

# Satellite Executive BRIEFING

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Industry Trends, News Analysis, Market Intelligence and Opportunities

## The Need For Flexibility

by Elisabeth Tweedie

The recurring themes running through the three European Conferences (World Satellite Business Week in Paris, IBC in Amsterdam and VSAT and Next Generation Satellite Applications in London), were the need for flexibility and the Low Earth Orbit (LEO) constellations.

Flexibility in manufacturing and flexibility in service offerings.

In panels at World Satellite Business Week (WSBW), all the satellite manufacturers talked about the need to make satellites more flexible. Paul Gaske, EVP and General Manager Hughes North America, pointed out that “with flexibility there are so many business cases that can be proved out, which is good for the manufacturers as they can use the results of one set of Research and Development many times, instead of having to repeat for every customer.” From the man-



ufacturers side, Chris Johnson, President, Boeing Satellite Systems International, talked about the 702x product line which was announced on the eve of WSBW. The 702x is a further development of the software defined satellites that Boeing developed for SES for its mPower constellation. mPower is a Medium Earth Orbit (MEO) constellation. The 702x extends the flexibility offered by software defined satellites to the geostationary arc and allows operators to dynamically allocate bandwidth to respond to changing market conditions. The 702x can be delivered in three years.

Jean-Loic Galle, President Thales Alenia Space, talked about the need for both flexibility and power, and speed to market; it is planned that the production lead time for a standard satellite

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## Challenges and Opportunity



The month of September featured some key industry events that provide important insights into the markets going forward. These include the World Satellite Business Week in Paris organized by Euroconsult, The IBC in Amsterdam and the Global VSAT in Global. We covered all of these events in our lead article on “The Need for Flexibility” by Elisabeth Tweedie. The key takeaway from these events is that the industry is facing some

challenges ahead. The upside is that there are also opportunities. As Elisabeth reported in her article, much of the discussion was about the forthcoming LEO constellations.

A good insight into the upcoming LEO constellations is our Geneva-based correspondent Roxana Dunnette’s interview with startup company Astrocast CEO Fabien Jordan on page 19. We also have a comprehensive discussion on the Latin American market and its challenges and opportunities on page 11.

View video interviews with key executives from IBC 2019 at: [www.satellitemarkets.com/IBC-2019](http://www.satellitemarkets.com/IBC-2019)



Enjoy the issue.

*Virgil Labrador*

Virgil Labrador  
Editor-in-Chief



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## Flexibility

from page 1

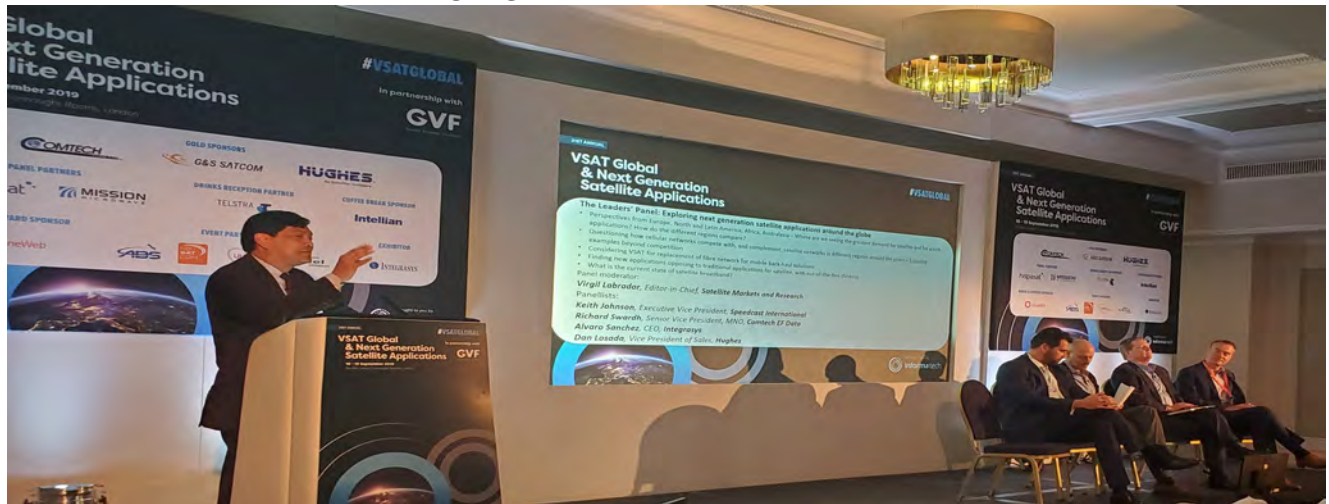
will be decreased by a factor of two. However it was also mentioned that there will always be some customers that require a specialized satellite, so Thales Alenia will maintain a specialized as well as standardized product line.

Pierre Francois Delval, Head of Innovation, Advanced Projects and Proposals, Telecommunication Satellites, Airbus Defence and Space, disagreed slightly saying that he felt that flexibility per

**“...the major issue with the big manufacturers is survival...”**

munication Satellite Solutions, Lockheed Martin, agreed about the need for on-orbit flexibility so that customers could follow markets and/or adjust power as needed. However he pointed out the disturbing fact that once it becomes possible to reprogram a satellite from the ground, others could do the same, “so we see security as extremely important going forwards.” He mentioned

manufacturers. Maxar (formerly SS/L) has already exited GEO manufacturing. Boeing is building the mPower MEO satellites, Airbus is building the OneWeb LEO satellites and Thales Alenia built Iridium and O3b, a LEO and MEO constellation respectively. Lockheed Martin built the LEO GPS satellites and Northrop Grumman has a LEO bus in its



The VSAT Global conference featured panel discussions on key industry issue like “Next Generation Satellite Applications” moderated by Satellite Markets and Research Editor-in-Chief Virgil Labrador with panelists (from left) Alvaro Sanchez, Integrasys; Daniel Losada, Hughes Network Systems; Keith Johnson, Speedcast; and Richard Swardh, Comtech EF Data.

se, was not so important. “What is important is to allow customers to adapt to emerging markets, test them and change markets if necessary. DTH to broadband for example.” He also pointed out that Airbus had been able to adapt their experience in airline manufacturing to satellite manufacturing, particularly with reference to the OneWeb satellites. Guy Beutelschies, VP Com-

that Lockheed is “making significant partnerships in this area.”

The major issue with the big manufacturers is survival. So far this year there has been 11 orders for Geostationary (GEO) satellites, there may be another four to be ordered by the end of the year, which will be a significant increase on last year, but nevertheless fifteen satellites a year is hardly a sustainable product line for the five remaining western

satellite offerings. So all the major GEO manufacturers are also equipped to follow the market should the demand for GEOs diminish further.

Northrop Grumman has also added satellite servicing to its portfolio and created a division known as SpaceLogistics to focus on this. Currently there are two products in this segment: the Mission Extension Vehicle

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(MEV) and the Mission Extension Pod (MEP). The first MEV was scheduled to be launched on September 30th, but has been delayed due to an electrical issue with Proton. It will attach to an Intelsat 901 in the graveyard orbit. A second MEV will be attached to another Intelsat satellite in regular GEO orbit. The MEV will attach to the satellite to provide propulsion and attitude control to extend the life for five years. According to Joe Anderson, VP Business Development and Operations, SpaceLogistics, Northrop Grumman also has term sheets for two MEP for other customers. Going forward it's intended to focus on MEPs. The MEP is a smaller and less expensive extension vehicle that only provides orbit control. It will be attached to the satellite by a Mission Robotic Vehicle (MRV). In

the future this product line will be expanded to provide robotics in space for simple repairs or to install other types of augmentation device. Amer also talked about the potential of incorporating a USB port on a satellite to add additional flexibility. For now the Mission Extension product line is only for GEOs, however if LEOs become successful, it may be extended to include them.

### LEOs Dominate Discussions

As would be expected talk of Low Earth Orbit (LEO) constellations dominated conversations, if not the sessions at all three conferences. Statistics as to the precise number planned for launch varied considerably. Euroconsult indicating that 8,500 satellites weighing less than 500Kg are due to be launched in the next ten years. NSR pointed out that

there are now over 140 filings for more than 25,000 LEO satellites. Obviously, not all of these will be launched, or if launched, successful. Of the five most well known constellations, four: Telesat, OneWeb, LeoSat, and SpaceX already have FCC approval and one, Amazon has filed with the FCC but is still waiting for approval. As yet, LeoSat and Amazon haven't signed launch contracts. The others have. SpaceX will launch its own satellites, which is likely to tie up at least half of its launch capacity over the next few years. The most interesting contract is Telesat's. It has signed contracts with Relativity Space and Blue Origin. Relativity Space is new company, using 3D printing to build rockets. Each rocket will be built to order, with a timescale of order to launch of 60 days. This

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also means that the design can be changed and improved in sixty days if necessary. According to Tim Ellis, Co-Founder and CEO of Relativity launches will cost less than US\$6,000 per kilogram.

The constellations are at various states of funding. OneWeb has raised US\$3.4 Billion, the constellation was originally stated to cost US\$3.5 Billion, no official figure is available, but estimates are now putting the cost at US\$7 Billion. LeoSat, conversely has announced that design improvements have led to a reduction in cost to US\$3 Billion from an original US \$3.5 Billion. Unfortunately, LeoSat also has funding difficulties. Its original Series A funding came from JSat and Hispasat, but it is understood that due to a change of management at JSat that its investment has been reduced. Although SpaceX has started launching, the venture is only funded to US\$1 Billion, which according to NSR represents less than 7% of the total launch and build costs. Telesat is partially funded through internal restructured funds and by grants from the Canadian government, but still has a long way to go. Amazon is expected to be funded internally as is SES mPower, the MEO successor to O3b from SES.

If just one of the major LEO constellations gets launched the amount of capacity available with will increase exponentially. Euroconsult pointed out that already more than half the 1.2 terabytes (TBs) of capacity leased has been launched in the last four years. Looking ahead Euroconsult are predicting that revenues from broadband and backhaul

will increase by US\$3.3 Billion to 2028 to account of 29% of capacity revenues.

The other issue associated with the LEOs is debris removal. Obviously, there is already plenty of space debris that is causing concern, but the fear is that if there was any kind of collision between the LEOs the amount of debris would also increase exponentially. Jean Loic Galle addressed this issue, but felt that the economics were such that it was an issue that had to be addressed by governments not individual companies.

The need for flexibility is not limited to satellite manufacturing. It is also becoming a major element of the service offerings. Pacome Revillon, CEO Euroconsult showed a chart indicating how the business has changed from selling raw capacity, to managed capacity to the introduction of a standard service platform and now to the introduction of customized/value added services. To this end, many companies are striking partnerships with “giants” outside of the industry.



**The VSAT Global event featured the annual VSAT Awards. Pictured here on the left is Steve Richeson of Mission Microwave accepting the award for Best Flat Panel Technology from Elisabeth Tweedie, member of the Board of Judges and Chair of the VSAT conference.**

An example of this would be SES, which announced on September 9th that it had signed an agreement with Microsoft to provide dedicated private network connectivity from any vessel, airplane, enterprise or government site anywhere in the world to Microsoft Azure via O3b; and when launched from O3b mPower. A presentation at IBC from Stein Vermeulen, a Microsoft Azure specialist and Gint Atkinson SES VP Network Strategy expanded on this, showing how mPower and Azure together would create a broadcast grade cloud. This is in response to the shift to Over-the-Top (OTT) viewing. Stein showed a slide indicating that 69% of US consumers now have at least one streaming subscription vs 65% who have a traditional pay TV subscription. MX1 formerly a separate division of



## COVER STORY

SES offering playout services, has now been fully integrated into SES and the MX1 name dropped. The service offered, essentially to offload the complexity from content producers shoulders so that they no longer have to handle OTT and linear separately, is one that will be facilitated by the use of Azure.


Stein made it very clear that Microsoft had no intention of moving into this market itself, showing a quote from Satya Nadella, CEO Microsoft: "I have been very clear about our business model - we're not trying to become a telecommunication s company or a drug company or an automobile company. We want to partner with them." It should be noted that this is not an exclusive arrangement. Intelsat is also partnering with Microsoft

Azure.

Another interesting example came from ViaSat, which has partnered with Apple and American Airlines to provide free access to Apple Music on any ViaSat equipped plane.

Bing Kung, who has the unusual, but highly apposite, title of Extra-Terrestrial Product Manager, Facebook, in a panel in Paris pointed out that in hard

to connect rural areas, satellite WiFi made economic sense. Both Hughes and Viasat have partnered with Facebook to launch WiFi Hotspots in Latin America.

A stimulating two weeks of conferences and presentations. The need for flexibility is very clear with all the challenges and changes. It will be interesting to see where the industry is this time next year. 



**Elisabeth Tweedie** is Associate Editor of the *Satellite Executive Briefing* 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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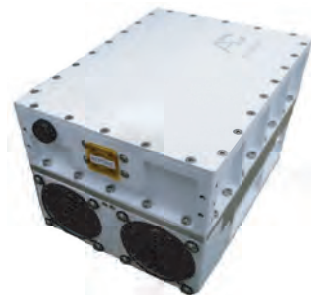


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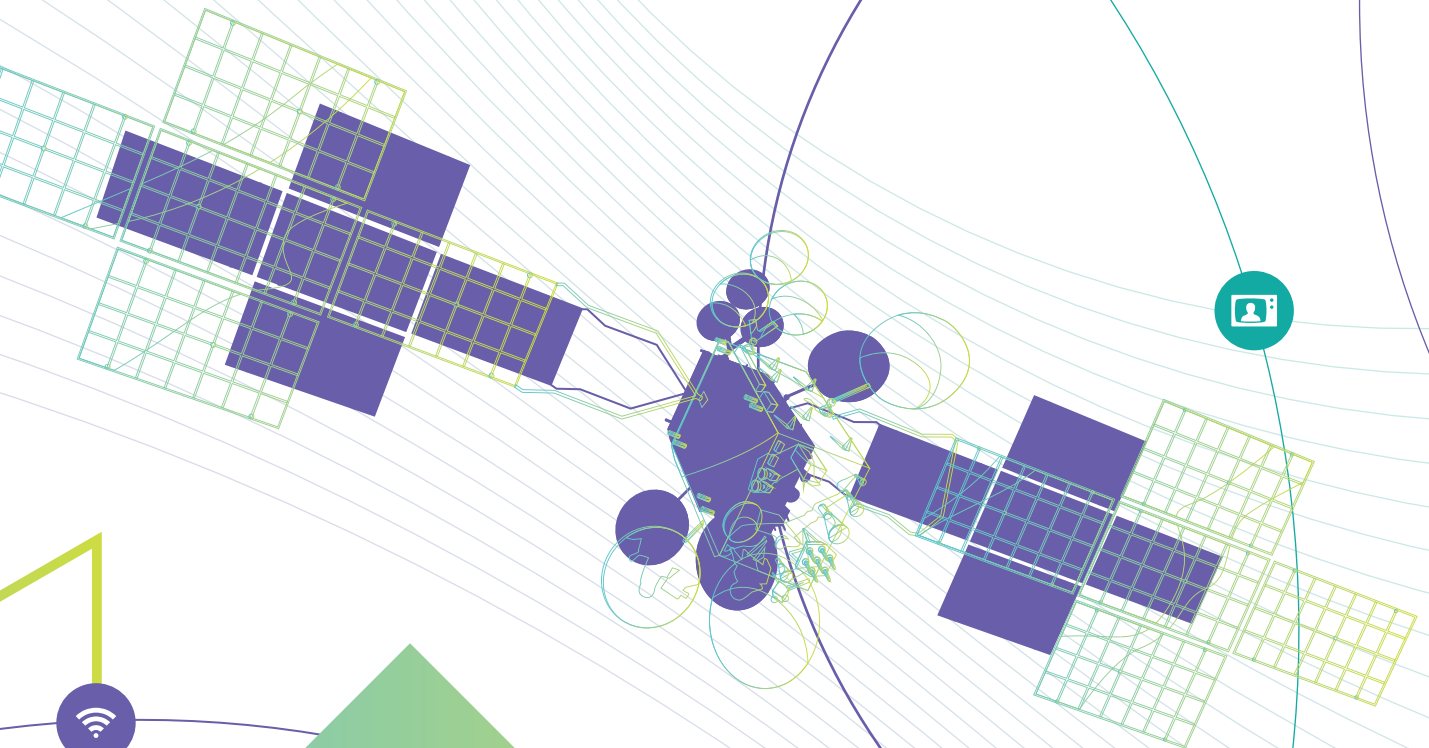


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# Latin American Broadband Satellite Market

by **Bernardo Schneiderman**

**T**he Latin America broadband satellite market is growing at a steady rate. These days, it is showing a potential high growth because of higher available capacity. Today, players are competing with low-cost VSAT terminals with the Ku- and Ka-band capacities that focus on Internet and OTT/Video streaming services. These are all brought about by High Throughput Satellites (HTS) satellites entering the region during the last three years.

Factors such as the ability to provide services to the unserved urban and rural areas, which are out of the reach of internet connectivity by cable or radio, are defining the satellite broadband market. Because of the strong government support in countries like Brazil, Argentina, Peru, Colombia and Mexico, the satellite broadband connectivity cost is decreasing. Private players like Hughes and ViaSat are also offering more affordable and faster internet connectivity by introducing pay per use and monthly and yearly plans.

According to a recent NSR report covering VSAT and Broadband Satellite Markets 2019 edition, “Satellite Consumer Broadband is just scratching the surface of the opportunity, capturing less than 1% of the potential addressable market.” Lluc Palerm, NSR senior analyst and report co-author, says “subscribers are very sensitive to more generous data caps and cost. Consequently, lower capacity pricing will trigger strong demand elasticities. Additionally, the ecosystem is still underdeveloped in many regions and Latin America is one region still in development.”

Palerm predicts a stronger focus on retail, and that newly available capacity will see accelerated growth. He said new business models like Wi-Fi Hotspots, which are proliferating, would open the lowest segments of the market. He added small cells will drive 43% of service revenues by 2027.

Video is, by far, the primary driver of data traffic. Multiple offers are now promoting unmetered services for web browsing, email, and other critical functions, but “streaming time allowance” is defining subscribers’ quality of experience. Video quality at 720p is now standard among several platforms. The reason for this is to allow users enjoy faster streaming time, albeit this also sacrifices video quality. But even with these measures, data caps are still very restrictive with the current balance between ARPUs and capacity pricing. However, once prices decline below 100 USD/Mbps/Month, data allowances can grow generously, “activating demand elasticities,” says an analyst.

Today, Internet service providers (ISP) and mobile network operators (MNO) employ satellites in providing broadband service. Thus, satellites are employed as the “middle-mile” or backbone solution, but in some regions, they also provide the full solution to the broadband connection.

The key satellite operators and service providers of broadband via satellite in the Latin America Region include ABS, Eutelsat, Hughes, Hispamar/Hispasat, Intelsat, SES, Telesat and Viasat, among others. By country, satellite operators and services providers are as follows:

- **Argentina:** ARSAT – Government Agency provides capacity and services in Ku-Band with two satellites focusing on remote areas and for use by government agencies
- **Bolivia:** TKSAT-1 is operated by the Bolivia Space Agency and provides services for government agencies and for remote areas in Ku-band
- **Brazil:** Telebras (Government-owned company) provides capacity and services in Ka-band; Star One – (Private company Embratel Star One is a unit of Claro Brasil) provides capacity in Ka-band, Ku-band and C-band in Brazil
- **Mexico:** The Mexican Satellite System, also known as Mexsat, is a network of three satellites operated by the Mexican government’s Ministry of Communications and Transportation. It provides services to the defense department and most government agencies and provides connectivity to remote regions where no service is available. Mexsat-1 and Mexsat-2 are twin satellites used for mobile communication devices and operate in the L- and

**Ku-bands. Mexsat-3 operates in the range of the extended C and Ku-bands.**

- **Venezuela: Venesat-1 is operated by Venezuela's Ministry of Science and Technology and provides services to government agencies and remote areas in Ku and C-band.**

**Satellite Markets (SM) invited to contribute for this article all the key players in region. We received feedback from Estevao Ghizoni, Latin America, Managing Director of the Americas-ABS; Sergio Chaves, Business Development Director for South America-Hispamar; Jurandir Pitsch, Vice-Pres. Sales Latin America & Caribbean-SES; – Lincoln Oliveira, Director General-Embratel Star One; Mauro Wajnberg, General Manager-Telesat Brasil; and Kevin Harkenrider, President, Broadband Services-Viasat Inc. Excerpts from the operators' responses are as follows:**

**SM: How are you addressing the broadband satellite market in Latin America in regards to video and Internet/data market. Please give us some examples of satellite capacity or product and services?**

**ABS:** ABS offers highly effective satellite solutions to South America. We have invested in and expanded our team in the region with the appointment of Estevao Ghizoni, Managing Director of the Americas and Edison de Vito, Sales Director of Latin America to support our Latin America customers, enabling us to more effectively deliver capacity and solutions at the local level.

The Latin America region has diverse geographies and diverse economic tiers favoring solutions that are flexible, high throughput, frequency agile, and economically compelling.

ABS-3A is one of the world's first new generation innovative all-electric propulsion satellites which allow us to deliver more affordable capacity to our customers. Launched in March 2015, it began operations on September 7, 2015 and was authorized in Brazil by ANATEL in February 2016. Its services high-growth data, video, mobility and government applications.

In the broadcast video segment, ABS-3A is a pillar for high profile broadcast contribution in the Americas, Africa, Europe and MENA. It

has a dedicated Americas beam along with an extensive broad European beam, which extends from North America, across Europe to Moscow and provides optimal coverage for diverse media requirements. We have made significant progress in the video service across these markets with many well-established broadcasters.

In addition, the ABS-3A verticals such as VSAT and IP Trunking are among some of the applications that are being used on the high-power Americas beam covering North American and all of South America regions. ABS work in partnership with local service providers on many applications such as Cellular Backhaul, IOT, OTT, Maritime Mobility, and Corporate Applications.

**Hispamar:** The Video market relative to DTH is stable in what is relative to the consumption of Mhz, and in the Content distribution market, has grown, the amount of content transmission channels has increased, through regulatory issues or through the initiation of new content. There is also a movement in relation to the exchange of satellite providers for this market.

With the entry of the HTS satellites, it was noticed the need for the operators to descend more in the value chain, offering products more level of mbps and not only Mhz. So that the client does not have to have

to invest in a HUB, this has brought new demands, both for the consumer market and for the corporate market.

In our case, we have invested in more than 4 Hubs directly (covering all of Latin America through the Ku band and part of the Ka band) or through associations in Latin America. Some for the consumer market and others for behavior and mobility.

In our current model, we do not go to the end customer directly, we always do it through B2B. Sometimes due to the need to enter the market we can participate in a bid to enter a country.

**Hughes:** Over the past few years, Hughes has launched broadband service in several markets throughout Latin America.

Hughes has been offering broadband enterprise services in Brazil for decades. In 2016, with the launch of Hughes 65 West (the Ka-band payload on the Eutelsat 65 West satellite), we began offering HughesNet®, our flagship satellite Internet service for consumers and small businesses. In 2018, we launched Hughes 63 West (the Ka-band payload aboard the Telstar 19 VANTAGE satellite), which brought more capacity over Brazil. And earlier this year, we announced a joint venture with Yahsat to combine Hughes do Brazil with Yahsat's consumer broadband company in Brazil, creating a strong val-



ue proposition to serve the growing market demand for a wide range of broadband services, including consumer Internet access, enterprise networks, cellular backhaul and community Wi-Fi hotspot solutions.

The venture combines the companies' more than 65 Gbps of Ka-band satellite capacity on Hughes 65 West, Hughes 63 West and Al-Yah 3 high-throughput satellites (HTS), reaching more than 95% of Brazil's population. It also includes Hughes and Yahsat's three gateways in Brazil.

The JUPITER 2 satellite (designated EchoStar XIX) provides coverage over Mexico, where we have been providing broadband services via local service provider partners, and Colombia, where we launched HughesNet service in 2017.

In Colombia, we added additional capacity with Hughes 63 West, enabling the expansion of HughesNet service in the Colombian market. Our enterprise and government services in Colombia offer a valuable solution for projects like Mintic Wi-Fi access and school's connectivity.

Recently, we began launching Hughes Express Wi-Fi service in Brazil and Mexico, bringing satellite-enabled Community Wi-Fi hotspots and the Facebook Express Wi-Fi platform to the market. Local merchant's sign-up to install a Hughes VSAT and Wi-Fi AP at their business – a store or café, for example – and then use the Facebook Express Wi-Fi platform to manage the service and collect revenue on a per-user basis.

The launch of Hughes 63 West enabled us to offer broadband Internet service in several other countries in Latin America, including Chile, Ecuador and Peru.

Furthermore, with service provider partners and customers throughout the region, we offer ground equipment, capacity and solutions



**Hispamar's Guaratiba Satellite Control Center in Rio de Janeiro, Brazil**

for extending broadband connectivity via cellular backhaul, community Wi-Fi and enterprise services.

For instance, Speedcast, a trusted provider of remote communications and IT solutions, chose the Hughes JUPITER™ System to power cellular backhaul over satellite and enterprise VPN services for a leading mobile network operator in Managua, Nicaragua. The operator will employ a JUPITER Ku-band hub and nearly 100 satellite terminals to expand its cellular 3G and 4G services in Nicaragua and throughout Central America, along with providing VPN services for enterprises to increase speed and security of critical business networks and grow new markets.

**SES:** We have extensive coverage covering Latin America and are more than equipped to be serving customers operating in all markets. To give an example of the different types of satellites we have – we have SES-6 who serves 100% cable headends in the region and SES-14, a high throughput satellite with spotbeams and widebeams. In addition, SES also has its fleet of O3b satellites, which are positioned in medium earth orbit (MEO) providing low latency and fiber-like managed connectivity ser-

vices to individuals and businesses in the growing mobility, fixed data, and government markets.

In April 2019, SES launched four more satellites in the O3b fleet, increasing the number of O3b satellites to 20, marking the transition to the next generation MEO system, O3b mPOWER. The constellation's seamless scalability means that additional satellites will increase coverage worldwide and allow the SES network to provide greater availability and reliability of services to meet the growing demand for connectivity services in the government, telecommunication, cloud, maritime, and energy markets.

**Embratel Star One:** Claro Brasil, through its Unit Embratel Star One, is addressing the Enterprise Market in areas not well served by terrestrial means by using satellites to provide services. For the Consumer Market Claro is reaching its customers by using cable and backhaul cellular network with 4G, to provide broadband services. Some of the 4G sites are being served by broadband satellite stations.

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means, Claro Brasil is offering two products, the iPsat and the Infosat Prime

1) IPSAT: We launched the new version of our IPSAT Satellite Broadband solution, now with the use of the Ka Band, especially to serve companies of various sizes and segments installed in locations with little or no telecommunications infrastructure. IPSAT provides quality Broadband Internet access with attractive speeds and prices. The new solution helps companies achieve digital maturity with secure, quality Internet, the basis for business scanning. We believe that the offer will bring digital transformation to businesses, including smaller ones located in regions far from major centers.

IPSAT in Ka Band is a Broadband service provided by the Star One D1 satellite, the largest ever launched by the company. With the novelty, we are expanding our offer, which is also provided in Ku Band.

The solution in Ka Band allows connection to the Broadband Internet of quality in diverse localities in all Brazil. Among the speeds commercialized are 20 Mbps (download) with 4 Mbps (upload) or 25 Mbps (download) with 4 Mbps (upload). It is also possible to contract a fixed IP, allowing reverse access configurations to the client network.

The new IPSAT with Ka Band expands the possibilities of high-speed Internet access for companies, even without the existence of terrestrial telecommunication infrastructure in the region, besides allowing the formation of a secure VPN network through the IPSec protocol. efficiently the Internet Applications of Things (IoT), which can use IPSAT stations as hub points.

At IPSAT, Ka Band will provide connectivity to a hub of IoT devices for communication with the world.

For example, on a farm, we have a number of installed devices (such as tractors and other machines) that communicate over a land-based wireless network to a hub. This hub can be equipped with an IPSAT (Broadband Internet) that will take these signals to the point of interest.

We are making the use of broadband Internet via satellite more accessible to different types of enterprises. Available speeds are capable of serving a variety of business profiles, including those with the highest traffic demand.

The companies can contract the solution in Ku Band, for areas that are not covered by Ka Band. IPSAT can also be used to back up existing data connections, ensuring business availability and reliability. The company believes that there is a repressed demand that can be met with the solution, even in agribusiness regions, very representative for the Brazilian economy.

2) Infosat Prime in Ka Band: We have also recently launched the Infosat Prime Ka Band solution, a corporate data network offering. The offer is being made available on the Star One D1 satellite, the largest ever launched by the company. With the new modalities in Ka Band, companies installed in areas with little or no telecommunications infrastructure, such as gas station networks, commerce and hotels, can connect their central offices with satellite branches, transmitting information in real time. The Ka Band solution delivers speeds from 4 Mbps (download) with 1 Mbps (upload) or 8 Mbps (download) with 2 Mbps (upload), enabling high performance data network configurations.

**Telesat:** Satellite broadband requirements in Latin America are growing rapidly. To address this market, Telesat has seven (7) station-kept GEO satellites in operation that pro-

vide Latin American services:

Telstar 12 VANTAGE at 15° West, Telstar 14R/Estrela do Sul 2 at 63° West and Anik F1 at 118.7° West all have full South American coverage in Ku-band.

Anik G1 at 107.3° West has full South American coverage in both C-band and Ku-band.

Telstar 11N at 37.5° West has full Ku-band coverage of Central America and the Caribbean and Anik F3 at 118.7° West has full Caribbean coverage in both C-band and Ku-band.

Telstar 19 VANTAGE at 63° West is Telesat's newest satellite serving the region. It entered service about a year ago and operates from Telesat's prime orbital location of 63° West, the same as Telesat's highly utilized Telstar 14R/Estrela do Sul 2 satellite. Telstar 19 VANTAGE is a state-of-the-art spacecraft that has two high throughput satellite (HTS) payloads over Brazil, one in Ka-band and one in Ku-band. As previously announced, Telesat customer Hughes Network Systems LLC (Hughes) has signed a 15-year agreement for Telstar 19 VANTAGE Ka-band capacity which Hughes refers to as Hughes 63° West. Hughes is utilizing this capacity to expand its broadband satellite services for consumers and businesses in South America.

Telesat VANTAGE satellites represent a new generation of spacecraft optimized to serve the types of bandwidth intensive applications increasingly in demand across the satellite industry by combining broad regional beams and high throughput spot beams to maximize throughput and spectral efficiency. The Ku-band HTS payload on Telstar 19 VANTAGE is fully compatible with the large, installed base of VSATs across the region and provides a smooth, seamless transition to HTS capacity

for customers ready to benefit from the improved performance of the new Telstar 19 VANTAGE satellite.

The 63° West slot has become a preferred location among leading satellite service providers who rely on Telesat's Telstar 14R/Estrela do Sul 2 to support tens of thousands of sites across South America. By having both Telstar 19 VANTAGE and Telstar 14R/Estrela do Sul 2 at 63° West, Telesat customers have greater choice and capability to bring the very latest in broadband satellite networking to their end users.

**VIASAT:** Viasat has strong growth ambitions to bring satellite broadband to the Latin American region.

Today, the Company's ViaSat-2 satellite (total network capacity ~260 Mbps) delivers broadband services to some key areas within the Latin American region. The satellite currently services North America, Central America, the Caribbean, a portion of northern South America as well as the primary aeronautical and maritime routes across the Atlantic Ocean bridging North America and Europe.

Finally, Viasat is focused on expanding its satellite internet service into all of Latin America. The Company has announced its ViaSat-3 constellation, which consists of three ViaSat-3 class of Ka-band satellites for global coverage. The first satellite to launch in this constellation is aimed at providing broadband services to the Americas.

**SM:** What county or region in Latin America you expect more investment for the next five years considering potential long-term growth?

**ABS:** In Latin America, ABS consider Brazil as the highest potential for growth in the next few years.

**Hispar:** Mexico, Brazil, Colombia and Peru. And we always have the incognita of Argentina, because

of economic problems and not of demand.

**Hughes:** We continue to explore opportunities to extend connectivity throughout the region, directly and with our customers and partners. With the launch of JUPITER 3 (designated EchoStar XXIV), we will bring even more capacity across Latin America, enabling higher speeds to our subscribers.

**SES:** Considering the growth potential and the investments that SES has already made, we see that the priority markets are Brazil, Mexico, Colombia, Argentina and Ecuador. Case in point would be the announcements we have made recently: SES and INRED in Colombia announced the partnership to enable 1,000 free Wi-Fi access points in rural areas and throughout the country as part of the Sustainable Universal Access project. In Brazil, SES is also working alongside Briskcom to offer VNO services in the country as of last month and has launched a new Ku-band free-to-air satellite solution via SES-10. Last but not least, we announced in June the launch of a new video platform with SERSAT in Argentina, that will deliver content more easily across Latin America on SES-14.

SES continues to study the market and wider region seeking new opportunities to diversify our portfolio and offer services with added value to our customers and partners.

**VIASAT:** Viasat is focused on expanding its satellite internet service into all of Latin America. The Company has announced its ViaSat-3 constellation, which consists of three ViaSat-3 class of Ka-band satellites for global coverage. Specific to Latin America: the first ViaSat-3 class satellite is focused on the Americas, and is expected to launch in 2021. The constellation is expected to provide unprecedented capabilities in terms of service speed and flexibility for a satellite platform. The first satel-

lite will focus on the Americas; the second will focus on Europe, Middle East and Africa (EMEA), and a third satellite is scheduled for the Asia Pacific (APAC) region, completing Viasat's global service coverage. Each ViaSat-3 class satellite is expected to deliver more than 1-Terabit per second of network capacity, and will leverage high levels of flexibility to dynamically direct capacity to where customers are located.

**SM:** Any other solution or technology you are planning to implement in Latin America in regards of Broadband via Satellite (OTT, IoT, Internet direct to user or corporate via satellite, DTH, Backhaul and others)?

**ABS:** More than technology, ABS believes that flexibility and the capability of providing cost-effective solutions to address the market in partnership with our customers is going to be the key to growth in the next 5 years – helping our local partners in the development of flexible services by sharing part of the risks is going to be key in developing solid relationships and growing the market.

**Hispar:** Yes, in the video part we are in the finalization phase of a product that will be released soon, we cannot talk much yet.

In the data part, we perceive a growing demand for backhaul services but in a more participatory model, not only buying MHz but a more direct apprehension in the business of our client, the market is changing and we have to adapt with our products so we can offer something worth to our clients.

**Hughes:** HughesNet continues as the leading consumer satellite broadband solution with more than 1.3 million subscribers across the Americas including more than 150,000 in Latin America. The Hughes JUPITER System is in use to backhaul

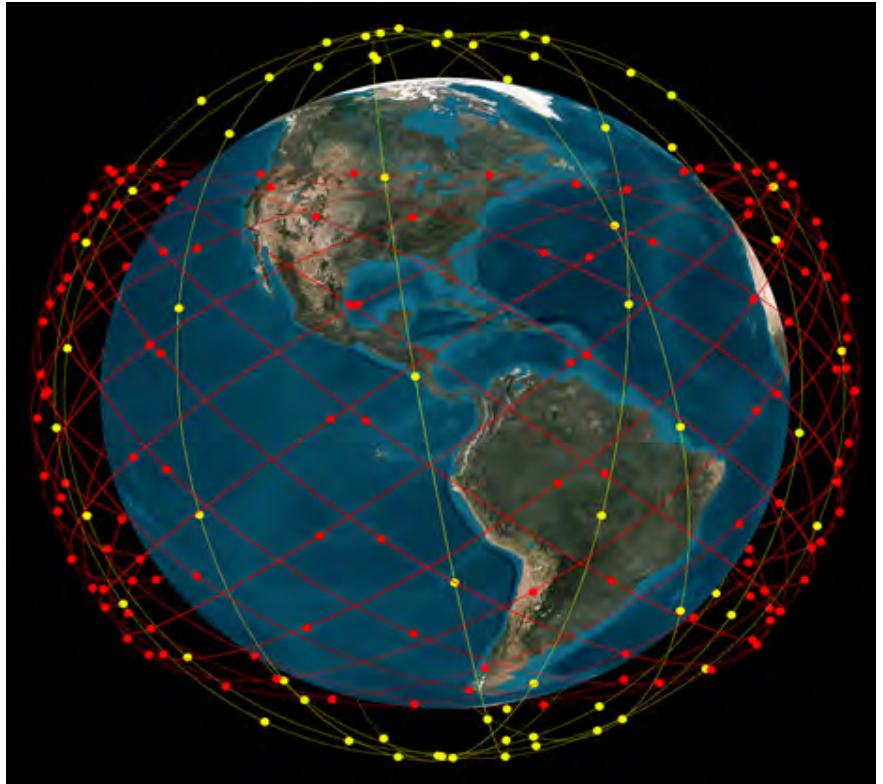


cellular sites across Africa, Asia and Latin America, including the project with Speedcast in Central America as well as important carrier class backhaul projects in Bolivia in Ku-band supporting more than 500 3G sites and in Peru in Ka-band capable of backhauling 2G, 3G, 4G/LTE – and 5G-ready. The JUPITER System offers a low-cost and effective means for connecting base stations everywhere in Latin America, regardless of distance, infrastructure or terrain.

Our satellite-enabled Community Wi-Fi hotspots are helping connect the unconnected – especially in remote and rural areas where options for connectivity are limited due to lack of terrestrial infrastructure. These hotspot solutions can be merchant-sponsored – as in the case of the Hughes Express Wi-Fi solution that uses the Facebook Express Wi-Fi platform – or government subsidized and offered to the public for free or a reduced cost – often in partnership with a telecom company to bridge the digital divide by delivering broadband Internet service at government-sponsored locations (e.g., schools, libraries, health centers, community centers). So far, Hughes-enabled Community Wi-Fi Hotspots extend connectivity to more than 25 million people around the world.

**SES:** SES is not only offering services but working on developing the ecosystem allowing for competitive prices, flexible solutions and added value to all our customers in the region. We want to provide managed services to them so that we can adequately solved of their business challenges and enabled them to be focusing on growing their reach and markets.

One good example is how we are investing in new video ecosystems. We have an impressive network of interconnected media centers located worldwide in Israel, Germany, London, US and Brazil, allowing us to



**Telesat's LEO constellation will provide high performing and affordable global broadband from LEO satellites operating in both polar and inclined orbits.**

be well-placed in the hybrid content delivery services and solutions space. Services that we deliver include content preparation, localization, streaming for both VoD and Linear OTT streaming.

We have recently launched OU Flex, an IP video platform for Occasional Use application, enabling customers to have access to broadband wi-fi at the premise of the event where they can complement the main video with a second screen and ingest directly in the social media sites, among other things.

We will be launching SES's next-generation MEO system O3b mPOWER in 2021, bringing high-performance connectivity to millions of people and places around the world. O3b mPOWER will be more than a satellite constellation - it will be an ecosystem of end-to-

end managed data services. The O3b mPOWER system will combine innovative technological advancements with a proven scale model to redefine network services around the world.

**Embratel Star One:** Embratel Star One has a complete roadmap under development for the next few years that will firm the company more and more as an integrator. On the satellites side, we intensified the use of satellite capacity of our fleet to meet Claro's cellular backhaul demands. We will continue to expand the service in Ku Band and also in Ka Band for cellular backhaul. Satellite backhaul is the best solution whenever there is a need for fast response and / or cost of extending the reach of the fiber network or radio until the site is considered elevated. With the use of the satellite it is possible to attend

any place in the national territory quickly, allowing users to enjoy the service, no matter where they are. The main virtue of this solution is therefore to contribute to a greater number of people having access to a cellular telephone service area. Without the satellite, they might be years without access.

Among the new features for 2020, we will launch Star One D2, the second satellite of the fourth-generation fleet, called the D family, the largest satellite ever made for our company. Occupying the orbital position of 70 ° W, where all the major TV stations are open, and more than 25 million satellite dishes (TVROs), the new satellite will be equipped with the Ka bands, to meet the demands of Broadband Internet, backhaul of cellular, C and Ku, complementing the offerings of capacity for data, video, Internet of corporate clients and cellular backhaul.

Star One D2 will also ensure the continuity of Star One C2's C-Band and Ku-band services. With the Ku Band, the satellite will provide data, video and Internet capacity to Government agencies and large companies from various sectors of South and Central America, including Mexico, as well as to enable the transmission of Pay-TV signals. Open TV signals will be guaranteed by Band C.

**Telesat:** Telesat is developing a revolutionary Low Earth Orbit (LEO) satellite constellation that will deliver an unmatched broadband experience – affordable, high throughput, ultra-low latency, resilient, secure and with ubiquitous coverage – and disrupt the performance and economics of Internet connectivity throughout Latin America and the rest of the world.

Telesat's LEO constellation will transform global communications by leveraging the company's priority

spectrum rights in Ka-band and patent-pending LEO architecture. Our LEO system will offer a combination of capacity, speed, security, resiliency and affordability with latency equal to, or better than, the most advanced terrestrial networks. Able to serve the entire globe, Telesat LEO will help satisfy many of the world's most challenging communications requirements. It will bridge the digital divide with fiber-like high speed services into rural and remote communities, accelerate 5G expansion and set new levels of performance for commercial and government broadband connectivity on land and in key maritime and aeronautical markets, which are among the fastest growing in today's satcom industry.

We are looking at a target service-start date for Telesat LEO service at the end of 2022 with an initial constellation of approximately 200 satellites in orbit.

**VIASAT:** Currently we are proud to offer Community Wi-Fi services in Mexico, Brazil with other markets in Latin America soon to launch.


Community Wi-Fi can help millions of people globally get connected—even those with little or no opportunity for quality internet access either because of the lack of terrestrial infrastructure or because the internet service offered in their communities is too expensive.

By launching Community Wi-Fi, Viasat can provide a way for people to connect to the internet at affordable prices. They can communicate with family and friends, access educational study materials, participate

in e-healthcare initiatives, enhance their career opportunities and even participate in e-commerce and online banking programs.

Viasat's Community Wi-Fi hotspot service is highly-scalable. It can be deployed with minimal local infrastructure investment, in order to quickly bring cost-effective internet service to locations where large gaps exist between demand, affordability and availability of internet services. Service can be installed in a few hours at strategic locations within a community. Typical installations are conducted in partnership with a centrally-located community business (e.g. general store), with internet services sold in either data or time-based packages, and availability of those services reaching deep into the community footprint.

Mexico was the first country to receive Viasat's Community Wi-Fi hotspot service, which was officially launched in 2018. Currently, more than 1.5 million Mexicans living in communities that previously had little or no internet connectivity, are now within walking distance to a Viasat Community Wi-Fi hotspot.

Brazil will be the second country to receive Viasat's Community Wi-Fi hotspot service. Beginning in July 2019, Viasat launched a trial program, deploying free Community Wi-Fi hotspots, with speeds up to 25 Mbps, in 20 unserved or underserved communities in the state of São Paulo. The Company intends to expand the service to Brazil's Northeast region later this year. 



**Bernardo Schneiderman** is the Principal of Telematics Business Consultants. He can be reached at: [info@tbc-telematics.com](mailto:info@tbc-telematics.com)



# Conversation with Fabien Jordan, Founder and CEO, Astrocast

by **Roxana Dunnette**

**A**strocast is a start up nanosatellite company based in Switzerland. Founded in 2014 by Fabien Jordan with the team that successfully developed and launched the SwissCube, a 1U research CubeSat which holds the record for being the longest continuously operating Cubesat ever launched. The company is targeting the the satellite Internet of Things (IoT) market which it projects will exceed 30 million devices by 2024. The company launched two test satellites making Astrocast the first company to prove they can launch, propel, accurately determine the position and communicate with their LEO nanosatellites in less than 2 hours after launch. Both satellites have completed a full system test and are functioning at full capacity. Satellite Executive Briefing's Geneva-based correspondent Roxana Dunnette visited Astrocast's facilities in the suburb of Laussane, Switzerland and spoke with its Founder and CEO, Fabien Jordan to get an update on their planned constellation.

**Roxana Dunnette (RD).** Give us a background on how your company started?

Fabien Jordan (FJ): It started at the Swiss Federal Institute of Technology (EPFL) in Lausanne. In 2009 we launched the first cubesatellite in LEO orbit. It was an educational project, consisting of a 10X 10X 10 cm, 800g picosatellite and it is still working today. The purpose was to demonstrate that we can design small reliable satellites with components off the shelf . I was a student at the time, then I became a system engineer and I went to work in the industry. In 2014 I founded Astrocast.



**Fabien Jordan showing one of the components of their cubesat.**

**RD: Are you ready to hit the potentially large IoT market?**

FJ : We realized that with nanosatellites the next big thing is IoT and we were the first. Now there are at least 50 projects but we are ahead of things. The key competitors are in the US but we disrupt them on IoT.

We put together a great team, expertise from IoT, satellite industry space, and we are ready to go for the big business we are leading the race in satellite IoT and we have solutions that are really disrupt-

ive. Next year we are going commercial, right now we are demonstrating the system to our customers.

**RD : Is your system secure?**

FJ : Security is very important to us. Many IoT providers terrestrial or satellite will struggle because of data security, the existing standards are not strong enough. We have a multilevel advance encryption and we are taking this very seriously.

**RD: I am a customer and I want to track my assets,**

### what can you provide me?

FJ: The chip or the module, the antenna which is small like a GPS and we do the rest.

### RD : What is the time line for full implementation- and how big is your constellation?

FJ: We only need 64 operational satellites to offer global low cost highly secure bidirectional communications.

We have two satellites in orbit launched from PSLV in India and we will have 20 more between end of 2019 and next year. The life time is 3 to 5 years, the technology is moving very fast so we need to replace them to keep the best performance.

When you put a new technology on board you open a new market and latency is a issue. There are applications that need one way communications others two ways so we update the terminal for security reasons . We can do remote updates for security to give the customer the possibility to send a secure message to his machines or assets.

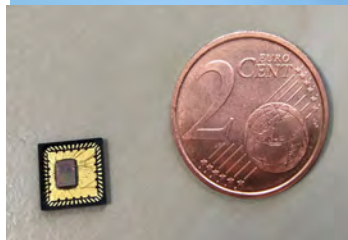
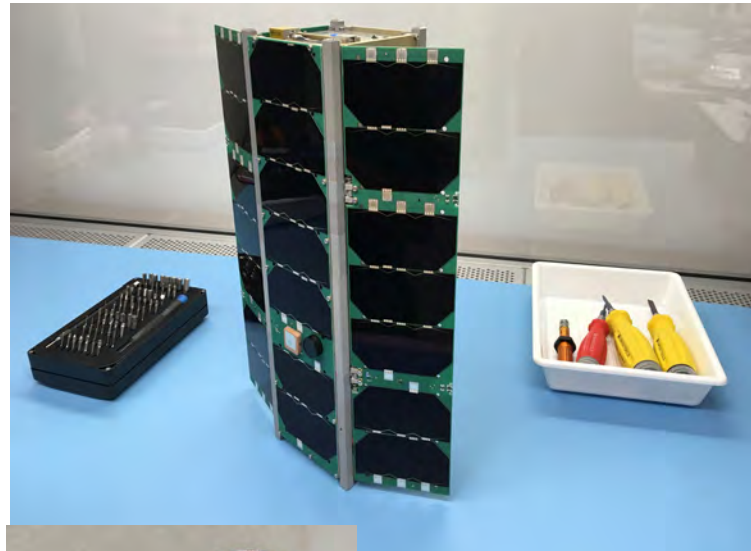
We have a customer who rents equipment in remote places and if his clients do not pay, he can send data to stop the machines.

We are the first satellite company that connect cows. In New Zealand the government is investing one billion dollars to connect every single cow and they contacted us.

The main segments we target are maritime, cattle, mining, oil and gas, environmental, fishing ,food delivery, tracking racing cars etc.

Human interaction is also very important like sending an emergency signal. Life jackets with a chip button can send the position and facilitate search and rescue operations even in the Alps. We have a long list of customers who show interest for 10 million devices including the Red Cross, Medicins sans Frontiers, NGOs , WFO (for food delivery), UN-HCR and other UN agencies.

### RD: What are your rates?



**On left is Astrocas't ASIC chip which connects with the cubesat pictured above.**

FJ : We are really low cost , we will charge for the chip ASIC (developed together with Airbus) US\$ 5 and we hope the price will go down next year or we can provide the complete module for US\$ 30-50.

We have a cloud secure portal with a standard interface, and a data plan. For low usage like a back-up system in smart cities the cost is few dollars a month.

Pricing can be very different from one segment to another , it is important for us to understand their needs to keep them happy.



**Roxana Dunnette** is a correspondent of Satellite Executive Briefing based in Geneva, Switzerland. She is Executive Director, R&D MEDIA, Switzerland. She has had an extensive career in Broadcasting and media including senior management positions at Worldspace, CBS and PBS in New York and international telecommunications

regulatory work at the UN in New York and ITU in Geneva as US government representative. She accomplished many development projects in Africa based on satellite technologies, broadcasting, Internet and accessibility. She can be reached at: [rdmedia@bluewin.ch](mailto:rdmedia@bluewin.ch)





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# Where Teleport Operators Pioneered Satellite Operators Follow

by Robert Bell

Long, long ago, when commercial teleport companies were a new thing, they had a terrific business model that offered access to the satellite network. They leased transponder capacity long-term, sliced and diced it up and served it out to customers – initially for broadcast TV and then for a gradually expanding set of applications from corporate data networks to the internet. Margins were good and the market was in growth mode.

Gradually, however, as the commercial teleport model spread, the margins available from uplinking and downlinking shrank. To compensate, operators began bundling higher value services into their offering: post-production and titling for video, network management and field service for data and voice. As the years rolled by, the list of value-added services grew and grew until teleports became data centers with dishes, providing sophisticated managed services to their customers.

## Let Me Speak to the Management

Where teleport operators pioneered, their satellite partners/vendors/competitors are now following. That's the conclusion of WTA's 2019 edition of Satellite Operator Benchmarks, the annual report that evaluates what teleport operators think of the commercial and operational performance of the companies they buy satellite capacity from.

The path that the major satellite operators are taking is precisely the same as their teleport customers walked in the past. Prices for transponder capacity are falling, driven by fast growth in supply and anticipation of much more to come. That's good news in many ways: a recent trade magazine article reported on the opportunities created by falling prices for the satellite industry to substantially boost its penetration of mobile cellular backhaul. It turns out that when transmission costs fall below



\$200 per MHz, it's cheaper to connect base stations by satellite, at least outside the urban core. With 2/3 of the world still not even on 4G, there's big potential there if the industry can seize it.

But falling prices have another effect: they are driving all of the top satellite operators to pursue managed services contracts that mix satellites, teleports, fiber, cloud and management services into a single bundle. The commercial logic is just as clear for them as it was for teleport operators long ago. It represents another big transition for the business model of teleport operators everywhere.

## Signs of the Times

The results of our annual survey make the trend clear. Five of nine satellite operators covered in the

report were cited for competing directly for managed services business significantly more often in 2019 than in 2015. Because that competition focused on managed services, teleport operators viewed it as increasingly unfair – the ratings in this area were the most negative in the nine years of the study.

Fairness, of course, is in the eye of the beholder. If a teleport operator competes against a satellite operator for every managed service contract, the outcome is easy to predict. Scratch one teleport operator, because the satellite operator controls the most expensive part of the circuit. That is a bad outcome not just for the teleport owner but for the satellite operator as well. The global teleport sector provides satellite operators with a massive ground network for which they do not pay either the capital or operating costs. That's an asset too precious to see it disappear.

In fact, that's not what will happen. What is already happening is evolution.

### Teleports of the Future

Teleports are increasingly becoming vital parts of networks much bigger than they manage themselves. They offer prime real estate (location, location, location) with high-quality and redundant transmission and processing infrastructure. Perhaps most important of all, they offer outsourced expertise in the challenging art of optimizing multiple forms of transmission and data technologies to meet customer needs. Their business is not running facilities or trading in capacity; it is in delivering complex, high-quality services that meet the specialized needs of market niches they thoroughly understand.

On top of that, they are resale channels for GEO, MEO and, soon enough, LEO capacity as well as terrestrial transport. New generations of satellites operating in high frequencies and with optical connections will turn to commercial teleports for service. So will earth observation, which needs to move terabytes of data to the ground and wants to have processing take place as close to the satellite as possible.

The teleport of the future will be different in many ways. More automated, more open to multiple networks, and more deeply partnered with

**“...Teleports are increasingly becoming vital parts of networks much bigger than they manage themselves...”**

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larger service providers, from satellite operators to telephone carriers and data service firms including cloud providers and content distribution networks. It will become increasingly unclear where their networks end and their customers' and partners' networks begin. But the growth potential will be large.

In a stroke of poetic justice, teleports will also buy less satellite capacity. Our 2019 Benchmarks study revealed that teleport operators are buying capacity in lower volumes for shorter durations, with the strongest growth in annual commitments of less than 100 MHz. As a result, the average price they are paying for that capacity rose 60% year over year. Not good news for them, but an appropriate response to a riskier market where customers have short time horizons and key vendors are powerful competitors as well.

**The Satellite Operator Benchmarks report is available for free to members and for sale to non-members at <https://www.worldteleport.org/store/ViewProduct.aspx?id=14481189>**



Robert Bell is Executive Director of the World Teleport Association, which represents the world's most innovative teleport operators, carriers and technology providers in 46 nations. He can be reached at:

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# GVF-C21 Launches Elevated Partnership Agenda & Dialog

**by Martin Jarrold**

**I**n early September this year GVF was delighted to enter into a renewed collaboration with the newly branded Century 21 Communications (C21), which has been in partnership with GVF – as Event Management Partners (EMP) – for the last 15 years.

The GVF-C21 Partnership will continue to organize roundtable-style conference programs aimed at stimulating frank and unharnessed exchanges of views whilst focusing on key developments and objectives as they affect the satellite industry, and related-technology industries, in a critical period of development.

A continuing Partnership commitment to the study of key growth areas – including, though not limited to, the full spectrum of mobility-centered opportunities which encompasses 5G emergence and evolution in IoT, as well as consumer broadband delivery via-satellite – is reflected in the announcement of a new addition to the Partnership’s portfolio, Satellite and the Cloud, which will be introduced in London in early February 2020.

The remainder of the 2019 Partnership year will feature the well-established portfolio themes of aero connectivity and high throughput satellites.

October 29th will see the return of AeroConnect – The Inflight Online Revolution at

35,000 feet. The London conference program will cover four principal topic threads: [1] In Orbit... Inflight... In the Cabin: The Technologies; [2] Airlines & Customers: Aeronautical Applications, Technology Platforms & Passenger Services; [3] User Expectations, Provider Capabilities: Business Models in the Cruise; and, [4] The Expectations & Capabilities Matrix.

Significant growth in aero connectivity is anticipated. According to Euroconsult, the number of connected aircraft in 2017 stood at just 4,772; a figure forecast to rise by 2027 to 27,919. Over this decade aero connectivity demand for bandwidth will increase 20-fold (from 9GHz to 181GHz) and provider revenues will increase 8-fold (from US\$317million to US\$2.5billion).

The technological focus of the conference dialogs will cover such themes as: Ku- & Ka- in the bandwidth mix; Hybrid approaches with GEO, MEO & LEO; Integration of space-based & ground-based networks; Inflight hardware – current & future market scaling; Solutions architecture, design & engineering strategies; Terminal designs & airframes; Terminal capabilities for passenger & carrier requirements; Terminal future proofing; and New players in the market dynamic.

An exploration of applications

will focus on: The Cloud & Big Data from gate-to-gate; The passenger online environment; The airline carrier operational data environment; Satellite operators’ IFC market servicing strategies; and, Aeronautical digitization & cyberspace: Aviation sector vulnerabilities.

The user focus-related afternoon sessions feature examination of “Expectations” – those of the airlines as the customers of solutions providers and, in turn, those of the airlines’ fare-paying passengers, as well, for example, those of aero engine manufacturers using connectivity solutions to monitor their equipment in-flight performance. This is a key element of attempting to forecast and evaluate the future of aero connectivity. Facets of discussion in these sessions include: The passenger, the airline & the connectivity solution provider; Deployment & installation planning; The aircraft manufacturer & the airline carrier; Broadband bandwidth: Reconciling supply & demand realities; Passenger choice drivers & carrier offerings; Future proofing: Connectivity, upgrades & speed; Multiple device connectivity; Low-cost carriers & IFC; IFC – Cost-center or revenue generator? Airlines, service providers, satellite operators – The market share; Drivers & inhibitors of market growth.

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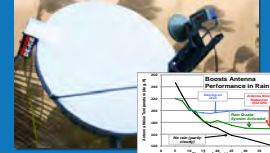
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Minimize Signal Loss due to Rain Fade. Reduce data loss — by 20X or more.



will also feature the GVF's Annual General Assembly and Board of Directors Election, as well as the SSPI annual Better Satellite World Awards dinner – will see the latest London gathering of the HTS Roundtable – GEOs. MEOs. LEOs. Enabling a Brave New World.

Four sessions will provide a detailed exploration of current key trends through: [1] The Operators Forum: GEOs, MEOs, LEOs; [2] The Providers & VARS Forum: New Paradigms for an HTS and Multi-Orbit Future; [3] The Ground Segment Forum: Network Architecture Innovations for a Brave New World; and, [4] Regional focus... Starship UK.

According to a Euroconsult analysis of how continued HTS evolution is re-shaping space segment costs, there is a clear pattern of significant decline in CAPEX per Gbps. Traditional GEO satellites, with a <3Gbps capacity, had a CAPEX per Gbps of greater than US\$60 million. With early HTS spacecraft (10-50 Gbps) the CAPEX per Gbps figure had dropped to just more than US\$7 million. The figure has continued to drop through successive generations of HTS, and post-2020, with VHTS capacities of 500 Gbps to 1 Tbps, the CAPEX per Gbps is forecast to reach almost as low as US\$0.7 million.

The Roundtable's operator emphasis will encompass analysis of operators/providers offering end-to-end service provision; the LEO competitive landscape in 2019; and pose the questions "Does every GEO provider need

a LEO or MEO play?" and "Will small GEO satellites change the operator's paradigm?" Also themed in this session dialog will be accelerated bandwidth pricing decline, and the question of this being an enabler of high-volume capacity demand to facilitate the unlocking of 'new' new verticals? Adjunct to this will be the issues of "Pricing sensitivity versus improved efficiency: how to find the right balance for which applications?" and "Highly specified service delivery: how can providers better tailor their solutions for individual end-user customer requirements?" Also addressed will be the question, "M2M / IoT: is it just about smallsats?"

The Providers & VARS Forum will address IoT, The Cloud, Apps, Mobility & Security from the point of view of service provision in an environment of ever-increasing complexity. Questions will be posed such as "When should VARs need to integrate LEO?"; and, "How will VARs compete with full-service satellite operators?" Additionally, the session will investigate the context of mobility, backhaul & the consumer, asking "What else is out there beyond the obvious key growth areas?" Discussion on "Evolving the 'New' New Verticals in IoT/M2M, Transportation, Construction, and Agriculture" will be complemented with reviewing the contribution of legacy verticals to future revenue

streams.

Discussion on the Ground Segment will examine the themes of new models for 5G integration; latest plays in bandwidth efficiencies and optimization to support the increasingly demanding requirements of new and legacy verticals; the ABC of flat panel antennas – the types, market fit, and market readiness. The session will also ask questions about the next generation of ground segment platforms to support escalating throughput and increasing terminal numbers in response to near-future diverse networks deployment, and associated encryption/security issues.

The final session of the day, 'Starship UK', is a new regional emphasis on leading emerging space sectors. The issues at hand for discussion will be "The Emergence of the UK as a SatComs Regional Power, can it really compete?" and "Who are the new companies in this space and why have they emerged?" The session dialog will examine the UK potential for "front-runner" status in the IoT smallsats environment and why doing business in the UK is important, asking "How does/can the government and UKSA help?" Finally, unresolved at the time of writing, there is the impact of the Brexit question on the emergence of UK space. Only time will tell. 



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

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# ST Engineering Completes Acquisition of Newtec

Singapore, October 1, 2019 – Singapore Technologies Engineering Ltd (ST Engineering) announced that further to its announcement made on 27 March 2019, its



## ST Engineering

subsidiary Singapore Technologies Engineering (Europe) Ltd has today completed the acquisition of a 100% ownership in Newtec Group NV (Newtec) following the fulfillment of completion conditions, including the receipt of applicable regulatory approvals.

The Newtec acquisition, together with the recent acquisition of Glowlink Communications Technology, Inc, which possesses advanced satellite communications anti-jamming technology, will enable ST Engineering to

harness their unique capabilities to create a highly differentiated global satcom business group. ST Engineering is now in a stronger position to lead in innovation and the transformation of the satcom industry to enable Smart Cities globally, according to a company statement.

To drive higher brand visi-

bility, Newtec will be re-named as ST Engineering iDirect (Europe) NV. The acquisition is not expected to have any material impact on the earnings per share of ST Engineering for the current financial year.



## ND Satcom Acquires TECNA Suarl

Dakar, Senegal, October 3, 2019 – ND SATCOM, the premier supplier of and integrator for innovative satellite communication systems and solutions, announced today the acquisition of TECNA located in Dakar, Senegal. This important strategic move will further enhance outreach and interaction between the company and its customers, partners and the leading communication companies in the West Africa region. TECNA Suarl has been renamed ND SatCom SENEGAL.

Charly Nakache, who brings a wealth of industry experience in satellite communications, has been appointed as general manager of ND SatCom SENEGAL and – together with his highly-motivated team of sales and technical professionals – will be responsible to manage the day to day business in the region and expand the reach of ND SatCom.

With new business growing for ND SATCOM in West Africa, the need to establish local presence became vital.

“We see very positive potential for our satellite communication solutions here,” said Alexander Mueller-Gastell, CEO of ND SATCOM.



“This decision to acquire TECNA underscores this potential and the opportunity to expand further afield. The office location is close to several of our existing customers and provides an excellent base where we can share our latest technology and insights. With our new Director Charly Nakache, our customers and partners in the region can expect excellent responsiveness, collaboration

and tailored solutions that meet their unique communications needs.”

With over three decades of experience, ND SATCOM is the premier supplier of and integrator for innovative satellite communication equipment systems and solutions to support customers with critical operations anywhere in the world. Customers in more than 130 countries have chosen ND SATCOM as a trusted and reliable source of high-quality and secure turnkey and custom system-engineered communication solutions. The company’s products and solutions are used in more than 200 transnational networks in government, military, telecom and broadcast environments.

ND SATCOM’s flagship product, the SKYWAN platform, enables international users to communicate securely, effectively and quickly over satellite. Visit [www.ndsatcom.com](http://www.ndsatcom.com) to learn more

## Rich Luhrs Promoted to President of Comtech Systems

Melville, NY, October 3, 2019--Comtech Telecommunications Corp. (NASDAQ: CMTL) announced today that Rich Luhrs has been promoted to President of its Orlando, Florida-based subsidiary, Comtech Systems, Inc. and that Dick Burt will be retiring after 40 years with the company. Comtech Systems provides high-performance transmission products including over-the-horizon microwave and troposcatter systems and is part of Comtech's Government Solutions segment.



**Rich Luhrs**

Luhrs has decades of technical management experience and a diverse background in providing secure wireless communications. Mr. Luhrs started his career in the U.S. Air Force, which he served in for 9 years. He began as a Nuclear Weapon Systems Specialist and completed his military service as a Space Systems Engineer. He joined Comtech Systems in 2004 and quickly demonstrated his leadership and management skills. Mr. Luhrs was named General Manager of Comtech Systems in 2017 in anticipation of Mr. Burt's retirement.

Burt has had a distinguished career at Comtech and first joined Comtech in 1979. Mr. Burt helped establish Comtech Systems in 1984, was named President of Comtech Systems in 1989 and was named Senior Vice President of Comtech in 1998. Mr. Burt will serve as a Senior Advisor to ensure a smooth transition.

## Changes in ILS Management

Krunichev Space Center, Russia, October 10, 2019-Khrunichev State Research and Production Space Center, the majority shareholder of ILS International Launch Services, (ILS) announced the departure of Kirk Pysher as ILS President. John Palme, ILS Chief Operations Officer, will serve as interim President until a successor is appointed.

Mr. Alexey Varochko, KhSC Director General, expressed his thanks to Mr. Pysher for his work on offering Proton M launch services on the global market.

"We appreciate Kirk's leadership over the past four years and his firm support of our quality initiatives. This quality focus has paid large dividends as Proton currently has 18 consecutive successful launches over the past three years. We wish Kirk all the best in his future endeavors," said Mr. Varochko.

In a separate action, the ILS Board of Directors announced that it has engaged outside counsel, Thomas P. Tshudy, former Senior Vice President and General Counsel for ILS, to serve as special counsel to advise the company on a variety of legal matters to assure legal and regulatory compliance as the company makes organizational changes and transitions to providing broadened customer offerings.

## OrbitsEdge Appoints Barbara D. Stinnett CEO

Titusville, Fla., October 1, 2019 - OrbitsEdge™ Inc. announced the appointment of Barbara Stinnett as chief executive officer. Stinnett brings 30 years of executive technology leadership and entrepreneurial experience to raise capital, establish partnerships, and provide leadership to all aspects of the company.

Stinnett brings over three decades of Silicon Valley applied technolo-

gies experience, at Fortune 25 firms, Hewlett Packard, Oracle, and Cisco, in which she drove growth and innovation. As a global leader, she

has experience in developing markets and their ecosystems, bringing creative solutions to each vertical



**Barbara D. Stinnett**

market across commercial and governmental entities. Her experience in mergers, acquisitions, and partnerships, led her to CEO and board of director positions for private equity and venture capital firm portfolios. Stinnett has extensive experience raising early-stage funds for technology firms.

OrbitsEdge designs cost-effective Low Earth Orbit (LEO) EDGE micro-data centers. ties," he added.

Stinnett is a member of numerous leadership organizations including Women in Aerospace (WIA). She speaks on a wide variety of topics including the application of sophisticated technologies, such as artificial intelligence and machine learning, and the emergence of developing industry solutions for high tech, global supply chain, manufacturing, life sciences, healthcare, and agriculture. She is a National Association of Corporate Directors certified fellow. Most recently named the chairman of SMILE Network, a non-profit which focuses on improving the lives of children suffering from cleft palate syndrome.

Stinnett holds degrees in computer science and international business from the University of Wisconsin.





# Global Pay TV Subscriptions Up, Revenues Down

Middlesex, UK, Sept. 19, 2019 — Digital TV Research said today its latest Pay TV report forecasts 60 million additional pay TV subscribers between 2018 and 2024 to take the global total to 1.08 billion.

China will provide 19 million additional subs and India 26 million. However, the US will lose 14.4 million pay TV subscribers between 2018 and 2024 – down by 16%.

Simon Murray, Principal Analyst at Digital TV Research, said: “We have updated our forecasts based on June 2019 reports. The US is the world’s worst performer — with no uplift expected over the next five years. Other countries will experience a slowdown – or even some small declines in subscriber numbers – but no other country will match the gloomy projections for the US.”

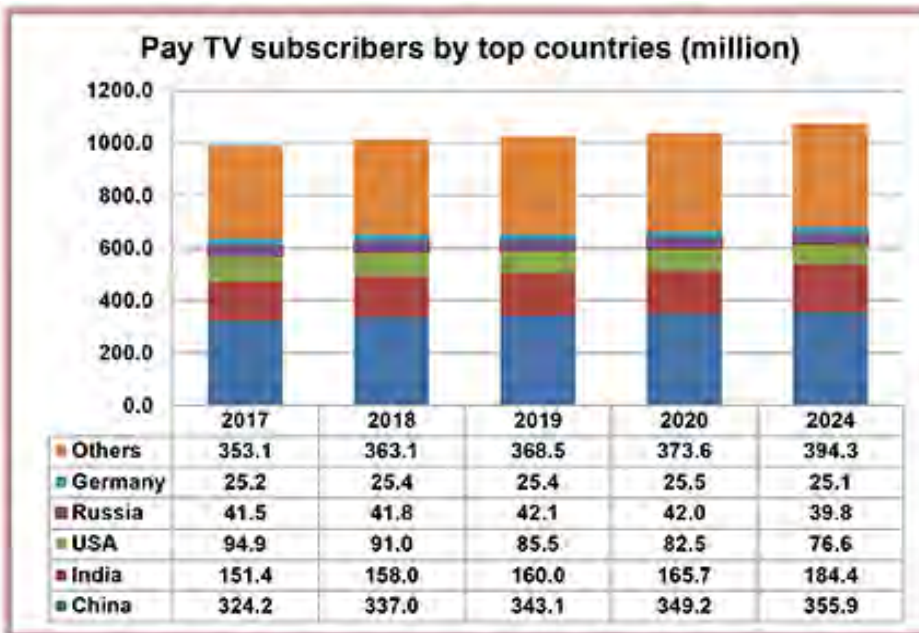
China will continue to supply a third of the world’s pay TV subscribers, with 356 million expected by end-2024. India will bring in another 17% of the total by 2024 — or 184 million. Therefore, China and India will together provide half the world’s

pay TV subscribers by 2024.

IPTV is the pay TV winner. IPTV will add 100 million subscribers between 2018 and 2024 to take its total to 357 million. Pay IPTV penetration will climb to a fifth of TV households by 2024, up from only 2.5% at end-2010 and 15.4% at end-2018.

Digital TV said global pay TV revenues [subscription fees and PPV movies and TV episodes] peaked in 2016 at \$205

billion. But it predicts that revenues will fall by 17% to \$171 billion in 2024. This is lower than 2010 - despite the number of pay TV subscribers rising by 359 million between 2010 and 2024. US pay TV revenues peaked in 2015, at \$106 billion, but the total will drop to \$70 billion in 2024.



Source: Digital TV Research Ltd

Read the latest news, analysis, market trends, executive moves and many more at

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



# Following the Signal

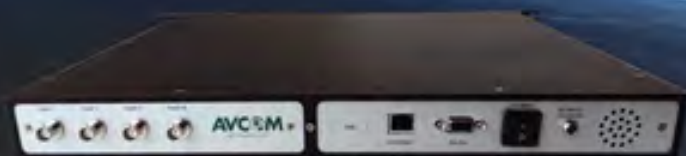
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We are proud to present the brand-new zoned exhibition area dedicated to enterprise digital transformation. Hear from organisations at the forefront of Africa's journey towards the Fourth Industrial Revolution on hot topics including AI, IoT, Blockchain, Fintech, Cloud, Security, and Data Centres.

### Future of Work Africa:

Find out how emerging technology is changing working environments and required skill sets and consider what actions need to be taken to boost IT skills.

### Women in Tech Africa:



Panels, presentations and discussions from tech superstars will look at issues of diversity, inclusivity, and the essential part women are playing in Africa's growth through technology. The future is female... the future is here, at AfricaCom!



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**A**fricaCom is the place to meet everybody who's anybody in African telecoms and technology; bringing together 15,000 attendees, 450 speakers and 500 exhibitors.

Whether your focus is connectivity infrastructure, disruptive technologies, digital services or ICT strategy, this is the place to network, learn and get deals done.

To be held from November 12-14, 2019 at the Cape Town International Convention Center (CTICC) in Cape Town, South Africa, AfricaCom is the place to be if you are looking into the African telecommunications market--one of the fastest growing markets in the world today. AfricaCom is the largest ICT exhibition on the continent, covering topics like 5G, wholesale telecoms and digital video distribution.

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The AfricaCom Headliners conference will return in 2019 and are once again completely free to attend. Speakers already confirmed include the Hon. Mohamed Rahman Swaray, the newly appointed Minister of Information and Communications for the Republic of Sierra Leone; Ahmad Ahmad, president at Confederation of African Football (CAF); Calvo Mawelo, CEO at MultiChoice Group and Isabel Dos Santos, chair at Unitel, among others.



This year's AfricaCom features Africatech for the first time. AfricaTech is the part of AfricaCom dedicated to IT and enterprise digital transformation. Designed to help attendees successfully navigate their digital transformation journeys, AfricaTech will take over the whole of CTICC 2 and include an exhibition area split into dedicated technology zones, as well as play host to tech-focused tracks and features including AI Africa, Fintech, IoT Africa and new for 2019, Data Centres Africa.

Other show features due to return are the AHUB, LeadersIn Africa Summit and the AfricaCom Awards, that recognise the sterling efforts and innovation organisations and individuals are doing to realise Africa's full digital potential.

For more information or to register for free, go to: [tmt.knect365.com/africacom](http://tmt.knect365.com/africacom)



## The Satellite Markets 20 Index™

| Company Name                                  | Symbol  | Price     |             |        |
|---|---------|-----------|-------------|--------|
|   |         | October 6 | 52-wk Range |        |
| <b>Satellite Operators</b>                    |         |           |             |        |
| Asia Satellite Telecommunications Holdings Li | 1135.HK | 10.34     | 5.00        | 10.36  |
| Eutelsat Communications S.A.                  | ETL.PA  | 17.46     | 14.80       | 23.11  |
| APT Satellite Holdings Limited                | 1045.HK | 3.80      | 2.47        | 3.80   |
| Inmarsat Plc                                  | ISAT.L  | 582.60    | 355.00      | 612.60 |
| SES S.A.                                      | SES.F   | 16.73     | 12.52       | 20.81  |
| <b>Satellite Manufacturers</b>                |         |           |             |        |
| The Boeing Company                            | BA      | 371       | 292.47      | 446.01 |
| Maxar Technologies                            | MAXR    | 6.86      | 3.83        | 37.71  |
| Lockheed Martin Corporation                   | LMT     | 386.88    | 241.18      | 386.93 |
| OHB SE  | OHB.DE  | 33.2      | 28.50       | 38.20  |
| Honeywell International Inc.                  | HON     | 160.97    | 123.48      | 178.47 |
| <b>Equipment Manufacturers</b>                |         |           |             |        |
| C-Com Satellite Systems Inc.                  | CMLV    | 1.89      | 0.99        | 1.96   |
| Comtech Telecommunications Corp.              | CMTL    | 30.75     | 20.95       | 36.94  |
| Cobham Plc                                    | CBHMY   | 3.98      | 2.31        | 4.52   |
| ViaSat Inc.                                   | VSAT    | 71.02     | 55.93       | 97.31  |
| Gilat Satellite Networks Ltd.                 | GILT    | 8.20      | 7.60        | 10.74  |
| <b>Service Providers</b>                      |         |           |             |        |
| DISH Network Corporation                      | DISH    | 33.15     | 23.22       | 44.66  |
| Globalstar Inc.                               | GSAT    | 0.35      | 0.29        | 0.73   |
| Orbcomm Inc.                                  | ORBC    | 4.34      | 4.42        | 11.25  |
| Sirius XM Holdings Inc.                       | SIRI    | 6.25      | 5.23        | 7.25   |
| Speedcast International                       | SDA.AX  | 1.02      | 0.68        | 4.97   |

The Satellite Markets 20 Index™ is a composite of 20 publicly-traded satellite companies worldwide with five companies representing each major market segment of the industry: satellite operators; satellite manufacturers; equipment manufacturers; and service providers. The base data for the Satellite Markets Index is January 2, 2008 - the first day of operation for Satellite Markets and Research. The Index equals 1,000. The Satellite Markets Index™ provides an investment benchmark to gauge the overall health of the satellite industry.

| INDEX                       | Index Value<br>Oct. 6, 2019 |
|-----------------------------|-----------------------------|
| Satellite Markets 20 Index™ | 2,745.83                    |
| S & P 500                   | 2,938.13                    |

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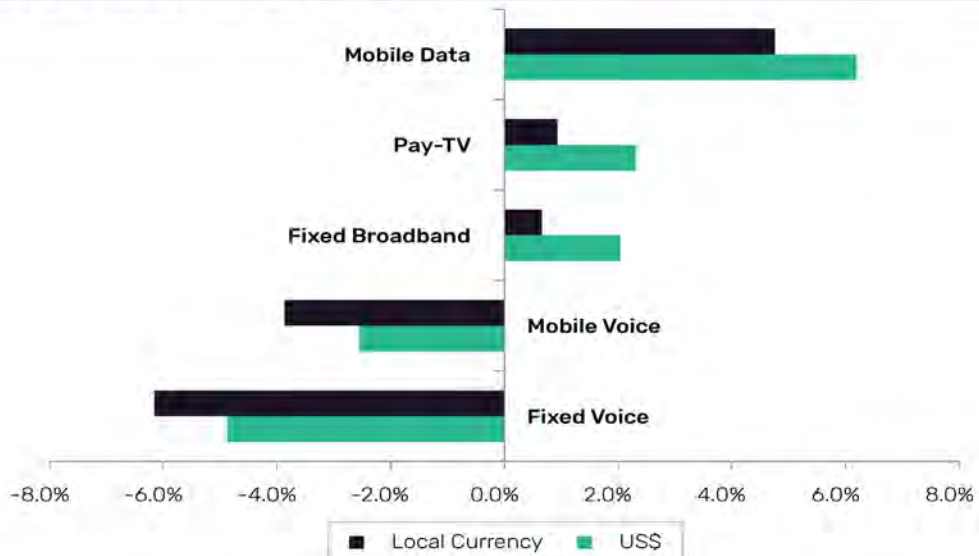
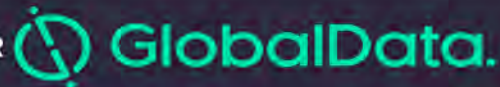


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## VITAL STATS

Japan Telecom and pay-TV Services Market Revenue CAGR by Service Type, 2018-2023



Source: GlobalData, Technology Intelligence Center

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