Opinion: Commercial Satellites Vital To Increase Space Resiliency

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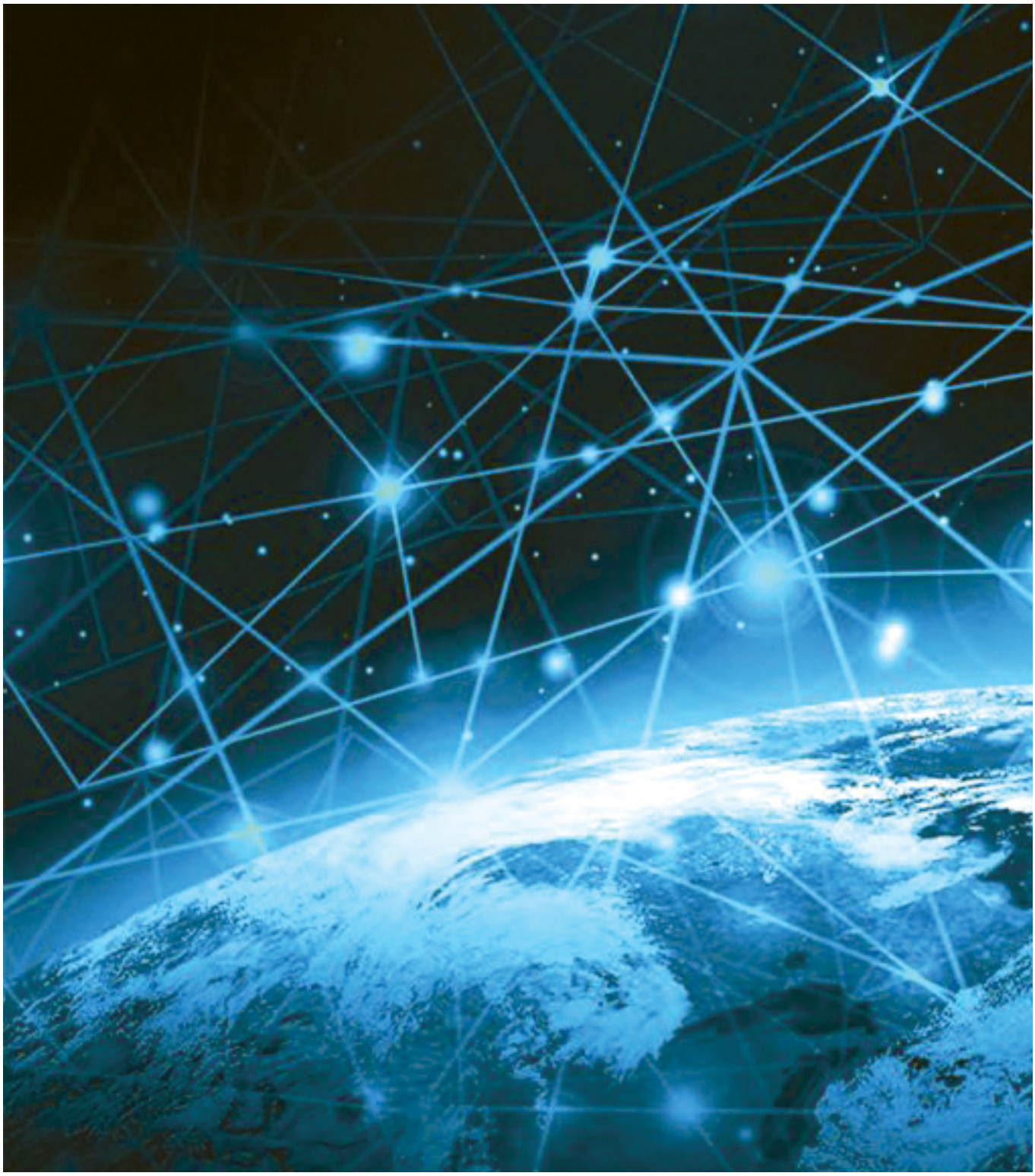
Rory Welch | *Aviation Week & Space Technology*

Not so long ago, U.S. government planners looking at satellite designs focused primarily on technical capabilities and cost. But in the past few years, a wide range of global threats has led to network resiliency taking an equal, if not higher, priority in this equation. Leaders of the U.S. Air Force Space Command and its Space and Missile Systems Center (SMC) now view space as a contested domain, one where signals can be jammed, communications hacked and satellites destroyed.

While the newly perceived vulnerability of America's space assets has led to a dramatic shift in thinking about the national security space architecture, the Air Force has been unable to move to a more resilient global network as quickly as it would like. Leaders have discussed a greater focus on resiliency across ground and space networks. They also have begun to shelve plans for large, expensive military satellites that would take a decade to plan and build in favor of more diverse space networks less susceptible to being taken offline by a single hostile act.

But the government could improve resiliency more quickly by taking greater advantage of the range of technologies and satellite platforms commercial companies already have in space. From high-throughput satellites to digitally controlled spot-beam and jamming-resistance technologies, commercial operators such as Intelsat have a range of capabilities that, when paired with government networks, could greatly add to the resilience of America's space networks.



Credit: Intelsat

The Air Force can learn from commercial innovators in the aviation and connectivity sectors as they meet at the Global Connected

Aircraft Summit in San Diego this week to discuss the next steps to strengthen connectivity on board aircraft for global responsiveness. Commercial industry has defined the art of what is possible for resilient communications, so the government should leverage this as soon as possible.

However, the Air Force instead appears to be focused mostly on improving its own procedures and practices to get government-owned assets into space more quickly. At the recent Space Symposium in Colorado Springs, Air Force Secretary Heather Wilson described how SMC is being realigned to focus more on innovation and rapidly moving the latest satellite technologies from drawing board to Earth orbit. Air Force acquisition policies also are being revamped to mimic the best practices of commercial industry so that new, more resilient technologies can get to space faster. In what could be a major new initiative, a new office at SMC will be devoted exclusively to working with foreign allies and commercial space companies to make better use of outside capabilities to improve resiliency.

Since the 2001 terrorist attacks, commercial operators such as Intelsat General have worked closely with U.S. government customers to provide satellite capacity for a range of military activities, including unmanned aircraft system (UAS) flights, ground communications and naval operations. Because of their shorter development cycles, commercial companies have been able to get new capabilities to space more quickly than the Defense Department. These include constellations of high-throughput satellites operated by Intelsat and others that deliver higher data rates, increased flexibility, greater security and better cost efficiencies for a wide variety of government and military applications.

Advanced high-throughput satellite platforms have the power to support troops on the go. Credit: Intelsat General

Because of their higher power, these advanced satellite platforms can be used with much smaller aero antennas in support of government UAS intelligence, surveillance and reconnaissance missions. Our own recent tests showed how an Intelsat EpicNG satellite link using a 6-in.^{2} flat-panel antenna transmitted two times as much data and was three times more efficiently than traditional wide-beam satellites, as measured by bits per hertz of bandwidth.

The cybersecurity of commercial networks is a major concern of government users. But network security is also of paramount importance to commercial users of global satellite networks because they cannot risk banking data, television broadcasts or any other satellite signal being hacked or corrupted by illegal infiltrators.

To illustrate, we at Intelsat continuously evaluate potential threats to our satellite and ground networks, allowing us to adjust and adapt our countermeasures to meet the latest attack methods. We meet the most stringent security standards of the Pentagon and have our network security audited annually by independent third parties. The advanced technology in the latest commercial platforms also can successfully mitigate intentional signal interference.

Because military operations depend on protected communications, a resilient network on the ground and in space is critical for national security. U.S. government leaders are working to improve resiliency by changing the acquisition cycle of their own space capabilities, and they need to go a step further by making better use of commercial assets and capabilities. The growing size and complexity of government networks require planners to take advantage of the capabilities offered by commercial high-throughput and other satellite platforms. The increased resiliency delivered by commercial satellite operators is vital to maintaining American superiority in space.

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