPs grow.



# Purpose-Built Solutions Provide the Best Long-Term Value

Evaluating NG9-1-1 call management solutions is a bit like shopping for a car or buying a new house after touring the model home. A system that starts out as low-priced can quickly become extremely expensive once key features are added.

Solutions that are purpose-built for NG9-1-1 call management and include a comprehensive feature set in the base price provide the best long-term value for the money. All-inclusive solutions give PSAPs access to key NG9-1-1 features from day one, so they can gradually integrate them into processes without additional costs or upgrade hassles. The all-inclusive approach also simplifies operational and financial planning.

## Integrated Solutions Are Needed to Support New Technologies

As PSAPs migrate to NG9-1-1 systems, they have new opportunities to deploy advanced technologies that allow them to process more information faster, meet new requirements, and increase interoperability with other organizations. PSAPs that deploy a disparate set of solutions that weren't designed to interoperate with one another won't have the system speed or efficiency needed to take advantage of new technologies.

The only way to realize the benefits new technologies provide is to choose NENA i3-compliant solutions that can be fully integrated all the way from the network that receives the 9-1-1 call through the emergency call handling and management system to the computer-aided dispatch (CAD) solution.

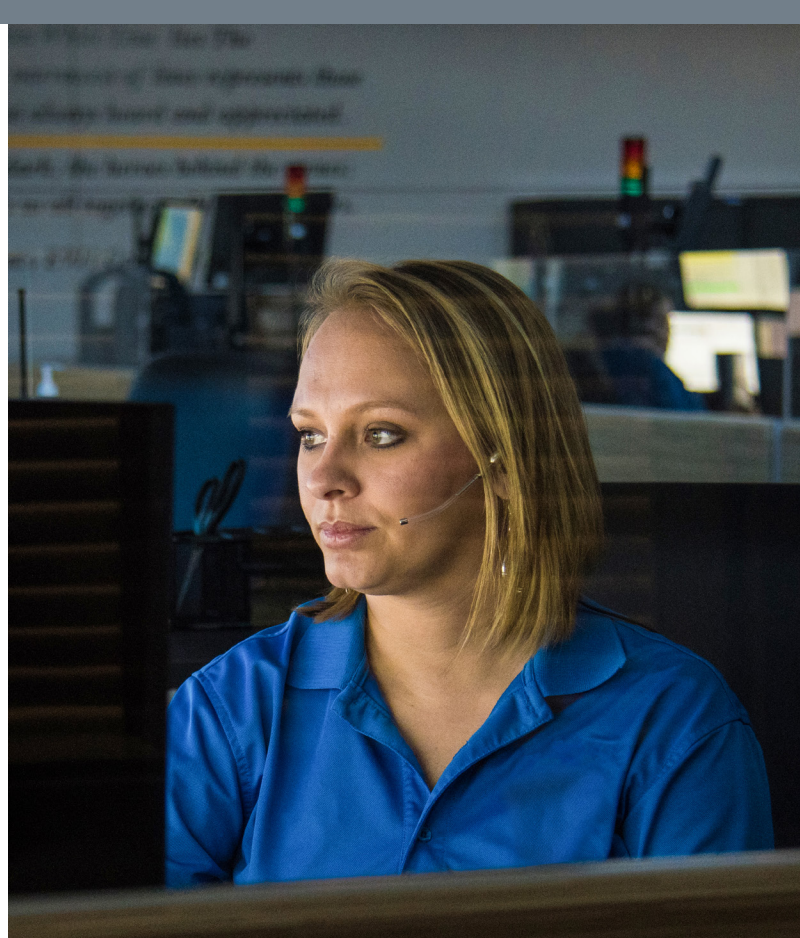




# The Right Foundation Is Essential for Seamless Evolution

Today, innovations such as global positioning system (GPS)-equipped smartphones, camera-equipped drones, and wearable technologies are commonplace. These innovations, and those that will follow, generate a lot of data that PSAPs can use to improve public safety.

To lay the right groundwork for success today and in the future, PSAPs must start thinking now about how they will interact and interoperate with all of the different information streams and formats that will be available to them.



## PSAPs Run Mission-Critical Operations

Once PSAPs have evaluated the big-picture considerations, it's time to look for the features and functionality that set true NG9-1-1 systems apart from other approaches.

While it may be tempting to choose a general-purpose system that can be adapted for any type of call handling requirements, it's important for PSAPs to remember they're not just another call center. To ensure fast and accurate emergency responses that improve public safety, PSAPs have a number of very specific feature requirements.





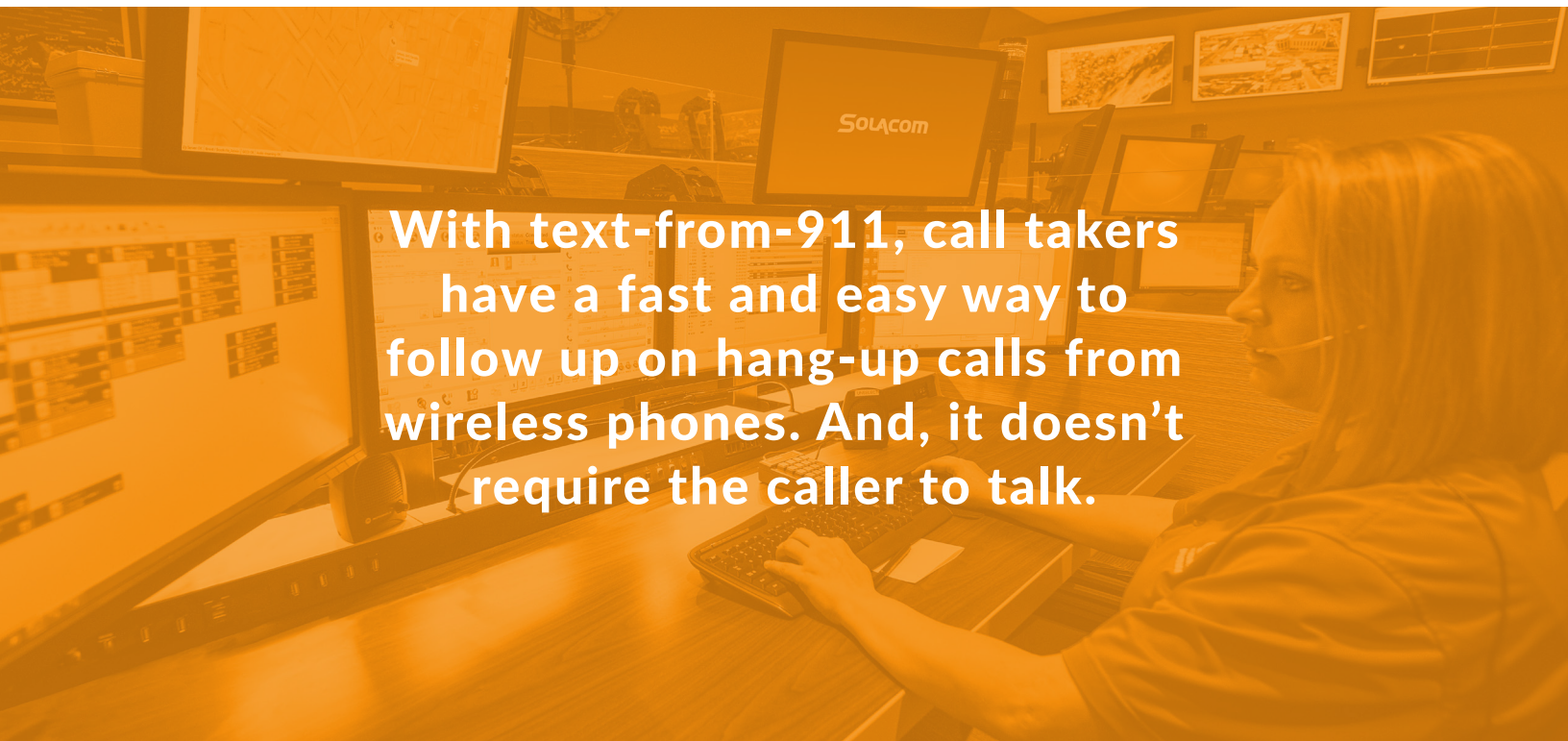
## Text-From-911

**T**here's been a lot of media attention on the urgency for PSAPs to support text-to-911 calls. But, PSAPs' need to proactively send text messages to callers is sometimes overlooked. With text-from-911, call takers have a fast and easy way to follow up on hang-up calls from wireless phones. And, it doesn't require the caller to talk.

A number of PSAPs already rely on outbound texting. The 9-1-1 team in Lexington, Kentucky, is just one example. According to Robert Stack, director of the Enhanced 911 Division at the Lexington-Fayette Urban County Government (LFUCG), the 9-1-1 team in Lexington uses the text-from-911 capability heavily. And, Director Stack sees more ways the technology can be used. "In the future, I can see us using text-from-911 in situations where we need to reach out to people who are barricaded, or where we're just not sure what their situation is," he says.



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## Multimedia Texting and Real-Time Texting

**T**he 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 Federal Communications Commission (FCC) released back in September 2011.

To optimize management of incoming photos and video clips, PSAPs need an NG9-1-1 solution that allows call takers to request additional material rather than simply receive whatever is sent to them. This approach gives call takers more control over the content to ensure:

- They 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 they are allowed to see
- The content is as relevant as possible to what call takers need to know

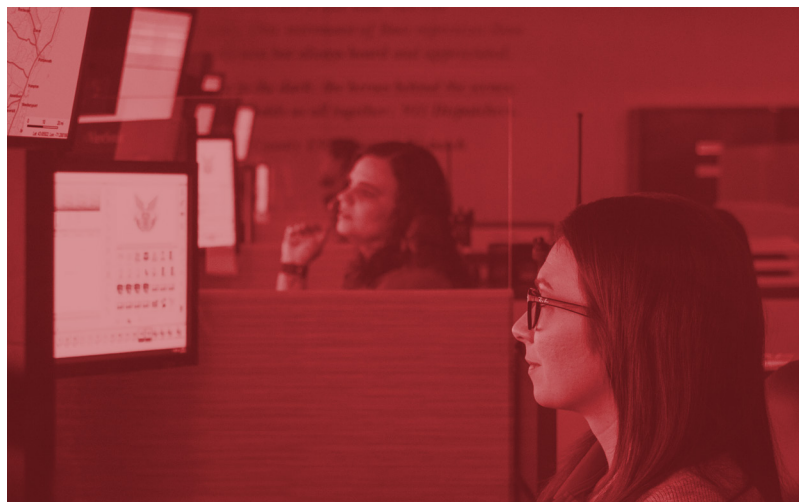
## Real-Time Texting Is Replacing Legacy TDD/TTY Technology

Real-time texting (RTT) functions much more like a voice call than regular texting because it eliminates the delays and disjointed communications that occur as each party waits for the other to respond.

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. RTT also supports a more complete character set than TDD/TTY technology, allowing callers and call takers to effectively communicate using a single emoji symbol when necessary.



The Federal Communications Commission (FCC) and the Canadian Radio-television and Telecommunications Commission (CRTC) have both recognized the many benefits of RTT and have adopted rules to ensure the transition to RTT from legacy technologies.





## Integrated Mapping With Call Control

**W**hen an interactive mapping application is fully integrated into the NG9-1-1 call handling and management solution, call takers can see the status of all calls on the map at a glance — ringing, answered, muted, on-hold, abandoned — then simply click the map icon for the call to manage calls in the order that makes the most sense for the call location and status.



For example, a major incident at an event venue can result in dozens of calls from the same location. It may not make sense for call takers to answer every one of those calls when they can see additional calls coming in from other locations. Call takers can use the map view to quickly see where calls are coming from, identify the call status, and make more informed decisions.

## Support for All Types of Wireless Location Data

**T**o quickly pinpoint caller location, PSAPs need NG9-1-1 call handling and management solutions that support all sources of location information and offer the ability to manipulate the location data in different ways.

At a minimum, the system must support:

- **Phase I location data:** Provides a coarse estimate of the wireless device location based on the location of the cell tower that delivered the call.
- **Phase II location data:** Improves on Phase I location data by including the latitude and longitude for the mobile device location instead of the cell tower.
- **Mobile device location data:** Provides the caller's precise location, which is particularly helpful when callers are in a tall building or at a large indoor-outdoor venue.
- **Geographic Information System (GIS) location data:** Adds key GIS data elements, such as road centerlines, PSAP boundaries, and emergency service boundaries to map views to help PSAPs quickly pinpoint wireless caller location.



## Multimedia Conferencing

**W**ith virtually unlimited, high-quality multimedia conferencing, call takers can simultaneously reach out to any number of people to get assistance or prepare them for the emergency situation while they're still on a 9-1-1 call.

They can continue to communicate with the person in distress, while at the same time talking to:

- Supervisors who can see any text messages the call taker and caller have exchanged and use that information to assist the call taker.
- Remote experts to get the guidance or background information needed to better support the caller and increase their safety.
- First responders who are approaching the emergency scene to inform them of updates from the caller.



Call takers remain fully connected to the 9-1-1 caller and can hear everything they say, even as they conference in other parties. Call takers can also drop off the conference call at any time while the other participants remain connected.

## Instant Messaging Among Call Takers

**W**hen call takers can exchange instant messages (IMs) with one another while they're on 9-1-1 voice and text calls, they have immediate access to input and insight that can help them better serve the person in distress.

For example, they can communicate with colleagues who:

- Are on a related 9-1-1 call
- Have expertise with particular scenarios
- Have dealt with similar situations
- Are familiar with the person in distress

For the ultimate in flexibility, instant messaging capabilities should be integrated into the same user interface as multimedia conferencing so call takers can simultaneously talk, text, and IM to quickly access the right information and support for the call.



## Automatic Call Distribution at No Extra Cost

**A**utomatic call distribution (ACD) prioritizes and distributes 9-1-1 calls to the next available call taker to ensure that calls are answered in a proper first-in, first-answered sequence and that call takers share equally in call workloads. These capabilities are particularly important for large, busy PSAPs with very high call volumes.



When robust and configurable ACD capabilities are integrated into NG9-1-1 call handling and management at no extra cost rather than sold as a separate component, PSAPs can accelerate call answer times and improve call abandonment rates without breaking their budget. They can also be sure that ACD functionality will work seamlessly with other call handling and management functions.

## Customizable, Role-Based Privileges

**W**hen PSAPs have the freedom to assign access to features and functionality based on the roles within their organization, they can tailor the NG9-1-1 call handling and management system to fit their specific processes and mandate, as well as staff knowledge and seniority levels.

For example:

- Supervisors, trainers, and other senior staff may be the only ones with access to call monitoring, intelligent position monitoring, and barge-in capabilities.
- Call takers may need the ability to retrieve their own recorded conversations, but should not have access to all recorded conversations. However, supervisors will likely need access to all conversations.
- Supervisors will need access to the data required to generate reports for their shifts. But they may not be authorized to access other data.
- PSAP directors may be the only people with the authority to access all system capabilities and data.



## Position Audio Adapter Functionality

**P**osition audio adapter functionality gives PSAPs important insights into call taker status. For example, they can see a visible state change when call takers are on a call or when they remove themselves from service by unplugging the jack on their headset or handset.

Key position audio adapter features to look for include:

- Dual-prong jack boxes to enable headset and handset hardening
- Dual jack box operation to support call takers and supervisors
- Jack-out to busy-out functionality
- Single headset or handset operation with radio consoles and external audio sources such as TVs and MP3 devices
- An analog recorder output interface to a status light to request help or trigger relays to open doors



## Geo-Diverse Network Redundancy

**W**ith geo-diverse network redundancy, PSAPs can install critical network equipment at multiple locations to ensure the NG9-1-1 network continues to route calls in the event of a network or equipment failure. Each host site can support the entire network in the event the other site becomes unavailable. PSAPs can also use the additional network equipment to increase their capacity.

PSAPs throughout North America are deploying geo-diverse network architectures to ensure that mission-critical 9-1-1 operations are maintained during natural disasters and other emergency events.





# End-To-End Integration Is Essential

Only an integrated, end-to-end approach to NG9-1-1 call handling and management provides all of the big-picture benefits and must-have features described in this guide. This critical combination is simply not possible with alternative approaches such as using an IP-PBX and a call center application, or adapting a general-purpose call answering solution for PSAP operations.

At Solacom, public safety communications management is not a sideline, it's our single focus. Our user-centric, multimedia 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.



As a subsidiary of Comtech Telecommunications Corporation, we partner with Comtech Safety and Security Technologies to provide comprehensive, integrated solutions for 9-1-1 call handling and management from the network to the desktop. We provide:

- **A Next Generation Core Services (NGCS) Suite** that is ideal for PSAPs looking to share services with other PSAPs. Our comprehensive NGCS Suite includes all of the NENA-defined NGCS elements, as well as services for network and system engineering, deployment, system integration, and network monitoring and maintenance.
- **The Solacom Guardian 9-1-1 Call Handling solution**, a standards-based and purpose-built emergency call handling and management solution that is designed to integrate with standards-based NGCS and CAD solutions.

Today, our 9-1-1 solutions support thousands of agencies of all sizes and affect millions of lives annually. From dense urban environments to the most widespread deployments, our solutions are trusted to streamline 9-1-1 call handling and management processes and enable more efficient collection of critical information in emergency situations.





# Solacom Is a Trusted Partner for NG9-1-1 Evolution

Leading public safety agencies rely on Solacom's user-centric, multimedia NG9-1-1 emergency call handling and management solutions, including:

- Alberta Health Services
- Florence County, South Carolina
- Franklin, Gulf, and Calhoun Counties, Florida
- City of Gatineau, Quebec
- Huntsville-Madison County, Alabama
- Lincoln County, Montana
- Manitoba Provincial 911
- Maricopa Region, Arizona
- Owensboro-Daviess County, Kentucky
- San Luis Valley, Colorado
- State of Maine
- Sussex County, New Jersey

## Additional Information

[Click here](#) for more information about our NG9-1-1 solutions.

## Contact Us

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

Visit our website: [www.solacom.com](http://www.solacom.com)

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