

# Satellite Executive BRIEFING

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Industry Trends, News Analysis, Market Intelligence and Opportunities

## SPACs: Game Changer or Passing Fad?

by Elisabeth Tweedie

The satellite industry is no stranger to mergers and acquisitions, nor to new entrants. The last few years in particular have seen numerous startups enter the industry, indeed that is how the term “new space” originated. Suddenly the industry was no longer the sole domain of large well-established companies, advances in technology meant that the barriers to entry were rapidly being eroded. For example, ten years ago, very few people



would have envisaged that rockets could be “manufactured” using 3D printing, and yet that is exactly what Relativity Space is doing. Founded in 2016; following a Series E round last year, led by Fidelity, the company has now raised more than US\$1.2 Billion and is valued at US\$4.2 Billion, making it the second largest privately held

aerospace company after SpaceX. Relativity Space has contracts with Iridium, NASA, (through Lockheed) and US Space Force.

Not all of the new entrants have done so well. Several have relied on SPACs or Special Purpose Acquisition Companies to raise money, and whilst popular, many of these across all industry sectors have suffered significant falls in value.

A SPAC is formed with the sole purpose of effecting a

merger with a privately held business, although at the time the SPAC is formed, the target business may not have been identified. It raises capital through an initial public offering (IPO). The private business will merge with, or be acquired by the SPAC. This provides an alternative to a traditional IPO for a start-up, and is

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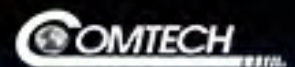
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## In this Issue



**W**e've got a very diverse coverage of topics in this issue. Our cover story is on the phenomenon of Special Acquisition Companies or SPACs which have been making a splash in the industry lately. Elisabeth Tweedie looks at the most recent SPACs and assess the long-term impact on the financial side of the industry. We look at the Internet of Things (IoT) market and how satellite companies are looking to tap into this potentially lucrative market (page 9).

We also feature two companies that are making an impact: one is in the space segment and another on the ground. We feature Kacific Broadband Satellites, an up and coming satellite operator which has a unique business model that combines commercial success with sustainable development goals (page 24). The company's ultimate goal is to bridge the proverbial digital divide in developing countries while delivering a reasonable return on the investment made by various stakeholders. The other company is a teleport based in the UK, Satellite Mediaport Services (SMS) which has been expanding their infrastructure as well as their market base in the last couple of years. It's transforming its teleport to meet the requirements of the new space environment.

Finally, the Satellite show in Washington, D.C. is back at its original schedule in March. For the key companies and products to watch at the show, you always have our Product Spotlight section on page 26 of this issue.

Enjoy this issue!

*Virgil Labrador*



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## SPACs: Game Changer...

from page 1

generally a shorter route to become a listed company, with less stringent regulatory requirements. A SPAC has a maximum lifetime of two years. The merger or acquisition process is known as a de-SPAC.

SPACs have experienced a surge in popularity. According to White and Case, in 2021 there were 221 de-SPAC transactions with a total deal value of over US\$403 Million. This represents more than a doubling of transactions and volume from 2020 (92 transactions, total value US\$139 Million).

However, in spite of this, shares of many companies that used SPACs as a vehicle to go public have not fared well. In the middle of January this year, over half of the companies were trading at prices 40% of more below their opening price.

As already mentioned, several aerospace companies have chosen to take the SPAC route to go public. Unfortunately in the last few months, these companies have suffered the same fall in value that has affected SPACs in general. In October 2019 Virgin Galactic was one of the first aerospace companies to embrace a SPAC. Currently trading at just under US\$10, it is slightly up from its all-time low of US\$7.58, but still down from the US\$11.75 close on its first trading day, and way down from its high of US\$57.51.

Rocket Lab is following a similar trajectory. It closed at US\$10.43 when it debuted in August last year and is currently trading at US\$9.06 significantly below its high of \$21.34.

It's easy to generalize, other factors will also come into play. For example, Astra, another company that make its market entry via a SPAC, has suffered several launch failures. Doubtless these also contributed to



**Several startups have benefited from mergers with Special Acquisition Companies (SPACs) to raise funds for their ventures. Pictured here is upcoming launch services company ASTRA after its merger with Holi-cy, a SPAC controlled by cellular pioneer Craig McCaw, who co-founded Teledesic. (Photo courtesy of ASTRA)**

the fact that it is currently trading at US\$3.15, down from its opening price of US\$12.90 and far below its high of US\$21.25.

The other issue with SPACs that recently has confronted many companies, including Virgin Orbit, is high redemption rates by the original investors in the SPAC. SPACs are often formed without a particular target company in mind, so investors have the right to exit before the acquisition closes. Virgin Orbit was expecting to

*...several aerospace companies have chosen to take the SPAC route to go public. Unfortunately in the last few months, these companies have suffered the same fall in value that has affected SPACs in general.*

raise US\$383 Million from its SPAC, but with over 82% of the SPAC shares redeemed, it only raised US\$68 Million. Additional funds were provided by the Private Investors in Public Equity (PIPE) partners, who put in US\$160 Million instead of the anticipated US\$100 Million. Boeing was the lead investor on the PIPE. Nevertheless, initial funding only totaled US\$228 Million as opposed to the anticipated US\$483 Million. Spire, the cubesat manufacturer and data analytics company, faced a similar fate, when its SPAC had a 90% redemption rate. Obviously, had these companies chosen the traditional IPO route, they may still have failed to raise as much as expected, so one can't be sure that choosing the SPAC route was a mistake.

Tim Ellis, chief executive of Relativity, said in a June interview that he's never considered doing a SPAC deal to raise funding. "We didn't need to because there was so much private capital available."

"Honestly, I think it's a bit of a funding path of last resort," he added. "I certainly wish the companies





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that are doing that best of luck, but I think it's going to be a tough road to go down." So far, that certainly seems to be wise decision.

One of the most ambitious recent new entrants came from serial entrepreneur Greg Wyler, founder of O3b and OneWeb. Last month his company E-Space raised US\$50 Million in the largest ever seed capital investment for the space industry. In terms of number of satellites, this is by far Wyler's most ambitious project. The full constellation will be over 100,000, (one report says that the filing, which was done through Rwanda is for 300,000 satellites). The first beta satellites are planned for launch in March, with a second launch later this year. It is planned to launch them all by the end of the decade.

E-Space will be a mesh network to carry secure communications for businesses and governments. According to the website, it will be: "a bespoke multi-application cloud server in space, powered by a rapidly scalable optical 5G mesh network." The website also states that the system is resilient enough to withstand a cascading collision, otherwise known as the Kessler effect, whilst at the same time being "sustainable enough to avoid one."

Ultimately, it is planned that the satellites will be capable, not only of safely deorbiting themselves, but will also be able to collect and deorbit space debris.

There were several acquisitions last year as well as unsuccessful attempts at acquiring other companies. It is generally expected that these will continue through this year. Falling stock prices of companies that raised money through SPACs make many of them prime targets, but you don't have to be a new entrant to be a target, as Eutelsat found out when it found itself the subject of an unsolicited US\$3.2 Billion bid from Patrick


Drahi. Inmarsat on the other hand welcomed the bid from Viasat.

Although traditionally a manufacturer of ground equipment, ViaSat, with two high throughput satellites (HTS) in orbit and three more to be launched this year, is now regarded as an established operator. Nevertheless, many were surprised when at the end of last year, it moved to acquire London based Inmarsat for US\$7.3 Billion. If successful, this deal puts Viasat, firmly in the mobility sector. From that point of view, the move isn't very surprising. In recent years, Mark Dankberg (Executive Chairman, Viasat), has taken every opportunity to talk about the importance and growth potential of in-flight communications (IFC). But, if the deal goes ahead, it brings other advantages to Viasat. Currently, 80% of its revenue comes from North America, Inmarsat is a global player. In addition, and very importantly, given the way the industry is evolving, Inmarsat's Orchestra will create a hybrid multi-orbit, multi-band, multi-technology system, so the acquisition firmly moves Viasat into the ranks of the other big global players: SES, Eutelsat and Intelsat.

However, the deal is now undergoing investigation by the UK Government. The National Security and Investment Act was introduced in January, in order to make it harder for UK firms of national importance to fall into foreign hands and the Via-

*Falling stock prices of companies that raised money through SPACs make many of them prime targets...*

sat-Inmarsat deal, is one of several that are undergoing investigation. In this instance, the main concern seems to be the possibility of a foreign power being in possession of sensitive government information. This is a reference to the fact that Inmarsat already carries sensitive information, relating to the location of troops and vessels and is currently a contender for a contract worth £6 Billion (US\$8.2 Billion) to upgrade the UK military's secure defense communications network. Rick Baldrige, CEO Viasat, has been quoted as saying that the takeover is not contingent on Inmarsat winning that contract.

As always, the industry is changing. Consolidating in some areas and expanding rapidly in others and doubtless will continue to do so. 



**Elisabeth Tweedie** has over 20 years experience at the cutting edge of new communications entertainment technologies. She is the founder and President of Definitive Direction ([www.definitivedirection.com](http://www.definitivedirection.com)), a consultancy that focuses on researching and evaluating the long-term potential for new ventures, initiating their development, and identifying and developing appropriate alliances. During her 10 years at Hughes Electronics, she worked on every acquisition and new business that the company considered during her time there. She can be reached at [etweedie@definitivedirection.com](mailto:etweedie@definitivedirection.com).



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# Update on the Satellite Internet of Things Market

by Hub Urlings & Marco Franken

**T**hese are exciting times for those following the 25-year-old satellite IoT market developments. Currently, we see more than 40 Sat-IoT networks (according to Berg Insight 2021) that are commercially available in the market or on the verge of being launched, and the number of new announcements of satellite IoT constellations is still growing.

Everybody is now waiting for the new networks to fulfil their promise of low-cost global connectivity. So let's have a look at where we stand.

Satellite IoT incumbents of the first-generation like Argos (since 1978) and Inmarsat-C (since 1999), later joined by Iridium, Globalstar, and Orbcomm (second-generation), have ruled the market for decades. However, triggered by the strong growth of the Internet of Things and the new small-sat technology from 2015 onwards, we have seen the emergence of the third-generation

satellite IoT networks, also referred to as the Low Power Global Area Network (LPGAN). In a reaction to that and from 2018 onwards, we also see a fourth-generation trying to complement terrestrial IoT networks using similar communication protocols like LoRaWan, NB-IoT, or even Wifi.

Is this a flight forward? Do we stay raising funds for developing new satellite IoT networks with yet a better technology, reducing connectivity costs? What about the promises of the LPGAN systems? Are they becoming a reality?

Time to put things in perspective, reflect for a moment, and look forward to the situation at the satellite IoT supply side in 2022, with a focus on the third-generation LPGAN systems. We do this based on our research for the Satellite IoT Monitor 2022 and the results of the Satellite IoT Test bench we operate to monitor the reliability and latency of the

new networks. But let's start with a quick look at the history of satellite IoT.

## A short history of satellite IoT

Some 25 years ago, Inmarsat launched the first generation of satellite IoT systems using their geostationary satellites and L-band with Inmarsat-C. Although initially designed for the maritime market, Inmarsat-C started in the government market; its high reliability matched the need for reliable communications for remotely operating units. In particular, they were providing critical communication to peacekeeping troops in Yugoslavia, such as trucks for food distribution.

Quickly after that, the maritime market picked up the service, mainly because Inmarsat-C equipment was the most cost-effective way to comply with the Global Distress and Safety System (GMDSS) requirements, which applies to every ocean-going



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vessel. Not long after that, the long-haul trucking market discovered the service to track their fleet of trucks and cargo. The service also serviced utility networks monitoring oil pipelines, electricity grids, and mining equipment in the energy sector.

The success of Inmarsat-C attracted competition. What if we go from Geo to Leo? A couple of years later, the second generation of satellite IoT operators launched their LEO constellations, including Iridium, Orbcomm and Globalstar.

In the first decades of the 21st century, the satellite IoT market became an oligopoly with a limited choice for customers. Moreover, the oligopoly translated into relatively high prices and engineering costs. As a result, the market focus remained on niche markets for critical communications that only very slowly grew up to circa 4.5 million satellite IoT terminals in the field today.

Until 2015, third-generation satellite IoT networks started challenging the incumbents, driven by the strong growth of IoT in general and the technological advances in small satellite manufacturing. The new breed of satellite entrepreneurs financing Low Power Global Area Networks (LPGAN) companies like Fleet Technologies and Myriota from Australia, Kepler Communications and Swarm from North America, and Lacuna, Hiber, Kineis, and Astrocast from Europe allowed the building of their first individual pathfinder small-sats. They launched them with traditional launchers like PSLV in India or Soyuz in Russia. Still, newcomer SpaceX quickly took a large share of the launcher market offering ride-shares - sometimes launching 100 small satellites in one go.

Developments do not stop with the third-generation satellite IoT networks. In 2017-2018 a fourth-generation of satellite IoT networks was



**Iridium has a brand new constellation in space to work with and its most essential assets are on earth, as incumbents have spent decades building an extensive global distribution network and a regulatory framework**

initiated that used existing satellites to offer satellite IoT connectivity. We see Echostar Mobile, HiSky, and e-Sat Global using existing Geo satellites for their next-generation IoT platforms.

Other network operators decided to use existing terrestrial protocols for their IoT connectivity. Think of Lacuna, ELO (Eutelsat) or Satelliot, and Fossa Systems (Spain), or the recently launched Dewasat (UAE); all are relying on the existing LoRaWAN protocol to communicate with Low Earth Orbit satellites. With the recent release of a new LoRa chipset by Semtech, this network shows strong growth and interest. The prospect of complementing the LoRa-based terrestrial Low Power Wide Area Networks (LPWAN) with low-cost satellite connectivity, establishing a Low Power Global Area Network (LPGAN), is very appealing.

A third group in the fourth generation is using terrestrial cellular protocols. The fourth-generation includes Luxembourg-based QO, the Spanish Satelliot and Fossa, US-based Omnispace, Lynk Global, and AST Space Mobile.

The central philosophy of the fourth-generation satellite IoT deployments, complementing the coverage of terrestrial networks with

(practically) the same equipment both on land and in space, makes sense. Moreover, experience suggests that this approach can reduce equipment costs while leveraging the existing cellular operators, service providers, and reseller networks as a distribution channel with limited training and education.

However, the fourth-generation development is still on an early technology readiness level, with some first pathfinder satellites in space. It will take some time to evolve from this to the necessary competence for commercial service.

The question is also whether technology is the single most decisive factor here. The regulatory environment, both on an ITU and national level, for using terrestrial frequencies for ground-to-satellite connectivity used by these systems might be the more significant challenge.

### Launching the LPGAN Generation in 2022

The basis for this article was research on the satellite IoT supply-side conducted by M2sat IoT Lab since May 2020 formed the basis for this article. At first, the recently updated Satellite IoT Monitor 2022 assessed nine third-generation satellite IoT

networks, the so-called Low Power Global Area Networks. Secondly, we use the results of the Satellite IoT testbench we run in our lab, including 15 modems from 6 different first and second-generation networks. The testbench monitors service quality mainly in terms of latency and reliability.

Combined, these two lines of research provide us with an accurate status of the different satellite IoT networks, their terminal equipment, and the service quality of the offered IoT connectivity. Based on that, we made the following conclusions.

More than six years after their foundation, the third generation satellite IoT is only beginning its commercial phase. However, the main interest from satellite service providers or customers is with satellite IoT services that do more than work from a technical perspective. A commercial service extends beyond moving bits over satellite and includes a distributor, service providers, and system

integrator network. In addition, it has the appropriate landing rights to be operated from countries worldwide.

Out of the ten satellite IoT third-generation networks in early 2022, a small number seem to be progressing well and have already been announced commercially available on the market (Myriota, Head, Swarm). Others are close behind and on the verge of launching their commercial service (Astrocast, Kepler).

Swarm Technologies has around 120 satellites already in space, a remarkable achievement in such a short time. Their equipment is low cost, easy to install, and their service has an attractive price. It will be interesting to watch the quality of service (QoS), especially when satellite IoT device numbers grow significantly and they start transmitting their data messages simultaneously to a fixed number of satellites. Also, the regulatory framework is an important challenge for global deployment, but their US license should provide a good starting

point for Swarm technologies.

Astrocast end of 2021, raised the funding to build out their network and has just launched their low-cost Astronode+ equipment. With satellites in space, Astrocast will start providing commercial services available in the same regions as the Thuraya satellites: Europe, Africa, the Middle East, and Asia, which is a considerable part of the inhabited world with many remote connectivity challenges.

The Myriota network is becoming more mature, with seven satellites launched with Rocket Lab in March 2021. In space, the new small-sats delivered an improved Myriota Network that was open to customers in the US and Canada for the first time.

An exciting satellite IoT innovation is the Myriota Mouse. The unit combines ingress protection (IP-65) and accelerated weathering (ASTM-G154) standards and easy integration with sensors, making life easier for system integrators and Satellite IoT service providers.

Before 2021, Fleet Space announced its new product strategy: the new Alpha constellation. Alpha satellites are created entirely through 3D printing. With the integration of Fleet's beam-forming and antenna technology and the next generation of Digital Signal Processing, the Alpha constellation sounds promising. However, the development, launch, and final deployment might take a couple of years before Fleet is ready for a commercial launch.

With 15 satellites in space, in 2021, Kepler Communications became Canada's largest satellite operator (in terms of the number of concurrent satellites operationally in space today). After successfully introducing their Store and Forward service for large files (particularly in high

**Swarm, with around 120 satellites already in space, is disrupting the satellite communications industry with affordable, easy-to-use products.**







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### **Incumbent satellite IoT operator Globalstar is in the process of putting a new generation of satellites.**

northern and polar regions), Kepler introduces their satellite IoT services. For that, they are planning to launch up to 140 satellites. In addition, a recent financial injection will increase Kepler's satellite building capabilities (now up to 10 per month) and strengthen their team to manage this more complex operational environment.

### **Lost in space**

Even in the world of Satellite IoT, is it not just sunshine with rocket launches shooting up satellites and successful funding rounds. Last year, we saw some Sat-IoT initiatives being shut down or disappear. Even though many current players are making good progress, several might never make it to the launch or commercial service. In the last quarter of 2021, Hiber announced they stopped developing their LEO constellation. Also, the Indian-based Skylo using the Inmarsat Geo satellite for its services

disappeared from the playing field. It also looks like we are witnessing the first signs of consolidation. How long will Swarm be on the market after being bought by SpaceX?

Are we ready for a new era in satellite IoT?

With the promise of ubiquitous global IoT connectivity with lower-cost services and devices with low power consumption, the LPGAN generation of satellite IoT networks has set very high expectations.

Not all systems will make it to the complete commercial phase, but some third-generation will do so, with some already offering their services and more expected to follow in 2022. (Oops! Did we not say that in 2021 as well?)

With the third generation fulfilling their promises to disrupt the satellite IoT market, low-cost global IoT connectivity will expand from the current niche markets in government, maritime, logistics, and energy utility grids to the broader market for non-critical applications.

It will happen a bit later than promised, maybe, but then again, looking back at the growth of the satellite IoT market over the past 25 years, we see Satellite IoT is a marathon that might well stretch over the next decade, not a sprint. Even when using so-called "low costs, easy to build small satellites." The real challenge lies with establishing the global commercial and regulatory infrastructure required to expand to other markets.

The big question is how incumbent satellite IoT operators will react to the new generations of satellite IoT networks. Iridium, Inmarsat, Globalstar, and Orbcomm so far seem confident. Iridium has a brand new constellation in space to work with, while Globalstar is in the process of putting a new generation of satellites up there. However, their most essential assets are on earth, as incumbents have spent decades building an extensive global distribution network and a regulatory framework that allows them to sell their connectivity services worldwide. So





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Choosing the correct network (out of 40 alternatives) for your global applications is challenging and depends on technical, commercial and regulatory factors. Therefore, it is essential to have a good overview of the different satellite IoT service options and insight into their networks' future proof.

The good news is that the growth of the (terrestrial) IoT market will remain a formidable driver for the development of satellite IoT. In a future article, we will

how will they react in a market that goes from oligopoly into a situation of heavy competition?


Meanwhile, the IoT market has not waited for satellite operators to bring connectivity. After all, IoT is not about connectivity alone. Developments in sensor technology, data analytics, edge, and cloud computing are not waiting for new satellite networks to launch. Increasingly, they are offering innovative applications that minimise the data volume to be transmitted and power consumption as much as possible, regardless of the network they are using for their connectivity. Using state of the art IoT technology components could offer more advantages than just another cheaper connection.

Looking forward to the coming years with the third generation Satellite IoT Networks, equipment and connectivity costs for satellite IoT connectivity will go down significantly and become available for new customers and market segments from whatever location on our planet. And then, we did not even consider the

4th generation networks looking for hybrid solutions combining terrestrial (Wifi, gsm, Lora) and satellite networks to bring connectivity costs even lower and could be offered via existing distribution networks.


have a closer look at what applications and customers will benefit from the satellite IoT.





**Hub Urlings** was one of the pioneers of Satellite M2M as Product Manager Inmarsat-C at the famous KPN Station 12. The reliability and success of this "small data" satellite service, its global coverage and reliability made that the service was used for a myriad of applications. Now, 25 years later, he is again involved in the development of a new generation of Sat-IoT services working as Innovation Manager for the ESA program at Hiber. His company, M2sat, is a value added service provider for Sat-IoT services. He can be contacted at: [urlings@m2sat.com](mailto:urlings@m2sat.com).

**Marco Franken** has worked at Philips developing early-stage APIs for aero and government networks, followed by service and applications development at Inmarsat. In 2001 he managed the introduction of GPRS data services in Germany and the UK and developed multi-channel platforms for extreme environments. From 2006 he worked with Sybase and SAP to provide global availability of data messaging. His focus has been on efficient sensors, IoT, and intelligent data across insurance, finance, farming, and maritime. He can be contacted at: [franken@m2sat.com](mailto:franken@m2sat.com)







# A Teleport Taking your Business up from the Edge

by Virgil Labrador

**T**hree years ago I had the privilege of visiting an exceptional teleport in the English countryside, a teleport with state-of-the-art facilities laid out in beautiful, well-landscaped gardens and bucolic surroundings. This teleport located in Rugby, England and operated by Satellite Mediaport Services (SMS) was featured in this magazine's May 2019 issue ("A Beautiful Setting for a State-of-the-Art Teleport"). A lot has happened over those three years - not the least of which is the global COVID-19 pandemic that catalyzed a satellite industry already seized in the grips of profound transformation. So we thought to revisit and check up on this teleport located in its pastoral retreat for a live update.

There's much talk about the ongoing demise of teleports, but you wouldn't know it if you recently dropped in to see SMS's facility. It has actually grown extensively since my last visit before the pandemic. Since that time it has advanced into prime gateway positioning, continuing to invest heavily in new equipment and increasing its surrounding land area to allow plenty of room for

further expansion into new services associated with Non-GEO constellations. "Our strategy has always been to continuously grow and expand our facilities and capabilities. We have maintained a high level of investment in the teleport every year and now remain even more committed to its continuous expansion, at a time when others scale back and shrink whilst we see that demand for solid ground segment operations remains strong. This has also been our experience. By expanding, we are able to achieve and offer improved levels of service and efficiency and in turn, this has made our service more attractive to a number of key industry players" said SMS Founder and its President Zvi Golod.

## Location, Location, Location

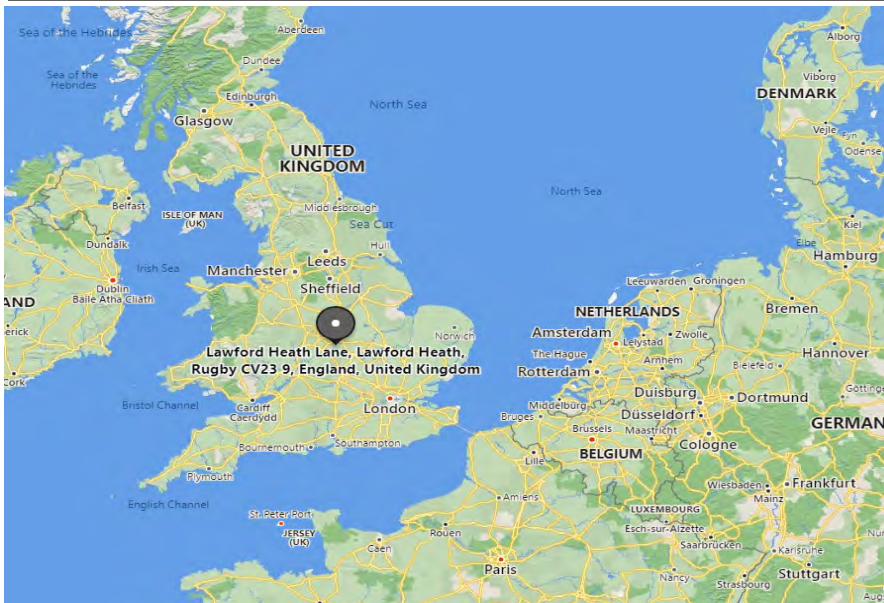
Despite its pastoral surroundings, SMS's strategic positioning in close proximity to England's industrial heartland, its major cities and only a one-hour train ride from London, has made it a very attractive gateway option for Tier-one global network operators and for broadcast service operators alike. From its central location in the UK, the teleport has clear line-of-sight to over 100 communica-

tion satellites between 60°E to 60°W. Currently the teleport has over 80 antennas in a range of sizes in C-, Ku- and Ka-band with plenty of room to add more - including room for a cluster of antennas typically required for effective NGSO tracking.

"The ability to reach a lot of satellites combined with large infrastructure are attractive features for our clients. A number of them often face very short time frames to launch services and we have shown that we are able to match their schedule because we propose realistic charges and have most of the systems already in place" said Golod.

The teleport's core network comprises more than 10 Gbps of dedicated and fully redundant terrestrial fibre connectivity connects within 2 m/s with multiple major Points of Presence in the City of London. SMS has begun the process of expanding its service footprint into global coverage through the deployment of remotely managed uplink assets in key locations around the globe for services to customers in monitoring, collecting and analysing news content and satellite spectrum at any GEO





**From its central location in the UK, the teleport has clear line-of-sight to over 120 communication satellites between 60°E to 60°W and within 2 m/s connection with multiple-peering points in London.**

location. The teleport's location, combined with extensive and growing infrastructure, as Zvi Golod has mentioned, has made it a very attractive option for Tier-one global network and broadcast customers.

Aside from reliable connectivity, the SMS teleport delivers relentless QoS dedication; a wide infrastructure base for uplink combined with a highly responsive customer focus and accumulated know-how in service provisioning – all essential elements for an optimal base for satellite communication services over the European continent, throughout the Atlantic, African and over Asian regions. The SMS service range include:

- Transmission and reception;
- RF uplink and downlink;
- IP connectivity and backhaul;
- Conception, installation and operation of VSAT networks
- One-way or two-way Internet backbone connectivity via satellite;
- Network/Hub Hosting;
- Hosting/Maintenance of Customer Furnished Equipment

(CFE);Satellite capacity;

- Worldwide lease line connections;
- DVBS2 + SCPC services;
- Data Storage and backup; and
- Collocation.

Today the site is clearly marked by structural building work, both inside and around its perimeter that is designed to prepare the teleport for gateway services to Low Earth Orbit (LEO) constellations and for accommodating cloud edge connectivity needs.

### **Ready for New Space Services**

When I asked Mody Schreiber, Strategic Advisor to SMS, for which applications the teleport is particularly suited, he replied that with its extensive infrastructure and room for further expansion "there are really no limitations to what applications we can support." Indeed the teleport is host to almost all the major applications including broadcast, content distribution, enterprise, VSAT services, gateway services and mobility such as maritime.

SMS is by design a continuous-

ly evolving teleport, seeking to accommodate new opportunities and changing market conditions. Its aim is to fit into the developing telecommunications environment, which is not limited to satellite services, but addresses hybrid satellite and terrestrial services.

There is one area where SMS sees a definite potential for growth -- data services. According to Schreiber, the major and also the new players in the satellite market see teleports as an edge presence that form part of a global data system, one where a wide range of scalable, real-time cloud-native applications are made available to enhance customers' and their customers' businesses. In his view this spot is the hypocenter of the expanding telecommunication market that is also experiencing the highest rate of growth and the teleport's ability to join into this value chain is part of the unique challenge and opportunity ahead for all operating parts of the satellite industry.

SMS anticipates that the seemingly unending growth in data traffic we are experiencing will lead to demand for more local nodes or aggregated edge service centres capable of boosting capabilities for cloud edge players. "This is will be a key value proposition that a teleport such as SMS can provide. Our high speed





imity to major industrial centers is a key advantage we have" said Schreiber. "We look at our teleport as an edge enabler that allows clients to tap into its network for distribution services that drive applications for their ends users over a combination of terrestrial and non-terrestrial networks. At the end of the day this kind of integration is the challenge all satellite service providers must confront if they wish to integrate closely into a unified global telecom ecosystem."

### **An Extension of Their Clients' Businesses**

Looking at the site, Golod says "Our business is pure ground segment operation. This makes us an extended part of our client's business. The services we provide are only a piece, but they are an integral part of their global operations, of which we form a distinct part. Our clients see us that way and we've been able to grow capacity by making that piece of their operation efficient, reliable and more cost-effective for them. We want our customers business to enjoy good service and grow, because as they grow, we and our modest value proposition grows with them."

In this connection, one of the keys to SMS's success, aside from state-of-the art infrastructure, is the quality and professionalism of their staff.

**The teleport's Network Operations Center (NOC) is located in a site of a former nuclear bunker. It has recently been refurbished with the latest state-of-the art monitoring and control systems.**

"This teleport has the capability of understanding what its customers want and go wherever it takes them. We pride ourselves on the extensive skill sets we offer and the wealth which our team's experience at the SMS Teleport can provide to you with expert advice and design solutions that satisfy your communication needs - however specialised these may be," said Zvi Golod.

"When you do business with us, you enter into a customer support experience that's not typical in the teleport business. You will work with management-level perspectives and technical professionals who can readily understand your business requirements; know the technology; can anticipate the challenges and provide the right solutions," said Schreiber.

### **Conclusion**

SMS is living proof that the teleport business is as viable a business as it ever has been. SMS has shown that its special resilience, which amounts to a willingness to adapt to changing technologies and customer requirements, accompanied where necessary by investment in operational infrastructure, is the secret to its growth and enduring success. Three years ago, when I first visited the teleport, SMS founder Zvi Golod told me that "the future is here, and we are ready to face the challenges required by the new services." He continues to make good on that statement by investing in the teleport's future as it prepares to take on the challenges and opportunities of the new space telecommunication environment. 📡

[Click here for more information on SMS teleport](#)



**Virgil Labrador** is the Editor-in-Chief of Los Angeles, California-based Satellite Markets and Research. Virgil is one of the few trade journalists who has a proven track record working in the commercial satellite industry. He worked as a senior executive for a teleport in Singapore, the Asia Broadcast Center, then-owned by the US broadcasting company CBS. He has co-authored two books on the history of satellite communications and satellite technology. He can be reached at [virgil@satellitemarkets.com](mailto:virgil@satellitemarkets.com)

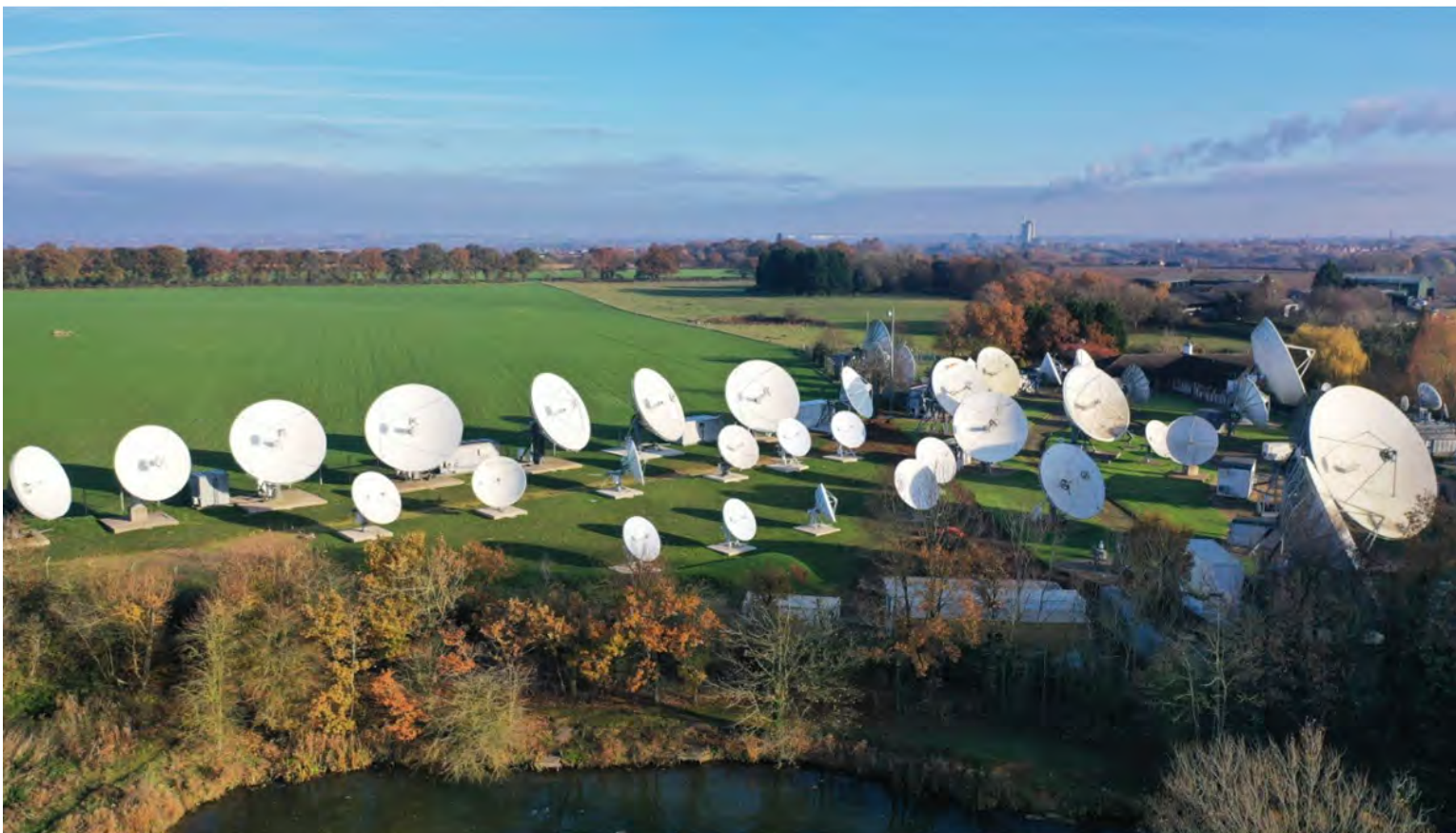




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# Catching the Digital Transformation Bug

By Robert Bell

The consulting firm Capgemini and the MIT Center for Digital Business first coined the term “digital transformation” way back in 2011. They defined it as the use of technology to radically improve performance or the reach of businesses.

That year, 2011, is about a century ago in Internet Years. And here in 2022, the teleport and satellite indus-

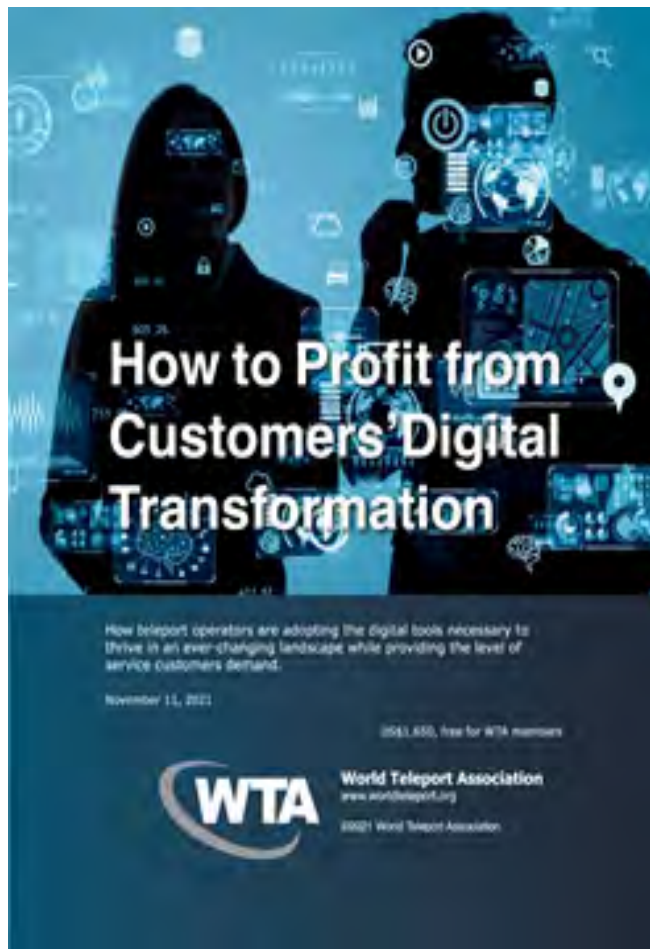
tries are finally prepared to take it seriously – meaning, to make serious and continuing investments in technologies to transform their own businesses and those of their customers. As profiled in *How to Profit from Customers’ Digital Transformation*, a recent WTA report, the pursuit of digital transformation is hardly uniform across companies. It is also less the result of a plan than an ongoing evolution driven by the rollout of technologies that make operations more efficient. But – and here’s the important part – even skeptics of its potential are moving forward for fear of being left behind.

## “That’s Wonderful!”

Some operators find themselves pushing their reluctant customers to transform themselves. This can take the form of providing digitally enabled services to customers before they realize they need them. Other customers need little encouragement but have trouble identifying where to focus their efforts. “They say ‘we want more digital tools,’” one executive noted, “but when we ask what they want, they have no answer. So, we have to come up with ideas. The good news is that they usually say, ‘That’s wonderful!’”

What are executives looking for from their investments? Operational efficiency, flexibility and scalability are the biggest drivers. Simply put, digital technology and the use of cloud computing enable companies to deploy services more quickly—in hours or even minutes rather than days or weeks—and scale up or down as business demands dictate. That’s high value to businesses operating in unpredictable times.

A large component of digital transformation is virtualization, whereby purpose-built hardware is replaced by software that runs on the cloud. That enables applications that previously required racks and racks of expensive,





programming. “It’s like shopping on Amazon,” said one executive, “but for content and services.”

## Getting Ready for the Future

The industry’s future in space is the software-defined satellite, which can be reconfigured on the fly, as well as multi-orbit services in LEO, MEO and GEO. To fully capitalize on these capabilities, ground networks need

heat-sensitive and power-hungry equipment to be run on commodity servers from almost anywhere using a laptop computer.

Probably the biggest driver, however, is the sheer availability of ridiculously powerful tech that can be had without major upfront investment. The cloud “as a service” model slashes risk and encourages experimentation. “There’s an explosion of ideas and innovation that can be achieved now that couldn’t before because technology is putting lots of computing power anywhere at affordable price,” said one teleport executive.

## But Will It Pay?

The executive interviewed for the report believe that digital transformation will ultimately bring new revenues, either by reducing prices to levels that attract new customers or by letting operators easily bundle in value-added services such as information security and data compression. They are focusing investments on automating media playout, AI in the NOC and hardware virtualization, including end-to-end digitization and virtualization of the radio-frequency interface. The biggest vision involves rethinking the entire teleport model: automating service provision to the point where there is little to no need for human interaction with the customer. In this scenario, customers would use the operator’s teleport infrastructure to create their own software-defined wide-area networks, internet backhaul services or VSAT networks.

More mundane gains are also expected. They will come from saving travel time and costs through videoconferencing, from lower power consumption by virtualized hardware and from focusing people on higher-value work while automation handles the routine chores.

Whether the most ambitious visions are realized, operators are already offering self-service portals that make it easy for customers to sign up for new services, arrange data transmission and secure access and rights to sports

to be software-defined as well. “As they move to software-based infrastructure, teleport operators can take advantage of these satellites and monetize their capabilities,” said an executive. “As they drive down the cost per bit, they open new markets.

Teleport operators “have to build an environment that follows the world of satellite,” said another technology executive, noting the unprecedented number of LEO and HTS satellites putting hundreds of terabits in the sky. “The scale is daunting,” this interviewee said. “If we don’t go digital, we won’t be able to scale.” 📡



**Robert Bell** has over 30 years of experience as an association manager and business consultant for both nonprofit and profit-driven and organizations operating in the IT outsourcing, telecommunications, and financial services industries.

He has led business development missions and conducted workshops and Master Classes in the Americas, Europe and Asia. He can be reached at: [rbell@worldteleport.org](mailto:rbell@worldteleport.org)

How to Profit from Customers’ Digital Transformation is available for free to members and for sale to non-members at <https://www.worldteleport.org/store/viewproduct.aspx?id=19289475>.

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# Kacific: Combining Commercial Success with Meeting Sustainable Development Goals

by Virgil Labrador

Since the first commercial satellites were launched nearly sixty years ago, the potential for connecting the world's population, especially those in remote, inaccessible areas, has always been touted as one of the key benefits of satellite technology. With the growth of the internet and the development of satellites that can deliver highly reliable broadband services, it is widely recognized that satellites can play a key role in bridging the digital divide and making a substantial impact on meeting social development goals.

The influx of new satellites and other technologies, however, has not yet substantially accelerated the process of bridging the digital divide. In November 2021, the International Telecommunications Union released a report that revealed that an estimated 37 per cent of the world's

population—or 2.9 billion people—still have never accessed the Internet, 97% of which are in developing countries.

Singapore-based Kacific Broadband Satellites has built its business with the goal of connecting the unconnected. “Kacific’s mission is to improve livelihoods and create opportunities for unserved populations in rural areas and local communities including small businesses, schools, medical facilities, governments and other segments by providing high-quality, affordable, and accessible broadband,” said Christian Patouraux, Founder and CEO of Kacific.

Christian is very familiar with the challenges of bringing broadband services to unconnected communities. Before starting Kacific, he was a senior executive at a global satellite operator which was planning a non-Geostationary Orbit (NGSO) constellation to promote broadband



Villagers welcomed the installation of a Kacific earth station and solar equipment in Papua New Guinea. (image courtesy of Kacific)



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*"...Kacific's mission is to improve livelihoods and create opportunities for unserved populations in rural areas and local communities including small businesses, schools, medical facilities, governments and other segments by providing high-quality, affordable, and accessible broadband..."*



**Christian Patouraux**  
**Founder and CEO**  
**Kacific Broadband Satellites**

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access to underserved communities. He then became an independent consultant and did a number of consulting projects and market studies mainly for entities planning to launch broadband satellites. He increasingly became frustrated by the lack of focus on providing viable connectivity solutions to remote areas in the Pacific islands and rural Asia, which was lacking due to commercial viability. He decided, with some help from a few friends, to start a broadband satellite venture that he initially termed "YouTube for Islanders." From those humble beginnings in 2013, came Kacific Broadband Satellites, which launched its first all Ka-Band high throughput satellite in 2019. Kacific has achieved many key milestones since, including realizing positive Earnings Before Taxes, Depreciation and Amortization (EBITDA) in April 2021, and continues to grow rapidly with projected revenue growth of 130% in 2022 and 36% percent in 2023.

What is amazing about Kacific reaching profitability in a relatively short time, is that it was able to achieve this while making a substantial impact on the lives of the people and communities that it serves. Kacific's business model aims not just to achieve profitability and a reasonable return on its investment for its various stakeholders, but also to achieve Environmental and Social Goals (ESG) in line with sustainable development goals set by the United Nations. By bringing broadband access to remote communities, the impact is beyond simply accessing the Internet - the business model empowers more and more people through supporting local businesses and contributing to job creation; promoting gender equality through connecting schools by making education even more accessible; improving quality of life by connecting health facilities and bringing health care to local clinics in isolated communities, among others.

By disrupting down the value chain, the affordability, accessibility of the Internet services and equipment provided by Kacific has enabled them to penetrate even the most economically challenged areas. This effectively was able to surmount one of the key obstacles to broadband penetration in developing countries--the relatively low

ARPU (Average Revenue Per users). Today, Kacific exceeds affordability targets set by the ITU and UNESCO for 1GB of bandwidth at lower than 2% of Gross National Income (GNI) per capita in countries such as Indonesia, the Philippines, Papua New Guineas and Vanuatu, among others.

"We were able to make our services affordable by our innovative wholesale bandwidth and retail packaged bandwidth services. We provide packages to better serve the needs of our customers and end-users, building an ecosystem for either multi-year wholesale or packaged retail products," said Christian Patouraux. "For wholesale bandwidth, one thing that differentiates us is that we invested in our own hub, teleports, and run a Network Operating Center to manage our performance 24/7 down to the site level. We manage the satellite ecosystem for both wholesale and retail customers and our Network Operations Center (NOC) also does customer support for any incidents. We also train the Internet Service Providers (ISPs) and telcos on how to create and shape their own products to sell to the customers, and we made terminals low cost but able to support high speeds of up to 85Mbps," he added.

Kacific1 satellite is making a major impact on the communities in its coverage area in Asia and the Pacific islands where more than 127 million still remain unconnected. The COVID-19 pandemic highlighted the importance of providing communities with reliable access to the internet as the demand for critical government information and services, such as healthcare and education, increased. Kacific responded by rapidly introducing new products and services, such as GigWiFi and Community WiFi to shape and deliver appropriate and affordable bandwidth plans

*Continued on page 33*

Spotlight on key products and services to be showcased at Satellite 2022, Washington, D.C., March 22-24, 2022.



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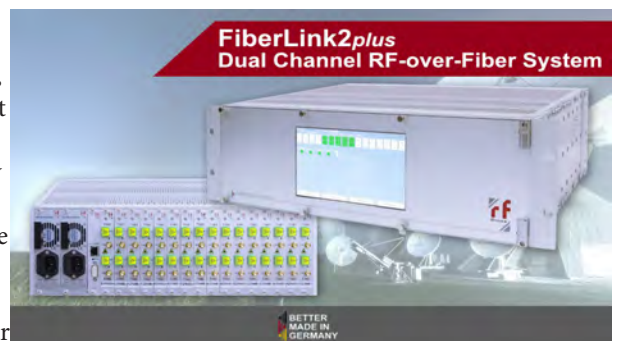
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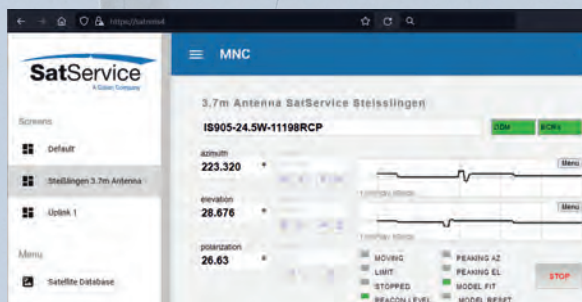
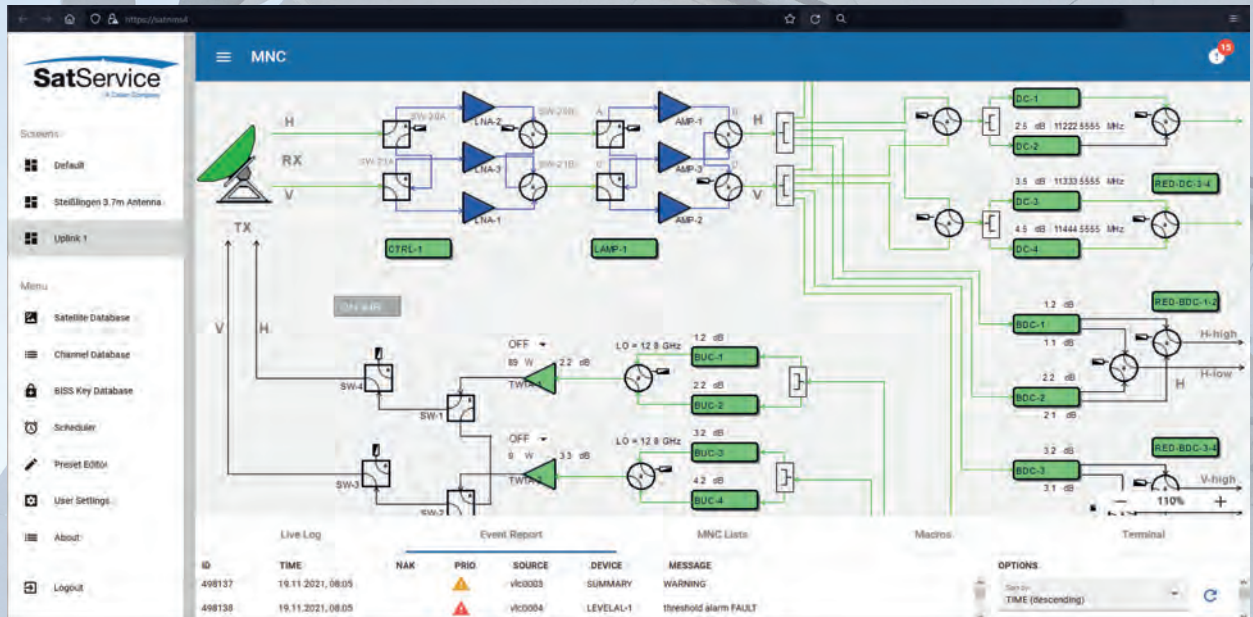


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## Kacific... from page 25

to thousands of remote communities affected by the pandemic.

One of the beneficiaries of these programs is health care institutions in remote areas of Papua New Guinea (PNG). Kacific is working with

PNG's Sustainable Development Program Limited (SDP) to install and operate satellite dishes at 30 healthcare institutions located in remote areas of PNG's Western Province. The introduction of Telemedicine services to these remote communities has made a difference between life and death in many cases. Health workers at the Arufi Aid Post benefit from using satellite internet to make calls when seeking emergency medical advice from available on-call doctors. Life-saving medical evacuations are also now easily coordinated with Mission Aviation Fellowship (MAF) flights via mobile phones.

Another Kacific product that's making an impact is CommsBox-- an emergency communication terminal that can be instantly activated in remote areas to establish satellite connectivity. CommsBox can be stored at remote communities or even airdropped into the emergency zones. CommsBox has been proven useful in areas where communications are cut off during natural disasters such as frequent typhoons in countries like the Philippines, among others.

With the financial and social development success of Kacific's first satellite serving Asia and the Pacific, the company is now ready to bring its successful business model to other parts of the developing world to meet the growing demand from the markets served. The next step is the launch of their second satellite, Kacific2, scheduled for a launch by 2025 to cover continental Asia, specifically the developing countries of South Asia such as Pakistan, India, Bangladesh and Nepal and potentially Central Asia (the so-called "stan" countries). The Ka-band satellite will incorporate the latest technologies such as software-defined features that provide maximum flexibility in operation. The satellite will have high spectral efficiency (frequency reuse) and targeted coverage – allowing beams



**Kacific's CommsBox terminal**

to be directed on-demand to areas that require higher capacity. Phased array antennas will be used to enable beams to shift location and size in a matter of seconds, which allows the satellite to make changes in coverage as dictated by markets demands. This flexibility limits the business risks on the satellite as they can adjust to changing market conditions.

There is an estimated underserved market of over one billion people in the planned coverage area of Kacific2. The company projects that the addition of Kacific2 will open up a Serviceable Addressable Market (SAM) of around US\$ 8 Billion. That's another one billion people that potentially can benefit socially and economically from broadband access through future Kacific satellites as millions have already in Kacific's current coverage area in Southeast Asia and the Pacific Islands.

Kacific has proven that commercial success can be achieved in bridging the digital divide and promoting social development goals in underserved markets. It is a sustainable model that can be replicated in other developing regions of the world where there is a large market for broadband services. With its unique business model and a large addressable market, investors can be assured of a lucrative return on their investment as well as contributing to the achievement of social development goals in communities that need it most. 🌍



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# Beginning With a Sad Reflection on Our Industry's Loss...

by Martin Jarrold

I begin my column this month with a brief statement of sadness.

For those of you reading this who do not already know, on 24 February the satellite community – the industry and its stakeholder users – lost a valued friend with the sudden passing away of Simon Gray, Eutelsat's Senior Vice President for Civil Government, and member of GVF's Board of Directors.

GVF, and the entire satellite industry, sends its deepest condolences to Simon's family. Simon passed away shortly after representing the industry, and Eutelsat specifically, in a webcast on a subject about which he cared passionately – humanitarian assistance and disaster response (HADR).

Many of us knew of Simon's commitment to HADR. Perhaps his commitment is partly captured by his participation in the REDCON Asia HADR webcast which took place just hours before his sudden passing. You can view the webcast, which is linked to an upcoming emergency telecommunications disaster-response conference, at <https://www.youtube.com/watch?v=JEuxuTEh6H8>.

Simon had worked in the satellite industry for over 25 years. He served as a member of the International Telecommunication Union Advisory Board for developing disaster communications strategy worldwide, and was chosen by the other satellite fleet operator (and other) signatories to coordinate the United Nations Crisis Connectivity Charter, linking the World Food Program-led Emergency Telecommunications Cluster, representing all UN and NGO entities, with the satellite industry. Simon represented the satellite industry on the ETC plenary board.



## IN MEMORIAM SIMON GRAY

Senior Vice President of Civil Government with Eutelsat, and long-standing member of the GVF Board of Directors

For Simon's In Memoriam notice from GVF please visit <https://gvf.org/in-memoriam/>.

The Washington SATELLITE Show is on this month's horizon. The 2022 conference program features two GVF-organized panels scheduled for Tuesday 22 March. David Meltzer, GVF Secretary General, will moderate discussion of 'Interference Prevention in a Crowded Multi-Orbit Environment' with Alvaro Sanchez, CEO, Integrasys; Paul Isaac, Director, RF Products, Kratos; Joakim Espeland, CEO, QuadSAT; and Ralph Brooker, President, SatProf.

A dialogue between Dr Teresa Segura, Senior Manager, Emerging Capabilities Investments, Boeing Applied Innovation, Boeing; Dr Vagan Shakhgildian, President Comtech Satellite Network Technologies,

Commercial Group, Comtech Telecommunications Corp; Brian Pemberton, Vice President Sales & Marketing, Omnispace; Glenn Katz, Chief Commercial Officer, Spacenet; and Dr Girish Chandran, CTO, Viasat, and moderated by Dallas Kasaboski, Consultant, NSR, will examine 'Artificial Intelligence and Machine Learning: Accelerating Innovation'. Further information on these panel sessions can be seen at <https://www.satshow.com/program/#session-a0F3b000018Mzu8EAC>.

GVF's contribution to the SATELLITE show this year features not only an opportunity to find out more information from GVF Training personnel at SatProf, Inc., about our expanding training program – which is based on realistic, online, interactive simulations of key skills, which offers 30-plus courses, and which has served more than 20,000 students worldwide (<https://gvftraining.org/>) – but draws attention to the details of two new initiatives.



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The objective of the first of these new initiatives – the GVF Marketing Working Group, GenSpace, with the LinkedIn and Twitter hashtag #GenSpaceGVF – is to increase awareness of satellite industry innovation and to correct misperceptions about satellite connectivity. GenSpace is leveraging the combined marketing power of GVF member organizations, not to promote company proprietary messages, but to foster greater understanding of common and pan-industry trends in, for example, software designed satellites in the space segment, multi-orbit antennas/modems in the ground segment, Cloud-based partnerships in delivering applications, and standards-based networks in enabling infrastructure deployments. GVF member companies will share facts and stories showcasing the power of satellite innovations that help meet the ever-increasing global demand for connectivity. Follow #GenSpaceGVF and join #SatRevolution.

The second of the new initiatives returns us to the topic of training, or perhaps more accurately, education. As will be announced at SATELLITE 2022, it too involves GVF's partnership with SatProf, but also another partner in Space & Satellite Professionals International, SSPI. This partnership is now introducing the new industry qualification – the SBQ – the achievement of which by satellite industry personnel will confer the status of Space Business Qualified.

### What is the Space Business Qualification? Why Space Business Qualified?

The SBQ is an online qualification. Its creation has arisen from a recognition by the three development partners that the space and satellite industry has demand for a broad range of skills, from engineering in all its disciplines to finance, marketing, sales, advanced manufacturing, legal and regulatory, government relations, information technology, and human resources. Those skills are put to work in manufacturing, launch, fleet operations, ground segment operations and service delivery. The complexity of doing business in space requires that specializations be narrow and expertise high within them.

In assignment after assignment, however, those specialized employees and contractors need a broader understanding of the industry to achieve success, from understanding how their customers make money to knowing how laws and regulations shape engineering decisions. Traditionally, people have built that understanding through on-the-job experience over years or high-cost graduate level education. The SBQ program shortcuts the process through online learning. The program will increase the effectiveness of people working at every level and in every discipline of the industry and enhance their ability to rise

in their profession. Obtaining certification will demonstrate their comprehensive understanding of the industry.

The program will be structured as a series of online courses, with exams, leading to certification in the focus areas of Satellite Communications and Broadcast Business, Earth Observation, Navigation, and Science Business, and Launch and Spacecraft Business. Courses will be taught in an on-line, self-paced format, containing interactive tutorials, video lectures, animations, and graphics. In-course testing will validate comprehension and reinforce learning, and each focus area will conclude with comprehensive certification exam.

Course content will be at the concept and business level rather than depending on knowledge of mathematics, physics or engineering. Students are assumed to have a college-level business, liberal arts, or engineering education. The online courses will cover the fundamentals of launch, design, manufacturing, services, financing and other key issues. They will also address leadership development and the impact of space and satellites on the world.

### How will SBQ benefit you?

SBQ will bring benefits to your space and satellite business professional life in multiple ways, including:

- Filling critical gaps in your understanding of the space and satellite business to increase your value to employers and grow your career long-term.
- Stimulating your creativity on the job by learning how individual or company specializations fit into the broad trends of the space and satellite industry.
- Building your business and financial skills to supplement technology expertise, or your technology understanding to support business and financial experience.
- Enabling your understanding of long-term technical and market trends which are shaping the near future of the industry.

To find out more about GVF Training, GenSpace, and the SBQ, visit the GVF booth (#547) at the Walter E. Washington Convention Center, 21-24 March. Remember that GVF members get 20% discount using the code GVF4SAT22 when registering for SATELLITE 2022. 🇺🇸

**Martin Jarold** is Vice-President of International Program Development of GVF. He can be reached at: [martin.jarold@gvf.org](mailto:martin.jarold@gvf.org)



# Satellogic Completes Merger with CF Acquisition Corp. V to Become Publicly Traded Company

**New York, NY, January 25, 2022** – Satellite imaging company Satellogic Inc. today announced that it has completed its previously announced merger with CF Acquisition Corp. V (Nasdaq: CFV) (“CFV”), a publicly traded special purpose acquisition company (SPAC) sponsored by Cantor Fitzgerald. The merger was approved at a special meeting of CFV stockholders on January 24, 2022. Beginning January 26, 2022, Satellogic’s Class A ordinary shares and warrants will trade on the Nasdaq under the ticker symbols “SATL” and “SATLW,” respectively.

In connection with the closing of the business combination and other transactions, Satellogic will receive gross proceeds of approximately US\$ 262 million. This total includes proceeds from the CFV trust account and the previously announced private placement (“PIPE”) of US\$ 100 million led by SoftBank’s SBLA Advisers Corp. and Cantor Fitzgerald, among other top-tier institutional investors. Cantor Fitzgerald increased its PIPE participation to approximately US\$ 58 million from US\$ 33 million. Gross proceeds also include the US\$ 150 million private placement commitment from Liberty Strategic Capital. Liberty’s investment is expected to close in February after the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976 expires.

The proceeds will further position Satellogic to scale its constellation to remap the entire surface of the Earth in sub-meter resolution, with the newest advanced satellite technology able to capture 10 times more data at one-tenth of the cost of its competitors. Satellogic’s capabilities uniquely position the Company for vast commercial, sustainability and government applications across a large addressable market. Recently, the Company updated its forecasts to take into account the timing of the business combination and current assumptions.

“Reaching this milestone represents a strong step forward for Satellogic. We are thrilled with the close of this transaction and look forward to our next chapter as a public company as we continue on our mission to provide groundbreaking, high-resolution images and data analytics of the entire Earth in real time at an affordable price,” said Emiliano Kargieman, CEO & Founder of Satellogic. “This transaction will allow us to continue to scale our constellation of satellites to reach daily remaps of

the Earth’s surface at the high-resolution and low cost necessary to unlock the vast commercial market. I’m extremely proud of our team’s hard work and dedication to get us to this point and believe we are well positioned for long-term sustainable growth,” he added.

Former U.S. Secretary of the Treasury Steven Mnuchin, Founder and Managing Partner of Liberty Strategic Capital, will join Satellogic’s Board of Directors as Non-Executive Chairman upon close of the transaction. Secretary Mnuchin said, “Congratulations to the entire Satellogic team; we look forward to partnering with you as you focus on a growing market with tremendous commercial and government opportunity. Access to high-quality and cost-effective information will improve decision-making and help solve problems on a global scale.”

Cantor Fitzgerald & Co. served as financial advisor and capital markets advisor to CFV as well as placement agent on the PIPE. Hughes Hubbard & Reed LLP and Ellenoff Grossman & Schole LLP served as legal counsel to CFV. J.P. Morgan served as financial advisor to Satellogic. Friedman Kaplan Seiler & Adelman LLP and Greenberg Traurig LLP served as legal counsel to Satellogic.

**Stony Brook, NY, January 20, 2022** – Network Innovations has acquired ground systems integrator

**Satellogic is making Earth Observation imagery accessible and affordable to drive better global decision-making. (Satellogic photo)**







**Network Innovations connects people, places and things with always available communications solutions. (Network Innovations pic.)**

## Network Innovations Acquires ST Global

STS Global Inc., Over the years, STS Global has provided services to connect clients in remote locations, transmit crucial data, provide secure networks, and more to ensure reliable services anywhere on earth.

Network Innovations' will complement STS Global's capabilities in integration and engineering design, as they continue to operate under their existing management team. By leveraging the combined expertise of each company, this partnership will enhance the creation and delivery of reliable communication to our media, enterprise, government, and other markets.

"Network Innovations proudly welcomes STS Global, including Mr. David Hershberg, the current management, and its' team, to Network Innovations. This acquisition offers great potential in the markets we serve and I'm confident that STS Global will find benefits from the additional capabilities and resources NI can offer." Says Derek Dawson, President, Network Innovations.

David Hershberg, CEO of STS Global, commented: "We are glad to be part of the Network Innova-

tions team. This new venture will enable our customers to leverage the expertise of both companies to receive more customized services and solutions with a focus on the customer's mission."

For Network Innovations, the decision to acquire STS Global completes a critical part of its strategy in strengthening partnerships and enabling clients to operate anywhere.

## Rocket Lab Closes Acquisition of SolAero Holdings

**Long Beach, Calif., January 18, 2022** – Rocket Lab USA, Inc. (Nasdaq: RKLB) today announced it has closed the previously-announced transaction to acquire SolAero Holdings, Inc. (SolAero), a supplier of space solar power products and precision aerospace structures for the global aerospace market, for US\$80 million in cash.

Rocket Lab announced the execution of the agreement to acquire SolAero on December 13, 2021 pending certain closing conditions.

The acquisition aligns with Rocket Lab's growth strategy of vertical integration to deliver a comprehensive space solution that spans spacecraft manufacture, satellite subsystems, flight software, ground operations, and launch. As one of only two companies producing high-efficiency, space-grade solar cells in the United States, SolAero's space solar cells are among the highest performing in the world and support civil space exploration, science, defense and intelligence, and commercial markets. In combining with Rocket Lab, SolAero will tap into the Company's resources and manufacturing capability to boost high-volume production, making high-performing space power technologies available at scale.

"SolAero has established itself as a premier provider of solar technologies and we are very excited to be joining forces," said Rocket Lab founder and CEO, Peter Beck. "SolAero is a highly complementary addition to Rocket Lab's vertically integrated business model, enabling us to deliver complete space mission solutions for our customers. With more than 1,000 successful missions under their belt, the team at SolAero have enabled trailblazing missions, providing space solar power solutions for the James Webb Space Telescope, and missions on Mars including In-Sight and Ingenuity. We are thrilled to be combining our innovative teams, industry-leading technologies, and strong resources to enable our customers to achieve incredible things in space."

"We are very excited to join the outstanding team at Rocket Lab and contribute to their track record of innovation and on-orbit success," said SolAero President and CEO, Brad Clevenger. "We look forward to becoming an integral part of Rocket Lab's Space Systems business while continuing to offer all of our customers premier capability and value." 

## Telstra Broadcast Services Appoints Emory Strilkauskas to Head Business Dev't for the Americas



**Emory Strilkauskas**

**New York City, NY, February 8, 2022** – Telstra Broadcast Services (TBS) has named Emory Strilkauskas as Head

of Business Development for the Americas, responsible for expanding the company's professional broadcast and media portfolio across the United States, Canada and Latin America.

Strilkauskas will focus on strengthening relationships and developing new partnerships with international broadcasters, rights owners, channel partners and service providers. As part of Telstra's ambitious growth plans for the broadcast market, he will also work closely with product, network and engineering teams to bring the best of Telstra's innovative network connectivity and infrastructure solutions to customers across the Americas region.

"We are excited to have Emory join us, with his extensive experience in delivering major events to audiences all over the world during his career with ESPN and Brklyn-Media," said Telstra Broadcast Services VP of International, Anna Lockwood. "We look forward to continuing to deliver value for our customers and partners, and to accelerating our growth plans for the Americas region under Emory's leadership."

In this new role, Strilkauskas will draw on his diverse background covering broadcast, telecommunications

and all aspects of live sports production. His 30-year career includes a Technical Emmy win and a successful track record of executing engineering integration strategies, developing solutions-driven technical workflows and managing complex system deployments.

"Media and broadcast customers are actively seeking new content delivery and distribution options to meet the growing worldwide demand for content," said Strilkauskas. "Telstra has created an impressive and diverse array of network connectivity solutions to support any level of customer requirements. I'm excited to join the team and help widen the audience for our broadcast services."

Previously, he was managing partner of network operations for Brklyn-Media, a virtualized media company he co-founded to focus on camera-to-consumer cloud workflows and software applications. A majority of Strilkauskas' career was spent with ESPN/Disney, holding a range of positions covering product management, programming, engineering, operations, transmission, contribution, affiliate distribution and direct-to-consumer offerings. He also served in the United States Navy as an Intelligence Cryptologic Technologist.

## AVIA Appoints Matthew Cheetham as General Manager of the Coalition Against Piracy



**Matthew Cheetham**

**Singapore, Feb 8, 2022** – The Asia Video Industry Association (AVIA) has appointed Matthew Cheetham as General

Manager of the Coalition Against Piracy (CAP) with immediate effect. As the General Manager of CAP, Cheetham will take over from Aaron Herps and build on the accomplishments achieved by CAP to date, with the aim of creating a stronger and healthier environment in which the video industry can prosper.

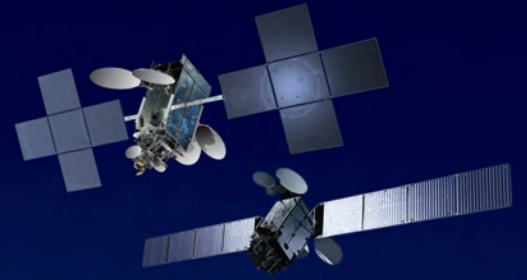
Over the last four years CAP has made real inroads into the systemic problems of video piracy faced by the broadcast and streaming video industry in Asia Pacific. The blocking of pirate sites is becoming more common in many markets, laws have been introduced to limit access to infringing set-top devices, constructive relationships have been forged with intermediaries to limit access to pirate services and investigations and prosecutions have been effected. And yet the problem remains the single biggest impediment to the growth of the legitimate content creation industry and ecosystem.

Cheetham is a qualified lawyer specializing in intellectual property, more specifically copyright protection, with over 20 years' experience working in Asia-Pacific (APAC) for some of the largest content producers in the world. Prior to taking up his role at CAP, Cheetham was the Premier League's Head of Business Affairs, Asia Pacific. In this role, Cheetham opened and headed up the Premier League's APAC office in Singapore, the Premier League's first office outside the UK, and oversaw all enforcement, policy and outreach efforts for the Premier League in APAC.

"CAP is critically important to AVIA and the industry as a whole and I am delighted that in Matt we have such a seasoned and experienced executive taking over. Matt will bring his own ideas and energy to the role and I am confident CAP and the industry's anti-piracy efforts will grow in strength under him," said Louis Boswell, Chief Executive Officer,



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Prior to working for the Premier League, Cheetham spent ten years as the Motion Picture Association's (MPA) Regional Legal Counsel and Assistant Policy Officer for APAC following which he was the Managing Director of the MPA's New Zealand office, the New Zealand Screen Association (NZSA) that oversaw all enforcement, policy and outreach efforts for MPA member companies in New Zealand.

### Eutelsat's Jesus Mendez Sampedro to Join WTA's Board of Directors



**N e w**  
York City,  
NY, Feb-  
ruary 8,  
2022 – The  
World Tele-  
port Associ-  
ation (WTA)  
today an-  
nounced the

**Jesus Mendez**

appointment of Eutelsat's Head of Third Party Teleports Jesus Mendez Sampedro to its Board of Directors. In March, he will stand for election by the membership to a three-year term.

In his current role at Eutelsat, in which he has served for nearly 11 years, Jesus is responsible for the delivery of third-party teleport services, including assessment of potential Teleport partners, procurement of cost-effective teleport services and management of all external teleport operations to assure a service quality according to Eutelsat standards. In his day-by-day activity, he manages the integration of external teleport activities as part of Eutelsat's end-to-end services, interfacing with external teleports and defining a high-quality service delivery. Jesus is Eutelsat's

primary coordinator of all third-party teleport activities, and thanks to his background he has an extensive operational understanding of the worldwide Teleport industry and good knowledge of the challenges associated with teleport activity. Before joining Eutelsat, he served as a specialist in a variety of engineering roles at different regional and international terrestrial telecom providers (R Cable in Spain, AT&T in Czech Republic, etc.), but also in engineering roles in the Broadcasting and Media sectors.

Continuing to serve on WTA's Board of Directors are:

- José Sánchez Ruiz, Chief Solutions Officer, Hispasat (Chairman)
- Jay Bloom, Senior Manager Ground Systems, Amazon Kuiper
- Ron Busch, Executive Vice President, Engineering and Operation, ABS Global Ltd
- Jay LaPrise, Senior Vice President, Global Transmission Operations, Encompass Digital Media
- Samuel Lemercier, Managing Director UK, Globecast
- Mitja Lovsin, Chief Commercial Officer, STN
- Will Mudge, Vice President, Engineering Operations, Speedcast
- Scott Mumford, Chief Executive Officer, Satellite Services, Liquid Intelligent Technologies
- Guido Neumann, Chief Development Officer, AXESS Networks
- Matthew Prange, Vice President, Strategic Teleport Partners & Implementation, SES
- Kheng Ghee Ng, Head, Satellite, SingTel
- Lorenzo Ronzitti, Head of International Sales, SATCOM, Telespazio
- Susan Saadat, Vice President, ETL Systems

• Ron Storie, Vice President, Network Operations, Intelsat

• Rob Weitendorf, Vice President, Business Development, Kymeta Corporation

• Lesley Wilson, Head of Satellite & Gateway Services, Arqiva

“Eutelsat's Rambouillet Teleport was the first in the world to receive Teleport Certification from WTA,” said executive director Robert Bell. “Jesus managed that process from the Eutelsat side and gave us very helpful feedback that improved the program. We look forward to more in his new role on our Board of Directors.”

### XipLink Appoints Jaco Botha, as SVP of Product



**Jaco Botha**

**M o n -**  
tréal, Can-  
ada, Febru-  
ary 4, 2022

– XipLink, the technology leader in Wireless Link Optimization announced the appointment of Jaco Botha, based in South Africa and

Ashburn, Virginia, as Senior Vice President of Product. Botha will have responsibility for all Product Management, Product Marketing and Alliance Partnership functions for the company moving forward. In addition, he will be a key contributor to the senior management committee that sets strategic direction for XipLink and its employees.

Botha has been a stockholder and senior manager in the past via the 2008 acquisition of his company, Trispin Technologies, and his subsequent role as VP of Engineering at XipLink. Most recently, He gained in depth experience in LEAN product development processes, product





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management process establishment and managing multidisciplinary teams at startup companies.

Botha remarked "I am thrilled to be back at XipLink and look forward to immerse myself in the fast-changing networking space where everything is now moving toward software enabled devices with cloud integration".

Jack Waters, CEO at XipLink notes, "We have worked closely with Jaco for many years and have enjoyed his excellent advice, technical understanding of complex networks and amazing work ethic. His return to XipLink in a newly defined role to execute on future directions for Xi-pOS solutions in hybrid networks, virtualized network functions and containerized network functions is an exciting step for our employees, customers and overall ecosystem".

### SuiteLife Systems, Appoints of Media Industry Veteran Bobby Stevens as Director Media Technology



Los Angeles, Calif., Feb. 2, 2022 – SuiteLife Systems, a Division of NFB Consulting Group, announced the ap-

**Bobby Stevens**

pointment of media

industry veteran Robert (Bobby) Stevens as Director Media Technology-Sales & Marketing.

The NFB Consulting LLC and SuiteLife Systems group are a California based media technology and software house that specializes in the development, integration, and support of

best-in-class, fully scalable, content logging, network automation, remote site control and monitoring technologies. The SUITELIFE client base includes many Tier 1 broadcasters and content providers in North America and abroad.

Bobby Stevens brings more than 22 years of senior sales and marketing experience primarily in the TV and live sports broadcast markets. Bobby will be leading content initiatives as SUITELIFE expands its "Software as a Service" models for its suite of monitoring technologies as well the traditional trusted, scalable "on-prem" solutions.

Mr. Nigel Brownett, President of the SUITELIFE group, said, "We are delighted to have Bobby onboard in a dynamic leadership capacity as we build out our sales team highly focused on meeting the needs of our valued client base plus new media clients throughout the USA and internationally." Brownett went on to say, "Bobby has the technical skillset and experience to work at the highest levels across the corporate, military and government verticals."

### BridgeComm Names Rich Tortorelli as Chief Systems Engineer

Denver, Colo., February 11, 2022 – BridgeComm, Inc., an optical wireless communications (OWC) solutions and services provider, today announced that Rich Tortorelli will join the company as a chief systems engineer. Having developed, managed and executed 160 plus satellites with space-based constellations, Tortorelli brings thirty years of invaluable experience to BridgeComm to enhance its OWS space produce development efforts.


Prior to BridgeComm, Tortorelli served as the chief systems engineer at General Atomics, where he oversaw a NASA program, mentored and led a technical staff of 50 individu-

als and was responsible for systems end-to-end architecture, integration, testing, verification, launch and deployment, among many other responsibilities.

"The Second Space Race centers around satellites, and Rich's wealth of knowledge and deep understanding of this field will be vital to our continued success," said BridgeComm CEO Barry A. Matsumori. "Moreover, his leadership and mentorship expertise – especially for teams that are geographically and culturally diverse – will be essential to BridgeComm's future growth and training of junior staff."

Tortorelli has worked for a variety of satellite companies developing and delivering satellites to customers such as the Missile Defense Agency, Air Force and NASA. For over a decade, he worked on both Iridium constellations in a variety of capacities, including engineering and program manager for a space situational awareness program pioneering hosted payloads. He was also the vice president of ASAT (Assured Space Access Technologies), helping to develop the "Space Tracking and Surveillance System" (STSS), a missile defense satellite system, and has worked for other companies including, Northrop and Lockheed Martin.

"I am honored to be a part of such a prestigious team of specialists and veterans in optical wireless communications solutions across space, air, land and sea domains," says Tortorelli. "Knowing how vital it is for secure communication transmissions, both for commercial and government applications, I aim to further BridgeComm's mission of augmenting RF with OWC."

Tortorelli received his master's degree in electrical engineering from Loyola College in Maryland in the early '90s in conjunction with intern-ing at the prestigious Allied Signal Advanced Technology Center in Columbia, Maryland. 





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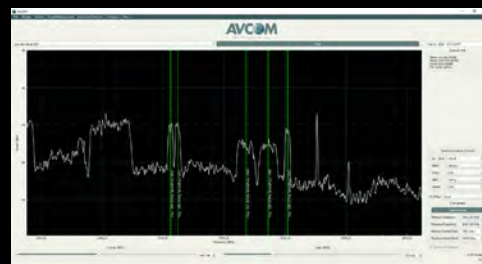
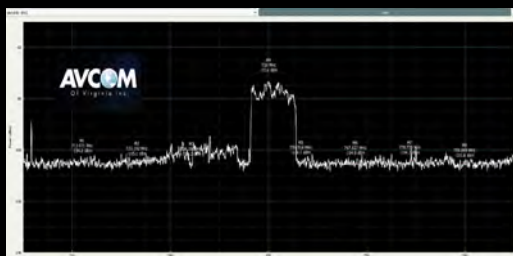
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## MARKET TRENDS

### The SATCOM on the Move Market is Projected to Grow to US\$ 42.8 Billion by 2026

**Dublin, Ireland, February 28, 2022** – The SATCOM on the move market is projected to grow from US\$ 17.7 Billion in 2021 to US\$ 42.8 Billion by 2026, at a CAGR of 19.3% according to Research and Markets.

SATCOM equipment is an integral part of the communication in commercial and defense industry. The SATCOM on the move market is dominated by a few globally established players such as Thales Group (France), L3Harris Technologies (US), Honeywell International Inc. (US), Hughes Network Systems (US), Viasat, Inc. (US), among others.

Based on platform, airborne SATCOM segment is estimated to lead the SATCOM on the move from 2021 to 2026 and is projected to grow further due to the increasing need for high-definition intelligence, surveillance, and reconnaissance (ISR) videos, and an increasing number of connected commercial aircraft, rising adoption of UAVs and rising number of private aviation companies worldwide supporting market growth.

Based on verticals, commercial segment is expected to lead the SATCOM on the move market from 2021 to 2026. This is due to increasing need for uninterrupted mobile broadband coverage in remote and far-flung regions, streaming information and entertainment, extensive use of small satellites for commercialization and data transferability, technological advancements in transport and logistics network, and increasing demand for broadband connections and VSAT connectivity.

The North American market is projected to contribute the largest share from 2021 to 2026 in the SAT-



COM equipment market - Based on region, North America is expected to lead the SATCOM on the move market from 2021 to 2026. The US is a lucrative market for SATCOM equipment in the North American region. The US government is increasingly investing in the field of SATCOM to enhance the quality and effectiveness of satellite communication.

Major companies profiled in the report include Thales Group (France), L3Harris Technologies (US), Honeywell International Inc. (US), Hughes Network Systems (US), Viasat, Inc. (US), among others.

### The Electric Propulsion Satellite Market Poised to Grow by \$12.27 Billion from 2021-2025

**Dublin, Ireland, February 18, 2022** – The electric propulsion satellite market and according to this report it is poised to grow by US\$ 12.27 Billion during 2021-2025, progressing at a CAGR of 14.95% during the forecast period according to Research and Markets.

The report offers an up-to-date analysis regarding the current glob-

al market scenario, latest trends and drivers, and the overall market environment. The market is driven by the growing preference for hosted payload and cost-effective solutions.

#### Key Highlights

- Space-based activities have flourished during the last decade, as evident from the number of satellites launched for both commercial and defense applications, ranging from telecommunication, earth-observation, to experimental scientific research. The absence of a combustion supporting atmosphere in space has resulted in the increased adoption of electric propulsion technologies for maneuvering satellites in orbit.
- The inherent benefits of integrating an electric-propulsion system to different platforms are also driving the rate of adoption. Besides, the emergence of global green emission initiatives has encouraged the adoption of eco-friendly propulsion technologies, such as electric propulsion.

#### Key Market Trends

Full-Electric Segment to Experience the Highest Growth During the Forecast Period

The adoption and diffusion of





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## MARKET TRENDS

new technologies, such as satellites, can help disseminate information over broad areas, enable instantaneous telecommunications, generate, and transmit high-resolution images of certain points of interest located all around the world simultaneously. The advent of miniaturized electronics and the increasing use of smart manufacturing materials have resulted in the development of small satellites with shorter development cycles and lower deployment costs. The physical limitations of such satellites encourage the development and integration of powerful yet compatible electric propulsion systems to effectively perform orbital correction maneuvers.

Several contracts are being awarded for the ongoing space missions and strategic collaborations are underway to capitalize on joint capabilities to address an evolving market opportunity. For instance, in October 2019, Accion was awarded a USD 3.9 million as part of the Moon to Mars technology program. As per the contract, Accion will work with NASA's Jet Propulsion Laboratory (JPL) to replace the cold gas propulsion system that was used on the MarCO CubeSats with a more efficient ion electrospray propulsion system. The program is scheduled to initiate in March 2020, and a potential space launch is expected in the first half of 2021. Such developments are anticipated to drive the business prospects of the players in the market in focus during the forecast period.

### Asia-Pacific is Expected to Generate the Highest Demand During the Forecast Period

The Asia-Pacific region is expected to generate the highest demand for electric propulsion systems during the forecast period. This increasing demand is mainly due to the increasing deployment of satellites driven by evolving regional dynamics. Several satellite launches are scheduled during the forecast period.

Quantification of chemical emissions into the air is a key step in explaining observed variability and trends in atmospheric composition and in attributing these observed changes to their causes on local to global scales. Since, satellite launch vehicles produce different emissions, including water vapor and carbon dioxide from liquid and solid fuels, as well as hydrochloric acid from only solid fuels. Initiatives such as the Mission 2020 encourage the adoption of green propulsion technologies, such as electric propulsion, to restrict the ongoing global climate conversion by minimizing the greenhouse gas emissions by 2020.



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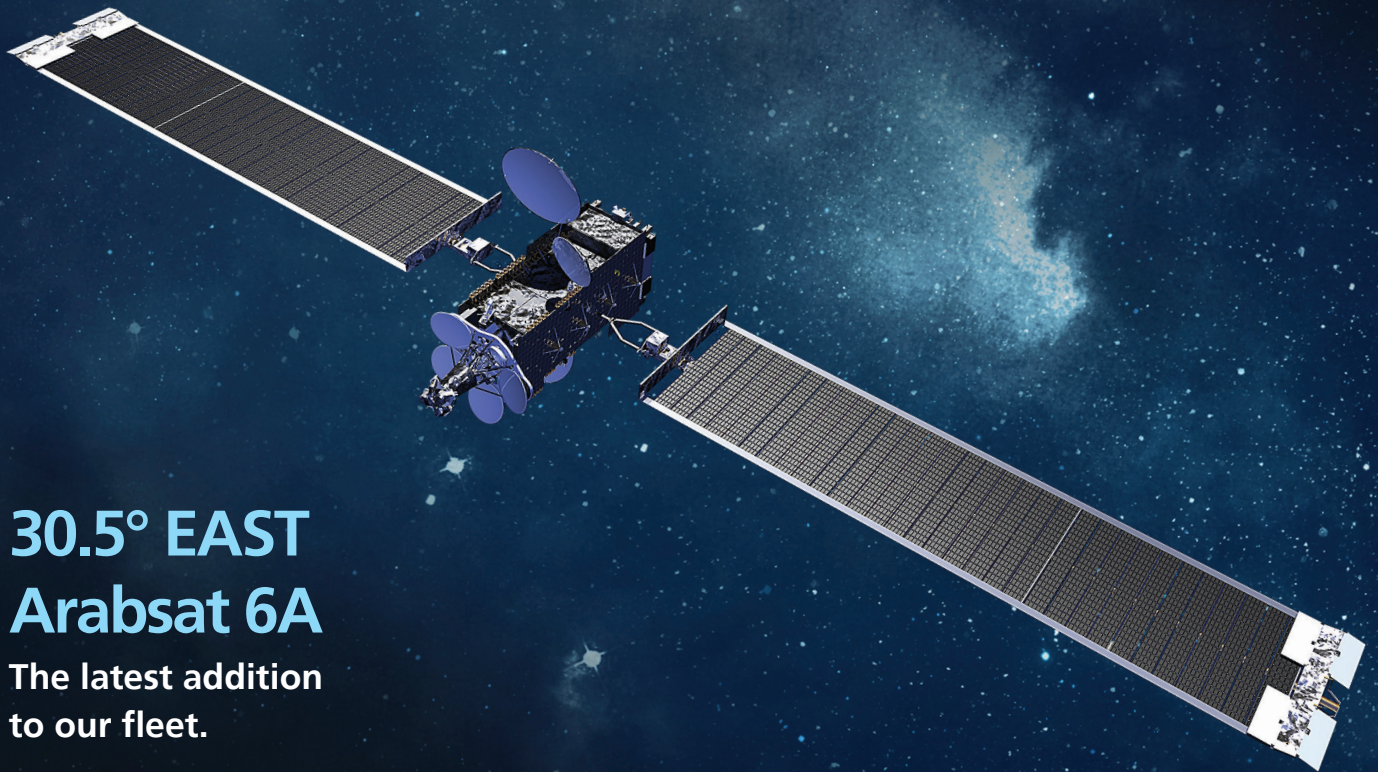




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