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Dominic De Sousa (1959-2015)

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Artificial Intelligence

Welcome to the May edition of *SatellitePro ME*. This month we will be en masse at CommunicAsia in Singapore, so make sure you get there from the 23rd to the 25th, and if you're going to be exhibiting, then I'm sure to catch up with you for a cup of coffee.

I can't wait to hear about the strides we have made in artificial intelligence (AI), and how it is going to be something that will be integral to everything we do in the future: business, traffic management, risk assessment and even down to the way we go about our daily lives. This will be one of the sessions being discussed at CommunicAsia, and it sure seems exciting to enter the age of HAL and sentient computing.

Furthermore, I'd like to learn how it will integrate with big data and IoT to affect the very industry we work in. The nature of our business is based on innovation in technology to build longer lasting, more efficient birds, while trying to bring down costs. I think the only way for this to be achieved is with forward-thinking leadership that understands the importance of harnessing technology like AI and big data.

CommunicAsia is one of the work trips I love to go on, as Singapore is the melting pot of the East, with so many cultures fusing to create one great example of how things should be in the world. The country is super clean, its residents are respectful and helpful, and the city is vibrant and full of light. Besides being super-efficient and eco-friendly, the city thrives in almost every aspect imaginable. Okay, I don't like the humidity, but I'll make do. See you there!

As always, I'd love to hear your feedback and comments on this issue of the magazine. Please send me an email or call the number in the panel on the left.

Clayton Vallabhan
Editor

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ASBU presents

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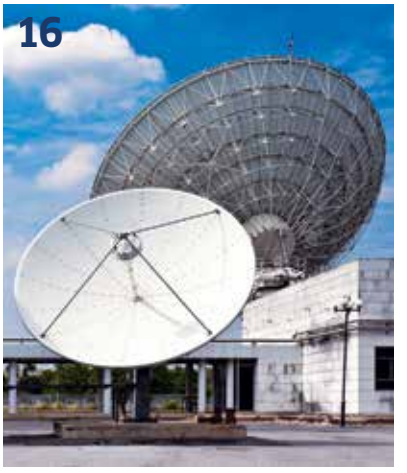


Yahsat and UAE mission to the UN host forum

Yahsat and the UAE Permanent Mission to the United Nations Office and other International Organisations in Geneva hosted a one-day forum in Geneva to discuss Yahsat's initiative to support humanitarian emergency response and sustainable development projects around the world. Yahsat was supported by its service partner, IEC Telecom, a leading telecommunications operator.

Opening the inaugural Enabling through Connectivity forum, His Excellency Obaid Salem Al Zaabi stressed the importance of the role private companies and satellite communications companies play during crisis response and sustainable development. He highlighted that Yahsat's approach is aligned to the UAE's vision for humanitarian efforts.

Najat Abdulrahman, Yahsat Executive Director Global Strategic Business Development, spoke in greater depth on Yahsat's capabilities and solutions developed specifically for the humanitarian sector. She cited Yahsat's involvement with the Crisis Connectivity Charter as a prime example of cross-agency and private sector collaboration. The industry-wide initiative is designed to accelerate the ability of emergency response teams to access satellite-based communications in times of crisis.

Members of Yahsat and the UAE mission to the UN in Geneva.

Abdulrahman also discussed the impact of sustainable development projects in Asia and Africa, where the combined efforts of Yahsat, its service partners and government agencies have resulted in local and regional socio-economic development.

+ www.yahsat.ae

ARABSAT COLLABORATES WITH ASBU TO COMBAT JAMMING

Arabsat is sponsoring and will participate in the 18th edition of the Arab Radio and Television Festival in Yasmine Hammamet, Tunisia from 25-28 May, 2017, which will be attended by media figures and broadcasters from the Middle East and North Africa.

Khalid bin Ahmed Balkheyour, President and CEO of Arabsat, said: "Arabsat has a unique and strong commercial relationship with ASBU, involving many successful projects, such as the global Arabic bouquet, in addition to the partnership agreement, MENOS, for exchanging multimedia content over satellites. Such mutual cooperation had fruitful results in the marketing and deployment of HD TV broadcasting technology in Middle East."

He added, "We are also working closely together with ASBU in many committees and international organisations to combat against deliberate satellite broadcasting jamming and piracy."

+ www.arabsat.com

ESIG MEETS TO DISCUSS COLLABORATIVE PROJECTS

The Emirates Space Innovation Group (ESIG) has held its third meeting with its member organisations since being formed by the UAE Space Agency in May 2016. The cross-sector group met at the American University of Sharjah to discuss updates across a number of space projects and activities, as well as outlining plans and funding for future initiatives and missions.

The meeting and workshop discussion saw the Space Agency brief participating organisations on proposal processes for collaborative projects in 2018. As the federal body, the Space Agency is responsible for supporting and overseeing projects throughout the national space sector.

+ www.space.gov.ae

YAHLIVE TO BROADCAST PMC MUSIC OVER AL YAH1

Yahlive has announced that North Telecom will broadcast PMC Music exclusively via Yahlive over Yahsat Al Yah1 satellite.

The free-to-air music channel, which targets Farsi, Afghan and Kurdish communities in Southwest Asia and the Middle East, is being broadcast by Yahlive's East beam – a hotspot available to more than 140 million viewers in the region.

PMC CEO Mehrdad Esmaeel Kia said: "We work closely with Yahlive to serve the Farsi-speaking community.

"As well as offering technical excellence and uninterrupted service, this is an area in which Yahlive has proven to be especially effective and highly successful. With Yahlive's extensive reach in Farsi-speaking markets, they are the natural fit to exclusively broadcast the well-loved PMC Music Channel."

+ yahlive.com

+ pmc.tv

Global Teleports launches VipNet Event

Global Teleports has announced the launch of VipNet Event, a new occasional use superfast broadband service, exclusively using SES capacity and resources and using the Newtec Dialog multiservice platform. The service, which will be available to both businesses and residential users, will be more cost-effective for people who need a superfast service for occasional use, such as for events and live broadcasts. or an industry-specific solution.

Campsites or holiday cottages which have very seasonal businesses will be able to ramp up capacity for a short period to satisfy demand. One-off event organisers will be able to hire equipment and have high-speed broadband connections on demand without being tied into long-term contracts.

"We are witnessing a growing requirement from clients looking for short-term services in all sectors," commented Roger Boddy, CEO, Global Teleports. "We are proud to be launching this unique and timely offering, which has been made possible thanks to an agreement with satellite provider SES and equipment manufacturer Newtec."


Roger Boddy, CEO, Global Teleports.

"We are pleased that Global Teleports has selected our Newtec Dialog platform for this unique occasional use deployment," said Kevin McCarthy, Newtec VP of Market Development. "Our multiservice platform including Mx-DMA dynamic bandwidth allocation is ideally suited to deliver high-speed broadband access across the globe in the most scalable, flexible and efficient way."

+ www.globalteleports.com

NOORSAT DEPLOYS TELAIRITY HD ENCODERS

Telairity has announced that Bahraini satellite service provider NOORSAT has deployed multiple Telairity BE8200 and BE8740 multi-channel HD encoders to meet its rapidly growing demand for HD channels.

NOORSAT provides effective solutions for large and small broadcasters at competitive prices via its extensive satellite capacity and modern ground infrastructure.

"As the market moves towards HD, we at NOORSAT are focusing our efforts on providing new HD services to our channel partners, both current and future, based on their needs," said Marwan Al Tal, Vice President of Sales and Marketing at NOORSAT. "We are proud to be using Telairity technology for all our growing HD requirements. Our decision to adopt Telairity encoders back in 2013 has already paid off in the upgrade of our earlier SD units to HD, significantly extending the useful life of these systems."

+ www.noorsat.com

ISRO TO LAUNCH GSAT-9 ON 5 MAY

India plans to launch its 'South Asia Satellite', which will benefit all the countries in the region other than Pakistan, which is not part of the project. According to ISRO officials, the launch of this communication satellite (GSAT-9) is scheduled for 5 May on the space agency's rocket GSLV-09.

Kiran Kumar, Chairman of ISRO, said the satellite, with a lift-off mass of 2,195kg, will carry 12 Ku-band transponders. "Pakistan is not included in that. They did not want [to be part of the project]," he said.

Earlier, it was given the name 'SAARC Satellite'. "Basically, it is meant for providing communication and disaster support, connectivity among states [countries in the South Asia region]. It will provide a significant capability to each of these participating states in terms of DTH, certain VSAT capacity, plus linking among the states for both disaster information transfer and also in terms of library type of things," said Kumar.

+ www.isro.gov.in

Malaysia Airlines first to track fleet with satellites

SITAONAIR, Aieron and FlightAware have announced that Malaysia Airlines will be the first SITAONAIR airline customer to benefit from its flight tracking partnership. Under the agreement, all Malaysia Airlines aircraft will have access to minute-by-minute, 100% global flight tracking data, delivered by SITAONAIR's AIRCOM FlightTracker.

This solution will enhance the existing SITAONAIR AIRCOM FlightTracker by adding Aireon's space-based Automatic Dependent Surveillance-Broadcast (ADS-B) data to the existing data available from FlightAware's multiple global sources, complementing active Air Navigation Service Provider (ANSP) Future Air Navigation System (FANS) activity data.

Malaysia Airlines' aircraft operations centre will receive real-time position updates of its airborne fleet globally. ADS-B data will also resolve any existing data feed coverage gaps that remain.

+ www.sitaonair.aero

YAHSAT LAUNCHES SPACE LABORATORY

The Masdar Institute of Science and Technology and Yahsat have announced the launch of the Yahsat Space Laboratory.

Launched by officials from Masdar Institute, Yahsat and Orbital ATK, the lab responds to the UAE leadership's call to develop and advance technologies within the space sector and to make continuing strides toward the UAE's advanced space ambitions.

+ www.masdar.ac.ae

+ www.yahsat.ae

ABS ANNOUNCES CO-BRANDING OF ABS-2A AS MONGOLSAT-1

ABS announced that 12 x 27MHz of payload on ABS-2A will be co-branded as the Mongolsat-1 satellite, dedicated to the Mongolia market. In attendance at this historic event were Erdenebat Jargaltulga, Prime Minister of Mongolia, and Enkhbold Miyegombo, Chairman of the State Great Hural (Parliament) of Mongolia. They accepted a token of appreciation from Tom Choi, CEO of ABS, in honour of the event.

MongolSat-1 is Mongolia's first co-branded satellite payload. The 12 x 27MHz channel satellite capacity of MongolSat-1 will be used exclusively to launch a free nationwide digital satellite TV service, telecommunications and broadband services.

ABS CEO Tom Choi said, "ABS is especially honoured and pleased to be able to co-brand part of the ABS-2A payload as MongolSat-1. ABS is very excited to be part of and assist in the dynamic growth of the Mongolian satellite market."

+ www.absatellite.com

HORIZONS 3E CHOOSES ARIANESPACE FOR LAUNCH

Arianespace announced that it will launch Horizons 3e, a satellite belonging to the Horizons joint venture owned by Intelsat and SKY Perfect JSAT. Arianespace will orbit this Boeing-built payload in the launch period starting in late 2018 on an Ariane 5 from the Guiana Space Centre in French Guiana.

Horizons 3e will complete Intelsat's global EpicNG network. The high-throughput satellite's C-band and Ku-band transponders will provide 22Gbps+ in growth capacity for aeronautical and maritime mobility applications spanning from Asia and the Pacific to North America.

"Arianespace is extremely proud that Intelsat and SKY Perfect JSAT is entrusting us with yet another satellite. We are delighted to be working with these two great leaders," said Arianespace CEO Stéphane Israël. "It is a special honour to be able to announce this contract during our annual Japan Week activities in Tokyo."

+ www.arianespace.com

SES creates two new business units

SES announced that its board of directors has approved a restructuring of SES's go-to-market organisation model with the creation of two business units, SES Video and SES Networks, focusing on the video- and data-centric segments in which SES operates. The new organisation, which will be implemented during the course of 2017, will gather all go-to-market capabilities and allow SES to deliver increasingly differentiated and essential satellite-enabled communication solutions to SES clients. SES Networks comprises the Enterprise, Mobility and Government segments, and integrates O3b Networks.

Ferdinand Kayser, currently Chief Commercial Officer of SES, has been appointed CEO of SES Video; Steve Collar, currently CEO of O3b Networks, has been appointed CEO of SES Networks. Both will report to Karim Michel Sabbagh, President and CEO of SES.

Ferdinand Kayser, Chief Commercial Officer of SES, and CEO of SES Video.

In addition to the President and CEO, the CEO of SES Video and the CEO of SES Networks, the Executive Committee of SES comprises Chief Financial Officer Padraig McCarthy, Chief Strategy and Development Officer Christophe De Hauwer, Chief Technology Officer Martin Halliwell, Chief Human Resources Officer Evie Roos and Chief Legal Officer John Purvis.

"This new market-facing structure will enable SES to accelerate the execution of its market-centric strategy and concentrate its differentiated capabilities within each community to best serve its customers globally," said Romain Bausch, Chairman of the SES Board of Directors.

"Scaling up its essential capabilities, SES demonstrates strategic determination and foresight, bringing the best of SES to each and every client we serve around the world. The new operating model will allow SES to fully leverage the capabilities of its affiliates, MX1 and O3b, in which we have recently made significant investments, and make them a key enabler of our video and data-centric businesses respectively. With Ferdinand and Steve, we have two of the most trusted and experienced leaders at the helm of the respective business units."

+ www.ses.com

MITSUBISHI ELECTRIC TO BUILD NEW SATELLITE PRODUCTION FACILITY

Mitsubishi Electric has announced that it will invest approximately $98.6m to construct a new facility for the production of satellites at the company's Kamakura Works in Kamakura, Japan. Together with existing facilities, Mitsubishi Electric's production capacity will increase to 18 satellites in parallel, up from 10 in parallel at present, which will enable the company to satisfy growing demand for governmental satellites in Japan and commercial communication satellites worldwide. Mitsubishi Electric is targeting space-related revenue of $1.35bn by 2021.

The new facility will increase production efficiency, shorten production time, reduce costs and elevate product quality for enhanced competitiveness. It will incorporate information technology based on Mitsubishi Electric's e-F@ctory solutions.

In the field of commercial communications satellites, which is a steady global market, Mitsubishi Electric aims to enhance its position with technologies cultivated for governmental satellites, such as next-generation engineering test satellites.

+ www.mitsubishielectric.com

THURAYA AND ELSE SA SIGN MOU FOR STRATEGIC ALLIANCE

Thuraya's head office in Dubai, UAE.

Thuraya and ELSE SA, a new Swiss space start-up, announced that they have signed an MoU paving the way for a strategic alliance between the two organisations. The agreement will allow the companies to collaborate and benefit from each other's capabilities on multiple fronts, including technical, regulatory and sales and marketing.

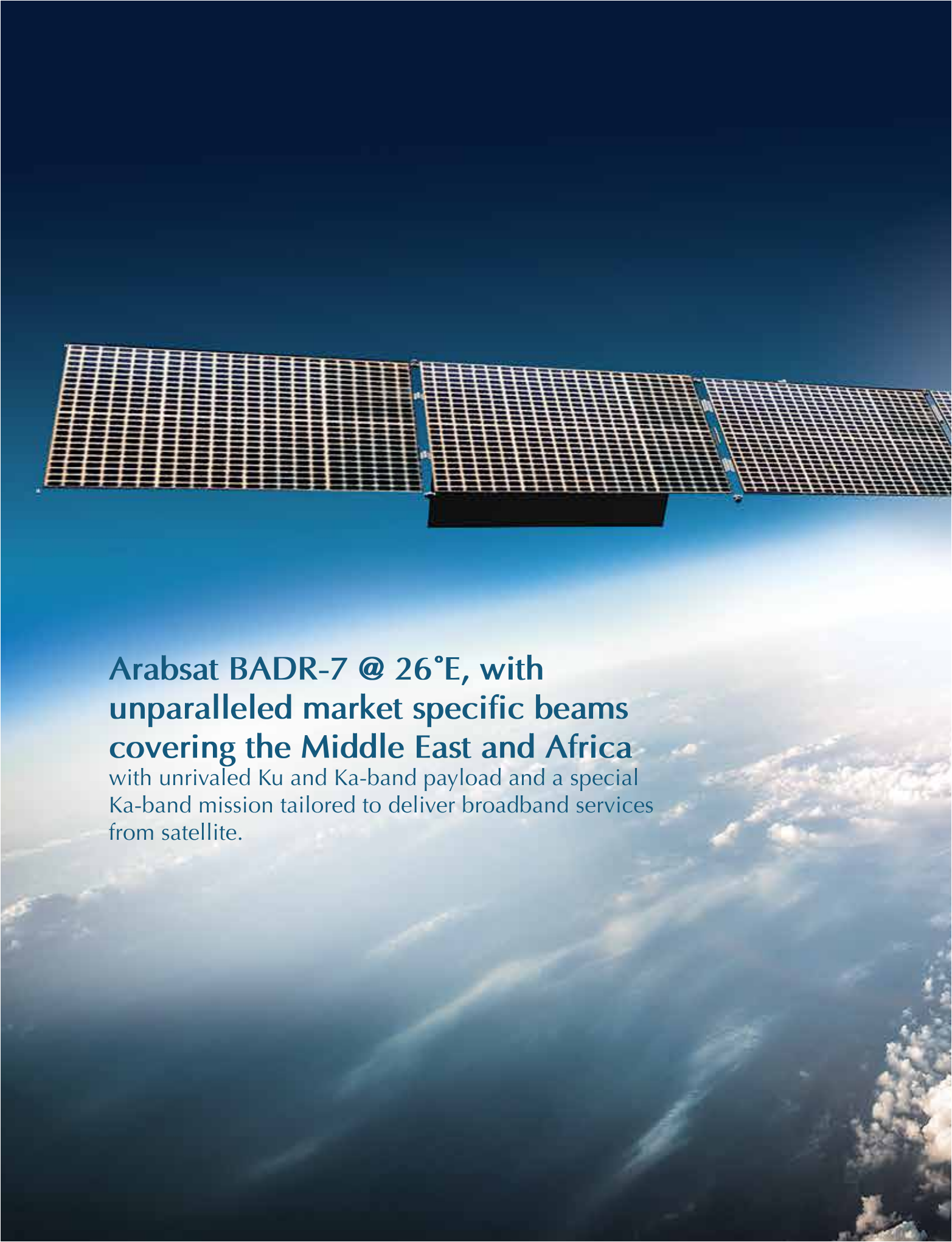
From a commercial perspective, the agreement between Thuraya and ELSE extends their product and service portfolios considerably, as well as facilitating expedited access to the market.

Thuraya Chief Strategy Officer Jassem Nasser said: "This agreement forms the foundation of an extensive framework and an exciting long-term collaboration towards providing a progressive platform for our partners to offer services beyond basic satellite connectivity. FUTURA, our future plan, encompasses three main pillars, one of which is 'New Wave' services for M2M and IoT applications. Our alliance with ELSE serves as a building block for the development of this component,"

The ELSE team has supported more than ten European Space Agency (ESA) missions and seven nanosatellite missions, and is building a network of low-Earth orbit (LEO) nanosatellites named Astrocast that will provide cost-effective IoT and M2M services to global enterprises.

+ www.thuraya.com

+ www.astrocast.net



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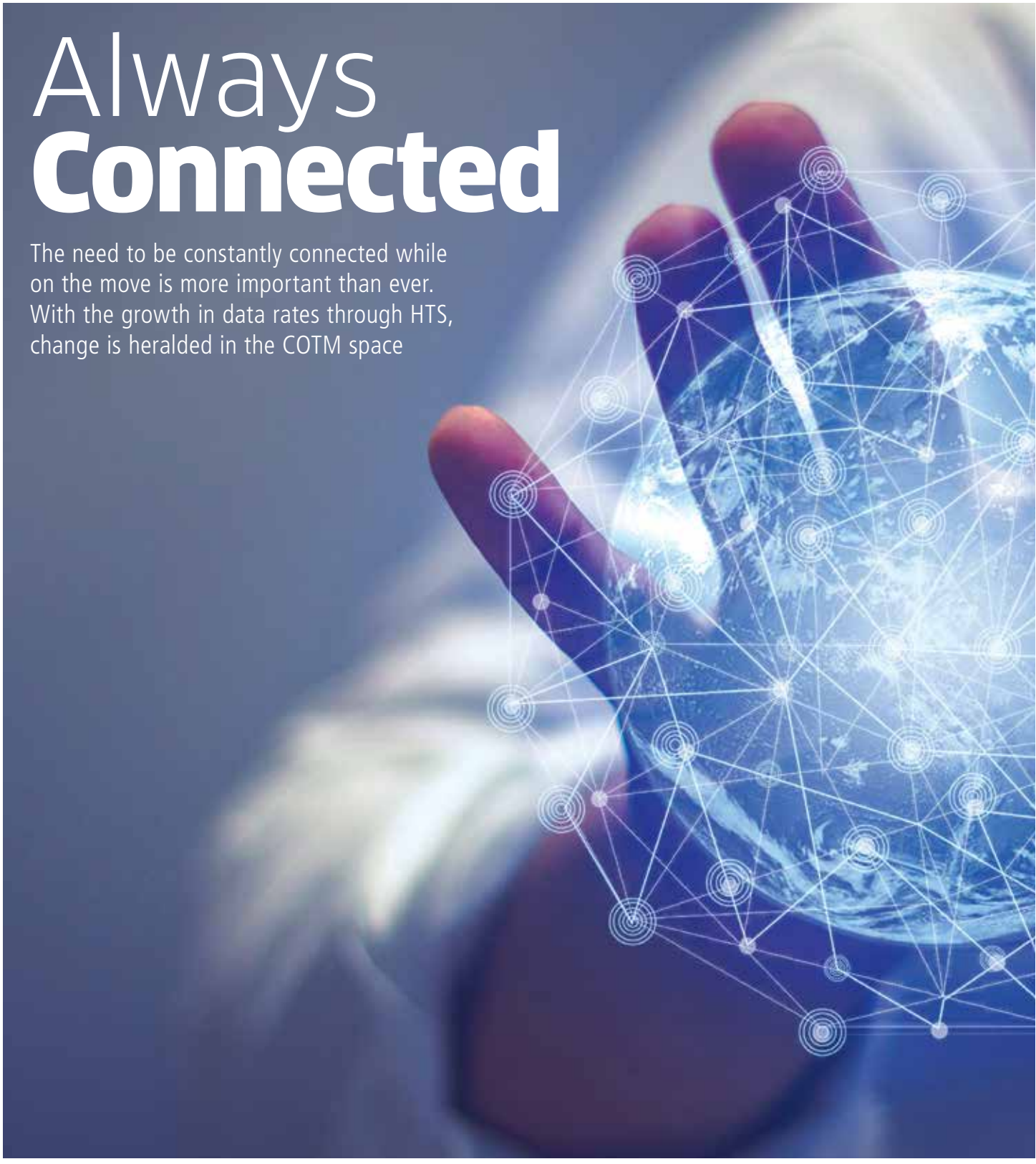
Always **Connected**

The need to be constantly connected while on the move is more important than ever. With the growth in data rates through HTS, change is heralded in the COTM space



HTS has augmented the available global capacity for satellite broadband, giving users more choice and flexibility to choose the service that best suits their needs. With the technology using a combination of small spot uplink and downlink beams to maximise the power sent down from the satellite into a smaller area and at the same time enable smaller terminals to transmit at higher data rates to the satellite, it looks like the COTM scene is set to be redefined for the foreseeable future.

Simon Hoey, Business Development, Global Government, Intelsat, says: "An on-board digital payload enables the satellite operator to offer the customer loop-back, mesh, broadcast or star network connections with any-to-any beam interconnection. In the case of the Intelsat EpicNG HTS fleet, the payloads also offer traditional widebeam Ku- and C-band coverage, which can be cross-connected to the HTS beams via the on-board digital payload. In this way, EpicNG enables existing networks to include COTM small disadvantaged terminals in a cost-effective and efficient way. The EpicNG platform is also backward compatible so that existing COTM utilising Ku-band will be able to leverage the higher performance of these HTS without changing out antennas."

HTS will provide significantly more capacity at lower costs, dramatically improving the user experience and opening satellite connectivity to new industries and markets.

Kevin McCarthy, VP of Market Development at Newtec, says that since mobile VSAT terminals for COTM applications use steerable antennas, network operators can quickly roll out HTS capacity by simply repointing the antennas remotely.

With the changing scene in COTM, he says equipment needs have also transformed.

"The powerful spot beams created by HTS are one of the main catalysts for the requirement of new, modern VSAT platforms, creating a demand for more robust equipment and advanced transmission standards. The affordable flat panel antennas coming to the market will make mobile VSAT services viable for smaller vessels, airplanes and even cars."

The spot-beam architecture and higher power of some HTS networks encourage smaller reflector dish sizes and therefore

Simon Hoey, Business Development, Global Government, Intelsat.

Roger Harfouch, Regional Director ME, Marlink.

reduce the size and weight of the antenna, which is especially important for maritime users where space on board can be an issue.

Jens Ewerling, Director, Maritime Broadband, Cobham Satcom, says: "Overlapping spot beams and higher power essentially reduce the 'edge of coverage' effect under a satellite's footprint, so 60cm antennas are now viable even for globally operating vessels. In real terms, ships can have smaller, lighter antennas installed and still experience link stability and performance close to that delivered by a larger antenna on older networks."

"At Cobham, we have developed a new 60cm SAILOR platform. Large ships have the real estate on board for 1m antennas, but the development goal of our MSUA award-winning SAILOR 60 GX for Inmarsat Fleet Xpress and SAILOR 600 VSAT Ka currently for Telenor Satellite's Thor 7 was not to replace antennas on those vessels. Instead, they introduce VSAT for vessel types that couldn't install a 1m antenna due to space/weight restrictions or budget, in terms of capital expenditure and installation costs."

In more mission-critical situations, like military and defence, data demand continues to increase significantly year after year in air, land and sea applications, with a variety of means to optimise throughput. These users operate in an environment with dynamic coalitions, complex interoperability and specific security needs, where access to processed and interpreted data is a force multiplier.

"An on-board digital payload enables the satellite operator to offer the customer loop-back, mesh, broadcast or star network connections with any-to-any beam interconnection"

SIMON HOEY, Business Development, Global Government, Intelsat

Darin Anderson, Director of International Business Development, ThinKom Solutions, says: "Although there are many tall dome or parabolic antenna systems for COTM in military and government applications, trends are moving to replace these high-visual signatures in the military environment. By reducing the profile, this allows for discretion in use and application without giving up performance. That is highly beneficial for such aero, land and maritime applications that can be pushed terrestrially with advances in LOS and NLOS terrestrial use in varying frequency bands to the war-fighter."

"The AEHF satellite constellation cost way more than expected and strategic waveforms are too expensive, heavy and power-hungry for dismounted forces. Therefore, the DoD is working to deploy affordable, next-generation, protected SATCOM systems based on Protected Tactical Waveform (PTW). PTW provides low-cost communications for

dismounted solders who have a critical need for secure anti-jam (AJ) and low-probability-of-intercept (LPI) satellite communications."

According to Hoey, the key to successful operations is a short time from data collection to processing and then distribution to assets. All of this requires resilient communications systems.

He adds: "Satellite communications supports rapid decision-making, interoperability, big data sharing, ISR and C2 battle management. Commercial technology offers capabilities in information management which can apply to meet the growing demands for access to critical data. Intelsat's new IntelsatOne Flex service will offer a global communications infrastructure enabling defence customers to respond rapidly to operational needs world-wide."

McCarthy says significant geo-political shifts and numerous security issues facing nations worldwide have created a security situation unlike any other in recent memory. In order to meet these challenges, Newtec's product portfolio has also had to be constantly evolving.

"Although there are many tall dome or parabolic antenna systems for COTM in military and government applications, trends are moving to replace these high-visual signatures in the military"

DARIN ANDERSON, Director of International Business Development, ThinKom Solutions

"The Newtec MDM9000 satellite modem, for example, provides double the throughput at maximum service availability compared to legacy systems. The relay of high-definition video and sensor data from bandwidth-hungry sensors on board Intelligence, Surveillance and Reconnaissance (ISR) platforms increases operational efficiency and enhances the decision-making process," says McCarthy.

Aviation and Maritime

The aviation sector is more focused on antenna size and weight than any other vertical, and there have been some advances in this area. Broadband is now more readily available too, and there are general improvements in the availability of connectivity in both the cabin and the cockpit.

VOD (video on demand) and streaming on Netflix, Amazon, YouTube, etc, as well as the many social media data-hungry applications, seem to be fuelling the commercial interests, while others are looking to include remote viewing and monitoring in the cockpit and cabin, or pushing additional situational

Communications antenna on a maritime vessel.

awareness streams to field operations.

"ThinKom advances in antenna technology for GoGo's 2Ku offering brings 70Mbps to the plane today (100Mbps with HTS), and 2x to 4x this bandwidth in the near future," claims Anderson.

"The key antenna improvement ThinKom employs to support world-class broadband mobile throughput is having high efficiency, broad tunable and instantaneous bandwidth, superior cross-pol discrimination and robust tracking. ThinKom initially introduced ground mobile products, which in many ways is more difficult than airborne applications, as the blockage issues are more frequent, requiring more complex algorithms, and dynamic agility requirements over rough terrain are more extreme," continues Anderson.

One of ThinKom's commercial successes has been the ThinSat 300 Ku-band satellite communication-on-the-move (SOTM) product. These systems are globally deployed to users such as broadcasters, emergency response and border patrol for surveillance applications, and routinely support 2-8Mbps of throughput operation on the move.

"Much more data is being generated and transmitted back to internal digital platforms and, when used correctly, data produced by vessels and fleets can add tangible value to maritime operations"

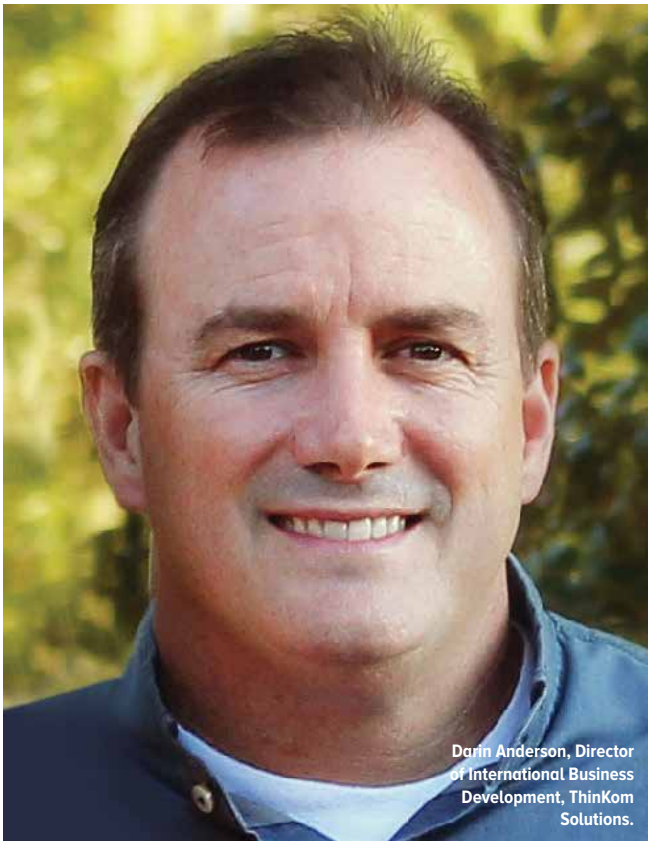
ROGER HARFOUCH, Regional Director ME, Marlink

Hoey of Intelsat says: "Aero customers can operate their own networks on Intelsat EpicNG or customers can access IntelsatOne Flex managed services aimed at communications for in-transit, ISR and VIP users. As part of a development road map, Intelsat is working with hardware specialists towards a new service for the small business jet market, again leveraging the HTS capabilities of EpicNG and the IntelsatOne ground network to offer a more resilient network than is possible with a smaller fleet of satellites."

Newtec's McCarthy adds that its next-generation aero modems will support all the efficient waveforms available on the market today, including DVB-S2X and Newtec's Mx-DMA technology, which also includes VL-SNR MODCODs. Together, DVB-S2X and Mx-DMA will deliver more than 50% more data using the same satellite capacity, greatly improving the speed of the service.

This is similar in the maritime market, where data rates and customer requirements for bandwidth are increasing, while the target price per Mbps is under pressure.

Forward-thinking ship owners understand that data and digitalisation can help them to operate more effectively in order to maximise profits. This community of ICT-savvy global players is leveraging the power of broadband to connect their huge fleets



Darin Anderson, Director of International Business Development, ThinKom Solutions.

Jens Ewerling, Director, Maritime Broadband, Cobham Satcom.

Kevin McCarthy, VP of Market Development, Newtec.

Airline passengers are demanding high-speed internet connectivity during their journeys.

with each other and experts on shore.

"Much more data is being generated and transmitted back to internal digital platforms and, when used correctly, data produced by vessels and fleets can add tangible value to maritime operations. But it requires a reliable, always available IP connection to truly realise the power of data to maritime operations, which is why we have developed the world's largest, most reliable multi-band communication network for maritime users. By integrating all available services and bands, we are providing the coverage where it's needed and the throughput that's required, at the right cost. Satcom is helping to revolutionise shipping. It is behind the creation of smart ships and will be the backbone of a future where unmanned ships are commonplace," says Roger Harfouch, Regional Director ME, Marlink.

Ewerling says he is seeing changing needs in the COTM market for maritime, as shipping companies start to embrace digitalisation, and safer and more efficient vessel and fleet operations. Key to this is getting data off ships and back to shore, so it can be analysed and used to, for example, save fuel or improve logistics. This, in turn, is putting more focus on the uplink, which is one of the reasons Cobham Satcom recently introduced its new SAILOR 900 VSAT high-power antenna.

"SAILOR 900 VSAT High Power makes it easier and less costly to ensure high availability of service, as there is no need for additional hardware. It also delivers the potential for satcom service providers to deliver higher uplink bandwidths," explains Ewerling.

"Dynamic bandwidth allocation schemes will need to be more efficient and scalable in order to sustain the next wave of growth"

KEVIN MCCARTHY, VP, Market Development, Newtec

Ewerling adds that even though the company is continuously developing its software-controlled antennas and VSAT technology platform, he is confident that stabilised antennas will continue to be the primary equipment used by ships and boats. Even though Cobham is monitoring the development by other parties of new flat panel antennas, based on its deep understanding of the physics involved, he is not yet convinced of their value for service providers and end users.

McCarthy thinks scale is the next big challenge for mobile VSAT operators.

"Networks are getting larger and bandwidth demand is growing exponentially. Dynamic bandwidth allocation schemes will need to be more efficient and scalable in order to sustain the next wave of growth," he concludes. PRO

Reaching **Further**

With VSAT throughput multiplying by almost a factor of 10, never-before-seen applications are sprouting in the industry. All this comes at a cost, however, and although satcom is still more expensive than terrestrial infrastructure, the gap is closing

VSAT is ideally suited for use in regions where terrestrial data networks do not exist, either for reasons of cost or due to the difficulty of installation. This is often the case for exploration installations in the Antarctic, industrial installations in third-world countries, and the requirement for secure communications in areas where security and safety have reached critical turning points.

Warren Ackerley, Business Development Director at Paradigm, says: "VSATs are frequently used to overcome geographic constraints by providing the backhaul link for mobile/GSM and 3G operators. VSAT is bringing cost-effective connectivity to remote areas of the globe, which is in turn helping to foster business development and improve medical and educational services for those regions."

"Additionally, VSAT can provide critical back-up support during times of crisis and disaster; being able to enter a disaster zone with all the equipment to quickly get connected can seriously impact the number of lives that can be saved, and VSAT technology is the key to enabling that. Paradigm has responded to that by developing the Swarm45 VSAT terminal, which fits into one case and can be placed into the overhead locker of a commercial aircraft. This allows first-response or broadcast teams to be out of the airport and on their way to the site as quickly as possible."

With the advent of HTS, speeds have improved dramatically and a lot of

"VSAT is bringing cost-effective connectivity to remote areas of the globe, which is in turn helping to foster business development and improve medical and educational services"

WARREN ACKERLEY, Business Development Director at Paradigm

changes in modems and other ground infrastructure have made it possible to squeeze out even higher bitrates.

Nabil Ben Soussia, Managing Director of IEC Telecom Middle East and Kazakhstan, says speeds of between 20Mbps and 30Mbps can be easily seen, depending on the region.

"With other points, for a higher price you can witness rates of even 100Mbps, which today we can say is comparable with terrestrial infrastructure. Due to the complexity of the satellite business and the high costs involved, the cost to the customer is still higher than terrestrial networks, but closing the gap is just a matter of time," he continues.

Alvaro Sanchez, Sales and Marketing Director, Integrasys, concurs, adding: "We have seen up to 100Mbps in iDirect and Hughes platforms, so the speeds have increased significantly from 10s to 100s of Mbps."

The real advantage of HTS is that it enables much smaller terminals to achieve similar or better throughputs to larger terminals on other networks. In addition, larger terminals on HTS can consequently achieve really high speeds.

Ackerley thinks VSAT has reached a development level where it is now a viable candidate for high-speed data and high-quality communication and media transmission.

"The advances made by simplifying the VSAT pointing process have resulted in VSAT terminals which mimic the straightforward set-up and operation of a BGAN. With Paradigm's new flat panel Swarm45 terminal, users can benefit from transporting a small, lightweight terminal which can be set up and pointed in under five minutes with minimal training, and still provide high-speed and high-quality communication," he says.

This high speed, however, is also a prime candidate for interference. Ben Soussia explains that HTS satellites use a lot more Ka-band today. They also use multiple beam coverage, which can focus on a narrow beam to give higher speeds. However, even though frequency reuse on multiple spot beams is a way of increasing efficiency, it is also a source of interference generation.

Warren Ackerley, Business Development Director, Paradigm.

"The advances made by simplifying the VSAT pointing process has resulted in VSAT terminals which mimic the straightforward set-up and operation of a BGAN"

WARREN ACKERLEY, Business Development Director, Paradigm

According to him, more accurate pointing of antennas is needed to mitigate the issue.

For Sanchez, Integrasys' Satmotion Pocket is one solution.

"Major manufacturers sell it integrated in their own product portfolio, being the standard for interference nulling in VSAT networks. Some examples are Comtech, Hughes and iDirect, who provide this to their customers in the latest platforms, fully integrated. At the hub, the operators use Alusat for maintenance purposes, which complements Satmotion Pocket very nicely, adding a great feature for optimising the link and minimising interferences without having to revisit the site," says Sanchez.

The improved modulation techniques now used in VSAT allow the frequency spectrum to be used much more efficiently.

Paradigm's Swarm45 being deployed in the field.

This development, combined with more advanced error correction coding using less bandwidth, has resulted in being able to achieve much higher data rates.

Ackerley says: "Challenges caused by weather when operating on the Ka-band spectrum can also be mitigated with advances in adaptive modulation and coding techniques. These can change the modulation and FEC of an RF carrier on the fly and thus react to changing weather conditions. Should rain fade affect the condition of the link, the system will automatically change the parameters to avoid loss of signal. This has greatly improved the Ka-band signal reliability in the face of deteriorating weather conditions.

"Wet performance is also greatly

increased when using a flat panel antenna compared to a parabolic, as the signal passes through the antenna only once, reducing rain attenuation. Additionally, the flat panel design sheds water easily and avoids water pooling."

The industry is also starting to collectively use carrier ID to combat interference from unauthorised users, unintentional or not. This is a system whereby all broadcast transmission terminals will be identified by their carrier ID, allowing any interfering terminals to be quickly located. Once identified and located, the impact from the interference can be quickly and easily fixed.

Oilfields and maritime

Oil installations, whether on land or at sea, are often beset by the cost of installing terrestrial communication options. VSAT is the ideal alternative technology for the transmission and receipt of data.

According to Ben Soussia, oilfields are places where the density of people is very small. For a terrestrial operator, they don't justify the amount of cable that has to be rolled out to serve this small group of people for a short period of time.

"Terrestrial operators know that if the plan is for ten years or more it makes sense to do it, but not otherwise. This is why VSAT will remain one of the main communication tools. For VSAT, any place on the Earth is equal, and this is not the case for terrestrial links, which factor in how far away from the city a particular location is, how many people have to be served, and the investment involved," says Ben Soussia.

Ackerley thinks that, within these sectors, the likely installation type is fixed terminal for land and offshore rigs, but only if the installation platform is fixed. For marine platforms, stabilised maritime terminals are often installed. The large quantity of high-quality geophysical survey data and video from exploration and installation equipment requires a high-quality, very reliable means of transmission, for which VSAT is the ideal communication technology.

"For maritime, the requirements can often expand into the transmission of media, as required by the cruise

Nabil Ben Soussia, MD, IEC Telecom Middle East and Kazakhstan.

"For VSAT, any place on the Earth is equal, and this is not the case for terrestrial links, which factor in how far away from the city a particular location is, how many people have to be served, and the investment involved"

NABIL BEN SOUSSIA, MD, IEC Telecom Middle East and Kazakhstan

ship industry, or the live broadcast of video data from security vessels. Maintenance and trouble-shooting of remote VSATs can also be managed using Paradigm's MiCREW system.

MiCREW provides global out-of-band management of the primary satcom link. Faults can then either be fixed remotely, or if a site visit is needed then the engineer knows just what to take.

"The mobility and flexibility of a terminal such as Paradigm's Hornet100T successfully meets the needs of the exploration and oil industry. With readily available Pico cell technology, it offers a simple global communication solution for remote and isolated areas by providing an 'office-in-a-box' – all office communications can be encased in a rugged backpack or case. The Pico cell system can then be utilised to provide a private communication network anywhere in the world with no infrastructure required. VoIP, GSM, satellite and data networks can then be deployed, and all calls are routed locally so no roaming charges apply. This results in substantial cost savings," adds Ackerley.

So what are the challenges, and how can they be overcome?

Ben Soussia thinks the biggest challenge is the proliferation of terrestrial networks.

"When we have customers that grow much larger, they can be attracted by GSM operators. VSAT operators know that their cost is much higher than terrestrial operators, so this will always be a factor. There might be a reduction in costs for manufacturing, launching and operating a satellite, but it will always be more expensive. VSAT operators try to make themselves compatible with terrestrial infrastructure. In case GSM arrives to a certain location, VSAT can be used as a value-added service to terrestrial networks. VSAT can also act as a back-up and alternative route. It is a matter of flexibility."

A clear challenge to VSAT operators is the constant requirement to address the cost of equipment, along with the required research and expenditure into the next generation of equipment and technology, thinks Ackerley.

Alvaro Sanchez, Sales and Marketing Director, Integrasys.

"We have seen up to 100Mbps in iDirect and Hughes platforms, so the speeds have increased significantly from 10s to 100s of Mbps"

ALVARO SANCHEZ, Sales and Marketing Director, Integrasys

Creating the ideal terminal to the exact geographical and installation requirements of a project can often increase the cost and technical expertise requirements. In an effort to overcome this, VSAT operators often focus on specific areas such as low-end budget installations or the maritime sector.

"In addition, VSAT communication is all too often viewed as complicated and cumbersome. Originally, terminals were heavy with auto-acquire motors and large components; set-up was lengthy and the pointing process complicated. The advances in technology for simplifying terminal set-up and developing methods for easy, accurate pointing are hugely beneficial to the VSAT market and the way it is perceived.

"For instance, the Paradigm Interface Module (PIM) is a compact and ruggedised terminal controller which provides simple, accurate pointing procedures, intuitive web interfaces and completely integrated VSAT, resulting in VSAT communication which is straightforward and simple to use," concludes Ackerley. PRO

The Swarm45 can fit into a cabin luggage cargo hold.

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Du partners with STEP conference to support start-ups

Du was the official sponsor of the largest interactive gathering in the Middle East and North Africa, STEP Conference 2017.

During the event, EITC CEO Osman Sultan delivered a keynote speech addressing the importance of connectivity and digital integration in innovation. He also discussed the growth and expansion of the UAE's entertainment industry, and in particular the role that du has taken in supporting the growth of this industry.

"As the UAE works to diversify its economy, we continue to pave the way for new avenues that will drive the economic contribution of the country," said Sultan. "Our investment in entertainment, through platforms such as our events and music platform du Live! and our award-winning movies platform du Tuesday, is among the many ways in which we are making a contribution to the entertainment industry in the UAE."

+ www.du.ae

Osman Sultan, CEO, EITC.

LIQUID TELECOM AND INTELSAT EXPAND BROADBAND SERVICES IN AFRICA

Pan-African telecoms group Liquid Telecom, a subsidiary of Econet Global, and Intelsat have announced a new agreement that will introduce high-performance Intelsat Epic^{NG} satellite services into the Liquid Telecom network.

As part of the new multi-year agreement, Liquid Telecom has committed to dedicated services on the Intelsat 33e satellite, which began operations earlier this year. The solution features ground networking equipment based on the Newtec Dialog VSAT platform, including technology developed under the ESA-funded Project Indigo announced previously by Intelsat and Newtec.

By taking advantage of Intelsat's high-throughput satellite (HTS) solutions, Liquid Telecom will be able to deliver more bandwidth with greater efficiency to meet the growing needs of businesses across Africa. The new Intelsat Epic^{NG} services will expand Liquid Telecom's coverage and network capabilities across the Democratic Republic of Congo, Kenya, Malawi, South Africa, Tanzania, Uganda, Zambia and Zimbabwe, where demand has grown for VSAT technology to deliver connectivity to underserved remote or rural areas.

"Breakthroughs in technology continue to position satellite as a more compelling connectivity solution for businesses across Africa. By teaming with Intelsat, Liquid Telecom will be at the forefront of satellite communications, ensuring we can meet the future bandwidth needs of our customers no matter where they are in the region," said Scott Mumford, Group Managing Executive, Liquid Telecom.


An artist's impression of Intelsat 33e.

+ www.intelsat.com

+ www.liquidtelecom.com

Etisalat announces lower roaming rates

Etisalat announced that it has further reduced its roaming rates for voice calls, SMS and data.

Starting from 1 April, 2017, Etisalat's prepaid and post-paid customers will enjoy discounted roaming rates of up to 35% on data, outgoing voice calls to the UAE, the GCC and local destinations, and outgoing SMS while travelling to any GCC country – Bahrain, Kuwait, Oman, Qatar or Saudi Arabia – and roaming through any roaming partner. The new rates are introduced in coordination with the Telecom Regulatory Authority (TRA) to encourage roaming services within the GCC at affordable rates.

Customers can view and purchase from Etisalat's wide range of roaming offers by simply dialling *177# (free within the UAE or abroad), or using the Etisalat UAE mobile app, where they can also view the standard roaming rates and list of preferred partners.

Etisalat has an extensive network of almost 774 international networks in over 213 countries.

To enhance the customer's data experience, Etisalat recently expanded its preferred 4G LTE partner networks to over 229 operators in over 90 countries, enabling subscribers to take advantage of the high-speed mobile data offered on 4G networks while browsing the internet outside the UAE.

+ www.etisalat.ae

DU ANNOUNCES HIGH DEFINITION DTH ON 7W ORBITAL POSITION

Du has announced its new HD DTH platform on 7W orbital position. The telco is expanding its existing capacity on 7W with the new DVB-S2 transponder, to offer content without limits.

Specifically designed for HD channels, the platform is optimised for high-growth broadcast markets with major regional and international free-to-air channels. With this addition, du becomes one of the largest providers of DTH capacity for free-to-air channels in HD.

"Our customer is at the core of all our operations, and we are wholly committed to innovating and working with various partners to create and deliver solutions that optimise the end user experience," said Fahad Al Hassawi, Chief Commercial Officer, du. "Through our new HD DTH platform, we aim to enhance broadcast services for over 56 million homes across the Middle East and North Africa region."

+ www.eutelsat.com

+ www.du.ae

MOBILE DATA GROWING FASTER THAN VOICE IN BAHRAIN

Sheikh Nasser Bin Mohamed Al Khalifa, Deputy General Director of TRA Bahrain.

For the first time since 2008, total revenue and traffic for local and international calls has dropped significantly in favour of higher data consumption in Bahrain's telecoms market. Furthermore, traditional voice services receded in use by 17% between 2014 and 2015, and data revenues are expected to overtake voice. By the third quarter of 2016, there were 1.8 million mobile subscribers in the kingdom compared to 800,000 in 2012, an 89% leap in four years. Active mobile broadband subscriptions in the third quarter of 2015 accounted for 57%, growing to 64% one year later.

"The popularity of mobile services is undeniable at this point. Innovation, in addition to investment in telecoms infrastructure and services, are key to realising the potential of today's mobile economy," said Deputy General Director of TRA Bahrain, Sheikh Nasser Bin Mohamed Al Khalifa. "There is a vast array of opportunities that Bahrain's market can cultivate from this development. Data over mobile can and is starting to stimulate local trade, and support small, medium and large businesses; by enabling citizens to make use of e-services, there is room for much more to be done, and it can all be done over your smart device."

Mobile data services are changing the global telecoms landscape in a big way. With the increasing popularity of smart devices, forecasts predict that mobile subscriptions may pass eight billion users globally as early as 2022, 4.1 billion of which will be made up of LTE subscriptions.

+ www.tra.org.bh

Etisalat and Miral sign deal for WiFi on Yas Island

Visitors to Abu Dhabi's Yas Island will enjoy access to high-speed internet, enabling them to text, browse, chat and stream videos easily thanks to a new strategic partnership signed between Etisalat and Miral.

The service will be available to both UAE residents and tourists with international mobile numbers, and accessed through the UAE WiFi by Etisalat network to provide visitors with public WiFi.

The strategic project will be rolled out across Yas Island, connecting residents and visitors at all of the island's various leisure and entertainment assets.

The partnership aligns with the country's 'smart' vision, which focuses on delivering WiFi coverage across all UAE regions, including Abu Dhabi, Dubai and the Northern Emirates. Integrating the most advanced technologies, residents and visitors can look forward to seamless and secure internet access once the service launches, Etisalat said in a statement.

"Today the country has the most connected networks in the region, due to the long-term vision of our leadership. Etisalat has continuously invested in building a superior telecom network to enable connectivity for all residents. We are proud to be associated with this prestigious project that will set a path to enable our network on the entire Yas Island," said Jamal Saeed Al Nuaimi, GM of Etisalat, Abu Dhabi.

+ www.etisalat.ae

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L-R: Jamal Saeed Al Nuaimi, GM, Etisalat, Abu Dhabi, and Mohamed Abdalla Al Zaabi, CEO, Miral.

ZAIN SAUDI ARABIA RECORDS FIRST EVER QUARTERLY NET PROFIT

Zain Saudi Arabia reported its first ever quarterly net profit for the three months ending March 31, 2017, driven by revenue growth and optimisation of its operational cost structure.

Bader Nasser Al Kharafi, Zain Group Vice-Chairman and CEO and Vice-Chairman of Zain Saudi Arabia, commented, "This strong performance of Zain's operation in Saudi Arabia comes at a time when the Saudi telecom market is witnessing exponential growth in demand for digital services which we are exploiting, reflecting the success of our turnaround and cost optimisation programme, and justifying our heavy investment in expanding and upgrading the state-of-the-art 4.5G network."

Bader Nasser Al Kharafi, Zain Group Vice-Chairman and CEO and Vice-Chairman of Zain Saudi Arabia.

Al Kharafi continued: "Despite the intense competitive challenges of the Saudi telecom market, Zain Saudi Arabia is now on a forward growth trajectory and the management team remain cautiously optimistic and clearly focused on strategic priorities, continually striving to improve all aspects of this key operation for Zain Group."

"The decision to extend the operating licence for an additional 15 years, combined with a unified telecom licence and other favourable gestures by the Saudi authorities, will give Zain Saudi Arabia a significant stimulus towards achieving its business objectives and at the same time positively impacting its financial performance."

Revenue grew by 9% in Q1 2017, reaching $511.6 million compared to $470.6 million in Q1 2016. This was a 7% increase in revenue from the $480.2 million generated in Q4 2016.

The company recorded a significant 49% increase in EBITDA to reach $177.3 million in Q1 2017, up from $118.6 million in Q1 2016 and a 36% increase from $130.6 million in Q4 2016.

EBITDA margin rose to 35% for Q1, 2017, up from 25% in Q1 2016, and 27% in Q4 2016.

Zain Saudi Arabia also reported a 19% increase in gross profit to reach SAR 1,291 million for Q1 2017, a gross margin of 67%, up from $289.5 million and 62% gross margin in Q1 2016. Gross profit also increased by 13%, up from $304 million and 63% gross margin in Q4 2016.

The company recorded operational income of $72.8 million in Q1 2017, compared to operational loss of $8.5 million in the same quarter of 2016. Operational income increased by 214% compared to $23 million in Q4 2016.

+ www.sa.zain.com

VODACOM AFRICA DEMONSTRATES MISSION-CRITICAL LTE SOLUTION

Andries Delport, CTO, Vodacom Group.

Vodacom has successfully demonstrated the first broadband multimedia trunking solution on a commercial LTE network in Africa. The solution makes it easier and faster for public safety industry to communicate, and incorporates the latest multimedia functions, which makes it quick to avert disaster situations.

Vodacom believes public safety services such as police, ambulance and fire services, and other vertical industries such as public transportation, logistics, mining, construction, air/sea/rail ports and security, can greatly benefit from the demonstrated LTE broadband multimedia trunking solution.

Andries Delport, CTO, Vodacom Group, commented: "I'm excited by what my team has done here, as this is the first LTE broadband multimedia trunking demonstration in the whole of Africa. The mission-critical broadband trunking solution is an innovative new technology which leverages Vodacom's superior coverage to enable exciting new applications on its LTE network. This is yet another example of Vodacom being the first and most innovative network to launch new technologies in South Africa, and also Africa."

Vodacom has partnered with Huawei for the demonstration, to use Huawei's LTE integrated Trunked Radio (LiTRA) application to demonstrate a broadband multimedia trunking solution which runs on Vodacom's commercial, nationwide LTE network.

The LiTRA solution overcomes the challenges of using a public LTE network for mission-critical communication by prioritising emergency communications with a higher quality of service, and also ensures the encryption and security of these messages.

+ www.vodacom.com

+ www.huawei.com

It's all happening **in Asia**

This year's summit address will be given by Rohit Talwar, CEO of Fast Future Research, where he will speak about how AI will revolutionise business and industries


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This year's CommunicAsia2017 Summit Visionary Address, 'Artificial Intelligence Versus Genuine Stupidity – Navigating Exponential Technologies to Create a Very Human Future', will be delivered by Rohit Talwar, CEO of Fast Future Research, on 24 May at Marina Bay Sands, Singapore.

"AI, coupled with the other rapidly accelerating fields of science and technology, will drive large-scale change and transformation of existing businesses and industries while also enabling the creation of entirely new sectors," says Talwar.

He also predicts that the pace of development and potential of AI means it is perhaps the most important area of decision-making that business leaders will face over the next few years, and the effective implementation of AI will be a crucial differentiator between success and failure of firms in a fast-changing world.

Artificial intelligence, coupled with other key science and technology developments, will help transform the $78 trillion global economy. Fast Future estimates that by 2025, the economy could grow to $120 trillion – with over half coming from AI-enabled industries that either do not exist today or are in their infancy, such as autonomous vehicles, self-replicating machines and adaptive personal health management systems.

"The core challenge is to help organisations embrace and adapt to accelerating change and prepare for a world that we can't yet see but is just around the corner," says Talwar. "We will see AI being used for product design, pricing decisions, marketing strategies, training and recruitment. We are already witnessing the emergence of entirely automated employee-less AI-based decentralised autonomous organisations (DAOs)."

Offering a preview to the highly anticipated session, Talwar explores the key questions CEOs should be asking as they assess and invest in AI's transformative potential.

1. What's the fuss about?

AI may well drive the most important changes in the philosophy, practice and management of business. AI draws on and is combining with exponential developments in technologies such as computer hardware, big data management, IoT and the fields of machine learning, neural networks and robotics. As a result, AI is beginning to fulfil its true potential of transforming businesses and even replacing senior management and leadership roles. CEOs have to make sure they are investing the time and attention to understand what AI is, why so much is being invested, and where the opportunities are.

Rohit Talwar, CEO, Fast Future Research.

> **"We will see AI being used for product design, pricing decisions, marketing strategies, training and recruitment. We are already witnessing the emergence of entirely automated employee-less AI-based decentralised autonomous organisations"**
>
> ROHIT TALWAR, CEO, Fast Future Research

2. What is its potential?

The place to start is to undertake internal analysis of where it could be deployed and what competitors are doing. Medium to large enterprises in particular are bringing in AI experts and creative future thinkers to take a broader perspective of the potential roles AI could play, from smarter production management to customer targeting and broad-based decision-making.

3. Who should lead?

The temptation is to see this as just another IT project and hand responsibility to the CIO (Chief Information Officer). However, some see it having a much broader role and are making it the responsibility of the CEO, COO or business transformation head to drive the identification, piloting and application of AI solutions across all aspects of a business.

4. What would success look like?

With AI, there are likely to be unsuccessful experiments – up to 90% might go under as promising ideas fail to yield viable solutions. The mantra should be to fail fast and cheap, bringing in suppliers, customers and other value chain partners early on

to see if there is commercial merit in an idea. There can be as much learned from a failed project as from a successful one.

5. How do we address social impact?
There is a growing concern that if every firm replaces a large part of its human workforce with smart software and robots, unemployment levels could rise on a permanent basis. Estimates vary from 30% to 80% of all current jobs that could be automated out of existence in the next five to 20 years. As CEOs, how should we address this and the potential criticism that we are creating a two-tier society? Should we support the idea of a guaranteed basic income for all, as is being explored by Canada, Finland and the Netherlands? PRO

"The mantra should be to fail fast and cheap, bringing in suppliers, customers and other value chain partners early on to see if there is commercial merit in an idea"

ROHIT TALWAR, CEO, Fast Future Research

An award-winning global futurist, entrepreneur and specialist advisor on business transformation, disruptive strategies and radical innovation, Talwar's interests include the evolving role of technology in business and society, emerging markets, the future of education, sustainability and embedding foresight in organisations. He is also the founder of Fast Future Publishing, where he is putting these ideas into practice and bringing exponential thinking to every aspect of publishing, including profitability and revenue growth.

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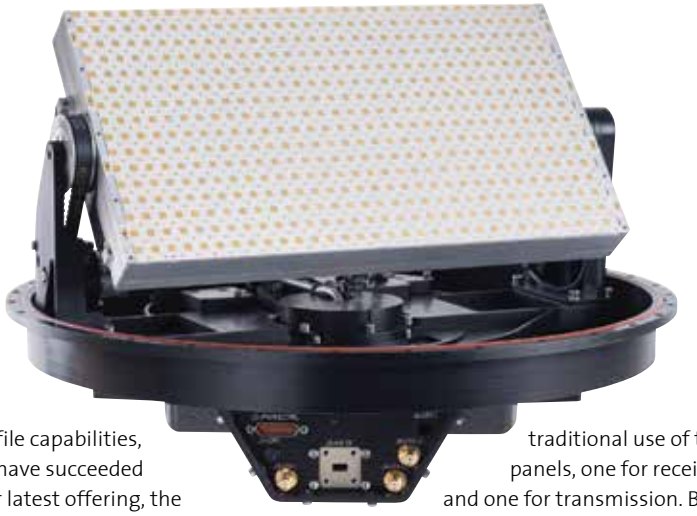
GetSAT to showcase **its latest Ka-band ESA**

Building on its success in 2016, GetSAT will showcase its latest innovation, the Ka-band electronic steerable antenna (ESA), at CommunicAsia 2017 in Singapore.

GetSAT's success in integrating electronic steering capabilities within its innovative flat-panel antenna overcomes the size, cost, power, scalability and bandwidth limitations of most electronically steerable antennas seen by our customers today.

By combining signal transmission and reception on a single panel, the GetSAT ESA is the smallest minimum-profile antenna available. The antenna's efficiency is greater than 60%, and it is still able to provide 2GHz wide bandwidth to support the commercial and military Ka-band frequency range. GetSAT offers multiple sizes (4x4 inches, 8x8 inches and 12x12 inches), providing cost-effective options for low- or high-bandwidth applications to its land, sea and air customers.

"We are putting our customers first, as cost, modularity and performance go hand in hand. Our thought process was to develop cost-effective, high-performance, low-profile capabilities, and we have succeeded with our latest offering, the GetSAT ESA. We look forward to continuing to listen to our customers and design hardware and software that exceeds their expectations," said CEO Kfir Benjamin.



"Building an ESA has multiple challenges that are very hard to overcome. Using our InterFLAT technology, we were able to solve most of those challenges," said CTO Oleg Roitberg. "One of them is the traditional use of two panels, one for receipt and one for transmission. By combining them onto a single panel, we are able to offer a small, compact and efficient solution that exceeds all previous thresholds for current offerings."

In addition, GetSAT has launched several new products that offer significant savings in antenna size, weight and power (SWaP) parameters while providing very high throughput.

Edgecore introduces **11ac high-gain antenna**

Edgecore Networks, a leading provider of traditional and open network solutions for enterprises, data centres and telecommunication service providers, is pleased to announce the ECWO7220-L, 802.11ac dual-band wireless controller-based outdoor access point. The ECWO7220-L is an 802.11a/b/g/n/ac, dual-band outdoor wireless enterprise access point with a 3x3 MIMO configuration design. The gigabit Ethernet backhaul port includes an 802.3at/af PoE function that enables the AP to be powered remotely from a PoE switch.

The ECWO7220-L uses 802.11ac MIMO (Multiple Input Multiple Output) wireless technology, and the AP supports three transmitting and three receiving antennas that extend the range and increase the throughput by up to nine times that of existing Wi-Fi. With advanced traffic management, the AP supports up to sixteen Virtual Access Point (VAP) interfaces per radio, allowing traffic to be separated for different user groups within the same service area. Each radio can support up to 100 wireless clients, shared between all VAPs, and the clients associate with each VAP in the same way as they would with physically separate APs.

Meanwhile, the ECWO7220-L, which can be managed by the Edgecore Wireless Controller (EWS4606), has six built-in omnidirectional high-gain antennas. Through optimised RF tuning and output power, the AP is ideal for users that require high throughput and stability.

CarPal launches **CarPal Fleet**

CarPal recently announced the official launch of its new SaaS (Software-as-a-Service) flagship product: CarPal Fleet. CarPal Fleet is an enterprise technology solution that allows businesses to control the whole supply chain without fully owning it; a dedicated support team assists businesses to scale and grow faster with the use of our system.

Launched in July 2014, CarPal is a pioneering on-demand logistics service based on the sharing economy in Singapore. Over the past 2.5 years, CarPal has steadily grown into a popular and reliable last-mile delivery service for consumers and businesses alike, delivering anything from fresh food, flowers and household items to furniture. Tapping into a pool of over 10,000 freelance drivers with a wide spectrum of vehicles (motorcycles, regular cars, MPVs, vans, etc), CarPal has maintained a high quality of service through an extensive driver onboarding process, driver performance management and unparalleled customer support.

CarPal's corporate clientele includes well-known brands such as Cat & The Fiddle, Lady M, Saint Laurent, Twelve Cupcakes, Oddle, SaladStop!, ezbuy, Charlotte Puxley Flowers, acommerce, Changi Recommends, Maki-San, P.S. Café, Awfully Chocolate, Kapok and Dine Inn.

CarPal Fleet is a newly-launched enterprise solution which helps to streamline the operational processes of businesses.

ORBCOMM collaborates to develop Hali

Marc Eisenberg, CEO, ORBCOMM.

ORBCOMM will be present at CommunicAsia and has announced that it has collaborated with maritime technology industry leaders Pole Star and Weatherdock to develop Hali, a Class B tri-mode vessel tracking solution that ensures complete vessel visibility.

Hali combines terrestrial and satellite Automatic Identification System (AIS) data capability with two-way satellite M2M technology to deliver reliable vessel location data to small craft and fleet owners and operators, maritime authorities and enforcement agencies, providing the actionable intelligence required to maximise maritime safety, security and environmental compliance.

The Hali solution includes powerful, tamper-proof AIS Class B hardware attached to small vessels, such as pleasure craft and fishing vessels, to track their position at all times, in any location. The tri-mode device transmits reliable AIS data to land-based receivers along coastlines to space-based satellite AIS receivers, and also through ORBCOMM's entire two-way proprietary data satellite network, enabling small vessels to be tracked and accounted for anywhere in the world.

The Hali device also includes SOS functionality and can send a distress message, providing accurate positional data to facilitate search and rescue operations. The data is delivered to maritime customers in an easy-to-use and secure web-based platform, which can filter user-defined fleets, sub-fleets and ports as well as create detailed user permissions and custom zones. In addition, the enterprise-grade Pole Star platform provides 24/7/365 multilingual customer support.

Currently, Hali is the only solution on the market to provide a comprehensive view of Class B vessel activity worldwide. The cost-effective and reliable solution enables national agencies to improve Search and Rescue (SAR) operations, enhance Maritime Domain Awareness (MDA) and increase surveillance of marine protected areas. For fisheries, Hali enables regulatory compliance through AIS reporting requirements for fishing quotas as well as geo-fencing within exclusion zones, and mitigates risk and loss through increased safety and SOS alert capabilities.

"We've partnered with some of the maritime industry's leading technology experts to create a unique tracking solution that gives small vessels the protection and accountability they need to be safe and secure at sea, even in the harshest environments," said Marc Eisenberg, ORBCOMM's CEO. "Leveraging ORBCOMM's two-way satellite M2M network augments Hali's coverage and reliability to provide our customers with a complete situational picture of global Class B vessel activity."

"Pole Star's enterprise platform/API seamlessly combines three Class B data sources into a single user interface to provide near real-time data, actionable intelligence and over-the-horizon visibility," said Julian Longson, Pole Star's MD. "Our platform's unparalleled global coverage lets our customers know where Class B ships are in relation to security threats, risks and regulatory zones at all times so they can take immediate action if needed."

Hali will be commercially available in the second quarter of 2017.

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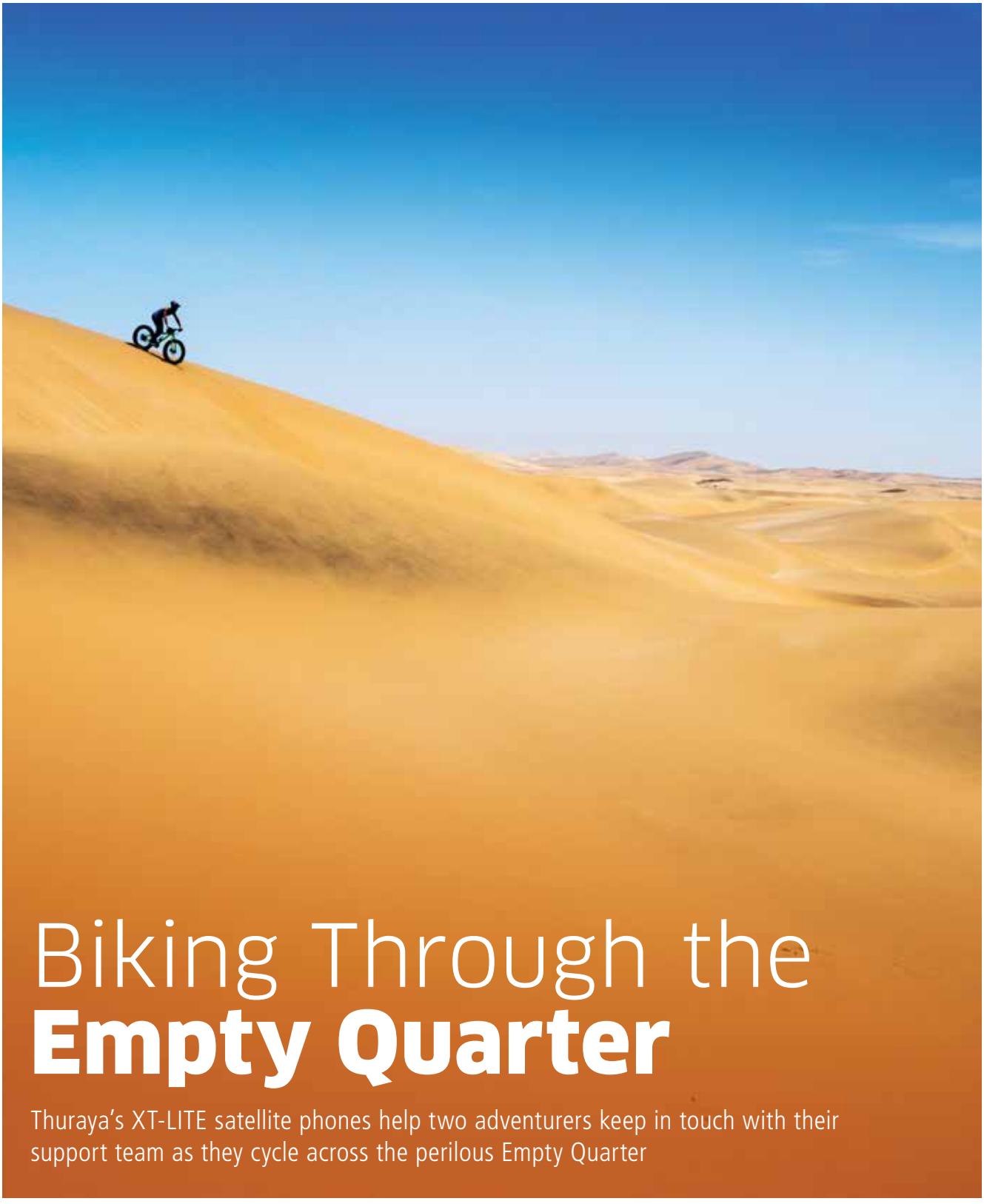


Biking Through the **Empty Quarter**

Thuraya's XT-LITE satellite phones help two adventurers keep in touch with their support team as they cycle across the perilous Empty Quarter

Maxim Chaya and Steve Holyoak, as they cycled across the Empty Quarter.

Dynamic duo

BRAK was the latest in a long line of ultra-challenging expeditions undertaken by **Maxime Chaya**.

The first man from Lebanon to reach the summit of Everest, in 2006, he has now completed the Seven Summits challenge by climbing the highest peaks on all seven continents. He is the only person ever to have achieved the 7S, skied to both poles and rowed across an ocean.

Steve Holyoak is an experienced endurance athlete. In 2015 he captained Great Britain's foremost ultra-runners to World and European Team Golds at the IAU World Championships.

The Challenge

Although his epic journeys have so often involved snow, ice and water, for his latest challenge Maxime Chaya swapped the cold and damp for dry desert heat.

The Lebanese adventurer teamed up with Steve Holyoak, an endurance athlete from the UK, to become the first men ever to cross the vast and hyper-arid Rub' Al Khali (Empty Quarter) by bicycle.

For their three-week BRAK (Biking Rub' Al Khali) expedition in November-December 2016, the pair went equipped with two XT-LITE satellite phones provided by Thuraya.

These satphones were essential items of kit. Without them, it would have been impossible for Maxime and Steve to stay in touch with their support team from this beautiful but remote and dangerous desert.

The BRAK route began in the UAE at Abu Dhabi and took them across the border into Oman, and then southwest to the finish at Salalah – a distance of 1,453km. Cycling up to 100km per day and camping each night among the sand dunes, they used their Thuraya satphones to update their support team and sponsors at every opportunity.

"The Thuraya phones are very light and very reliable, with amazing voice quality. I was often interviewed from the middle of the desert by MTV Lebanon, our media sponsors, and they said the voice quality was as good as they had ever heard over a phone, let alone a satellite phone. So much that I enjoyed listening to the evening news via satellite while waiting for my time to come on air, live"

MAXIME CHAYA, Adventurer

The Solution

"The Thuraya phones are very light and very reliable, with amazing voice quality," said Maxime. "I was often interviewed from the middle of the desert by MTV Lebanon, our media sponsors, and they said the voice quality was as good as they had ever heard over a phone, let alone a satellite phone. So much so that I enjoyed listening to the evening news via satellite while waiting for my time to come on air, live."

With a colour display and a GSM-like menu, the easy-to-use Thuraya XT-LITE is a compact satphone on the market and, at just 186g, added minimal extra weight with each man already carrying more than 15kg on his bike.

Location updates

Perhaps the most important task for the Thuraya satphones during BRAK was to communicate Maxime and Steve's exact location at the end of every day. Like its cousin the Thuraya XT-PRO, the Thuraya XT-LITE allows users to create and manage GPS waypoints, which can be used to navigate from a fixed position

to other locations with great accuracy.

Steve said: "We aimed to send our GPS location around 5pm each day, so our team would know roughly when to expect the message. Doing this on the Thuraya XT-LITE was very simple. After switching the unit on and getting the GPS signal, all I had to do was select the location option under the navigation menu and send it to the selected recipients via SMS."

The support team would then send a short message back to the Thuraya satphone confirming their receipt of the information.

"This gave us the confidence that they were fully aware of our location and status," said Steve.

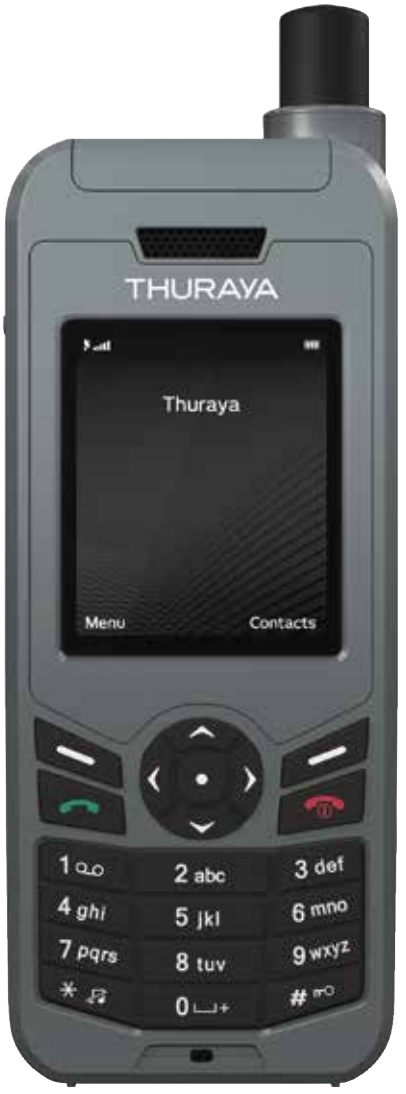
"Since we only turned the units on when we wanted to use them the batteries seemed to last forever. I carried a fully-charged spare but never had to insert it"

MAXIME CHAYA, Adventurer

Tracking for survival

GPS was also essential when it came to placing supplies. Maxime and Steve drove the route in advance to bury caches of water and food in the desert at predetermined locations. Having taken precise GPS coordinates, they were easily able to find the vital supplies when they returned weeks later on their bikes. Their daily location messages during BRAK included a code for whichever cache they had reached that day, e.g. M15 – the 15th main food/water cache.

The caches were only one part of the pair's meticulous pre-expedition planning. They also drew up detailed procedures for every eventuality, including how to find each other again if they became



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"We aimed to send our GPS location around 5pm each day, so our team would know roughly when to expect the message. Doing this on the Thuraya XT-LITE was very simple. After switching the unit on and getting the GPS signal all I had to do was select the location option under the navigation menu and send it to the selected recipients via SMS" STEVE HOLYOAK, Adventurer and Endurance Athlete

separated in the desert – using the GPS waypoint function and voice capability of the Thuraya satphones to reunite.

Power for the satphones was never a problem. "Since we only turned the units on when we wanted to use them, the batteries seemed to last forever," says Maxime. "I carried a fully-charged spare but never had to insert it."

With all this planning, it's no wonder Maxime speaks of BRAK as effectively comprising three expeditions: the desert crossing to place the caches, the bike ride itself, and a second journey by car to pick up unused water and food.

The final mopping-up operation was dear to the hearts of Maxime and Steve, because they believe passionately that expeditions such as BRAK should leave no trace. "Take nothing but photographs and leave nothing but tyre marks," says Maxime. "The Empty Quarter is a wonderful natural resource and should be treated with respect by everyone who is lucky enough to visit it. We are determined to set a good example by not leaving anything behind, even buried in the sand." Both men are grateful for Thuraya's role in making BRAK a safe and successful expedition. "The Thuraya satphones were a fundamental part of our overall safety procedures," says Steve. "In the case of a serious incident, such as a snakebite, we would have been totally reliant on them. For me, the only downside was having to part company with my Thuraya at the end of the expedition!" PRO

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Impact of **Climate Change**

Andrej Lovsin, CEO, STN, explains how climate change and changing weather patterns are affecting the satellite industry

Over the last decades we have listened to scientists who drew our attention to the forthcoming climate change, explaining to us that people must start behaving differently and in a friendlier manner to our environment. There have been extremely cold or mild winters, melting of ice at the polar caps, floods, rain or snow storms and many other dramatic changes, all of which have become more frequent over time. Various extraordinary scenarios were forecast in different parts of the world, such as catastrophic floods in one area and in the other part extreme droughts.

And why do I write about overall known problems in the introduction of this article?

The reason is simple. Approximately fifteen years ago, when we started the satellite business, we were faced with a completely different set of problems than we are today with regard to weather.

Nowadays in Europe, we face many extreme changes in weather almost from day to day, with strong, almost hurricane force winds, rain showers, heavy snowfalls and ravaging hail, as scientists predicted. The same problems are appearing all over the world, on all continents.

Anyone in the satellite business remembers when such extreme weather was not as frequent as today. Of course, these weather conditions do not always or everywhere have the same negative adverse effects. However, they often cause problems not only on the transmission side, but also on the receiving of signals.

Recent years have shown that existing transmission frequencies are not sufficient, therefore development of uplink systems is built on a higher frequency range, from 20GHz onwards.

However, higher frequency ranges are more sensitive to weather conditions, bringing new problems.

The best solution is to have a diversity site several hundred kilometres from the main teleport, but of course this is an extremely expensive solution. The reality of this principle is to build two teleports which operate simultaneously. When necessary, the switching of the signal between both teleports must be executed automatically and precisely, causing no interruptions of transmission.

"Recent years have shown that existing transmission frequencies are not sufficient, therefore development of uplink systems is built on a higher frequency range"

ANDREJ LOVSIN, CEO, STN Teleport

Geographical location and climate mean teleports are affected not only by seasonal changes such as heavy rain, but also by large amounts of snowfall. However, in recent years we have observed a lot of changes in winter climate conditions.

One is rain turning into snow in a few hours, preceded by a strong fall in temperature in an extremely short period of time. This means raindrops on the antenna freeze quickly, and in a very short time heavy snow falls on this frozen base. In these cases, we found that the electrical de-icing system was sometimes not effective enough. Therefore, we had to reinstall antennas larger than 3.0m with a gas de-icing system. This has proved to be much more efficient, making the process of warming up and thawing ice and snow on large antenna areas much faster. Since the activation system is automatic, the heating of antennas starts immediately when it starts to rain and low temperatures begin, providing a much improved reaction time.

Reflecting on the increase to frequency range, and to address this and the other aforementioned problems, the development of new systems is paramount.

For our clients based all around the world, how their chosen teleport partner deals with these issues is not and should not be their worry or concern. The final result of our investment in new and improved technology, access to diverse sites and high-tech transmission solutions ensures high-quality continuous transmission, giving peace of mind and satisfaction. Our giving our full concentration to our business allows our customers to focus on theirs. PRO

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