



● ● EchoStar XIX. Photo courtesy of EchoStar

Extending government modernization to the network's edge ● ●

High speed Internet connectivity is a service that many of us have come to take for advantage today, enabling us to stream media content, stay in touch with loved ones, shop online, and work effectively from home. However, one of the most surprising aspects of modern day connectivity is that many governments and enterprises aren't getting anything like the speed of service delivered to consumer homes, making connectivity a major challenge to operations on a day-to-day basis. Here, Tony Bardo, Assistant Vice President of Hughes Government Solutions, outlines the lackluster services often delivered to government and enterprise customers today, and how satellite can provide an effective solution.

Despite the many pushes for government IT modernization over the past few years, legacy technology remains entrenched in too many agency networks—underperforming yet expensive, with even basic functionalities like high-speed Internet connectivity often lagging behind enterprise or consumer standards.

Network modernization challenges

The Government Accountability Office has reported that the federal government spends more than 75 percent of its total IT budget on operating and maintaining legacy technology, which is not only delaying but actively damaging the modernization process.

Even though identified by agency CIOs as being moderate to high risk, ongoing support of legacy technology has meant increased spending of around nine percent of overall budgets since 2010, while investments in modernization and enhancement have actually fallen by a collective US\$7.5 billion. Without even getting into the resulting negative impact of limited or no services to constituents because of old technology limitations, this lockjaw condition shouts out that government desperately needs more innovation.

The low-hanging opportunity can be found at the edge sites of the agency network. While terrestrial broadband infrastructure continues to remain unavailable in many rural areas—despite ongoing public pushes—the fact is that a viable alternative for providing the level of connectivity that agencies need to

efficiently achieve their missions does exist in the form of satellite broadband. Unfortunately, the largest impediment to implementing this solution—which today offers high-quality, affordable connectivity nationwide—is lack of awareness. Many simply still don't understand that satellite broadband in fact closes the so-called digital divide i.e., being unserved or underserved by terrestrial broadband in lower-density areas because of the high cost of building out infrastructure.

Broadband regardless of location

This myopia has too often resulted in agencies buying and 'stacking' terrestrial T1 lines to overcome insufficient bandwidth, which is tantamount to throwing good money after bad. Given that a single T1 line is limited to speeds of only 1.54Mbps each and costs hundreds of dollars per month (with escalated costs for remote locations), it's not difficult to conclude that this is not a prudent way to spend taxpayer money chasing broadband comparable to what many of us receive in our homes.

Enter satellite broadband, which in fact has been available for the past decade with superior performance and today at much lower cost. Indeed, it's an ideal solution for agencies facing considerable budget cuts and the upcoming Enterprise Infrastructure Solutions (EIS) contract transition, which is now forcing them to seek cutting-edge alternatives that can both reduce costs and improve performance.

As a case in point, instead of continuing to stack multiple T1 lines, a logical alternative which many progressive enterprises

have discovered is to choose a trusted provider to implement managed broadband, which integrates existing core (MPLS, for instance) networks together with satellite and wireless in the most cost-effective and advantageous hybrid architecture.

The fundamental difference in build-out costs between terrestrial and satellite is that the former is dependent on distance, whereas satellite connectivity remains the same everywhere under its coverage area. As a result, a location even a few miles away from the nearest terrestrial switching or traffic aggregation point will likely cost more to connect than by installing a compact satellite terminal, including modem and external antenna.

The next generation of high throughput satellite service

Unfortunately, for many government agencies this has been a well-kept secret. Today's satellite technology boasts unprecedented performance thanks to the continuous innovation by a thriving global satellite industry. Indeed, the FCC recently recognized that satellite broadband in the form of the new generation HughesNet service is the only Internet connectivity

delivering 25Mbps download speeds coast-to-coast. Operating over EchoStar XIX—launched in December 2016, the largest broadband satellite in the world with over 200Gbps capacity—and two earlier high-throughput satellites, HughesNet now serves over one million residential and business subscribers. And it is equally available to agencies at a mere fraction of the cost it would take to stack T1 lines to reach the 25Mbps and even higher tiers of speed.

As agencies continue to see a rise in network traffic with more connected devices and more cloud-based applications, the expensive yet limited bandwidth from legacy network technologies is clearly not sustainable. Agencies are right to start considering how they can use current government vehicles, such as the GSA's Schedule 70 and Network Enterprise Enterprise Contract, in lieu of waiting for future avenues, like the planned EIS award to address their network challenges today. It's encouraging to see procurement officials intelligently leverage limited budgets for maximized return on investment as this will help agencies to do more with less during this critical period of IT modernization.

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Rheinmetall and Paravan enter global cooperation agreement ●●

The Rheinmetall technology group, represented by Rheinmetall Landsysteme GmbH, has joined forces with Paravan GmbH, a market leader in drive-by-wire technologies, to cooperate in the field of autonomous driving.

The partners plan to design and develop semi and fully automatic platforms for military and dual-use applications as well as civilian emergency response vehicles for protecting, rescuing and keeping people safe in acute high-risk situations and disaster zones. This pioneering cooperation agreement lays the groundwork for the rapid development of remotely controlled, automated, and future autonomous systems. Representatives of the two companies have now signed a wide-ranging agreement covering cooperation both at home and abroad.

One of the foremost manufacturers in this forward-looking field, Paravan has been developing drive-by-wire control technologies for over 15 years. This technology is a crucial prerequisite for future autonomous driving at the highest level (level 5), where no driver is necessary. Patented, fail-safe and roadworthy, these systems feature an independent power supply.

In the last five years alone, Paravan has prepared and equipped over 200 test vehicles, preseries vehicles and show cars for autonomous driving on behalf of renowned automobile manufacturers and auto parts makers around the world.

These modular, fail-safe systems consist of software, actuators, interface management and integrated sensors. As a result, these systems can be readily adapted to the needs of system manufacturers like Rheinmetall as well as major automotive companies and parts makers. Paravan's special expertise lies in the redundant digital control of steering, accelerating and braking as well as supplying interfaces for digitization, GPS, control computers, cameras, radar and sensors. Today Paravan drive-by-wire technology already meets the Europe-wide criteria contained in the regulations ECE-R 79, ECE-R 10 and ECE-R 13.

Besides autonomous driving, Paravan technology eliminates the need for a steering column, enabling a complete rethink when it comes to the design of vehicle interiors as well as creating scope for entirely new future vehicle concepts.

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