

WHITE PAPER

THE FRONTLINE OF CONNECTIVITY:

Empowering Emergency Services with Peplink SD-WAN



Meeting Your Mission. With Passion.





INTRODUCTION

Data is as crucial as any other resource for emergency services today, with teams more reliant than ever on digital tools. From accessing patient records in an ambulance, to streaming live video from an incident on the ground, the ability to connect and communicate instantly is essential.

This paper underscores the critical importance of an uninterrupted, resilient networking solution – an essential

capability for those who demand immediate situational awareness and seamless failover. Leveraging Peplink's cutting-edge technology, we demonstrate how innovation drives mission-critical operations.

Together, Network Innovations and Peplink unite to deliver, deploy and support robust solutions that set a new standard for first responders. ■

CURRENT INDUSTRY CHALLENGES

UK blue light services – police, fire, ambulance and others – face ongoing communication challenges due to aging infrastructure and increasing operational demands. Today's connectivity demands are being driven by data-heavy technologies (such as body-worn cameras, connected medical devices, drones and cloud-based control systems), meaning responders require **high-bandwidth, low-latency and always-on connectivity** to access information and coordinate across agencies.

The current Airwave (TETRA) system, while reliable for voice communication, lacks the data capabilities needed for modern-day response. The transition to the new 4G-based Emergency Services Network (ESN) aims to address these gaps but has been delayed by technical and logistical hurdles, leaving agencies reliant on dual systems. Interoperability between services, inconsistent coverage in rural or remote areas and the need for secure, resilient communications further complicate the landscape.

The key to success in a nutshell? Balancing innovation with resilience, ensuring new technologies can be trusted during serious incidents.

Connectivity Demands in UK Blue Light Services:

- **Seamless Failover Performance:** Maintain uninterrupted voice and data when moving between different network coverage zones.
- **Resilience to Network Congestion:** Overcome the challenges and saturation of public cellular networks during major incidents or high-traffic events.
- **In-Vehicle Reliability:** Ensure a stable connection to support multiple mission-critical devices.
- **Enhanced Rural Coverage:** Strengthen connectivity in rural and remote areas, ensuring no loss of service.

WHY SD-WAN IS A GAME CHANGER

SD-WAN (Software-Defined Wide Area Networking) is a game changer for UK emergency services because it offers the agility and control needed to meet today's demands. Unlike traditional WANs, SD-WAN enables dynamic, software-driven routing across multiple connection types, such as cellular, broadband and satellite, optimising performance based on real-time conditions and priorities.

For emergency responders, this means reliable, secure connectivity nationwide. SD-WAN has the ability to prioritise mission-critical traffic (e.g., live video from body cams) over less urgent data, ensuring key services stay operational during high-demand situations or network outages.



TACKLING CHALLENGES WITH PEPLINK

Founded in 2006, Peplink has become a recognised leader in advanced SD-WAN and multi-WAN bonding technologies. But what sets Peplink apart as a contributor to the connectivity needs of UK blue light services?

- **SpeedFusion™ Technology:** Peplink's patented technology makes seamless failover and bandwidth bonding possible. It simultaneously sends redundant data packets over multiple links, effectively managing network congestion by balancing and prioritising traffic across all available networks.
- **Ruggedised Hardware:** Peplink devices (MAX series) are built to withstand the shock, vibration and temperature extremes of in-vehicle and field deployments.
- **LEO Satellite Integration:** Peplink routers are optimised to work seamlessly with Low Earth Orbit (LEO) satellite services such as **Starlink and Iridium Certus**, enabling them to function as a primary connection or as part of a bonded SpeedFusion link. This integration ensures maximum resilience and uptime, even in the most remote environments.
- **Centralised Management:** Peplink's InControl management platform provides real-time monitoring, remote configuration and updates across all devices, ensuring consistent performance across dispersed operations. Manage all your network devices on your private network for more security.

THE NETWORK INNOVATIONS & PEPLINK PARTNERSHIP

Combining innovation with market experience means solutions can be tailored to specific operational scenarios and unique missions.

As a trusted technology integrator, [Network Innovations](#) brings global expertise and, crucially

in this context, the backing of **Peplink** as a premium integration partner. We offer a flexible, end-to-end approach – from consultation and system design through to deployment, training and ongoing support – ensuring every solution aligns with the real-world challenges presented.

REAL-WORLD DEPLOYMENT SCENARIOS

The following scenarios illustrate how Peplink technology can be applied across key areas of blue light operations. From in-vehicle networks and mobile surveillance to drone-based reconnaissance, these scenarios demonstrate the value of resilient, bonded connectivity in high-pressure and real-world conditions.

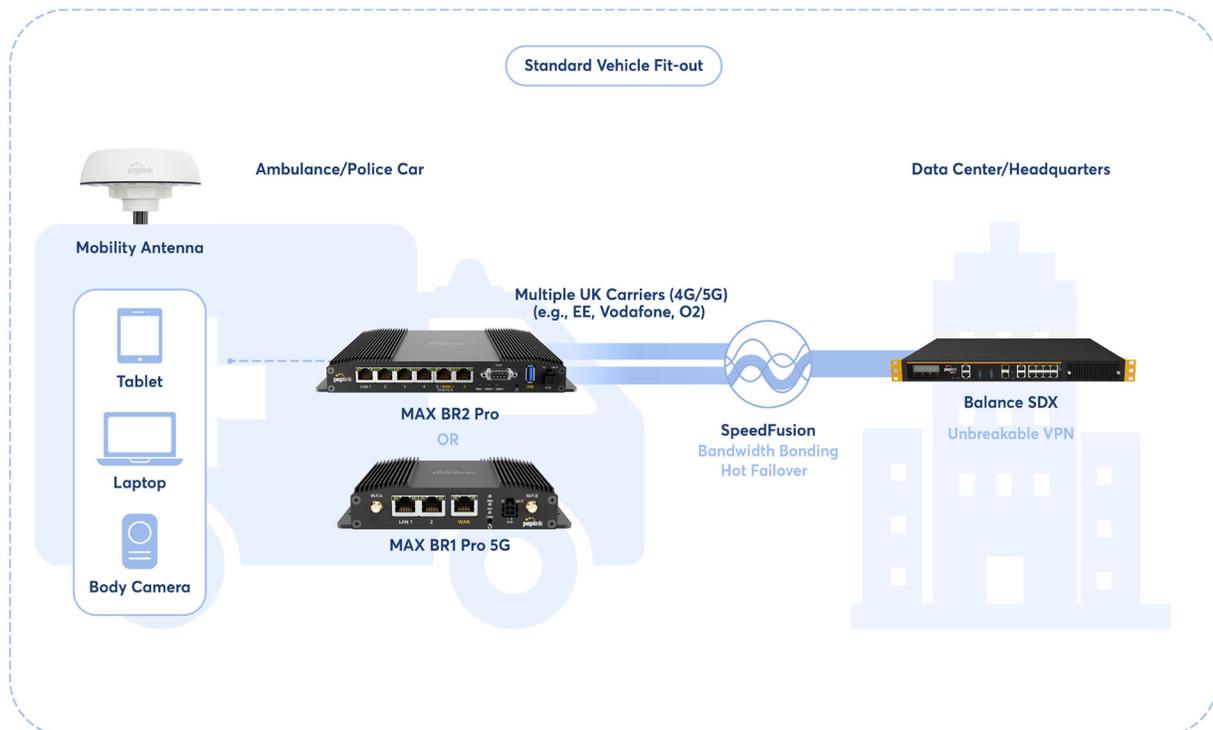
Use Case #1: In-Vehicle Connectivity for Ambulances

Scenario: A public ambulance service required 100% reliable connectivity for its fleet to ensure constant communication with dispatch and hospitals, and for

transmitting patient data. Public cellular networks alone were not sufficient.

Solution: Peplink BR2 units were deployed in each ambulance, equipped with SIMs from multiple carriers. Using SpeedFusion, the system bonded the cellular connections, providing a single, resilient link. If one network provider's signal weakened, others would compensate instantly and seamlessly.

Result: Unbreakable connectivity for the entire fleet, ensuring patient care was never compromised by a lost connection.

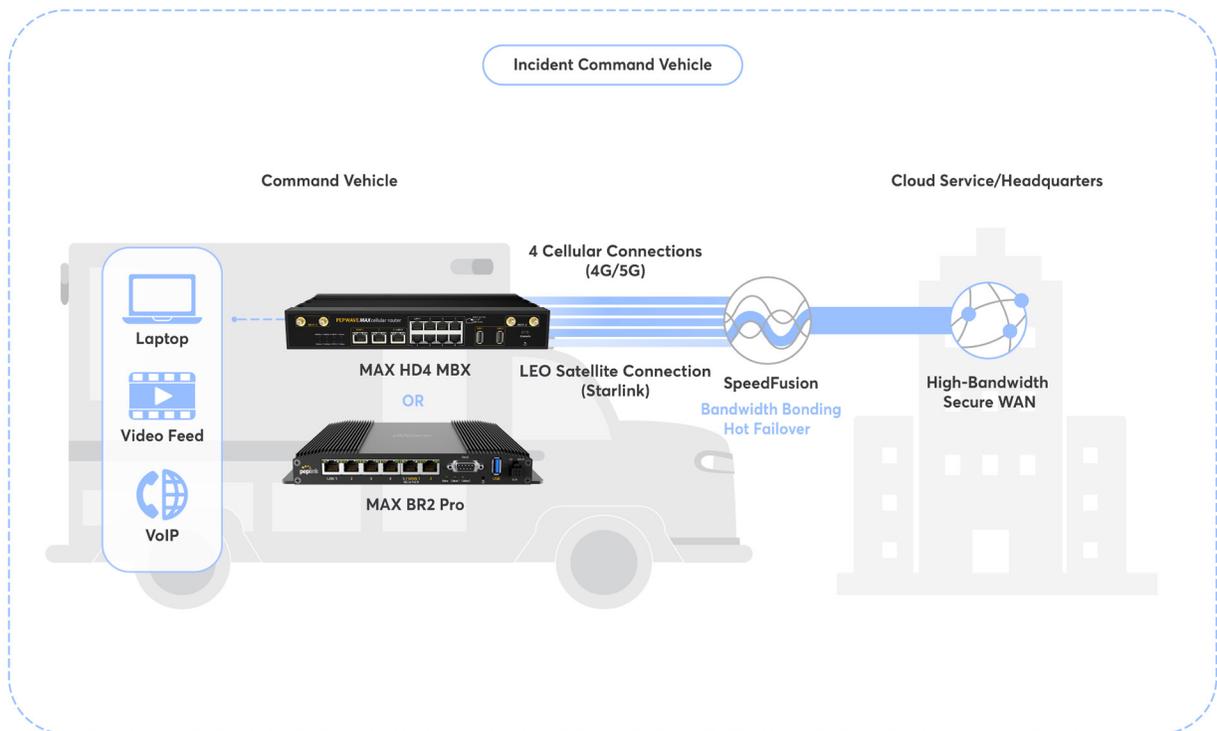


Use Case #2: Surveillance Van Connectivity and Video Streaming

Scenario: A UK police force looked to upgrade its fleet of surveillance vans with reliable IP connectivity. Running around-the-clock observation video feeds, they required connectivity that could power the conversion and transmission of multiple streams.

Solution: Each vehicle was equipped with a Peplink MAX HD4 MBX 5G router, HD2 Dome antennas, a SIM injector and a Starlink terminal to deliver robust, high-speed connectivity. A Peplink Mini Access Point ensured internet distribution throughout the vehicle.

Result: Seamless Wi-Fi distribution, reliable video transmission and continuous access to critical applications, effectively transforming the vehicle into a secure, mobile command centre.



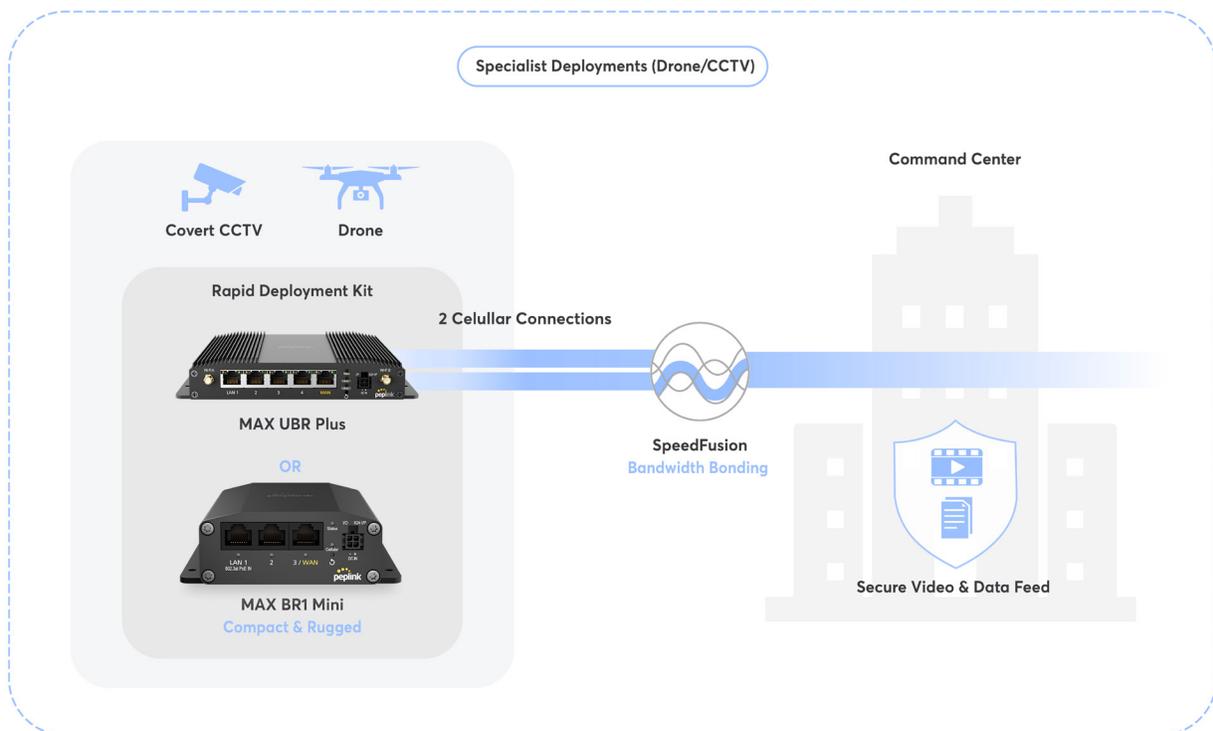
Use Case #3: Specialist Drone Operation

Scenario: A specialist unit required reliable, high-bandwidth connectivity for assets that are deployed rapidly and often in challenging network environments. This included maintaining stable video feeds from drones and deploying covert and rapid CCTV for surveillance.

Solution: Compact, ruggedised Peplink routers (e.g., UBR LTE or MAX BR1 Mini) are integrated into portable kits. For drones,

the router bonds multiple cellular networks to create an unbreakable link for the pilot's command and video feed. For CCTV, the same technology allows a high-definition camera to be deployed anywhere, transmitting encrypted footage back to a command centre without relying on any local infrastructure.

Result: Enhanced situational awareness and operational effectiveness. Drone pilots can operate with confidence in the video link, while surveillance teams can deploy assets in minutes to gather critical intelligence, significantly improving officer safety and mission outcomes.



YOUR PARTNER IN MISSION SUCCESS

[Network Innovations](#) has operated in critical communications for decades, serving the emergency services market in North America while expanding operations in the UK and Europe.

As your trusted collaborator in tackling communication challenges, [Network Innovations](#) is proud to work alongside Peplink – bringing advanced connectivity solutions to blue light services across the UK and globally. Together, we empower responders with critical components for mission success.

In a high-stakes digital world, dependable connectivity is no longer optional. Effective

deployment and management are just as important as the technology itself. Peplink's SD-WAN enables centralised management and rapid rollouts, allowing IT teams to seamlessly update devices, enforce security policies and monitor performance across hundreds of locations from a single dashboard. This empowers blue light organisations to deliver smarter, more agile and more dependable emergency responses in today's landscape.

Finding the right connectivity solution starts with a conversation. Reach out to our local experts who understand your industry and goals – let's explore how we can support your operation.



About the Author

Luke Proctor

Business Development Manager

With over a decade of military experience in intelligence, imagery and security analysis, Luke brings a mission-first mindset to the quickly evolving world of Satellite and Telecommunications. Since joining [Network Innovations](#), he has played a key role in supporting blue light organisations, delivering resilient, secure and responsive communications solutions to those who operate on the front lines.

In collaboration with Frontier UK, a [Network Innovations](#) partner, providers of Peplink technology and contributors to this white paper.

