

DATAPATH | Case Study

VSWAN: THE MARINE CORPS ACHIEVES INFORMATION SUPERIORITY WITH REAL-TIME VIDEO COMMUNICATIONS

Marines Gain New Battlefield Insight via Airborne Video and DataPath Communications Solutions

The Marine Corps serves as the aggressive tip of the U.S. military spear. As such, the Marines require reliable, real-time information to make effective decisions during forward deployment and expeditionary missions.

To increase intelligence, surveillance and reconnaissance (ISR) capabilities in Iraq, the Marine Expeditionary Force deployed new unmanned aerial vehicles (UAVs) that can fly for 12 hours and obtain high-quality video images of the theater of operations. With an extended range, these UAVs can collect enough surveillance video on a single flight to meet the needs of a series of deployed battalions across a wide region of operations.

However, managing the high volume of video data collected by the UAVs was a challenge to the Marines' information systems. The Marines required a system capable of downloading and disseminating video to a series of command posts across Iraq. They also needed a system that could supply high-density storage and retrieval of real-time video feeds and establish video-on-demand storage and playback capabilities. This system would also have to support communication on-the-quick-halt (COTQH) and be rugged enough to endure the rigors of a desert war zone.

Responding to frontline needs, Marine Corps Systems Command (MCSC) developed the concept of a Video Storage Wide Area Network (VSWAN) that would provide a secure wireless communications infrastructure to disseminate UAV video feeds to select theater command posts.

At a Glance:

VSWAN: Video Storage Wide Area Network

Challenge:

The Marine Corps needed quick distribution of high-quality video images collected by UAVs to a series of command posts in Iraq.

Solution:

Within 60 days, DataPath deployed a network of fly-away earth terminals. This network established real-time communications and video storage and retrieval capabilities in support of C4ISR.

Impact:

The DataPath communications network helps to identify potential threats and eliminate blind spots by providing access to real-time video intelligence.

“Surveillance and actionable intelligence are critical to supporting successful missions in Iraq, while providing our Marines with an added level of safety,” said Captain David Joseforsky, LSWAN/VSWAN/Ku VSAT project officer, Marine Corps Systems Command. “As such, it is essential that we harness leading-edge technologies to increase visibility into potential threats and deploy the solutions quickly.”

DataPath Rapidly Delivers Essential Satellite Earth Terminal Solutions

DataPath, a global telecommunications systems integrator specializing in satellite earth terminals and network solutions, responded to MCSC’s request by delivering five fly-away earth terminals in just 60 days. The system integrator’s commercial off-the-shelf (COTS) solution, the DataPath ET 2440Ku Portable™, was deployed quickly to meet the Corps’ mission-critical needs in Iraq.

The DataPath 2440, which is built to withstand the extreme temperatures and terrain of Iraq, features a 1.8-meter antenna fitted with an antenna control unit (ACU), which enables Marine operators to locate a satellite, or “peak up,” in less than 10 minutes – a process that takes up to 40 minutes if handled manually. Shipped in rugged transit cases that fit in a light tactical vehicle, DataPath 2440s are continually redeployed to support moving operations.

The earth terminals deliver the speed and reliability of an all-Internet protocol (IP) network. They also utilize a Cisco IP/TV server that encodes and decodes video. DataPath augmented IP/TV capabilities by integrating a six-terabyte file server into each platform to provide required storage capacity. With these capabilities, each DataPath 2440 enables the Marines to send a single live UAV video stream to multiple computers (multicast), broadcast multiple video streams concurrently (unicast), pull video-on-demand from archives and also send file transfer protocol (FTP) files among command locations.

“Robust, reliable communications transform traditional peacekeeping operations by enabling front-line forces to capitalize on the resources and intelligence being gathered by the UAVs and transmitted via VSWAN,” said Captain Joseforsky.



VSWAN collects and disseminates video and data from U.S. Marine Corps’ Boeing ScanEagle Unmanned Aerial Vehicle (UAV).

In addition to performance, functionality and flexibility, the Marine Corps also required multilevel security to ensure the integrity of sensitive information. The DataPath 2440s deployed for VSWAN feature two routers with cryptographic encryption via KG-175 Tactical FASTLANEs® (TACLANEs) between the two routers. Using IP capabilities, VSWAN unclassified and classified routers are connected to the Non-Secure Internet Protocol Router Network (NIPRNET) and Secret Internet Protocol Router Network (SIPRNET). The DataPath 2440 also enables the Marine Expeditionary Force network call manager server to support VoIP phone communications.



VSWAN Technical Highlights:

Equipment: DataPath ET 2440Ku Portable
Initial Deployment: Five units delivered in 60 days
Average Set-Up Time: Less than 30 minutes per unit
Throughput: 6 Mbps

Mission Impact: Eliminating Blind Spots

The VSWAN project provides the Marine Corps with new in-theater visibility and intelligence to conduct reconnaissance, coordinate mission planning and fine tune air and artillery targeting. Intelligence analysts access real-time information and video-on-demand to assess the latest developments across the theater of battle. In keeping with the Department of Defense netcentric warfare concept, the Marines now use the very best information to analyze developing situations and effectively command operational forces.

The real-time UAV video feeds enable Marine Corps commanders to literally “see over the next hill” and provide in-theater troops with a heads-up about insurgent positions.

The Future: Greater Mobility and Sustainability

“Looking to the future, we are focused on increasing the mobility and sustainability of Marine Corps in-theater satellite communications capabilities,” said Captain Joseforsky. “We plan to mount earth terminals and network equipment on trailers and vehicles – with built-in generators and air conditioning. This increased communications agility will provide an important tactical weapon for expeditionary forces.”

“**It is essential that we harness leading-edge technologies to increase visibility into potential threats and deploy the solutions quickly.**”

*- Captain David Joseforsky
LSWAN/VSWAN/Ku VSAT Project Officer,
Marine Corps Systems Command*

About DataPath

DataPath is a global leader in creating satellite-based network solutions that solve our customers' toughest communications challenges. We specialize in enabling complex, high-bandwidth communications networks that are critical to the operations of military, civilian government and commercial organizations. Even in the most urgent time frames and extreme conditions, we establish and maintain communications anywhere and deliver total network control through our communications solutions, MaxView® network management software and comprehensive services. SWE-DISH Satellite Systems AB, a Stockholm-based, global leader in the design and manufacture of mobile satellite communications systems, is a wholly owned subsidiary. DataPath is headquartered in Duluth, Ga., U.S.A. and operates via more than two dozen offices and distributor locations around the world. For more information, visit www.datapath.com.



Worldwide Headquarters

DataPath, Inc.
3095 Satellite Boulevard, Suite 600
Duluth, GA 30096
Toll Free: 866-855-3800
Email: info@datapath.com
www.datapath.com

Production and Integration Facilities

2450 Satellite Boulevard
Duluth, GA 30096

SWE-DISH Headquarters

TORGGATAN 15, 3rd floor
S-171 06 SOLNA
SWEDEN
www.swe-dish.com