

# Satellite Executive BRIEFING

Vol. 13 No. 10 December 2020



Industry Trends, News Analysis, Market Intelligence and Opportunities

## The Satellite Industry in a Post-Pandemic World

by Elisabeth Tweedie

“And now for something completely different.”

Words first uttered by John Cleese in 1971, and repeated by Lorraine Whitfield, Chief Events and Marketing Officer, Euroconsult, at the opening of this year's World Satellite Business Week. Words that sum up, not only this conference, being the first time that WSBW has been a virtual conference, but words that also sum up this year for most of us.

If I had a dollar for every time I heard the words “resilient” or “resilience,” I would probably have left this conference with enough money for my airfare to Paris for next year's event! It was a word that kept reoccurring, sometimes uttered with surprise, as panelists described how well their companies had fared this year. As we all know, several major companies including Intelsat, Speedcast, Global Eagle, OneWeb

and Phasor have filed for Chapter 11 protection. Of those Intelsat was the only one represented on panels, but Steve Spengler, CEO was one of many who used that word: “What we do is essential. It was a seamless transition to this weird work environment, we have shown resilience and for the most part it has been business as usual.” On the same panel, both Steve Collar, CEO SES and Rodolphe Belmer, CEO Eutelsat used the same expression, pointing to growth in both networks and broadcast sectors.

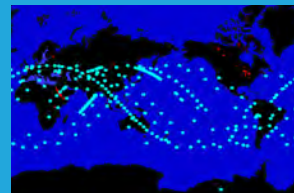
### Upbeat Mood

In his opening introduction Pacôme Révillon CEO of Euroconsult, singled out the maritime and aeronautical sectors as being the hardest hit by Covid-19.

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## Looking Forward to 2021



**N**ormally in our year-end issue, we recount the top stories of the past year. But this year, the top story is without a doubt the COVID-19 pandemic which has affected every individual, every country and every industry worldwide. It has caused many changes and disrupted our way of life in the most significant way. All the significant stories of 2021 in the satellite industry--the high profile bankruptcies of Intelsat, Speedcast and One Web, aborted mergers such as Comtech and Gilat, etc. are all corollaries of the pandemic. If anything, the pandemic exposed underlying problems within satellite companies and hastened their demise. For most companies, however, the pandemic was a time to rethink the way they do business and make the necessary adjustments. Those with adequate reserves have managed to weather the crisis better than those who are overleveraged or still in need of financing.

Overall, the satellite industry has fared better than other industries during the pandemic. As several vaccines come online before the end of this month and gets wide distribution globally next year, the prospects are looking good for a recovery in 2021. To get insights on views of leading satellite executives, listen to episodes of our podcasts at <http://www.satellitemarkets.com/marketcast-2020>



*Virgil Labrador*

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Satellite Executive Briefing is published monthly by Synthesis Publications LLC and is available for free at [www.satellitemarkets.com](http://www.satellitemarkets.com)  
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## Post-Pandemic World...

from page 1

While this would seem to be obvious, the key players in these markets were neither particularly downcast nor pessimistic about the future, although one or two companies had suffered setbacks this year. However, without exception, everyone regarded the impact to these two sectors as temporary. For the IFC sector, Euroconsult is projecting a 12-15% CAGR for Service Operator revenues, in the ten years to 2029 and a 17-20% CAGR for satellite operator revenues in the same period; leading to totals of US\$3.7-4.8 Billion and US\$1.6-2.1 Billion respectively.

Rupert Pearce, CEO Inmarsat was particularly upbeat, saying that the company is “highly resilient to the impact of the pandemic.” Whilst he acknowledged that the aviation sector had been hit, saying “We can’t earn if planes don’t fly” he pointed out that in 2019 this sector accounted for less than 20% of Inmarsat’s revenue. However, it is a sector from which he is expecting significant growth. Inmarsat commissioned a report from the London School of Economics in 2017, and this report projected that the adoption of Inflight Connectivity (IFC) by the airlines could lead to cost savings of US\$11-15 Billion by 2035. Rupert also mentioned that the same report indicated that: “by 2030, US\$150 Billion a year of new revenue would be generated from monetizing a passenger...from providing services to passengers in a seat.”



**At the Euroconsult World Satellite Business Week, Rupert Pearce, CEO-Inmarsat and Steven Spengler, CEO of Intelsat were bullish on the inflight connectivity market rebounding post-pandemic.**

Image Source: cntraveler.com

Steve Spengler was similarly upbeat about the aviation sector, saying that he expected the segment to show “double digit growth over the next ten years.” Intelsat, of course has just acquired GoGo a key service provider of Inflight Connectivity (IFC).

Pearce also stated that in the maritime sector the data requirements from a ship were doubling every nine months, although the ARPU is not growing at the same rate.

In the session on “Connectivity at Sea,” of the three panelist, Steven Pickett, CEO and President, Rignet, Martin Kitts van Heyningem, President, CEO and Chairman of the Board, KVH Industries, and Pradip Jyoti Nath, Managing Director and CEO, Nelco (a Tata company), only Kitts van Heyningem had also experienced growth in the maritime sector. He commented that the company had outperformed for the last two quarters due to a 9% growth in bandwidth demand.

This was largely due to the fact that companies had started doing remote maintenance coupled with the increase in remote working, both of which were fueling the demand. He commented that historically maritime customers had done all they could to minimize bandwidth usage, but the pandemic was forcing them, like the rest of the world, to do far more online meetings than in the past.

Nelco and Rignet, hadn’t fared so well. India is a highly regulated market for satellite communications and the majority of transactions have to go through the Indian Space Research Organization (ISRO), which means that buying and selling of capacity is not as easy and flexible as in other markets. As a result of this, when expected orders failed to materialize, Nelco got saddled with a lot surplus capacity, that couldn’t be resold. Rignet also experienced loss of revenue. The majority of their customers are in the oil and gas

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industries, and when consumption of oil fell due to lockdowns and working-at-home so did their revenue, as bandwidth consumption fell in tandem. The company has been focused on managing costs.

## The Future of Non-GEO Constellations

As would be expected constellations were a subject of discussion. Last year OneWeb was probably the most talked about, as at that point in time it had raised US\$3.4B, whereas LeoSat was struggling as its investors were on the point of pulling out. Now, LeoSat is no more and OneWeb is in Chapter 11, albeit with two new investors, the British Government and Bharti. However, its future plans remain obscure, even to companies such as Iridium that has an MoU with the company for joint marketing. When asked about this, Matt Desch, CEO, Iridium said “I don’t know, to be honest with you, because I don’t know who OneWeb is. As far as we are concerned it’s dormant, as it isn’t a priority for OneWeb right now.”

Now, LeoSat is no more and OneWeb is in Chapter 11, albeit with two new investors, the British Government and Bharti. However, its future plans remain obscure, even to companies such as Iridium that has an MoU with the company for joint marketing. When asked about this, Matt Desch, CEO, Iridium said “I don’t know, to be honest with you, because I don’t know who OneWeb is. As far as we are concerned it’s dormant, as it isn’t a priority for OneWeb right now.”

Telesat, which was expected to choose a manufacturer by the end of last year, still hasn’t done so, but Michael Schwartz, Senior VP Corporate and Business Development, said that a selection would be made by the end of this year. In spite of that fact, he also stated that he was “100% confident that we can meet the ITU regulatory milestones.” The first milestone is the launch of 30 sat-

Schwartz however was not concerned that a competitor would have first mover advantage: “Our business plan was not built on there being no competition.”

Stewart Sanders, EVP Technology, O3b mPOWER, SES stated that it was on target to launch the first O3b mPOWER satellites next year “in spite of many obstacles.” He mentioned that for mPOWER, SES would be looking

for more partners than in the past, “we really want to promote the shared risk and reward model.” At least initially, Jonathan Hoffeller, VP Starlink, said it would be going directly to the consumers itself: “it’s the best value and we get direct feedback.

Going forwards, we’re keeping an open mind as to what will be the best route to the customer.” Schwartz, said that Telesat would be preserving existing distribution relationships where they are working, but would work more directly with some customers.

Both SES and Starlink have partnerships with Microsoft Azure and for both of them this is an important focus, as Sanders said: “We’re becoming cloud first. It’s a constant question we ask ourselves, “Can we do this in the cloud? And if yes, why aren’t we doing so?”



**After a year without live events, the consensus in satellite industry is that everyone is looking forward to a return to some semblance of normalcy in 2021.**

ellites by 2023. He then added a caveat pointing out that at the last WRC, it was stated that if a company can demonstrate that it is under contract to get the satellites built and launched, then that first milestone can be waived.

Starlink, on the other hand, has now launched over 800 satellites and is in beta service trials in the US, primarily with first responders. It is offering service for \$99 a month, plus an upfront cost of \$499 for an antenna and modem. It has also just obtained a license to offer service in Canada.

Chirag Parikh, Senior Director Microsoft Azure Space, made it clear that Microsoft had no plans to launch its own satellites “any time soon.” He said that the relationship between space and the cloud is a two-way one where both sides benefit from the other. He described a modular data center as “one big edge operation.... and the edge may be the satellite.” He said that there had been an uptick in the use of Azure due to Covid-19, the main drivers being distance learning and disaster recovery.

### Broadband Growth

During the pandemic the companies providing consumer broadband have experienced significant growth in this sector, although it has been offset by a decline in enterprise broadband. For Hughes, this increased demand was bitter-sweet, as its beams over the US are maxed out, so it was unable to meet the demand, however in Latin America it had the necessary capacity to meet the demand. Rick Baldrige, President and CEO ViaSat pointed out that the telehealth sector had also shown significant growth this year, citing as an example UCSD, which had been averaging 200 telehealth consultations a year; has already done over 1,200 consultations this year. He also mentioned that in some instances ViaSat was experiencing difficulty in being able to access premises during lockdown to be able to install broadband for consumers.


***“...Covid-19 has had an impact on nearly everyone’s way of life, and on the industry as a whole. ..”***

This difficulty in gaining access for installations was also mentioned by Adi Adiwoso, CEO PSN. Indonesia set the goal of providing connectivity to 78,000 villages. PSN provides satellite backhaul and wireless access for this. Covid-19 has intensified the need for rural broadband particularly to schools and health centers. PSN is trying to connect 3,000 health centers in the next 60 days as connectivity will be needed to coordinate vaccine distribution. However, since many of the domestic flights and ferries haven’t been operating due to the pandemic, it is proving difficult to reach these health centers to install the necessary equipment. For Indonesia’s sake, we all hope that these difficulties can be overcome. Covid-19 has had an impact on nearly everyone’s way of life, and on the industry as a whole. Almost without exception, when the CEO’s of satellite companies were asked about the impact, the first thing that was mentioned, before revenues and before customers, was the impor-

tance of ensuring the welfare and safety of staff and their families. I think that says a lot about the industry that we all work in.

### See you in Paris Next Year?

Obviously, this conference was very different to previous years, nevertheless it was well attended. Every session that I joined had around one hundred participants. Given that this has always been a very international conference, and many will be watching the recorded sessions in their own time, this was a significant turnout. Although the sessions lacked the lively discussions that can occur on stage, they were very well run, and audience questions were addressed.

One of the common refrains from panelists was “It’s great to be here – but I so wish I was in Paris.” Hopefully, next year we will be. 



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# Constellation Watch:

## China's Incubating Answer to Starlink

by Blaine Curcio

**M**any things have happened in the satcom industry in 2020. We as an industry have responded to Covid with a flurry of webinars, virtual conferences, LinkedIn posts, and an endless variety of podcasts. Meanwhile, satellite operators have been evolving, with 5G spectrum reallocation moving full steam ahead in some markets (including my home market of Hong Kong, one of the world's leading assassins of C-band for satellite).

However, arguably the most significant event in 2020 has been the astonishing rate at which Starlink has launched LEO satellites. The company has now (29 November) launched 955 satellites, while at the same time coming to market with a “better than nothing Beta” product that is retailing for a fairly competitive US\$499 + \$99 per month. Meanwhile, the company has

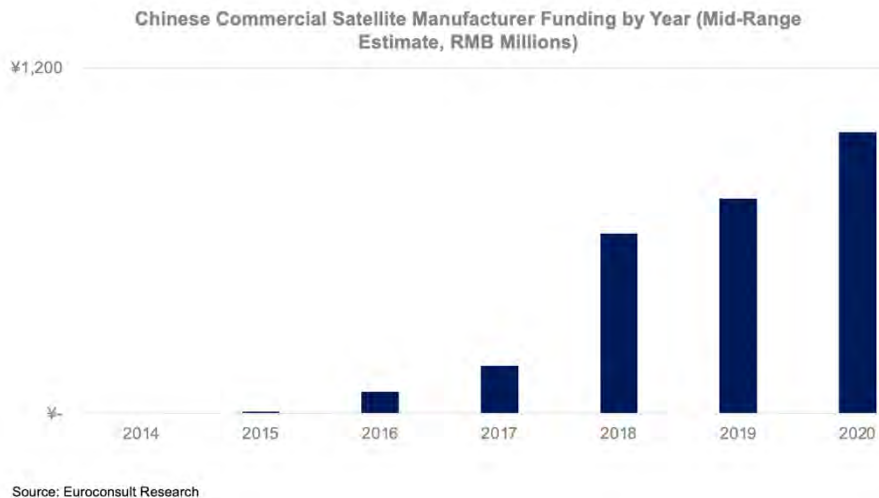
also signed a US\$149 million contract with the Space Development Agency, among other agreements with the US military.

While the rapid ascent of Starlink has captivated media, politicians, and the space industry in the west, this is far from the only group—indeed, on the other side of the Pacific Ocean, the space industry as a whole, and most probably, the government in China have been watching Starlink

### 2020's Changes in China LEO Policy

The most apparent policy decision by China this year was the inclusion of “satellite internet” on its “new infrastructures” list, published by the National Development and Reform Commission (NDRC) in April 2020. The “new infrastructures” list includes a variety of infrastructure types that the government encourages private sector companies to develop. The inclusion of “satellite internet” has led to two main types of outcomes, one of which is policy-related, and the other business-related.

On the policy side, several Chinese provinces have since published relatively short-term (2020-2022, for example) “New Infrastructure Development Plans”. This has led to places such as Shanghai and Sichuan including “satellite internet” on their list of priority industries to develop in the 2020-2022 period. This will likely mean several things at a provincial/city level—



with increasing interest. At the same time, there is an ecosystem developing in China around the country's own LEO constellation projects, and while these projects are certainly not moving at the speed of Starlink, they are picking up major momentum and reaching considerable size and scope.



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faster government approval for space-related projects, increased government funding available for space-related projects, and increasingly large ecosystems of private Chinese companies in specific industries clustering in specific cities. One such example we have seen is a cluster of companies in Chengdu/Chongqing, in Southwestern China, seemingly supporting MacroNet, the operator of the Hongyan constellation. The second main outcome from the inclusion of satellite internet on the “new infrastructures” list was business-related.

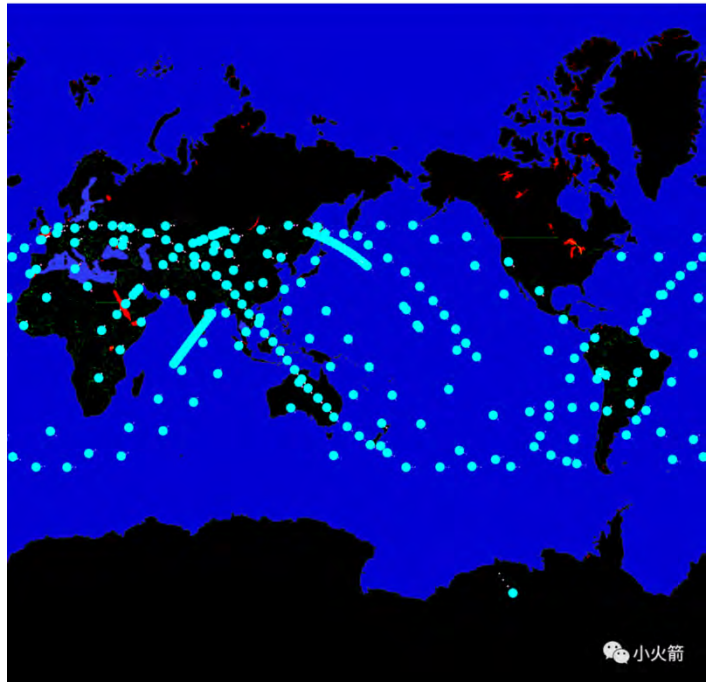
From a business perspective, the inclusion of satellite internet on the “new infrastructures” list, likely accelerated by Starlink, has been significant. In the weeks after the addition, state-owned enterprises like China Telecom Satellite released several new satellite broadband products, utilizing GEO capacity and specifically mentioning the “satellite internet as a new infrastructure” in the product release. This was to be expected, insofar as state-owned enterprises tend to mobilize very quickly in response to government announcements of this nature.

Less directly related to the NDRC decision, but nonetheless very important for China’s future LEO constellation, is the “Space Ground Integration” initiative, a government initiative in China being run primarily by the China Electronics and Technology Group Corporation (CETC), and which picked up significant momentum in 2020. “Space Ground Integration” refers to the idea that there are an increasing number of space assets being launched—

namely comms satellites, EO satellites, and navigation satellites—and that this infrastructure needs to be “better integrated” with the ground. This includes developing terminals, and all related electronic components for the terminals.

### The Impact of Policy Changes on Businesses

In the more medium-term, the months after the NDRC announcement saw no less than 3 funding rounds highlighting satellite internet as “new infrastructure” as a major opportunity. Most notably, Galaxy Space is building a “superfactory” in Nantong City, Jiangsu Province, aiming to address broadband LEO constellations with a manufacturing output of 300-500 satellites per year. Noteworthy, Galaxy Space also completed a round of funding in November 2020, at which time the company specifically mentioned a goal of bringing the gap between China and the west in terms of smallsat mass manufacturing down to 2 years (the company also officially became a unicorn during that funding round, with



Artist's rendition of China's GW Constellation.  
Source: Small Rocket, Toronto, Canada.

a valuation of RMB 8 billion).

Commsat, another commercial satellite manufacturer, is building a factory in Yibin, and another in Tangshan, with the latter specified as aiming to have a production capacity of 100x satellites of over 100kg per year. CASIC subsidiary Space Engineering Development Company Limited has built a satellite factory in Wuhan also capable of producing ~100 satellites per year. Utilizing data from Euroconsult's China Space Industry Report, we find that Chinese commercial satellite manufacturers have raised nearly RMB 1 billion in 2020 as a mid-range estimate, a record figure.

Overall, the policy changes of 2020 have seemingly given fuel to an already-burning fire. A satellite manufacturing industry that had raised nearly



US\$100 million per year in 2018 and 2019 saw a major increase in 2020 despite a pandemic, and several companies have made major strides in mass manufacturing of satellites, implicitly for a Chinese LEO constellation(s).

### So What Will China's LEO Constellation Rollout Look Like?

Moving forward, we are likely to see the development of at least one LEO broadband constellation from China, as well as likely a LEO narrowband constellation.

China's LEO broadband constellation plans have fallen into two broad categories—those spearheaded by state-owned enterprises (SOEs), and those spearheaded by private/commercial companies. Broadly speaking, I believe

that the former are much more likely to come to fruition as planned, insofar as LEO broadband constellations are basically ISPs from space—two industries that are very sensitive and usually state-controlled in China.

2020 has indeed seen a general pivot by private/commercial companies towards a stated goal of satellite manufacturing, as opposed to operating their own constellations. At the same time, we saw an apparently leaked

document outlining a 13,000 satellite broadband constellation to be developed in 2 phases with 7 sub-constellations therein. The constellations are codenamed “GW”, with ITU filings visible under such names as GW-1, GW-S, and GW. While not explicitly mentioned, the project would presumably be led by a state-owned enterprise. While it is admittedly speculation, it is also likely that the above-mentioned commercial companies that have pivoted towards satellite mass manufacturing would be given parts of this project.



**Galaxy Space Test LEO, Launched in Jan 2020.**

Ultimately, we can likely assume that the development Chinese LEO broadband constellation would be primarily run by a state-owned enterprise or consortium thereof. CASC would likely manufacture a large percentage of the necessary satellites. However, despite recent increases in its satellite manufacturing output, CASC is unlikely to be able to manufacture 13,000 satellites by itself anytime soon—it will need help from commercial

companies. In this regard, the handful of commercial small-sat manufacturers above are likely to contribute satellites.

The development of China's LEO broadband network is likely to be far more “slow and steady” than Starlink. While the acceleration of Starlink has certainly led to acceleration in China, there is somewhat different calculus than, for instance, Europe. That is, if we take as a given that LEO broadband constellations could be a “strategically important piece of infrastructure” (a debatable point, but a given in this exercise), it could be argued that each major world space power (US, EU, China, debatably Russia) could justify their own constellation.

However, today, Starlink is seemingly far ahead of any EU competitor, while at the same time, because of the relative openness of the US and EU economies, Starlink may be able to start selling services in EU soon. Put simply, the future EU LEO broadband constellation could be killed before it is even born. On the other hand, there are precisely zero people in China who expect to use Starlink domestically in the coming years, there are no illusions that Starlink will get market access.

In this way, there is somewhat less impetus for China to throw everything at LEO in the short-term, because the market will remain closed. This concept would likely also apply in countries that





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### What has 2020 taught us about China's LEO Broadband Plans?

Overall, 2020 has taught us that China will likely launch its own LEO broadband megaconstellation. The aforementioned leaked document showing a plan for 13,000 satellites should be an indicator of the scale of these plans.

While it remains very likely that such a constellation would be managed by a SOE, the past year has seen several commercial satellite manufacturers pivot their business model from “we want to launch our own constellation” to “we want to build dozens or hundreds of satellites for some other constellation”. Several of these commercial companies have launched test satellites in 2020, most notably Galaxy Space in January.

2020 taught us several important things about the future Chinese LEO broadband constellation:

1. It will likely be a collaborative effort between SOEs and the private sector. Commercial satellite manufacturers are likely to build some of the satellites necessary to reach the >10,000 number we have seen.

2. Apparently, China is serious about its LEO efforts. The fact that the NDRC added satellite broadband to the list of new infrastructures, and the fact that several provincial governments have jumped onboard, has given the project significant weight. For perspective—Sichuan Province, which mentions satellite internet

in its new infrastructure development roadmap for 2020-2022—is home to more than 80 million people and with an economy the size of Belgium or Austria.

3. While Starlink is likely to be an accelerant for the Chinese system due to a sort of “strategic competition” factor, it seems China will roll out its constellation at a relatively slow and steady pace. With a home market that will definitely not be at risk of letting Starlink in, and with many allies around the world that are likely to give China time to build its own constellation, the impetus has increased, but it remains measured.

4. Building a LEO constellation in China will likely be a fairly bureaucratic process. Not covered in this article as it did not occur in 2020, one only needs to look at the shareholder structure of MacroNet communications, the company that is tasked with operating the Hongyan constellation. Among its shareholders are CASC, the major state-owned space contractor, China Telecom, one of three titanic state-owned telcos, and China Electronics and Technology Group Corp, a state-owned electronics manufacturer. Basically, all three companies are huge oligopolists at best, and

monopolists at worst. In short, there is limited overlap of incentives. China Telecom has several hundred million mobile subscribers, it is very hard to imagine a satellite broadband constellation making a meaningful impact on revenue. Likewise, CASC has its hands rather full with missions such as the China Large Modular Space Station, human plans for the Moon, and other space-focused missions that are clearly extremely difficult, but are, at the risk of oversimplification, probably far better-understood than LEO broadband. At the same time, we see in the west an incredible degree of vertical integration from companies like SpaceX and to some extent Kuiper. Probably there is a reason for this. When you are doing something so disruptive as providing a global ISP from space, there are a lot of vested interests that are going to be very hard to move.

Overall, 2020 has been a remarkable year in the satellite manufacturing industry in China. We have seen a major acceleration in fundraising, as well as a handful of LEO broadband test satellites launched by companies such as Galaxy Space.



**For the latest news and analysis on the China Space market, Blaine Curcio hosts a weekly podcast called Dongfang Hour. It can be viewed at: <https://dongfanghour.com/>**



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# Mission to the Future

**W**hen the first people from planet Earth went into space in the 1960s, it was the thrill of a lifetime. But we didn't stay there long.

The next time people went into space, they traveled as far as our Moon – and we got even more excited. But we didn't stay long there, either.

While people were going out and coming back, we put machines into space to get things done. Like delivering television. Forecasting the weather. Saving lives at sea, disasters on land and exploring the planets. Keeping the peace, helping farmers grow more food, educating millions and connecting billions. Not always a big thrill – but always making people's lives back on Earth better.

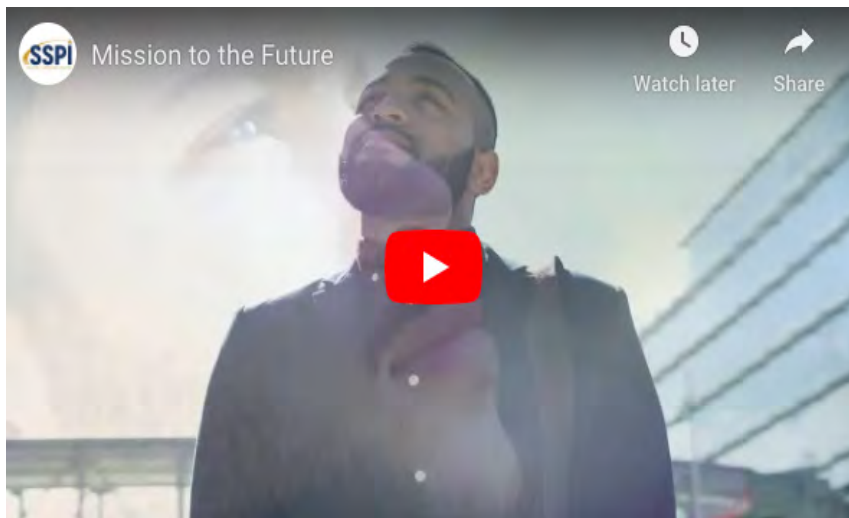
The third time we went into space, we built space stations and decided to stay a while. But we still didn't go far from home.

That's about to change – because space has become a business, where companies big and small are investing billions of dollars. They are investing in cheaper and more reliable ways to go there and come back. In technologies to survive in places far from the air and warmth and light of Earth. In ways to find resources and use them to manufacture what we need and to power our spacecraft.

Companies have been making money in space for decades. But they have done it from safely on the

ground. The next generation of space will build places to live and work, to make a life in space for hundreds, then thousands, then millions of people. People whose work will benefit those of us still living on Earth with new products and services we can hardly imagine today.

It's about time. We have been telling stories and making plans about it for more than a century. Now, someone starting a career today can help make it happen, and someone starting school tomorrow could wind up in a job with the view that only astronauts see today.



**Click here to view a video on asset tracking :**  
<https://www.youtube.com/embed/U9-5XOLm2Zg>

It will be hard. The risks are high. The technology is still being put to the test and the business potential is far from certain.

But for the first time since people began going into space, the opportunity is within our grasp. Not just to go out and come back to show that we can do it. To go and build a way of life that reaches as far as the light from our Sun. To make sure that – whatever happens to our beautiful, fragile world – humanity will always have a home in the universe.

**Produced for Satellite Executive Briefing by Space & Satellite Professionals International. See more stories and videos of satellite making a better world at:**  
[www.bettersatelliteworld.com](http://www.bettersatelliteworld.com)

## ND SatCom Launches SKYWAN 5G Release 2.0

Friedrichshafen, Germany, December 1, 2020—ND SATCOM unveiled a new dimension in satellite communications with the SKYWAN 5G Release 2.0, redefining customers' possibilities by powering the next level of immersive VSAT experiences. SKYWAN 5G is the world's only VSAT technology allowing multi-channel TDMA networks with True-Mesh ACM for hubless secure communication.

ND SATCOM has transformed the industry with its exclusive new True-Mesh ACM, providing the highest link reliability and stability regardless of changing link conditions. This industry-leading innovation boosts throughput by throttling only the direct hop between two sites, while also supporting SCPC. No one comes close to the reliability excellence, performance standards and innovative power of ND SATCOM where customer satisfaction drives all.

- SKYWAN 5G Release 2.0 secures mission-critical networks with these major new advantages:
- Boosted network performance: 64x boost throughput with unique ACM true mesh
- Industry-leading ACM with single-hop mesh
- Highest link reliability regardless of weather
- Enhanced network options: 3x the choice with our triple mode within one modem
- Flexibly decide network topology
- Hubless true mesh MF-TDMA, DVB-S2 or SCPC
- New SCPC links provide highly efficient point-to-point connection
- Assured investment: 4 years software support for business continuity and cybersecurity
- Diminish impact from cyber threats
- Activate security and stability patches whenever
- Save bandwidth with the smart new "over-the-air" update



"The game changing SKYWAN 5G Release 2.0 is here," said Michael Weixler, Head of Product Management. "True-Mesh ACM with intelligence integrated into the SKYWAN nodes automatically gives the customer maximum performance for any topology and network design. Combined with the new Point-2-Point waveform on the same platform, customers decide when to re-configure their networks based on actual connectivity needs," Weixler continued. "Flexibility and security throughout represent a whole new level for VSATs and a quantum leap for SKYWAN 5G."

ND SATCOM is the only trusted solution provider in Europe for demanding market sectors such as aviation and the military, where the concept of reliability has far-reaching impact. SKYWAN 5G Release 2.0 underscores ND SATCOM's continuing commitment to its valued customers.

With more than 30 years of experience in satellite communications, ND SATCOM is the world's leading supplier of satellite-based communications systems and ground stations and supports customers with critical operations anywhere in the world.

Customers in more than 130 countries have chosen ND SATCOM as a reliable source for high quality and secure solutions that include turnkey and customized systems. The company's innovative technologies are used globally by governments, the military, television and radio broadcasting, telecommunications and enterprises.

The company's core product SKYWAN enables secure, reliable and fast communications for thousands of users daily. With the SKYWAN network solution, ND SATCOM connects the IT world with satellite communication and offers fully integrated and optimised solutions for the worldwide availability of online applications.

For more information go to: [www.ndsatcom.com](http://www.ndsatcom.com)



RELEASE 2.0  
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## A NEW DIMENSION IN SATELLITE COMMUNICATION

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# SHAPING THE FUTURE – SKYWAN 5G RELEASE 2.0

This singular satcom solution now features

- Unique and exclusive True-Mesh ACM with single-hop mesh: 64x boost throughput
- Highest link reliability regardless of weather
- Flexible triple choice of network topology within one modem: New highly-efficient SCPC links, hubless true mesh MF-TDMA and DVB-S2
- Secure long-term investment with 4-year software support

The advantage is yours when you choose SKYWAN 5G Release 2.0



For detailed information  
use the QR code or contact:

[info@ndsatcom.com](mailto:info@ndsatcom.com)



## PRODUCT SPOTLIGHT

**Satellite Executive Briefing highlights key products and services now available in the market.**

## Advanced Products from JONSA Technologies

Jonsa Technologies in Taiwan is a trustworthy manufacturer of communication antenna, and our monthly production capacity has been over one million in a variety of antenna products. We are waiting for the new partner who cooperates with us and creates the win-win situation together.

The best-selling products from Jonsa include:

### 0.6M/0.9M Auto and Manual Flyaway

- Ring focus antenna with 8 segments reflector
- Support Ku and Ka band as an option
- Carbon fiber reflector with light weight, high strength and one person can finish the installation within 3 minutes.

## VSAT (E74/97/120) antenna

- Customized VSAT antenna products
- Correspond with electronic devices, such as integrated LNB and Feedhorn
- Support Ku and Ka band as an option

0.6M/0.9M Ka and Ku band Maritime with radome

- One-touch commissioning
- High gain and carbon fiber antenna
- Support beacon receiver, DVB, and digital tracking system

For more information, please visit [www.jonsa.com.tw](http://www.jonsa.com.tw) or email [saccount@jonsa.com.tw](mailto:saccount@jonsa.com.tw)



## RevGo Global BUCs, LNBs and Transceivers

Funded by Satcom senior executives from US and Canada with more than 100 years of combined experience at Satcom RF systems, RevGo Global Inc combines the new generation GaN transistors, unique power combining technology, volume production oriented system design and strict reliability control to create the most compact, cost effective, field proven reliable BUCs LNBs and transceivers from C-band, Ku-band, DBS-band to Ka-band.

We combine the new generation GaN technology with unique power combining capabilities, designed for high volume production with strict reliability and quality control to create the most compact, cost-effective, field-proven, reliable BUCs, LNBs and Transceivers. Manufactured to the stringent quality standards of ISO9001:2015. All at the highest value available and the shortest lead times.

- C – Band, Ku, Ka – Band, DBS
  - 2 to 200W output power
  - BUC, LNB, Transceiver – Tx/Rx/OMT/Filters
- For more information go to [www.revgotech.com](http://www.revgotech.com)



**BUC | LNB | Transceivers**  
Ku | Ka | C | DBS-Bands  
4 to 200W



### Ku-16/30W BUC

Lightest (1.2 kg)  
Lowest consumption (65W)  
Smartest (M&C)  
Versatile (18-56 vDC)



### Ka-6/10/20/40/160W BUC

Widest tuning range (27.5-31 GHz)  
Software definable sub bands  
No interrupt fan replacement  
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For info;  
[Sales@revgogroup.com](mailto:Sales@revgogroup.com)  
+1.703.348.9933

[www.RevGoTech.com](http://www.RevGoTech.com)



## RF-Design's HQR145C L-Band Line Amplifier

RF Design's HQR145C is a 1:1 redundant L-Band line-amplifier with variable gain control (max. 40dB). The unit is characterized by superior RF performance and comes with beneficial features and options making it a perfect fit for RF distribution infrastructures in Teleports, Satellite Earth Stations, as well as Broadcast- and Broadband facilities wherever accurate RF power, highest stability and availability is necessary.

Beneficial features include:

- 1:1 redundant operating amplifier modules (hot swappable)
- Less than 5ms switchover between active and hot-standby amplifier
- Variable gain control 0...40dB, 1dB steps (MGC/AGC)
- Slope-equalization 0...7dB, 1dB steps
- RF-power monitoring
- Threshold alarm function and switchable output limiter
- 2 monitoring ports -20dB
- 10MHz external reference port (option)
- Switchable LNB-supply (option)
- 1:1 redundant dual power supply (hot swappable)
- MTTF Counter and warning function for power supplies
- Front panel status LED's
- Local and remote configuration and monitoring (LC-Display/keypads / WebGUI, SNMP)



For more information go to: <https://rf-design-online.de/>



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- Switchable LNB supply
- 10MHz Reference Port
- RF Power Monitoring
- Variants with Optical Inputs
- Superior Quality & Performance

„FlexLink S9E“ 8:8 - 16:16 Switch Matrix



„FlexLink K4“ 32:32 Switch Matrix



„FlexLink K7-Pro“ 64:64 Switch Matrix





# And Yet...

by Lou Zacharilla

**G**iven the choice between wrestling a live alligator in a Florida pond and living through the events of 2020 again, I would take my chances with the gator. As we finish our current orbit around the Sun, we have experienced 365 days, 5 hours, 59 minutes and 16 seconds that felt like a Martian year.

And yet.....

I write this on a day of national Thanksgiving in the USA proclaimed long before there were Ariane rockets and Mike Antonovich to give thanks for. The challenges of a world that in 2020 has been sickened by a virus, separated by tribalism and plunged into economic uncertainty are massive. There are days when it seems like the best move is to cross a

busy street and not look in either direction. But look we do. Unfailingly. And each time we make it across. And when we decide to make it across, especially in the space and satellite industry, the world is always better for it.

We proved it again in 2020 despite what Cher and her family in the movie “Moonstruck” called bad luck!

In fact, our luck was excellent. The optimism that lifted us since our earliest hours in 1957 remains. “Space” has become an emotional therapeutic for nearly every culture. Youth is a fountain gushing

with belief in the possibilities of what we can do “up there.” Places like Nepal, with its 125 distinct cultures and a mountain to climb today have a national space agency, a satellite and future dreams thanks to BIRDS project engineer Abhas Maskey. <https://www.sspi.org/articles/better-satellite-world-podcast-birds-out-of-the-nest-a-conversation-with-birds-projects-abhas-maskey>

## Satellite's Cardi B



**A man wrestles an alligator in a pond in Florida to rescue his puppy. How can you not say that the future is not bright?**

Days ago (24 November), SpaceX, effectively the industry's Brad Pitt and Cardi B, pushed into low-earth orbit 60 satellites designed specifically to deliver broadband to parts of the world that are poorly connected. When you are not connected by broadband you are disconnected from a global economy.

With its recent launch there are now 955 satellites in the Starlink constellation. Forget the delivery of a few humans to the ISS. These broadband satellites are the BIG NEWS! There

is nothing more important than going from Connectivity to Community, and this industry is driving the final golden spikes into the new railroad.

And yet....there was more.

The planned launch of new fleets, including those from Bluefield Technologies and the Environmental Protection Agency will do the most effective forensic work ever for the cause of identifying and eliminating 25% of our global warming, intended and unintended methane gas emissions. This is a big deal too, because while politicians argue about policies, our industry has started to pick the low-hang-

ing fruit that will put Earth back into balance. This is a big deal, since a plume release from Gainseville, Florida two years ago was the equivalent to roughly 1% of the total daily emissions from the American gas system. And we found it. We meaning Bluefield Technologies, with their finer resolution system. The New York Times gave our industry kudos last month.

This was a story that SSPI had covered previously in its podcasts. <https://www.sspi.org/articles/better-satellite-world-podcast-risk-a-conversation-with-bluefield-technologies-yotam-ariel>

Think of it. Our industry is helping to solve a problem, methane gas emissions, that have been with us for at least 150 years.

This was the year of accomplishments large and small. While the big kids, with the big science, like Northrop Grumman, rightly took our breath away with programs like MEV-1, the “little guys” made moves under the radar. Rocket Lab was back in space grabbing its returning launcher in November after its unlucky 13th launch failed in July. How about that for getting up, taking a standing eight-count and going on to win the fight?

STS Global, led by industry Hall of Famer and creator of the “Hotline” between Moscow and Washington in the 1960’s, David Hershberg, kept growing his new company. At the tender age of 83 Dave is seeking fresh capital to pursue the scaling of a product that could transform the power generation and utility industry.

India launched a new SSPI chapter this year led by Dhurva Space’s CEO Sanjay Nakanti and the US-India Business Council’s Digital Committee. Dhurva secured its first contracts and is part of an emerging cluster of commercial space entrepreneurs in a nation that has been promising to go global since the Buddha achieved enlightenment.

### **The Sacred and Dow 30,000**

The industry’s contribution to humanity persisted. When the Dow Jones Industrial average reached an astounding 30,000 in November the President of the United States declared that 30,000 was a “sacred milestone.”

His definition of sacred was a bit different than

***“...As we finish our current orbit around the Sun, we have experienced 365 days, 5 hours, 59 minutes and 16 seconds that felt like a Martian year...”***

mine.

On 7 December three industry companies were presented who defined it the way the Sisters of the Holy Trinity did for me at St. Michael’s parish a long time ago. Their work was the conscious effort to reach further into their own technologies and gifts to elevate humanity. Check out SES SATMED, Avanti’s work at the Bidi Bidh refugee camp and SatSure AG’s work which has helped thousands of struggling farmers in Southeast Asia become solvent again via satellite. <https://www.sspi.org/articles/sspi-names-projects-of-avanti-communications-ses-and-satsure-as-recipients-of-the-2020-better-satellite-world-awards>

### **When Bad Things Happen to Good Puppies**

Despite the bad things that went down, we all still showed our grit.

As we headed toward the end of the year I knew our luck was turning because I saw an old man wrestle an alligator in a pond in Florida – and win!! His puppy was one happy camper( <https://youtu.be/Ms4jwdyZx5s>). And yet.....he kept his cigar in his mouth that whole time.

How can you say the future is not bright?

(Note: The title of a new book I contributed to and refer to in this article is From Connectivity to Community and available at: [https://www.intelligentcommunity.org/book\\_from\\_connectivity\\_to\\_community](https://www.intelligentcommunity.org/book_from_connectivity_to_community) SSPI members can receive a signed copy free if they contact me by December 31st.) 🇺🇸



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# Satellite's Year 2020... *Virtually Experienced*

**by Martin Jarrold**

**T**he GVF-Satellite Evolution 2020 Webinar Series draws to a close the day following my writing the final words of this column. With 15 events in the main webinar series and a further five produced for embedding within partner online events, it has been an interesting and rewardingly successful response to the practicalities and realities of the limitations on our opportunity to move around the globe physically as governments' policies have responded to the pandemic.

Various COVID-19 vaccines are now nearing regulatory approval and, in time, the joys of visa applications, airport security queues, busy departure lounges, and boarding delays will be with us again, though I doubt a full return to the world as was – a busy schedule of international travel to attend exhibitions, contribute to meetings, and address conferences. Consequent on recent experience of lockdown and wqork from home (WFH), the realization of effective alternatives to travel that employ the ether to convey ideas and enable exchanges of knowledge will mean a somewhat different world. But, when we do travel, we will be able to get more done

because while on the way to one event we will be able to (virtually) attend another via ever improving inflight connectivity... No more competing calendar clashes!

The 2020 Series of GVF Webinars brings a notable year to a notable end, looking at NewSpace, or Space 2.0 if you prefer, and we have one of the big names in space and satellite to moderate on

50 books and over 300 articles in telecommunications and networking, space systems, and future technologies, Founding President of SSPI, and amongst a host of other achievements, Dean Emeritus at the International Space University and member of the Executive Board of the International Association for the Advancement of Space Safety – we were delighted that he agreed to moderate 'Building NewSpace: Enterprise & Application in a Rapid Growth Ecosystem'.

As we reflect on the events in the series gone by, and move on to plan for the 2021 series, it is important to note that the importance of the various thematic dialogues we have created and produced can still be experienced through the webinar

archive on the GVF's YouTube channel and accessed through the GVF website at <https://gvf.org/webinars/>. Live audiences for the Zoom broadcasts have ranged in size from around 150 up to more than 500. Overall, the webinars have attracted a total of more than 6,500 views of the combined live events and archived recordings, and the audiences have been spread across 134 countries.

The 2020 series has been thematically wide-ranging, and for details of some of these webinars



3 December.

October this year saw the publication of the 'Handbook of Small Satellites: Technology, Design, Manufacture, Applications, Economics and Regulation' edited by Dr. Joseph N. Pelton and Scott Madry, to which David Meltzer, GVF's Secretary General, and I contributed a chapter entitled Small Satellites and Innovations in Terminal and Teleport Design, Deployment, and Operation. Maintaining this connection with Dr. Pelton – award-winning author and editor of some



you can consult some of my previous columns for this publication. Here is the complete archive (reverse chronology) with links, so you don't miss out:

Building NewSpace: Enterprise & Application in a Rapid Growth Ecosystem

Panel: Telesat; OneWeb; QuadSAT; and Celestia-UK. Moderated by Dr. Joseph N. Pelton, Dean Emeritus, ISU

<https://gvf.org/webinar/building-newspace-enterprise-application-in-a-rapid-growth-ecosystem/>

Airborne Again? The Future Post-Pandemic Mobility Horizon

Panel: Global Eagle; Intelsat; PJT Partners; and KenCast. Moderated by Colin Thomson, Head of Practice, Infrastructure, Access Partnership

<https://gvf.org/webinar/airborne-again-the-future-post-pandemic-mobility-horizon/>

Satellite's Resilience Evolution | Challenging Markets, Robust Connections

(GVF @ Virtual CABSAT)

Panel: Integrasys; Talia; and Telesat. Moderated by David Meltzer, Secretary General, GVF

<https://gvf.org/webinar/satellites-resilience-evolution-challenging-markets-robust-connections/>

Satellite's Disruptive Evolution | In Orbit, On Earth

(GVF @ Virtual CABSAT)

Panel: Hughes; Eutelsat; SES; and SpaceBridge. Moderated by David Meltzer, Secretary General, GVF

<https://gvf.org/webinar/satellites-disruptive-evolution-in-orbit-on-earth/>

In Conversation with ITU:

The GVF Asks...

(GVF @ Virtual CABSAT)

An interview of a representative of the ITU Radiocommunication Bureau Space Services Division with David Meltzer, Secretary General, GVF

<https://gvf.org/webinar/in-conversation-with-itu-the-gvf-asks/>

Humanitarian Assistance & Disaster Response: The Evolving Role of Satellites in Disaster Response

Panel: Eutelsat; Inmarsat; Thuraya; and Knight Sky. Moderated by Riaz Lamak, GVF Lead in Humanitarian Assistance & Disaster Response

<https://gvf.org/webinar/humanitarian-assistance-disaster-response-the-evolving-role-of-satellites-in-disaster-response/>

The Regional Satellite Operators' Voice

Panel: ABS; Arabsat; and Yahsat. Moderated by Brent Prokosh, Senior Affiliate Consultant, Euroconsult

<https://gvf.org/webinar/the-regional-satellite-operators-voice/>

A Regional Perspective on C-Band – The Next Battleground?

Panel: Intelsat; TV Globo; SenTech; and Hispasat. Moderated by Agostinho Linhares, Manager of Spectrum, Orbit & Broadcasting, ANATEL.

<https://gvf.org/webinar/a-regional-perspective-on-c-band-the-next-battleground/>

C-band: Today & Tomorrow (GVF @ ConneCTechAsia)

Panel: Intelsat; AsiaSat; Encompass Digital Media; and ISRO. Moderated by Gregg Daffner, CEO, GapSat.

<https://gvf.org/webinar/>

[r/c-band-today-tomorrow/](https://gvf.org/webinar/r/c-band-today-tomorrow/)

The Role of Satellite in 5G (GVF @ ConneCTechAsia)

Panel: GEOshare; MEASAT; and Gilat Satellite Networks. Moderated by Blaine Curcio, Senior Affiliate Consultant, Euroconsult

<https://gvf.org/webinar/gvf-connectechasia-the-role-of-satellite-in-5g/>

Global Transitions: Digital Economy, Digital Infrastructure, Connected Communities, Digital Planet

Panel: Isotropic Networks; Telstra; and the Digital Transformation Task Force, of the United Nations Environment Program. Moderated by Paul Febvre, CTO, Satellite Applications Catapult

<https://gvf.org/webinar/global-transitions-digital-economy-digital-infrastructure-connected-communities-digital-planet/>

GEO/MEO/LEO – Satellite in the Finance Markets

Panel: Quilty Analytics; Melody Investment Advisors LP; and Seraphim Space Fund. Moderated by Dara Panahy, Partner, Milbank LLP

<https://gvf.org/webinar/geo-meo-leo-satellite-in-the-finance-markets/>

Serving Underserved Communities

Panel: Kacific Broadband Satellites; Gilat Satellite Networks; ViaSat; and SES. Moderated by Martin Jarrold, Vice President, International Program Development, GVF

<https://gvf.org/webinar/serving-underserved-communities/>

Ground Segment: Transformational Antennas II – Will Ter-

minals Realize the Promised LEO Connectivity Revolution?

Panel: OneWeb; Isotropic Systems; ThinKom; SatProf/GVF Training; and Kratos. Moderated by Stéphane Chenard, Senior Consultant, Euroconsult

<https://gvf.org/webinar/ground-segment-transformational-antennas-ii-will-terminals-realise-the-promised-leo-connectivity-revolution/>

Ground Segment: Transformational Antennas I – End of the Parabolic Paradigm?

Panel: AvL Technologies; Ky-meta; Integrasy; and Alcan Systems. Moderated by Jeremy Rose, Partner, COMSYS

<https://gvf.org/webinar/ground-segment-transformational-antennas-i-end-of-the-parabolic-paradigm/>

5G & Satellite: Driving Forward the ‘Network of Networks’

Panel: Norsat; Liquid Telecom; SpaceBridge. Moderated by Mauro Cordani, 5G & IoT Future Programs, ESA

<https://gvf.org/webinar/5g-satellite-driving-forward-the-network-of-networks/>

The Satellite Integral Factor II: Will Working from Home Render the Cloud a Different Animal?

Panel: Hughes; SES Networks; and ST Engineering iDirect. Moderated by David Meltzer, Secretary General, GVF

<https://gvf.org/webinar/the-satellite-integral-factor-ii-will-working-from-home-render-the-cloud-a-different-animal/>

Space Segment Disruptive Evolution: GEO, MEO & LEO – Does a Global Crisis Make a Difference?

Panel: SES; Hughes; and Tele-

***“...Consequent on recent experience of lockdown and work from home (WFH), the realization of effective alternatives to travel that employ the ether to convey ideas and enable exchanges of knowledge will mean a somewhat different world....”***

sat. Moderated by Richard Hooper, Publisher, Satellite Evolution

<https://gvf.org/webinar/space-segment-disruptive-evolution-geo-meo-leo-does-a-global-crisis-make-a-difference/>

WRC-23: Spectrum Dialogues in a Post-pandemic World

Panel: Inmarsat; Intelsat; Eutelsat; and ITU. Moderated by David Meltzer, Secretary General, GVF

<https://gvf.org/webinar/wrc-23-spectrum-dialogues-in-a-post-pandemic-world/>

The Satellite Industry’s Response to the COVID-19 Pandemic

Panel: GVF and GVF Training. Moderated by Richard Hooper, Publisher, Satellite Evolution

<https://gvf.org/webinar/the-satellite-industrys-response-to-the-covid-19-pandemic/>

Returning to ‘Building NewSpace: Enterprise & Application in a Rapid Growth Ecosystem’, the 3 December moderator-led discussion centers around the interlinked questions “Where are we going in space?”, “Where is NewSpace taking us?”, and “What does NewSpace mean?”

If broadly defined as the radical and rapid change away from the now decades-old historical

model of the business of how we fund, design, build, launch, and operate satellites, and new ground segment infrastructure and technologies, for communications and Earth observation applications, based on a private sector-led growth cycle which encompasses a space business incubation culture that comprises hundreds of new business units and entrepreneurial ventures serving evolving vertical market segments with new generations of orbital assets, it sounds very grand.

This webinar will look at the concrete realities behind these words. To begin with the panelists will tackle the questions: What does NewSpace or Space 2.0 mean to you and how does it involve your business? Does it mean that you are pursuing technology, clients, and your strategic approach to the future differently? Is it a really big, and radical, change for you, or not? For the following questions and answers, see the video at <https://gvf.org/webinar/building-newspace-enterprise-application-in-a-rapid-growth-ecosystem/> -- you will find it 60-minutes well invested.



Martin Jarrold is Vice-President of International Program Development of GVF. He can be reached at:

[martin.jarrold@gvf.org](mailto:martin.jarrold@gvf.org)



# Intelsat Completes Acquisition of Gogo Commercial Aviation

McLean, Va., December 1, 2020 – Intelsat completed its acquisition of the Commercial Aviation business of Gogo, creating the world's leading provider of inflight broadband connectivity to the commercial aviation industry.

The closing of the US\$ 400 million cash deal brings together two complementary enterprises — the

installed base of more than 3,000 commercial aircraft are now part of Intelsat's portfolio of services.

Intelsat announced several leadership changes, effective today, as part of the deal close:

John Wade will remain president of Gogo Commercial Aviation, now a division of Intelsat. In this role, he will manage all aspects

of yield management, solutions development and asset management. Fromont has been a member of the Intelsat team for 20 years.

Jon Cobin has been named Intelsat's Chief Strategy Officer, leading the company's corporate strategy and business development efforts. Cobin joins Intelsat from Gogo, where he served most recently as Chief Strategy Officer. Previously he held leadership positions within Gogo's Commercial Aviation business, including Chief Commercial Officer. Cobin had been with Gogo for 11 years.

"Demand for inflight broadband is expected to grow at a double-digit rate over the next decade, and we



# INTELSAT®

world's largest satellite operator with the leading provider of commercial inflight broadband and entertainment services — to deliver unprecedented innovation and long-term value to commercial airlines.

"Combining Intelsat's next-generation global telecommunications network with Gogo Commercial Aviation's leading capabilities and airline relationships will create unprecedented innovation in inflight digital connectivity, unlocking exciting new growth and brand loyalty opportunities across the airline industry," said Intelsat Chief Executive Stephen Spengler. "With our powerful, integrated offering, airlines will no longer need to trade off speed, reliability or availability for coverage, even when flying at full capacity in and out of the busiest airport hubs."

The culmination of this transaction further propels Intelsat into vertically integrated managed mobility services, and deeper into the growing inflight connectivity market. Broadband connectivity for nine of the top 20 global airlines and an

of the business, including product,



sales, account management, quality and service delivery. Wade has more than 30 years of experience in the aviation industry; he joined Gogo in 2008, serving as Chief Operating Officer and General Manager of Gogo's Business Aviation division before assuming his current position.

Bruno Fromont has been named Intelsat's Chief Technology Officer. He will lead spectrum strategy, asset planning, product development and innovation. Fromont previously served as Intelsat's Senior Vice President of Strategy and Planning, following vice president roles lead-

remain committed to long-term success in broadband mobility services. With Gogo Commercial Aviation, we will bring our complementary and collective expertise to help solve our customers' toughest inflight connectivity and entertainment challenges," said Spengler. "Our ability to initiate, execute and rapidly finalize this transaction demonstrates the forward momentum that Intelsat has maintained over the course of this year."



# WALTON De-ICE

## Portable Radome

## New LEO / MEO Design

The **Portable Radome** makes satellite networks more survivable and deployable into extreme and harsh environments. Protect transportable antennas and equipment from, snow, ice, burning sun, sandstorms, torrential rains, up to 85 mile-per-hour winds, and more.

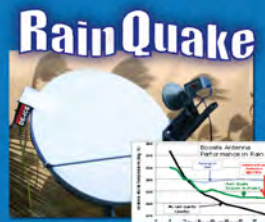
- Single-person setup in less than an hour — conventional radomes can take days.
- New LEO/MEO design for full-arc / elevation angle performance. L, C, Ku, X, & Ka Bands.



**Ka-Band Advantages**  
The industry's most powerful, cost-effective De-Icing. For antennas from 3.7 to 32 meters.



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



Minimize Signal Loss due to Rain Fade. Reduce data loss — by 20X or more.



## Northrop Grumman Appoints Scott Stapp as CTO

Falls Church, Va., November 25, 2020 - Northrop Grumman Cor-



**Scott Stapp**

poration has named Scott Stapp chief technology officer (CTO). Stapp will report

to Kathy Warden, chairman, chief executive officer and president and will work closely with the executive leadership team.

As CTO, Stapp will lead the company's technology strategy. He will help to ensure the company continues to leverage current technology and identify new solutions to bring to customers, creating new business opportunities and strengthening the company's position on existing programs. He will also play a key role in engaging and developing the company's technical talent.

Previously, Stapp was vice president, resiliency and rapid prototyping, with Space Systems, leading the sector's rapid prototyping and resiliency programs across critical space missions. Prior to this, he served as vice president, applied research and technology development, with Aeronautics Systems.

Before joining Northrop Grumman in 2014, Stapp led the governance, acquisition and oversight of all DoD special access programs, for the Office of the Secretary of Defense, and served as the principal staff assistant to the undersecretary of defense, acqui-

sition, technology and logistics.

Stapp holds a bachelor's degree in electrical engineering from the University of Wyoming, a master's degree in electrical engineering from the University of New Mexico and a master's degree in national resource management from the Industrial College of the Armed Forces.

## Gilat Names Adi Sfadia as CEO

Petah Tikva, Israel, November 23, 2020 — Gilat Satellite Networks Ltd. (NASDAQ, TASE: GILT) names Adi Sfadia as Gilat's CEO.

Adi Sfadia served as Gilat's interim CEO since July 2nd this year and prior to that

held the position of Gilat's CFO, for the past 5

Dov Baharav, Gilat's Chairman of the Board commented, "I am pleased to report that Adi Sfadia, who assumed the interim CEO position on July 2nd, 2020, has now been appointed as Gilat's CEO. Adi brings with him a deep understanding and a wealth of experience in the satellite industry, which I believe will bring value to the customers, shareholders and Gilat's employees. On behalf of the entire Board of Directors, we would like to wish Gilat success under Adi's capable leadership."

"I am honored to have been appointed as Gilat's CEO and would like to thank Gilat's



**Adi Sfadia**

Chairman of the Board and all of the board members for their trust and support," said Adi Sfadia, Gilat's CEO. "I am fully committed to Gilat and am confident that with my dedicated management team and talented employees, we will navigate Gilat to accelerated growth and profitability," he added.

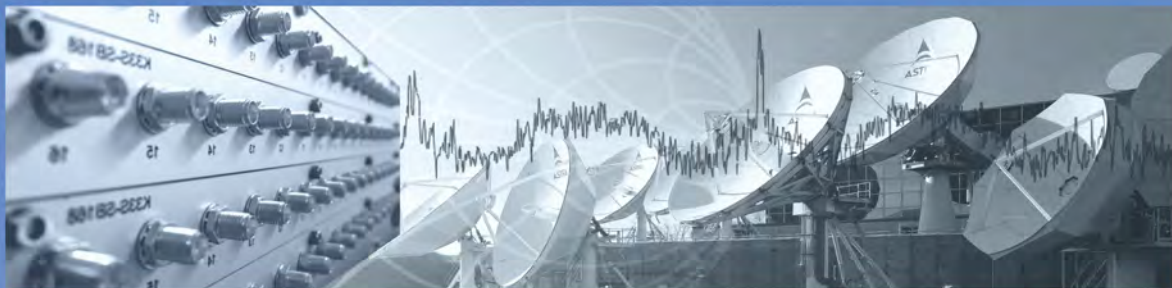
## Asiasat Appoints Tony Chung as VP-Data Services

Hong Kong, November 4, 2020--Satellite operator AsiaSat Telecommunications Company Limited (AsiaSat) announced the appointment of Tony Chung as Vice President, Data Services. In this new role, Chung will be responsible for overseeing the company's data services operations and infrastructure.

Chung brings over 17 years of experience in the satellite communications service industry, with demonstrated success in managing and leading technical teams to deploy networks and to increase operational efficiency.

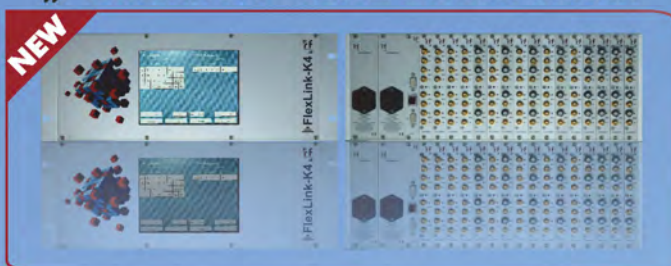
Prior to joining AsiaSat, Tony served as Senior Vice President, Asia Pacific Operations of Speedcast International Limited where he was tasked with running the company's operations, including field engineering and service delivery for customers in the region. He had contributed to a series of successful acquisitions by Speedcast. Tony obtained his B.A. and M.Phil. degrees in Computer Science from The Hong Kong Polytechnic University. 



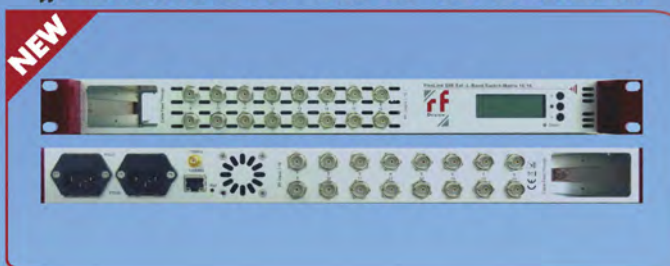


# EXCELLENCE IN RF EQUIPMENT

**„FlexLink K4“ 32:32 Switch Matrix**



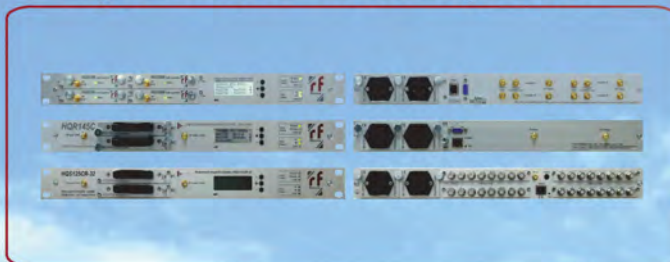
**„FlexLink S9E“ 8:8 or 16:16 Matrix**



**„QLink“ QUAD RF-over-Fiber**



**„HQ Series“ Line Amplifiers**



- **Unique - Innovative - Clever Switch Matrix Systems**
- **RF-o-Fiber Solutions for Indoor & Outdoor Applications**
- **Line Amplifiers (Single, Dual, Quad, 1:1 Redundant)**
- **Switches & Redundancy Switches**
- **Active Splitters & Combiners**
- **Custom Made Products and Solutions**
- **Perfectly Suited for Satellite Earth Stations, Teleports and Broadcast Facilities**



## Satellite Capacity Pricing Declines Slows Down, But Pricing Pressures Expected to Increase

Paris, France, December 1, 2020—In its latest research titled, “FSS Capacity Pricing Trends,” Euroconsult reported that the dramatic pricing declines of the past five years have slowed as a result of notable slowdowns in new capacity supply additions. However, intense pricing pressure is expected to return in advance of new capacity coming online in the 2022-23 timeframe.

Over the past five years, average capacity pricing levels in video markets have dropped 30 percent in aggregate, while data markets have experienced 60 percent declines. While pricing is beginning to stabilize, the previously strong mobility market is now seeing pricing erosion in the short term, due to the COVID-19 pandemic and its impact on global travel.

“We are seeing a mixed landscape in current pricing trends,” said Brent Prokosh, Senior Affiliate Consultant at Euroconsult and author of the report. “Despite the generalized pricing declines globally, strong demand for HTS capacity in places such as North America and Southeast Asia has led to regional shortages, alleviating pressure in the short-term. While fewer regions have reported sharply declining capacity pricing levels, more challenging competitive environments are reported for Latin America and the Russia & CIS regions. Further, at key orbital hotspots, Direct to Home (DTH) television platform pricing has

also been notably resilient.”

While DTH pricing of up to \$8,000/MHz/month is still in effect in some locations, many platforms have sought to reduce their commitments through lower volume and/or shorter-term renewals. On the lower end, capacity pricing ranges have remained relatively stable over the past year, with \$600/MHz/month for regular and less than \$100/Mbps/month for large-volume long-term HTS capacity leases still prevailing.

In its 3rd annual edition of the report on satellite capacity pricing trends, Euroconsult provides an analysis of the structural trends impacting the industry and delves into regional pricing for nine different parts of the world. The analysis is based on an expansive database of more than 2,000 capacity pricing contracts and includes roughly 100 new price points derived from more than a dozen interviews and continuous desk research conducted over the past 12 months.

It includes capacity supply fill rates and case studies on the cost base of satellite capacity. It also breaks out pricing trends by spectrum and type of service and includes an overview of milsatcom and mobility pricing. Additionally, for the first time, this year’s edition of “FSS Capacity Pricing Trends” includes a

section on in-orbit life extension services. It also provides an analysis of the cost base of capacity for nearly 40 HTS systems, including all major Very High Throughput Satellite (VHTS) systems and Non-Geostationary Orbit (NGSO) broadband constellations.

The research projects that HTS fill rates, which are comparatively lower than regular capacity, are expected to drop from 50 percent as of 2020, to below 20 percent by 2023 with new capacity expected to come on line in that time frame. This oversupply will put further pressure on capacity pricing. As a result, Euroconsult projects that operators will seek to drive utilization of new capacity by testing the price elasticity of demand.



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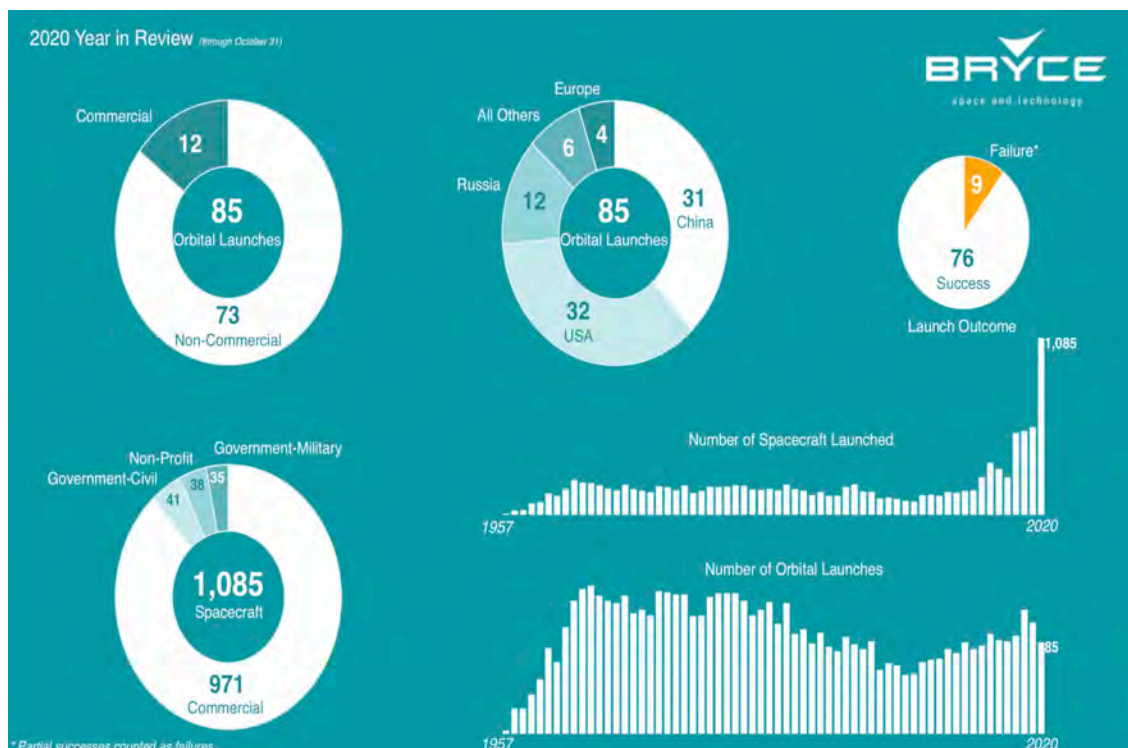
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## VITAL STATS

## 2020 Satellite Launches



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# We have taken Summit to new heights



Kilowatts of  
Solid State RF



Highest  
Availability



Lowest  
MTTR



No Single Point  
of Failure



Available in C, X,  
Ku and S-Band  
Architectures

## INTRODUCING SUMMIT II

The **Summit II** high-power, modular, soft-fail redundant SSPA systems are wide bandwidth and ruggedized for outdoor applications. They can be configured with 4, 8 or 16 amplifiers and are field expandable. All of the amplifiers are phase combined into a single system that can generate extremely high levels of RF output power – 10,000 watts or more.

To learn more about the **Summit II** high power systems, visit [advantechwireless.com/summit-II/](http://advantechwireless.com/summit-II/)



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