



Technology leap needed for comms-on-the-move

After nearly a decade of operations in Afghanistan and Iraq, the U.S. military has learned much from deploying in harsh environments. In particular, mission success demands reliable, timely, and interactive connectivity with the troops no matter the place or situation — requiring flexible and integrated fixed and mobile communications networking.

When the first bombs fell on Kabul, Afghanistan, in October 2001, communications-on-the-move (COTM) largely meant heavy radio gear and truck-mounted satellite dishes; voice took center stage while data was secondary. Today, the battlefield and the technologies have changed significantly, with ever increasing requirements for voice, data and video bandwidth to be delivered reliably in all environments — and on demand. Unfortunately, legacy technologies such as large antennas and inefficient management of bandwidth are slowing down our troops and escalating the cost burden.

Exacerbating the bandwidth problem are the full-motion video, photographs and interactive mapping data generated by sophisticated intelligence, surveillance and reconnaissance applications, and which make mobile connectivity more critical than ever before. In 2009 alone, drones over Afghanistan collected more than 24 years of video — and that data is projected to multiply by 30 times in 2011.

To keep all this data in motion and to feed it to the warfighter where and when it's needed is the primary task of COTM. However, many existing systems are burdened by large antenna and system arrays that are heavy, expensive and cumbersome to move in the field. Even the most advanced have not yet reached the size, weight nor the cost effectiveness to be deployed on a large scale, though steady advances are being made. What's more, the bandwidth efficiencies of most COTM systems in the field lag behind the latest commercially available systems — which employ managed bandwidth technologies — meaning that excess bandwidth today goes unused, but not unbilled.

Recent estimates by the Congressional

Budget Office project a 25 percent reduction in Defense Department funding over the next decade, making cost a primary issue in every technology deployment — which is especially acute for satellite bandwidth that's expensive to lease and complex to manage. For example, many current DOD networks are provisioned based on anticipated demand, meaning that a commander must predict the capacity well in advance of operations. Too much is always better than too little, so once again satellite bandwidth goes unused, but not unbilled.

But there are solutions. The latest commercially available satellite platforms provide a model for highly efficient bandwidth management. For example, dynamic resource allocation now enables DOD to manage its networks based on real-time needs, and even combine satellite with terrestrial fixed and wireless networking to deliver seamless communications resources whenever and wherever needed. In addition, expert systems for managing overall network resources are available, providing highly interactive and intuitive graphical user interface interfaces. However, dealing with provisioning and cost will only go so far. In order to meet the needs of today's warfighters, COTM must speak their language.

As DOD refines its fielded smartphone policies for future battlefield use, it is now recognizing that user-interface designs cannot just be an afterthought. The battlefield experience will increasingly be defined by how easily a soldier can interact with and glean intelligence from the technologies at hand. That's why any new technology deployment — especially COTM — must be powered by a highly interactive, user-friendly interface.

This vision of a comprehensive, end-to-end network management system is not something for future iterations. It is here today — ready to be deployed — to deliver unprecedented communications capabilities to the warfighter on the ground, no matter where the mission may lead. Because in today's environment, all communications are on the move. ■

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