ISSUE 81 | MAY 2023

Licensed by Dubai Development Authority

SATELLITE PRO

TECHNOLOGY INTELLIGENCE FOR THE SA

MIDDLE EAST

CABSAT

UNLOCKING THE UNIVERSE

Universal Satcom rides waves of success in MENA maritime market with CEO Reema Omari at the helm

SATELLITEPRO MIDDLE EAST

GROUP
MANAGING DIRECTOR RAZ ISLAM
raz.islam@cpitrademedia.com
+971 4 375 5483

EDITORIAL DIRECTOR VIJAYA CHERIAN
vijaya.cherian@cpitrademedia.com
+971 4 375 5472

DIRECTOR OF FINANCE & BUSINESS OPERATIONS
SHIYAS KAREEM
shiyas.kareem@cpitrademedia.com
+971 4 375 5474

EDITORIAL
EDITOR VIJAYA CHERIAN
vijaya.cherian@cpitrademedia.com
+971 (0) 55 105 3787

SUB EDITOR AELRED DOYLE
aelred.doyle@cpitrademedia.com

ADVERTISING
GROUP SALES DIRECTOR SANDIP VIRK
sandip.virk@cpitrademedia.com
+971 50 929 1845
+44 (0) 7516 993 862

DESIGN
ART DIRECTOR SIMON COBON
simon.cobon@cpitrademedia.com

DESIGNER PERCIVAL MANALAYSAY
percival.manalaysay@cpitrademedia.com

CIRCULATION & PRODUCTION
DATA & PRODUCTION MANAGER
PHINSON MATHEW GEORGE
phinson.george@cpitrademedia.com
+971 4 375 5476

WEB DEVELOPMENT
ABDUL BAEIS
UMAIR KHAN

FINANCE
CREDIT CONTROL EXECUTIVE
CAMERON CARDOZO
cameron.cardozo@cpitrademedia.com
+971 4 375 5499

FOUNDER
DOMINIC DE SOUSA (1959-2015)

CPITRADEMEDIA

The publisher of this magazine has made every effort to ensure the content is accurate on the date of publication. The opinions and views expressed in the articles do not necessarily reflect the publisher and editor. The published material, adverts, editorials and all other content are published in good faith. No part of this publication or any part of the contents thereof may be reproduced, stored or transmitted in any form without the permission of the publisher in writing. Publication licensed by Dubai Development Authority to CPI Trade Publishing FZ LLC. Printed by Printwell Printing Press LLC.

CPI Trade Media. PO Box 13700, Dubai, UAE.
+971 4 375 5470 cpitrademedia.com

WELCOME

Last month, we joined in a telephone conversation with Emirati astronaut Sultan Al Neyadi, who is currently stationed at the International Space Station (ISS) until September 2023 – the longest an Arab has stayed in space.

Trying hard to stay on the ground as he chatted with us, Al Neyadi spoke about the awesome privileges we take for granted on earth – the ability to breathe fresh oxygen, being free of radiation while astronauts in space are continuously exposed to it, and just enjoying simple pleasures like a hot meal prepared at home.

Al Neyadi spoke about the medical research he was participating in to understand precision-based medicine for type 2 diabetes. He mentioned that some astronauts who hadn't trained correctly would have to undergo prolonged rehabilitation back on earth to regain the full use of their muscles. Al Neyadi holds an envious position but that privilege has come at a huge cost and immense sacrifice.

On the home front, he comes from a nation that has just lost the Rashid Rover that was so lovingly put together by a team over the last few years. They were broken hearted but the Dubai ruler Sheikh Mohammed bin Rashid Al Maktoum was immediately by their side; he encouraged them and announced that we would build a second Rashid and not give up. His own resilience in the face of each challenge Dubai has encountered over the years has made him a role model for the people of this nation showing them that many sacrifices will be required of them before big dreams can be achieved.

The UAE's collective space ambition is impressive for a nation that is barely 52 years and seeing this journey evolve in our own backyard has evoked immense respect for all regional and global entities that have had the foresight and the vision to pioneer satellite technologies and space initiatives.

This issue features stories about new developments in the satellite space; it also brings tales of those that have stepped into uncharted terrain to facilitate connectivity. Some of these companies will be at CABSAT this month to speak about developments in this space. See you there.

VIJAYA CHERIAN
Editor
SatellitePro ME

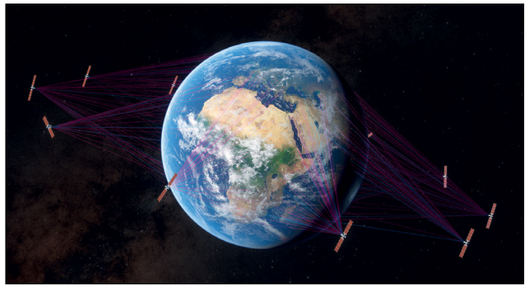
CABSAT

Profen to offer satellite services in Türkiye and MEA with SES O3b mPOWER system

SATELLITE DEAL

A new agreement between global high-tech solutions company, Profen, and satellite operator SES will enable energy companies, government agencies, telcos and humanitarian aid organisations in Türkiye, the Middle East and Africa access high-performance, low-latency satellite-based connectivity services.

The combined capacity and infrastructure agreements will see Profen deploy SES' second-generation MEO system – O3b mPOWER – and build a gateway in Türkiye to jointly deliver high-performance connectivity to serve identified market opportunities of



more than 10 Gbps.

By installing the O3b mPOWER gateway at the core of its networks, Profen's customers in industries such as telecommunications, energy and humanitarian aid organisations can roll-out more secure networks and minimise latency by reducing the required hops between endpoints. In addition, Profen will be providing a range of services such as mobile backhaul, disaster recovery and private 5G, enabling local companies and neighboring ones in Europe, the Middle East, Africa and central Asia to enjoy the services that are backed by robust service level agreements.

The partnership is designed to enhance the digital infrastructure and broadband services of the region.

"The launch of the O3b mPOWER system represents a milestone for the satcom industry, and we are proud to be at the forefront of this technological revolution. With the deployment of SES' O3b mPOWER gateway in Türkiye, we can offer our customers on land, out at sea or in the skies unprecedented access to high-performance, low-latency satellite-based connectivity services," stated Cem Odaman, Chief Business Development Officer at Profen.

Lynk teams up with Vodafone Ghana

CONNECTIVITY

Lynk Global has signed its second commercial contract with Telecel Group in Africa to provide services to Vodafone Ghana's subscribers. This new contract will provide mobile coverage to 100% of Ghana's population of 31m inhabitants using Lynk's "cell-towers-in-space."

Charles Miller, CEO of Lynk, said: "This agreement extends Lynk's leadership in the satellite-direct-to-standard-phone category in Africa and is an important milestone as interest in the category continues to heat up. Lynk remains the only patented and commercially-licensed company for satellite-direct-to-standard-phone technology anywhere in the world."

Lynk's "cell towers in space" will enable Telecel Group to offer geographic coverage to more than 6m Vodafone Ghana subscribers and will be utilised for extending rural coverage, including Maritime Economic Zone, as a backup to ensure service resilience, continuity of IoT devices, and as a terrestrial tower replacement for underperforming (economical or technical) towers.

Patricia Obo-Nai, CEO of Vodafone Ghana, added: "We are excited at the possibilities this partnership brings to the country. It provides the unique opportunity to connect everyone everywhere and accelerates the benefits that connectivity offers in health, education, and job creation, especially for our women and youth."

Following the takeover of its majority shares by Telecel Group, Vodafone Ghana has leveraged the partnership between Lynk and Telecel Group to provide innovative services and widespread mobile coverage across Ghana's rural areas.

Spacecom extends services in Africa

CONNECTIVITY

Spacecom will use Azerspace's satellites to extend the geographical coverage of its services in Africa. Since 2019, Spacecom has been ramping up initiatives to gain a foothold in the African satellite-based telecom services market. Spacecom aims to become a major provider of satcom services on the continent.

Intelsat expands in-flight connectivity and backhaul capabilities with Gilat

AVIATION

Intelsat has strengthened its strategic partnership and expanded its in-flight connectivity (IFC) and cellular backhaul capabilities with significant multimillion-dollar orders for Gilat's multi-service platforms and terminals.

Gilat's platforms will be used to empower Intelsat with augmented capacity in North America, Latin America, Africa, and Europe to serve additional aircraft and provide an enhanced user experience to passengers. It will also be used to enable Intelsat to support the expansion of managed services with mobile network operators (MNOs), providing additional coverage for satellite-based cellular backhauling.

Jean-Philippe Gillet, SVP of Global Sales, Network and Media at Intelsat, said: "Thanks to Gilat, we're able to smoothly increase network capacity over multiple satellites, including IS-40e, IS-46, and E10B, to address the growing bandwidth demands for IFC, cellular backhaul and other applications in the Western Hemisphere, Africa, and Europe. Gilat's platforms continue to distinguish themselves as an operationally-proven system that allows Intelsat to streamline IFC and cellular backhaul service fulfilment all over the world."

Amir Yafe, VP of Mobility & Global Accounts at Gilat, added: "We're proud to be able to work with Intelsat to deliver reliable, high-performance connectivity that helps them meet the growing demand for managed services capacity in multiple markets. We value our close partnership with Intelsat and are pleased to take part in this endeavour to further expand their IFC and cellular backhaul network capabilities with Gilat's multi-service platforms."

ABS appoints new CCO

NEW APPOINTMENT

ABS has appointed Ramsey Khanfour as its Chief Commercial Officer (CCO). He will be based in Dubai.

Khanfour will oversee global sales and marketing to drive the company's next phase of growth as it navigates new markets, solutions and business models.

He brings more than 20 years of international experience spanning business development, sales, and strategy, with a track record in the industry in senior leadership positions as well as a foundation in consulting and network engineering for fixed and wireless technologies including satellite and optical networks.

"Ramsey brings myriad experiences and expertise that will help us drive innovative growth in key sectors such as government, telecommunications, mobility and media, leveraging various business models and capitalising on existing and new partnerships," stated Amit Somani, CEO of ABS.

"His wide range of experience perfectly complements the ABS team and strategy, and we look forward to working with him to drive future successes for ABS and our partners."

All Space appoints new Chief Development Officer

NEW APPOINTMENT

ALL.SPACE has appointed Charles Hannaford as Chief Development Officer (CDO).

A big part of Hannaford's role, according to him, "is to help build the foundation of the company and to support its sustainable growth – that aligns with us having come out of the R&D phase and into the production phase."

He joins ALL.SPACE following 13 years at SES Satellites, where he most recently served as Chief of Staff in Luxembourg. In this newly created position, he led a number of significant change initiatives focused on people and customers.

Hannaford will focus on defining ALL.SPACE's "way of work," ensuring there are proper and timely handoffs between different areas of the business and that employees have the right structure and foundational building blocks, from processes and procedures to tools and systems.

Mohammed bin Rashid Al Maktoum announces new Emirati lunar mission

LUNAR MISSION

Following the unsuccessful attempt to land the UAE's Rashid rover on the moon's surface, Mohammed bin Rashid Al Maktoum, Vice President, Prime Minister and Ruler of Dubai, has announced Rashid 2, a new Emirati lunar mission that will be undertaken by Mohammed bin Rashid Space Centre (MBRSC).

Sheikh Mohammed, accompanied by his son, Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai and Chairman of Dubai Executive Council, visited MBRSC and met with the team behind the UAE's first attempt to land the rover on the lunar surface. Stressing the importance of determination in achieving success in the space industry, he said the UAE will continue to launch new space exploration missions.

Sheikh Hamdan bin Mohammed said that any space mission must contend with high levels of risk, which it manages in a scientific and systematic way to advance exploration and experimentation. He stated that the UAE will continue to develop its expertise and build an advanced space sector.

The ruler and the Crown Prince of Dubai met with the national team of the Emirates Lunar Mission (ELM) after the iSpace confirmed the unsuccessful landing of the HAKUTO-R lander on Wednesday, April 25, 2023.

Through the Emirates Lunar Mission, MBRSC accomplished its ambitious goal of designing and building the world's most compact rover and becoming the first Emirati and Arab rover to reach the lunar orbit before the landing attempt onboard iSpace's HAKUTO-R lander. These achievements are momentous for a nation's first lunar mission and highlight the UAE's commitment to advancing space exploration.

The Rashid rover, integrated into iSpace's HAKUTO-R lander, successfully lifted off atop a SpaceX Falcon 9 rocket on December 11 from Space Launch Complex 40 (SLC-40) at Cape Canaveral Space Force, Florida. The ELM marked the first Emirati lunar mission, making the UAE the first Arab country to ascend towards the lunar surface.

ST Engineering launches first SAR satellite

SATELLITE LAUNCH

ST Engineering has launched its first polarimetric synthetic aperture radar (PolSAR) satellite, TeLEOS-2. Developed in partnership with Singapore's Defence Science and Technology Agency (on behalf of the Government of Singapore), TeLEOS-2 features a made-in-Singapore SAR payload and is able to capture both day and night images under all-weather conditions in high resolutions, with full polarimetry for a wider range of satellite data applications. This will enhance ST Engineering's commercial satellite imagery solutions, providing multi-modal and high-responsiveness features to its customers.

Operating in near-equatorial orbit (NEqO) at 10 degrees inclination, the satellite offers 1m high-resolution imagery with an average of 14 passes a day, offering enhanced and wider coverage of many major shipping routes, as well as disaster-prone and forest-fire regions. This provides numerous opportunities for customers in applications such as disaster monitoring and management, environmental monitoring, natural resource exploration and management, climate change and weather studies.

The 750kg TeLEOS-2 was successfully launched by Indian Space Research Organisation aboard the Polar Satellite Launch Vehicle from Satish Dhawan Space Centre SHAR, Sriharikota, India.

Emirates Mars Mission unveils new Deimos observations at EGU23

SPACE TALK

The Emirates Mars Mission (EMM), the first interplanetary exploration undertaken by an Arab nation, has unveiled a series of observations of Mars' smaller moon, Deimos, using all three of its science instruments to 'advance the fundamental understanding' of Mars' most mysterious moon and its larger companion, Phobos.

The new observations challenge the longstanding theory that Mars' moons are captured asteroids and instead point to a planetary origin.

The observations, shared during a special session at the European Geosciences Union General Assembly in Vienna, provide new insights into Deimos' makeup and structure. These include high-resolution images taken during the closest repeated flybys of the moon, as well as the first-ever observations made in the extreme and far ultraviolet and the first well-resolved hyperspectral data of Deimos in the thermal infrared. The observations reveal, for the first time, regions on the far-side of Deimos which have never been compositionally investigated. The closest flybys saw Hope pass approximately 100km from Deimos.

Hessa Al Matroushi, EMM Science Lead, said: "We are unsure of the origins of both Phobos and Deimos. How exactly they came to be in their current orbits is an active area of study, and so any new information we can gain on the two moons, especially Deimos, has the potential to unlock new understanding of Mars' satellites."

The new findings come as the UAE Space Agency, responsible for the funding and operation of the Emirates Mars Mission, confirmed the extension of EMM's mission for another year.

Saudi Space Commission reveals logo for KSA's ISS mission

ISS MISSION

Saudi Space Commission has unveiled the official logo of the Kingdom's scientific mission to the International Space Station (ISS). Rayyanah Barnawi, a breast cancer researcher, will be the first Saudi woman to travel into space, and she will be joined on the journey by fighter pilot Ali Al Qarni.

MENA satellite industry gets ready for CABSAT 2023 showcase in Dubai

CABSAT

The 29th edition of CABSAT is set to shed light on emerging trends in the satellite communications market, which is predicted to reach $53bn by 2027 and grow at a CAGR of 14% by 2030, and also place a strong emphasis on the industry's capacity to leverage cutting-edge technologies. It is noted that satellite technology will continue to expand and become more important to how businesses operate, because of the development of the connected digital economy.

CABSAT 2023 will also host the SATEXPO Summit, where leading industry experts will discuss how to spearhead sustainable space operations. The summit will include two days of panel discussions and networking opportunities for all participants, which will provide a great venue for business leaders to underscore sustainability in space. This is further relevant as the UAE prepares to host the COP28 conference in November 2023, to address challenges and encourage countries to embrace sustainability as a key priority. With more than 6,800 active satellites in the orbit, many of which are used for both military and civilian purposes, and more than 30,000 pieces of orbital debris, there is an increasing urgency surrounding space sustainability.

Space debris poses huge risks and safety threats to the existing space systems and activities since it may cause a collision with other space stations, satellites, or any other equipment. Therefore, it is necessary to explore and implement innovative ways to reduce debris hazards for sustainable future space operations. Governments, space agencies, and other institutions are funding or implementing their own initiatives to advance space sustainability, outside of multilateral efforts.

Speaking about the event, Imran Malik, Senior Vice President of Enterprise EMEA & APAC at SES, said: "For more than 35 years, SES has introduced new innovations in the satellite communications industry to meet evolving customer needs. This year, SES is introducing its second-generation medium earth orbit constellation. When operational later this year, O3b mPOWER will deliver networks comprising the industry's best throughput, predictable performance, high availability, and flexibility to address the connectivity requirements of the new cities that are being built in the region. Additionally, as part of our ESG ambitions, we have declared our commitment to sustainable space where we want to collaborate on best practices so that space continues to be a resource for delivering extraordinary solutions to address the challenges on earth. Our participation in CABSAT 2023 will give us an opportunity to learn about emerging trends in the satellite industry; get closer to our customers and share our vision of sustainable space operations, which is aligned with the UAE's commitment to promoting sustainability within space activities."

The latest forecast for the satellite launches and build market confirms the industry's capacity and ambition to multiply global in-space bandwidth and add over 200 TB of capacity to the global telco grid. With a wide range of high-performance VSAT and Mobility Terminals on the rise, including Gilat's SkyEdge IV and SkyEdge II-c platforms, the satellite communications market is experiencing rapid growth.

Barak Lerer, Regional VP of EMEA and Eurasia, Gilat Satellite Networks, stated: "We are thrilled to participate in CABSAT for the third consecutive year. The MENA region is a key strategic growth area for Gilat. As the world leader in 4G cellular backhaul over satellite and a leading global provider of satellite-based broadband communications, we focus on multiple market segments including mobility and enterprise applications. We are excited to share ideas and plans with our current and potential new customers at CABSAT."

UNLOCKING THE UNIVERSE

From nascent entrepreneur to seasoned satcom professional, Reema Omari has come a long way since she first boldly stepped out of her comfort zone in 2014 to launch Universal Satcom. *Vijaya Cherian* brings you up to date on the company that is making waves in the MENA maritime sector under the leadership of its ambitious and passionate female founder

Armed with a Master's in Quality Management Systems from the University of Wollongong, Dubai, Reema Omari began her career in the VSAT business back in 2006 with a mentor who took her under his wing. In 2014, Omari was ready to fly solo and launched Universal Satcom. Although she started by offering satcom solutions to the private jet industry, she then made an audacious move into Yemen and Libya in 2019 to offer connectivity to the business community. *SatellitePro* first met with Omari then and wrote about her successful entry into the two conflict zones. Since then, Universal Satcom has grown dramatically, adding new solutions and services, spreading its wings to new markets and expanding its team. Omari talks about her journey since then.

How have you grown in the three years since we last spoke?
We started our growth journey in 2019. When Covid-19 struck, a lot of businesses worldwide were severely impacted but with more people spending time in isolation, online meetings and other operations requiring more internet capacity, we saw an exceptional spike in our business. It also led to us adding more new services to our portfolio just based on market demand.

Back in 2019, we started a project in Yemen with just Arabsat. Now, we are serving that market with multiple operators. We work with Intelsat, Eutelsat and Yahsat and have services on Ka-band, Ku-band and C-band.

Our team has also grown from just five to six people in the beginning to more than 30 now and we moved to a larger office in Jumeirah Lake Towers in Dubai. We have served more than 500 vessels with technical solutions and have around 200 vessels under our network between VSAT and L-Band. In some instances where we do systems integration, we also outsource work and have a whole team of people across the world working with us. For some projects, we also run 24/7 technical support and this requires a larger workforce.

What are some of the big value-adds in your service?
We developed a portal inhouse that has really helped accelerate our business and made life a lot easier for our customers. It's called BSS which stands for Business Support Systems, and it has automated and facilitated a lot of the business processes, which would previously have had to be done manually.

Can you give us an example?
So, imagine one of our customers has a new technology deployed at their site. If we didn't have the BSS system and the reseller wanted to activate the site, he would have to either send us an email or a form. Someone would then have to manually review it, okay it and pass it on to a Network Operations Centre (NOC) staff who would implement the job. This is a process that could take 24 hours.

With the portal, the reseller just needs to input the serial number and he can activate a site on the fly. They can select what service and speed they want to activate, which city they want it in, and everything can be done in a few minutes.


Universal Satcom moved to a larger office in Dubai recently to accommodate its expanding workforce.

The BSS system frees up the time of the NOC operators to manage the quality of the network instead of getting stuck in admin work. And more importantly, it offers an immediate and better experience to the customer.

When did the idea to create this portal come about?

It was purely a business need. We had a manual process in place but when the volume of business increased significantly in a very short period of time, we realised that we needed to automate this part of the operation to ensure our customers were able to get started quickly.

When we created the portal, it immediately gave us the ability to scale. The manual process delays the customers, which means you either have to hire more people, which wasn't very feasible or we needed to automate the process. With the former, there were also likely to be more errors.

Our portal has been so successful that the platform manufacturer has been using us as a case study and bringing satellite operators to our offices. Some of the major satellite operators now want to use this so we are looking to license it out or white label our platform.

> "In markets like Yemen and Libya, I believe there is still a healthy opportunity for satellite service providers. They are conflict zones, but businesses still need connectivity to operate"
>
> **Reema Omari, founder and CEO, Universal Satcom**

You mentioned significant growth. Could you give me numbers?

Currently, we have more than 200 ships under our network. For the land business, we have around 1.5GB of capacity serving the different markets where we have business.

In total, we have installations in more than 1,000 sites. In terms of growth, our revenues have doubled in the last two years and our net income is growing at a faster rate than our revenue, indicating more efficient operations. Our team has tripled since we first began, and we are still hiring people on the operations and sales side.

In which vertical have you seen a big spike in your business?

The maritime sector. During Covid especially, crew were on ships for a longer period than what they should normally be and owners themselves were expanding with a larger number of ships and many of them were digitalising their operations as part of new mandates. So, customers wanted to extend their capacity as well as bandwidth. Fortunately, at that time, we had a lot of on-premises equipment in the country and that helped us grow quickly, and the portal really allowed us to provide more efficient services.

Since then, you have forged partnerships with multiple satellite operators?

Yes. We started with Arabsat three years ago with Ka-band, but it is limited to spot beam coverage and that restricts your connectivity area. We needed to partner with different operators who had Ku-band and C-band also so we could offer coverage across the whole country. To that effect, we worked with Yahsat, Eutelsat and Intelsat among others.

Which markets in the MENA region have been most successful for you?

I think, within the maritime sector, where we are a well-established service provider, the GCC is one of the most mature markets and their main focus is the oil and gas sector. We offer support to ships that provide services for the big barges or the oil rigs and that is a huge market here in the GCC. The UAE and Saudi Arabia are especially great markets. There are many players in this market but there is still a lot of room to grow here. The Saudi market especially has become healthier and more attractive under the new leadership, and we see so many positive changes there. Businesses are looking to secure business opportunities in Saudi Arabia as a result.

For the land business, we continue to see healthy growth in markets like Yemen and Libya, where we first entered. However, we have our eyes set on other countries within Africa such as Somalia, Sudan, Mauritania and other areas in central extending to the east. They are areas that are pretty much ignored by most international players and we usually like to go to areas where nobody likes to go.


Reema Omari says the company is looking to expand into Africa.

Speaking of Saudi Arabia, we hear you recently secured a big deal there?

Yes, we have had one of our biggest success stories in Saudi Arabia in the maritime sector. A major oil and gas company with 100 plus ships contracted us to be their service provider. We were asked to provide a turnkey solution that ensures both connectivity and digitalisation for their fleet. We have currently completed VSAT installations in almost 50% of their fleet. As they are a customer with multiple needs, we are continuously providing other value-added services to them as well.

Connectivity is VSAT with both main communication and backup. Digitalisation includes crew management, fuel monitoring, taking care of the CCTV requirements so they can monitor everything that is happening on board the ship as well as other operational requirements that a ship typically has.

How is your journey in Yemen going?

Currently, we cover around 72% of Yemen on Ka-band but that will become almost 95-99% in the next two months. We also have 100% coverage on Ku and C bands. But this is for our land business. For maritime, we already have global coverage. We're using multiple satellite operators and multiple maritime service


The team in action.

providers worldwide to ensure our customers have global coverage.

In markets like Yemen and Libya, I believe there is still a healthy opportunity for satellite service providers. They are conflict zones, but businesses still need connectivity to operate.

Now that you're an established player, what's next on the agenda for you?

So far, we have been a service provider but more recently, we have also taken on the role of hardware distributor.

We are a gold partner for ST Engineering iDirect. We have a continued relationship with Intellian as one of their recognised partners for maritime antennas. We have maintained a close relationship with several manufacturers and hope, in the future, to add some of their solutions to our services.

We are developing our BSS portal further to make our operations more efficient.

One other completely new area that we are looking at is teleport operations and that's in the pipeline. We don't intend to own a teleport but we will provide all the necessary services. We were previously looking at operating the services on an OPEX model. But as we grow now, the equation is changing, and we may consider a CAPEX investment on this front.

Universal Satcom has enjoyed great success in the maritime sector.

A teleport service? Where?

In Jordan, my home country. When I initially started my business, it was mainly within broadcast. Then I moved to the area where we are now, but we see more demand coming from the broadcasting side. Jordan is well known for hosting linear channels and IPTV channels. We have seen a gap in the sector and believe we can provide better technology and better service to broadcasters than existing players. So that's something we are exploring quite seriously now.


Universal Satcom recently secured a deal from a Saudi client to provide a turnkey solution that ensures both connectivity and digitalisation for more than 100 ships.

What's the big challenge that you have next?

From an operations perspective, I think the main challenge is to retain our agility. Agility has been one of the secrets to our success. As any company grows, you start introducing more and more processes. In the process, agility is often compromised. As we grow and introduce more processes, the challenge is to make sure that the customer always remains a priority over any internal processes. In the maritime sector, for instance, solutions for every customer are pretty much tailor-made. Big companies usually find it difficult to respond to customised requirements. We never say no and here again, we try to be agile in the way we come up with solutions. As a smaller company, our ability to move things around and make things happen is a lot quicker.

We also want to see how to capitalise more on our current success and move forward to the next level. That requires us to continuously come up with innovative solutions, innovative services and work towards maintaining our place in the market.

We have seen that our growth is limited owing to lack of funding. Even though we are cash positive and generating revenue, some opportunities are bigger than the scale of Universal and to get into them, we need funding. We are looking at this now and have started discussions with a consulting company who is guiding us on this.

Essentially, we are at a stage where we want to turn our success into extended success. So, there are a lot of challenges and a lot of new demands coming up in the market.

> "We have served more than 500 vessels with technical solutions and have around 200 vessels under our network between VSAT and L-Band"
>
> **Reema Omari, founder and CEO, Universal Satcom**

But 2023-2024 will be very busy because market trends are changing so fast.

What's the next big thing in the market, according to you?

Small Geostationary Satellite (SmallGEO), and we are in negotiations to have our own payload ready. The major advantage of it is that it costs a fraction of what a larger GEO would cost or a LEO constellation. It's more targeted to markets that you just want to focus on. So, it delivers a much lower price per Mbps.

Everybody was always thinking that bigger is always better but in certain markets and for certain applications, small satellites may suffice to suit your business purpose. That's something to watch out for! PRO

Omari flanked by Ahmad Juma (left), Technical Director, and Ashraf Hagelnur (r), Business Development Director.

GETTING OFF THE GROUND

Growing demand, new use cases and increasing pressure on delivering faster, more efficient, and cost-effective solutions are all driving virtualisation of the satellite ground segment. But several challenges remain – not least interoperability, industry experts tell Keith J Fernandez and Vijaya Cherian

As new software technologies begin to deliver higher bandwidth, faster speeds, and more reliable services, attention is focusing on changes in the ground segment. Virtualised ground operations are now being seen as the missing link in a fast-advancing industry shaped by innovations such as software-defined satellites, multi-orbit constellations, and 5G-enabled terrestrial networks.

Conventional ground systems often slow down communications between satellite and terrestrial networks with their rigid and manually operated design. But virtual ground systems could eliminate these constraints while supporting new use cases, thanks to their potential to centralise operations, reduce complexity and improve overall business efficiency.

Simply put, virtualisation is a game changer for the ground segment. It allows software to abstract away the underlying hardware, making it more flexible and adaptable to different uses. Not too soon for an industry undergoing the most significant transformation of its five-decade lifespan.

Ahead of Satellite 2023 in Washington D.C. this year, Kratos Defense & Security Solutions announced OpenSpace vStar, its first virtual replacement for the traditional hardware-based hubs used in satellite communications (satcom) today. The goal is to modernise satcom ground systems and support smooth interoperations with terrestrial and cellular networks, Greg Quiggle, SVP of Space Product Management at Kratos, told SatellitePro.

"With 5G, the wireless industry has shifted from purpose-built hardware equipment to flexible, software-defined networks, called vRANs, expanding their markets and services in the process. OpenSpace implements this same model to mainstream satcom services with the rest of the global communications infrastructure while simultaneously capitalising on the advanced capabilities built into the new generation of software-defined satellites," he said.

Kratos calls vStar the new model for satcom networks. It digitally transforms the gateway, replacing traditional hardware hubs with software equivalents that can run on generic x86 computing platforms in the data centre or the cloud. It is no longer concentrated at one physical location and can be run almost anywhere.

Satellite operator Intelsat announced recently that it will employ OpenSpace vStar technology as part of the advanced network being built to deliver services for its new family of software-defined satellites.

By virtualising the functions of a traditional hub, satcom operators using vStar benefit from services at an enterprise-grade scale without the limits of hardware hubs. Few companies have achieved the level or scope of ground segment virtualisation Kratos has, Quiggle says.

The OpenSpace platform enables customers to configure the ground system to receive information from overhead satellites and command them for their next mission during their short visibility window. "We did this with success with several customers and today have more than 100 production networks deployed around the world with very large players, including the cloud players such as Amazon Web Services (AWS)and Microsoft," he says.

"If you look at a ground system today, it's mostly hardware. With OpenSpace, we've looked at each of the individual components within a gateway – modulators, demodulators, modems, channelisers, combiners – and replaced them with a containerised equivalent. These are now deployable within a private or public cloud, so that you can dynamically spin them up for a satcom service. And then when you're done with that service, spin them back down, and the compute goes right back into the cloud," he adds.

> "With 5G, the wireless industry has shifted from purpose-built hardware equipment to flexible, software-defined networks, called vRANs, expanding their markets and services in the process"
>
> **Greg Quiggle, SVP of Space Product Management, Kratos**

$6bn in baseband revenues

Revenues from these baseband components are growing at a compound annual rate of 12.9% as the ground segment virtualisation enables new market growth, according to the seventh edition of NSR's Global Satellite Ground Segment report.

Over the decade to 2031, that growth could generate $6bn in cumulative revenues, says Lluc Palerm Serra, NSR Principal Analyst.

"Eventually, we see most of the elements of the ground segment system and even the space segment moving into virtual functions," he told SatellitePro.

That could be as little as three to five years away, although several factors need to come together for the industry to realise true value from the transition. Such elements include technologies, standards and infrastructure strategies, as well as a broader definition of different roles for ecosystem players, such as hyperscalers.

Exceptional technology alone won't be enough, he warns, and satcom vendors will need to identify the right business strategy to stay relevant, such as by becoming 'network functions vendors' with a capabilities-based model.

Network management systems (NMS) for ground management and control are the first step towards a virtual world, Palerm Serra says, with most ground systems vendors already offering these in some form.

"Then we can expect to see more utilisation of baseband equipment,

so that what was traditionally a hub with line cards will move to the cloud – whether these functions are hosted in a public cloud such as Azure or AWS, or a private cloud. And eventually, you would see also that happening on the terminal side of things, but maybe that's not that's not so advantageous in terms of cost," he says.

> "Eventually, we see most of the elements of the ground segment system and even the space segment moving into virtual functions"
>
> **Lluc Palerm Serra, Principal Analyst, NSR**

What's driving virtualisation of the ground segment?

Customers are turning to virtualised ground systems to drive efficiencies across the ecosystem and unlock new value while also enabling scalability and automation. In the cellular industry, for example, cloud providers such as Azure and AWS have demonstrated how virtualisation supports more agile and scalable networks.

With more satellites than ever before, particularly in low-earth orbit (LEO), ground systems need to be more responsive and flexible, particularly to support dynamic constellations. Additionally, with growing demand for data services and higher throughput, the industry requires systems that can process and manage large volumes of data in real-time.

"We have seen a growing interest from our satellite operating customers in the MENA region for virtualised ground stations that can provide more flexibility, scalability, and cost efficiency," says Wolfgang Berger, Director Digital Products at WORK Microwave.

The company recently launched a Virtual Ground Station (VGS) solution, a cloud-native, software-defined ground station architecture that enables satellite operators to manage almost their entire ground infrastructure from a single web-based interface, with features such as dynamic bandwidth allocation, automated workflows, and real-time monitoring and analytics.

It supports subscription-based approaches such as ground-station-as-a-service (GSaaS) and software-as-a-service (SaaS), enabling operators to reduce upfront hardware investments.

"We believe virtualisation will continue to play a key role in the evolution of the satellite industry, as it can unlock new business models, applications, and revenue streams," Berger says.

Similarly, virtualisation in other areas is driving changes on the ground and helping expand flexibility in the process.

As software-defined satellites become the norm, the ground segment needs to be intelligent to respond in line with customers' needs, says Ramesh Ramaswamy, Executive Vice President and GM International at Hughes Network Systems.

"Satellites have become more flexible, so they can move capacity around. And the ground segment has had to adapt," he tells SatellitePro. This evolution will see terminals becoming more powerful and cost-effective.

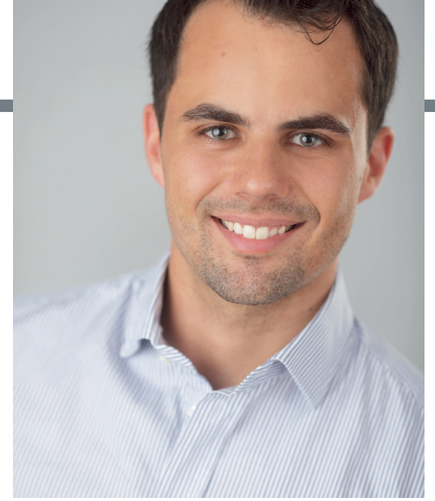
> "The ground segment enables satellite operators to manage their multi-orbit constellations as a single network, maintaining seamless, uninterrupted service for users"
>
> **Gil Elizov, VP Product, Gilat Satellite Networks**

The Echostar subsidiary is the industry's largest manufacturer of very small aperture terminals (VSATs). Hughes' Jupiter ground system enables connectivity worldwide, including in Oman, India, Egypt and sub-Saharan Africa. The latest iteration of Jupiter technology incorporates software-defined satellite networking, dynamic in-route reconfiguration for improved efficiency, and a new 'system on a chip' in every user terminal that can support increasingly high speeds and a variety of services.

The ground system has inbuilt flexibility, Ramaswamy says. "Flexibility is always there. Where your default gateway fails, you move to another gateway. Or if it's based on cloud architecture, you can route traffic between gateways based on congestion. Now, we've integrated that intelligence to work with software-defined satellites, to be able to allocate capacity in the satellite market."

Ground virtualisation will further come to the fore with the growth of multi-orbit operations. Satcom is expanding from GEO satellites to non-geostationary orbit (NGSO) systems, primarily in medium-earth orbit (MEO) and LEO. Every orbit has its own distinct advantages, including reduced latency, improved performance, capability to provide mobile connectivity, higher data transfer rate, and lower cost per unit of data. In this context, operators are setting themselves apart by promising to provide customers with the best of all orbits.

"The ground segment enables satellite operators to manage their multi-orbit constellations as a single network, maintaining seamless, uninterrupted service for users while switching between orbits. This occurs while maximising the benefits of each constellation per application and per region configuration with varied service options and delivering orbit redundancy," explains Gil Elizov, VP Product at Gilat Satellite Networks.



> "We believe virtualisation will continue to play a key role in the evolution of the satellite industry, as it can unlock new business models, applications, and revenue streams"
>
> **Wolfgang Berger, Director Digital Products, WORK Microwave**

"With virtualisation and service chaining, we can achieve efficient orchestration of ground segment resources so that functions are deployed and activated dynamically only when needed," he adds. "Gilat's SkyEdge IV single platform for multi-orbit operation enables deployment on GEO very high throughput satellites (VHTS) as well as MEO constellations including seamless handovers between orbits, implementing 'make before break' for an uninterrupted and transparent user experience."

Launched in 2022, the next-gen satcom system is aimed at capturing a significant position of the emerging multibillion-dollar VHTS market opportunity. The system offers scalable software centricity and provides VSAT backward compatibility with existing SkyEdge II-c investments.

Network management and the cloud

The biggest changes are taking place in network management systems (NMS). Because network functions can be decoupled from hardware, managing and upgrading the network becomes easier, resulting in reduced downtime and increased reliability. Moreover, greater automation, such as by way of resource allocation, fault management, and service provisioning, can further improve network efficiency and reduce operational costs.

Gilat's Network Management System, for example, was designed to support virtualisation. It is a microservice based cloud-native application featuring standard interfaces to next generation satellite resource managers and service orchestrators.

Elsewhere, ST Engineering iDirect is among those leading the shift to a fully digitised and virtualised ground infrastructure

to expand the accessibility of satellite services around the world via the cloud.

Satellites provide cloud-based enterprise networking to companies around the world; it makes sense for the industry to use those networks to its own advantage.

The company has already migrated its network management system to the cloud. Now it is developing a virtualised modem in the cloud in partnership with Microsoft. In September, it showed how a virtual modem can decode a high-speed satellite signal via a digital interface instead of the traditional analogue L-band interface.

Cloud deployment allows satellite service providers to build out large scale networks in less time and with less capex-investment, enabling faster, more cost-effective scale, the company says. 'Cloudification' allows for a distributed, more reliable architecture with access to greater security, proven management tools, streamlined operations, and less dependence on hardware supply chains.

The next step is to migrate our network processing functions and lastly baseband processing functions to the cloud.

"Our network processing is now totally virtual," Bert van der Linden, Senior Principal Product Manager, ST Engineering iDirect tells SatellitePro.

He expects the company's push towards cloudification to reward its customers. "In terms of scale, you're going to go from mini to max," he says. While he acknowledges there are questions around reliability, he says cloud resources make it easier to build a more reliable platform, in part because of redundancy and automated deployment.

Challenges thick on the ground ahead

But while virtualisation signals a paradigm shift towards digitalisation for an integral industry segment, it comes with several challenges.

> "Flexibility is always there. Where your default gateway fails, you move to another gateway. Or if it's based on cloud architecture, you can route traffic between gateways based on congestion"
>
> **Ramesh Ramaswamy, Executive VP and GM International, Hughes Network Systems**

First, as with most new technologies, cost remains a considerable hurdle. Justifying computing costs can be an issue, Gilat's Elizov says. In traditional IT environments, the total cost of ownership prioritises capital expenditure (CAPEX) while cloud computing operates on a pay-as-you-go basis (OPEX).

The outlay in each case will depend on the size and scope of the operation.

Hughes' Ramaswamy defines it in cloud terms: "The cost impact of a cloud-based deployment depends on network size, allowing customers to start small and scale as they grow. The initial investment to deploy a small cloud gateway would be lower than a dedicated one. For large networks, a hybrid private-public cloud approach would probably be more cost effective."

Security is often cited as a major issue in what is one of the world's most critical industries.

Quiggle says that's an incorrect perception. "A lot of people generally assume that virtual systems are software based, so they are less secure. But if the software's implemented properly, that couldn't be further from the truth," he says.

In a hardware-based system, fixed endpoints provide an easy, long-term target for adversaries. However, in a software-based or software-defined system, the endpoint changes regularly with dynamic network orchestration, making it more difficult for attackers to exploit vulnerabilities. This constant change of the attack vectors is a major advantage of virtualisation, he explains.

Work Microwave's Berger agrees. He says the need for secure and resilient ground systems that can withstand cyber threats and natural disasters is driving the adoption of virtualisation. Cloud-based solutions can provide greater redundancy, disaster recovery, and security features than traditional ground systems.

That's not to ignore the need for robust security features that also ensure regulatory compliance requirements. Berger lists measures such as encryption, firewalls, intrusion detection and prevention systems, and strict access controls as well as conducting regular security audits.

It's critical that vendors identify common customer needs when designing virtual networks, Elizov adds.

"There are different types of technologies, different types of cloud, different ways to operate over the cloud, different orchestration frameworks, and more. It is important to productise a virtualised platform without having to customise it per customer," he says. "To overcome this challenge, cloud service providers must determine and support the widest common denominators across the global customer base while at the same time developing infrastructure that can easily customise solutions where needed."

Not only must different virtualised ground station solutions be compatible, but virtual ground systems must also be able to connect and transmit information with other elements, such as satellites themselves, satellite operations centres and user terminals.

Finding common ground for industry development

On this front, several players have already begun to work with the Digital Intermediate Frequency Interoperability (DIFI) standard, developed by the independent DIFI space industry consortium. The standard enables digital transformation in the space industry by providing IF/RF layer interoperability, so manufacturers can build flexible technologies in response to changing customer demands.

> "Our network processing is now totally virtual. In terms of scale, you're going to go from mini to max"
>
> **Bert van der Linden, Senior Principal Product Manager, ST Engineering iDirect**

"DIFI's mission is to accelerate the digital transformation of the satellite industry," DIFI Board Chairman Stuart Daughtridge said in March. "That work starts with developing and making widely available a simple, open, interoperable Digital IF/RF standard that replaces the natural interoperability of analogue IF signals and helps prevent vendor lock-in."

DIFI membership now includes nearly 60 companies and agencies including the US Navy, US Space Force, AWS, Microsoft, Kymeta, Kratos Defense & Space, Hughes Network Systems, Inmarsat and Comtech.

In March, Gilat and ST Engineering iDirect demonstrated interoperability between their technologies by converting analogue signals to digital using the DIFI standard over a 10 Gbps fibre connection. They showed how an iDirect modulator was able to output a digitised signal that is interoperable with a BUC from Gilat's Wavestream subsidiary.

It is this sort of collaboration that will ultimately shape the uptake of virtualisation both in the ground segment and elsewhere and support the growth of the industry.

The ground segment has so far been dominated by proprietary systems.

Now, the industry needs more clarity around different aspects of the ecosystem, Palerm Serra says. Wide implementation of the DIFI standard could take several years and there remain ecosystem gaps that prevent full adoption of virtualisation.

"It's still early stages in the definition of the value chain. It's not just a matter of visualising the ground segment, but also about realising the satellite industry's capabilities," he says. PRO

CONNECTIVITY IN THE CONGO

The lethal combination of poor infrastructure, political unrest and civil war have compounded operating problems caused by the challenging terrain of the Democratic Republic of the Congo, as Israel-based VSAT services provider Oasis Networks discovered when contracted to fix a network of VSATs across the country

Picture this: you need to repair a critical network of VSATs (Small Aperture Terminals) across an area almost as big as Western Europe. You need forty separate teams to get the job done in time. You have to manage every aspect of the project, but you can't contact the teams by phone. The roads are poor and unusable when wet, but you need to get people, equipment and materials to each site. Some sites are in areas where there is armed conflict, so your teams' lives are in danger. What do you do? Oasis Networks faced this exact situation when managing a critical migration project in the Democratic Republic of the Congo (DRC).

Challenges associated with VSATs

Let's first start with a bit of context. VSATs provide critical connectivity to regions where there is often no other means of communication. Sites are often in hard-to-reach remote areas, so installation and maintenance can be difficult. If a VSAT is the only way a community can connect to vital services, outages obviously need to be fixed rapidly.

"Travelling to these remote sites can be extremely challenging, particularly if roads are poor, as they so often are in remote areas," says Nimrod Kapon, CEO of Oasis Networks. "Having to carry materials and equipment adds to the problem, as does bad weather. Roads and tracks that are useable in dry weather will quickly turn to streams of mud after rain, making them impassable."

When undertaking and planning VSAT projects, it's near impossible to predict in advance and from afar, all of the logistical and technical challenges that you're likely to encounter.

"From experience, we know that for a VSAT project to be a success, you need the right boots to be on the ground. You've got to have the right local knowledge, as well as the skills and experience to resolve issues quickly," notes Kapon.

This was definitely the case with a particular critical migration project that Oasis Networks completed in the Democratic Republic of the Congo (DRC).

A quick geography lesson

Before talking in more detail about the project, it's important to understand a bit more about the country. The DRC is a huge country in Central Africa (and yes, it is actually around the size of Spain, France, Germany, Sweden and Norway combined). By land area, it's the second largest country in Africa and the eleventh largest in the world. The world's deepest river, the Congo River, snakes through the country, and waterways are one of the main ways that people and goods move around.

The country lacks infrastructure, and has a long history of political instability, unrest, conflict and civil war. Ground transport infrastructure is notably poor in the DRC. It's said to have less all-weather paved highways than any other country in Africa of comparable size and population. It has a population of around 112m, and many parts of the country are reliant on VSAT networks for their connectivity.

Logistical and technical challenges

"A commercial private telecom company operating one of these multisite VSAT networks contacted us when its network suddenly went down. The network lost all connectivity when the satellite unexpectedly died in orbit. The satellite was not recoverable, so we were asked to migrate each individual site from the defunct satellite to an alternative one," explains Kapon.

"The network had multiple sites across the country, with each site located in extremely remote areas where there was no other means of communication. For this reason, it was critical that we restored connectivity at each site urgently.

"With a project like this, you need to live and breathe it. That means being there, on the ground, rather than managing the project from an airconditioned office in another country. This is why I flew to the capital city, Kinshasa, to manage the whole project. Due to the scale of the project, the distances between sites, and the number of sites involved, we had to deploy around forty teams across the country," he explains.

Geographically, DRC is a very diverse and challenging country to travel around. Ground

> "For a VSAT project to be a success, you need the right boots to be on the ground. You've got to have the right local knowledge, as well as the skills and experience to resolve issues quickly"
>
> Nimrod Kapon, CEO, Oasis Networks

transport is difficult because of the lack of infrastructure, as well as the climate and terrain. Most of the VSAT sites that the team had to visit were in locations that were difficult to access. Travelling to the sites involved all kinds of transport including the use of waterways, motorbikes, and even hiking on foot.

"After reaching the sites, we discovered that the new satellite look angle was completely different from the existing parameters. This added a further complication because in almost half of the sites, there were obstructions such as tall buildings nearby, so we couldn't simply rotate the dish. In those cases, the obvious solution was to install masts to raise the dishes above the obstruction," explains Kapon.

"The installation of masts created further problems because the mast itself and materials for installation, such as two-metre lengths of pipe, gravel, sand and even cement, had to be transported to the sites. In addition, some of the sites were only accessible by motorbike. Needless to say, transporting a 2m 6.63" schedule pipe on a motorbike is not an easy task. We needed a team of four riders, two to carry the cement, gravel and pipe, and two to carry the mast together," he continues.

> "Due to the scale of the project, the distances between sites, and the number of sites involved, we had to deploy around forty teams across the country"
>
> Nimrod Kapon, CEO, Oasis Networks

"Other sites in the east of the country were in active conflict areas, so travelling and working in those areas carried a high danger risk for the engineers. To mitigate the danger and threat to life, the engineers had to travel to the sites in military convoys. As you would expect, getting the teams and the equipment to the sites, and coordinating it with a military convoy was difficult to organise," he adds.

Communication and coordination

"Communication, or rather the lack of available communication, was a major issue throughout because none of the DRC areas involved had GSM coverage. In an ideal situation, satellite phones would be given to all teams beforehand, so that everyone could keep in contact. The urgency of this project meant that there wasn't time to provide satellite phones to each of the 40 teams before deployment," says Kapon.

Roads and tracks that are useable in dry weather can quickly turn to streams of mud after rain, making them impassable.

Travelling through DRC requires the right local knowledge as well as the skills and experience to resolve issues quickly, says Kapon.

This made communication between teams and with head office extremely difficult.

"We had to go back to basics and use messengers on bikes to relay messages to and from the engineers. These messages were used to set communication parameters and define timelines such as when and from where we should hear from an engineer," he explains.

"We opened a control room to coordinate the communication, procurement and transportation. Three operators were responsible for communicating with the different engineers and monitoring and updating their status. Another four worked on planning the purchase and delivery of civil works materials and sending cash to engineers. An additional two operators communicated and coordinated with the customer, while a further operator was tasked with communicating with the satellite operator."

Restoring critical connectivity

After the teams reached the VSAT locations, whether by water, road, bike or on foot, and either rotated the dishes or installed masts to overcome obstructions, the team was able to successfully recover all of the sites. Although there were some major obstacles along the way, from having to organise military convoys to transporting cement and pipe by motorbike, connectivity was restored within a short period of time. This highlights the significant challenges that can and often do arise when installing and maintaining VSAT systems in places that are hard to get to.

"Successful VSAT projects require a well-coordinated team with local knowledge, who are able to respond quickly to logistical and technical challenges," offers Kapon. "The kinds of hurdles that we had to overcome with this project would have been easy to overlook when planning or coordinating from an office in another country. With the right boots on the ground, proper preparation, experience, determination and skills, it's possible to find solutions to the most complex problems," he concludes. PRO

The teams had to take a boat to reach some of the VSAT locations.

MADE IN EGYPT

EgyptSat is one of the few companies in the Arab world known for manufacturing satellite-related products at its own factory in the region. Founder and CEO Dr Mohamed Elghamry, who is also dean of applied research at the Arab Academy for Technology, explains how products from the EgyptSat stable are enabling quick connectivity

Tell us a bit about Egyptsat

Egyptsat is a private satellite communications company. We have our own satellite teleport in Egypt and operate our own VSAT hubs. However, we use space capacity from different operators such as Arabsat, Eutelsat and Intelsat, and also work closely with several telecom partners. Our core service is delivering a value-added satellite communication solution. At the same time, we also have our own in-house research, development and production facility.

How long have you been operating in this market?

We started in 2002. So, it's been almost 20 years now.

Back then, we were a Value-Added Reseller (VAR) for Hughes in Europe and the Middle East, and this was operated from Griesheim, Germany. At that time, we managed to make a good network of clients operating all over the Middle East. Many of them were big organisations such as the United Nations, UNDP and so on. In 2004, we decided to start on our own service and were one of the early companies in the Middle East to buy an iDirect hub and deliver satellite connectivity in the region. We were one of the early players to offer two-way VSAT internet services from our own network in the Middle East. Before that, the Hughes service was only available from Greisheim. This was a unique solution at that time.

How do you differentiate yourself from other providers in the market?

There are many players in the market that have their own VSAT hubs and operate a similar service to ours. What makes us unique is that we have developed an ultra-fast, self-deploying VSAT antenna that adds extra value to our service. It takes less than 10 seconds for our antenna to find a satellite while most others from international vendors typically take two to five minutes or more.

I do not know of any other company in the region that designs and manufactures their own SNG antenna. There may be a few in Israel, but not anywhere else in the Middle East, even though ours is still faster and more precise.

This antenna is beneficial to anyone who relies on satellite connectivity. It is ideal for disaster recovery activities, where you need quick deployment of the satellite communication equipment. In this case, the antenna can be deployed in less than 10 seconds and provide high performance.

Likewise, TV broadcasters who have live events in different locations at different times, will need to be up in a few seconds. So, their antenna needs to find a satellite quickly and start transmitting the broadcast in a very short period.

A decade ago, we supplied our antenna to all the ten airports in Egypt as part of a massive project to build a disaster recovery network. Whenever there is an earthquake, like the one that happened in Syria or in Turkey, all communication cables and fiber in the airport, for instance, are the first to be disconnected. The most feasible communication solution in such cases is satellite communication through the self-deploying antenna mounted on top of a car that can go into the

> "Our biggest strength is the Egyptian market. So, we start everything in this country and then expand to others in the region"
>
> **Dr Mohamed Elghamry, Founder and CEO, EgyptSat**

EgyptSat's self-deploying antenna can reportedly connect with a satellite and establish communication within 10 seconds.

disaster area. Once the operator presses the button, it'll point the antenna to the satellite and establish communication within 10 seconds.

They can immediately start broadcasting what is happening inside the airport so that the ministry can monitor and secure all the Egyptian airports.

The antenna is operator agnostic. The software is configured to find any satellite in the sky. So, the menu will open with all of the satellites in the sky. A subscription or coordination with the satellite operator will give you a frequency for your antenna to start working. We have secured bandwidth with most satellite operators like Arabsat, Eutelsat and Intelsat among others.

It's very similar to the 5G antenna that you use from different vendors in Europe. We manufacture it at our production unit in Egypt, where we have a 12,000sqm facility spanning four floors, with R&D, operations, production and manufacturing. It is a very advanced manufacturing facility with all the latest equipment to produce the equipment.

Another solution we are building is the WebX speed accelerator. Internet traffic over satellite is not compressed, which means you pay a lot of money for capacity instead of maximising its potential. You are sending something that could potentially take much less time and capacity. So, we designed a software that is essentially a web accelerator. It compresses the traffic over the satellite, which means you can utilise triple the speed for which you are paying. It is these in-house solutions offered in addition to our service to make them faster and more reliable that make us stand out.

We also produce an Automated Guided Vehicle (AGV) robot for use in factories to lift heavy loads. The one we have designed can lift up to 2,000 kg, and this one was developed for the ABB production factory in Egypt. We also design EOD robots for military and police forces in Egypt.

How many people do you have in your company?
We have around 45 people between engineers, operations, support, and so on.

What are the big sectors you target?
Oil and gas, mining, military and telecom are the main ones. For the telecom sector, we offer backhauling services especially to companies in Egypt. We also offer video conferencing for situations, where there is no fiber connectivity and there are no other means of communication.

Most of the Gulf areas do not offer a license unless you have your own hub inside the country. This is true for even big companies like SpaceX. The market is very restricted in the Gulf, where they protect the national companies and telco operators. Whenever there is a monopoly, there is no pressure on a company to bring prices down. Competition compels companies to bring in better technology at higher speed and lower cost. Sadly, that is still to come to this region.

So we have moved into markets where they don't have good infrastructure such as Iraq and Libya.

At the company's HQ in Egypt.

I hear you have developed an electric vehicle?
Yes, we have recently received the golden license from the prime minister of Egypt to manufacture an Electric Vehicle (EV) in Egypt. It has been designed by our team with many futuristic features while it is also well connected with a lot of iOT applications inside. We have presented this vehicle to the Prime Minister of Egypt and have received a golden license to build this car in the country. It will be mass produced in six months. There are plans to export it to international markets as well.

We have a few categories planned starting with a city car that can run at 60km/hr for a distance of up to 200 km on one charge, and this car will be priced at $3,000. The second category will be a family car that can run at 150 km/hr for a distance of 300 km on one charge and this model will be offered for $12,000.


EgyptSat is in the process of developing a $3,000 electic vehicle for the Egyptian market.

> "Most of my team are below the age of 30. They have a more open mind, and we offer them the chance to create, innovate and develop at Egyptsat"
> **Dr Mohamed Elghamry, Founder and CEO, EgyptSat**

How many antennas do you manufacture each month?
Around five to ten. It's not much but it's enough to cater to the needs of our clients. But we are building a much larger facility for our automotive idea. The automotive factory will be around 50,000 sqm.

What are some of the challenges in this market and is Leo a threat to the VSAT business?
No, I don't think LEO is a threat to our business. This is the future of satellite communication. Our aim is to adapt. Our biggest strength is the Egyptian market. So, we start everything in this country and then expand to others in the region. You cannot bring a very expensive product to the Egyptian market, where the ARPU is very low. But there is great opportunity for the right products in this market and the low-cost, high-speed connectivity that LEOs offer is ideal for this country.

So LEOs are not a challenge. We are looking to partner with companies in this space to bring the best connectivity to Egypt.

What's your background?
I have an engineering degree from the Arab Academy for Technology in Egypt, and I continue to hold a dean's position for applied research there. All the engineers in my faculty or in my college are constantly working on some research programme. Mine has always been on how to develop products that could be designed and produced using local technology, satellite antennas and so on. Designing new products is also my personal hobby. I'm 55 years old but most of my team are below the age of 30. They have a more open mind, and we offer them the chance to create, innovate and develop at Egyptsat.- *Vijaya Cherian* PRO

SATELLITE IN FOCUS AT CABSAT 2023

The satellite segment has always been an integral part of CABSAT. Here's a sneak peek into some of the technologies and discussions that will take place within the space and satellite areas of the show

AsiaSat to focus on fully managed service at CABSAT

205, SHEIKH SAEED HALL 2

AsiaSat will demonstrate the power of its expanded service portfolio for the media, data and maritime sectors as it evolves from a satellite capacity provider to a customer-centric, end-to-end satellite solutions provider in response to the changing dynamics of the market place.

On the data service side, AsiaSat will focus on its managed maritime service - SAILAS, which is now offering a broad range of end-to-end solutions for services over a wide area from the EMEA region to the Asia-Pacific.

On the media business side, AsiaSat has expanded into managed media services. By leveraging its video neighbourhood and ground penetration, it is now offering customers an integrated suite of media solutions, including content aggregation, channel management and distribution, and live streaming service. AsiaSat is currently representing more than 70 UHD/HD channels from around the world for distribution into the Asia-Pacific region through pay TV and new distribution platforms such as OTT and FAST.

Following the acquisition of a live streaming company One Click Go Live (OCGL) in 2021, AsiaSat is also providing media customers comprehensive and customised video transmission solutions.

Telenor Satellite to showcase Newtec Dialog platform

STAND S2-G21

Telenor Satellite, a provider of high-powered satcom services across the Nordics, Europe and MENA, supplies fixed and mobile connectivity solutions to the land-based, maritime and broadcast sectors. With the Newtec Dialog platform, Ku-band clients in MENA can access increased speeds and bandwidths previously only available on its Ka-band services.

Telenor keeps operations running 24/7 irrespective of the environment. "This is relevant to those providing aid and emergency response," Julian Crudge, Sales Director for Data Services at Telenor Satellite said.

"They need to hit the ground running with communications links that are robust and seamless ... here, the optimal solution is satellite."

Telenor provides agile and responsive services with a range of high-availability bandwidths. It is looking to further expand its reach in the maritime and land-based sectors.

SpaceBridge to demo C7700 at CABSAT

STAND S2-D20

SpaceBridge Inc will focus on the C7700 Desktop HTS broadband VSAT router at CABSAT. The C7700 is a broadband Internet satellite modem that boasts a robust feature set and performance capabilities, all within a compact desktop satellite modem appliance. It has been specifically optimised for next-generation High-Throughput-Satellite (HTS) systems, which offer high download and upload speeds, as well as TCP/IP and HTTP acceleration, user traffic compression, and QoS capabilities.

The C7700 has been designed for a variety of applications, including data-intensive operations, video streaming, and online gaming. The modem's System on Chip (SoC) architecture, powered by Software Defined Radio (SDR), offers the flexibility for future waveform adaptation and customization.

SpaceBridge has a significant customer base in the Middle East. It successfully delivered a high throughput satellite network to Space Communication Technologies (SCT), connecting almost 2000 locations through our infrastructure. This allowed Omani residents to access voice, data, and video via their computer or mobile device, facilitating the delivery of critical services such as education and healthcare.

In addition, it has entered into an agreement with Arabsat and Saudi Net Link Company (SNLC) for the delivery and commissioning of a Ku-band broadband VSAT network.

"Our team is excited to share updates on our product line and build upon our successful history in this region," commented Javier Recio, Chief Commercial Officer at SpaceBridge.

"CABSAT holds immense significance for the region, being a premier event that facilitates critical industry updates. In light of the rapidly evolving industry landscape, the event offers an unparalleled opportunity for us to connect with our customers and gain valuable insights into their evolving requirements. This helps us to reinforce our relationships with them," he added.

Middle East remains key market for ABS, says CEO

STAND S3-A20

Global satellite operator ABS, which has a significant presence across the EMEA region, will be at CABSAT again.

With its fleet of five satellites, ASB offers high-powered and wide-reaching capacity across a range of bands, including C-, Ku- and Ka-band, to support several applications. These include cellular backhaul, corporate private networks, governmental and NGO networks, IP trunking, maritime, and broadcast/video contribution services.

To further strengthen its presence in the region, ABS recently invested in developing new teleport and ground capabilities at its strategic teleport in Cyprus.

The facility provides customers acess to every beam on ABS-3A (3°West), ABS-2 and ABS-2A (75°East), and ABS-4 (61° East), as well as secure and resilient hosting for its customers' platforms and ground equipment. Beyond Cyprus, ABS provides eight gateway options, three of which are strategically located in the EMEA footprint.

"With our global head office in Dubai, ABS' commitment to the MENA region is steadfast, and it remains a key focus for the company, commercially in terms of the potential of its currently available capacity, and strategically when considering its future growth and investments," commented Amit Somani, CEO of ABS.

SATCOM SERVICES: HELPING TO **SOLVE GLOBAL CHALLENGES**

Satellite communications have transformed the way people connect with each other, in addition to playing a critical role in addressing some of the world's biggest challenges. They have bridged the digital divide, connecting people worldwide and supporting various applications such as broadband internet, telephony, multimedia, remote sensing, navigation, telemedicine, and education. Therefore, this technology has contributed significantly to achieving the UN Sustainable Development Goals, from fighting poverty and hunger to supporting the development of industries, innovation, infrastructure, and sustainable communities.

The Future of Telemedicine:

One of the most significant challenges facing the world today is healthcare, particularly in remote or underdeveloped areas. Satellites provide telemedicine services, connecting doctors and patients in remote areas with specialists located in more populated areas. This technology enables doctors to diagnose and treat patients without requiring them to travel long distances, saving time and money for both patients and healthcare providers.

Satellite technologies have become widely used by first responders' units due to their autonomy, high deployment speed, high throughput, and cost-effectiveness. This allows for the provision of qualified assistance to victims immediately after an incident, significantly increasing the likelihood of saving lives.

Sowing Seeds of Precision Farming

Satcoms are also being used to provide solutions to global food security challenges. Farmers can utilise satellite data to monitor crop growth and predict yields, allowing them to make informed decisions about when to plant, fertilise, and harvest their crops. Additionally, satellite imagery is used to monitor the health of forests and oceans, helping prevent deforestation and overfishing.

The implementation of precision farming technology offers various benefits, such as reducing fuel usage, optimising labour costs, applying fertilisers in a targeted and controlled manner, timely use of plant protection, efficient use of water resources, and decreasing greenhouse gas emissions. Intersputnik International, in collaboration with its members and signatories, is currently developing a solution that enables precise point positioning corrections to be received via standard Ku-band bent pipe communication or broadcasting satellite, which significantly reduces the cost of the correction module. This solution can be widely implemented by farmers in developing countries due to the lower costs and an opportunity to use their domestic satellite systems in remote areas where such corrections cannot be received from a cellular network due to the absence of coverage. It is expected that this solution will increase the adoption of precision farming, especially in developing countries, resulting in improved harvest yields.

Bridging the Education Divide

In the field of education, satellite communications are providing solutions to the challenge of providing access to education in remote or underdeveloped areas. More than half of the member states of the organisation are developing countries, and many of them have nationwide projects to connect schools. Intersputnik is actively promoting the use of satellite-based solutions to expand its reach, especially to access remote schools that may not have access to fibre or microwave terrestrial connectivity. In addition, we work closely with service providers to connect schools in developing countries around the world using satellite bandwidth. In keeping with this commitment, Intersputnik will participate at CABSAT to showcase its wide satellite bandwidth selection and other solutions. The three-day event is a significant platform for decision-makers and forward-thinking individuals to discuss and exchange ideas on solutions aimed at addressing global challenges. PRO

Andrey Kirillovich is Director of Strategy, Marketing and Business Development at Intersputnik International, Organisation of Space Communications

Es'hailSat سهيل سات

Qatar Satellite Company الشركة القطرية للأقمار الصناعية

Satellite services for Television, Telecommunications, Broadband and Government networks across the Middle East, North Africa and beyond.

Corporate Networks

Playout

VSAT

Government Services

Television Broadcasting

Teleport Services

Cloud and Hosting

Telecommunication Services

Mobility Services

Space to deliver your vision

www.eshailsat.qa