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SATELLITE PRO

TECHNOLOGY INTELLIGENCE FOR THE SATCOM MARKET

MIDDLE EAST

KEEPING THE WORLD CONNECTED

Meet the man behind the world's first space-based cellular broadband network, accessible through any smartphone

SATELLITEPRO MIDDLE EAST

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WELCOME

This is the Year of the 50th, as they call it to celebrate the UAE having completed half a century as a country. And there's so much reason for this young country to be proud. Just as we were getting ready to go to press, HE Hamad Obaid Al Mansoori, Chairman of the Mohammed bin Rashid Space Centre (MBRSC), tweeted: "We are proud of the announcement of the UAE's new space mission, which will make us the first Arab country and the fourth country in the world to send a space mission to Venus and an asteroid belt."

The UAE, especially Dubai, has been ramping up its space efforts just as quickly as the emirate has transformed things on the ground. When Sheikh Mohammed, the ruler of Dubai, was asked in a recent interview what the hurry was and why he urged speed in all matters, he asked: why not? He asked why he should not want his people to enjoy these things now, instead of waiting another 20 years.

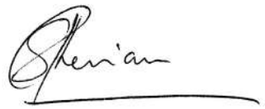
We have also learnt this month that Emirati astronauts Hazzaa AlMansoori and Sultan AlNeyadi have successfully completed their first year of training at NASA's Johnson Space Center.

In parallel, Abdallah AlHammadi and Saleh AlAmeri, the two Emirati Crew One astronauts, are training as part of the Emirates space simulation project within the Scientific International Research in Unique Terrestrial Station (SIRIUS) 21/21 mission. Slated to begin in November, it simulates life in space over eight months at the Ground Experimental Complex of the Russian Academy of Sciences' Institute of Biomedical Problems in Moscow.

At the same time, seven students have been selected to join the first Arab Space Pioneers Programme, the first intensive scientific training programme of its kind in the Arab world. And alongside all this, the UAE Space Agency is urging its Arab neighbours to cooperate on space, signing partnerships in Egypt, Morocco, Bahrain, Kuwait and the like over the last few months.

The UAE is determined to be on top of the space race and keen to take its nationals along on this journey, creating the right ecosystem to build a robust knowledge economy. As we get ready to celebrate the country's 50th anniversary in a month, we also look with pride at what this leadership has achieved because they have dared to dream big.

In the meantime, see you at



VIJAYA CHERIAN
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SatellitePro ME

CABSAT

UAESA announces Emirati interplanetary mission

SPACE

The UAE Space Agency has announced a new Emirati interplanetary mission, designed to further accelerate the young nation's space engineering, scientific research and exploration capabilities, and drive innovation in the country's private sector. The new mission will involve significant participation from Emirati private sector companies. It is scheduled for launch in 2028, with the primary goal of exploring the asteroid belt between Mars and Jupiter, the source of most meteorites that impact the Earth.

The spacecraft will undertake a 3.6bn-kilometre, five-year journey which will see it perform gravity assist manoeuvres by orbiting first Venus, then Earth in order to build the velocity required to reach the main asteroid belt beyond Mars. Through its journey, it will study seven main-belt asteroids.

It will be built using the substantial heritage and intellectual property (IP) acquired during the development of the Emirates Mars Mission and its Hope Probe. The mission is to be developed in partnership with the Laboratory for Atmospheric Science and Physics (LASP) at the University of Colorado, Boulder.

The mission will make its first close planetary approach orbiting Venus in mid-2028, followed by a close orbit of Earth in mid-2029. It will make its first fly-by of a main asteroid belt object in 2030. This will make the Emirates the fourth nation to land a spacecraft on an asteroid.

The UAE's leaders convene on the occasion of this milestone announcement.

Arabsat chooses AXESS to deliver C-band services on Arabsat 5A

SATELLITE

Arabsat has chosen AXESS Networks (AXESS) to provide connectivity and teleport services on the Appendix 30B C-band space segment on the Arabsat-5A satellite at an orbital location of 30.5°E, with coverage footprint across EMEA.

Together with Arabsat, AXESS will establish a state-of-the-art Appendix C-band network consisting of an antenna system equipped with the latest technology. The Arabsat-5A Earth station is directly connected to the teleport distribution matrix, allowing direct access to a broad range of technology platforms covering most common use case scenarios, ranging from dedicated broadband SCPC solutions up to complex MF-TDMA and Mx-DMA HUB based network platforms. This multifaceted configuration is ideally suited for large trunk links of MNOs (mobile network operators) and ISPs (internet service providers).

The new service will provide the solution for multi-site networks with significant connectivity and data requirements. With its technical and commercial economic feasibility, it competes against terrestrial fibre connectivity by meeting the highest SLA requirements.

Eutelsat and Globacom bring satellite broadband to Nigeria

BROADBAND

Eutelsat Communications has signed a multi-year, multi-Gbps wholesale capacity contract with multinational telecommunications company Globacom, Nigeria's second largest operator. The contract enables Globacom to extend its coverage beyond the reach of its terrestrial infrastructure, leveraging the Eutelsat Konnect satellite.
The service will be used to deliver high-speed broadband via satellite to businesses in unconnected areas throughout Nigeria.

Dr Mike Adenuga Jr, Chairman of Globacom Limited, said: "We are delighted to add satellite services to our portfolio, leveraging the Eutelsat Konnect satellite to extend connectivity to even far-flung areas in Nigeria, in line with our mission to build Africa's biggest and best telecoms network. The infrastructure will complement our Glo 1 submarine cable and extensive fibre optic layout across the country."

UAE government appoints Yahsat to assess the addition of two new satellites

SATELLITE

The UAE government has appointed Yahsat to undertake a detailed analysis, assessment and recommendation for two new satellites, Al Yah 4 and Al Yah 5, which are planned for a 2026 launch.

The new anticipated capacity will augment the secure HTS capacity currently contracted on Al Yah 1 and Al Yah 2 with new coverage, capabilities and capacity to meet the next-generation demands of this customer. The combined use of all four satellites in parallel for several years is expected to have a positive impact on Yahsat's future growth and secure the longer-term financial outlook.

Yahsat will pursue an RFP process to identify satellite vendors that offer the best technical and commercial solution to manufacture two geostationary satellites for a prospective launch by 2026 and make a recommendation to the UAE government. Any such agreement would further add to the group's already significant contracted backlog, which stands out significantly from its industry peers at over five times current annual revenues and underpins Yahsat's strong balance sheet, cash flow and low leverage position. These factors together form the right financial conditions to pursue such programmes to create long-term shareholder value in parallel to delivering dividends.

Ali Al Hashemi, Yahsat's Group CEO (l) and right, Al Yah 1 satellite.

Ali Al Hashemi, Yahsat's Group CEO, said: "Yahsat has long been recognised as a strong national champion, a global ICT leader and an enabler of critical communications infrastructure. This potential expansion of our fleet for the UAE government would further underpin our long-term contracted backlog and reinforces our position as the UAE's primary supplier and preferred partner to the UAE government for advanced satellite communications and critical satellite connectivity needs."

NCTS selects Hughes to deliver satellite broadband in Egypt

BROADBAND

Egypt's National Company for Telecommunications Services (NCTS) has selected the Hughes Jupiter System Series 3 to meet the ground segment requirements for the operation of the Ka-band TIBA-1 satellite. Its deployment is a significant milestone in the country's mission to connect the unconnected; the Hughes Jupiter System will allow access to internet and telecom services to millions of people in remote and rural areas of Egypt.

NCTS will initially use two Jupiter System gateways, a network management system, an initial delivery of remote terminals and an OSS/BSS solution, all scheduled for installation next year. As public adoption of broadband services expands, NCTS may order additional end-user terminals. The financial details of the contract were not disclosed. Arianespace launched TIBA-1 to its geostationary orbit located at 35.5 East in 2019.

Dr Abdelhamid Mostafa, Chairman of the Board of Directors of NCTS, said: "Our mission is to provide reliable, affordable broadband connectivity for the whole of Egypt, including remote and rural areas – the satellite is essential to achieve our goal. We will optimise the performance of our TIBA-1 satellite with the superior ground system, both technically and commercially, for the job."

NIGCOMSAT to acquire two new communications satellites by 2025

SATELLITE

Abimbola Alale, MD, Nigerian Communications Satellite Limited (NIGCOMSAT), has announced that the company will acquire more satellites between now and 2025, with NigComSat-2 slated for launch in 2023 and NigComSat-3 in 2025. NIGCOMSAT obtained approval in early 2020 to form two subsidiary companies (SUBCOs) – the Satellite Infrastructure Company SIC, to provide satellite upstream services such as transponder leasing, in-orbit (IOT) services and carrier spectrum management (CSM); and the Satellite Broadcasting and Broadband Company (SBBC), which will provide satellite downstream services such as broadband internet services and direct-to-home broadcasting services.

"The SUBCOs were formed to carry out commercial businesses on behalf of NIGCOMSAT with strategic partners and expand its business operations in the information and communications technology space. NIGCOMSAT realises the need to strategically position its subsidiaries for potential opportunities and risks, and put in place operational structures to facilitate its business aspirations. As part of the VSAT/TVRO capacity development programme, NIGCOMSAT has trained 600 youths across the six geo-political zones in the country," commented Alale.

Abimbola Alale, MD, NIGCOMSAT.

YahClick and Universal Satcom Group collaborate to provide broadband services in MEA market

BROADBAND

YahClick, Yahsat's satellite broadband service, and its partner Hughes Network Systems have collaborated with Universal Satcom Group to provide high-speed broadband services through Al Yah 2 satellite coverage. The partnership will provide cost-effective and secure satellite broadband services to assist new enterprises.

YahClick will provide satellite broadband services to support Universal as an established provider in the market. This will help support enterprises within the Middle East and African markets to grow and improve their business operations to become more efficient.

Farhad Khan, CEO of YahClick, said: "YahClick is delighted to partner with Universal Satcom Group to provide secure, reliable and high-speed broadband that can support the growth of enterprises through Al Yah 2 satellite coverage. We understand the challenges faced with limited satellite connectivity and believe that this partnership with an established and leading operator in the market will allow YahClick to truly support the underserved communities across the Middle East and Africa. With our latest principle of Coopetition, we are keen to build on this new relationship with Universal Satcom Group and bring a truly ubiquitous service that will help accelerate the growth of various enterprises."

Reema Omari, CEO, Universal Satcom Group.

In this partnership, Universal will address the unserved territories through differentiated solutions for satellite coverage and delivery platforms, with YahClick playing a key role in providing innovative solutions to aid this objective.

Reema Omari, CEO of Universal Satcom Group, added: "We are delighted to join expertise with YahClick as we expand our Universal Satnet Broadband Internet services in the Middle East and Africa. This partnership will ensure that SMEs across the regions can continue to operate in-market and overcome daily challenges as they are able to access reliable connectivity and benefit from the high-quality infrastructure provided by us. We are confident that YahClick and Universal Satcom Group will collectively grow in the joint Universal Satnet Broadband Internet service offerings across the regional markets."

Yahsat partners with Cobham SATCOM to deliver mobile broadband system

MOBILE BROADBAND

Yahsat has selected Cobham SATCOM to deliver a comprehensive mobile broadband system, including ground infrastructure and products, to operate as part of its next-generation Thuraya 4-NGS system.

Cobham SATCOM's expertise and capabilities will further enhance Yahsat's Mobile Satellite Services (MSS) advanced broadband data services, enabling the Thuraya 4-NGS ground network with 4G and 5G capabilities and features. Yahsat seeks to increase its share in the global satellite data services market, which is currently valued at more than $5bn and is projected to reach more than $19bn by 2027.

Leif Ottosson (l) , CEO of Cobham SATCOM, and Ali Al Hashemi (r), Group Chief Executive Officer of Yahsat, seal the deal.

Cobham SATCOM's solutions will also increase connection speeds, enabling integrated end-to-end customer solutions, and expand Thuraya's ecosystem to provide superior and pioneering features in the mobile satellite communications sector. The partnership will enhance Yahsat's services to several key customer segments in land, maritime and aeronautical, including military, government and enterprise.

This deal will enable the provision of the delivery of mobile satellite connectivity at the highest speeds in the market and broaden Yahsat and Thuraya's product and service offering.

The contract with Cobham SATCOM will specifically drive a range of commercial and government-focused terminals for land, maritime and aeronautical applications.

ABS launches managed data services with iSAT Africa

DATA SERVICES

Satellite operator ABS and services provider iSAT Africa have launched managed data services on the ABS-3A satellite. The satellite will operate on the ST Engineering iDirect Newtec Dialog platform for the Europe, Middle East and Africa (EMEA) region.

Deployment of the platform is expected to deliver cost-effective, robust and high-speed broadband services for oil & gas firms, companies in general and NGOs. The services are suitable for remote sites in Africa, the Middle East and Europe not connected via terrestrial networks, as well as for locations that require diversification of network infrastructures and back-up services for fibre links.

The satellite links are operated through a dedicated antenna on ABS-3A at the ABS teleport in Lario, northern Italy, which offers high reliability, redundancy and interconnectivity to all the main data centres across Europe.

Rakesh Kukreja, MD of iSAT Africa, said: "At iSAT Africa, we aim to bridge the digital gap in rural and remote African communities by using IP-centric 2G/3G/4G technologies. This requires a backhaul that is cost-effective coupled with high performance and availability. ABS-3A provides excellent coverage of Africa and Europe. At the same time, the Dialog platform offers us a single management platform for all markets, starting from a smaller site within a rural community to full macro sites for thousands of subscribers for voice and data.

The most important part of this partnership is making services economically viable for rural communities."

Pieter Paul Mooijman, Regional Vice President for Africa at ST Engineering iDirect, added: "ISAT is a long-standing and valued customer. With the first deployment of a Dialog hub, it is expanding its portfolio with ST Engineering iDirect. Combined with ABS' reach across the region, this is a winning solution for providing connectivity to remote areas of Africa and EMEA."

Yahsat selects SpaceX and GMV for new Thuraya 4-NGS


Left: SpaceX VP of Commercial Sales Tom Ochinero with Yahsat CEO and, above, Adnan Al Muhairi, CTO at Yahsat,

PARTNERSHIPS

Yahsat has selected SpaceX's Falcon 9 to launch Thuraya 4-NGS, the group's advanced satellite which employs the latest satellite communications technologies, to expand Thuraya's coverage across Europe, the Middle East, Central Asia and Africa. Yahsat plans to launch Thuraya 4-NGS in H2 2023, with operations scheduled to commence in 2024. The UAE satellite operator has also selected Spanish satellite control systems supplier GMV to provide spacecraft control and flight dynamics systems for its Thuraya 4-NGS L-band mobile communications satellite system, scheduled to begin operations in 2024.

SpaceX's Falcon 9 was selected primarily due to its high reliability and advanced capabilities, underscoring Yahsat's continued commitment to maximising quality and performance across its businesses.

Tom Ochinero, SpaceX Vice President of Commercial, added: "For launch of its advanced technology, Yahsat sought a reliable and high-performance ride to orbit. We're proud it has selected Falcon 9, one of the world's most frequently flown launch vehicles, and we look forward to a successful mission."

The second announcement will see GMV's solutions provide Yahsat's Thuraya 4-NGS with an advanced, multi-mission, multi-satellite spacecraft control system (Hifly) and flight dynamics system (FocusSuite) for greater functionality, reliability and flexibility. GMV will also be responsible for the deployment and integration of the control centre, as well as system maintenance and operator training.

"Thuraya 4-NGS will accelerate Yahsat's growth across many existing and new product lines. The new system ensures that we continue to provide best-in-class connectivity, using the latest technologies, to our commercial and government customers in the UAE and internationally," commented Adnan Al Muhairi, CTO, Yahsat.

The spacecraft control system will enable secure and reliable control of the satellite throughout its operational lifecycle, via easy-to-use tools provided by the system. The flight dynamics system will help Yahsat to improve performance and ultimately maximise the lifetime of Thuraya 4-NGS, directly improving the longer-term Capex efficiency for the company.

SpaceX to launch Türksat 6A

SATELLITE LAUNCH

SpaceX will launch Turkey's first domestically produced communications satellite, Türksat 6A. The Ministry of Transport and Infrastructure said it has awarded SpaceX a contract for its launch, scheduled for Q1 2023.

In a statement, Minister of Transport and Infrastructure Adil Karaismailoglu said the government considered "many launcher companies" before selecting SpaceX, "which offers the best solution in terms of technical, administrative and financial aspects". The project will make Turkey one of the 10 countries that can produce its own communications satellite, he underlined.

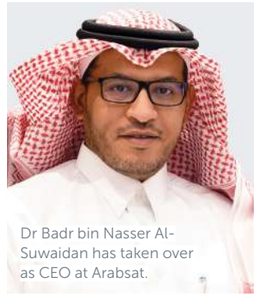
Türksat 6A will be the country's first communications satellite built domestically by the TÜB|TAK Space Technologies Research Institute. The spacecraft will operate from 42 degrees east with a payload of Ku- and X-band transponders. Assembly is scheduled to be completed before 2021 end, with the satellite finishing environmental testing by the end of 2022.

Arabsat announces new CEO as part of management shake-up

NEW APPOINTMENT

Eng Khalid bin Ahmed Balkheyour, who had worked at Arabsat since 2003, has stepped down from his role as CEO as part of a major reorganisation within the company.

HE Eng Haitham Al-Ohali, Vice Minister at the Ministry of Communications and Information Technology, is the new Chairman on Arabsat's Board of Directors, and Dr Badr bin Nasser Al-Suwaidan, Chief Technical Officer, will head the organisation.


Dr Badr bin Nasser Al-Suwaidan has taken over as CEO at Arabsat.

Before joining Arabsat, Dr Badr Al-Suwaidan served as a Director of the Institute of Research and Space at King Abdulaziz City for Science and Technology in the Kingdom of Saudi Arabia. He has participated in several programmes and space missions, including working on the first Saudi Geostationary satellite SGS-1 in cooperation with Arabsat, and Saudi-Sat4 in cooperation with NASA.

DSOA, MBRSC and Orbital Space launch new Earth station in Dubai

TRAINING INITIATIVE

Dubai Silicon Oasis Authority (DSOA), the regulatory body for Dubai Silicon Oasis (DSO); Mohammed bin Rashid Space Centre (MBRSC); and Orbital Space have inaugurated an Earth station – Code in Space Satellite Ground Station for educational satellites.

Wholly owned by DSOA and located on the Dubai Technology Entrepreneur Campus (Dtec), the station will support Orbital Space's Code in Space programme, which offers students and technology enthusiasts an opportunity to develop and test software code on a live satellite's onboard computer.

The station will enable students to interact with satellites orbiting Earth and learn the basics of managing these satellites and its technology. It will also spark ideas and innovations that contribute to launching new services and products related to satellites and space technology applications.


Members from DSOA, MBRSC and Orbital Space pose for a photo.

Dr Juma Al Matrooshi, Deputy CEO of DSOA, said: "For the first time in the Arab world, students, entrepreneurs and enthusiasts will be able to learn coding for space in practice – to develop and test software and algorithms on satellites in orbit around Earth. "

Dr Bassam Alfeeli, CEO of Orbital Space, added: "The Code in Space programme is one of our flagship projects, aimed at making space accessible to all. This collaboration with MBRSC and DSOA represented a unique opportunity for us to work towards achieving common goals."

Sheikh Mohammed appoints MBRSC and MBRCH Boards

NEW APPOINTMENTS

Sheikh Mohammed bin Rashid Al Maktoum, Ruler of Dubai and Vice President and Prime Minister of the UAE, has appointed new members to the Board of Directors of the Mohammed Bin Rashid Space Centre (MBRSC) and the Board of Trustees of the Mohammed Bin Rashid Al Maktoum Humanitarian and Charity Establishment.

Hamad Obaid Al Mansoori will chair the Board of Directors of MBRSC, and Yousuf Al Shaibani will serve as Vice Chairman.

HiSky expands IoT service over MEA and UK with Avanti


Equipment installation in Africa.

IOT SERVICE

HiSky Ltd has partnered with Avanti Communications to expand its IoT service over Africa, the Middle East and into the UK. Its Smartellite IoT network comprises satellite terminals, hub base stations and a cloud base network management system (NMS) that can be deployed as a 'network within a network' in any existing Ka- or Ku- GEO satellite ecosystem.

By deploying Avanti's HYLAS HTS Ka-band beams over the UK, both companies will provide IoT satellite services for partners and prospects in fleet management, fisheries, asset management, agritech and more, as a seamless service for cellular coverage.

Nitzan Raz, CBO of hiSky, said: "Collaborating with Avanti has allowed hiSky to push into new regions and markets within the UK. From day one, our system has been designed according to the IoT market requirements, and therefore enables us to offer our customers the most affordable monthly bundles in the satellite market. We look forward to working with our local partners in the region and are already seeing opportunities in areas that were unavailable at the service level and price point that we can provide."

Libby Barr, COO at Avanti, added: "This partnership with hiSky will bring endless opportunities to businesses operating in remote areas to achieve their goals. Together, we will provide the best quality service when and where businesses across the UK need it most and empower them to match the evolving technological landscape."

Saudi company inks deal with KACST

SATELLITE

Saudi Arabia's Red Sea Development Company (TRSDC) has signed a contract with King Abdulaziz City for Science and Technology (KACST) to provide high-resolution data for key locations at the company's headquarters. The data is collected using satellites to monitor the progress of the Red Sea project, which covers an area of 28,000 sq km, and to track developments in real estate assets more effectively.

KACST will use the National Centre of Remote Technology (NCRST) to capture high-resolution data of the Red Sea Project's development sites every month. The imagery will be colour-balanced, geo-referenced and orthorectified, with NCRST using satellites GeoEye-1, Worldview and Pleiades to capture images. The data will then be integrated into TRSDC's geographic information systems (GIS) and building information models (BIM) to provide seamless access to the imagery for TRSDC's planning, engineering and environmental departments.

Specifically, TRSDC's GIS department will overlay the latest masterplans and detailed designs onto the satellite data to monitor progress and detect clashes. The data will also be used to identify optimal routes/sites for construction activities, in addition to becoming an invaluable addition to monthly progress reports.

Egyptian satellite MisrSat-2 to launch in December 2022

SATELLITE LAUNCH

Egypt's new satellite, MisrSat-2, is scheduled to launch in December 2022, just three months behind schedule despite the Covid-19 pandemic. Mohammed El-Quosy, CEO of the Egyptian Space Agency (EgSA), said the "first phase of the initial designs" had been completed and the "engineering model" was currently being manufactured "with Chinese support". The satellite was initially set to launch in September, but the timeline has been slightly altered because of the Covid-19 pandemic, he explained.

El-Quosy also revealed that the satellite assembly centre in Egyptian Space City, near the New Administrative Capital, is close to completion. Egyptian Space City is due to open in March or April, and once it does, the assembly of MisrSat-2 will begin almost immediately.

KEEPING THE WORLD CONNECTED

Texas-headquartered AST SpaceMobile, the company building the first and only space-based cellular broadband network accessible directly through standard mobile phones, is turning its attention to the GCC and MENA region. In an exclusive interview with **SatellitePro Middle East**, Chairman and CEO Abel Avellan tells us why AST SpaceMobile's proposition is unique

Abel Avellan officially launched AST SpaceMobile in May 2017 with the intention of providing cost-effective, high-speed mobile services with global coverage to all end users, regardless of where they live or work, and without the need to purchase special equipment. The company's mission is to eliminate the connectivity gaps faced by today's 5bn mobile subscribers moving in and out of coverage zones, and bring cellular broadband to the approximately half of the world's population that remains unconnected.

You say you will be the first to deploy a space-based cellular broadband network globally, but isn't that what all LEO players are hoping to do?

SpaceMobile is different from other LEO players as it will be the first global space-based cellular broadband network using low-Earth orbit satellites to provide connectivity to any standard, unmodified, off-the-shelf mobile phone or 2G/3G/4G LTE/5G and IoT-enabled device.

Some companies are using LEO to deliver broadband internet to rural homes and businesses. It's a great mission – equivalent to providing WiFi to these locations – but it requires special equipment to talk to the satellites. SpaceMobile, on the other hand, plans to provide broadband internet directly to smartphones without any modifications, software or additional equipment.

We believe AST's satellite designs and components will reduce the communication delay effects experienced with existing geostationary satellite systems. SpaceMobile is intended to provide global, direct-to-device space-based cellular broadband coverage for users living in and travelling in and out of areas without terrestrial mobile services on land, at sea or in flight.

Partners in this effort are leading global wireless infrastructure companies including Rakuten, Vodafone and American Tower. As of today, AST SpaceMobile has entered into agreements and understandings with mobile network operators which collectively cover about 1.5bn mobile subscribers.

What are your commercial objectives?

Our technology is designed to be very flexible, and we anticipate many potential markets and use cases. We are currently focused on helping mobile network operators offer their subscribers connectivity in areas where their phone would otherwise lose service. This offering is designed to eliminate the network gaps experienced by mobile phone users across the globe. While our service will have a different go-to-market strategy with each country we operate in, we expect our service will be valuable to most wireless subscribers, not just the unserved or underserved.

The use case for the unserved and underserved is obvious and compelling, both in developing markets and rural areas. We anticipate that our network will be capable of offering an affordable add-

AST SpaceMobile's headquarters in Midland, Texas.

on service to users. We also believe that the well-served mobile wireless user who like many of us experiences dropped calls daily, whether on the drive to work from the suburbs or because they happen to live in a neighbourhood just a little too far from the nearest cell tower, will also value this service. And for the subscribers who want to eliminate all gaps in connectivity, SpaceMobile is expected to provide access while travelling by air, land and sea.

What will it entail in terms of technology – spacecraft, constellation, ground infrastructure – to achieve those goals?

SpaceMobile's satellites will orbit in LEO more than 50 times as close as a GEO satellite. This allows high-speed, near-real-time communication. The signals from LEO arrive stronger and take a fraction of the time to make the trip.

SpaceMobile is designed to mimic terrestrial cellular network hardware, and each BlueBird production satellite will have a thin, low profile. We plan to stow these spacecraft in a compact configuration and then deploy the array once in orbit.

The size of the BlueBird spacecraft, their configuration and their relatively close distance to Earth are designed to allow the SpaceMobile network to communicate directly with smartphones on the ground. Additionally, our approach means SpaceMobile won't need thousands of satellites to close cellular coverage gaps that affect billions of people.

Phased-array antenna panel lining each BlueBird's arrays will work together to deliver thousands of communications beams from the satellites to the ground. These beams are designed to connect directly with the phone in your pocket today, with no modifications to the phone. Our satellites will then provide backhaul traffic to ground infrastructure that connects with the mobile network operator that we partner with.

You will soon launch your second spacecraft prototype. How does it improve on the first?

On April 1, 2019, we launched our first test satellite, called BlueWalker 1, which validated our satellite-to-cellular architecture. The spacecraft successfully managed communications delays from LEO orbit and the effects of doppler in a satellite-to-ground cellular environment using the 4G-LTE protocol.

Our next prototype, BlueWalker 3, is expected to launch aboard a SpaceX mission from Cape Canaveral, Florida, during a launch window beginning in March 2022. The spacecraft has an aperture of 64sqm and is designed to communicate directly with cell phones on the ground via 3GPP standard frequencies.

> "As of today, AST SpaceMobile has entered into agreements and understandings with mobile network operators which collectively cover about 1.5bn mobile subscribers"
>
> **Abel Avellan, CEO, AST SpaceMobile**

How much funding have you raised so far?

AST SpaceMobile received $462m in gross proceeds in going public on April 6, 2021, and listing on the Nasdaq stock exchange under the ticker ASTS. These proceeds consisted of approximately $232m cash in trust from New Providence Acquisition Corp and approximately $230m from a PIPE investment, including investments from Rakuten, Vodafone, American Tower and UBS O'Connor.

How many people work at AST SpaceMobile, and what do you mainly focus on?

We have a team of 454 people – 261 full-time employees, 49 full-time contractors and 144 employees of third-party engineering service providers – working on the AST SpaceMobile mission as of August 16, 2021.

You seem to have a lot of patents.

We have more than 1,200 patent and patent-pending claims. These describe technologies designed to deliver broadband from space to unmodified mobile devices.

As a young company disrupting the world of mobile connectivity, can you shed light on some of the trends in the market in terms of connectivity and your vision for this space?

More than 5bn mobile devices are in use today, but connectivity is imperfect and people move in and out of cellular broadband coverage as they live, work and travel. What's more, about half of humanity lacks cellular broadband service, either because people fall into a coverage gap where there's no connectivity at all, or a usage gap where affordability and other factors create barriers to getting online.

SpaceMobile is designed to provide broadband speeds regardless of location and support the different use cases which come with a high-speed 4G or 5G connection. Our team of engineers and space scientists are on a mission to eliminate the connectivity gaps faced by mobile subscribers and bring broadband to the billions who remain unconnected.

Tell us more about your plans for the MEA region.

The GCC and the greater MENA region are surrounded by vast deserts, mountains and the Arabian Sea. While venturing into remote locations, it's important to have reliable mobile connectivity. We are working with governments across the globe to meet universal connectivity goals and finally bridge the digital divide.

This technology is designed to allow people to connect at broadband speeds in the most remote location, on rural farmland or during a crisis or natural disaster. Users would access SpaceMobile when prompted on their device that they are no longer within range of their existing mobile provider's land-based facilities. They might also be able to purchase a plan directly with their provider.

We hear you intend to have some of your satellite components manufactured in the UAE.

While our main manufacturing facility is based in Midland, Texas, we are looking for regional manufacturing partners around the globe – including within the MENA region – for our planned 168-spacecraft constellation of production satellites, called BlueBirds.

Prior to creating AST SpaceMobile, I founded Emerging Markets Communications in 2000 and led that company until its sale for $550m in 2016. EMC was an early player in the development of the UAE satellite industry, both as a large customer of Yahsat's first satellite in 2011 and maintaining an office presence in Dubai.

Based on my years of experience working in the UAE, including a local space operations centre and engineering offices with EMC, we are very comfortable with the potential to find specialised component manufacturing partners in the region to help create our future BlueBird production spacecraft.

AST SpaceMobile began trading on Nasdaq earlier this year following its merger with SPAC New Providence.

What's the status of your LEO constellation, and when is it likely to be operational?

We plan to launch BlueWalker 3, a fully functional prototype satellite, aboard a SpaceX Falcon 9 rocket during a launch window beginning in March 2022. If that mission is successful, our plan is to start launching our first operational satellites by the end of 2022. This initial constellation, called Phase 1, is expected to provide coverage in the 49 equatorial countries, which have a total population of approximately 1.6bn people, with 20 satellites. We plan to achieve global coverage with the launch of 168 satellites in subsequent phases, along the way rolling out service to portions of North America, Europe, Asia, MENA and other regions.

How do you plan to distinguish yourself from the other players in your space?

We believe the SpaceMobile Service would be the first global direct mobile broadband network using LEO satellites to provide connectivity to any standard, unmodified, off-the-shelf mobile phone or cellular device.

However, we intend to partner with MNOs to offer SpaceMobile to their end-user customers. Our vision is that users will not need to subscribe to the SpaceMobile Service directly with us, nor will they need to purchase any new or additional equipment. Instead, users will be able to access our service when prompted on their mobile device that they are no longer within range of the land-based facilities of the MNO operator, or will be able to purchase a plan directly with their existing mobile provider.

To date, other satellite communications companies have employed a direct-to-consumer business model which requires the use of a sales force to sell their product directly to consumers, as well as installation services to install their specialised hardware. AST SpaceMobile, meanwhile, intends to employ a wholesale, business-to-business-to-consumer model.

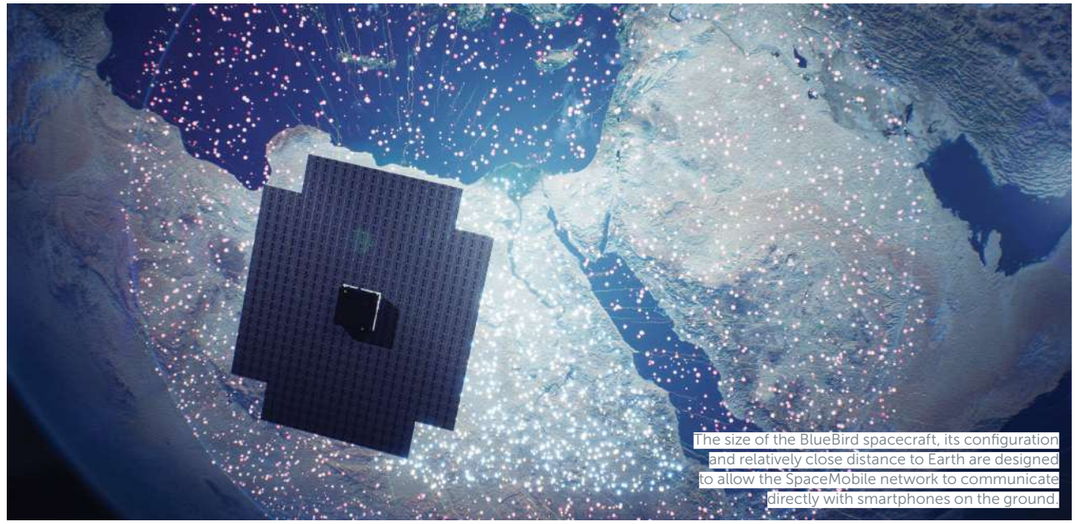
AST is not aware of other satellite communications companies employing, or planning to employ, a similar wholesale business model for space-based cellular broadband services directly to mobile phones over spectrum allocated for terrestrial mobile use.

You mentioned partnerships with other mobile operators. How will your partnership benefit them? What will you bring to that pipeline?

Our space platform and gateway facilities are designed to provide MNOs with mobile service infrastructure in areas not well served by terrestrial networks. MNOs may benefit in multiple ways. For example, they could provide service to current and future customers in rural and remote areas where building out terrestrial network infrastructure is cost-prohibitive or practically impossible. Some hope to use our space-based network to measure demand for service in remote regions and help determine where future terrestrial infrastructure build-out may be warranted.

Will you be coming to CABSAT or to the space exhibition in October in the UAE?

We are hoping to attend. PRO



The size of the BlueBird spacecraft, its configuration and relatively close distance to Earth are designed to allow the SpaceMobile network to communicate directly with smartphones on the ground.

NGSO SPOTLIGHT: HOW MENA WILL FUEL DOWNSTREAM SATCOM MARKET GROWTH

With countries like KSA and the UAE investing heavily in industry 4.0 national space programmes, energy and smart cities, there will be great demand and opportunities within the NGSO sector, says Rami Ibrahim

The satellite industry forms 75% of the space economy, with satellite services and ground equipment the highest-revenue segments. In the last decade, satellite industry revenues were around $230bn; 2020-2030 is expected to exceed $300bn with a growth rate of 23%, not counting low-Earth orbit (LEO) commercial services. Satellite services revenues have remained the largest industry segment, with revenues reaching $125bn, though these fell to $116bn in 2020.

The MENA region has a long history in investment in geostationary Earth orbit (GEO) services; demand makes it one of the largest markets after North America, focused on TV broadcasting, mobility, in-flight connectivity (IFC), LTE and hybrid networks, government and military. The new non-geostationary satellite orbit (NGSO) space will revive the globe with hundreds and thousands of satellites for broadband connectivity from LEO and medium-Earth orbit (MEO). For global coverage, the equation is three GEO satellites equals six MEO satellites, equals hundreds of LEO satellites. NGSO (LEO-MEO) provides higher bandwidth than GEO.

The NGSO upstream market is expanding rapidly, with high capital investment to accelerate the demand for downstream services with lower operational costs. The NGSO sector will extend opportunities to different vertical markets in the MENA region with high-speed connectivity such as maritime, oil & gas, IFC, 5G, connected devices, video streaming, government and military, as well as direct consumers and households in rural areas.

Dissecting the landscape and spotting demand

The go-to-market strategy: Countries such as Saudi Arabia and the UAE are investing heavily in industry 4.0 national space programmes, energy and smart cities, which will create demand and opportunities in the NGSO sector. Tawazunin Abu Dhabi is partnering with Airbus and the National Space Science and Technology Centre (NSSTC) to initiate the country's first small-to-medium satellite component manufacturing unit and conduct AIT. With this, the UAE will be the first Middle Eastern country to unleash the region's opportunities in the upstream NGSO market.

Saudi Arabia's Vision 2030 initiative will trigger demand or acceleration across satellite verticals. In the future, the Saudi Space Commission (SSC) will help to further grow the satcom upstream market by shaping new policies and regulations locally. This will create more opportunities in the NGSO upstream market, with support from local semi-government organisations and operators. Simultaneously, with the emergence of the Egyptian Space Agency and Turkish national programmes/initiatives, both Nilesat and Turksat are likely to show interest in the NGSO commercial market.

> "The NGSO upstream market is expanding rapidly, with high capital investment to accelerate the demand"
>
> **Rami Ibrahim, CEO, Orbofleet**

The MENA region is investing strongly in terrestrial, OTT and pay TV. According to the NGSO forecast, there will be dedicated high availability of Tbps capacity, which will increase the terrestrial bandwidth via NGSO satellites to further support OTT developments.

Orbofleet forecasts that by 2022, in the NGSO broadband space, Ku-band capacity will reach up to 4Tbps to provide capacity services targeting businesses, mobility and government markets, while other NGSO operators focused on Ka-band will surpass 40Tbps by 2026. From 2027, Q/V-band will gain momentum commercially. This dynamic progress in the use of different high-frequency bands will mean low operational expenditure (OPEX), leading to the opening of business gateways for new downstream customers while also fulfilling their requirements.


Rami Ibrahim.

Global opportunities with a key focus on MENA

In the short term, OneWeb, SpaceX's Starlink and SES mPower's upcoming satellites will create opportunities that increase NGSO demand, especially in rural areas, industrial, mobility and GSM backhaul, and among direct consumers with low-cost operations.

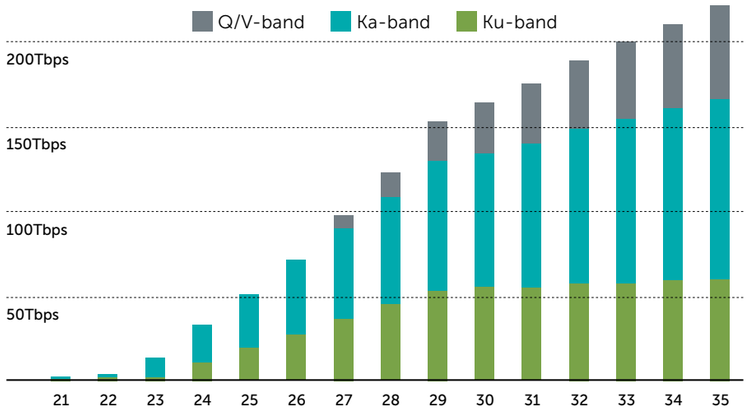
Satellite-based IoT is a crucial solution for the MENA region. IoT provides more flexibility and reduces the operational cost of connecting devices and machines in industrial verticals such as agriculture, oil & gas, SCADA, emergencies and transportation connectivity. LEO satellite constellations will also supplement terrestrial 5G infrastructure in the Middle East.

NGSO's pace of innovation has encouraged existing LEO operators to develop, build and provide a LEO network based on VDES technology, a second-generation automatic identification system (AIS) supporting Maritime and Sea, a crucial application in the MEA region's maritime market. NGSO operators have created initiatives to enter MENA and have conducted business opportunity surveys in the Middle East to expand their business units.

Africa remains an opportunity for foreign NGSO satellite operators, as local telecom operators already have a significant presence in Sub-Saharan Africa.

In the last few years, the Gulf region and North Africa have expanded the local market by founding national space agencies such as the UAE Space Agency, the Saudi Space Commission, the Egyptian Space Agency and the National Space Science Agency in Bahrain. These initiatives will allow small-to-medium satellite businesses to serve their local needs from LEO, such as remote sensing, but will dedicate space and opportunity in the satcom and telecom applications for both upstream and downstream markets.

Ku-, Ka- and Q/V-bands – Global NGSO capacity for commercial markets 2021-2035



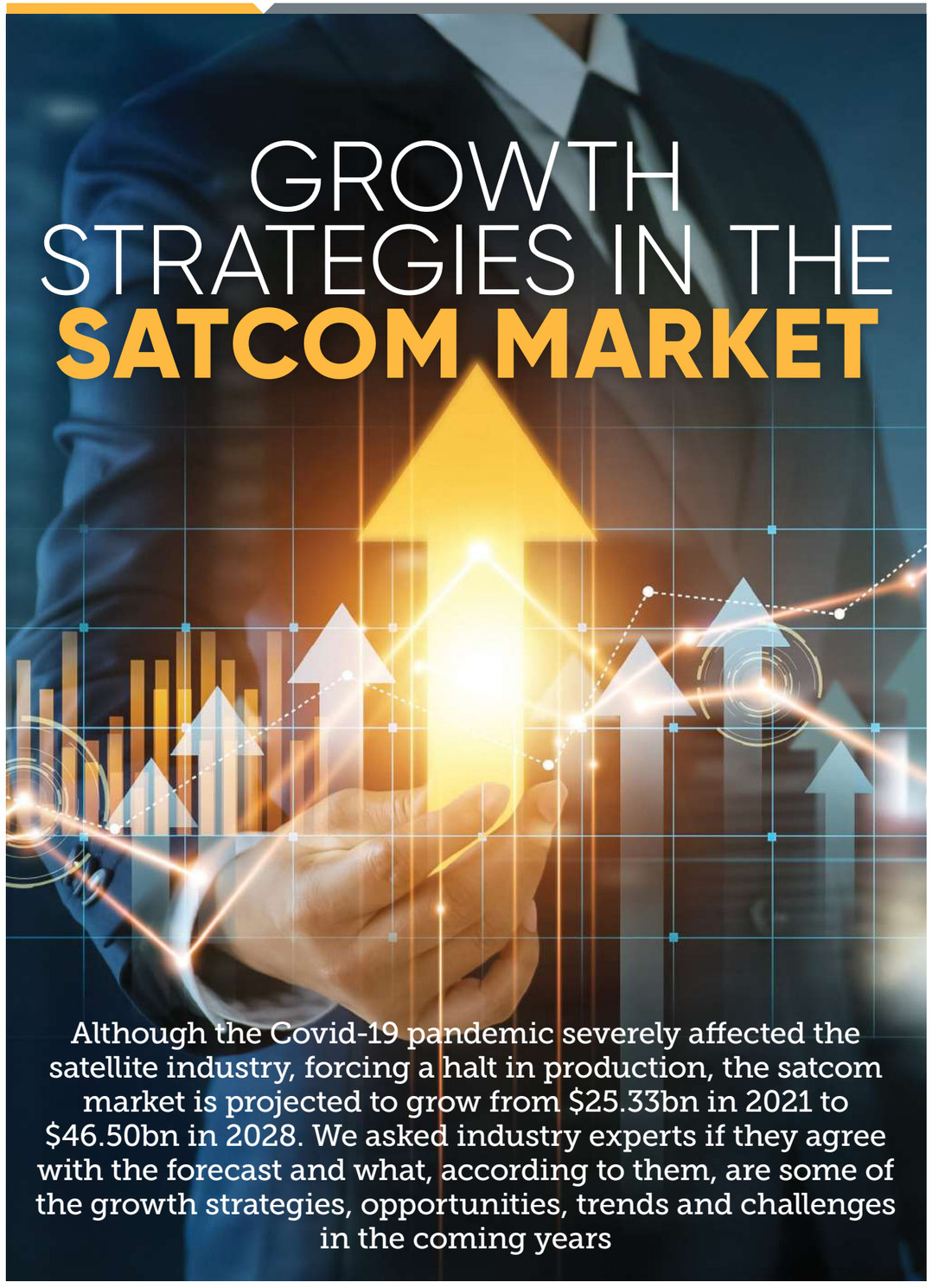
Conclusion

With the impact of Covid-19, the world has seen huge demand for applications such as Zoom and Microsoft Teams. Their intensive use during the lockdown put huge pressure on terrestrial broadband capacity. Support for this via GEO satellites will be limited in terms of speed and high latency. Pandemics and other such emergencies will accelerate demand via NGSO to feed these hybrid networks with higher capacity and speed.

The MENA region will boost not only the downstream but also the upstream local market, through continuous investment in the space and satellite industry. Regional satellite operators such as Arabsat, E'shailsat, Nilesat and Yahsat will no doubt continue to invest in the GEO business, but some of them are also involved in partnerships that will eventually unlock future NGSO opportunities. PRO

Rami Ibrahim is CEO of Orbofleet Space Company.

GROWTH STRATEGIES IN THE SATCOM MARKET



Although the Covid-19 pandemic severely affected the satellite industry, forcing a halt in production, the satcom market is projected to grow from $25.33bn in 2021 to $46.50bn in 2028. We asked industry experts if they agree with the forecast and what, according to them, are some of the growth strategies, opportunities, trends and challenges in the coming years

Eutelsat
Ghassan Murat, Regional Vice-President for MENA

Eutelsat's broadcast activity, which spans across direct-to-home broadcasting and content distribution to terrestrial headends, remains resilient thanks to several factors. These include the fact that we have seen a steady increase of digital and HD channels in progression of 16% since last year, our geographic exposure with emerging markets accounts for approximately 40% of revenues, and our business model is predominantly DTH and the most resilient sub-vertical, compared for example with cable headend feeding.

The bulk of the impact of this crisis stems from mobile connectivity. However, Eutelsat's exposure to this segment remains limited, accounting for 5% of its revenues. While maritime mobility is holding up well and continues to underpin demand, the crisis and its subsequent impact on travel has seen an immediate and severe impact on demand for aero mobility. The timing of recovery in the aero market remains uncertain, but Eutelsat is confident that it will see a resumption of growth in the medium term, with the restart of air travel and the ever-increasing demand for high-quality internet access everywhere by passengers.

The Covid-19 crisis has indeed accelerated the need for high quality, reliable broadband. Evolving technology with geostationary satellites such as EUTELSAT KONNECT and EUTELSAT KONNECT VHTS means satellite connectivity can now provide a reliable, accessible and cost-effective solution for the millions of businesses and individuals throughout the world. In this last fiscal year, we made significant headway in our fixed broadband strategy, laying the final foundations for acceleration in growth from this year onwards.

We also made a significant strategic step, gaining a foothold in the LEO opportunity through our investment in OneWeb. OneWeb will become our main growth engine outside our broadcast and broadband applications, as we continue to maximise cash-flow extraction from our highly profitable heritage business and grow our fixed broadband vertical, leveraging our geostationary assets.

Avanti Communications
Kyle Whitehill, CEO

There are still 3bn people in the world today who are not connected. At Avanti Communications, we are passionate about changing that. Even at the height of the Covid-19 pandemic, when the digital divide felt at its strongest, we identified opportunities to reach even more individuals, businesses and communities in hard-to-reach locations who have never before been connected to the rest of the world, but who may feel the greatest benefit.

We already know that global demand for data outstrips supply, leaving many excluded. In Africa, this is even more exaggerated, offering huge scope for future growth in the coming years. This is especially true in sub-Saharan Africa, where rural network expansion is desperately needed. As a major HTS company in Africa, Avanti is poised to unlock this. Across our HYLAS fleet, more than 70% of our coverage is over Africa. To help power growth, we have also committed 75% of our total investment to connecting the continent.

But while significant progress has been made over the past 30 years in connecting rural communities, this remains a huge challenge for even the largest mobile network operators (MNOs), due to limited terrestrial networks. By working in close partnership, we have been able to help these partners to expand their networks. For example, our recent partnership with Clear Blue Technologies is expected to deliver life-enhancing coverage to the 400m people living in remote areas within three to five years.

This is important, as connectivity is a vital tool that can empower people, strengthen communities and enact positive change. For example, this year we started working with the UN Refugee Agency as a corporate partner to donate solar power broadband connectivity and laptops to seven off-grid refugee settlements in Uganda. We are also partnering with the Global Partnership for Education to help address barriers to girls' education in Kenya. By doing this, we can help Africa to empower growth, protect communities and unlock opportunities through better connectivity.

APT Satellite
Power Pan, Director of Marketing

Thanks to the sky-rocketing development of the satellite broadband and mobility sector, APT Satellite is of the view that the satellite industry will soon recover from the Covid-19 epidemic. We particularly see how the wide use of HTS technology on GEO satellites has brought great competitive advantage, and even enabled satellites to compete with terrestrial offerings in some cases. For some applications that were thought not applicable for satellites, high-throughput satellites (HTS) proved their viability in recent years. As the satellite operator with the most HTS in Asia, we will see more revenue coming from them.

We have observed that the traditional linear sector may have slowed down with the rise in OTT services, but the great efficiency of broad satellite coverage still proves that traditional C-band and Ku-band satellite will offer unique value to DTH and cable headend distribution/contribution uses. This is especially true for our core markets in Asia, where the rainfade factor and fragmented lands and seas favour the use of traditional satellites.

The mobility sector is the future growth engine of this market, and our latest generation of satellites are all equipped with beams illuminating the busiest ocean and air routes, making sure that our customers can enjoy seamless connection no matter where they are.

In conclusion, APT Satellite is of the view that the industry will recover and is well poised to cope with future growth.

Hughes Network Systems, LLC
Dan Losada, Vice President, International Division

According to the Satellite Industry Association (SIA) annual State of the Industry report, the global space economy, including the satellite industry, grew in 2020 despite the pandemic. This aligns with what we saw at Hughes from March 2020, when traffic on our networks increased exponentially. With HughesNet customers working from home and taking classes online, instead of peaks of traffic in evenings and on weekends, we saw steady satellite internet usage with much of our network operating at full capacity.

Our enterprise customers also pivoted to virtual operations, putting additional demand on managed network services. For instance, retailers and restaurants turned to applications like online ordering, curbside pick-up (necessitating WiFi access) and third-party delivery (requiring app integrations) – all of which rely on network connectivity.

The pandemic illustrated the need for connectivity for everyone, and that is both the challenge and the opportunity. To meet that need in the coming years, we'll need to innovate networks across the ecosystem that are multi-orbit, multi-service and use multi-transport technologies.

One clear area of growth for the industry is in LEO implementations. Connecting everyone, everywhere requires working across orbits, developing solutions that leverage the best of each constellation – for instance, GEO for capacity density and big data; LEO for global coverage and low latency.

The demand for broadband can only be met with multi-service networks that include GEO as part of the solution and the right ground technology to support different applications. With a ground system that is virtualised, cloud-enabled and software-defined, operators can allocate satellite capacity flexibly to serve different sectors (consumer, enterprise, mobility, etc).

Ultimately, the connected future depends on multi-transport technologies using every type of broadband. That may mean GEO to connect remote sites to a larger multi-transport network, such as at the 15,000 Hughes customer sites where satellite nodes are part of a managed SD-WAN implementation. Or that may mean using satellite to backhaul cellular network traffic, expanding mobile network reach to rural places.

In all, we are excited about the renewed global focus on the space industry and bullish on the opportunity ahead for the satellite industry, especially as we anticipate the launch of our next-generation JUPITER 3 satellite in the second half of 2022.

Access Hub
Omkar Nikam, founder

The annual growth of the satcom market can potentially cross $45bn by 2028, aligned with the full deployment of LEO satellite constellations. The pandemic has primarily impacted the upstream satellite production value chain, leading to a shortage of several components, including electronic chipsets. On the downstream side, however, things have escalated in terms of demand for high-speed connectivity. Several operators and service providers have recorded a boost in demand for broadband connectivity during the pandemic.

In a way, the pandemic helped accelerate the transition of broadcasting to broadband. The EMEA and Asia markets still remain the hotspot of satellite broadcasting, but the regions are also simultaneously experiencing a gradual increase in OTT content consumption. LEO operators will be turning the tables by capturing most of the consumer broadband and hybrid networks market, leading to the amplification of opportunities in the OTT via satellite market.

In the coming years, we can expect to observe and record a new wave of innovative applications. As LEO operators have kept a close watch on the broadband market, hybrid networks, mobility, consumer and enterprise are some of the important market segments that will provide significant opportunities to satellite service providers. We expect some regulatory and technology challenges to emerge as some LEO operators also plan to create multi-orbit connectivity (LEO, MEO and GEO), but this can be overcome with time, considering the scale of innovation that the industry recorded in the past decade.

AsiaSat
Roger Tong, CEO

There is no doubt that the global pandemic has affected economic activities across different sectors and world regions. In addition, the coming of the LEO satellite services, the rollout of 5G using portions of the C-band frequencies, and changing consumer behaviours are driving the market in directions that are hard to predict and isolate.

As Asia's leading satellite operator, AsiaSat has kept pace with technological changes and strategic challenges by transforming our business and aligning our overall strategy and vision to address changing market needs, and meeting customer expectations in both the video and data sectors.

In the video market, to complement the existing satellite-based service offerings to our global broadcast customers, we have looked at more ways to distribute content, for example through terrestrial delivery mechanisms. The latest addition is our new broadcast-grade 'One Click Go Live' streaming service for delivering a full range of corporate, business and media events, whether for entertainment such as concerts and sports, or global meetings, business conferences, educational and corporate activities such as shareholder meetings and town halls.

In the data sector, particularly the mobility market where satellite can demonstrate its unique ability and value, consumers' growing focus on individualism has boosted the demand for connectivity service. The recent launch of our new managed maritime broadband service SAILAS is to address the connectivity needs of all maritime verticals by providing highly flexible and competitive data service to enable maritime end users to enjoy cost-effective, secure and reliable connectivity at sea.

Asia is one of the world's most diverse markets. With the convergence trend of video and data, our strategy is to stay relevant in this challenging business and adapt to the rapidly evolving market environment. Through vertical expansion to diversify our service offerings to complement our core satellite-based service, whether in areas of video, data or mobility services, we look to provide integrated end-to-end solutions that can fit into our clients' businesses flexibly and cost-effectively. PRO

MEDIA AND SPACE PROFESSIONALS COME TOGETHER FOR SPACE HERO

Space Hero, a new global reality TV show that will span continents and unite the world, is coming to town. Contestants will compete for the opportunity to win a 10-day stay aboard the International Space Station (ISS) in 2023. Space Hero, the company, has teamed up with Axiom Space to manage the mission

In an exclusive interview with *SatellitePro Middle East*, Space Hero co-founders and media entertainment specialists Thomas Reemer and Deborah Sass talk about how their casting show will help democratise space.

Tell us more about *Space Hero*

Space Hero is a media company that has conceptualised a revolutionary competitive casting show that has the potential to dominate the media and entertainment sector. The global appeal to travel to space will enable *Space Hero* to capture audiences from both the developed and developing worlds. Supported by major space agencies from around the world, the show will unite a generation and bring space travel closer to home for all.

How did you hit upon this idea?

We are both at a point in our lives where it becomes more important than ever to create an impact with the energy you have. Space is a global topic. As kids, we become curious about outer space and get excited about exploring what is out there. For most people, this curiosity gets buried by other things and may be forgotten. But that curiosity doesn't go away. They just need a clever way to bring them back to the surface. We thought if we made space travel pop culture in a meaningful way, more people would react to it, and we could generate a wave of positive change that is both inspirational and aspirational.

Can you provide more details about the show?

Space Hero is a casting show searching for the next generation of space heroes. The winner will get the greatest prize of any show in history: to be launched into space for a 10-day stay as an astronaut aboard the ISS. We have secured a seat on a space flight to the ISS in 2023, and the candidates will be shortlisted in early 2022.

We will have 24 finalists who will spend 12 weeks living at Space Village. Their performance in exciting challenges and public voting will determine the final *Space Hero* winner. Space Village will be a showcase for a new sustainable and optimised life on Earth. It will be a model for human outposts in space. Living modules will be equipped with cutting-edge smart technology and health tracking devices to monitor the contestants 24 hours a day, seven days a week.

Each contestant's health profile and effort/patterns will be judged. The voting formula will include points that can be won by completing games, quizzes and physical/mental challenges. This generates an initial weekly ranking. There are also points based on character and behaviour towards fellow competitors. *Space Hero* is about more than winning challenges – teamwork is a key skill to succeed onboard the ISS.

The activities of the finalists (a diverse group representing humanity) will be accessible to viewers globally around the clock through 24/7 live feed.

Ahead of the space mission, the winner and two runners-up will spend four to six months training. Viewers will be able to closely follow the progress of their chosen winner and gain insight into the training required for space travel. Then, for 10 days, fans of *Space Hero* will have round-the-clock access to a 24/7 feed of their hero's activities on the ISS, the highlights of which will be televised.

> "For the next 15 years, the show aims to launch a finalist every two years, creating a new generation of space explorers"
>
> **Thomas Reemer and Deborah Sass**

Space Village is more than a set. It will be a place to explore the future trends and opportunities in science, technology and innovation. It will be a showcase for a new sustainable and more efficient way of living on Earth as they would apply to our daily lives. It will be equipped with cutting-edge smart urban technologies designed for space and applied on Earth.

Space Village can be the home of innovation labs focusing on health, education, smart cities, energy, food and water security, and transport, in addition to a permanent section on future innovations in all fields including AI, robotics and autonomous control. It will provide a platform to demonstrate and test the latest inventions from the world's leading tech giants and startups, as well as collaborations between companies and research institutes and universities. It will be a place to hold scientific conferences and offer courses and workshops on design and innovation covering the latest scientific developments, as well as their practical applications. The location of Space Village is a surprise for now.

For the next 15 years, the show aims to launch a finalist every two years, creating a new generation of space explorers who will apply in the missions to fly to space. *Space Hero* will encourage people to take part in sports events, scientific research and social gatherings all over the world in order to increase their chances to fly to space through the show.

How do you intend to revolutionise the viewing experience?

Just imagine the kind of impact it will have on people from all around the world when they will get to see a TV reality show covering each moment, from astronaut training to getting launched to space and then living onboard the ISS. Many of us dream of becoming an astronaut, but most get discouraged because of limited opportunities and the stringent requirements. *Space Hero* hopes to change that and democratise space, because space belongs to everyone.

In 1969, when the first person stepped on the surface of the moon, the whole world watched it and it inspired many people to become an astronaut. Many former and current astronauts were inspired to become an astronaut because they watched people landing on the surface of another celestial body on TV.

Space Hero will be fully integrated with the mobile app, television, social media and other media platforms. The app will be the central hub for all content, audience interaction and initial applications. It will provide real-time interactive and immersive experiences. Proprietary technology is being developed to encourage engagement through augmented reality (AR) and virtual reality (VR). I can't talk too much about it now, but it will be something revolutionary and very cool.

This show was first announced in September 2020. With Covid and the lockdown, have you been able to identify your candidates yet? When will the application process begin?

Covid-19 impacted everyone,



From left: Deborah Sass and Thomas Reemer.

and Space Hero is no exception. However, it didn't stop us from making progress and we found ways to overcome the challenges associated with the lockdown and travel restrictions. The application window will open by the end of this year. The application process is fully digital and will be easily accessible online. The show will accept applicants from across the globe, with various people from different countries and continents getting through to the final round, making it a truly global concept. Our target is to complete the shortlisting and start the show in 2022.

What are the selection criteria?
Our selection criteria are very simple. To apply, you need to be at least 18 years old and have a good command of English. It doesn't matter where you live or if your country has a space agency, you just need to be enthusiastic about making an impact on humanity by going to space. Through the application process, our goal is to shortlist 24 contestants to compete in the show, 12 men and 12 women. We will select 12 people from developed countries and 12 people from under-developed countries.

You have secured a trip on a 2023 flight. Could you elaborate on this in terms of partnership and investment?
Space Hero is privately funded and will remain that way. We made strategic partnerships with social media platforms, global brands and broadcasters that are aligned with Space Hero's values and goals to effectively deliver the show in the best way possible.

Once you choose a winner, won't they require training? Who will fund all that?
The secured seat on the space flight includes the astronaut training. By design, the funding of the space flight is from private sources, to ensure global freedom of astronaut selection without any political influences.

How will you roll out *Space Hero* in the MENA region?
The application window will be announced globally. However, Space Hero will be supporting regional awareness activities and events to get people excited and engaged.

We have already established collaboration relationships with several entities in the MENA region. In fact, as listed on our website, Space Hero is supported by many space agencies, space research/academic institutions, space companies, space-related civil/non-profit organisations from around the world. Visit our website to see who is supporting Space Hero from the MENA region. There are lots of MENA space entities.

We will work with our supporters to organise joint events and activities to increase awareness about the importance of space and educate the public about the great benefits of space exploration and space technologies. We are also considering regional shows that would lead to the final global show, similar to regional qualifying stages in international sports competitions, the likes of the Olympics and the World Cup.

How many applications do you expect to receive, and how do you intend to whittle selection down?
Once we launch our *Space Hero* app and open the application for everyone to apply, we expect to receive millions of applications from around the world. Out of the total applicant pool, 24 contestants will be shortlisted to compete in the show. Then the top three will go through astronaut training and one will get to go to space. The shortlisting and finalists will be selected through a process of algorithmic sorting, selection, audience participation and active voting.

When will the regional campaigns begin?
We have been low-profile so far, but soon we will activate our media campaigns and surely you will start noticing more and more of *Space Hero* in the coming months. PRO

SATELLITE AT CABSAT 2021

As CABSAT 2021 gears up to bring together regional and international experts within the satellite and broadcast communities, we look at some of the solutions that companies will highlight at the show

The satellite segment has always played a critical role at CABSAT. With the global satellite communications market expected to be worth $53 billion by 2027, the value of satellites in the distribution chain is clear, with it remaining one of the most reliable and efficient means of communication. Satellite operators have seen a significant increase in demand for capacity.

In collaboration with GVF and the European Satellite Operators Association, CABSAT 2021's SATExpo Summit will host leading satellite operators who will be exhibiting at the show, including Nilesat, Arabsat, Eutelsat, Russian Satellite Communications Company, Gazprom Space Systems, Azercosmos and Turkmen Hemrasy.

SATExpo's hard-hitting conference agenda will tackle the most pressing topics in the industry, including how enhanced satellite communication technologies are helping to fight the spread of Covid-19, what's next for the UAE's space exploration efforts and what they mean for the country, as well as the ways that satellites are impacting the maritime, transport and government sectors.

Azercosmos celebrates 10th anniversary, plans further expansion in MENA region

The Space Agency of the Republic of Azerbaijan (Azercosmos) is celebrating its 10th anniversary this year and will speak about a number of accomplishments and its vision for the future at CABSAT. More importantly, it is looking to extend its reach in MENA and sub-Saharan Africa to ensure better connectivity in the region.

As the first and only satellite operator in the South Caucasus region, the company has a rich service portfolio and offers reliable video, data and teleport services and solutions via its telecommunication satellites. Azercosmos offers C- and Ku-band coverage. As a government partner, it reportedly "guarantees secure transmission of video content to anyone living in Africa, Europe, the Middle East and Central and South Asia".

"Our cost-efficient video services and solutions include video contribution, video distribution, occasional use and many more," a statement said.

Through the provision of critical IT infrastructure, Azercosmos offers secure and reliable telecommunication and data services and solutions to enterprise and government customers for a comprehensive range of applications, including aviation, maritime, government and disaster recovery. It meets the growing global demand for bandwidth and ensures the provision of high-quality broadband, VSAT, IP trunking, mobile backhaul and other services.

The newly developed Azconnexus satellite internet service also offers better connectivity solutions for businesses located in remote areas. The highly specialised, agile and multilingual technical team's assistance makes the experience with Azercosmos seamless and enjoyable.

With regard to teleport services, the company, together with its partner teleports, can deliver a broadcaster's services to Europe, the Middle East and Central Asia over Ku-band, and Africa over C-band. Its WTA-certified (Tier 4) teleport solutions include broadcasting, communications, hosting and consultancy services.

"The MENA region has always been one of Azercosmos' priority markets. With over 50 African and Middle Eastern countries covered, Azercosmos provides reliable video and data services, reaching millions of households in the region. We have been participating in CABSAT since 2014 and we continue to expand our client and partner base in the Middle East and Africa," commented Mark Guthrie, CCO at Azercosmos.

STAND B3-25

SatADSL neXat platform to redefine hub services

At CABSAT, SatADSL plans to announce a major collaboration with a regional partner. The new partnership will enable SatADSL to offer its services in the MENA and APAC region as it adds satellite coverage to that already available covering Latin America and Africa (partially also the Middle East).

SatADSL will demonstrate the power of its neXat platform, which it believes can "help redefine hub services and overcome certain limitations without any CAPEX". It helps ISPs simplify their business by offering a one-stop solution for customer and service management. It is reportedly a unique platform and the first aggregator of its type.

The neXat platform will develop as a marketplace for capacity as it grows and more operators connect to it, according to SatADSL. By enabling them to enter new markets for the first time more efficiently and without CAPEX, operators looking to expand their reach into new markets will find neXat useful. The company believes that teleport operators will also realise the benefit of being a part of this platform.

"Operators usually may offer their own hub and modem technology. Through SatADSL's platform neXat, the operator may offer multiple kinds of bandwidth management optimisation service independent of the technology at their hub(s),


Rajeev Nair is Senior VP for APAC at SatADSL.

such as contended or volume-based access and VNOFlex. neXat can enhance the native capability of any satellite hub. neXat also enables teleports to reach out to a broader range of ISPs, helping them to fully utilise their network capacity," commented Rajeev Nair, Senior Vice President APAC at SatADSL.

SatADSL calls CABSAT significant for both the markets it is addressing – the Middle East and Asia Pacific. "APAC is the region we are currently targeting as for expansion region. SatADSL started in Africa, then grew to Latin America and as our plans are to be global, we are currently putting all efforts into the Middle East and APAC region," added Nair.

In the meantime, SatADSL has also launched a new service called eMarketplace, a one-stop shop to simplify the process of choosing satellite services. It enables teleport operators, ISPs and end users to purchase specific capacity and associated services depending on their own individual needs, and allows service providers to buy capacity outside of their existing coverage in the fastest time possible. For example, a service provider is working on a global network project (e.g., an NGO or embassy). Traditionally, it would take several weeks or months for the service provider to identify service providers across the globe, negotiate prices, get the hardware sizing for each site, sign multiple contracts and order hardware. The same thing can now be done on eMarketplace instantly and simplifies the sales process for service providers.

STAND 213

Integrasys innovates with monthly plans in SaaS models

As Integrasys aims to make satellite mainstream, the company now enables customers to use its link budget tool on an SaaS model with a small monthly membership for Beam Budget.

Beam Budget is a cloud-based, link budget tool available anywhere, anytime by any user, for designing, selling and buying capacity and networks easily, rapidly and efficiently. The company claims the tool pays for itself from the first month, by reducing OPEX and winning new opportunities and revenue. The interface obtains thousands of LB results with just a few inputs, by AI and automation, so the tool can accurately calculate within seconds the millions of links needed to design the network.

Although a CAPEX model is also available for those who want a permanent and complete Beam Budget licence, the web-based software offers a second option. It also includes the latest technologies, such as very high-throughput satellites, adaptive coding modulation, flat panel antennas, mobility and much more.

Integrasys has also updated its Beam Budget tool, which now also supports LEO and MEO constellations. The company has been updating the LEO option this year, in order to offer a flexible

solution for these new constellations. Beam Budget enables the user to manage a LEO network seamlessly, by calculating several dynamic links simultaneously in real time as well as selecting a period to obtain the necessary metrics, to ensure a reliable infrastructure.

The latest development updates the constellations database, including the announced constellations, as well as adding a new feature of the laser inter-satellite link, which can be switched on and off in a matter of a click in order to provide interconnected constellations in space as well as combined constellations multi-orbit, creating a robust network design and taking advantage of the new space race assets and latest constellations in any orbit.

Integrasys has also improved its LEO and MEO reporting capabilities, with a dual analysis of the forward and return link as well as detailed information on beams and coverage. The metrics are represented graphically so that sales teams can understand the results and export the report to Excel or PDF.

STAND F3-25

ETL Systems to showcase 1U Genus modular chassis at CABSAT 2021

As the satellite landscape changes, ETL, which is at the forefront of innovations in satellite ground segment technology, will showcase its 1U Genus RF distribution modular chassis at CABSAT.

This compact, multi-functional ground-segment technology has been designed to make the leap to MEO and LEO constellations possible, in terms of both performance and cost. The 1U chassis enables multi-functional RF modules to be housed within one habitat, including Falcon frequency converters, Alto amplifiers and Stingray RF over fibre.

The interchangeable, hot-swappable active components are critical for the new ground station architecture, where signal handling requirements are constantly changing and equipment failure needs to be dealt with immediately. The design of Genus allows satellite operators to improve link budgets, decreases rack space requirements, delivers scalability and resilience, and improves flexibility. This combination of innovative, reliable design and versatility ultimately delivers a lower cost to customers, a critical factor in the emerging LEO and HTS ground segment designs.

ETL will also showcase the Hawk 8x8 RF Matrix. The extended L-band (500-2450MHz) Hawk Matrix is ideally suited for RF signal routing at LEO and MEO gateways, as well as small HTS ground stations and deployable VSAT terminals. It has capacity for two 8x8 matrix cards – which can be combining (fan-in) or distributive (fan-out) – for uplink and downlink applications. It can be fitted with any combination of cards, depending on application, but is ideally suited for smaller gateways with multiple modems and one or two antennas.

Mohamad Barada, RF Systems Architect & International Sales Manager, said: "I am looking forward to showing off ETL's products to existing and potential new clients at CABSAT 2021."

STAND G2-25

Gazprom back at CABSAT to promote satellite capacity

Gazprom Space Systems (GSS), which has been exhibiting at CABSAT since 2007, will continue promoting its Yamal satellite capacity.

"Yamal satellites provide high-quality coverage over the Middle East and North Africa. GSS recognises a variety of opportunities for growth within MENA. The company has a long history of cooperation with telecommunication companies and teleports in the region, providing services for oil & gas, government, aviation, maritime, education and emergency segments. Current business relations inspire GSS for further expansion and growth," a release from the company said.

GSS is one of only two Russian national satellite operators and operates the Yamal satellite communications system, already well-known in MENA. GSS will speak about the capacity on all five of its satellites – Yamal-202, Yamal-300K, Yama-401, Yamal-402 and Yamal-601 – all of which operate at a significant geostationary orbit arc segment (from 49°E to 183°E). The cumulative service zone covers most of the eastern hemisphere and reaches the western part of the North American continent.

Yamal satellite capacity enables communication services delivery to different parts of the world. It is successfully used for communication links and data transmission, TV distribution, occasional use, trunking, backhaul, inflight and maritime connectivity.

STAND F3-20

STN's Data Equipment Centre.

STN delivers services with less energy consumption

Teleport operator STN offers essential connection and distribution capabilities to help its customers deliver premium content to millions of consumers. A global service provider, STN is now looking at ways to use renewable energy sources, like other businesses around the world concerned about climate change.

As data centres are among the major consumers of electricity, STN has focused on increasing the efficiency of appliances while reducing the usage volume – in this particular case, with the installation of a Socomec Modules Green power 2.0 system 200 kVA/kW at its data centre in Slovenia.

"The reason was mainly due to the optimisation of required uninterruptible electrical power on consumers with higher efficiency, where older monolithic UPS systems are showing some technological obsolescence with an increased risk of accidental power failure. The aim of the intended change was to also introduce a UPS solution with the latest technology, assuring the highest availability," commented Jurij Blazin, Technical Director at STN.

"With the increasing and varying demands on teleports and their services, they need to ensure that they use high-grade, efficient and adaptable systems. At STN, we are always technically prepared to meet service requirements and we chose our system wisely when it comes to supporting services for our clients. STN decided to replace the UPS system, which will allow us even greater reliability, scalability and longer life of the device that will power the critical applications and IT infrastructure in the company. The modular design of the UPS system puts the reliability of the device at the highest level. In the next half of the year, we expect to reduce energy consumption by 30% by optimising solutions in our company."

New UPS technologies in the field of reliable power supply are being developed in response to the requirements for simple and safe upgradeability, greater availability, cost-effectiveness and, last but not least, the requirements for systemic changes in the electricity networks on which each device primarily depends. This is what STN is also focusing on for its UPS room in Slovenia.

The STN UPS room in Slovenia.

Modular UPS devices have recently become quite popular, because they allow adaptation to dynamic changes in power. They help in gradual investment and are compatible with the architecture of other sensitive equipment, since they allow optimal redundant power. A design of modern modular UPS is without a possible common point of failure, based on highly reliable power modules (high MTBF), assures ease of use with fully automatic operation, grants autonomy in upgrading and maintenance during regular operation without affecting consumers, and has the shortest possible repair time (MTTR), along with design for a long lifecycle and insurance for the future compatibility of all system components. All this and more is met by the Modules Green power 2.0 system 200 kVA/kW.

Modules GP 2.0 use power modules in true hot-plug technology with adjustable redundancy and certified MTBF>106 hours. All modules are completely independent and can be switched on or off in the system during normal online operation, without switching consumers to bypass mode.

"In practice, this means that STN's connected consumers are 100% protected even during system upgrades or maintenance work. With this unique design, the user can easily and safely upgrade the system without the need for specialist knowledge," commented Anton Bizant, Sales Manager at Socomec.

The HQ in Slovenia, with ongoing technical upgrades, remains a state-of-the-art facility. The STN team will be at CABSAT to discuss the services it offers to MENA clients. PRO

RAISING THE BAR FOR SATELLITE **COMMUNICATIONS ACCESS AT SEA**

Connectivity at sea is evolving fast. Developments in satellite communications are continuing at a rapid pace. At the same time, the advancement of the entire digital ecosystem is unlocking superior safety, cost and operational efficiencies for ship owners and operators all over the world. The evolution of LEO, GEO, HEO and MEO satellite networks, alongside current technical progression on maritime VSAT antennas, is set to further enable owners and operators to access previously unattainable high-speed communications out at sea.

However, to ensure the benefits are truly realised requires a change in mindset from owners and operators. At present, commercial owners and operators budget an average of less than 1% of their operating expenditure for satcoms. This means that the extraordinary current advancements in satellite networks and VSAT antennas are still yet to be realised by many, despite maritime satellite communication providers offering a diverse and flexible array of packages, including higher bandwidth options. The lack of uptake indicates that satcoms is viewed as less of an investment and more of a necessity in the shipping industry.

Why connectivity at sea matters now

If we are to provoke a change in perception and raise the benchmark for connectivity, we need to adjust the overarching approach to, and view of, connectivity at sea.

Two prominent trends in the shipping industry demonstrate why now is the right time to embark on this journey. Firstly, the importance of access to high-performing satcoms to improve seafarer wellbeing has been brought to the forefront of conversation over the last year. The outset of the global pandemic and ensuing crew change crisis, which saw crews stranded out at sea for months without consistent and reliable connectivity, raised the profile of discrepancies in access to connectivity at sea. The increased profile of the relationship between connectivity at sea and mental wellbeing has caused many owners and operators to re-evaluate their communication set-up.

In its most recent Seafarer Happiness Index report, the Mission to Seafarers found there to be an increase in investment, and subsequent improvement in access to connectivity at sea, because of Covid-19. However, the report also found scope for improvement, with the results reflecting a notable inconsistency in the connectivity access provided by ship owners and operators.

This reaffirms the need for 'minimum acceptability' for connectivity at sea, with the packages offered not only directly influencing the health of seafarers but defining the credibility of owners and operators as future employers.

An investment in future operations

Secondly, investing in high-performing connectivity could also unlock greater access to IoT applications, data sharing and remote operations, such as land-based monitoring of onboard machinery, digital training, video conferencing with onshore teams and greater data sharing and analysis. This would enable owners and operators to better streamline operations, saving time and money, while paving the way for a better-connected, optimised fleet of the future.

With the International Maritime Organization's Energy Efficiency Existing Ship Index (EEXI) standard set to enter into force in 2023, high-performing connectivity will become a greater necessity. It will be required to facilitate real-time monitoring of, for example, fuel, bridge and automation systems, where performance monitoring and optimisation will be key to fulfilling new efficiency requirements.

Supply and demand

Looking to the future, industry expectations and demands are set to evolve, heightened by digital transformation in other sectors. With high-performing connectivity a fundamental element of enabling greater digitisation, it will become a question not of whether owners and operators need to invest, but of when they need to. PRO

Jens Ewerling is Product Manager, VSAT at Cobham SATCOM.

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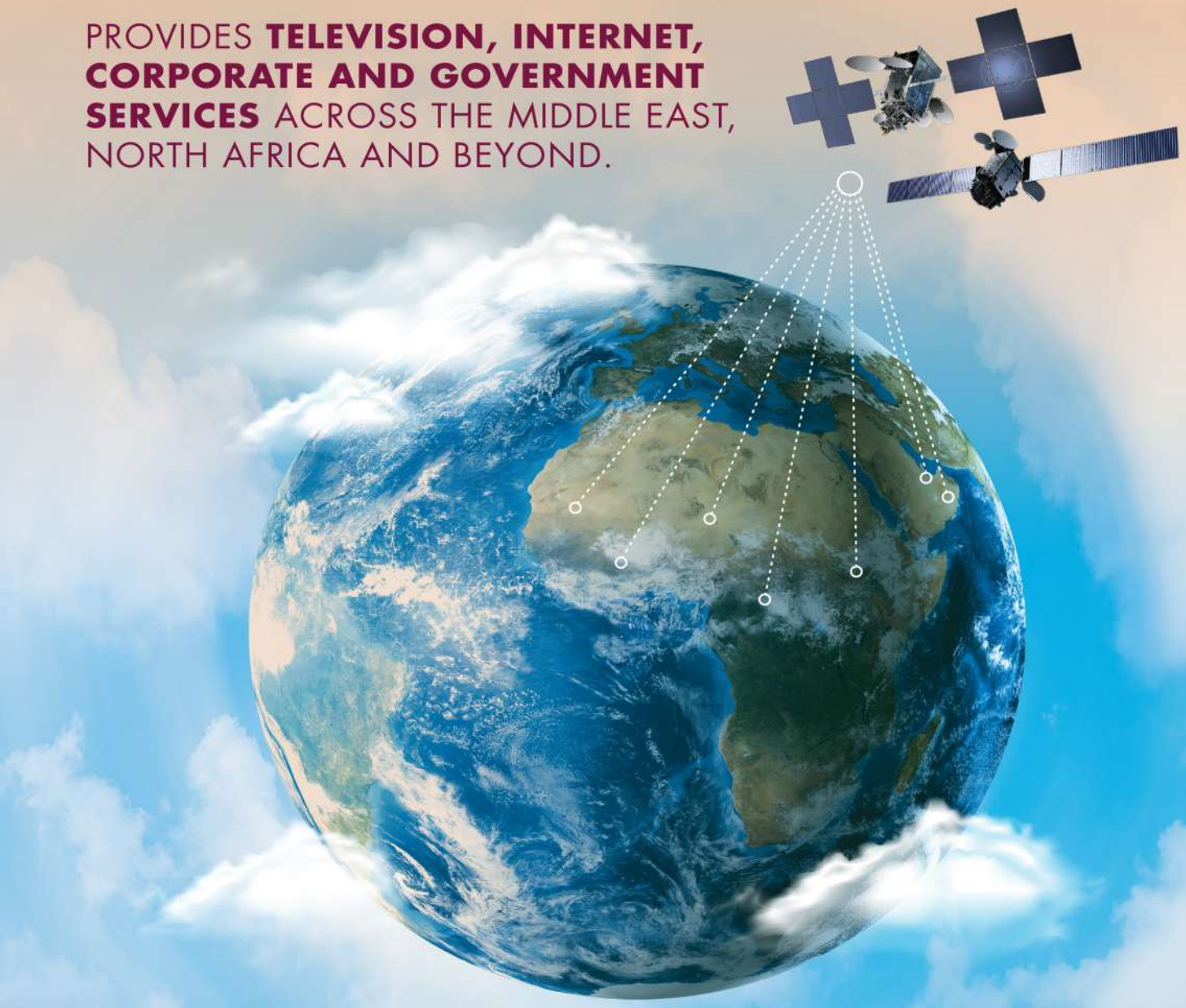

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