

MOBILE BROADBAND: CUT RESPONSE TIME AND SAVE MONEY

Public safety professionals worldwide are under increasing pressure to “do more with less” in the service of citizens’ emergency response needs.



Whether the call for service is as small as a single, stranded boater caught in a squall on Maryland’s Chesapeake Bay or is a mass-casualty disaster such as the 3/11/11 Japan earthquake and tsunami or the 7/7 terrorist bombings in the United Kingdom, the effectiveness of the response will be largely determined by the availability and distribution of real-time intelligence and information. Public safety responders – whether they are EMS providers sending and receiving vital patient information before even arriving at the Emergency Room, firefighters reviewing the floor plans of a building engulfed in flames in order to determine where victims are most likely to be found, or law enforcement professionals checking a suspect against a DNA database from the field – demand the highest possible levels of reliability and uptime for their mobile communications services.

In this issue of LifeTalk, public safety thought leaders Chris Moore, Chief of

Police for the San Jose (Calif.) Police Department; George Ed Ryan, Director of Communications for the Maryland Department of Natural Resources; Bill Schrier, Chief Technology Officer for the City of Seattle and Philippe Agard, Vice President of Public Safety for Alcatel-Lucent; all share their unique perspectives and insights as you navigate the ever-changing landscape of interoperable mobile broadband communications.

Strategically deploying the infrastructure for public safety mobile broadband requires considerable planning in order to reap maximum benefit. However, making this important effort in the near term will result in a massive return on investment from the standpoint of increasing levels of service, reducing response times, and enhancing response capabilities despite ongoing economic difficulties being experienced by most municipalities and their public safety agencies.

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SOCIAL VIEW

MOBILE PHONES ARE THE ELECTRONIC MILK CARTON

With the increasing usage of smartphones, all of a sudden, every citizen can become something of a deputy police officer, or a potential support person for firefighters and EMTs.



ECONOMIC VIEW

RESOURCE OPTIMIZATION AND ECONOMIES OF SCALE WITH 4G LTE

Here we are, ten years out from 9/11 and we still haven't really solved the interoperability problem... It has become imperative that all the public safety disciplines work efficiently together. To do otherwise can not only cost money, it can cost lives.



AGENCY VIEW

THE MOST CRITICAL KEY TO PUBLIC SAFETY EFFECTIVENESS IS INFORMATION

We're really looking for the ability to monitor remote areas, and to be able to get fixed video camera information and radar information out to officers who are responding... What we're lacking is the mobility although solutions exist.



EXPERT VIEW

MOBILE BROADBAND ENHANCES PUBLIC SAFETY EFFECTIVENESS

This is not just about one-way, citizen-to-public-safety communications. This has massive potential for communicating with citizens who have been impacted by an event – informing them with real-time updates on the situation.





MOBILE PHONES ARE THE ELECTRONIC MILK CARTON

WITH: BILL SCHRIER, CHIEF TECHNOLOGY OFFICER FOR THE CITY OF SEATTLE

HIGHLIGHTS

- Public safety does not exploit the multimedia capabilities of today's cell phones and smartphones.
- Citizens want to interact with public safety communications centers in the same way they do with each other, using SMS, photographs, and video.
- Existing mobile carrier networks will probably fail during disasters, at the time of greatest need.
- Communications centers can be easily overwhelmed by multiple reports of emergencies.

If you want to know what's coming down the pike in multimedia mobile phone use, you need only look to the sister cities of Seattle, Washington and Kobe, Japan. Japanese mobile phone users – devices there are called 'keitai' – have long led the way in adoption of new mobile technologies, and among American cities, Seattle arguably has one of the most technically-savvy populations per capita.

Japanese users quickly gravitated to the diverse ways their devices allow them to interact with others. They supplement or supplant voice calls with text messages, captioned photos, and even streaming video images of what's going on around them. All those communications modes could be useful for reporting emergencies to public safety answering points (PSAPs), but the dispatch centers are seldom equipped to handle this traffic.

Prior to the mid-1990s, a witness to a crime on the streets of Kobe would have to find a pay phone or knock on a stranger's door to dial 110. By 1995, they might have a cellular phone installed in their car, or could flag down someone who did. Five years later, they probably owned a "candy bar" handset capable of making a voice call to an emergency dispatch center. Today, they can take a photo of the incident scene or a suspect, silently tap out a text message to avoid being noticed by a criminal, or capture a video clip they can send to the police or fire department.

Let's go back to the abovementioned 1995 scenario, but take that to a mass-casualty extreme. While Kobe – the sixth-largest city in Japan – was largely spared the levels of devastation seen elsewhere in the country when the devastating earthquake and tsunami struck in March 11, 2011, the city suffered immense loss during the 'Great Hanshin' earthquake on January 17, 1995. Had citizens had the ability to send their first responders images and videos of the most badly affected areas, the death

will be little forgiveness if Japanese first responders don't soon leverage a 4G mobile broadband network.

MOVING TOWARD THE MODERN-DAY MILK CARTON

Bill Schrier is the chief technology officer for the City of Seattle. "I think citizens can help themselves by becoming active participants in the law enforcement, fire-fighting, and EMT processes," says Schrier. "Something like 97 percent of the population carries a cell phone, and about two thirds of those phones are smartphones – many of which have integrated cameras. All of a sudden, every citizen can become something of a deputy police officer, or a potential support person for firefighters and EMTs."

Schrier says that whether or not a citizen's photograph or video sent to the call center actually leads to an immediate arrest may be less important than the mere fact that the public has become more engaged in the public safety ecosystem.

You're giving citizens the opportunity to say, 'I helped my government. I helped my public safety'.

toll could have been lower. In the aftermath of that deadly disaster, the citizens of Kobe demanded that Japanese warning systems and public safety response capabilities be significantly upgraded. Given the view of Kobe's citizens in 1995, and the global horror at the potential nuclear disaster in Japan today, one must surmise that there

"Just think of the sense of empowerment you're giving that citizen in the first place," Schrier says. "You're giving them the ability to participate in the safety and wellbeing of their own community in a whole new way. You're giving them the opportunity to say, 'I helped my government. I helped my public safety'."

That multimedia interaction needs to flow in both directions. To visualize what the future holds in this regard, just consider the way Amber Alerts work at present. Supplementing the alert being sent to TV and radio stations, direct alerts are sent to individual citizens who opt into the system. Subscribers to this system get a simple SMS message – text only – on their mobile phone.

Think back a few years to the old milk cartons with the faces of missing children on them. How did we go from a picture and a description to a 140-character message on our phones? The conduit shrunk to a point that it could not handle images. Wouldn't those wireless Amber Alerts be vastly more effective if they included a picture of the child or a small clip of video surveillance taken at the time of the child's abduction?

Most of the obstacles to implementation of rich media in public safety communications are workflow-related. Local government budgets are shrinking and telecommunicators are already overloaded with the voice and data traffic they have to handle. Computer-aided dispatch (CAD) systems aren't designed for processing text, photos, and video from the public, and there is no utility for transmitting this kind of information back to citizens.

Social networks such as Facebook and Twitter are already filling in some of the communications gaps, at least in the outgoing sense. Citizens may not be able to send photos, text messages and video to their first responders, but they can receive this kind of information should they choose to do so. Many agencies have established accounts on Facebook and Twitter for the

express purpose of getting time-sensitive information to their service population. Unfortunately, those conduits are only as reliable as the network infrastructure the citizen uses.

GOOD, BUT NOT GOOD ENOUGH

The most common question – especially from cash-strapped legislators and city counselors – is, “Why can't we just use the commercial carrier services? They've got 3G wireless service offerings with data capabilities. They've got 4G wireless offering with significantly more data capabilities. They've got these technologies. Why don't we just use those commercial services? That's what we do now for non-mission critical applications!”

The answer, of course is that you don't want to have mission-critical public safety data communications competing with every teenager's “LOL” message to their friends. The fact is, today the everyday iPhone has got the same priority as the cop or

4G LTE networks will help resolve this dilemma by virtue of their greater capacity to carry information, as soon as the technology has penetrated the market sufficiently to realize the increased bandwidth and better reliability.

firefighter's computer in their vehicle on commercial networks. Those networks don't have sufficient provisioning or prioritization for the public safety user over that consumer user. That may not be an issue today, but as more and more people begin to consume things like TV and real-time video feeds, those networks will get congested.

Among the first things to fail in the event of a large scale natural disaster or a major terrorist attack are the mobile carrier networks. Despite the success of those networks in handling the deluge of texts, pictures, videos, ‘Tweets,’ and Facebook posts during protest events in the United States and throughout the Middle East this spring, that volume of traffic is nothing in comparison to what would likely happen in a major catastrophe.

A partial solution to this problem is to provision smartphones used by public safety officers to have priority access to the network when the channels are saturated. This would ensure that first responders could reach citizens and each other in a crisis. What it doesn't address is how the system will respond to the inevitable multiple reports and calls for help that come when disaster strikes. Without human intervention, there is no way to determine whether the report of floodwaters, a brush fire, or an active

shooter is the same one already received and in process, or a new incident as yet unreported. Asking the citizen to prioritize his own call isn't going to work – when water is coming over your threshold, you're going to view it as an emergency, no matter what other people might be dealing with.



RESOURCE OPTIMIZATION AND ECONOMIES OF SCALE WITH 4G LTE

WITH: CHRIS MOORE, CHIEF OF POLICE OF THE SAN JOSE (CALIFORNIA) POLICE DEPARTMENT

HIGHLIGHTS

- **Multimedia capabilities and 4G LTE bandwidth make public safety officers more efficient.**
- **Using a public safety 4G LTE infrastructure eliminates interoperability problems between police, fire, EMS and different government organizations.**
- **Early adaptation of this technology will reduce later costs.**

As public safety budgets are slashed, training programs cut back, and in some cases fire and police agencies being shut down entirely, many municipalities are approaching a breaking point. The good news in this scenario is that strategic application of attention and resources toward deploying mission-critical public safety mobile broadband can enable solutions that address those issues for many years to come.

Chris Moore is Chief of Police for the San Jose (Calif.) Police Department. Moore explains, "You can make cops more efficient, but you can't replace them. If you don't have the technology in place, it becomes more and more difficult for the cops you do have on hand to do their jobs."

"We're going to be able to catch perpetrators before they reoffend. We're going to be able to better supervise people out on parole. Nowadays in California, if you have a parolee and you don't have adequate state funds to supervise them, you have an ankle bracelet on them. Well, that is

something we'd be able to track over a public safety broadband network. All of a sudden, if you have a sexual assault in the community you can bring up the ankle bracelets in that area, and you can determine with GPS coordinates if any of those devices were there in the area of the crime at the time."

INTEROPERABILITY IS CRUCIAL

Chief Jack Parow is President and Chairman of the Board of the International Association of Fire Chiefs. Parow says, "Here we are, ten years out from 9/11 and we still haven't really solved the interoperability problem. I think it would be fair to say that we've already spent billions of dollars trying to make a patchwork of connections by various means – trying to

In today's economic climate, it has become imperative that all the public safety disciplines work efficiently together. To do otherwise can not only cost money, it can cost lives.

make some bridges to achieve something similar to interoperable communications that will allow us to communicate with each other."

Parow says also that in today's economic climate, it has become imperative that all the public safety disciplines work efficiently together. To do otherwise can not only cost money, it can cost lives.

"Today, the fire service is not just about fire," says Parow. "We usually have a shared command post and we have police,

fire, department of public works, emergency management people, and others who come to any sort of large-scale call you have right now. To be able to have all public safety talk with each other on one radio instead of the six radios that I have in my command vehicle right now, it just so much more efficient."

"You're not just talking about public safety communications – you're talking about the way we do business, the way we live," says Chief Moore.

MORE CAPABILITY EQUALS TIME AND MONEY SAVED

Public safety employees who have smartphones for personal use also find ways to make use of the devices in the

workplace. Chief Parow was at the scene of a large fire when he sent a deputy to the other side of the building for a report of conditions there.

"Cell phones aren't considered mission-critical equipment, but the next thing I know after I sent him around back, my phone is making a funny noise in my pocket – telling me I have a text message. I look at it and it was from my deputy. He had taken a picture of the back of the building and he said, 'Here's what you have.' There's no reason he couldn't have sent me video –

he just chose to send me a picture – but that’s what we’re talking about when we talk about the future of this stuff. We’re talking about communicating with somebody in a remote command post nearby. I’m talking about when you have a HAZMAT team responding on scene and sending real-time, live streaming video to someone across the country at EPA (Environmental Protection Agency) in Washington DC. The head of operations can just send streaming video back to show them exactly what’s going on. That’s where we’re headed. If you look at the technology in the private sector, a lot of it is already there.”

Chief Moore argues that with the right communications technology in place you can do things quickly that otherwise would be incredibly time consuming. Moore offers the example of a traffic stop in which the driver possesses no identification documents, and appears to be providing a false name. The driver says he has a license, but there’s no record of it under the name he’s provided. Each time he’s asked his date of birth, he gives a different answer. He’s trying to conceal his identity, and the officer doesn’t know why.

“The only way you’re going to find out why they’re lying to you is to take them down

to the station—that’s a three-hour proposition for a traffic citation but you don’t know what you don’t know. You can associate a cost with that.

“Now, with mobile identification and broadband,” Moore continues, “you take a thumbprint or a thumb-plus-one, and within a matter of 45 seconds you’ve identified this person, run them to determine if they have warrants, and you’re done. Now, think about the countless number of times this scenario happens. You take that three-hour period of time you just saved and multiply that by the number of actual incidents like it, and you’re talking tens of millions of dollars saved.”

THE TIME IS NOW

Chief Harlin McEwen (ret.) of the Ithaca (N.Y.) Police Department now serves as Chairman of the Communications &

Technology Committee for the International Association of Chiefs of Police. McEwen adds, “I think there is clearly increasing cooperation between the public safety disciplines – police, fire, and EMS, and I think that’s encouraging. Having an interoperable communications system ultimately saves money, and but also it can be easily justified in operational terms. All you have to do is listen in on the day-to-day communications taking place on an interoperable system and you can hear agencies working together and being more effective.”

Chief Moore says, “The time is now. If public safety doesn’t jump on board, the cost factor is going to be two or three times higher. If we’re able to get devices manufactured that have the same chipsets, the cost-per-device goes down significantly. If we wait it’s only going to cost us more. It’s inevitable that we’ll have this technology.”

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THE MOST CRITICAL KEY TO PUBLIC SAFETY EFFECTIVENESS IS INFORMATION

WITH: GEORGE ED RYAN, DIRECTOR OF COMMUNICATIONS FOR THE DEPARTMENT OF NATURAL RESOURCES FOR THE STATE OF MARYLAND

HIGHLIGHTS

- **Public safety organizations charged with counterterrorism responsibilities need a shared infrastructure for both prevention and response.**
- **Broadband services allow better use of remote camera and sensor data by law enforcement officers.**
- **Conventional networks lack the range needed to communicate with officers and monitoring stations located in remote areas.**

While Americans have gained a widespread appreciation for the type of devastation inflicted by terrorists since 9/11/2001, the threat of terrorism has been top of mind for public safety professionals throughout Europe for a hundred years or more. Although dormant (until quite recently) for a number of years, the Provisional Irish Republican Army has been blowing things up in the United Kingdom for the past half century – from the 1982 Hyde Park and Regent’s Park bombings to the Omagh Bombing in 1998. More recently, the UK has been the target of homegrown terror groups linked to al Qaeda, notably with the horrific 7/7 attacks in 2005.

European terrorism concerns cross countries’ borders – the Basque Separatists’ movement, for just one example, affects both French and Spanish first responders – so having the ability to quickly and securely share a wide variety of data is imperative. Having a universally-adopted,

globally-accepted LTE mobile broadband infrastructure will enable the next generation of terrorism prevention and response. For example, ad-hoc, situation-specific, real-time video surveillance feeds made available to otherwise unrelated law enforcement agencies may one day help to prevent a multiple-location terrorist attack.

One could reasonably argue that terrorism in Europe was born with the Gunpowder Treason Plot way back in 1605, and continues to haunt that continent today. By being proactive with the use of real-time video – whether it is from mobile cameras located in public safety vehicles, fixed-point locations maintained by public safety agencies, or all manner of private enterprise video surveillance – European police agencies will be able to have visibility into what’s happening at countless locations at which their human assets are not immediately present. This will enable much higher levels of protection against terrorism, as well as faster and more forceful response to incidents should they occur.

Remember, with only certain specific exceptions, most police officers in the UK do not carry sidearms – their primary weapon in the fight against terrorists is information. The English, like the rest of

Meanwhile, in America, the Maryland Department of Natural Resources (MDRN) is looking at many other types of information exchange that can enable better levels of service to its citizens.

LOOKING TO THE FUTURE OF SITUATIONAL AWARENESS

The Maritime Law Enforcement Information Network in Maryland is run by the Maryland Department of Natural Resources (MDRN) Police. MDRN Police are responsible for public safety operations in more than 17,000 square miles, which includes 6,000 square miles of waterways including the Chesapeake Bay – the maritime entry-point to the United States Capital and myriad water-borne economic assets of the mid-Atlantic region. To say that this area is of significant strategic importance is an understatement.

MDRN officers, like others who enforce the law in remote areas, face a special hazard. People they encounter are often armed, often intoxicated, and know the officer doesn’t have assistance readily available. Poachers, people fishing in protected waters or gathering fish above approved limits, and those dumping waste illegally are more likely to resist an officer working alone and without backup.

“We will have a lot more situational awareness.”

Europe, therefore needs a truly robust communications infrastructure for the conveyance of critical counterterrorism information.

That Maritime Law Enforcement Information Network run by MDRN uses fixed and mobile camera information, along with radar tracking data, AIS information,



and a variety of other sensor data, and shares it with multiple agencies – from federal agencies like the U.S. Coast Guard to local agencies like Baltimore City to various other state agencies. In turn, those participating agencies are sharing video from fixed cameras with MDRN.

The central element of the Maritime Law Enforcement Information Network is the distribution to all law enforcement and public safety agencies of high-quality, high-definition video, as well as still images and rich sensor data such as real-time radar tracking. Unlike providing this information via traditional means as one might find in an urban – or even suburban – jurisdiction, the areas of responsibility for MDRN are often sparsely populated, remote, and inaccessible to anything other than a small watercraft. Having the ability to share such information increases the safety of the public these professionals serve – not having it jeopardizes not only that citizenry, but also those public safety personnel.

George Ed Ryan, Director of Communications for the Department of Natural Resources for the State of Maryland says, “We’re really looking for the ability to monitor remote areas, and to be able to get fixed video camera information and radar information out to officers who are responding. We want to get video from our vessels which have video cameras on them back to the command staff and then out again to other responding officers. What we’re lacking is the mobile solution – being able to get that video and information out to the responding officers. With the mobile solutions we’ve already looked at, there is just not enough range to cover the areas that we need to cover. That’s one of the reasons why we’re looking at 700 MHz

LTE broadband to provide that wide area coverage.”

The Department of Natural Resources is the primary marine law enforcement agency in the state and is also the primary marine homeland security agency for the state as well. The Maryland Department of Natural Resources Police has some 250 sworn officers, more than 200 maritime vessels, and about 1,000 land vehicles to patrol eight zones in the state, including Chesapeake Bay. The agency used to field three aircraft, but due to recent budget cuts had to decommission those assets. Instead of doing their own air patrol, Maryland DNR is relying on the airborne support of the Maryland State Police. Ryan laments, “That compounds our communications problem. Now we have to bring another agency in and have them run video applications and take video information that they may otherwise not be accustomed to having.”

With a truly interoperable mobile broadband communications platform used by multiple cooperating public safety agencies, that predicament would be ameliorated. “I think that you’re really going to find that we will have a lot more situational awareness,” says Ryan. “There are a lot of cameras that are deployed in vehicles and vessels and aircraft – there are a lot of other kinds of sensors out there that monitor the Chesapeake Bay for statistical reasons but could also be used for law enforcement or homeland security missions as well. You could have license plate readers feeding into the system.”

GETTING AHEAD OF THE RESPONSE CURVE

ShotSpotter uses a network of acoustic sensors to detect and locate gunfire and explosive incidents. When an event is

detected by three or more sensors, data is transmitted to ShotSpotter’s location software, which identifies the event as gunfire, fireworks, explosion, or a non-threatening sound. Other sensors used for public safety purposes can detect things like the presence of chemicals in the air as well as an array of other potential hazards. The trouble becomes – how do you use all this information in real time? If you don’t have the interoperable mobile communications system in place to handle the traffic, you’re back to having civilians “call it in” to 911/112 centers.

Think about a ‘shots fired’ call. You can automatically set any ShotSpotter gunshot location resources connected to the interoperable communications network so that it sends information to the GPS-enabled patrol resources nearest to the incident.

Consider the issue of DNA analysis in the field. Where fingerprint identification in the field is real right now, we’re rapidly approaching an era of DNA in the field. Fingerprints don’t take up that much data, but DNA will, and that will require bandwidth and speed that simply is not available to public safety at present.

There are so many things that we haven’t even thought of yet – and that’s really the beauty of it. We simply haven’t even figured out all of the ways we can use this kind of network. Think of all the current ‘apps’ that are being used and developed today – all the things we could never do only a few years ago. We’re going to see that same type of an explosion of applications for public safety as soon as we get the network capability to deliver them.



MOBILE BROADBAND ENHANCES PUBLIC SAFETY EFFECTIVENESS

WITH: PHILIPPE AGARD, ALCATEL-LUCENT'S VICE PRESIDENT OF BUSINESS DEVELOPMENT FOR PUBLIC SAFETY

HIGHLIGHTS

- Legacy networks lack the capacity to carry video and other data necessary for today's public safety operations.
- Public safety communications will add a new dimension with information flowing from responder agencies to the public.
- For even greater operational benefits, networks can accommodate not just first responders of police, fire and EMS, but also second responders such as public utilities, transportation, and sanitation.
- Dedicated networks for public safety use are critical to ensure flow of information in a disaster situation.

Today, public safety agencies rely on what is commonly referred to as 3G (third generation) wireless technology for mobile data communications. This is primarily used for non-mission-critical applications. In Europe some agencies with terrestrial trunked radio (TETRA) networks were considering to expand the carrying capacity of their channels by implementing TEDS (Tetra Enhanced Data Services). That solution works for the transmission of simple, relatively static information, but is incapable of carrying the types of data which will be central to improving public safety effectiveness and efficiency in the 21st Century. TETRA/ TEDS networks can handle the "dash-cam" footage one might see on television news or in courtroom testimony, but it is all but useless in leveraging those video assets

to actually interdict criminal activity as it happens. Forward-looking planners and managers are wanting something better.

Philippe Agard is Vice President of Public Safety for Alcatel-Lucent. Agard explains, "In some geographies, first responder forces have to operate with video capabilities that are only offline, not in real time, due to their current mobile technology limitations. For instance, in France police cars have eight cameras, and all of them are now just for offline usage. You're putting greater assets on the streets but you're not realizing their full potential or maximizing the usage, and increasing the safety for those officers and firefighters."

Agard says that with the capabilities promised by [the more advanced technology of 4G LTE mobile broadband](#), there are also opportunities – some of them already known but others not yet even imagined – for improvements to the interaction

"With the capabilities promised by the more [advanced technology of 4G LTE mobile broadband](#), there are many opportunities for improvements to the interaction between the public safety forces and the citizens they serve."

between the public safety forces and the citizens they serve. A significant portion of that innovation will focus on the interaction between the public and their first responders.

"As we move to Next Generation e112 call centers we will have them connected

with citizens through more than just basic SMS and voice," Agard says. These centers will evolve to support multimedia. So a video or picture that a citizen forwards when reporting an incident, is immediately forwarded to the first responder using LTE to enhance the effectiveness of the response. Think about the difference it makes to arrive at the scene of a robbery with visual information that includes the suspect's face and color and type of clothing, as well as those of citizens at the scene. "

Agard says that this is not just about one-way, citizen-to-public-safety communications. This has massive potential for communicating with citizens who have been impacted by an event – informing them with real-time updates on the situation.

"We see Early Warning projects being launched in many places to alert citizens about natural disasters and we expect

more and more of those projects to happen globally," he says. "We need to put in place a rich media communication capability for the citizens. It's a dual direction – not only improving the communication to the first responders, but also improving the way the state or the first responder community interacts with the community."

BRINGING THE 'SECOND RESPONDERS' INTO THE MIX

Further innovation that can be anticipated on an [advanced 4G LTE network](#) will be in the area of information sharing and interoperable communications for 'second responders' – electric utilities, water utilities, as well as transportation and housing authorities. These stakeholders are less obvious, but equally important at critical moments.

Consider local public transportation systems – particularly surface transportation like city buses. Let's say there is an incident in which police are containing a barricaded suspect at a busy downtown intersection. The inner perimeter is one block in every direction from the incident (two square blocks), the outer perimeter is two blocks in every direction from the scene (four square blocks), the command post and EMS staging area is located at the southeast corner of the outer perimeter and has its own two square blocks of sterile area (no civilian traffic). You are now talking about roughly 18-20 blocks through which public transit can no longer move. Because you've got to re-route transportation, integrating that department on an ad-hoc, real-time basis with information from the command post on scene will help keep innocent people safe and keep the transportation flowing.

The most critical piece of the puzzle, however, is the underlying infrastructure of a mobile broadband network that all these agencies can plug into. With such an infrastructure, you have a standardized communications platform on which all these different stakeholders can talk, rapidly share visual information, and better serve the public. Without it, these scenarios are nothing more than good ideas never fully executed.

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PUBLIC SAFETY GRADE RELIABILITY

The argument that the existing wireless carrier networks – or even those now under development with 4G LTE technology – can fulfill the needs of public safety doesn't hold up. Even under ideal circumstances, those networks simply are not built with the levels of reliability and uptime that public safety and those 'second responders' require. The conditions most likely to cause an interruption in those services are also the conditions when the services will be most critical.

Think about the response to a tornado in a suburban area, such as what we recently saw in Joplin, Missouri in the USA. Police, fire, and EMS will respond along with public utilities and all manner of city services – water, sanitation, parks department,

“You will be able to have video fed into a control room and out to the field for decision making. Making this a reality becomes a strategic advantage by itself, increasing situational awareness and adding information from other data points.”

building inspectors, and whatnot. If the wireless network is clogged with the calls and messages of citizens searching for their loved ones, the high-priority traffic of the first responders will not get through.

“It's clear that public safety still needs its own dedicated network,” says Agard. “I know some people are saying that the forces could use broadband from the service providers but I think that you can imagine events that will require that we

shut down the mobile carrier networks. We know that during some counterterrorism tactics you have to cut the public networks to prevent terrorists from triggering bombs with mobile phones. So that really is not a public safety solution for real-time data. The public safety forces will need their own dedicated networks.”

Agard concludes that with innovations built on the 4G LTE mobile broadband network, all the stakeholders in the public safety universe will be linked, increasing situational awareness. “The first key is video.” Agard says, “Video comes up as the initial benefit – you can even say the basic benefit – but you will be able to have video fed into a control room where decisions are made on incident management. Making this a reality becomes a strategic advantage by itself, increasing situational

awareness and adding information from other data points. Then you will have video and information coming from the control room out to the field, and vice versa, for decision making.”

The ability to pass real-time video and audio information to decision makers makes a public safety 4G network an information force, just as critical to operations as the traditional first responders to emergencies.