



### The Tactical VSAT

Since the Falklands War in 1982 when the smallest amount of satellite communications were used in the battlefield, usage has grown at a phenomenal rate and shows no sign whatsoever of slowing. Helen Jameson focuses on military VSAT communications.

**The realisation that satcoms provide an efficient** and effective means of communication at any time and in any place has had a profound effect on the way the battlefield is connected. Militaries across the world are now focused upon delivering network centric communications that can connect all parts of the battlefield, and all echelons – right to the tactical edge. Satellite communications are providing mission critical connectivity to air, land and maritime-based troops. They are connecting unmanned systems, providing comms-on-the-move and providing critical applications that build up a complete picture and heighten situational awareness.

Very small aperture terminals or VSATs are extremely well-suited to a tactical role in battlefield operations. VSAT generally refers to a satellite-based one or two-way system that includes an antenna with a diameter of 90 centimetres to 2.4 metres. VSATs use geosynchronous satellites as relays for point-to-point or broadcast communications. They perform an essential role to servicemen both operationally and in the context of welfare. Recent developments in VSAT technology have seen terminals getting smaller and more light-weight and therefore portable. VSATs are easily deployable, no matter where they are required. By means of one satellite connection supplied by a tactical satellite link, voice, data, fax and streaming video may be provided giving the soldiers good situational awareness in difficult situations. The VSAT networks may also be provided in a mesh or direct remote-to-remote network making radio over IP and direct IP telephony easy and secure.

VSATs used for tactical reasons must be able to tick a lot of boxes and must also deliver mission critical communications even in difficult conditions.

#### **Requirement: rapid deployment**

In critical situations, where communications must be established quickly, the importance of being able to deploy a VSAT in minutes cannot be underestimated. Soldiers must have the right equipment that will provide them with the exact specifications they require and they must be able to deploy that equipment with ease – in a war situation, when time is critical and action is happening all around, there's no room for mistakes or a breakdown in communications.

#### **Requirement: remote area transmission**

Imagine being in the middle of nowhere, you need to report to your commanding officers, who are miles away. You have important infor-



*Photo courtesy of US Army.*



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mation to impart and you need to deliver it to them quickly. In areas where there is no telecommunications infrastructure to communicate with, VSATs can provide a perfect solution.

#### **Requirement: comms-on-the-move**

Being able to communicate on the move helps create a real-time view of the battlefield. No matter where troops are deployed – on land, sea or in the air, or where they are going to, communication may be established and maintained quickly and easily allowing access to voice, data and video applications. Now, even access to broadband is possible whilst on-the-move or on-the-pause.

#### **Requirement: portability**

Carbon fibre-based antennas and new technology have given VSATs a new kind of portability. They may be broken up and placed into fly cases and checked in at airports for easy transportation. Today, antennas can be fitted into manpacks that may be literally carried as part of a soldier's kit. This allows deployment in remote areas as the antenna weight and size has been so dramatically reduced.

#### **Requirement: welfare**

Connecting servicemen with their friends and families is a basic part of welfare in the armed forces. VSAT-based solutions can help bring them closer to their families and access to VoIP services and email are basic requirements. In order to boost morale of those on the front line, VSAT networks can also provide recreational applications such as Internet cafes that provide entertainment but also link the soldiers with the outside world.

#### **The future of tactical VSATs**

The future of VSAT as a tactical application seems secure. Nowadays, commercial-off-the-shelf technology (COTS) means that the military is no longer consigned to creating proprietary applications and solutions – they are already out there – and being used for a wide range of services. VSATs are highly suited to the battlefield. Not only are they cost-effective but their size, portability, ease of use, the range of services they offer, rugged design and their versatility makes them the ideal solution for a dynamic and demanding environment. They will continue to be an important solution in a battlefield that becomes more and more connected year-on-year.