



● ● Skot Butler, President of Intelsat General Communications

# Powering applications globally ●●

Intelsat General Communications (IGC) provides connectivity solutions to government agencies around the world leveraging secure, cost-efficient, high-performance satellite networks to power applications ranging from homeland security and remote military operations to disaster preparedness and recovery. With uncertain days ahead given the close of the pandemic and the change of US administration, Skot Butler, President of Intelsat General Communications, outlines his strategies for delivering to government sectors in 2021.

*Laurence Russell, News and Social Media Editor, Global Military Communications*

## GMC: What successes are you most proud of in the Government segment in 2020?

**Skot Butler:** There are three things that I would like to highlight. The first is in the hosted payload arena. We launched Galaxy 30 with a hosted payload for the FAA, under contract with our partner Leidos, in support of the FAA's Wide-Area Augmentation System, or 'WAAS,' which is used to provide airline pilots with precise approach and departure, essentially augmenting GPS services for the National Airspace System. This is the second WAAS payload that we've completed in recent years.

We're also under contract via Maxar to host the TEMPO payload for NASA on Intelsat 40e. TEMPO looks at tropospheric emissions through UV visible spectrum to detect pollutants in the atmosphere. That satellite is currently under build for launch in 2022. We're big proponents of hosted payloads and we wish that there were more missions that we could get to line up with government needs.

We're also very proud of our fully managed 'Satcom as a Service' offerings with FlexAir and FlexGround. In 2020, we've brought increased speeds to those services with the help of our high throughput satellite (HTS) fleet, as well as ubiquitous global coverage that supports users anywhere, and new terminal flexibility across new antenna sizes and form factors.



● ● Intelsat's Flex White House Demo. Photo courtesy of Intelsat General

# GMC Q&A

**Protect Your  
Earth Station Antennas  
from Ice, Snow, Rain, and more**



**WINTER IS COMING  
ARE YOU READY?**

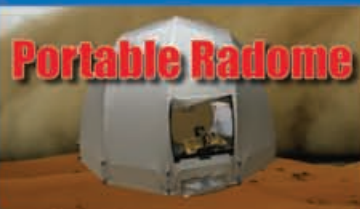
Play Video



**Ice Quake**



Sheds off snow before ice forms. Huge — up to 100 X — energy savings compared to conventional systems. 0.6 to 6.3 meters.



**Portable Radome**

Protect LEO/MEO/GEO terminals from heat, sand, snow, ice & more. Operate in extreme conditions — up to 85 Mph winds. Rapid setup. Flyaway system.

**Snow Shield**



Heated or Non-Heated antenna cover options. Electric, Liquid Propane, or Natural Gas De-Icing.

We've also partnered with terminal manufacturers, to simplify this technology, requiring less training for users and greater ease-of-use overall.

**GMC: With the new administration now in place, what does Intelsat want from the new government leadership?**

**Skot Butler:** There are several things that we're looking for from the government, and that we've been anticipating for some time now. These are things that we think are important for both government and commercial industry as we go forward.

The first thing is to maintain a dedicated funding and programme for commercial satcom. We believe that deliberate programming and investments are needed to evolve the commercial satcom sector in line with the US Space Force's SATCOM Enterprise Vision, which prioritises a hybrid, integrated commercial-military satcom architecture. We think it's imperative to have dedicated stable funding to meet that vision.

The second thing would be a flexible procurement framework. A long-term baseline of capacity to support enduring US Government missions will better align the needs of industry with those of the government, essentially establishing a more stable customer relationship in which the government benefits from greater input into investments due to the durable relationship.

The third thing would be to finalise satcom cybersecurity standards. All of the DoD's supplier base has general compliance requirements coming down courtesy of the Cybersecurity Maturity Model Certification (CMMC). So that's sort of a broad umbrella.

Satcom has a range of more targeted information assurance controls - known as 'IA-Pre' - to pre-clear commercial systems and networks for government use, which means we need finalisation of standards that we can then ensure we're delivering on.

The last thing is a continuation of something that has been growing in importance for a number of years now, namely the

deliberate, enhanced collaboration between industry and the Department of Defence (DoD), that ties directly back to that SATCOM vision. Essentially, the more we are directly engaged as an industry to understand the unique challenges of the government, particularly in the DoD, the more we can do as an industry to make sure that we're prepared to best support them.

**GMC: With the rapid advancement of digital complexity and the cyber domain, data security has become increasingly important. What are the contemporary dangers major governments face?**

**Skot Butler:** Transmission security, or TRANSEC, is about what they call the externals of the communication link, as opposed to communications security, or COMSEC, which relates to the actual information that's being transmitted. Transmission security is really about things like the IP headers and so forth, which carry certain types of information about the kind of traffic; the remotes, the pattern of requests coming from remote terminals to join a network, traffic volume, and so on.

Those are potential areas where information could be exploited. Depending on the type of network, there may be more or less concern about different kinds of threats. But there are mitigation techniques that commercial systems can adopt, for instance, showing constant walls of data so it's not obvious when data is passing through which could signal an increase in operations. Random dummy bursts can also be injected, digital keys can be used, etc. There are a range of techniques that can be employed, and industry continues to work to enhance that mitigation.

**GMC: Is there anything the government doesn't have right now that you feel they should?**

**Skot Butler:** A lot of what we're looking for is wrapped up in policy and architecture. We're very supportive of the Space Enterprise Vision - signed in February 2020 - which looks to have a single enterprise architecture across commercial and



Photo courtesy of Intelsat General

military satcom. There is a lot of work to do by all constituents to truly realizing that picture.

There are funding elements, procurement frameworks and interoperability standards which must be solidified now. The good news is that there is alignment between industry and government on this, it is just going to take a bit of elbow grease.

**GMC: What can private industries like Intelsat offer government buyers that US Armed Forces R&D cannot match?**

**Skot Butler:** The most important factor is probably speed. How long government programmes can take to develop is a well-worn trope. Sometimes there's good reason for that, but it is a problem when the technology that they are using becomes obsolete, or otherwise outmatched by the time those systems are actually fielded. Technology simply evolves faster now due to the nature of modern commercial space innovation. Not every state program can match the market as it is now.

The other factor is investment. Because the industry serves commercial as well as government markets, the business cases are built upon broader market bases, allowing for sharper investment. That said, there are mission areas where uniquely government solutions are still best. This is not a winner-take-all situation, but rather, different strengths which have a lot of potential to complement one another. In the case of wideband SATCOM, it is clear that this is a textbook case where the commercial industry can form the primary backbone.

By leveraging commercial investment in places where we can excel, the government can focus their internal investments where they are best applied. One such priority for them is integration, which has a lot to do with satcom architecture in how the hardware and software they are building and buying join up.

This will be a critical role for the partnership between the government and commercial industry. The government needs to clearly lay out its requirements, without dictating the solution

in a way that is overly burdensome on industry - driving costs up for all.

**GMC: Could you tell us about your collaboration with Eutelsat to deliver quantum satellite technology?**

**Skot Butler:** IGC is going to be the channel to the US government market via the partnership that we enjoy with Eutelsat. Their capability on quantum is software-defined, which we see as the future for satellite networks for both space and ground. Software Defined Networks (SDN) enable solutions like beam shaping, beam splitting, power, and frequency agility - all of which enable unprecedented flexibility and resource efficiency.

When missions change quickly, our control over the beams can adapt to continue providing coverage in unique circumstances on the move, allowing for more return on investment in space as orbital assets remain available in all circumstances - matching the coverage and power to the specific mission need. Our customers will be able to create a library of known beam configurations in advance, which can be rapidly employed. More importantly, they can devise new configurations in near-real-time to meet emerging mission needs. Finally, they will be able to do this via IGC in order to provide maximum operational security.

**GMC: With environmental catastrophes increasing in strength and frequency, what advances in disaster preparedness and emergency communications can help keep people safe from natural disaster?**

**Skot Butler:** I would say satellite has long been the solution to communication challenges in times of disaster when terrestrial networks are damaged or lost. Satellite provides both monitoring networks to provide early warning alerts, and also can quickly establish new communications networks to provide for responder communications and the logistics of rapid deployment.

Our Flex network is an ideal match to this challenge. Paired with the latest user terminals, which are inexpensive, small, and



● ● Photo courtesy of Intelsat General

simple to use, we can deliver new value to responders. Our plans remain flexible enough to deliver the right capacity for emergencies, enabling affordability and adoption to places that might not have significant requirements outside of disaster situations. Essentially, it is possible to have a standing broadband satcom network without the attendant costs of a traditional network. That allows us to keep capacity primed and ready for use within an affordable usage-based model that suits everyone.

**GMC: How do you plan to proceed across the next six months despite the coming upheaval given the new administration's priorities, trade war de-escalation, climate uncertainty, COVID havoc and so on?**

**Skot Butler:** Of course, we have no crystal ball here, and these are certainly more volatile times than those we've experienced in years past. We do feel confident that the increased focus on space is not something that is going to lose steam in the arms of the Biden administration, but on a granular level, the budget could certainly look different based on the new Administration's priorities. But in the near term, we will simply be keeping our heads down focused on our user mission.

Our government users often need to operate in pretty remote and austere environments under very demanding conditions, so we plan to continue advocating for resources and policies that are going to best equip the end-user. Besides that, we plan to continue to deliver on our brand promise of excellence and support that we've long provided.

In respect to COVID, we will be following much the same

procedures that we put in place earlier in the year, keeping our people and partners safe while remaining productive. We've been lucky in that our management had a solid disaster response plan in place, kept updated over our many years of doing business, which we were able to step into without much fuss, causing a relatively seamless transition of support and very little impact to our customers.

Looking forward, we're paying attention to what the DoD needs for their hybrid architecture and considering many avenues for where the demand's going to be. We're interested in software-defined networks offering interoperability across domains and better integrating satcom with the larger telecoms infrastructure on a global scale while being prepared to seamlessly interoperate with a 5G world.

The bottom line is that Intelsat is continuing to innovate and lead. A couple of specific examples: We are heading the 3GPP Non-Terrestrial Networks working group to develop standards for extending terrestrial networks to satellite in a standards-based infrastructure. We're also a founding member of the HAPS Alliance, looking at how high-altitude platform stations can be utilised for yet more flexibility, coverage augmentation, and surge requirements with super-low latency. We're looking at how antennas down to handset sizes can be integrated into greater networks and networks of networks. And of course, we're looking at creating the best possible user experience, delivering capability in the most uncomplicated way we can through interoperability with things like universal modems and other solutions.

**GMC**



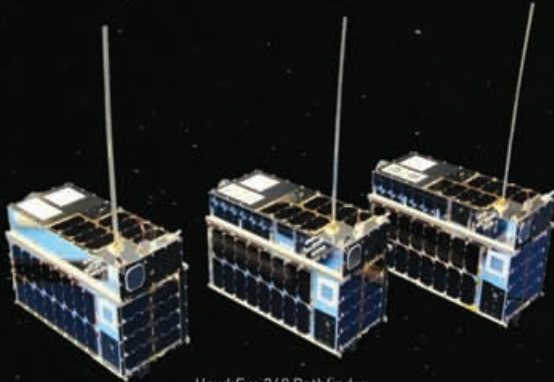
● ● Galaxy 30 with a hosted payload. Photo courtesy of Intelsat General

SPACE FLIGHT LABORATORY

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# MICROSATS, NANOSATS & CUBESATS

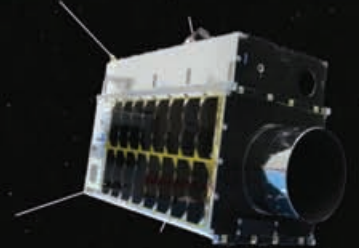
DISTINCT MISSIONS LAUNCHED, UNDER CONSTRUCTION OR READY TO LAUNCH



HawkEye 360 Pathfinder  
Dec. 3, 2018



NEMO-HD  
Sept. 2, 2020



GHG Sat-C1  
Sept. 2, 2020

## ...AND COUNTING

Space Flight Laboratory (SFL) provides bigger returns from smaller satellites at lower cost. We are developing innovative and budget-aggressive satellites and constellations today for tomorrow's NewSpace applications in Earth observation, maritime monitoring, communications, and environmental sensing.

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