

# THE DIGITAL BATTLEFIELD

**Tristan Wood** examines whether or not your hybrid connectivity is 'true' and why it matters

**L**ike no other, the defence sector requires fail-safe connectivity. It continuously operates in diverse and challenging settings, where seconds matter and situational awareness is key. It is reliant upon failsafe and robust connectivity at all times to inform decision making. To do so, communication channels need to be optimised through hybrid connectivity, regardless of geography and availability of traditional terrestrial networks.

For defence – whether on land, the air or at sea – reliable connectivity is crucial for facilitating swift information exchange, enhance situational awareness and support intelligence, surveillance and reconnaissance (ISR) efforts, enabling seamless command and control. These robust connectivity solutions are essential to ensuring the safety of both victims and personnel in challenging scenarios.

To understand how hybrid connectivity supports the military, we first need to think differently and take a close look at how failover – while offering a degree of resilience and redundancy – isn't truly hybrid.

Failover refers to the ability of a system to switch to a backup connection when the primary one fails. While failover mechanisms provide a level of redundancy, they do not fundamentally transform the nature of the connectivity architecture. As a consequence, the degree of resilience is inherently constrained.

In a truly hybrid – or 'heterogeneous' – network, multiple technologies seamlessly work together, sharing the load and resources, combining and bonding together a variety of bearers from cellular and point-to-point radio, to satellite and wi-fi into a single 'pipe'. In this way, it can deliver a faster and more reliable service.

In fact, a truly hybrid platform should go a stage further than this, accommodating and dynamically adapting to a range of other variables, depending upon each bearer's performance and other environmental conditions affecting it at any one moment in time in order to optimise performance – a critical feature to all personnel.

The need to be able to 'connect' within any given environment, regardless of whether terrestrial infrastructure is available or has been compromised is now more significant than ever.

With the relay of live video no longer the preserve of news organisations, but a mainstay of multiple sectors, the biggest challenges are no longer around relaying footage from A to B, but with the network and available bandwidth. Now, the key to delivering the highest quality video is bonding available networks to increase bandwidth, seamlessly correcting errors and optimising the link.



Integrating different network technologies from diverse sources introduces additional security challenges and considerations across various network endpoints and connection points. The lack of a unified security framework can result in vulnerabilities and inconsistencies that make the network infrastructure more susceptible to cyber threats.

In the contemporary landscape of warfare, the defence sector increasingly relies on hybrid connectivity to enhance communication, intelligence and strategic capabilities on the battlefield. Bonding diverse technologies such as 4G/5G, PTP radio, satellite and wi-fi ensures a resilient and robust network infrastructure. This diversity allows for seamless data transmission across varied terrains and scenarios.

The synergy of these technologies is pivotal in creating a reliable and resilient communication backbone for defence operations. Whether in urban environments, rugged terrains or remote locations, true hybrid connectivity ensures that military forces can communicate effectively, share critical information and coordinate seamlessly, enhancing overall operational effectiveness and mission success.

Livewire Digital developed a Software Defined Networking solution that seamlessly bonds any number of bearers, from satellite, cellular, Point to Point radio, wi-fi and terrestrial services in line with user-defined objectives and prevailing conditions. This is a true hybrid – a WAN capable of combining high latency VSAT with low latency cellular to create an aggregate service with optimised configurable bandwidth. In environments where seconds matter, it's only this true hybrid that will give personnel robust and failsafe connectivity for situational awareness and instant decision making on the digital battlefield ●

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