STRATEGIC SPACE AND DEFENSE 2009
OFFICIAL NEWS SUPPLEMENT

Commentary

A Necessary Balance

‹ KAY SEARS ›

In today's military, satellite bandwidth is the "fuel" that drives many technological advantages. Nowhere is this more important than in the provision of essential communications for unmanned aerial vehicles (UAVs). This is a job that the private sector does well today and hopes to continue to do in the future.

The last few years have not been particularly kind to large government space programs. A few months ago, the Transformational Satellite communications program, touted for years as the future of government secure broadband and mobile communications, came crashing back to Earth, felled by its $20 billion-plus price tag, technical risk, changing requirements, and the perception of the systems inherent vulnerabilities.

The Advanced Extremely High Frequency (AEHF) satellites incorporate marvelous technologies, but at more than $2 billion per copy and exceedingly modest data rates, they hardly provide an affordable and sustainable path to the future.

The Wideband Global System (WGS), the first satellite of which was launched last year after more than a decade on the drawing board, is bringing needed capacity to the fight. However, a lack of deployed terminals and limitations in the satellite's beam-forming and frequency re-use capabilities constrain its abilities to address future requirements.

Finally, the Navy's Mobile User Objective System (MUOS) program, designed to replace the workhorse UHF Follow On satellites so essential to the warfighter, looks to be years late, over budget, and could well jeopardize critical global continuity in this essential band.

As major government programs have struggled, the Defense Department's demand for satellite communications has grown dramatically. A few years ago, two relatively small companies, Ryan Aeronautics and General Atomics, working with comparatively modest government support, developed the technologies that became the Global Hawk and Predator UAVs. These UAVs, with their capability for precision targeting and real-time battlefield intelligence, have literally revolutionized warfare. Strategic capabilities that once required billion-dollar space assets could now be delivered with relatively low-cost aeronautical platforms.

The UAV revolution is not without its complications. Once a UAV flies beyond the radio range of its base, it must rely on satellite communications for its command, control and data transfer. As a result, UAVs are extremely bandwidth intensive. The rapid growth of UAV applications occurred during a time when military-owned bandwidth was already at a premium. Existing satellite fleets, DSCS and Milstar, were stretched thin with the wars in Iraq and Afghanistan and could not begin to meet the new demand imposed by UAVs.

Lacking military-owned capacity, the DoD turned to the commercial satellite industry for assistance.

Thus was born a unique marriage of convenience. The military began to rely heavily on the global commercial satellite industry to meet its evolving and expanding requirements and the industry, in turn, found a ready outlet for its then-underutilized capacity. The military also began buying and deploying commercial antennas and equipment to its troops and on its UAVs. DoD reliance on commercial satcom would continue to grow until the commercial sector was supplying more than 90 percent of its satellite communications capacity in Afghanistan and Iraq.

In some ways, the relationship has never been a completely comfortable one. By and large, major DoD satellite users tend to prefer military satcom over commercial, because, at least from the users perspective, it is "free." Commercial capacity, however cost-effective or convenient, must be paid for with increasingly scarce budget dollars. To this day, with the partial exception of the Navy, the services — even though they rely on commercial satcom for critical services — do not routinely budget for these services but prefer, instead, to buy them with so-called supplemental funds appropriated by Congress for the war effort.

By and large, major DoD satellite users tend to prefer military satcom over commercial, because, at least from the users perspective, it is "free." Commercial capacity, however cost-effective or convenient, must be paid for with increasingly scarce budget dollars.

The success of early UAVs drove the demand for more UAV flights and more and better onboard sensors suites, which, in turn, drove the need for more satellite capacity. Once the data is collected, it must be dispersed for action. The quickest way to do this in theater is via satellite. Again, the overall demand for satellite capacity is growing at a rate that far outstrips the DoD's ability to meet it with current and planned military satellite capacity.

This raises a fundamental question for the future: Should DoD create an enduring role for commercial industry in meeting long-term UAV requirements, or should it mount a multibillion-dollar campaign to replace existing commercial terminals and satellite capacity with new military satellites and antennas? In many ways, this debate echoes the now more than a decade-long debate regarding the role of the commercial remote sensing industry in meeting the basic mapping mission of the U.S. government. After much anguish, several presidential policies, innumerable Pentagon and intelligence community reviews and numerous congressional directives, the answer on remote sensing has finally been determined to be "Yes." It now seems clear that commercial remote sensing will play a distinct role in the government's acquisition of medium resolution data.

So, why not apply the same logic to the commercial satellite industry? Why not declare, as a matter of policy, that the commercial sector will be the primary means to meet UAV satellite requirements? Such a decision would make sense on many levels. The commercial sector certainly understands all elements of this requirement, including the planes, data rates, capabilities, video progression to HD, etc. The commercial sector has demonstrated excellence in the provision of service and has taken extraordinary steps such as moving satellite beams and entire satellites to support this application. The current service is highly resilient in that it is spread across many satellites with no single point of failure. With government assistance, new satellites could easily provide enhanced levels of interference protection.

In the past, some have argued that long-term commitments to the commercial sector were impossible because future need was unclear. However, every purchased airframe is, by definition, a commitment to bandwidth. By linking bandwidth commitments to the number of airframes acquired, the government can avoid the uncertainty regarding its future requirements.

The private sector is prepared to invest heavily in new UAV applications and innovations if the government is prepared to build a partnership for the future. A true partnership will allow industry to design for unique government applications and to plan better for future capacity needs. The only alternative to relying on commercial capacity is a large multiyear, multibillion-dollar government program to replace what is working well today. Given the current stress on the DoD budget and the strong demand for service continuity, this should be an easy decision to make.

Kay Sears is the president of Intelsat General.