SECURE WIRELESS HUB

in multi-domain operations

Enhancing tactical edge connectivity

In modern military operations, rapid, secure, and reliable communication is critical to mission success. The Viasat Secure Wireless Hub (SWH) is a lightweight, body-worn tactical network hub designed to provide seamless connectivity across complex operational environments. The SWH enables real-time command-and-control (C2), data sharing, and operational synchronization across airborne, mounted, and mobile command post forces. This is achived through the SWH's integration of resilient multi-transport networking capabilities, edge compute, radio integration, and power into a compact, soldier-friendly form factor.

The SWH is specifically engineered for dismounted warfighters, allowing paratroopers, special operations teams, and frontline units to establish immediate connectivity upon deployment—without the need for manual setup. Leveraging multi-transport networking capabilities, including Cellular, Low Earth Orbit (LEO) and Geostationary (GEO) satellites, as well as Line-of-Sight (LOS) links, the SWH breaks down communication barriers and optimizes situational awareness. Its seamless interoperability with MANET radios facilitates effective communication even in challenging environments.

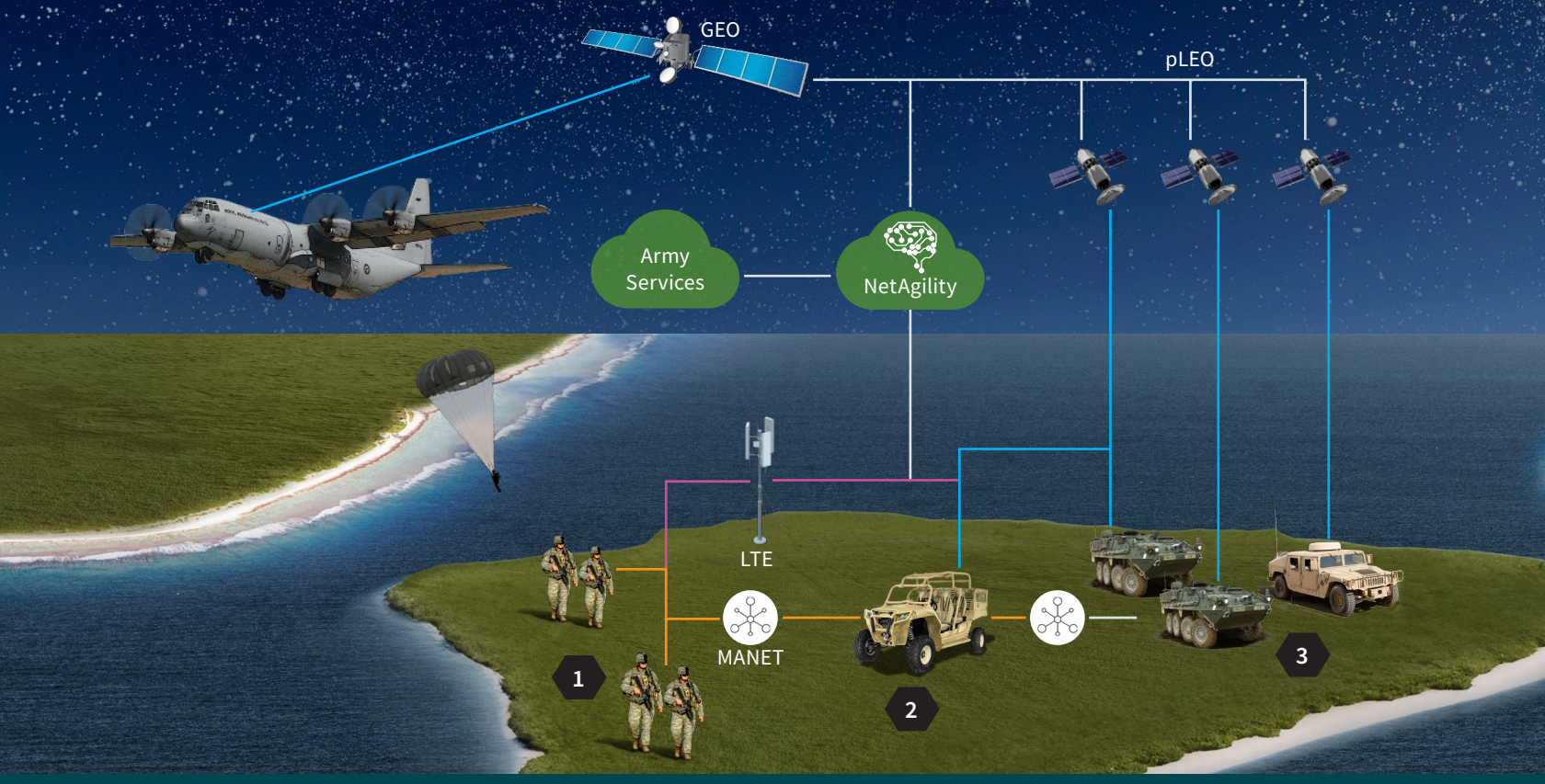
By seamlessly integrating with existing tactical radio networks the Warfighter becomes an advantaged node, operating an automated, software-defined networking (SDN) platform. The SWH ensures that warfighters remain connected, informed, and mission-ready—whether in a dynamic Drop Zone (DZ), mounted in a vehicle, or operating from a mobile command post or a protected static location. By leveraging the SWH, units can leave their larger communications equipment and servers in secure, rear-echelon locations.

Paratrooper deployment & the challenge of isolation

In modern airborne operations, paratroopers deployed into a DZ often find themselves in Little Groups of Paratroopers (LGOPs) and isolated from command and support elements upon landing. The unpredictable nature of DZ insertions, combined with the rapid tempo of operations, creates an immediate need for secure and reliable communication. Soldiers are frequently dispersed across a large area, often operating in small units that must establish coordination quickly in contested environments. If remote communication capabilities are required, those complex systems must be jumped making for added weight and risk while maneuvering forces.

Upon landing, each unit may be utilizing different Tactical Scalable MANET (TSM) network configurations due to pre-existing unit structures, varying levels of encryption, or frequency constraints. This lack of interoperability between networks creates communication silos, making it difficult for units to share intelligence, relay commands, and synchronize movements in real time; SWH easily joins these disparate MANET networks.

How it works in the field



Step 1: Deployment

Instant connectivity upon landing

Scenario:

Soldiers jump into a DZ and connect instantly.

- Paratroopers jump into a contested DZ and need to establish communications immediately.
- Due to different TSM network configurations, units face interoperability challenges, making real-time coordination difficult.

How the SWH solves it:

- Auto-connects to existing tactical radios via MESH networking.
- Securely integrates different TSM networks, enabling real-time unit coordination.
- Utilizes soldier-worn batteries for 10+ hours of runtime, providing immediate C2 capability.
- Leverages any BLOS transport available for ingestion of all data for transmission to higher HQ.

Step 2: Mounted operations

Expanding communication capabilities

Scenario:

SWH moves to vehicles for extended operations.

- As forces move from dismounted operations to vehicle transport, connectivity needs shift.
- Traditional methods require manual reconfiguration and external power sources from sustained C2.

How the SWH solves it:

- Transfers seamlessly from soldier gear to vehicle integration.
- Enables Wi-Fi and wired connections to vehicle-mounted systems such as pLEO and Cellular.
- Uses vehicle power to sustain continuous operations beyond the 10-hour soldier-worn runtime.

Step 3: Mobile command post

Establishing a command node

Scenario:

SWH integrates into bases or command posts.

- The unit reaches a fortified static position or command post, requiring long-term, high-bandwidth mobile connectivity.
- Additional networked assets (pLEO, Cellular, high-capacity MANET networks) become available.

How the SWH solves it:

- Connects to shore power or backup batteries for sustained ops.
- Integrates with satellite and LOS networks for extended-range communication.
- Bridges the C2 gap until larger infrastructure is in place.

Challenges of integrating multiple TSM networks

- **Network Fragmentation** – Different TSM configurations across airborne battalions result in disconnected operational groups, reducing situational awareness and slowing down coordination.
- **Limited Immediate Connectivity** – Soldiers must manually establish communications post-landing, delaying time-sensitive decision-making.
- **Data Silos & Command Delays** – Without a unified network, intelligence sharing between units, headquarters, and supporting assets is hindered.
- **Operational Vulnerability** – Disconnected units in an active combat zone face increased risk due to delayed orders and lack of shared situational awareness.
- **Traditional Network Gateway SWaP** – If remote communication features are used, the server size systems must be jumped making for added weight and risk in the maneuver.

The solution

Viasat Secure Wireless Hub (SWH) helps overcome these challenges by automating network integration and providing a seamless C2 bridge across disparate TSM networks.

- **Instant Connectivity**: Upon landing, paratroopers equipped with the body-worn SWH can immediately communicate across different MANET networks via MESH networking, removing the need for manual network setup.
- **Unified Network Architecture**: The SWH aggregates and transmits data over multiple transport methods (Cellular, LEO/GEO Satellites, Line-of-Sight links), ensuring every unit is connected to command structures.
- **Interoperability & Scalability**: Whether dismounted, vehicle-mounted, or deployed in static positions, the SWH dynamically adapts to the mission environment, providing continuous C2 capabilities. By deploying SWH-enabled teams, airborne forces maintain real-time situational awareness, enabling faster decision-making, synchronized operations, and increased survivability in contested environments.

The future of tactical communications

Why the Secure Wireless Hub (SWH) is a Game-Changer

In modern warfare, connectivity is as crucial as firepower. Traditional communication methods often struggle with interoperability, mobility, and scalability, leading to operational gaps. The SWH is designed to eliminate these challenges, providing an all-in-one, lightweight, and scalable networking solution that adapts to any mission phase – whether airborne, dismounted, or in a mobile command post.

Comparison: SWH vs. Traditional Solutions

FEATURE	✓ SECURE WIRELESS HUB (SWH)	X TRADITIONAL SOLUTIONS
Instant Deployment	Auto-connects across multiple networks (TSM, Cellular, SATCOM) upon landing.	Requires manual setup, causing delays
Interoperability	Seamlessly integrates different TSM networks via MESH	Often limited to single network configurations
Portability & Power	Lightweight (<1kg), runs 10+ hours on soldier-worn batteries	Bulky, requires large power sources
Scalability	Operates in dismounted, mounted, and static environments	Requires separate setups for different mission phases
Mission Adaptability	Supports encrypted C2, MESH networking, and SATCOM	Limited to pre-configured networks, reducing flexibility

Mission-Ready Connectivity

SWH facilitates real-time communication across multiple networks without downtime or manual setup.

Lightweight & Durable

Weighing less than 1kg, SWH is designed for extreme tactical environments with MIL-STD ruggedization.

Adaptable & Scalable

Seamlessly transition from soldier-worn vehicle-mounted to static command locations, ensuring continuous C2.

Power Efficiency

Works with soldier-worn batteries, vehicle power, and static shore power for extended operational use.

Ready to experience the future of tactical communications?

Contact Viasat today to request a live demonstration and learn how the SWH can enhance your mission success.

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