



SAMSUNG

**No boundaries: Persistent
communication and
connectivity for any mission**

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Modern mobility solutions are coming together to create new opportunities for unprecedented situational awareness — even in network-challenged environments

Secure, real-time and reliable communications are the cornerstone of any successful field operation, whether responding to an emergency incident like a wildfire or hurricane or ensuring the secure operation of critical infrastructure. In any situation where personnel are spread throughout the field, maintaining persistent contact with command or headquarters is essential for safety and situational awareness. In a crisis scenario, where rapid decision-making and interagency coordination are needed, it becomes paramount.

For over a decade, efforts to improve agency coordination and communication have been a consistent priority for emergency management, public safety and critical infrastructure maintenance and protection. Many of these efforts have focused on building and improving the communications infrastructure supporting government personnel in the field. Today, technological advancements across that infrastructure are prompting a fresh look at how advanced mobile technologies can enhance situational awareness, support real-time collaboration and improve operational outcomes across a number of agency mission sets — even in network-challenged environments. This paper will provide a brief overview of the key

technology and policy areas that are converging to create new opportunities to deliver advanced communications, collaboration and situational awareness capabilities to personnel in the field. These include:

- improvements in communications infrastructure
- increased emphasis on communications redundancy in preparedness planning
- the growing accessibility of situational awareness technologies
- advancements in mobile devices designed for tactical and field operations

As these developments come together, they are creating an enhanced mobile technology ecosystem that will positively impact several civilian mission areas, including public safety, emergency response and critical infrastructure management. Samsung is committed to supporting these essential mission sets with a portfolio of mobile devices that is purpose-built to reliably and securely deliver advanced communications and situational awareness capabilities to field personnel even in network-challenged environments.



Building an enhanced, resilient communications infrastructure to support personnel in the field

Maintaining persistent communications in field operations demands resilient networks that can withstand disruptions due to weather, disasters, system failures or cyberattacks, and prioritize emergency communications when needed. It also involves maintaining access to those networks even in challenging environments. Most people have experienced entering a cellular “dead zone” in their day-to-day travels. Hundreds of square miles of land are without reliable cellular network coverage, especially in rural or mountainous areas and places like national parks. While inconvenient for the everyday user, such disruptions can be devastating in an emergency.

To address this need, there has been an enormous focus over the past 12 years to improve emergency communications infrastructure in the U.S. and enhance agency readiness to maintain communication capabilities across all types of challenging situations and environments. This has resulted in improvements in the national communications systems supporting public safety and critical information management. At the same time, agency leaders recognize all network or communications systems can be vulnerable to disruption or unavailability due to unforeseen events. As such, achieving redundancy through PACE (Primary, Alternate, Contingency and Emergency) planning remains essential, given the risks associated with over-reliance on any one communication system.

Improving Infrastructure

Government agencies rely on a mix of communication systems to manage emergency incidents, coordinate law enforcement operations and oversee maintenance and security of critical infrastructure, such as transportation and energy networks. These types of field operations often occur in network-challenged environments and agencies must be prepared for numerous communications disruption and failure scenarios — whether due to traffic overload in emergencies, limited network unavailability in rugged terrain and rural environments, high-security needs or

infrastructure damage. Some of the communications systems in current use include:

Dedicated public safety carrier networks

Dedicated public safety carrier networks and network slices are specialized wireless communications systems reserved for first responders and public safety agencies.

After the tragedies of 9/11, public safety agencies worked with Congress to establish FirstNet. Operated by AT&T, FirstNet is a nationwide wireless communications network designed and built specifically to provide first responders and the extended public safety community with reliable, highly secure and prioritized access.

Today, other major carriers have joined AT&T in providing communications solutions for first responders and public safety agencies. This includes T-Mobile’s T-Priority and Verizon Frontline, both of which offer dedicated slices of their respective broadband networks to provide public safety agencies with reliable, prioritized access for emergency response.



Private LTE and 5G Networks

In addition to using dedicated public safety broadband networks, some agencies use private 5G/LTE networks to support disaster recovery and emergency response and manage critical infrastructure such as transportation and energy. Private 5G offers a dedicated, high-performance network with minimal downtime and faster, more reliable data transmission, enabling first responders to securely access real-time data, such as high-definition video feeds, GIS mapping and situational updates during emergencies. Public safety agencies can deploy private 5G to extend high-speed communication to remote or hard-to-reach areas where public cellular networks may be weak or unreliable.

Radio

Despite the quality and coverage of modern cellular networks, radio remains a primary communications method across the emergency management, critical infrastructure and public safety landscape. High-frequency (HF) radio, Very High-Frequency (VHF) radio and Land Mobile Radio (LMR) all offer reliability in extreme conditions since they don't require extensive external infrastructure.

LMR systems in particular are widely used for dispatching first responders, coordinating field units and ensuring interoperability among different agencies during emergencies. They are also used by critical infrastructure operators in areas such as transportation and energy to manage personnel in the field. While analog LMR is still in use due to its high reliability for voice, many agencies use tactical radios with digital LMR that offer important features such as data transmission, encryption and longer ranges.

Low Earth Orbit satellites

Low Earth Orbit (LEO) satellites are also becoming more integrated into communications infrastructure, especially in national disasters and other events that damage land-based infrastructure. They can be quickly deployed as mobile communications units in critical situations to restore emergency communications.

Planning Redundancy

In addition to improving the network infrastructure, preparedness planning has also focused on ensuring redundant and interoperable connectivity and communications in the face of network unavailability, failure and overload. For this reason, agencies will continue using a mix of communications infrastructure to support their needs. PACE is a common framework for reviewing communication capabilities in the context of continuity of operations and disaster response planning. Arguably, PACE communications planning is an essential consideration for any agency that must manage personnel and assets in the field.

PACE Planning

Primary, Alternate, Contingency, Emergency (PACE) communications plans help organizations establish redundant communications capabilities if primary methods are disrupted or degraded. Having predictable and redundant communications capabilities in place helps achieve interoperability and continuity across the communications ecosystem that supports field operations, particularly those in challenging environments.

Primary: day-to-day method of communication

Alternate: backup to the Primary

Contingency: used if both Primary & Alternate have failed

Emergency: fourth level if all other levels are not working

A PACE plan designates the order in which a group will move through available communications systems until contact can be established.

PACE planning continues to evolve alongside advancements in communication systems. One potentially transformative development is work being done to explore using AI and machine learning to predict network failures and suggest optimal communication channels.

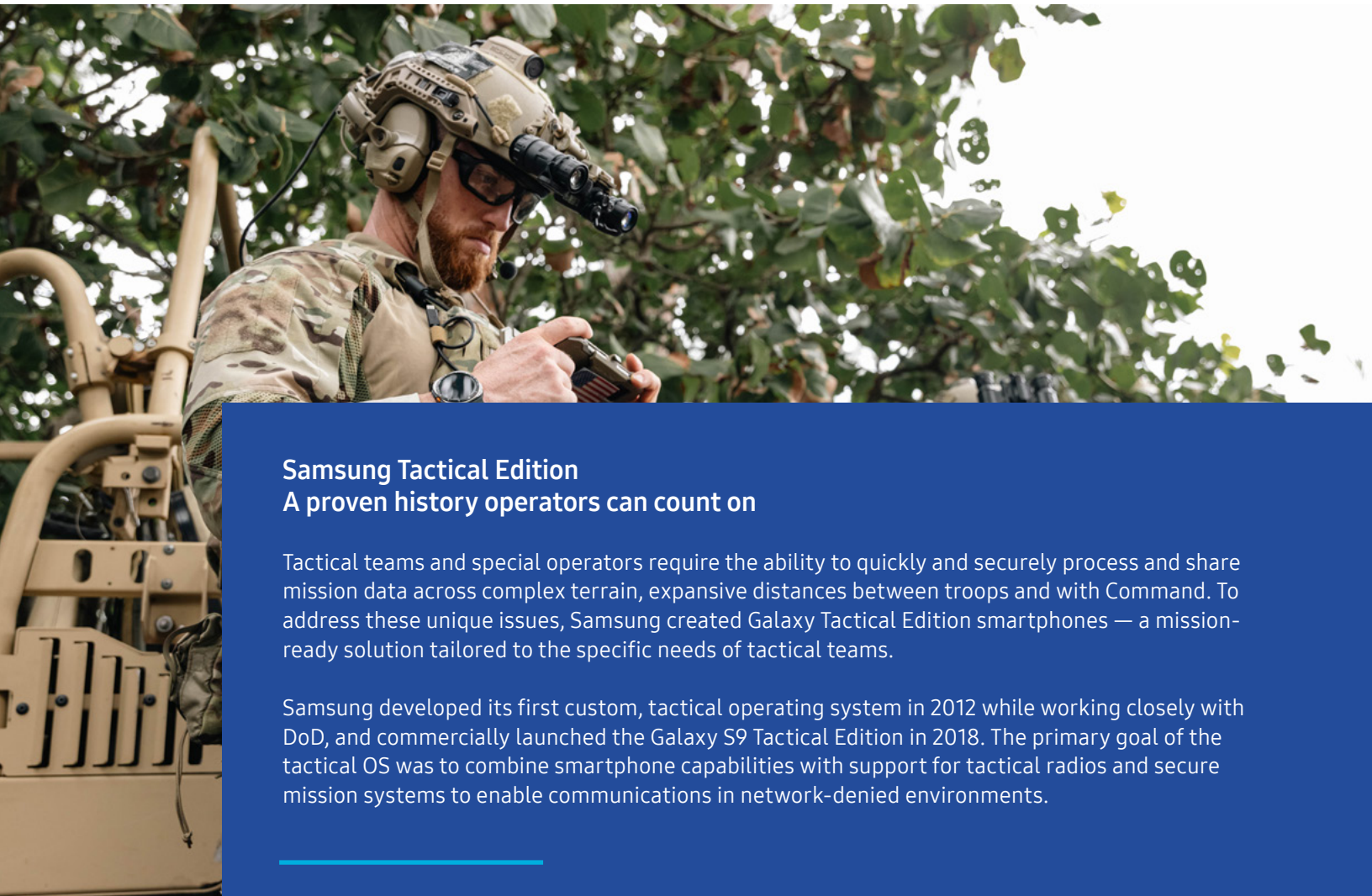
PACE planning recognizes the need for the predictable use of alternative communications methods when the primary network is unavailable. To function as designed, it also requires a high degree of interoperability to support inter-agency and cross-jurisdictional communications, which are essential for joint operations, large-scale emergencies or national security events.

Advanced mobility solutions set to help usher in a new era of communications and collaboration in the field

Today, many agencies use a combination of smartphones and tactical radios to ensure the ability to meet PACE communications needs. However, as rapid innovation continues to impact the entire field communications ecosystem — including mobile computing, communications networks and situational awareness technologies — forward-thinking agencies are taking a closer look at their mobile device strategy to better position themselves to take advantage of new opportunities in field communications.

One device to meet PACE communications needs

The ability to use one device to connect to several different communications systems and meet PACE requirements is capturing the interest of agencies seeking to improve the interoperability and reliability of field communications. Unlike commercial smartphones and tablets, Samsung Galaxy Tactical Edition devices are [purpose-built to provide persistent communications](#) in network-denied environments. They support conventional cellular capabilities, including dedicated public safety carrier networks¹, as well as tactical radios, private 5G and secure mission systems to meet a broad array of PACE communication requirements with one device.



Samsung Tactical Edition A proven history operators can count on

Tactical teams and special operators require the ability to quickly and securely process and share mission data across complex terrain, expansive distances between troops and with Command. To address these unique issues, Samsung created Galaxy Tactical Edition smartphones — a mission-ready solution tailored to the specific needs of tactical teams.

Samsung developed its first custom, tactical operating system in 2012 while working closely with DoD, and commercially launched the Galaxy S9 Tactical Edition in 2018. The primary goal of the tactical OS was to combine smartphone capabilities with support for tactical radios and secure mission systems to enable communications in network-denied environments.

For civilian agencies with personnel in the field, the Galaxy Tactical Edition portfolio enables them to provide their personnel with a single device that can move seamlessly between cellular, radio and private 5G/LTE as the situation dictates. This is extremely valuable in emergency situations that require both network redundancy and the ability to get multiple agencies working over the same communications system quickly. It is also significantly helpful for those in critical infrastructure management, such as transportation and energy, who need to maintain connectivity with personnel spread over large distances and across unpredictable network environments. Safety, security, maintenance and other field personnel can reliably and securely connect to headquarters from anywhere using the same smartphone or tablet they rely on in the office or at home. [Push-to-Talk \(PTT\) capabilities](#), widely used by public safety personnel, are supported on the Galaxy XCover6 Pro Tactical Edition to deliver the convenience of simplified radio communications with the rich capabilities of a smartphone.

New technologies power enhanced situational awareness

Situational awareness has undergone a transformation of its own as agencies across homeland security, public safety and critical infrastructure seek to better integrate real-time intelligence data into their field operations. New developments in drones, sensors and autonomous technologies are creating opportunities for [unprecedented visibility](#) to support informed decision-making in the field. For many agencies, bringing all of this collected data together in an actionable, common operating picture — and ensuring its fast and reliable delivery to those who need it — remains a challenge, especially for those operating in environments that rely heavily on radio communications. Tactical radios using [LMR cannot provide the data throughout](#) needed to deliver rich video feeds and support situational awareness applications, while commercial smartphones and tablets may not provide PACE capabilities and the required security.

In contrast, Samsung's portfolio of mobile devices is ideally designed to meet the rapidly evolving situational awareness needs of civilian mission sets. Samsung has long been a leader in working with Android Team Awareness Kit (ATAK) and other situational awareness applications. GPS coordinates and video feeds from every drone, sensor and operator can be fed into a Galaxy phone or tablet with ATAK and overlaid onto maps so everyone involved in the mission has a real-time view of the situation they need to make decisions fast.



Android Team Awareness Kit (ATAK)

[ATAK](#) provides a secure and reliable platform to rapidly share data, images and video captured by drones or operators to provide a consolidated picture of the mission environment with precise locations of team members and assets.

ATAK is the most widely used smartphone app for situational awareness for both civilian and military operations and benefits from years of research and development across numerous use cases. As an open, Android-based platform, ATAK offers interoperability, easy customization and streamlined plug-in development, resulting in a rich ecosystem of capabilities from collaborative, real-time mapping to radio signal integration to 3D modeling.

Galaxy Tactical Edition Portfolio

Galaxy S23 Tactical Edition

Trust in the smartphone proven ready by operators. Samsung's flagship Galaxy Tactical Edition smartphone is ideal for personnel who need a versatile, modern device to stay connected to multiple agencies and information sources anytime, anywhere.

[Learn more](#)



Galaxy Tab Active5 Tactical Edition

Get an expanded view of the mission with the tablet designed for tactical teams. Ideal when you need the connectivity and capability of a tactical smartphone, but with a larger screen and S pen for activities like high-precision mapping and drone control.

[Learn more](#)



Galaxy XCover6 Pro Tactical Edition

Stay connected in even the toughest conditions. Rugged out-of-the-box, the ideal smartphone for those operating for an extended time in harsh weather and need quick, reliable access to multiple sources of information

[Learn more](#)



For those who operate in network-challenged environments, over long distances in unpredictable conditions, or for whom PACE planning is a high priority, Galaxy Tactical Edition devices provide a critical advantage due to their ability to connect seamlessly with cellular networks, tactical radios, private 5G and mission systems. This allows them to reliably deliver an accurate and uninterrupted common operating picture for enhanced situational awareness in any environment.

Other significant advantages of the Samsung Galaxy Tactical Edition portfolio include multi-ethernet and simultaneous ethernet and Wi-Fi capabilities that provide dedicated connections to control and receive live video feeds from drones. Drone image feeds can also be combined with external GPS to provide an even more refined common operating picture. Samsung Galaxy Tactical Edition devices also offer Dual GNSS GPS² capability to support precise mapping of an operational area and the personnel and assets involved in the mission. In addition, plugins for wearables allow for monitoring of location and sensor data when the smartphone is in the pocket or pack. Drone image feeds can also be combined with external GPS to provide an even more refined common operating picture.

Samsung Galaxy Tactical Edition vs. Commercial Smartphones

Feature	Tactical Edition Portfolio		
	S23	XCover6 Pro	Regular Commercial
Android Enterprise Recommended	●	●	●
NIAP, CSFC, & FIPS 140-2 Compliant	●	●	●
Support for Android Enterprise	●	●	●
Secured supply chain	●	●	●
Knox Support	●	●	●
Compatible with major MDMs	●	●	●
Support for Dual DAR	●	●	●
Support for Tactical Radios, Laser Range Finders, and External GPS	●	●	—
Built in Knox licensing including Dual DAR	●	●	—
Support for flexible VPN chaining	●	●	—
Night vision mode support	●	●	—
HDM licensing & management built in	●	●	—
Additional API Sets for customization	●	●	—
Private 5G support	●	●	—
FirstNet	●	●	—
Enhanced touch sensitivity for gloves and weather	●	●	—
Stealth Mode (complete RF off)	●	●	—
Includes level 2/3 support with device	●	●	—
Hostage/Crisis Mode	●	●	—

Communications redundancy is not just for emergencies

While PACE planning and redundant communications strategies are often recognized components of preparedness and emergency management planning, there is a growing recognition that redundant communications planning is essential for any agency that must manage personnel and assets in the field.

This is especially relevant in critical infrastructure management, spanning sectors such as energy, water and wastewater systems, transportation and communications. Federal and state and local agencies within these sectors are responsible for the management and maintenance of electric and water utilities, highway and railway networks, and the physical infrastructure powering communications. They operate assets and infrastructure spread over long distances or located in remote areas where network conditions can be unreliable or unpredictable. Ensuring persistent and uninterrupted communications with the teams that manage, protect and maintain this infrastructure is an important operational and safety consideration. The ability to empower personnel to use their smartphone to share and receive data, images and video feeds while also ensuring they can maintain connectivity and communications even when they encounter network challenges is extremely valuable to their mission set.

Ensuring the security of communications remains an essential part of the mission

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The ability to communicate and process data securely is a primary requirement for field operations, whether responding to an emergency incident like a wildfire or hurricane or ensuring the secure and reliable operation of critical infrastructure.

Samsung Galaxy devices come with advanced, multilayered protection right out of the box through the hardware-backed security of Samsung Knox. Knox delivers state-of-the-art data security including advanced encryption capabilities that protect data stored on the device, helping to simplify agency programs for Criminal Justice Information Services (CJIS) Security Policy and Health Insurance Portability and Accountability Act (HIPAA) compliance.

For those with the highest security demands, Galaxy Tactical Edition devices are Commercial Solution for Classified Use (CSfC) and National Information Assurance Partnership (NIAP) certified³. Secured by [Samsung Knox](#), they feature Knox DualDAR data encryption and an advanced virtual private network (VPN) chaining architecture that meets the most stringent security requirements.



Specialized Uses

The Galaxy Tactical Edition portfolio also provides several essential features to support challenging mission environments and highly specialized use cases.

— These include features such as:

Covert Lock: Designed as a high-security solution for classified missions, Covert Lock completely shuts down radios — including GPS, Wi-Fi, Bluetooth and NFC — by leveraging hardware-backed security with Knox Hardware Device Management (HDM).

Stealth Mode: Users can disable LTE, e911 and RF broadcasting for complete off-grid communications. They can also turn on and off all illumination for uninterrupted visibility when wearing night vision devices.

Hostage and Crisis Negotiation: Available on the Galaxy S23 Tactical Edition and Galaxy XCover6 Pro Tactical Edition, this specialized feature set empowers crisis teams by transforming the device into a negotiation tool. Calls in speaker mode are auto-accepted and recorded, while outgoing calls can be prevented.

Rugged device options are also available for those who face challenging field conditions. With IP68 and MIL-STD-810H ratings,⁴ operators can be confident that the rugged Galaxy XCover6 Pro Tactical Edition and Galaxy Tab Active5 Tactical Edition will stand up to shock, vibration, dust, sand and water.⁵ They also feature a sensitive touchscreen that precisely tracks movements even when wet or when gloves are worn.⁶

Moving Forward

Efforts to improve agency coordination and communication remain a priority for emergency management, public safety and critical infrastructure maintenance and protection. Advanced mobility solutions and improvements to the communications infrastructure are set to usher in a new era of previously unimaginable connectivity in the field. The opportunities to improve situational awareness are driving new investments and interest in a host of mobile and data-gathering technologies.

While not every situation calls for the persistent connectivity and high security of the Samsung Galaxy Tactical Edition portfolio, government agencies operating in unpredictable or challenging network environments can benefit from its unique ability to reliably connect to cellular, private 5G, tactical radio and secure mission systems with a single device. This has captured the interest of agencies seeking to enhance their communications and situational capabilities despite frequently encountering inconsistent network connectivity during field operations.

Samsung's portfolio of advanced mobility solutions can help deliver uninterrupted communications, real-time collaboration and unprecedented situational awareness wherever the mission leads. To learn how Samsung can support your mission, [explore our Tactical Edition solutions](#).

SAMSUNG Knox Suite

Knox combines a defense-grade security platform that is built into Samsung devices from the chip up, together with a comprehensive set of cloud-based solutions that enable IT to secure, deploy and manage devices to meet their specific business needs.

Anchored in the hardware of Samsung smartphones and tablets, the Samsung Knox enterprise mobile security solution is also integrated throughout the software layers to separate data and constantly check the integrity of the device. These defense layers detect any tampering and ensure data is secure.

The Samsung Knox mobile enterprise solution is trusted by governments around the world with some of the most stringent information and technology security requirements. Learn more about [Knox security certifications](#).



STIGs

CSfC



NIST



Footnotes

1 For Galaxy Tactical Edition devices to be enabled on the AT&T FirstNet network, the devices must be purchased through AT&T FirstNet (www.firstnet.com/devices/phones.html). Or contact your Samsung sales representative.

2 Dual GNSS GPS on Samsung Galaxy Tactical Edition devices provides refined position accuracy.



3 For the full list of Knox certifications, please visit www.samsung.com/knox

4 These devices passed military specification (MIL-STD-810H) testing against a subset of 21 specific environmental conditions, including temperature, dust, shock/vibration, and low pressure/high altitude. Real world usage varies from the specific environmental conditions used in MIL-STD-810G testing. Samsung does not guarantee device performance in all extreme conditions.

5 Water resistant in up to 5 feet of water for up to 30 minutes. Rinse residue/dry after wet.

6 Touch sensitivity increases responsiveness for leather gloves 2mm or less in thickness, based on internal laboratory test results. Devices can be used in wet environments, but not fully submerged under water. Underwater touch is not available. Touch-responsiveness may vary depending on the material and thickness of gloves as well as other environmental conditions.

For complete product information and accessories, visit samsung.com/government insights.samsung.com

Product support: 1-866-SAM4BIZ | Follow us:  [youtube.com/samsungbizusa](https://www.youtube.com/samsungbizusa)  [@SamsungBizUSA](https://twitter.com/SamsungBizUSA)