Department of Defense's Need To Become a Responsible Commercial Customer

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One of the most important challenges facing the military and civilian leadership of the Department of Defense (DoD) today is how to put into effective practice the reliance DoD has placed upon the commercial Space industry. What often seems underappreciated is that, while the Department's leaders have consistently determined over the past decade to plan on filling a growing share of DoD's requirements for communications, imagery, and weather from commercial systems, the Department has not followed these decisions with the commitment and actions that will assure the availability of the commercial capabilities upon which it now relies.

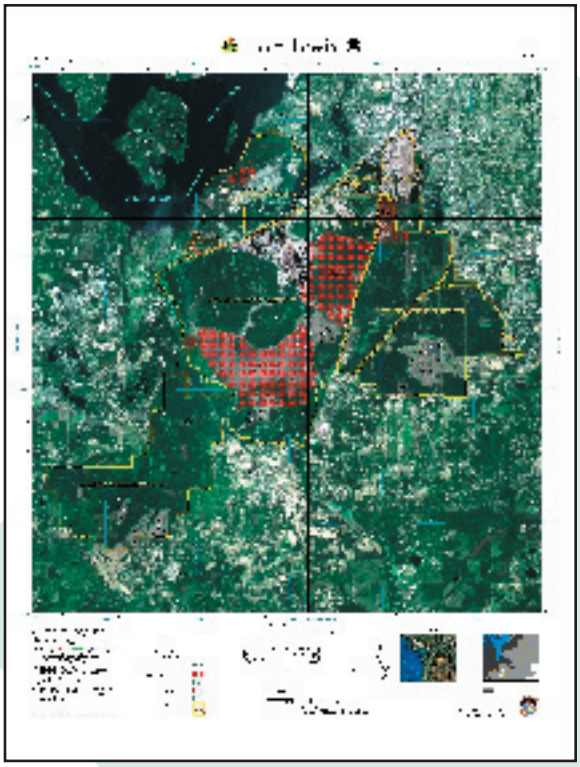
Although the degree of reliance on commercial capabilities varies for communications, imagery, and weather information, any of these areas can be viewed as qualitatively representing all three. [As the Chief, Defense Systems Information Agency Space Operations with responsibility for supervising the Commercial Satellite Command Service Office that is charged with providing wideband commercial satellite communications (SATCOM) to DoD (and other Government) users.] I am most familiar with how DoD's current practices constrain its ability to maximize the support it obtains from commercial SATCOM systems. This specific set of challenges is therefore what I will examine.

Commercial SATCOM and DoD Today

In 1997 the military's senior communications leaders met in a series of meetings at the Senior Warfighters' Forum. This forum reviewed current and projected DoD requirements for SATCOM and concluded that the projected military systems would be unable to keep pace with the projected growth in demand. Consistent with a 1993 Congressionally mandated initiative known as the "Commercial Satellite Communications Initiative," they chose to rely on commercial wideband (C, Ku, and Ka bands) satellite communications to augment the military systems to meet the Department's total SATCOM requirements.

What is not often discussed is that this decision was made from the perspective of total infrastructure: the Department's senior communicators looked at total demand and at total forecast military satellite communication (MILSATCOM) capabilities and directed that the difference between the two would be provided by commercial SATCOM systems. This decision committed DoD to make wideband commercial SATCOM a part of DoD's total communications infrastructure, also known today as the "Global Information Grid" or DoD's "Infostructure."[1,2] However, to date, the Department has not invested in the commercial portion of its SATCOM infrastructure on an infrastructure basis.

Instead, the Department relies on individual elements — in some cases down to the squadron or battalion level — to budget for and provide the funding necessary to lease the commercial SATCOM bandwidth those elements require. Additionally, the paradigm adopted by the Department means that users of commercial SATCOM are discouraged from entering into leases for periods of greater than one-year. Of the military services, the Navy has been the sole one



A typical multi-spectral imagery product produced by Army Space Command.

to lease commercial SATCOM on a broad, service-wide basis under its Challenge Athena program. Effectively, this means that the Department leases the commercial SATCOM it needs on a piecemeal, as-needed and as-can-be-funded basis. This is essentially a circuit-based approach; it certainly does not reflect an infrastructure-based approach.

The Problem

The result is a situation in which neither DoD nor the commercial SATCOM industry obtains from the other the maximum benefit. The commercial SATCOM industry operates on the basis of leasing at least 70 percent of its on-orbit capacity at any one time. Today, demand over most of the Earth is much greater: on a typical day, 95 to 98 percent of the capacity of the available on-orbit C- and Ku-band transponders is leased. For DoD customers, this means that finding the commercial SATCOM bandwidth they require, as and when they require it, can be difficult, untimely, and unaffordable.

The industry's leasing policy promotes long-term commitments. Leases typically are for five or more years and customers who know they have a long-term requirement often consummate 10- and 15-year leases. Reflecting this orientation, lease renewals are required six months in advance of the expiration of a lease. On 10-year leases, this poses a trivial amount of administrative overhead for both the satellite provider and the customer. For DoD customers with long-term (more than one-year) requirements, it means that three months after a lease period begins, they must begin working the processes within DoD to be able to renew their lease for another year.

SATCOM providers also structure their pricing to encourage/reward long-term commitments and compensate for capacity that has been lying unused by charging premium prices for it when short-term, low-bandwidth customers have a need to lease it. Savings on a 10-year lease versus a 1-year lease for a 36 MHz transponder are in the range of $800,000 per year — or around $8 million over the life of the lease! The net result is that, although DoD views commercial SATCOM as part of its global information infrastructure, its current investment approach to obtaining commercial SATCOM leaves it at risk of being unable to obtain the commercial capacity it requires and, in most cases, paying the greatest possible price for the bandwidth it can obtain.

The typical corporation with requirements for SATCOM charges its Chief Information Officer with "bundling" those requirements together into a total package and negotiating with satellite communications providers to obtain the best possible rate and the most favorable terms in exchange for a long-term commitment to lease an aggregate amount of SATCOM capacity. This may include in some cases, as with DoD, individual requirements that may be small (T1 or less) and spread across many portions of the globe.

Prescription for the Future

What the Department of Defense needs to do is adopt the same sort of approach as used by the large corporate consumers of commercial SATCOM.

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Each of these documents will contribute to the future understanding of how the SSE will "operationalize" Space in the tactical Army. The IDIV SSE is the foundation for the integration of Space operations at the tactical level.

There remain several questions that we as a community will need to answer with one voice. What does the tactical warfighter really need from the Space Operations Officer that he does not get from other members of his staff? What additional value does that officer provide? What can we use as a historical reference to articulate such officers' future contributions at the tactical level?

In the next issue we will look at how the tasks of the SSE will provide support to division operations.

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Editorial Note. This is the second in a series of four columns that will outline Space in the Interim force. Following the first column that discussed the basics of the Interim Division, this column addresses Space within the tactical Army for Interim Division operations and design considerations.

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First, we need to help individual customer organizations throughout DoD understand the benefits that will accrue to all DoD customers if we collect all of DoD's commercial SATCOM requirements together and intelligently lease the capacity to meet the Department's aggregate demand. Second, we must change the paradigm in place today within DoD that causes customers to lease commercial SATCOM capacity on what is effectively a "circuit-by-circuit" basis; we must persuade the Department that, as an essential part of DoD's communications infrastructure, commercial SATCOM should be funded and acquired centrally and adequately to meet most of the Department's peacetime and a portion of its projected contingency SATCOM requirements. Third, we must also further change DoD's paradigm for leasing commercial SATCOM so that we can enter into the long-term leases of 10 years or more that prove we are a serious customer to industry and that yield the benefits of cost savings to the military — and the American taxpayers. We need to get the most bandwidth for the bucks spent! Fourth, we must help the Department realize that the commercial SATCOM portion of its global information infrastructure should be consumed ahead of the MILSATCOM portion.

Commercial systems are optimized to provide coverage where paying customers are located. Military systems are optimized to be able to rapidly and agilely provide support at any location on the Earth where crisis of some sort arises. By employing commercial systems to meet a substantial portion of its routine requirements — the kind of requirements ideally suited to relatively unprotected commercial systems — our military will have sufficient capacity available on its MILSATCOM systems to meet surge requirements in the event of a contingency. This "surge" capability will then exist on the systems that are designed to have the capability to support forces at any location on the planet-whether there is normally a paying customer community or not.

An additional benefit in proceeding in this manner is that if DoD organizes its requirements for commercial SATCOM into an aggregated whole, leases capacity from industry on this basis, and enters into long-term (10 or more years) leases, then the commercial SATCOM industry will begin to perceive DoD as a serious, major customer. Both will benefit: DoD will have positioned itself to meet more of its SATCOM infrastructure requirements easily, responsively and affordably; industry will be able to count on DoD as a customer and size its constellations and on-orbit capacity accordingly. This last point is important because there is a real possibility that over the next 10 years the demand for long-haul, wideband SATCOM may dramatically diminish.[3] If DoD is not a regular, reliable, significant customer of the SATCOM industry — one whose needs the industry routinely plans on meeting — DoD may find as the next decade begins that there is no suitable commercial SATCOM capacity to lease.

Lt. Col. Patrick Rayerman, U.S. Army Signal Corp, is currently the Chief of Space Operations at the Defense Information Services Agency.

Endnotes

1 Lt. Gen. Woodward in his MILSATCOM 2001 presentation

2 Lt. Gen. Raduege in his Spring 2001 DISA Customer Conference presentation

3 Col Anhalt in his presentations to the USAF Science Advisory Board "Summer 2001" Study and the Via Satellite's SATCOM 2001 Industry Conference

References

Anhalt, Colonel David, Briefings to USAF SAB and Via Satellite's SATCOM 2001 Industry Conference

Raduege, Lieutenant General Harry, Briefing to the Spring 2001 DISA Customer Conference

Woodward, Lieutenant General John, Briefing to the 2001 MILSATCOM 2001 Conference

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theater all its own.

It is different, whether it be missile defense or other missions that we now have ongoing. It spans a whole series of interests, even from a peacetime day-to-day application. We can use some of these capabilities in ways that clearly add emergency response, and so there's a spectrum of applications across the range of missions.

The key for us now is to communicate this to the commanders, those that can use these products. Once they have a sense for the real, we can talk about mission enhanced packages. It's kind of the tour I've had today spread throughout a larger audience. We probably have more work than we have short-term capability.

What have you gained from coming here today?

I had a general idea about some of the components, and capabilities, some of the details that our soldiers, our units would be a part of here, but it's actually broader in a technical sense than I had originally anticipated there. I had an idea of what went on in terms of general missions in Space units, in Space battalions, but there's a set of details here that I didn't fully appreciate. I now have a better understanding of the capability.

I had a sense there was potential here in terms of mission opportunity, but I also have a new appreciation for what goes on here in terms of the product, the outcome. An enhanced field commander's warfighting sense of how they might place. This is a value added piece. I could place some these products to their distinct advantage; no doubt about it. This is value added work that in a way, I hadn't anticipated when I got here.

So, that's your take away.

And you know, this is a team that works here. Guard soldiers, traditional members coming off the street from the business community across this country volunteering to help us out in time of need. When the mission is completed, then we go back and perform our normal duties in a peacetime setting. But today we've got an emergency on our hands, that changed the scenario for the foreseeable future. And Space has a big part to play in it — the National Guard will be right there!

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For 40 years, the National Reconnaissance Office has revolutionized strategic reconnaissance. Film capsule recovery satellites have been replaced with near-real-time electro-optical imagers, and signals intelligence gatherers continue to push the limits of technology. The Office has played a crucial role in the development of Space reconnaissance systems that now span nearly the entire electromagnetic spectrum. Intelligence gathering is no longer limited to nuclear disarmament issues and the prevention of surprise attacks, but includes such efforts as monitoring international terrorists and drug cartels, monitoring the proliferation of weapons of mass destruction, and aiding in natural disaster relief.

Until the World War II era, tactical reconnaissance was all that was possible. As technology has evolved, so has our ability to conduct strategic reconnaissance. This evolution of reconnaissance is entering a new phase, in which the goal is to apply our formidable strategic capabilities to our tactical efforts. This will require the same focused effort, ingenuity, and perseverance that made our strategic program a success. While Space-based reconnaissance will always play a critical role in strategic reconnaissance, Space-based tactical reconnaissance is the new challenge.

Maj. Robert Guerriero graduated from the United States Military Academy in 1990 and was commissioned as an Armor officer. He is now a Space Operations Officer assigned to the National Reconnaissance Office's Advanced Systems and Technology Directorate.

End Notes

1 Gen H. H. Arnold, Third Report of the Commanding General of the Army Air Forces to the Secretary of War, USAAF, Nov. 12, 1945, pp. 65 and 67.
2 R. Cargill Hall, The Truth about Overflights, The Quarterly Journal of Military History, 1997, Vol. 9, No. 3, p. 26.
3 R. Cargill Hall, Strategic Reconnaissance in the Cold War, Prologue, 1996, Vol. 28, No. 2, p. 107.
4 Hall, 1997, p.28.
5 Hall, 1997, p.31.
6 Hall, 1996, p.114.
7 Hall, 1997, p.36.
8 Hall, 1996, p.119.
9 Hall, 1997, p.36.
10 Hall, 1997, p.36.
11 Hall, 1996, p.119.
12 Hall, 1996, p.120.
13 Hall, 1997, p.39.
14 Hall, 1996, p.119.
15 Frederic C.E. Oder, James C. Fitzpatrick, and Paul E. Worthman, The Corona Story, 1987, p.3.
16 Oder, Fitzpatrick, and Worthman, 1987, p.28.
17 Oder, Fitzpatrick, and Worthman, 1987, p.40.
18 Oder, Fitzpatrick, and Worthman, 1987, p.47.
19 Oder, Fitzpatrick, and Worthman, 1987, pp.47-49.
20 Oder, Fitzpatrick, and Worthman, 1987, pp. 50-51.
21 Oder, Fitzpatrick, and Worthman, 1987, pp. 52-61.
Space-Based Reconnaissance, Guerriero, 8
22 Oder, Fitzpatrick, and Worthman, 1987, p.96.
23 Oder, Fitzpatrick, and Worthman, 1987, p.121.
24 R. Cargill Hall, The NRO at Forty: Ensuring Global Information Supremacy, 2001.