5G First Responder Lab spotlights

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verizon

“All of the companies developing technologies at the 5G First Responder Lab believe what we believe—it’s about serving those who serve.”

—Nicholas Nilan, Director, Public Sector Product Development, Verizon

Bringing the power of 5G to support first responders

Verizon has decades of experience supporting the public safety community. Our portfolio of solutions is designed specifically to improve safety and security, increase officer efficiency, reduce crime and strengthen the relationship between law enforcement and the community.

And we’re doubling down on that commitment with 5G First Responder Lab, a collaboration between Verizon and ResponderXLabs.

A first-of-its-kind innovation incubator, 5G First Responder Lab is dedicated solely to creating 5G-enabled solutions for first responders. We’re working alongside responders to determine their most pressing needs, and tapping into the global entrepreneurial community to find the most promising and impactful solutions.

5G First Responder Lab is currently working with 15 companies to bring the power of 5G to their solutions. We will deliver those solutions to public safety agencies throughout the country this year, making good on our goal of bringing 5G to first responders first.

The 5G-enabled solutions being developed by Verizon, ResponderXLabs and the boundary-pushing companies we are partnering with are more than just cutting edge; they’re designed to save lives. The lives of the responders themselves and of the people they serve.

Because these technologies have the potential to impact so many lives in such a meaningful way, we’re spotlighting the first five companies partnering with 5G First Responder Lab.

When you choose the network more first responders rely on, you're ready.

At Verizon, we don't wait for the future. We build it.

Verizon is the network for first responders.

Here are the top five reasons why:

1. A dedicated public safety network core
2. Widest coverage, superior capacity and world-class security
3. Interoperable communications
4. Rapid disaster response
5. First to 5G

This is just the beginning of our 5G-enabled solutions for first responders. Verizon 5G Ultra Wideband will support many more next-generation capabilities for public safety, including:

- Real-time intelligence
- Critical training preparedness
- Next-generation communications
- Remote asset operations
- Augmented reality (AR) on-the-job support

When it comes to your communications network, you have a choice. And Verizon is committed to providing reliable communications and solutions for first responders.

Your team is relying on you to choose the network for first responders. That's Verizon.

Bill Bratton's "Three Cs and the I" for public safety

Former two-time New York City Police Commissioner Bill Bratton (who also served as Police Commissioner of Boston and Los Angeles Chief of Police) spoke at the 5G First Responder Lab about the "Three Cs and the I" that he considers crucial for public safety.

Communication
It is essential to us. And it always has been.

Collaboration
We have seen that in dealing with terrorism, "traditional" crime and natural disasters, the reality is that without seamless collaboration – with service providers like Verizon, and among public safety agencies – we are not going to be able to function effectively, to either prevent or to respond.

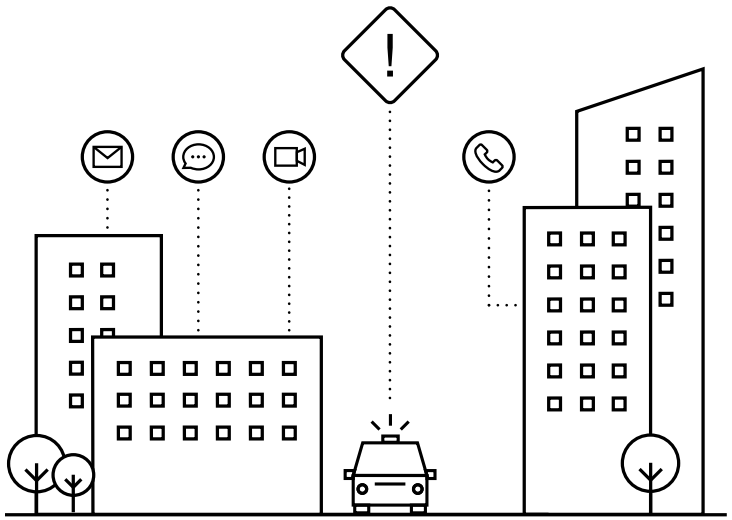
Consistency
You need to know that when you need it, that device is going to work, whether it's for data, video, radio or cell phone communication. That in good times or bad, in good weather or bad weather, in crises or normal times, you can count on it.

Innovation
Verizon is clearly demonstrating its commitment to innovation with the 5G First Responder Lab. They are not only moving into the Fourth Industrial Revolution, but they intend to own it. And that ownership is going to drive phenomenal benefits for public safety.

Experience the future of public safety

Company and mission

Blueforce Development provides products and services that improve life safety, increase operational efficiency and enable better decisions.



The challenge

When multiple agencies respond to an event, sharing information can be a major challenge. Blueforce is seeking to mitigate the splintered nature of intelligence gathering, and break down the barriers to information sharing among responder agencies.

The technology

Blueforce Command Center integrates information from deployed personnel, autonomous agents, information services, and body-attached or unattended ground sensors to deliver a broad range of information to commanders and support staff, enabling faster, synchronized decision support and response.

With Blueforce's hyperenabled responder solution, responders can be outfitted with sensors for chemical weapons, multigas, and gamma and radiological detection, as well as holster and firearm sensors and biometrics that deliver real-time awareness of the responder's physiological state. The intelligence is available to the incident commander, as well as to the responders themselves.

Similarly, teams that use canines in off-leash environments can receive real-time video from the canine, along with environmental and canine physiological data.

The power of 5G

At the 5G First Responder Lab, Blueforce is seeing firsthand how rapidly it can disseminate relevant incident data and move actionable intelligence to responders.

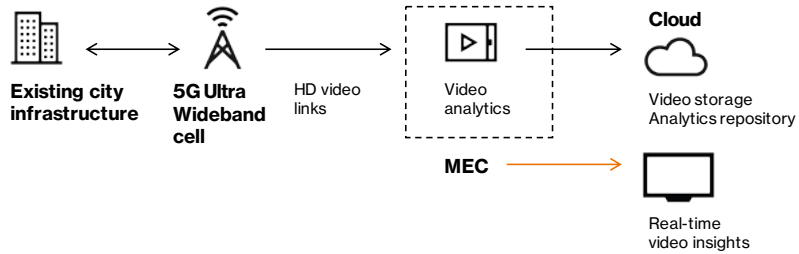
Previously, the company faced the challenge of collecting information from sensors made by multiple manufacturers, which required multiple windows to monitor.

"We believe 5G is actually going to begin saving more lives, because of the speed at which we can get actionable intelligence to those who are poised to act."

—Mike Helfrich, CEO and Founder, Blueforce

Now, the 5G-enabled Blueforce platform fuses all sensor data into a single pane-of-glass view, which can also incorporate live feeds from thermal imaging, street cameras and other smart-city technologies. This means life-safety officers and incident commanders can monitor an entire deployed force in one window.

5G's high speed, low latency and wide bandwidth is also enabling hyperquick sensors and what Blueforce calls orthogonal fusion – the ability for smart infrastructure, like street lights, to provide information to the first responder who is nearest the incident. Additionally, Blueforce will be able to push higher-resolution sensor data, allowing responders to utilize facial and object detection in real time.



Company and mission

Aerial Applications transforms drone data into actionable insights, linked to assets in a geospatial, map-based environment for access and analysis.

The challenge

In a crisis situation, knowing exactly where and when to allocate resources can be a major challenge. Particularly when a wide area is affected, as during a hurricane, large wildfire or earthquake.

The technology

Aerial Applications uses drones to capture video, photographs, LIDAR scans and thermal sensor imaging of affected areas and then applies artificial intelligence to construct high-definition 3D models. The models can be examined, measured and manipulated – all without visiting the site – and shared securely.

"When you're doing first-responder work, every single second matters, and so being able to get information even just a little bit faster can be the difference between responding in time and responding too late."

– Joe Sullivan, CEO of Aerial Applications

The power of 5G

The massive bandwidth provided by 5G enables Aerial Applications to livestream video with sub-centimeter-level resolution and rapidly transfer massive data sets. And 5G-enabled multi-access edge computing (MEC), which allows cloud servers to run closer to endpoints, reduces latency and speeds local processing, allowing the company to process data through AI faster than ever before.

Aerial Applications was also facing challenges in getting the huge, data-heavy models to its customers. But with 5G, the company will no longer have to deliver hard disks or wait hours for the models to upload and download; they'll transfer wirelessly in mere minutes.

"We're very excited about this technology, because it means we'll be able to shave minutes—possibly hours—off of these projects, enabling even faster response times. It could also mean that rather than just having a map and a pin that shows where someone needs help, we could livestream video of that person until the response crew arrives."

—Joe Sullivan, CEO of Aerial Applications

Company and mission

Kiana Analytics' cloud-based software and real-time device detection platform helps public safety agencies strengthen physical safety and security, and better understand human behavior.

The challenge

The number-one challenge for first responders is how do you get actionable information fast? The second challenge is situational awareness: What's going on and where do you send your people? And the third challenge is how can you make the best use of the people you have?

The technology

The Kiana Secure solution integrates mobile device ID, time and location with intelligent video surveillance, fixed device ID, geofencing and forensic analytics tools to provide real-time awareness. Kiana Analytics works with the Department of Homeland Security to gain access to airport maps and other data required to run its services, which include image device association, real-time pattern tracking, zone alerts and monitoring, unauthorized presence detection, and person-of-interest tagging.

"5G opens up a whole new door for our application."

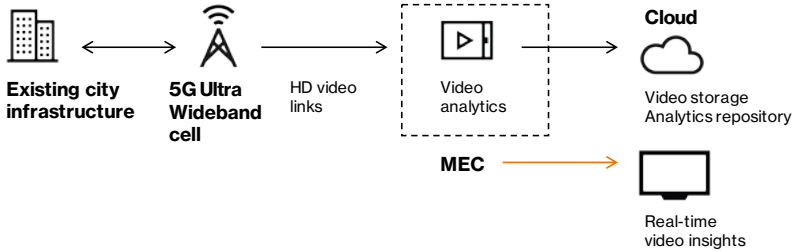
– Nader Fathi, Kiana Analytic's CEO and co-founder

The power of 5G

Kiana Analytics' solution has been using Wi-Fi and Bluetooth® for connectivity. But with 5G's ultra-low latency, the company can deliver what it calls "borderless" security, which is security outside the constraints of those limited connectivity options. And thanks to 5G's massive bandwidth, Kiana Analytics will also be able to improve its camera visuals, advancing from two-meter accuracy to sub-meter accuracy.

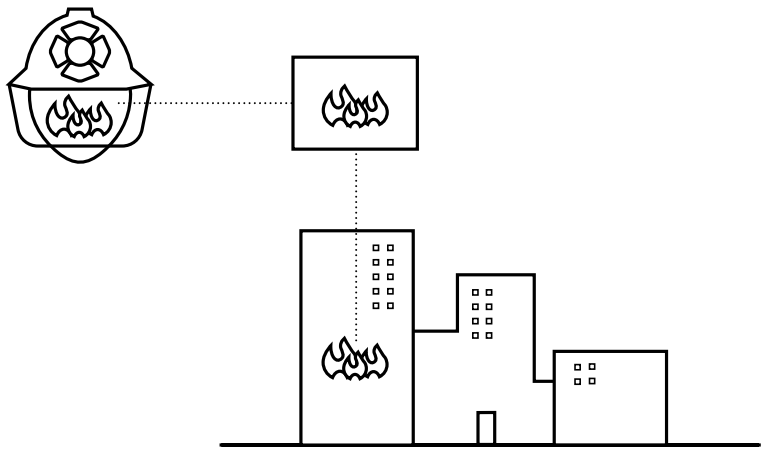
And with 5G-enabled multi-access edge computing (MEC), which helps reduce latency and speed local processing, Kiana Secure can rapidly upload, analyze and download actionable data in real time to help responders make faster, better-informed decisions.

For example, if a building collapses during an earthquake, Kiana Secure could help first responders identify where people were before the earthquake and where they are afterwards.



Company and mission

Qwake Technologies was founded on the belief that innovation has the potential to be a force for good. Qwake Technologies' cross-disciplinary team, which includes a volcanologist/explorer, rocket scientist/firefighter and neuroscientist/computer vision expert, seeks to redefine the future of fire and rescue through computer vision and augmented reality.



The challenge

The number-one challenge firefighters face is limited-to-zero visibility. And current imaging solutions require the responder to stop, look at a small screen, make sense of complex information and then act upon that information going forward.

The technology

C-THRU is a software-as-a-service (SaaS) platform that can be integrated into firefighters' self-contained breathing apparatus (SCBA). It applies neuroscience principles to computer vision and augmented reality to enable faster, safer navigation through smoke-filled environments. C-THRU provides edge detection and hot spot identification in real time, and wirelessly connects firefighters with incident command, transmitting visual POV, telemetry data and location to command and control. Object recognition and flow-path tracking capabilities will be added soon.

"The ability to see in the types of environments that we work in is a game changer. It could mean the difference between life and death."

—Tom Calvert, Battalion Chief, Menlo Park Fire Protection District

The power of 5G

At the 5G First Responder Lab, the innovators from Qwake Technologies are seeing firsthand how 5G and C-THRU could radically improve firefighter safety.

5G-enabled multi-access edge computing (MEC) allows cloud servers to run closer to endpoints, helping to reduce latency and speed local processing.

That means that C-THRU can augment firefighters' vision in real time, enabling them to see in smoke-filled, zero-visibility environments. That improved vision and navigational ability could lead to improved firefighter safety, more timely rescues and faster fire suppression.

In test routes, C-THRU enabled firefighters to move nearly three times faster and with three times greater consistency in tests against technologies that were not 5G-enabled.

5G's massive bandwidth, combined with MEC, could also empower better firefighting strategy and coordination. Large crews of firefighters and other first responders, outfitted with C-THRU's high-speed thermal cameras, could send mapping data to an MEC facility where it would be processed and shared in real time. That means incident commanders could map the entire environment to create more effective fire suppression strategies, while simultaneously tracking crews of 20 to 30 responders and monitoring individuals' vital signs.

"We can have a future in which first responders can more calmly go about their job, because they have the aid of all their senses," says Dr. John Long, Qwake Technologies Co-Founder and Head of Technology. "And incident commanders can better focus on their mission-critical tasks, because they know where all their people are and how they're doing. That's very exciting; it's what motivates all of us at Qwake Technologies."

Company and mission

ADCOR MAGnet Systems is a software and hardware development company specializing in sensor fusion and reality augmentation techniques that are designed to aid users to better understand the environment they operate in and to interact with it more efficiently.

“In my previous career, I was a fighter pilot, flying F-16s for almost 28 years. The most important element in the success of our missions was having the best possible situational awareness.”

– Evanzelos Foutcitcis, President and CEO of ADCOR MAGnet Systems

The challenge

The most critical element to mission success is situational awareness. Current network technology does not have the bandwidth or latency to support real-time, full 4K video streaming.

The technology

ADCOR MAGnet Systems creates smart sensors, 360-degree cameras and wearable cameras to detect, identify, track and correlate airborne, ground-based and sea-based assets through its 3D environment.

The company’s 360-degree cameras “rebuild” a digital replica of the real world, providing live streaming to an unlimited number of viewers. Each viewer can select their own perspective and immerse in that specific video sphere, as well as extract geographic coordinates that are then displayed on the map.

ADCOR MAGnet Systems’ NEMESiS Mission Planner application is the heart of the system. It combines inputs from the individual sensors and controls the company’s unmanned aerial vehicles (UAVs) and tracking antenna.

The power of 5G

5G-enabled multi-access edge computing (MEC), which allows cloud servers to run closer to endpoints, helps reduce latency and speed local processing. That means ADCOR MAGnet Systems can increase the resolution of its cameras to stream full 4K video in real time, as well as provide advanced analytics that enable viewers to recognize, categorize and classify objects faster, with better clarity and in longer ranges

ADCOR MAGnet Systems recently released a first-of-its-kind, 360-degree thermal camera. Thermal cameras typically have a very narrow field of view, but ADCOR MAGnet Systems' camera will allow viewers to immerse themselves into a live 360-degree view, even in pitch-dark environments.

"Understanding the environment that you are operating within, and being able to relay that information to your team members and remote command-and-control centers, is the most critical part of your mission.

And 5G will enable sending that information in real time to every member of the team."

—Evanzelos Foutcitcis, President and CEO of ADCOR MAGnet Systems