



## **Air Force Association Global Warfare Symposium**

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### **Introduction**

Ladies and gentlemen, I am very honored by that kind introduction. Sandy, thank you very much; and Mike, thank you as well. I greatly appreciate the efforts of the AFA team for hosting, once again, a magnificent event.

It is a great pleasure to be here at this Global Warfare Symposium—and not just because we get to enjoy our current surroundings. Really, I am pleased about being here because I get to spend time with our Space Command Airmen—particularly, from our California-based organizations: the Space and Missile Systems Center, 14th Air Force, and the 30th Space Wing. I also thank our dedicated partners in the space industry for teaming with our Airmen and Air Force civilians, to perform truly vital work on behalf of our Nation. Secretary Donley and I are very proud of your accomplishments, and we thank you all for your collective service.

Ladies and gentlemen, we are fortunate to have, in this forum, another opportunity to discuss issues and challenges, and recognize wide-ranging opportunities that are arrayed before us. With our Nation's broad-ranging dependence on space—from civil to commercial to national security applications of a number of amazing capabilities—it would be fair to say that space, in some way, affects the lives of practically all Americans every day. Space-based capabilities keep us closely connected, accurately located, and informed practically up-to-the-minute, thereby ultimately shaping how we view, interact with, and affect the world in which we live.

### **Dependency on Space-Based Capabilities**

Operationally, capabilities from space systems, in a mere couple of decades, have progressed from their originally stove-piped and limited scope to their presently integrated, networked, and broad-reaching applications. Our space mission has evolved from the formerly unchallenged to the now congested, with more than 60 nations or consortia that currently operate in space, as well as non-



governmental entities that offer capabilities and services to access and exploit space-based capabilities. And, perhaps most dramatically, the characterization of our dependency on space has developed from merely “useful” or “advantageous,” to now “critical” and “essential,” to our broader mission. Across multiple sectors of our society—financial, commercial, civil, military, social, and others—our Nation is currently more dependent on space-borne capabilities than is any potential adversary, or will be for some time.

With this disproportionate reliance, and the advantages that it confers, come asymmetric vulnerabilities. What might be a relatively minor disruption for a less space-dependent adversary could be a consequential setback for our Nation. As technology continues to effectively lower the barrier to entry, and enable more actors in this vital and increasingly competitive domain, both the capability and the vulnerability gaps might narrow. But, for the foreseeable future, we will face the possibility of cunning or aggressive acts by adversaries to leverage this current reliance, and exploit our potential loss of wide-ranging capabilities. Our challenge is both to mitigate the risks that are associated with this sort of challenge, and to minimize any negative consequences, which likely would be both substantial and potentially far-reaching.

## **The Strategic Environment: Ambiguity and Austerity**

Exacerbating our challenge is fiscal austerity that will likely diminish our purchasing power in the midst of increasing operational demands. The economy continues to recover only modestly, with consumer confidence and employment rates lagging in the near-term. And, for the foreseeable future, we will continue to face trillion-dollar deficits and growing national debt, presenting further uncertainty for long-term defense resource availability. This economic condition compels the Department of Defense toward greater efficiencies and more disciplined spending.

To meet this challenge, Secretary Gates directed the services to produce, from fiscal years 2012 to 2016, a total of 100 billion dollars in efficiencies, with the Air Force’s share of that total at around 28 billion. Our focus is reducing administrative and overhead functions and costs in order to free up more



resources for direct investment in modernization, recapitalization, and other efforts to enhance our warfighting capability. All of this will require us to concurrently balance several competing demands—most significantly, between fulfilling today’s needs in a counterinsurgency environment, and preparing for tomorrow’s potential challenges in lower- and higher-end, larger-scale contingencies.

Our strategy also involves balancing modernization where we can, and recapitalizing where it no longer is cost-effective for us to upgrade our legacy systems. Of note, upgrades are not typically possible for our on-orbit systems. It is important to note, as well, that three of the Air Force’s top eight investments in terms of pure dollars are space programs, with the Space-Based Infrared Systems, Global Positioning System, and the Evolved Expendable Launch Vehicle joining KC-X, F-35 Joint Strike Fighter, F-22, and MQ-1 and -9 Predators and Reapers as top Air Force acquisition priorities.

It therefore is important for this particular audience to keep efficiencies in mind as we further refine our modernization and recapitalization strategy. While the Air Force Under Secretary and Vice Chief of Staff are overseeing our service-wide efficiencies program, success will be achieved only with buy-in from Airmen and industry partners at all levels. Secretary Donley and I are counting on you in this room, and others like you, to help us adhere to development timelines, deliver to programmed expectations, and hold leaders accountable—military or civilian.

Beyond our formalized efficiencies programs, we will rely on innovative ideas that promise greater streamlining opportunities, both domestically and internationally. The Air Force will play a significant role in meeting the intent of the National Space Policy to increase interagency cooperation, collaboration, information-sharing, and alignment of common pursuits across civil and national security space. I am proud of our efforts thus far—for example, with the planned establishment of a formal partnership between the National Aeronautics and Space Administration, the National Reconnaissance Office, and the Air Force, in creating, acquiring, and sustaining launch vehicles, bases, and ranges.



This proposed partnership, moreover, is a fitting example of further reaching out to our commercial space sector, and helping to foster steady growth and ensure its long-term viability. Nations that actively promote and participate in the commercial aspects of space stand to gain advantages in cost-sharing, dynamic innovation, and more robust research, development, testing, and evaluation of new technologies. But, we are cognizant of challenges for the commercial space industry, which we must address—particularly, with waning capital to fund expensive future investments in advanced space capabilities; and, with attracting, recruiting, developing, and retaining a highly skilled technical workforce. We recognize that the strength and vitality of the civil, commercial, and national security space sectors—individually and collectively—greatly affects our Nation’s strategic outlook and, ultimately, our national security. So, I look forward to increasing our efforts, and finding other opportunities to team with our interagency and private-sector partners, in a collaborative “whole-of-nation” effort to maintain and hone our technological edge, human capital, and production capacity.

We also have potentially fruitful opportunities with international partners. The National Space Policy calls for expanding global cooperation to broaden and extend the benefits of space, such as our partnership with Australia on Wideband Global SATCOM, and a recent plan by Secretary Gates to cooperate on space situational awareness activities. Here, we have an opportunity to strengthen partnerships and partner capacity, and to coalesce broader support around our shared objectives. Moreover, to forestall aggressors from taking detrimental actions against our systems, we could further benefit from potentially broader support from international stakeholders, as we develop and promulgate deterrence policies and measures to counter harmful acts or threats. In the end, as we forge and advance international partnerships, it will be largely about greater synergies and efficiencies that we can achieve by collaborating on our efforts, and sharing, where possible, resources for funding, operations, maintenance, and modernization.



## Air Force Space Contributions to the Joint Team

Closer to home, our efforts in space profoundly affect the success of the Joint team. The U.S. military absolutely depends on the space-based capabilities that Airmen provide, affecting in some way virtually all aspects of worldwide operations. Space-based capabilities enable the Air Force's ability to provide our Nation with *Global Vigilance, Reach, and Power*—the ability to discern, rapidly get to, and deliver tailored, timely, and precise effects on practically any target on the planet. And, as I recently elaborated in a speech to the National Homeland Defense Foundation in Colorado Springs, our space-dependent exploitation of cyberspace and advanced information technologies enable us and the Joint team to properly command and control our forces, binding virtually all of our advanced capabilities together into balanced, networked, synchronized, and precise operations.

Put simply, *Global Vigilance, Reach, and Power* is the Air Force “family business” of which all of you are an integral part. One could say that this strategic orientation in large part drives our reliance on space- and cyber-based capabilities. From space surveillance and missile warning, to precision navigation and timing, to global satellite communications, our space and cyber assets afford us with distinct and unmatched advantages in accuracy, precision, connectivity, and situational awareness.

For example, space and cyber power help to enable our remotely-piloted aircraft, which provide unparalleled information-gathering, and facilitate the processing, exploitation, and dissemination of analyzed and time-sensitive intelligence. Reducing strategic surprise and decreasing battlefield guesswork, this capability is critical to the national decision-maker and the company commander alike. As we move toward achieving 50 remotely-piloted combat air patrols by the end of 2011, the demand for bandwidth most surely will increase.

Therefore, the addition of SV-1 into the AEHF constellation will be vital, as its secure, protected, and survivable communications capability will contribute to meeting this demand. Secretary Donley and I would like to publicly thank the AEHF team of Airmen and industry partners who are putting forth tremendous



effort to overcome the current contingency, and execute the alternate orbital plan to get SV-1 to its proper operational location. A member of my staff was once the orbit analysis chief for two geosynchronous launches that had similar contingencies, albeit far less demanding than the current situation. As he explained it to me, the way ahead for SV-1 involves a series of thruster firings at apogee, raising and circularizing a series of intermediate orbits, and drifting it to the test slot, and eventually to its operational slot, in geosynchronous orbit. I appreciate that the plan to get SV-1 into the right orbit is a very complex and elaborate process, and will keep our team extremely busy for some time. Secretary Donley and I look forward to its planned August 2011 arrival at its test slot; and, in the meantime, we offer our full support and encouragement to our dedicated team of Airmen and contractors.

Also responding to increased demand for intelligence, surveillance, and reconnaissance is our current effort with Operationally Responsive Space. With ORS-1, we will provide increased capacity to monitor U.S. Central Command high priority focus areas, thereby boosting critical situational awareness for the warfighter. But, ORS is much more than just providing ISR, or any other single capability, for that matter. As a concept, ORS will be an architecture that will leverage existing, lower-cost space launch vehicles and payloads, as well as develop future components in an integrated fashion, to respond in a timelier manner to combatant commander requirements. Its interoperability with current and future architectures will assure necessary versatility and complementary capability with existing systems.

This is exactly what we need—innovation and greater efficiency—as we contend with ongoing fiscal constraints. In the case of ORS-1, we will be able to maximize the use of existing USCENTCOM airborne tasking, data processing, and dissemination, or “TPED,” system, and synergize with current organic airborne assets, ultimately to enhance our ability to monitor denied or contested focus areas. As we design future ORS systems, we will use the ORS-1 model, with lessons learned, to design other versatile systems and a range of capabilities among different payloads. I see ORS as way toward conceiving and cataloguing



future interoperability between satellite buses, payloads, space launch vehicles, and appropriate command and control capabilities, all developed to common technical and procedural standards for maximum versatility and enhanced affordability.

## **Toward Greater Stability in Space**

This is vital, ladies and gentlemen, because as we move forward, fiscal constraints will affect our ability to meet our challenges in space. We will require greater innovation in the design, testing, evaluation, and fielding of payloads and spacecraft alike. Innovation can be the linchpin. As it pertains to space, innovation can engender increased versatility in the form of satellite buses that can accommodate multiple payloads, payloads that can be integrated on board different satellite buses, and spacecraft that can be launched on different spacelift vehicles. This inherent versatility will take us a significant way toward increasing our resiliency in space-borne, mission-essential functions, for which we have a National Space Policy mandate.

But, we must do even more. The enormous complexity—both technologically and operationally—of spacecraft, payloads, launch vehicles, and associated communications and command and control architectures requires sharp and creative minds to develop an equally intricate taxonomy of resiliency measures. This will affect an adversary's calculation of costs, risks, and benefits in any aggressive design against inherently robust, highly-resilient, space-enhanced U.S. forces. We can do more to enhance our abilities in space control, space situational awareness, and threat attribution as well, which, in addition to providing us with more robust capabilities, ultimately will help to deter aggression, and to discourage its escalation into conflict, and conflict into larger-scale war.

## **Conclusion: Protecting Our National Interests in Space**

As an Air Force—but especially for the space professionals in this room—we are on the verge of an exciting future. I cannot overemphasize how critical your effectiveness is to the success of your Air Force and the Joint team. But, again,



our substantial dependence on space and cyberspace creates vulnerabilities that our adversaries might exploit—an outcome with profound strategic implications.

Therefore, as reliant as we are on space, our efforts to protect our interests in space must be equally ambitious and determined. We must be able to deter and defend against attacks on our space and cyber capabilities; operate through any disruption, degradation, or even denial of these vital capabilities; and conclusively attribute suspect activity, in order to preserve the prospect of greater benefits from our investment in space.

You are already aware of how much the Nation depends on you. But, let me add another dimension to the discussion of why it is absolutely critical that you do your jobs well. You also have a significant effect on our Nation's overall ability to deter against aggression. As your professional experience, expertise, and effort enhance our capabilities in space control, space protection, mission assurance, and threat attribution, these developments will also help to advance our still nascent experience in space deterrence. Ultimately, this will have an effect on our overall preparedness and deterrence posture, further convincing potential adversaries that the costs and risks of aggression or crisis escalation will outweigh its benefits—in space or elsewhere.

To that end, ladies and gentlemen, our commitment is firm. Our resolve is certain. We face daunting challenges; but together, we will continue to do what is difficult, and achieve what is worthy.

Space has been described, in this speech and elsewhere, as increasingly *congested*, *contested*, and *competitive*. I would offer that increased *cooperation* and *collaboration* is a solid beginning to address this trend. So, I thank all of you—Airmen, Air Force civilians, and industry partners—for your tremendous professional efforts, and your remarkable contributions to our Air Force and our Nation.

I wish you all the very best. *Aim High.*