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Growing Role of Communications in the Public Safety Industry

By: [Shirin Esfandiari](#)

The role and importance of communications is rapidly growing across all sectors of society. Integration of new and evolving technologies such as the cloud, IoT, artificial intelligence, and 5G with communications is no less than redefining how we do things. Indeed, industries throughout the world are already reaping the benefits of this transformational development.

However, despite operating in one of the most mission-critical industries, many first responder agencies, such as police departments, firefighters, and emergency medical technicians, are lacking many of the intelligent systems that are increasingly prevalent in almost every other industry. And that is not all. Other key health and safety professionals are also affected by the lack of advanced systems, including dispatchers, doctors, nurses, and search and rescue personnel.



By the nature of its business, public safety cannot afford any downtime, failures, or delays, and must have the capacity to quickly scale in response to a potential catastrophe. Reliable, real-time communications are critical to its services. But emergency communication systems are complex and expensive. The majority consist of diverse, customized applications, access to multiple networks, and the integration of many devices. Administering these systems is an arduous task for which local government entities such as police departments, fire, or emergency squads have become responsible.

According to a piece published by [National Institute of Justice](#), interoperable communications continues to be one of the top national issues facing our first responders and public safety officials. The onus is on government agencies to manage and maintain these disparate communications: body cameras, dashboard cameras, radio, mobile devices, PCs, and tablets. Each has its own system and set of processes to record, archive, gather data, and correlate video. These time-consuming, complex manual processes hinder the capabilities of first responders to get a complete view of a situation or to rapidly respond to a life-threatening event.

First responders put their lives on the line every day to protect and serve their communities. They have one of the hardest jobs imaginable. Reliable, real-time interaction from multiple, interconnected IoT field devices can have a enormous impact on the outcome of an emergency, but government agencies are often limited in their options for communications systems. This can be due to how much control a company has over the emergency services, or to issues related to the network provider or the connected end devices. Such limitations have hindered the intelligent integration of technologies such

as cloud computing, 5G, Artificial Intelligence (AI), and IoT, into critical government agencies.

Local government is tasked with managing multitudes of devices, including mobile devices such as smartphones or tablets, and IoT devices such as cameras, sensors, security systems, detectors, and wearable devices. Agencies must scale the devices to meet the needs of their given departments, securely connecting and integrating the devices to a network while accounting for the associated costs and providing in-house device expertise.

If the devices or related applications are managed from the cloud, it is also critical that agencies ensure that the cloud hosting the applications is operating as a dedicated, secure environment, and that the wireless network is reliable and secure. If cloud processes are not well-integrated with the network, managing the devices may be extremely complex, expensive, and time-consuming.

5G's critical role

The global impact of 5G promises to be significant, with 5G technology adding an estimated [\\$1.3 trillion](#) to global GDP by 2030. To harness its power in the coming decade, government at every level is investing time and resources into its implementation. And for a good reason: 5G is positioned to transform state and local government operations and drive innovation across many vital civic functions - driving smart city capabilities, enhancing community interactions with government, and increasing the efficiency and safety of first responders and field workers.

In a 5G-enabled future, where even our most rural and remote pockets of population have 5G connectivity, the low latency provided by the fifth-generation network make continuous live streams from a device-equipped officer and patrol car back to the dispatch center possible. In a situation that requires many officers and their associated devices - smartphones, cameras, light bars, license plate capture, and more, a department may opt to work with a service provider to source the connectivity needed. These new tools and techniques can support police officers in preventing and combating crime and saving lives.

Beyond law enforcement, 5G's enhanced mobile broadband (eMBB) capabilities will be able to support other critical roles within the government. Waste and water management operators can be supported by drone technology, assessing sewerage inspections in difficult-to-access or unsuitable areas. A firefighter responding to an emergency can assess footage from a connected camera and drone feed to understand the situation while scanning real-time data from building sensors to understand the temperature and air quality before trying to put out the fire.

The value of the cloud and the network in critical communications

Effective communications are essential for first responders, as it can mean the difference between life and death. Critical communications require immediate, reliable, and collaborative interaction between devices, first responders, and a centralized command. All should be controlled by a unified, cost-effective, secure, reliable public safety system. This public safety system must have the ability to scale to handle major disasters while providing a mechanism for automatic upgrades and maintenance without downtime. The modern system that can best handle these stringent scaling and performance requirements is a cloud-based application connected to a localized network edge processor. The cloud application provides a centralized, highly scalable, and reliable command center. The network edge device minimizes potential time lags and network outages, while controlling network bandwidth and data transmission.

Technology designed to remove data silos, eliminate manual busy work, and empower first responders with information in real time to help them make more objective decisions, is currently being advanced. Ideally, this technology should be centered around a cloud-based, computer-aided dispatch command center with a system designed to aid operators to speed data entry, increase accuracy, and accelerate dispatch by auto-populating emergency call information, identifying and merging duplicate calls, providing “next word” text suggestions, and verifying incident locations on a blended map.

Connected devices also play a large role in the success of mission-critical technology. Wearable computer devices and cameras worn by officers activate automatically upon dispatch and record interactions between enforcement and community members to support transparency, trust, and accountability. Reliable streaming and connectivity capabilities are essential. When built into wearable devices, connectivity means law enforcement agencies can view line-of-sight video from a team member at a remote location and are thereby able to give on-scene responders more informed guidance and support as an event unfolds. Vehicle video cameras such as camera bars mounted on the roof, and license plate recognition devices connected to the dispatch system, offer better visibility and cognitive awareness to all parties engaged in an event.

Ideally, each vehicle should be equipped with a tablet application that provides officers with focused, actionable, event-related data, including complete records, searches, case reporting features, and a fully interactive map for better cognizance of all other incidents and units in the area. A mobile application could also run on the officer’s device to facilitate dispatch and field-based interactions between first responders. Automated location and subject-based alerts enhance safety for both officers and citizens. Additionally, camera-based vehicle license plate and driver’s license scanning capability, in full integration with the command center, would facilitate and speed the initiation of local records searches and the viewing and updating of case information via the officer’s mobile device.

Transforming public safety with IoT at the network’s edge

Communications are the backbone of providing a safe and secure environment. Public safety communications must be up all the time, without failure or delay, with the capability to scale to accommodate a potential catastrophe. Technology is necessary to provide immediate, reliable, and collaborative interactions with mobile and IoT devices controlled from the cloud out to the edge. Through the latest in communications technology, we can better empower first responders with real-time connections at the scene of any incident.