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# SATELLITEPRO

TECHNOLOGY INTELLIGENCE FOR THE SATCOM MARKET

MIDDLE EAST

## SECURITY ON THE SEAS

Inmarsat is launching a fully managed unified threat management system

## CABSAT PREVIEW

A look at what this year's show will have in store for exhibitors and visitors

# WAR GAMES



Military and government customers look for simplicity, network security and equipment reliability without complexity



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Dominic De Sousa (1959-2015)

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## Government and Military

Welcome to the February edition of *SatellitePro ME*. Militaries are at the forefront of every country's right to defend its citizens. Communications, surveillance and guiding weapons is where military satellites come in. With MilSatCom and IDEX coming to town, we decided to do a military special feature to explain the importance of having reliable, always-on ground equipment, but also something that is simple to operate.

In other news, the broadcast and satellite community is coming together again at the annual CABSAT exhibition at the Dubai World Trade Centre. The exhibition runs from 21-23 March, and the organisers are expecting more than 15,000 visitors from over 950 companies. This will truly be a show not to miss. Make sure you also check out the new SATEXPO and the GVF Hub Summit. I can't wait to be blown away by all the new technology that will be featured at the event.

We'll be doing a feature on maritime communications on board cruise ships, tankers and private yachts for next month, so if you're in the business get in touch with me and we can discuss how to better mould the feature. I will also be present at IDEX2017 and MilSatCom. If you're going let me know and we can catch up.

Have a wonderful February. 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

## In this edition:



"Government users demand something simple and seamless that works every time – but that also functions as well"

*Robert Demers, Senior Advisor, Thuraya*

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"Thanks to HTS, satellite broadband services are able to be offered at a much cheaper rate than ever before"

*Alvaro Sanchez, Sales and Marketing Director, Integrasy*

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"In 2017 things are changing fast, as mobile connectivity brings ships at sea into the Internet of Things"

*Peter Broadhurst, SVP, Safety and Security, Inmarsat*

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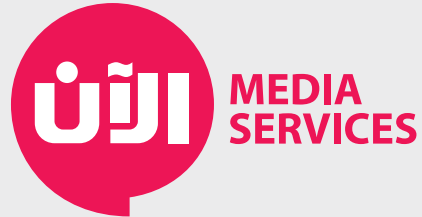


"There remains many areas of the world where connectivity is a challenge and satellite is the only method that works"

*Roger Franklin, CEO, Crystal*

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**Easier HTS Deployment**

Alvaro Sanchez, Sales and Marketing Director at Integrasys, says HTS has led to a veritable explosion in service provision, giving the industry a chance to take the lead

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**SatLead**

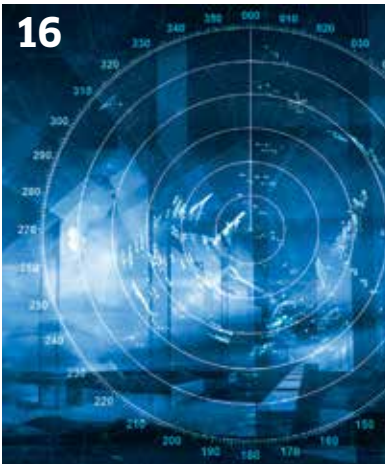
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**War Games**

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**Ready for CABSAT**

CABSAT 2017 aims to draw more than 15,000 industry professionals from over 110 countries, and exhibitors from 950 companies

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**Security on the Seas**

Peter Broadhurst, SVP at Inmarsat, speaks about how the company is planning to launch a new fully managed unified threat management service for ships

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**Satellite and OTT**

The satellite industry is having to adapt its own business models to stay competitive. The benefits to satellite providers launching OTT services are huge

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## MBRSC launches Project Space

» Mohammed Bin Rashid Space Centre (MBRSC) launched the first edition of the Project Space event on 24 and 25 January at the Dubai World Trade Centre. On day one, some of the most influential space scientists and professionals in the space industry from the UAE and internationally gathered to present their work to the students of the UAE and gathered dignitaries.

Project Space aims to inspire university and high school students by establishing a professional scientific platform for space science, research and technology, empowering them to use scientific space discoveries while learning expert views on the future for the sector and human endeavours in outer space.

HE Hamad Obaid Al Mansoori, Chairman of the Board of Directors at the Mohammed bin Rashid Space Centre, thanked His Highness Sheikh Hamdan bin Mohammad bin Rashid Al Maktoum, Crown Prince of Dubai, Chairman of Mohammed Bin Rashid Space Centre and general supervisor of all projects of the Centre and its strategic and development plans, for



his generous patronage of Project Space.

Al Mansoori said: "Under the directives of our visionary leadership, we in the United Arab Emirates are getting prepared for a post-oil era, which is characterised by the diversification of economic activities. In doing this, over the past decade the UAE has

established a solid basis for sustainability, innovation, science, technology and space exploration and made it part of key national indicators. We are looking at the space sector as a driver for economic growth."

[www.mbrsc.ae](http://www.mbrsc.ae)

### SPEEDCAST APPOINTS NEW CHIEF OPERATING OFFICER

SpeedCast has announced the appointment of David Kagan to the position of Chief Operating Officer (COO), reporting to CEO Pierre-Jean Beylier.

Kagan comes to SpeedCast from Globalstar, where he served as President and COO. Uniquely qualified as a result of his extensive industry experience, he previously held C-level executive positions at ITC Global, Globe Wireless, Maritime Telecommunications Network (MTN), ICG Satellite Services and Norwegian Cruise Line Ltd.

As Group COO, Houston-based Kagan will assume global responsibility.

"I have known David for many years and have been impressed by his leadership and ability to drive operational excellence. His deep understanding of our core markets, in particular the maritime market and the energy sector, will bring tremendous value to SpeedCast," said Beylier.

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

### EMIRATI ENGINEERS TAKE PART IN NANO SAT TRAINING

A delegation of Emirati engineers has participated in a specialised training programme in Tokyo, with the aim of developing the UAE's space science and satellite technology capabilities. The training comes as part of the capacity building programme launched by the UAE Space Agency in cooperation with the Japan Aerospace Exploration Agency (JAXA).

The programme included workshops on nano satellite technologies covering a range of topics.

[www.space.gov.ae](http://www.space.gov.ae)



### NORTHTELECOM SIGNS AGREEMENT WITH PTE

NorthTelecom recently entered into an agreement with a Philippines-based public telecommunications entity (PTE) to supply satellite ground hardware, space segment capacity and internet bandwidth for the Philippines rural market, especially unserved and underserved areas.

The capacity requirement for the three-year project is estimated to be 1.5-2 transponders and the number of remote terminals is expected to reach a thousand by the end of the period. The primary objective of the project is to connect rural market segments without internet access, including local government units (LGUs), academia, business establishments and the general public.

NorthTelecom will use the latest technology from its vendor-partner for the ground equipment and its teleport in Singapore and Malaysia to serve the Philippine market.

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



## Thuraya launches SeaStar

» Thuraya has announced the launch of Thuraya SeaStar, a new circuit-switched voice terminal that brings full and affordable accessibility to maritime communications.

Thuraya SeaStar meets the evolving needs of the modern fishing market, introducing the power of modern satellite communications capability to small operators.

With affordability a driving factor in key maritime market sectors, Thuraya SeaStar will be available at a cost of ownership that lowers the barrier to providing onboard satellite communications. Thuraya SeaStar provides unrivalled functionality and levels of value previously unseen at its price point.

Bilal Hamoui, Thuraya Chief Commercial Officer, said: "Because the maritime market itself includes operators of varying scale and requirements, Thuraya needs to offer a comprehensive portfolio of products at a clear and distinctive range of price points. Maritime satellite communications



should be available to everyone at sea, and Thuraya SeaStar is a high-quality, accessible and affordable voice terminal that meets the needs of a rapidly expanding modern market. Expectations are changing and new legislation and safety requirements are being introduced around the world, but we have made it possible for smaller scale operators to meet these changing demands."

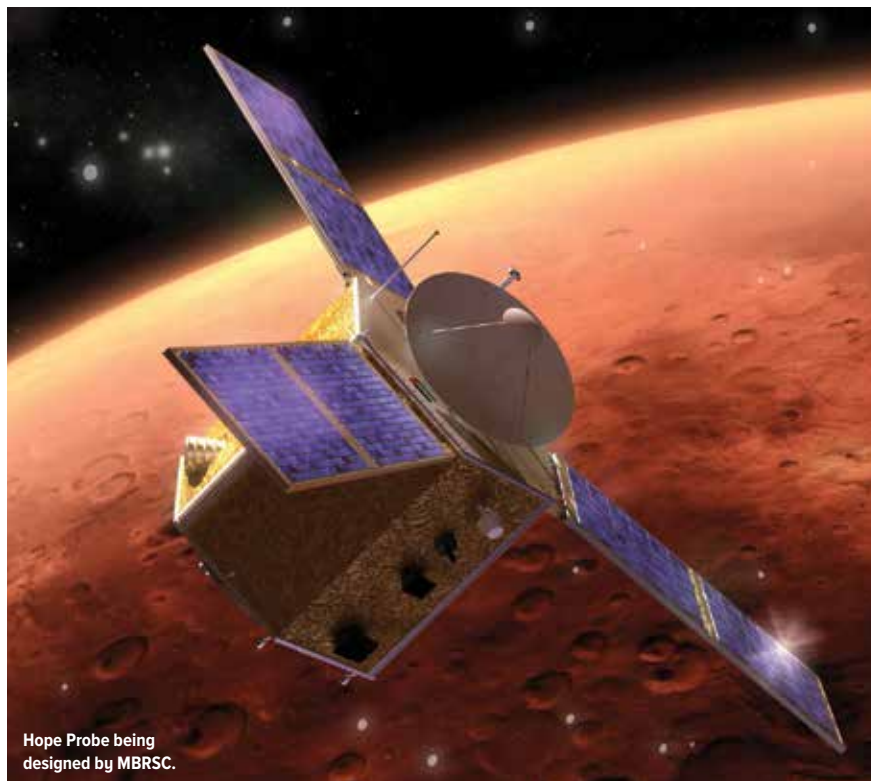
+ [www.thuraya.com](http://www.thuraya.com)

## PHASOR AND THALES ALENIA SIGN MOU

Phasor and Thales Alenia Space (TAS) have signed a Memorandum of Understanding (MoU) for the development of a software-defined smart terminal for commercial Ka satellite communications. The companies will join forces to leverage Phasor's unique knowledge in the field of electronically steerable antennas (ESAs) and Thales Alenia Space's extensive experience in satellite broadband technology across geostationary, medium and low earth orbits (GEO, MEO and LEO).

"The signing of this MoU with TAS represents a great opportunity for Phasor to develop a truly differentiated commercial solution with one of the world's leading players in the satellite communications industry," commented David Helfgott, CEO, Phasor. "The Phasor team has developed a revolutionary technology, and we are very pleased to be working with Thales Alenia Space to achieve their end-goal."

+ [www.phasorsolutions.com](http://www.phasorsolutions.com)



Hope Probe being designed by MBRSC.

## UAESA MEETS WITH TOP OFFICIALS FROM MHI

The UAE Space Agency received a high-level Japanese delegation from Mitsubishi Heavy Industries (MHI) at the Agency's headquarters in Abu Dhabi. HE Dr Khalifa Al Romaithi, Chairman of the UAE Space Agency, welcomed the delegation led by MHI's Vice President of Integrated Defence and Space Systems.

During the meeting, attended by UAE Space Agency Director General HE Dr Mohammed Al Ahbabi and Japanese Ambassador to the UAE HE Kanji Fujiki, Al Romaithi emphasised the deeply rooted partnership between the UAE Space Agency and its Japanese counterparts in the fields of space science and technology.

The parties discussed mechanisms of cooperation in the fields of space science, exploration and technology.

+ [www.space.gov.ae](http://www.space.gov.ae)

+ [www.mhi-global.com](http://www.mhi-global.com)

## HISPASAT showcases Hispasat 36W-1

Spanish satellite and telecommunications operator HISPASAT has presented its Hispasat 36W-1 satellite (H36W-1) at the company's headquarters in Madrid. The satellite was put into orbit on January 27 using a Soyuz launch vehicle and will be launched from the European Spaceport in Kourou, French Guiana. Elena Pisonero, President of HISPASAT; Juan Carlos Cortés, Director of International Programmes at the Centre for the Development of Industrial Technology (CDTI); and Xavier Lobao, Head of Future Telecommunications Projects at the European Space Agency (ESA), all attended the presentation.

Hispasat 36W-1 has 20 Ku-band transponders and additional capacity for up to 3 Ka-band transponders over the Iberian Peninsula and the Canary Islands. It will open the orbital position located at 36° West.

+ [www.hispasat.com](http://www.hispasat.com)

An artist's impression of Hispasat 36W-1.



### INTELSAT 33E ENTERS INTO COMMERCIAL SERVICE

Intelsat has announced that Intelsat 33e, the second of the Intelsat EpicNG high throughput satellites (HTS), successfully completed all in-orbit testing and entered service on 29 January 2017.

Manufactured by Boeing and launched in August 2016, Intelsat 33e is equipped with the most advanced digital payload on a commercial spacecraft. With this exceptionally flexible HTS payload design, Intelsat 33e, operating from 60° East, will extend Intelsat's HTS services in C-, Ku- and Ka-band to Europe, the Middle East, Africa, Asia Pacific, Mediterranean and Indian Ocean regions. This will enable the delivery of enterprise-grade, broadband services to fixed and mobile network operators, aeronautical and maritime mobility service providers and government customers. Intelsat 33e's powerful spot beams will also enable the distribution of regionalised content for media customers operating in the region.

+ [www.intelsat.com](http://www.intelsat.com)

### ABS-2A ENTERS INTO COMMERCIAL SERVICE

Boeing has delivered the ABS-2A, an all-electric propulsion 702 satellite. It entered commercial service on January 21 as the second of a pair of all-electric satellites Boeing has delivered to ABS. ABS-2A was launched in June 2016 aboard SpaceX Falcon 9 and will provide enhanced satellite communications services, including direct-to-home television services.

Equipped with 48 Ku-band transponders, the satellite will serve ABS customers in Africa, MENA, Russia, South Asia and Southeast Asia at 74.725 degrees east.

"We have completed our three satellite build investment in launching three satellites in three consecutive years. ABS-2A is the latest high-capacity satellite providing expansion capacity and continuity of satellite services at our prime gateway over the Indian Ocean region. It is located with ABS-2 at our premium neighbourhood at 75°E," said Tom Choi, CEO of ABS.

+ [www.absatellite.com](http://www.absatellite.com)

### THURAYA LAUNCHES CRYPTTIA COMMAND AND CONTROL

Thuraya has announced the launch of CRYPTTIA, a unique command and control platform developed by EYEONIX SA.

For the first time, smartphone users can use unified Thuraya and cellular networks for mission-critical crisis management, defence and civil protection operations. CRYPTTIA is a global platform combining both terrestrial and satellite voice technologies to bring push-to-talk (PTT) services to smartphone users.

CRYPTTIA is an IP-based end-to-end solution which offers 'bring your own device' (BYOD) capability for fast and reliable communications in mission-critical environments. It offers speed of deployment and ease of use. CRYPTTIA is the only platform that can be fully operational, from scratch, in less than four hours as a mission-critical unified system.

The portable version serves as a fully operational command, control and decision support system.

+ [www.thuraya.com](http://www.thuraya.com)

## GBI announces Amr Eid as CEO

» The Board of Directors of Gulf Bridge International (GBI) has named Amr Eid CEO. Since his appointment as acting CEO of GBI in March 2016, Amr Eid has successfully spearheaded the company's transformation into a global shared and managed services provider.

Abdulla Al Rwali, Executive Vice Chairman and Managing Director, GBI, said, "Amr's vision, innovative industry outlook and proven track record of successes have positioned him as a strong leader for GBI. We are confident that he has the wealth of experience, commitment and the drive to deliver value to shareholders, partners, customers and to the whole ecosystem."



Amr Eid,  
CEO, GBI.

I look forward to supporting Amr in further developing and implementing GBI's roadmap for future growth."

Eid said, "I want to thank GBI's Board of Directors, Chairman, Executive Vice Chairman and shareholders for their confidence and trust vested in me during the company's transition. I am delighted to continue working with my dedicated and talented team and to further guide GBI on its journey towards sustainable growth and success."

Eid brings over 23 years of experience in technology and telecommunications.

+ [www.gbiinc.com](http://www.gbiinc.com)

## TAMER GROUP PARTNERS WITH INFINET WIRELESS

In an effort to support its exponential growth, Tamer Group, based in Saudi Arabia, has recently partnered with InfiNet Wireless to ensure seamless connectivity and high bandwidth across several new facilities in Jeddah. The InfiNet solution has allowed Tamer Group to deploy and support several business-critical applications with far less management and maintenance, all at a significantly lower total cost of ownership (TCO).

Explaining the reasons for deciding to upgrade the wireless network infrastructure and work with InfiNet, Mohannad Al Jammal, Head of IT Operations and Network

Infrastructure at Tamer Group, said, "One of the big challenges we faced was the topography and the distance between our head office and the remote branches; many of the locations are about 30-40km apart. So deploying a wireless network that was reliable and stable in these harsh conditions was at the top of our priority list. In parallel, we needed to ensure that the new wireless network could provide high bandwidth that would not only support the existing business needs but also be future-proofed for demand over the next few years. Given our unique requirements, InfiNet was the only viable solution on the market."

Working with United Horizons, InfiNet's partner in Saudi Arabia, Tamer Group deployed InfiNet's InfiLINK 2x2 5GHz PRO and LITE family of products across all 20 locations in Jeddah. For the critical connection between their data centre and head office, Tamer Group deployed the R5000-Omx model as it supports speeds of up to 300Mbps over the 50km distance. For connections between all other sites, Tamer Group deployed the R5000-Smn and the R5000-Lmn.

One of the biggest benefits of the InfiNet solution has been the ability for Tamer Group to transmit significant volumes of business-critical data.



+ [infinetwireless.com](http://infinetwireless.com)

## EMIRATI STUDENTS TO CONDUCT ZERO-G TRAINING IN JAPAN

A team of Emirati students and engineers will conduct a reduced-gravity parabolic flight experiment over Japan later this month, as part of the UAE Space Agency's capacity building programme launched last year in collaboration with the Japan Aerospace Exploration Agency (JAXA).

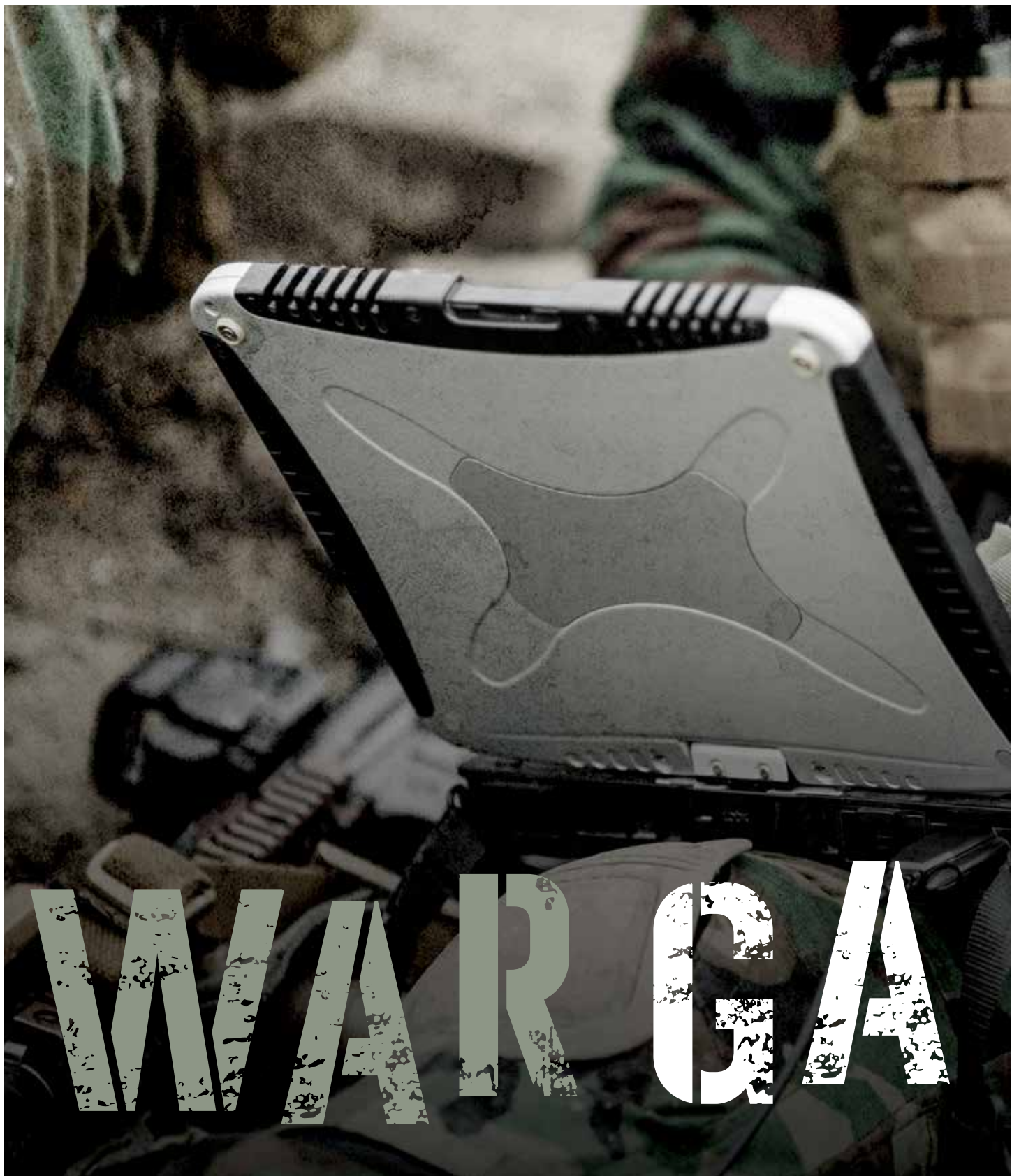
The team arrived in Japan for a series of lectures, experiments and hands-on training sessions from leading experts at renowned Japanese institutions. In addition to parabolic flight experiments, the young Emirati space pioneers will also receive theoretical training and practical experience in launching rockets, hybrid propellants and polymeric materials.

The two-week training programme is the UAE Space Agency's latest capacity-building initiative, and aims to increase national space science capabilities. The students and young engineers include winners of the Ideathon, held on November 12 with participants from JAXA. The competition, in which teams of university students presented proposals for innovative space projects, was won by a team of students from UAE University.

The team will then travel to Wakayama, home to Cosmo Park Kada, where they will launch hybrid rockets.

+ [www.space.gov.ae](http://www.space.gov.ae)







# MILES

Military and government customers look for simplicity, network security and equipment reliability, without having to be baffled by increasingly complex equipment. Additionally, costs have to be kept down, due to strained budgets



**Military and government personnel are continually tasked with understanding and operating ever more technologically advanced weapons, communications and other systems. They are constantly looking for integrated solutions that are compact, easily deployable and secure, but also simple to use with a minimal learning curve.**

Robert Demers, Senior Advisor at Thuraya, says: "Government users face increasingly complex gadgetry every day. Each new electronic box or terminal has more buttons and complications than the one it replaced. Government users demand something simple and seamless that works every time – but that also functions as well in the dusty terrains of North Africa as in the rainy tropics of the Philippines."

"We have witnessed a gradual evolution of the mobile communications requirements of military and other government customers over the past few years. The conflicts in Afghanistan and Iraq coincided with the coming of age of the digital generation. Men and women

entering government and military service today have only known a world in which they are always connected to their peers by a device that fits into a pocket. The need and demand for mobility in the field has led to a revolution in on-the-go communications, supported by satellite."

**"Government users demand something simple and seamless that works every time – but that also functions as well in the dusty terrains of North Africa as in the rainy tropics of the Philippines"**

ROBERT DEMERS, Senior Advisor, Thuraya

The recent security challenges, whether regional or worldwide, are the drivers for both military and law enforcement organisations to consider secure communication platforms within and behind a country's borders. These needs have firmly positioned the satellite industry, whether it's military or commercial payloads, as sometimes the only reliable platform.

Riyadh Al Adely, MD, Skystream, says today, more than ever, secure communications are essential.

"It is vital for maintaining homeland security, protecting the lives of citizens from the threats that have sadly intensified these days, managing waves of refugees and responding to damage caused by natural disasters. Satellite solutions are increasingly the preferred medium of choice for governments seeking the most secure, reliable, quick deploy transmission paths and cost-effective solutions.

"Sometimes satellite networks also tend to be less vulnerable to natural and man-made disasters than telephone lines







Riyadh Al Adely, MD,  
SkyStream.



Robert Demers, Senior  
Advisor, Thuraya.

and radio towers. This is why governments and businesses worldwide are adopting satellite technology for some important ‘must not fail’ communications missions.”

Moreover, government and militaries were previously happy to simply buy a fixed number of transponders on a satellite. This has changed incredibly in our increasingly connected world. It is also not necessary for all military and law enforcement applications to only use military payloads. Sometimes conventional commercial payloads can serve certain applications much better and overcome to a certain extent budget challenges.

Al Adely says: “The application and the budget are the main selection criteria between military and commercial payloads. If the application is to extend tactical networks beyond its coverage, then we are limited to certain military types of satellites, such as UHF, L-band or X-band, while other applications may require simple connectivity and conventional satellite can be the perfect fit.”

A few years ago the industry offered customers commercial off-the-shelf

equipment, but as devices have become more complicated, simply delivering equipment like this doesn’t work anymore. Many military units don’t have personnel with the technical expertise to effectively put a communications network together. In fact, many military units around the world rely on staff contractors to maintain and update all varieties of equipment.

Demers says: “The problem with having the equipment but not the capability was driven home most tragically by the 2014 disappearance of AirAsia 8501 on a flight from Indonesia to Singapore. Indonesian ships and airplanes had radios to communicate with one another, but not the satellite connectivity essential to coordinating the overall search effort in the Java Sea from a central location. In a matter of hours, we were able to provide Thuraya IP satellite terminals and a link back to the primary coordination centre in Jakarta, so that the radios could be used to communicate search progress and ultimately help officials find the submerged wreckage of the aircraft.”

“Getting one type of information to

integrate with another, such as coupling radar signals and surveillance video, has become mandatory for many government agencies tasked with monitoring vast geographic areas for terrorist or other threats. Such efforts create large networks of many small devices. These networks are not unlike an iPhone being used to adjust a home thermostat, turn on the TV or monitor the home security system. But these large government-operated monitoring networks require satellites in order to seamlessly connect devices, especially if they are in motion.”

#### **Bandwidth and Applications**

Al Adely says application, budget and availability of services over the targeted region determine the type of payload and the required spectrum. In order to backhaul a tactical network to another region beyond its coverage without losing mobility, network encryption, ease of use and light weight, services are limited to either UHF tactical satellites such as Airbus SkyNet or Inmarsat LTAC services. Other applications may require

military satellite with different bands which can support higher throughput with anti-jamming features – in this case military Ka- or X-band satellites are used – but that's not all; sometimes commercial, C-, Ku- or Ka-band are considered for certain applications.

Military business has seen significant growth in the last five years in the region, due to unfortunate circumstances that have created the need to respond to challenges. This demand is not limited to only space segments; it also includes terminals, systems integration and others. Ground stations, hubs and terminals have to cope with the applications. For mission-critical applications, all equipment has to be military certified and serve the purpose of the application.

"Militaries needed to evolve. The need for a secure, always-available network and accurate information became a crucial element to have an effective and successful operation. Satellites were one of the reliable communication methods. Mobility is one of the main applications we are delivering to our clients to service many areas such as border control, navies and operations in battlefields," says Al Adely.

He adds: "SkyStream Defence had partnered with both Airbus Defence to promote Skynet tactical service and Inmarsat LTAC service that has positioned SkyStream as one of the few qualified providers for tactical satellite communications in the region. SkyStream Defence got involved in projects that require consultancies, network design and implementation to manage many applications for different troops. Iraq and Afghanistan were the anchor countries when we started the business; the US military and the local internet requirement was our focus at that time. Today the situation is not the same. We have evolved since then, our main focus is to be a solid player for military. The market response has indicated that we are on the right path."

All space providers understand the need for a reliable, always-available link to serve the required military application. Military applications are



Martin Coleman,  
Executive Director, the  
Satellite Interference  
Reduction Group.

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**"Mobility is one of the main applications we are delivering to our clients to service many areas such as border control, navies and operations in battlefields"**

RIYADH AL ADELY, Managing  
Director, SkyStream

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mission-critical, and high availability is an important feature for any proposed links. Anti-jamming is one of the satellite features that will increase availability. Those features will mitigate the effect of deliberate and non-deliberate jamming.

Martin Coleman, Executive Director, the

Satellite Interference Reduction Group, says: "Currently, most interference support and protection is driven by satellite operators. There is a genuine drive to keep the continuous development of ideas, process and technology to ensure we have all the tools in place to make resolution faster and more efficient, and that in turn helps address all issues when they occur, or ideally prevent them from happening in the first place."

"This involves the constant analysis and identification of the source, types and characterisation of interference. It also involves monitoring to try and identify potential interference before it has an effect. However, probably the single most important aspect here is that the satellite operators work together and between many of the key players to resolve interference. Further effort is being directed to enhance the use of future technology ideas, such as software definition and cognitive computing, to add to both ground infrastructure and within the satellite constellations themselves," concludes Coleman. **PRO**

22 February 2017  
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# Strategic Satellite Communications for National Defence & Security

## Speakers:

**Brigadier General Carlos de Salas Murillo**

Head of C4ISR & Space Programs  
National Armament Directorate, Spain

**HE Dr. Mohammed Al Ahbabi**

Director General  
UAE Space Agency, UAE

**Lt Col James Dryburgh**

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# Security on the Seas

The threat ships face from cyberattacks demands a response to technical, operational, training and insurance needs. Peter Broadhurst, Senior Vice President Safety and Security at Inmarsat, speaks with *SatellitePro ME* about how the company is planning to launch a new fully managed unified threat management service





**The Dyn cybersecurity breach of October 21, 2016 saw multiple denial-of-service attacks target the domain name system provider which, it turned out, supports internet platforms across Europe and North America. Victims included Twitter, Paypal, Spotify, CNN and the *New York Times*, as Mirai malware triggered look-up requests from tens of millions of IP addresses. Printers, cameras, home gateways and even baby monitors conspired to load attacks in 1.2 terabit per second waves.**

The maritime sector is far from immune to the hacking threat. In August 2016, French naval contractor DCNS fell victim to a hack that left the newspaper the *Australian* holding 22,000 documents detailing the design of a submarine under construction for the Indian Navy, including combat capability. In the same month, US ports reported attacks using an SQL injection flaw to the web-based component of the widely used Navis maritime transportation logistics software suite.

Then, in October 2016, Hewlett-Packard disclosed that a hack of United States Navy records from a sailor's laptop within its Enterprise Services agreements had allowed access to personal records of more than 134,000 sailors.

"Many in the maritime sector nonetheless still assess the probability of premeditated cyberattacks on shipping as low. This must be one explanation why a recent Coventry University study supported by the CSO [Company Security Officer] Alliance found 100% of participating shipowners saying their crews were given no training in cyber security at all.

"However, in 2017 things are changing fast, as mobile connectivity brings ships at sea into the Internet of Things, not least following the launch of Fleet Xpress from Inmarsat. The hybrid Ka-band/L-band service redefines what is possible in maritime communications, offering consistent, higher bandwidth communications and always-on capability, and enabling advanced business applications and crew connectivity via mobile devices," says Peter Broadhurst, Senior Vice President Safety and Security at Inmarsat.

As land-based users know, however, freedom to roam the web is just as open



Peter Broadhurst,  
Senior Vice President Safety and  
Security at Inmarsat.

to fraudsters as it is to legitimate users. This year has also seen the launch of the 'Be Cyber Aware at Sea' campaign by UK maritime cyber security specialist JWC International, which we at Inmarsat are actively supporting and has attracted support from The Standard Club, North P & I Club and insurance broker Integro.

Yves Vandenberg, The Standard Club Director of Loss Prevention, says: "This emerging threat is very real and current. Technology on ships continues to advance and so do the challenges that arise as a result. Educating crew and spreading awareness is the first step in fighting cybercrime at sea."

The sentiments and the 'Be Aware' campaign are warmly welcomed. Inmarsat recently ring-fenced maritime

security as a dedicated area of expertise within Safety Services, with a team of nine cyber specialists.

Inmarsat is developing an end-to-end cyber security solution, which "includes a technical answer to report and prevent attacks or malware on a ship, but also offers a programme of awareness, risk assessments and the training that drives best practice procedures", Broadhurst says. Part of the cohesive approach sees Inmarsat seeking to include its cyber security capabilities in a scheme to upgrade its network and infrastructure accreditation in line with ISO27001.

In a world where half of online traffic is automated and an entire black market supplies hackers with tools to breach corporate security, Broadhurst





is nonetheless keen to keep shipping's cyber threat in proportion. "I think there are cyber companies out there now who have made their mark with the financial institutions and are looking to other verticals; superficially, they can make an impression by predicting doom and gloom on the cyber threat to shipping," he says.

Inmarsat, by contrast, is drawing on 35 years of maritime experience, as well as a long track record as a supplier for government and defence clients, to concentrate on where threats are really going to come from, says Broadhurst. "It is time to introduce maturity into maritime security."

Only Inmarsat will be able to offer a fully managed end-to-end service, Broadhurst says. "Other offerings we

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**"In 2017 things are changing fast, as mobile connectivity brings ships at sea into the Internet of Things, not least following the launch of Fleet Xpress from Inmarsat"**

PETER BROADHURST, Senior Vice President Safety and Security, Inmarsat.

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have seen and those we are aware of that are under development address part of the threat, or part of the management requirement, but only Inmarsat's approach to threat management is all-inclusive."

Broadhurst adds that the fully managed approach will be critical. An individual ship's vulnerability to cyberattack may only be exposed when its departure from or arrival at a port is denied, for example because loading information is not shown correctly. Ransomware is a "huge phenomenon", Broadhurst states, but shipowners may still be willing to consider buying their way out. "The owner may think, if the computer fails, the best solution is to go out and get another one because landing the cargo is the imperative. In the new era of ship connectivity, those days are over."





Although ships can be carrying high-value cargoes, many individual vessels do not have large amounts of valuable data onboard; their attraction for hackers is that they offer a way into a company's corporate system. "The reality is likely to be that the systems are under attack because they are identified as IP addresses by hackers who are looking for any weaknesses to see what they can get their hands on, and not because they are ships or shipboard systems," says Broadhurst.

Inmarsat is working within a strategic alliance with Singtel to use capability available through the Singaporean telecoms company's Trustwave subsidiary. Shipboard tests of a maritime UTM (unified threat management) system from Inmarsat are currently underway, and the full launch is envisaged later in 2017. The Inmarsat solution will be embedded in all Fleet Xpress hardware going forward, as an option which can be switched on or off by the operator as required. In the future, the same capability will be extended to FleetBroadband, Broadhurst says.

The technology will be supported through a network of already established security operations centres, Broadhurst continues. "Owners will be able to get

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**"Owners will be able to get a view of what is going on at both the ship and the fleet level, and track causes behind any security compromises, whether they are due to attacks or the presence of malware on board"**

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PETER BROADHURST, Senior Vice President Safety and Security, Inmarsat.

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a view of what is going on at both the ship and the fleet level, and track causes behind any security compromises, whether they are due to attacks or the presence of malware on board. We also see the system's use as the basis for improving training and achieving the best practice that blocks threats coming from malware."

Broadhurst believes the maritime satellite company is taking the initiative at a critical

time for shipping. "The ISO has been talking about maritime IT cyber standards but it is two to three years away, while the IMO is developing guidelines," he says. "We are at a place where everyone realises that there is a threat, but that realisation actually emphasises that shipping is a fragmented industry. As the launch of new guidelines by BIMCO aimed at helping shipping secure itself against the threat of cyberattackers shows, however, there are many in the industry who are wide awake to the threat."

Maritime Cyber Security Myth-Busting is one of three key Inmarsat events scheduled to coincide with London International Shipping Week 2017. The session, to be held at Inmarsat Global HQ in London on 13 September, will include a briefing on the cyber security threat facing shipping and the roles training, technology and global support have in addressing the different elements of that threat.

"A main priority for Inmarsat in the first part of 2017 is to engage owners in dialogue on the vulnerabilities of the bridge, cargo management and propulsion monitoring systems that interface with shoreside networks, and explain their options when it comes to protecting themselves against cyber incidents," concludes Broadhurst. **PRO**

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\*SIA Industry Report 2016

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# Easier HTS **Deployment**

Alvaro Sanchez, Sales and Marketing Director at Integrasys, says HTS has led to a veritable explosion in service provision, giving the industry a chance to take the lead, but not without a few hurdles





HTS allows for faster bitrates at lower costs.

The satellite industry has developed dramatically over recent years, both in terms of capability and its image, thanks to high-throughput satellites (HTS). This means more people can gain access to services via satellite than ever before, but perhaps more importantly, it means satellite is suddenly a viable alternative to other types of connection, especially in remote areas.

Clearly we are in a position where we can truly make an impact on the digital divide in those hard-to-reach areas where consumers and businesses operating in rural and remote locations are severely lacking the communication infrastructure available elsewhere. It has long been the case that satellite can reach those areas other networks cannot, but with HTS we can do it easily, quickly and cost-effectively right across the globe. As an industry, we have a unique opportunity to close that divide and a lot of that work has begun, with many of the major satellite operators rolling out Ka-band. Thanks to HTS, satellite broadband services are able to be offered at a much cheaper rate than ever before, so consumers are seeing the value in turning to these services for better, more reliable connectivity.

#### Bridging the Digital Divide

One of the hurdles when bridging the digital divide faster is the installation and maintenance of the VSAT networks to be deployed in isolated areas, with the travel alone costing providers significant time and money. Communication providers are adopting smarter tools to ensure correct installation the first time, thus avoiding the need to travel all the way back to the site to fix problems due to poor installation.

Naturally, one of the biggest concerns with Ka-band is rain fade. Being able to maximise the return link performance is extremely crucial to ensure the highest quality of service, even when there is a lot of rain or atmospheric attenuation.

Enter the iDirect Remote Commissioning Solution. This is based on Integrasy's Satmotion product and streamlines the overall process to get remotes into the network. It works with a smartphone



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**"Thanks to HTS, satellite broadband services are able to be offered at a much cheaper rate than ever before, so consumers are seeing the value in turning to these services for better, more reliable connectivity"**

ALVARO SANCHEZ, Sales and Marketing Director, Integrasy

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app and enables the installer or end customer to deploy and commission the remote swiftly and accurately.

#### YahClick

Yahsat is one operator that has invested a great deal into getting it right first time. It provides multi-purpose satellite solutions for broadband, broadcast, government and communications use across the Middle East, Africa, Europe and central and southwest Asia. Part of that includes YahClick, offering broadband satellite solutions for both home and business customers.



YahClick uses the iDirect Remote Commissioning Solution. This is based on our Satmotion product and streamlines the overall process to get remotes into the network. It works with a smartphone app and enables the installer or end customer to deploy and commission the remote swiftly and accurately. In Ka-band networks, this application maximises the return link performance and availability to ensure the highest quality of service even when it is raining or there is atmospheric attenuation.

The operator has already noticed a difference in the performance of its entire network and in the reduction in investment needed to rectify installation issues.

### Ongoing maintenance and control

Indeed, YahClick has invested a great deal in the right technology to make its network run more smoothly and cost-effectively. For example, working with VT iDirect, it has integrated virtual network operator (VNO) solutions for its existing footprint. It leverages the high speed and economical capacity of the operator's Ka-band network to allow its service partners full control over the use and management of their allotted capacity. Because VNO services are quick and easy to deploy, they enable service partners to operate as satellite network operators.

Giving service partners that ability to control and manage their own capacity will naturally have a huge impact on the efficiency of the entire network and will mean they see any problems as soon as they occur, meaning that they can be resolved instantly, only involving the satellite operator when required. Of course, one of the biggest barriers has always been that in order to do that, the network operators need large amounts of complex (not to mention expensive) equipment. However, tools are getting smarter, meaning that is no longer the case.

YahClick is able to integrate Satmotion with this VNO solution so that service partners can activate remote sites by simply using a mobile app. Hence, remote site activation becomes convenient, simple and does not require complex VSAT

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**"Today the technology is available to make installation easier and quicker and to reduce errors both at installation and throughout operation"**

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ALVARO SANCHEZ, Sales and Marketing Director, Integrasy

equipment such as a spectrum analyser.

VT iDirect VP Middle East Maïdi Atout adds: "iDirect is excited to help its partners move into an HTS environment without the need to outlay additional capital, while retaining control over their service differentiation. This requires a VSAT platform that can minimise the infrastructure costs and increase speed to market."

### The HTS Opportunity

HTS brings our industry an overwhelming opportunity thanks to efficient and reliable service to a number of vital sectors. Today the technology is available to make installation easier and quicker and to reduce errors both at installation and throughout operation. Providers who take the time to get it right will reap the benefits of this new era of satellite. **PRO**



A VSAT antenna, pointed at a satellite.



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# Ready for **CABSAT**

The GVF Hub Summit will bring to light myriad issues that currently face the satellite industry, and will look at possible solutions that the forum will take moving forward

**One of the most important features at CABSAT has always been the GVF Satellite Hub Summit. The programme devised for this year addresses a lot of burning issues in the industry.**

Martin Jarrold, Chief of International Programme Development, GVF, says the Dubai World Trade Centre (DWTC) and Global VSAT Forum (GVF) have announced an enhanced continuation of their partnership agreement to bring a programme of strategic debate on key issues for the current satellite industry technology and service marketplace to CABSAT in Dubai. CABSAT will again feature the GVF Satellite Hub Summit on the second and third days of the event. It will be preceded on the first day of the show by a new feature – the SATEXPO conference.

SATEXPO and the GVF Satellite Hub Summit will be mutually reinforcing programmes of satellite sector and satellite solutions end user perspectives, with a day one emphasis on strategic analysis of various user markets and a day two and day three focus on interactive panel sessions which will offer detailed examination of core themes within today's industry environment, such as satellite spectrum, high throughput satellite technologies, low earth orbit satellite constellations, the VSAT mobility market, satellite interference and cyber security. For more information on the SATEXPO programme, please contact Hannah Capstick, Conference Producer, DWTC (t-hannah.capstick@dwtc.com).

With both days of the Hub Summit featuring a wealth of panel session moderating expertise – including Stéphane Chenard, Senior Analyst, Euroconsult; Virgil Labrador, Editor-in-Chief, *Satellite Markets & Research*; Torsten Kriening, Editor, *SpaceWatch Middle East*; Kevin French, Publisher, *talk Satellite*; and Riaz Lamak, Lead, International Programmes, GVF – day one (22 March) will begin with an exploration of MENA's regional telecommunications market dynamics, providing a preliminary overview of current key dynamics and forecasts for near- and medium-term evolution across the Middle East and North African telecommunications sector and analysing the ongoing major and



Martin Jarrold, Chief of International Programme Development, GVF.

**“The agreements reached by national administrations at WRC-15 reflected a comprehensive strategy in which the unique value proposition of satellite-based connectivity is an integral part”**

MARTIN JARROLD, Chief of International Programme Development, GVF

expanding role of the satellite solution.

A panel discussion on ‘Spectrum: Satellite & the Next ITU World Radiocommunication Conference’ will then address the next phase of the spectrum allocation dynamic. The agreements reached by national administrations at WRC-15 reflected a comprehensive strategy in which the unique value proposition of satellite-based connectivity is an integral part of a portfolio of synergistic technologies. Now the industry is

preparing for WRC-19, and this session will take a strategic overview of the key agenda points in which the providers of satellite-based communications technology and service solutions have a vital interest.

‘Leveraging Advancing Technologies & Scaling Innovative Services to Evolve Larger & Emergent Markets’ will be the focus for the 2017 Summit dialogue on high throughput satellites. With the advantages of HTS over traditional fixed satellite service (FSS) now clearly recognised as including considerable reduction in the average cost per Gbps (gigabit per second) of bandwidth in orbit, the session dialogue will encompass such questions as: The operators, what is their new focus from orbit? What are the new challenges, in the new markets? What are the evolved dynamics for ground segment? Is mobility all that matters now? Is the value-chain being reinvented?

The discussion will also cover the ABC of growth, with Aeronautical, Backhaul and Consumer broadband recognised as key applications stimulating continued HTS market expansion.

With the aeronautical market subject to detailed analysis on day two of the Satellite Hub Summit programme, this session will also focus on the satellite industry's capabilities and further potential to deliver on the kind of advances necessitated by the backhauling requirements of the wireless data environment, including providing enhanced clarity in its value proposition, using the language of the wireless sector and, as wireless continues to advance through successive technology generations, delivering clear technology upgrade paths.

The ‘In Constellations for Connectivity: The Low Earth Orbit Solution Reborn?’ discussion will address the myriad of questions that have arisen since the announcement of the OneWeb, SpaceX and LeoSat plans to build hundreds of new satellites for orbiting to LEO. These questions include: How will the HTS and Mega-LEO services compete... or will they be complementary? How will they be differentiated and priced? How will they be contracted and regulated? How are the new constellations going

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to be launched? How will the systems satisfy end user requirements? Who will come out on top? Not just among the satellite operators, but everyone in the value chain: manufacturers, integrators, network licensees and, ultimately, the users – wireless operators, maritime and aeronautical interests, oil & gas companies, military, civil government agencies and not least the individual consumer. The dialogue will also ask just what the mobility and interference challenges are, and whether new apps are driving new satellite designs.

The ability to communicate is essential to humanitarian emergency operations, and 'Mission Criticality: The Satellite Solution & the Humanitarian Crisis' will explore this ecosystem. In Dubai itself, the home of CABSAT, in 2016 some of the world's leading satellite operators and integrators – Arabsat, EMC, Eutelsat, Hispasat, Inmarsat, Intelsat, SES, Thuraya and Yahsat – conducted technical training for humanitarian personnel to support the provision of communications to all those responding to emergencies, including affected populations.

This training emanated from the Crisis Connectivity Charter, a set of commitments to enhance communications in times of crisis, signed by satellite operators and the integrator community and the UN in October 2015, and established by the EMEA Satellite Operators' Association (ESOA) and the GVF, with the support of the UN World Food Programme (WFP)-led Emergency Telecommunications Cluster (ETC), and the UN Office for the Coordination of Humanitarian Affairs (OCHA), providing ETC responders with the skills and experience to deploy, manage and support satellite solutions, facilitated through the Crisis Connectivity Charter, during humanitarian emergency operations.

Day two of the GVF Satellite Hub Summit @ CABSAT 2017 (23 March) begins with 'Into the Mainstream: VSAT Communications on the Move & the New Strategic Marketplace'. This panel session will address the communications on the move (COTM) ecosystem and the emergent rapid growth of the aeronautical connectivity market and its inter-relationship with the

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### **"In the aeronautical space, GVF has worked with the Airline Passenger Experience Association (APEX) to examine the in-flight online revolution, focusing on the very latest developments"**

MARTIN JARROLD, Chief of International Programme Development, GVF

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further growth of high throughput satellite system deployments, together with analysis of the increasing demand for high-performance satellite communications on the move (SOTM) earth stations and the industry's endeavours to improve the way that terminal specifications, testing and approvals are applied, aiming to achieve breakthroughs which reduce time to market.

In the aeronautical space, GVF has worked with the Airline Passenger Experience Association (APEX) to examine the in-flight online revolution, focusing on the very latest developments in the new broadband communications dimension of contemporary commercial air travel. The airliner seat is becoming a fully functioning extension of the office desk and domestic living room, with the passenger as consumer of in-flight entertainment and connectivity (IFEC). Additionally, the airline carrier (and its employees) are also users within the new paradigm of the in-flight connectivity ecosystem, which is enabled by the greater availability of broadband satellite capacity over the world's commercial air corridors.

The next panel will look at 'Ensuring an Interference-Free World of Satellite Services' and explore radio frequency interference issues, causes and solutions from both proactive and reactive perspectives, and specifically from the perspectives of:

Personnel: Installation Training & Certification – Trained and certified

satellite earth station (VSAT) installers are essential to efficient satellite communications. GVF provides a solid, fundamentals-based training programme for VSAT, broadband and maritime satellite terminal technicians, engineers, users and operators, a programme endorsed and recommended by the major satellite operators.

Equipment: Product Quality Assurance – The quality of VSAT equipment is another key factor in ensuring reliable and interference-free satellite services. As satellite communications have become more popular, the number of earth stations entering the marketplace has increased dramatically. With millions of fixed and mobile satcom terminals in production, the industry is coordinating initiatives to improve equipment quality through the GVF Mutual Recognition Arrangement Working Group (MRA-WG).

Signal Tracking: Carrier ID (CID) – With satellite interference becoming an increasing problem, carrier identification is an important part of the solution to mitigate carrier interference. CID is a signal embedded into a video or data transmission path, allowing satellite operators to identify the source of an interfering carrier. Now established as an international standard in the video broadcast/SCPC (Single Carrier per Channel) environment, and with the transition of CID starting on 1 January, 2015, the past year has seen further product implementation with CID now built into most satellite DVB-S2X products. The significant challenge we are now facing is convincing broadcasters to upgrade to equipment employing CID, both inside broadcast facilities and on mobile units.

Deliberate Interference: The ITU; Arab Broadcasters Implementing MENA Solutions – Leading international broadcasters and broadcasting unions have welcomed new steps taken by the International Telecommunication Union (ITU) to address harmful interference with satellite transmissions, including those arising from deliberate interference.

In 2014, the GVF commissioned a Cyber Security Task Force (CSTF) made up of security experts and representatives

The GVF Satellite Hub Summit at  
CABSAT2016.



from across the satellite industry. The goal was to create a set of vendor-neutral specifications for the industry that would enhance security without reducing the utility and performance of VSAT solutions. The penultimate session on day two, 'Integrating & Securing Our Digital World: Cyber Security for Satellite in a World of Big Data, the IoT & the Cloud', will follow on from a Satellite Industry Association (SIA) and GVF joint statement on the satellite industry's commitment to cyber security which articulates core principles for cyber security, encouraging all segments of the satellite industry to continue efforts to

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### **"Leading international broadcasters and broadcasting unions have welcomed new steps taken by the ITU to address harmful interference"**

MARTIN JARROLD, Chief of International Programme Development, GVF

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address the dynamic challenge of cyber security and emphasising the criticality of cyber security to the satellite industry's core goal of providing mission-critical, highly reliable, secure connectivity.

The final Hub Summit session, 'Perspectives & Strategic Take-Aways: The Satcoms Dynamics of a Connected World', is an open forum where speakers, moderators and attendees have the opportunity to engage in a frank and open dialogue about the key points raised during the two days of Hub Summit discussions, and will provide attendees with key takeaways on which to further reflect.

## Newtec to demonstrate the latest release of Dialog

With the continued rise of high throughput satellite (HTS) capacity opening up new applications, selecting the right ground technology has never been more important. With this in mind, CABSAT 2017 will see Newtec demonstrate the latest release of its Dialog platform (Release 1.3).

The scalable, flexible and highly efficient platform allows operators to build and adapt their business as the market changes by enabling multiple services over a single all IP-based platform. New features of this version include DVB-S2X on the forward link, support for the MDM5000 modem, Layer 2 bridging and mobility support. Newtec Dialog is also equipped with Newtec's unique technology, Mx-DMA, which enables TDMA flexibility and on-demand variable bandwidth allocation at SCPC efficiencies.

Also on display will be Newtec's portfolio of modems, including the MDM5000 – the industry's first DVB-S2X high throughput VSAT modem. With DVB-S2X on the forward link and Newtec's unique Mx-DMA technology on the return link, the MDM5000 provides operators with an efficiency gain of up to 50%, reducing OPEX and CAPEX. The wideband modem is designed to get the most out of HTS transponders, while its two receive channels make it ideal for future mobility applications.



## Es'hailSat to promote Es'hail-2 and new teleport



**Es'hailSat operates its current satellite, Es'hail-1, from the Middle Eastern broadcast hotspot at the 25.5°E/26°E orbital location. A large majority of the Ku-band capacity on Es'hail-1 has already been leased out to key broadcasters within the region. With Es'hail-2 scheduled to join Es'hail-1 at the same orbital hotspot, the operator will be showcasing products, services and new capacity to network operators and channel owners at CABSAT 2017, including remote playout, content transfer and distribution via a high powered satellite, using the latest compression technology.**

At CABSAT, the team will be engaging with existing partners and new partners who support it with new technology, playout services, content transfer technology and services.

"We will be making some new announcements in this space around the CABSAT period. We will also be engaging with channel operators and value-added resellers to promote Es'hail-1 and Es'hail-2 satellite capacity and services we are offering. With attractive pre-launch

offerings, we hope to sign up new channels on our soon to be launched satellite," said Ali Kuwari, President and CEO, Es'hailSat.

Initially a MENA-focused show, CABSAT has become an event that attracts exhibitors and visitors from all parts of the world and a key international must-attend event. With the first two satellites covering the MENA region, for Es'hailSat this is an ideal platform to showcase Es'hailSat's capabilities to support customers with new and improved products and services.

Kuwari added: "CABSAT is an important event in our calendar where we engage with customers and present our products and services. Being a regional satellite operator, participating at this exhibition is a key element in our strategy to attract customers who value broadcasting independence and our quality of service. With Es'hail-2 and our new teleport coming online soon, we believe we are ideally placed to provide optimum solution for broadcasters in the MENA region and beyond, in terms of technical capabilities, performance and security of content."



## Telestream to **showcase Vidchecker**

Telestream, a leading provider of digital media tools and workflow solutions, will use CABSAT to provide updates on significant new developments in streaming, quality control and workflow automation products. Focusing on its Vantage media processing platform, Telestream will demonstrate its ability to prepare and distribute media through any particular channel at the right cost level.

This will be the first CABSAT show for Telestream since the acquisition of file-based quality control specialist Vidcheck. Telestream will highlight the most recent updates in Vidchecker, as well as showcasing the integration between Vantage and Vidchecker and the operational efficiencies these two platforms bring to their users.

A particular focus at CABSAT for Telestream will be live video streaming. For the first time since its global launch last year, Telestream will showcase to the MENA region its Lightspeed Live Stream enterprise-class live multiscreen encoding, packaging and distribution system. It can be deployed as a standalone solution for live multiscreen



streaming services or combined with the Vantage Media Processing Platform via the optional Lightspeed Live Capture product.

Telestream's live streaming capabilities span a wide range of applications from enterprise-class broadcast scenarios to much smaller operations across education, commerce, houses of worship and corporate markets. The company has over 50,000 active licence holders on its Wirecast

live streaming production platform, developing a broad diversity of streaming solutions over the last seven years.

Wirecast is a live production tool with elegant streaming capabilities, empowering users to stream their content over a wide range of social networks. Last year, Wirecast became one of the first streaming platforms to support Facebook Live.

## DTC to introduce **new product line**



**DTC will feature the SOLO7 OBTX camera-back transmitter and PRORXD receiver/dual decoder at CABSAT 2017, on distribution partner GloCom's Stand, F3-20.**

SOLO7 OBTX, shown for the first time at CABSAT, is a feature-rich camera-back transmitter from Domo that includes H.264 video encoding, up to 1080p60 and 4:2:2 compression, integrated camera control and swappable RF modules. The SOLO7 OBTX's superior latency ranges from 80ms to just 15ms. Its ultra-low power consumption also makes it ideal for extended field performance.

Domo's PRORXD is the industry-leading COFDM receiver/dual decoder. Designed specifically for broadcast applications, it is packed with benefits that include DVB-T and

UMVL demodulation; 2, 4, 6 or 8 RF inputs with 9/12DC switchable down converter power; and fully compliant MPEG2 and H.264 SD/HD decoding. The latest development is the ability to link these units via ASI packet switching, giving extremely robust MCR diversity plus scalability to chain receivers, providing seamless wide area coverage.

Domo Broadcast Sales Director JP Delport said, "These key products represent the very latest in what's possible in RF. We're very excited about showcasing the vast range of features in both products to CABSAT delegates."

DTC Domo Broadcast will demonstrate the SOLO7 OBTX and PRORXD at CABSAT 2017.

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# E-Inclusion: Satellites Are The Answer

Billions of people in the developing world do not have access to broadband Internet. Solutions like SATMED and emergency.lu are helping bring economic advantages

Internet access has the power to rapidly transform quality of life. In an emergency, connectivity can make the difference between life and death. Connecting a hospital gives it the power to call on the wealth of the world's medical knowledge. Connecting schools brings quality learning material to children regardless of where they live. Connecting key events like elections enhances citizen participation in public life. And connectivity for the agriculture and financial services sectors puts the tools of opportunity in the hands of those that need it most.

Broadband Internet can have dramatic positive effects, but access is the key to releasing its potential. As Internet access and speed accelerates in some regions of the world, the digital divide gets larger, making the gap even more important to bridge. Satellites are the answer. High above the earth, satellites can provide connectivity anywhere and respond swiftly to evolving situations. SES has built on the strength of satellites to provide borderless connectivity and created a completely global network that reaches 99% of the world's population. A space network is not enough though, which is why SES has deployed a wide range of platforms and applications on the ground that give the power of connectivity to those who need it most.

The first project was emergency.lu, a revolutionary service to rapidly put connectivity in the hands of first responders, wherever they may be. SATMED quickly followed, providing long-term medical support in remote regions. Both of these are well-established projects that SES is using to widen its scope. Today, SES is innovating in the field of e-learning, e-elections, e-agriculture, and e-microfinance. These latest e-inclusion applications demonstrate



the potential that connectivity has to change lives, and offer a window into the future.

## THE BEGINNING OF SES E-INCLUSION: EMERGENCY.LU

When the Luxembourg emergency response team returned from its mission in Haiti in 2010, its members could barely contain themselves in the face of the appalling human tragedy unleashed by the 7.0 magnitude earthquake that had devastated the Haitian capital Port-au-Prince and other parts of the country.

The earthquake affected a total of three million people and an estimated 150,000 people lost their lives. The first responders described scenes of chaos on the streets, doctors in the badly damaged hospitals quickly running out of essential medical supplies, and worst of all, not being able to do anything, at least not fast enough, to save more lives.

Numerous other international teams on the ground brought back similar reports.

The collapse of the terrestrial communications infrastructure only added to the confusion, with most aid workers unable to communicate properly and rescue teams blocked at the airport with nowhere to go. The population of Haiti, with no telephone or Internet, was cut off from the rest of the world.

**Idea:** Alarmed by the terrifying reports, the Luxembourg Ministry for Foreign and European affairs decided that things had to change, fast. It partnered with three Luxembourg based companies and the idea of emergency.lu was born. They would create a communications platform capable of rapidly deploying a reliable satellite-based communications system into a disaster zone anywhere in the world.

The Luxembourg Government provided



funding and the other partners the needed expertise. Luxembourg Air Ambulance S.A., based at Luxembourg Airport, own a fleet of five fixed-wing aircrafts that would provide rapid worldwide deployment with very short notice. SES would deploy a specialised, transportable satellite communications antenna and provide pre-booked satellite capacity. Finally, HITEC Luxembourg S.A. would deliver the equipment to close the loop of connectivity between the satellite connectivity and end-users.

**Innovation:** A lightweight satellite communications solution was needed because the traditional antenna and equipment that the project required could not be transported by jet and set up on the ground in a short timeframe and unstable environment. Therefore, SES and its partners created a complete satellite communications kit that included a lightweight antenna, small enough to fit in one of Air Ambulance's jets, easy to assemble, and extremely robust for use in extreme conditions.

To connect with satellites in Geostationary Earth Orbit (GEO) 36,000 km above the Earth in such difficult conditions, a specialised antenna was needed that came in the form of a balloon. Instead of a 2.4m solid antenna, this antenna breaks a traditional antenna into pieces and integrates them into a balloon. Breaking the antenna into separate parts reduces its size for transport, and the balloon makes it fast to deploy. Onsite, the antenna is made whole again by inflating the balloon, which then sits on the ground set to the specific angle needed to pick up connectivity from a satellite.

While it may be delicate in appearance, the balloon is in fact extremely resilient: it can withstand all weather conditions, and even maintain connectivity if damaged.

Once it is deflated, the 2.4m antenna fits in a box and becomes part of the emergency.lu rapid deployment kit created by SES and HITEC. The complete kit contains six other boxes that, together with the antenna box, weigh 32kg. This Rapid Deployment Kit is designed for fast deployment in the immediate aftermath of a disaster. With a team on standby 24/7, an Air Ambulance jet equipped with one such kit on board is ready to take off within two hours

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## **"To connect with satellites in Geostationary Earth Orbit (GEO) 36,000 km above the Earth in such difficult conditions, a specialised antenna was needed that came in the form of a balloon"**

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from an alert. 12 to 20 hours later, the communications platform is deployed in the disaster zone. In the following days and weeks a Regular Deployment Kit containing a normal transportable antenna can be shipped by cargo to the disaster zone in order to provide long-term support.

Yet, emergency.lu is so much more than the hardware that re-establishes vital connectivity, it also includes a powerful set of applications. First responders and aid workers only need to connect their laptops, tablets and smartphones to the emergency.lu network to access a number of vital tools. These allow them to do such things as communicate easily with headquarters via voice over IP (VoIP) and instant messaging, track aid workers' or convoy movements, get situation reports and plan aid distribution routes, and finally download local maps to get orientation and assess the surrounding situation. Together, these applications provide key capabilities that were missing in 2010 in Haiti.

**In action:** Since 2012 emergency.lu has been used around the globe. Generally deployed at the request of the UN World Food Programme (WFP), as the global lead in the UN Emergency Telecommunication Cluster (ETC), it can also be made available to other ECT members, or humanitarian organisations. This is done through Luxembourg, which has registered it as a contribution to the European Union's European Emergency Response Capacity. Since 2012, several systems have been stationed in South Sudan, Mali, and Venezuela among others. This included a deployment in the aftermath of the Haiyan

typhoon that hit the Philippines in 2013, and during relief efforts in response to the 7.8 magnitude earthquake in Nepal in 2015. Five systems were also sent to West Africa in connection with the fight against the Ebola epidemic. In these instances emergency.lu was paired with SATMED (following page) and the B-LiFE laboratory. The B-LiFE project delivers a rapid deployment laboratory to crisis zones, enabling quick diagnostic tests and swift responses to health crises.

Most recently, one Rapid and one Regular Deployment Kits were installed in Haiti following aftermath of hurricane Matthew that hit the country in October 2016. For all of these missions, emergency.lu manages the entire service chain, including air transport, satellite infrastructure, terminals and application services, as well as training and refurbishment of the equipment after a mission.

**The future:** Emergency.lu is now well established, but SES's philosophy is to permanently adapt solutions to needs on the ground and to foster innovation addressing those needs. The solution currently relies on local emergency generators, but in 2017 a "power box" will be integrated into the Rapid Deployment Kit. This will enable the platform to be connected to any kind of energy source, including solar and wind, which will increase the system's autonomy and make it even more reliable.

This will be of utmost importance in the coming years as the impact of climate change will likely worsen, and poverty and political instability will continue to generate migration and refugee movements. These trends may cause a paradigm shift for emergency.lu, from providing communication services to a relatively small group of humanitarian field workers in a disaster zone, to longerlasting missions that provide means of communication to the affected local population. In turn this will require further capacity and innovative solutions.

### **THE BEGINNING OF SES E-INCLUSION: EMERGENCY.LU**

In the Bangladesh delta, local people make their homes on small remote islands in order to farm fertile land. The only way to reach these isolated communities is by

ship; which is why a local NGO, Friendship, operates three floating hospitals. As they cruise along the rivers these ship board hospitals enable approximately 80 medical specialists to provide permanent healthcare for up to 200,000 patients per year.

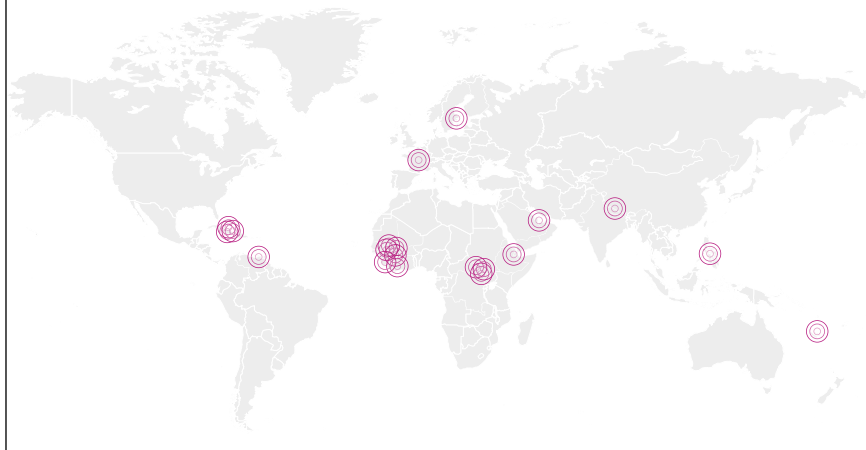
In the spring of 2016, the Friendship staffs' challenging working conditions changed dramatically when a SES team installed maritime VSATs on their ships to provide connectivity, and enable them to use SES's cloud-based e-health platform, SATMED.

**Idea:** Medical professionals in remote and resource-poor regions in many situations do not have access to e-health applications because of costs, lack of user-friendliness, poor interoperability between IT solutions and, last but not least, limited or nonexistent internet access. Following the success of emergency.lu, SES approached this challenge, knowing that satellite services could overcome the issue of connectivity.

What was needed was a cost-efficient, robust and easy-to-use solution for rural or remote areas where computer skills and financial resources are limited. With the valuable cooperation of e-Medical Communication (eMC), and funding from the Luxembourg Government, SES was able to begin solving these issues with SATMED. A new kind of e-health platform, SATMED was developed with the support of innovative technologies established by leading universities and IT companies, and in close cooperation with five NGOs (Friendship, ArcheMed, Fondation Follereau Luxembourg, German Doctors and CURE) to ensure that real needs on the ground were met.

**Innovation:** SATMED is a ground breaking internet based e-health application. It offers all the tools doctors in remote areas need to provide a wide range of e-health capabilities such as access and storage of patient e-records, medical imaging, e-learning, virtual consultation, remote monitoring and e-health management, combined with videoconferencing applications. In areas where internet access via the terrestrial infrastructure is not available, SES provides satellite enhanced internet access using the same satellite capacity network as emergency.lu.

Global emergency.lu deployments 2014-2016



Pilot projects enabled the e-health platform to be tested and adapted to specific requirements. Userfriendliness was a top priority. That is why SATMED integrates a wide range of tools within a single platform. These tools are available as web applications that can be readily used on a desktop or mobile device, so they do not require any sophisticated and costly local IT infrastructure. All applications can be accessed via a single portal with the same user log-in, making SATMED particularly easy to use. The secure cloud service ensures the exchange, storage and back-up of highly-sensitive data according to strict governance rules, doing away with the need for local hosting and storage contracts.

What makes this solution so exciting is that it is so easy: all that is needed is a computer or a mobile device - and, of course, internet access. And when there is no access, SES is always there with the capability to provide connectivity everywhere.

**In action:** The SATMED innovation is changing and improving healthcare across the world. Primarily created for NGOs, governmental institutions, hospitals, universities and health-management institutions, today SATMED is funded by the Luxembourg Government.

Thanks to SATMED, Bangladesh doctors and nurses can today share medical records among their ships as well as synchronise information at the headquarters in Dhaka. They are also able to connect to other doctors

and gain access to medical knowledge from around the world that was previously inaccessible, provide medical counselling to marginalised communities, and train their personnel with e-learning. Connectivity is achieved with maritime VSATs installed on the deck of each floating hospital, and the tools are integrated into SATMED.

The Bangladesh project is a clear illustration of the way that satellite technology can benefit humanitarian initiatives, but not exclusively. SATMED was first rolled-out in Sierra Leone as part of a pilot phase in 2014, when SES collaborated with the Belgian First Aid and Support Team (B-Fast) and the NGO German Doctors. Installed in the Serabu Hospital in the Bo District, Sierra Leone, SATMED brought internet access to this geographically isolated location. This was of particular importance during the Ebola outbreak, enabling the community to stay in contact with the medical staff, gather up-to-date information about the spread of the disease and to adopt preventive measures accordingly. Since then, SATMED, with the support of the NGO Fondation Follereau Luxembourg (FFL), has been deployed in Benin in a remote maternity hospital, in the district hospital in Allada, and in the CURE children's hospital in Niamey, Niger. In 2016 SATMED was also launched in the Philippines, in the isolated German Doctors' hospital in Buda on the island of Mindanao.

**The future:** In September 2016 SATMED won the "Changing Lives Award" at the VSAT

Global Event held in London. Building on the success of the first projects, SES is now exploring new SATMED applications in both humanitarian and commercial domains.

#### THE FUTURE OF SES E-INCLUSION

**E-learning:** One of the most fascinating e-inclusion stories is e-learning in the Zaatari refugee camp in Jordan. This vast camp in the desert is occupied by 80,000 people who have been forced to flee from their homeland by the war in Syria. Among them are more than 20,000 school age children. Beyond education, attending school provides a sense of routine and normality to these children who have endured violence and displacement. SES, together with the German company SOLARKIOSK, pioneered a special type of school among the nine regular schools in the Zaatari camp. The project, called “Connected Solar School” was developed to use SES connectivity for e-learning applications in combination with SOLARKIOSK’s E-HUBB. E-HUBB is a structure designed by the Berlinbased architecture firm Graft and provides solar energy to power connectivity, lights, computers and printers within the school. By partnering with SOLARKIOSK, SES was able to build in the capability to provide Internet connectivity through SES’s Astra Connect broadband platform, to power quality e-learning materials sponsored by UNICEF. Being able to access online teaching material is a vital part of modern education. SES is now developing its cooperation with SOLARKIOSK to build upon the foundation created by the Zaatari camp project and establish new projects in Africa, where SES participates in other e-learning projects. Expansion will continue, bringing aid to teachers and children in schools across countries and empowering children.

**E-elections:** Elections can pose a particular challenge in countries with limited communications access. Gathering votes and communicating to polling stations in large areas of the country is challenging without a reliable terrestrial telecommunications network. This is why Burkina Faso’s official electoral body, the Commission Electorale Nationale Indépendante (CENI) brought in SES and its partners to support Burkina

## “Each project demonstrates how satellite technology improves and saves lives. Public Private Partnerships will be the key to harness the power of satellite”

Faso’s 2012 municipal elections. After the success of the 2012 project, CENI initiated the same approach again for the Burkina-Faso presidential elections in 2015.

In that instance, 368 polling stations across the country were equipped with VSAT terminals and served as a hub for the secure digital transmission of the vote tallies from over 18,000 electoral offices to the central CENI collection centre in the capital Ouagadougou. The provisional results were displayed in almost real-time on the Internet and by the public TV channel (RTB), allowing the public to accompany the evolution of the election results. The final result was then published the day after the presidential election, a first in Africa and a benchmark for future elections.

**E-agriculture:** Beyond finance, digital technologies also have the potential to transform agriculture in the years ahead. Agricultural and rural development can be enhanced through improved information and communication; yet this requires connectivity to ensure that farmers in remote areas can benefit from useful applications and information related to their agricultural business. SES has been able to address this demand by establishing broadband internet connectivity via its Astra Connect platform wherever needed.

In the Netherlands, over 200,000 households in mainly rural areas do not have access to high-speed internet, which limits agricultural entrepreneurs who depend on fast internet for the success of their businesses. Today 55,000 members of LTO Commerce, the sales division of the Dutch Federation of Agriculture and Horticulture, now benefit

from Broadband provided through the Astra Connect platform. Connectivity in all businesses is vital, but particularly difficult in rural agricultural environments, making satellite the ideal solution.

**E-microfinance:** In developing countries, the market for microfinance is growing fast. However, remote sites often lack vital telecommunication services. The local mobile network is not suitable for business-critical transactions as it is usually congested and the quality of service is poor.

In the framework of the SatFinAfrica pilot project, which was run in collaboration with ESA, supported by Newtec, and led by pan-African ISP SatADSL, Money transfer offices and Automatic Teller Machines (ATMs) in very remote areas were connected through SES bandwidth. The Astra Connect service was adapted by SatADSL to grant a reliable and secured communication system to money transfer companies or ATMs. After the successful completion of SatFinAfrica, the project team launched SatCorpAfrica project at the end of 2014. SatCorpAfrica aims at providing dedicated satellite services to Oil & Gas operators, the Mining and Banking industries, and more generally to Larger and Medium-Sized African companies with multiple sites located in remote areas of West Africa.

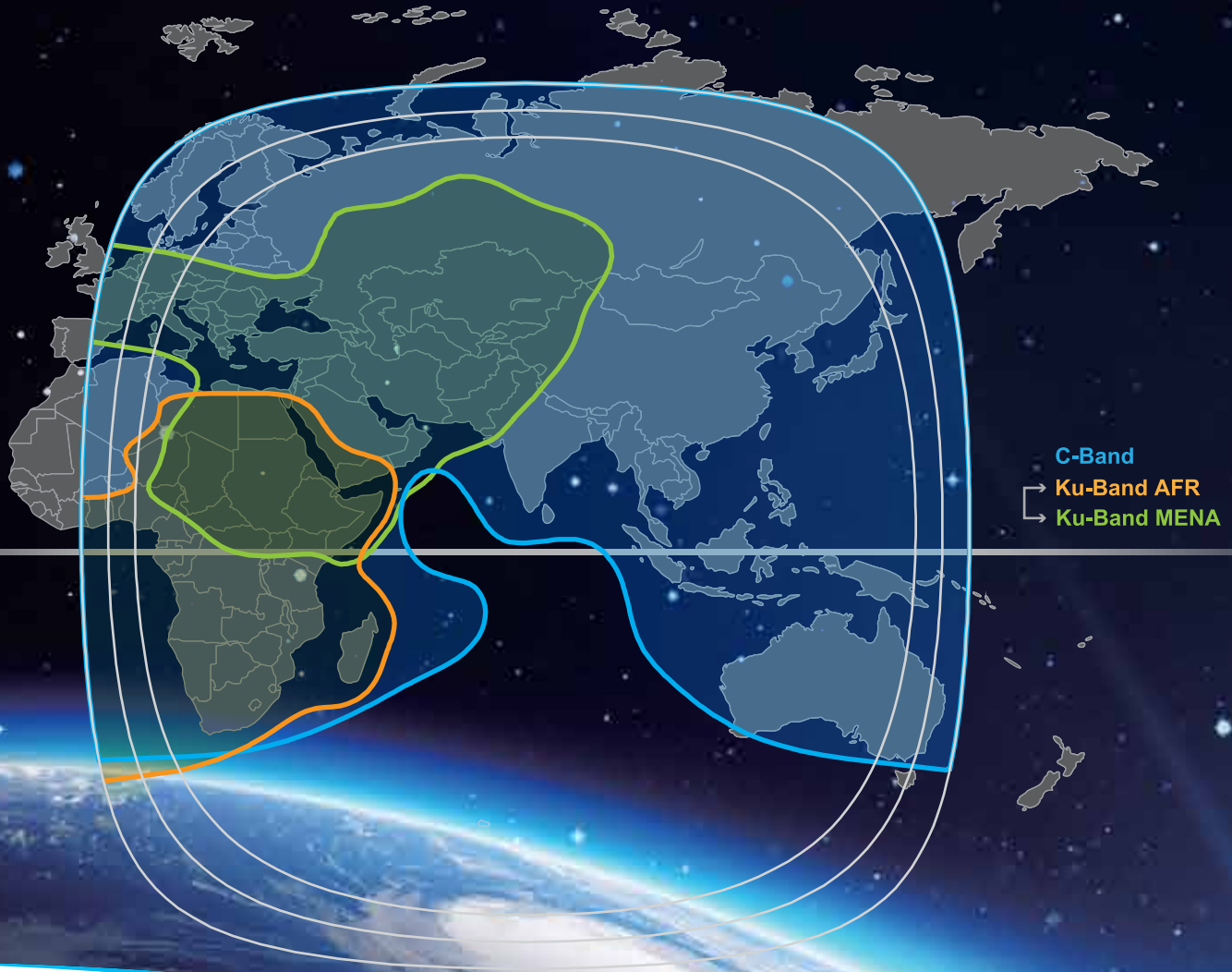
#### VITAL CONNECTIVITY

With a global network that reaches across borders, and services that are flexible and scalable, SES brings connectivity into reality overcoming the digital divide. As governments look for innovative solutions to achieve development goals, SES’s powerful collection of reliable e-inclusion services will be there. From emergency.lu to e-microfinance, each project demonstrates how satellite technology improves and saves lives. Public Private Partnerships will be the key to harness the power of satellites in the Government and Institutional sector, and by fostering sustainable business models moving forward inclusive connectivity can be ensured. Supporting development across the globe, satellites are reducing the digital divide. **PRO**  
Source: SES



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# Satellite and OTT

Over-the-top services are becoming increasingly popular, with many traditional broadcasters launching their own versions to remain competitive

**With consumers getting access to a wealth of choice and low subscription rates, it is easy to assume that satellite will lose its relevance. However, while it is true that the satellite industry is having to adapt its own business models to stay competitive in this ever-changing landscape, the benefits for satellite providers of launching OTT services are huge.**

## **Satellite's importance in the video chain**

Much of the world's video already flows through satellite networks. Indeed, there was a time when satellite was the only way of distributing video. Although that is no longer the case, it remains one of the most reliable and efficient methods. In the US, nearly all broadcasters rely on C-band and Ku-band satellite, and it is a similar picture elsewhere.

The reliability is crucial for content providers learning how to make the most of the new delivery methods, while needing the reassurance of a stable platform to ensure the video gets to the consumer.

Also, there remain many areas of the world where connectivity is a challenge and satellite is the only method that works. In those areas, it not only delivers TV services, but also the internet connectivity that enables OTT delivery.

It is likely to remain an important part of the distribution chain therefore, even for broadcasters looking to go OTT. For all the excitement about OTT, it remains a complement rather than the complete service.

## **Embracing the future of TV**

Teleport operators, satellite operators and broadcasters using satellite for distribution have the opportunity to contribute and shape the future of TV. It will simply no longer be enough to just deliver a linear TV channel. Consumers



**"There remains many areas of the world where connectivity is a challenge and satellite is the only method that works"**

ROGER FRANKLIN, CEO, Crystal

are increasingly demanding TV anytime, anywhere and on any device, and all content providers need to be looking at OTT delivery to keep up with that demand.

At the same time, advertisers are no longer getting their money's worth and are looking for new ways to advertise. It is all too easy for consumers to skip ads on video and the adverts are generally not relevant to the majority of viewers. OTT however gives content providers a massive opportunity to target advertising to ensure viewers are only being served extremely relevant adverts. Ultimately that will drive value for advertisers and consumers alike.

For satellite broadcasters that means embracing a new approach and coupling that with satellite provision. OTT certainly has a very different workflow and that will be one of the biggest hurdles for a satellite broadcaster looking to complement services with OTT content.

## **Metadata delivers the money**

Metadata is absolutely crucial to enabling these new revenue models and targeted advertising, but more than that, it can enable it to be done in a very automated fashion, which is frame-accurate, consistent and reliable. There are also numerous new potential sources of revenue, such as product placement, which can be done with the right metadata in place. Another good value add is the re-purposing and reselling of content, such as pulling together highlights from a weekend's worth of football matches.

## **The role of satellite**

As new delivery methods continue to evolve, satellite will have an important seat at the table, and its dominance of delivery in the past decades will provide the expertise that helps guide that evolution. **PRO**

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