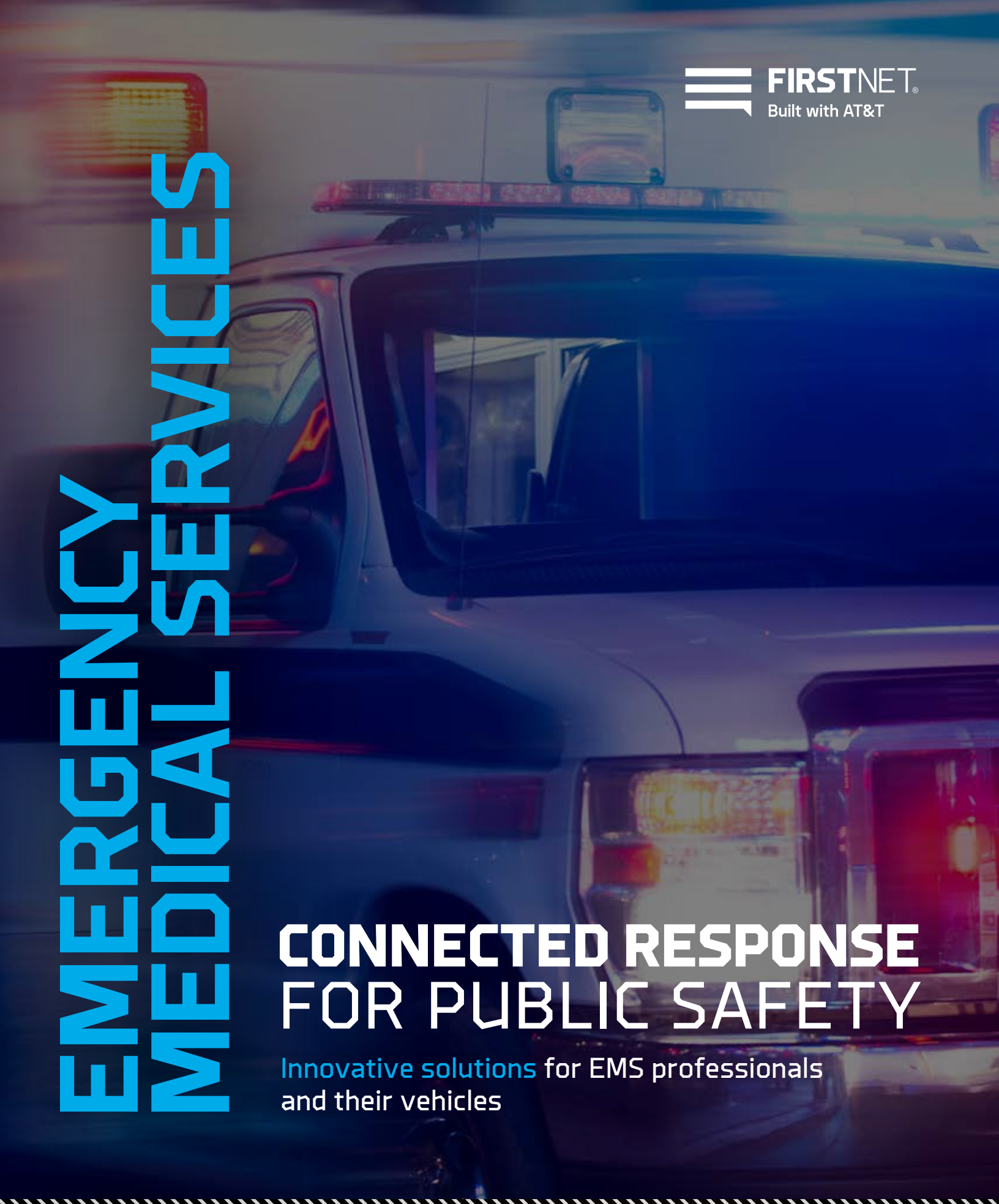


FIRSTNET®
Built with AT&T

EMERGENCY MEDICAL SERVICES

CONNECTED RESPONSE FOR PUBLIC SAFETY

Innovative solutions for EMS professionals and their vehicles

INTRODUCTION

FirstNet® Built with AT&T: Why We Exist

As first responders, you need access to fast and reliable communication. It's vital to your ability to serve and protect, to save lives. Yet no one knows better than you what can happen when you don't have access to the best technology.

The devastating losses from the terrorist attacks of Sept. 11, 2001, exposed glaring weaknesses in the nation's communications systems. Cell service was spotty. Emergency response teams could not communicate using their trusted radios. And many died. Of the 2,977 victims who perished that day, 421 were first responders. To prevent such tragic losses from happening again, we had to drastically change the way first responders communicate.

A 9/11 Commission was formed to identify the challenges and gaps in these communications systems. And the report that followed recommended a nationwide communications network just for public safety. In the years after the report's release, public safety organizations and associations came together to advocate for and encourage Congress to pass legislation to create such a network. And in 2012, Congress passed an act that created the First Responder Network Authority (FirstNet Authority) and charged it with building a nationwide communications network just for first responders.

In March 2017, in a first-of-its kind public-private partnership, the FirstNet Authority awarded AT&T a 25-year contract to build, deliver and operate FirstNet – an innovative ecosystem that comprises the network, devices, applications and services. AT&T was the only major commercial carrier to bid and commit to build and maintain the only nationwide network for first responders.

After forming a partnership with AT&T, the FirstNet Authority issued customized State Plans outlining how FirstNet would be deployed.

Thanks to years spent consulting with public safety agencies across the country – combined with AT&T's deep knowledge of and service to public safety – the FirstNet Authority gained a better understanding of the needs of first responders nationwide. The goal: access to a reliable communications network that would be effective in all areas of the country, from rural and sparsely populated areas to mountainous or desert terrains to densely populated cities.

As first responders, you put your lives on the line every day to help others. A reliable and highly secure communications network is what you deserve, what you must have to do your jobs successfully. AT&T is privileged to be partnering with the FirstNet Authority to build and maintain this very important network for you.

The FirstNet®, Built with AT&T Difference

- Covers more first responders than any other network in America
- Prioritized access, never competing with commercial traffic
- Band 14 Spectrum, now covering more than 99% of the American population
- Highly secure network with available end-to-end comprehensive tower-to-core encryption
- No throttling for FirstNet subscribers anywhere in the U.S.

EMS professionals can easily see and share all kinds of patient information—video, images, test results and more.

> "More than anything, clinicians need connectivity that can cut through the noise to deliver data that improves outcomes."

THE MODERN EMS PROFESSIONAL

By Amos Chalmers, Senior Solution Architect, FirstNet Program at AT&T and former Deputy Chief Technical Services/CTO, Phoenix Fire Department

When it comes to data, more isn't more. It's great to have access to information, but if it's not the ***right*** information, ***with context, when*** you need it, it's worse than useless. For those of us in EMS, this means data has to inform the decisions we make about patients, operational effectiveness and often cost. It's that simple.

But connectivity and communication aren't always simple or easy. The reality is, we're usually making those decisions in a quickly changing, emergent situation. And we might be communicating in a congested cellular environment with spotty or even nonexistent coverage.

More than anything, paramedics and EMTs need connectivity that can cut through the noise to deliver data that helps improve outcomes. Improving a clinician's ability to communicate with the hospital or other receiving facility. Reducing response and turnaround times. Automating the collection of data so EMS leaders can make informed decisions that optimize limited resources and minimize mistakes. And making it easier to deliver mobile integrated healthcare and community paramedicine.

A Modern Response

What excites me most about a connected EMS ecosystem is that the modern, connected paramedic and EMT and ambulance are giving us greater access to information, helping us deliver better patient care, no matter the setting.

Through Connected Response for Public Safety, clinicians get near real-time information at their fingertips. The FirstNet-enabled Land Mobile Radio (LMR) and FirstNet mission-critical push-to-talk (PTT) solutions enable seamless **interoperable communications**. That means extending the capability of medical radio systems and, through PTT, giving you the ability to share video, images, data, text, location and voice — whether 1-to-1 or 1-to-many — to improve operational effectiveness, patient care and clinician safety.

More, better and timely information allows location and situational awareness that delivers accountability tracking that simply wasn't possible before. That equates to helping to keep personnel and patients safe and giving leadership more information about the status and maintenance needs of their fleet.

> "We're all tasked with doing more with less. I see the Connected Response ecosystem as not just innovative, but a force multiplier."

Also important is the rise of the **mobile clinical environment** and the **mobile operational environment**. Smart devices like phones and tablets are enabled for voice, text, video and image communications. This makes it far simpler to communicate with dispatch, leadership and healthcare facilities when you're transporting patients. It's easier, too, to handle common administrative and operational tasks like closing patient care reports, submitting work orders and more. I see a future where we'll be much smarter about monitoring the health and wellness of our EMTs and paramedics, which will help mitigate the effects of chronic stress that so often come with the job.

All of these capabilities are possible through **reliable, prioritized wireless connectivity** in the vehicle – what we at FirstNet®, Built with AT&T call the Connected Vehicle concept. Using the FirstNet 5G router with Wi-Fi connectivity, EMS staff can have robust connectivity even in areas that sit at the edge of a cell connection. And FirstNet MegaRange™ high power user equipment (HPUE) can help boost the signal at the edge of coverage.

With strained resources and staffing challenges, we're all tasked with doing much more with less. That's one of the areas where I see the greatest potential: The Connected Response for Public Safety on FirstNet ecosystem isn't only innovative, it's a force multiplier.

Just as important, it delivers options for agencies like yours. Limited funding and personnel mean you probably can't fork over a lot of money for a complete suite of software solutions. It might make more sense to add one or two new products at a time, growing your capabilities as budget allows. And anything you buy to help modernize your EMS agency should also work with what you already have. Interoperability — the ability to connect to systems and products you know and trust — is a critical part of cutting-edge and future technologies. Again, it gives you more options so you can choose what works for you.

These are just some of the needs FirstNet can fill with Connected Response for EMS. You'll find more information about these technologies in this publication.

Amos Chalmers
Senior Solution Architect
FirstNet Program at AT&T

Amos Chalmers is responsible for technical architecture and solutioning for public safety in the U.S. and Pacific Territories. His focus areas include dispatch and deployment technology, LMR-LTE interoperability, mobile data communications, deployable technology, and mobile security. Prior to joining the FirstNet Program at AT&T in 2017, Amos spent 20 years in public safety technology for the Phoenix Fire Department and retired as Deputy Chief over their regional dispatch and deployment organization. Amos holds a master's from the W.P. Carey School of Business at ASU and a master's in applied leadership and management.

A mobile clinical environment makes clinicians more efficient, freeing them to focus on patient care.

Reliable connectivity enables the transmission of critical patient information and ensures clinicians get highly accurate GPS data.

EXPLORE THE CONNECTED RESPONSE ECOSYSTEM

The Connected Response for Public Safety concept wasn't created simply as a way to put a variety of technologies "under one roof." A number of the products for the Connected Vehicle and Connected Responder for EMS have been around. LMRs and dashcams aren't anything new, after all.

But to truly modernize and maximize a variety of disparate tools and technologies, they need to work together. In a word, they need to be connected. And when they are, the whole is truly greater than the sum of its parts.

As you explore the Connected Response ecosystem for FirstNet for both vehicles and responders we encourage you to see the potential you can realize through these connections: Smoother, faster communication and response times. More informed deployment of resources. More effective and relevant data. Safer, healthier communities, patients and EMS clinicians.

"Every day our employees on the front lines treat patients at motor vehicle accidents, wildfires, on the fireground, in the air. When an employee leaves the ambulance, they need to be leaving with a piece of technology that's going to provide them mobile data wherever they are... FirstNet plays a vital role, no matter whether an incident is small or large or everything in between."

– *Jeffrey Marani, Director, Field Technologies, Global Medical Response*

CONNECTED RESPONSE
FOUNDATIONAL TECHNOLOGY

THE CORE FOUR

While EMS agencies can and should choose only the solutions that will most benefit their personnel, these four technologies are the foundation of Connected Response for Public Safety and often a good place to start:

1 FirstNet connected smart device with mission critical push-to-talk

A public safety-grade group communications service defined by 3GPP Mission Critical standards. Delivers group and 1-to-1 push-to-talk calling; location services to map or call team members; text messaging to groups or individuals; file-sharing of images, video clips, documents and more.

2 Router – FirstNet 5G Wi-Fi Connectivity

The foundation of all reliable, robust and prioritized connectivity and communications for Connected Response for Public Safety. FirstNet enables public safety to connect in areas where there's typically little or no coverage and also delivers greater uplink speed.

3 FirstNet MegaRange™

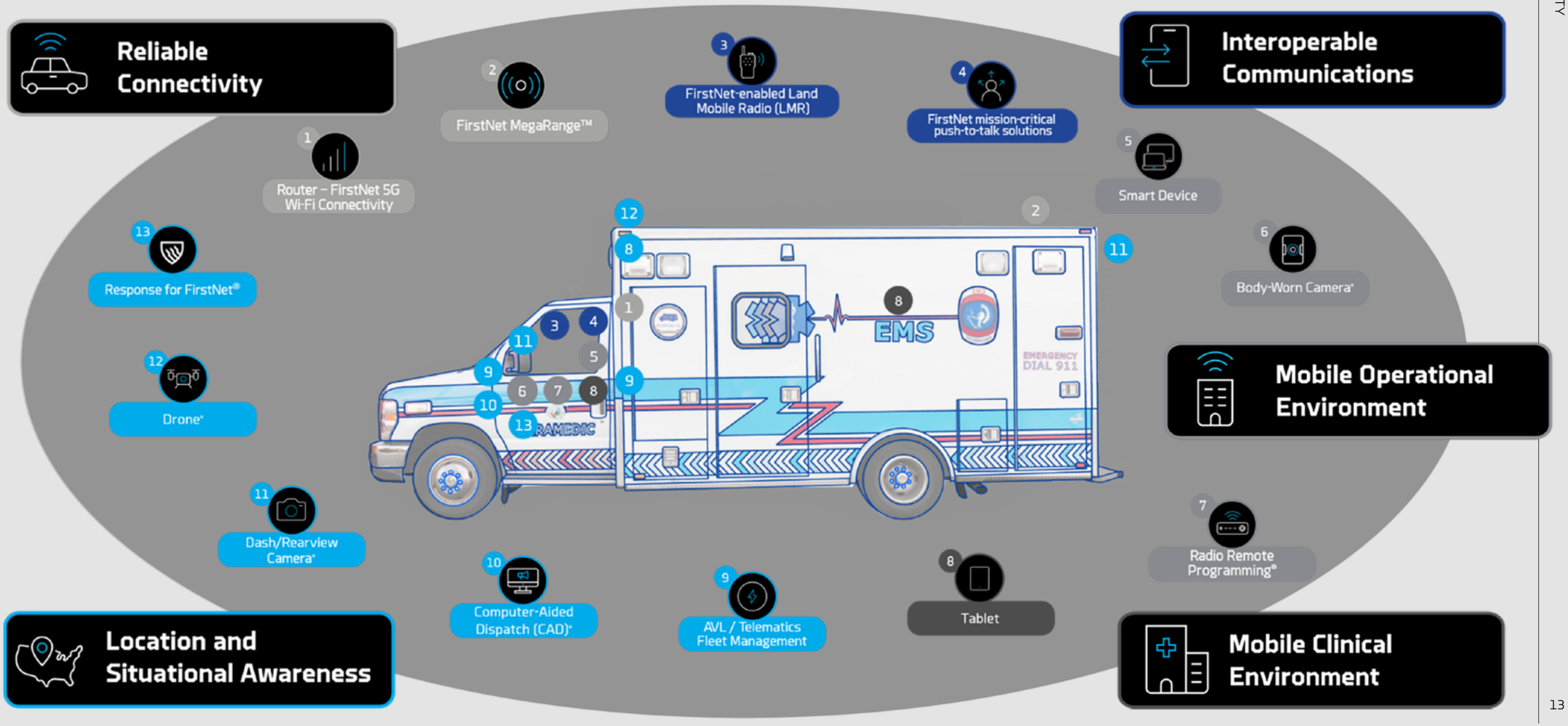
This high-power user equipment (HPUE) solution helps boost your signal at the edge of coverage for a range of communications and needs.

4 FirstNet-enabled Land Mobile Radio (LMR)

Turn a local radio system into a nationwide platform using the FirstNet network. Provides additional capability, allowing for failover and system redundancy in the event of an outage. Reprogramming your radio to align with a neighboring agency's is simple and quick.

CONNECTED VEHICLE FOR EMS

Meet the in-vehicle solutions designed to improve EMS professionals' location and situational awareness, provide reliable, prioritized connectivity in a mobile environment and facilitate interoperable communications. Then reach out to learn more about the specific technologies that can help meet your needs.



CONNECTED VEHICLE FOR EMS

Reliable Connectivity

1. Router – 5G Wi-Fi Connectivity: This is the foundation of all connectivity for the Connected Vehicle for EMS. The router supports the secure, reliable transmission of critical patient information to receiving facilities. Wi-Fi capability allows devices to directly connect to a variety of biomedical devices and also delivers highly accurate GPS information that feeds directly into computer-aided dispatch (CAD) and on-board navigation.

2. FirstNet MegaRange™: Exclusive to FirstNet, this high power user equipment (HPUE) solution helps boost your signal so you can perform functions like cardiac monitoring, receiving hospital status and sending and receiving pre-hospital instructions. FirstNet MegaRange™ can help lift your signal beyond the edge of coverage, improving connectivity in rural areas, urban "canyons" and underground.

Interoperable Communications

3. FirstNet-enabled Land Mobile Radio (LMR): In augmenting your existing LMR, this technology delivers nationwide coverage and push-to-talk capabilities that allow for far greater interoperability. The FirstNet LMR also extends the capability of medical radio systems used for pre-hospital alerts and medical direction.

4. FirstNet mission-critical push-to-talk (PTT) solutions: Functional anywhere a paramedic or EMT has a network connection, these solutions are especially critical when outside the range provided by your local LMR system. PTT enables the sharing of video, images, data, text, voice (whether 1-to-1 or 1-to-many in talk groups), location and more – all of which improve operational effectiveness and patient and clinician safety. FirstNet PTT on your smart device or tablet allows you to quickly set up communications for any group responding to a scene (including mutual- and automatic-aid situations) and frees up your LMR system for critical communication.

Mobile Operational Environment

5. Smart Device: EMS professionals can use their device in the field to communicate with a receiving facility to provide optimal patient care both on-scene and en route to the hospital. This enhances communication by allowing the exchange of data and video.

6. Body-Worn Camera*: The camera can be used to record and transcribe patient interactions, medication delivery timing and more, making it easier for EMTs and paramedics to complete reports quickly and accurately. In the event of a difficult patient, the camera can capture the incident; this is increasingly important for risk management as a preventative safety measure and can be used as evidence in the event of a legal matter and for case review.

7. Radio Remote Programming*: Delivers the ability to remotely program a radio, eliminating the need to manually program individual radios. This saves valuable time and effort in mutual-aid situations with an immediate need to align with another jurisdiction's radio system.

Mobile Clinical Environment

8. Tablet: The FirstNet-supported tablet enables a range of biomedical communications, including the use and completing of electronic patient care reports (ePCRs), access to medical records, and live interactive patient care (telemedicine), allowing the physician to see patients prior to arrival at the ED, as well as share and receive data from ultrasound, mobile MRI, cardiac monitor defibrillator, 12-lead EKG, and other advanced assessment technologies and vital sign monitoring tools.

The tablet is useful, too, in completing common administrative and operational tasks such as closing patient care reports, submitting work orders, checking email, accessing and updating timesheets and ordering supplies. This translates to less time in the office and more time on the street responding to calls. Staff can also use the tablet to access the agency's RMS (records management system) and CAD.

These four technologies are the foundation of Connected Response for EMS.

Location and Situational Awareness

9. **AVL/Telematics Fleet Management:** Data from the ambulance's fleet management and telematics system provide operational insight into how well vehicles and equipment are functioning (the vehicle's computers can alert administrators of mechanical issues before a failure occurs, for example) as well as fuel usage, maintenance and idle time. With greater insight into their fleet, EMS leaders can save money and improve efficiency when it comes to where and when they position ambulances and adopt more intelligent routing.

10. **Computer-Aided Dispatch (CAD)*:** A connected CAD monitors hospital status and assists in call assignment and ambulance routing; this can be especially critical in areas with few trauma centers and in mass casualty incident situations, enabling EMS staff to more quickly determine where to take a patient. The CAD can also recommend and dispatch the most appropriate and closest unit. The incident commander can use the CAD to visualize the optimal movement of assets (including ambulances) at a scene.

11. **Dash/Rearview Camera*:** Provides improved situational awareness, guidance for maneuvering the ambulance and visual information if after-action reporting is useful.

12. **Drone*:** Particularly on a scene that's dangerous, hazardous or simply difficult for EMS professionals to enter or have visibility, a drone can provide much improved situational awareness.

13. **Response for FirstNet®:** An easy-to-use app that delivers situational awareness for day-to-day and emergency operations. In one deployable solution, users get near real-time mapping, information-sharing, team mobilization and push-to-talk communication.

**FirstNet does not sell all of the technologies outlined here. However, FirstNet Ready® and FirstNet Trusted™ devices sold by third parties have been through a rigorous device evaluation and testing process to provide first responders and those who support them with highly secure, high-performance devices ready for use on FirstNet.*

"With FirstNet, we're now able to get coverage anywhere in the county. We use it for everything, from helping to run our CAD system so that we can talk directly with dispatch or with other responders coming to the scene and also with transmitting our 12-lead EKGs to the hospitals."

– *Christi Hilliker, Assistant Chief, EMS, Franklin County, Kansas*

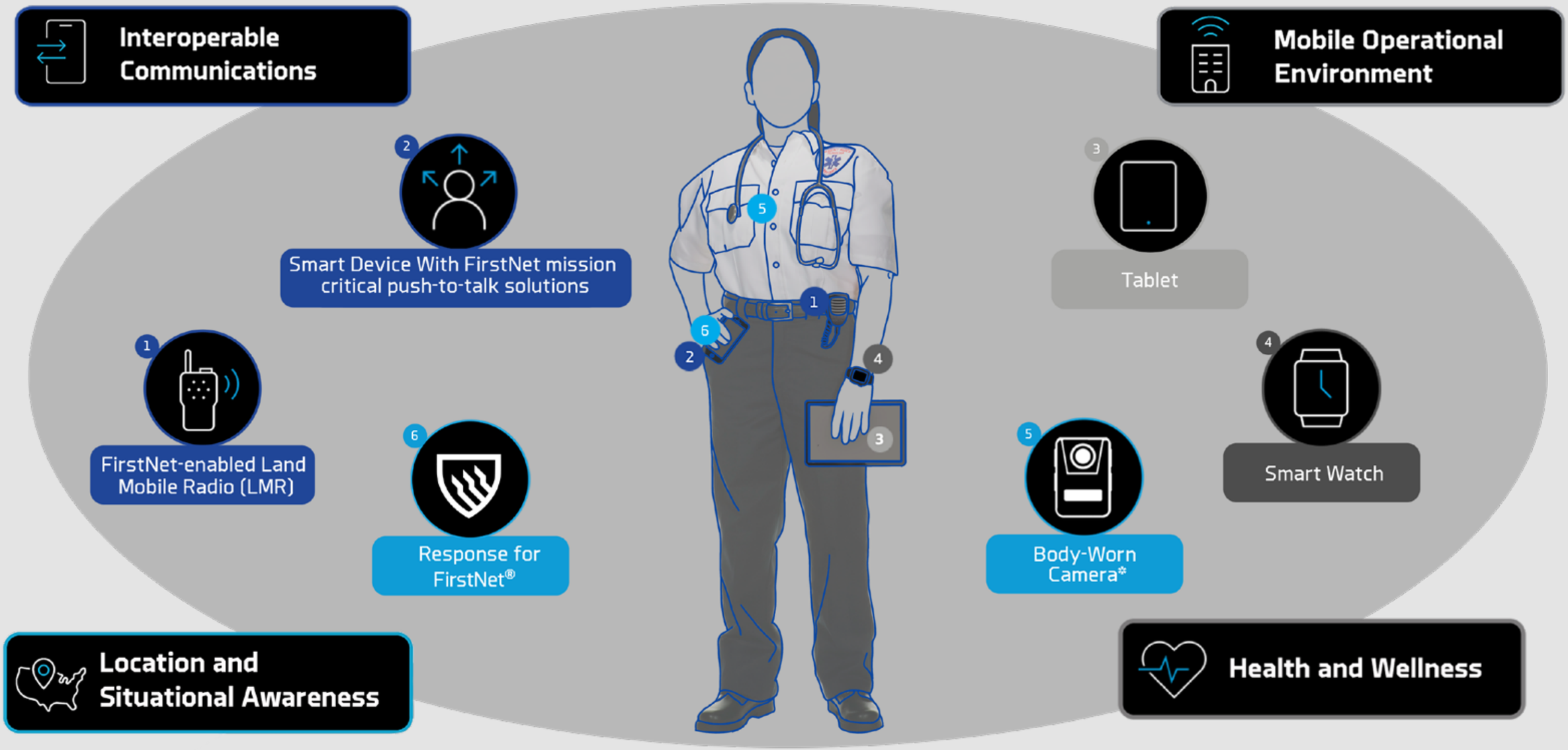
Among the biggest benefits of Connected Response are smoother, faster communication and response times.

CONNECTED RESPONDER FOR EMS

While there's a lot you can do with a connected vehicle, true connectivity means extending capability when you're *outside* the ambulance — enabling paramedics and EMTs to serve safely and effectively at a patient's home, on the way to the ED or wherever their job takes them.

These six solutions help you:

- Get prioritized connectivity to communicate critical information in near real-time
- Use technology to keep patients and clinicians safe, acting as a force multiplier in times of inadequate staffing and other limited resources
- Make the EMS professional's job — from administrative duties to responding to a pandemic — easier, simpler and faster



CONNECTED RESPONDER FOR EMS

Interoperable Communications

1. **FirstNet-enabled Land Mobile Radio (LMR):** Allows the EMS clinician to leverage FirstNet network connectivity whenever and wherever they need to, including in times of mutual aid outside their service area.

2. **Smart Device with FirstNet mission critical push-to-talk solutions:** Equips the EMT/paramedic with a reliable, robust communication tool that augments LMR and can transmit and receive text, voice and data and stream live video. PTT capabilities also include location-sharing and tracking of personnel when out of vehicle (improving awareness and safety), connecting with pre-hospital emergency care physicians and receiving dispatches.

Mobile Operational Environment

3. **Tablet:** As with the FirstNet-enabled Smart Device, the EMS clinician can take the tablet when entering a home or building to see a patient and use it to access ePCRs, document the visit and care given, complete and file the report, and facilitate telemedicine care.

Health and Wellness

4. **Smart Watch*:** Enables EMS professionals to receive notifications, voice-to-text communication, and tracks their well-being, including blood pressure and heart rate, helping leaders identify health risks and improve wellness among their teams.

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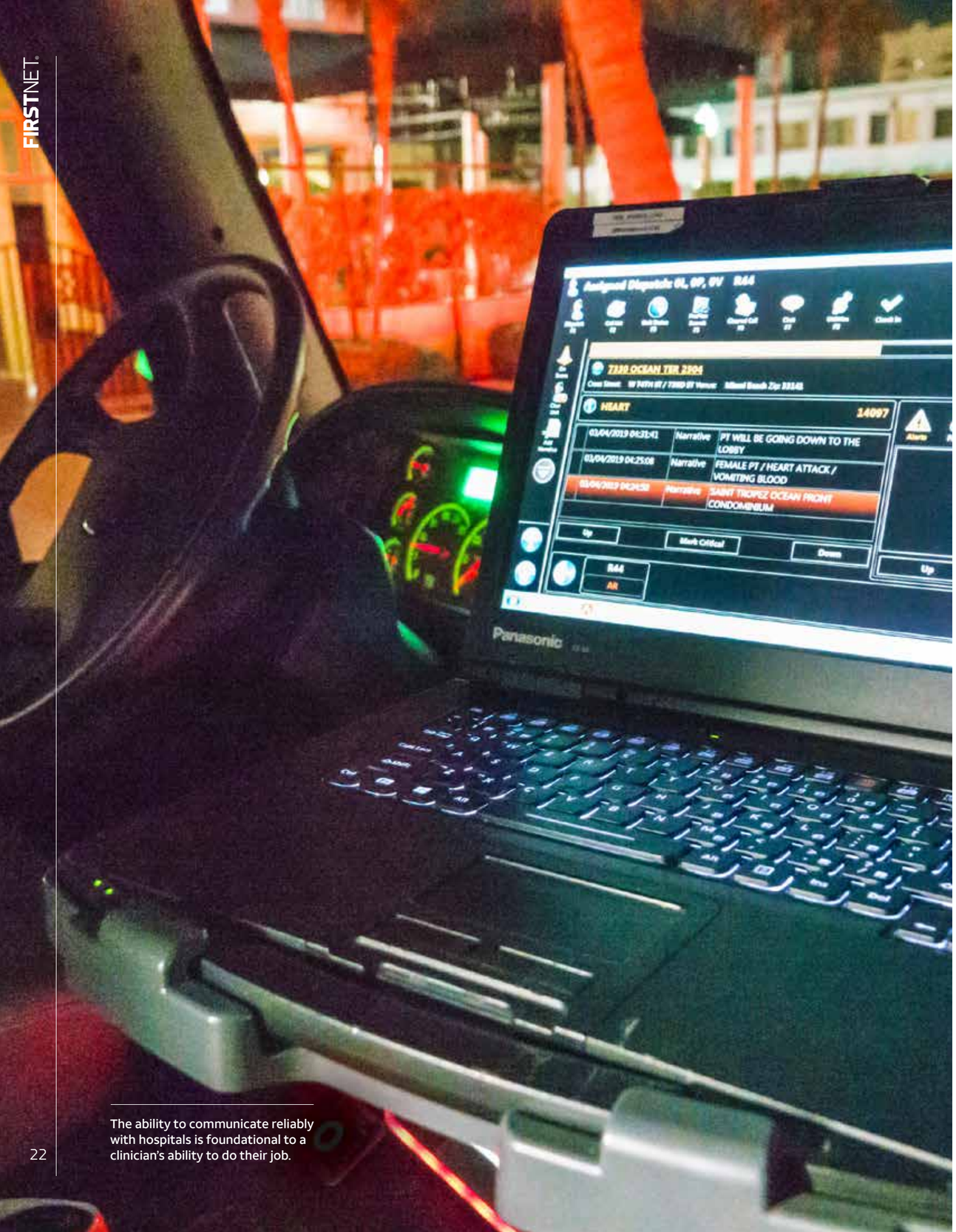
Location and Situational Awareness

5. **Body-Worn Camera*:** Though body-worn cameras aren't yet common in EMS, their use is increasing. The ability to document the incident can help increase safety for both EMS professionals and their patients. Personnel can also use this in training, and cameras can record and transcribe patient interactions, medication delivery timing and more, making it easier for EMTs and paramedics to complete reports quickly and accurately.

6. **Response for FirstNet®:** A low-cost, simple-to-use web and mobile situational awareness platform for day-to-day and emergency operations. In one deployable solution, users get near real-time mapping, information-sharing and push-to-talk communication.

These technologies are the foundation of Connected Response for EMS.



The ability to communicate reliably with hospitals is foundational to a clinician's ability to do their job.

GETTING STARTED WITH CONNECTED RESPONSE FOR EMS

Now that you've seen the Connected Response Ecosystem and have an idea of how it helps both EMS clinicians and leadership, chances are you have a few questions. Here are some answers to help you assess whether our solutions are right for you:

Q: Why do I need FirstNet?

A: The ability to communicate and connect reliably with hospitals and other receiving facilities and beyond is foundational to a clinician's ability to do their job. So is a platform that expands those capabilities and continues to reinvest in the network with public safety's input. That's what **FirstNet is and does**. Simply put, FirstNet was born out of a necessity – to allow first responders to communicate in any situation.

FirstNet, Built with AT&T uses Band 14, which is spectrum coverage set aside specifically for public safety.

Q: What does Band 14 spectrum coverage mean for me?

A: Think of **Band 14** as public safety's VIP lane. It's spectrum set aside for public safety and dedicated when first responders need it most. Band 14 provides FirstNet users with the confidence that they will get prioritized connectivity when and where they need it most.

Q: Our agency isn't on FirstNet or AT&T. How can I make sure the transition to a new network will be smooth?

A: Having worked with tens of thousands of public safety agencies of all sizes, we can say with confidence that we know how to make the move to FirstNet seamless for you and your personnel. We can help you remotely or come to you on-site, if you prefer. Services can include setting up devices so every clinician walks out with a working FirstNet device, saving you time and hassle.

Q: How can I be sure that FirstNet will work with the software we already use?

A: With more than 660 **devices** and growing, chances are very good that FirstNet is compatible with your current infrastructure. As part of AT&T's contract with the **FirstNet Authority**, our devices are certified by the federal government's **National Institute of Standards and Technology (NIST)**.

Q: What about coverage where I am? How can I be sure I'll have the connectivity I need when I really need it?

A: FirstNet coverage has always been, and remains, a top priority. That's why AT&T spent the first five years building out Band 14 wireless coverage nationwide as well as now providing connectivity through a **fleet of deployable assets** like SatColts (Satellite Cells on Light Trucks), CRDs™ (Compact Rapid Deployables) and FirstNet MegaRange™, High Power User Equipment that can boost your signal at the edge of the coverage.

We know that without reliable communication, patient care can't be successful. To ensure you always know the status of your coverage, FirstNet also provides the Advanced Network Viewer/ **FirstNet Central** portal, which gives you visibility into everyone on your FirstNet system as well as network status and the ability to layer in external information like weather and traffic conditions, cell towers, outages and more.

Q: You mentioned enhanced mutual aid. How does this work if another agency or jurisdiction doesn't have FirstNet?

A: FirstNet is inherently interoperable because it adheres to open international wireless standards (what's called 3GPP) as required by federal law. Interoperability means first responders can communicate (talk/ text/share video/share photos, etc.) with one another regardless of factors such as responder location, jurisdiction, discipline, device, or even wireless carrier. It doesn't matter if a first responder on FirstNet gets a call from someone on a commercial network or from another FirstNet device, their traffic always has priority on FirstNet.

More questions? We'd love to answer them. Please contact a FirstNet Solutions Consultant to learn more.

"Currently in our ambulance we're using FirstNet, which helps us transmit whatever we're seeing on the screen to the ER. Having the reliability of FirstNet makes or breaks a call."

– *Josue Lopez, EMT, Village of University Park, Illinois*

Even if a neighboring jurisdiction doesn't have FirstNet, you can still communicate during a mutual-aid situation.

CONNECT WITH FIRSTNET,
BUILT WITH AT&T

FIRST TO RESPOND.
FIRST TO CONNECT.

FIRSTNET®
Built with AT&T

To learn more visit:
https://www.firstnet.com/campaigns/connected-vehicle.html

FPO