

ISSUE 42 | JULY-AUGUST 2015

# SATELLITE PRO

TECHNOLOGY IN

ATCOM MARKET

MIDDLE EAST

## THINK TANK

Industry heads discuss HTS and evolution of ground terminals

## MOBILE MEDICINE

Doctors in rural areas use satellite to boost healthcare initiatives

# UP IN THE AIR

Patrick Brannelly of Emirates on providing uninterrupted on-board connectivity to passengers on their mobile devices



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### BYOD in the Air

Satellite connectivity on-board airlines has been the norm for quite a while, but in recent years, some airlines took it on themselves to allow passengers to connect to the internet and make phone calls, using their own devices. Emirates was the first airline in the world to introduce this feature on its fleet in 2008. The technology has improved significantly since then and even though speeds are not on par with terrestrial fibre, for an aeroplane travelling at 40,000 feet and nearly 1000km/h, its rather impressive.

Other airlines, that are more product focused, have followed suit, and are playing, catch-up to the trend. Fitting aircraft with broadband terminals, however, takes some time, and it's only carriers with a large fleet that can afford to fit equipment, and allow for the downtime of the aircraft between flights. In the case of carriers buying new aircraft, the technology can be fitted prior to taking delivery of the aircraft. For now, this is quite novel, however, in time, just like inflight entertainment, using your device to browse the web and chat with friends will be the norm in commercial air travel. With continuous improvements in technology, it won't be long before speeds akin to what we are used to in our homes, will come into effect. Read more about it in our exclusive interview with Patrick Brannelly, the Divisional Vice President of customer experience, inflight entertainment and connectivity at Emirates.

In other news, IBC is just around the corner, and I'm eagerly waiting to connect with all our friends in the industry. Amsterdam always manages to put on a show, and I'm sure this year won't be any different. Please get in touch with me so we can fix up some time to catch up during the exhibition.

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

**Clayton Vallabhan**  
Editor

### In this edition:



"Thuraya's 75MB bundle plans are designed for those whose only previous options have been to buy a low-end plan."

*Keith Murray, Product Manager, Marine, Thuraya*

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"4K, HEVC and linear vs non-linear content, dynamic SCPC technology called MX-DMA and S2X are all buzzwords that the market is flooded with right now."

*Thomas Van den Driessche, Chief Commercial Officer, Newtec*

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"You're not going to get a good YouTube experience. Frankly, that is going to use so much bandwidth and would upset other passengers."

*Patrick Brannelly, Divisional Vice President, Emirates*

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"Further identifying C-band for IMT would mean even more disruption to all these vital services which would have a huge impact on the socio-economic development of many countries."

*Vicky Wong, Senior Engineer, Asiasat*

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Today Sky Stream has established itself as a leading provider of managed and turnkey VSAT solutions across the Middle East, North Africa and South-West Asia for customers engaged in the Marine, Military and Oil and Gas sectors. Sky Stream provides flexible solutions to meet the ever changing demands of its customers, including the design, build and operation of networks. Its state-of-the-art control centre and hubs are complemented by a highly qualified and experienced team of engineers, project managers and customer service personnel.

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With the introduction of satellite connectivity on-board its fleet of aircraft, Emirates now allows passengers to use their own personal devices on-board to browse the Internet

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**All set for IBC**

IBC2015 will take place from September 10-15, and will cover fourteen halls across the RAI in Amsterdam. Read on for a preview of what some exhibitors will have on display

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**Relief Operations**

A look at how NGOs and relief organisations, engaged in humanitarian and peace-keeping missions, rely on satellite-powered communications technology

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Innovation in satellite technology is helping doctors in remote areas use e-health services to communicate and share medical expertise with colleagues

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**Protecting C-band networks**

Vicky Wong, Senior Communications Systems Engineer at Asiasat, speaks about how sharing C-band with terrestrial applications can be detrimental to operators in the long run

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## MBRSC, UKSA and Deimos Space UK announce collaboration

» Mohammed Bin Rashid Space Centre (MBRSC) and Deimos Space UK Ltd announced that they plan to proceed with a project co-funded by MBRSC, DEIMOS Space and the UK Space Agency's International Partnership Space Programme (IPSP). Based on this announcement the UK space agency signed an agreement with Deimos Space UK Ltd with the MBRSC as their International Partnership Space Programme (IPSP) Partner.

The project named 'SAFIY' (Smart Application for Feature extraction & 3D modelling using high resolution satellite Imagery) will use Earth Observation (EO) data to monitor, and detect changes in vegetation, water, road networks and buildings in support of the Dubai "smart government" initiative.

This project will develop mapping applications that utilise DubaiSat-2 and Deimos-2 high resolution optical data.

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

+ [www.deimos-space.com](http://www.deimos-space.com)



Chris Lee from the UKSA and Salem Humaid Al Marri, from MBRSC.

### STN ANNOUNCES REORGANISATION

STN has announced the first steps of a major internal reorganisation.

Over the coming months the company is planned to complete a designed transition both internally and externally. These new appointments are the first of many which will change the face of STN.

Together with the current leadership, this new management structure will enhance the company's driving force giving way to advanced client services and the future strategic development of the company.

STN has appointed Martina Knific as its CFO. Knific is responsible for the annual reporting of the company's financial, accounting and tax reports, which are consistent with all applicable laws and regulations. In addition to this Knific prepares details of forecast vs actual analysis as well as leading the accounting team.

STN has also appointed Sazo Hauzer as its new Director of sales and Jurij Blazin has been promoted to Technical Director.

+ [www.stn.eu](http://www.stn.eu)

### YAHCLICK LAUNCHES SATELLITE BROADBAND SERVICES IN PAKISTAN

YahClick has been officially launched at an event in Islamabad, Pakistan.

Customers across Pakistan will now be able to connect to satellite broadband via a small satellite dish and modem, including places where terrestrial infrastructure is currently not yet available.

Masood M. Sharif Mahmood, CEO at Yahsat said: "Our consumer launch in



Masood M. Sharif Mahmood, CEO at Yahsat.

Pakistan is a significant milestone for YahClick. Regulatory approval by the Pakistani authorities for consumer use, paves the way for us to continue our global growth strategy in this promising market."

"The exceptional demand in the rural and underserved communities across Afghanistan and the whole of Africa has led to YahClick's rapid growth to become the largest satellite internet provider in Africa and a dominant player in the Afghan market. We are confident that with this launch of our service in Pakistan, we will attract even more business and home users who are striving to for better connectivity and access to global online, social, cultural and knowledge communities," continued Mahmood.

Mahmood added: "YahClick will help Pakistan accelerate its economic growth and social development by improving access to information and reducing operational costs for internet access in the most remote and currently underserved areas."

+ [www.yahsat.ae](http://www.yahsat.ae)



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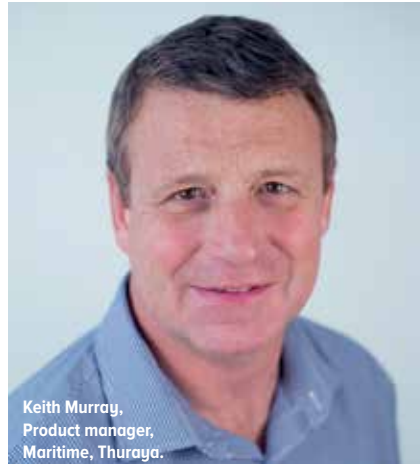
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## Thuraya launches affordable 75MB maritime bundle plan

» Thuraya has developed a 75MB bundle plan adding to its list of flexible, value-for-money voice and data bundles and zero up-front fees on hardware.

With the maritime sector enduring financial pressures, end-users can now take advantage of Thuraya's tailor-made communication packages without the worry of over-spending on company budgets – thanks to the new 75MB data bundles which include three convenient options.

Thuraya's Product Manager, Maritime, Keith Murray said: "Ship owners and managers were stuck between a rock and a hard place, but we're now offering



Keith Murray,  
Product manager,  
Maritime, Thuraya.

them a real choice. Our new bundles will help companies save money from the offset without compromising on quality. Thuraya's 75MB bundle plans are designed for those whose only previous options have been to buy a low-end plan, while having to use expensive out-of-bundle data."

The three bundles range from SIM-only, to Orion IP and SF2500 hardware bundles – available on both 12 and 24-month contracts.

"We have provided more choice for our customers by offering bundle plans that are both affordable and flexible," Murray added.

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

## SPACE SYSTEMS LORAL DELIVERS 50<sup>TH</sup> SATELLITE TO INTELSAT

SSL has announced that the Intelsat 34 satellite, designed and built for Intelsat S.A., will be launched aboard an Ariane 5 launch vehicle by Arianespace. Intelsat 34 is the 50th satellite that SSL has provided to Intelsat.

"Intelsat and SSL have a close working relationship based on many years of experience and a mutual commitment to quality, reliability and customer service," said John Celli, President of SSL. "Our 50th satellite together is a significant milestone and we are happy that it is has safely arrived at launch base. Now our teams are working

together with Arianespace to prepare the satellite for next month's launch."

Intelsat 34 is designed to provide capacity to meet the growing needs of Latin American media customers, and broadband connectivity for maritime and aeronautical companies serving the North Atlantic.

"SSL has been an important manufacturing partner of Intelsat for more than 35 years and has designed and delivered nearly half of the satellites in the Intelsat fleet," said Thierry Guillemain, EVP and Chief Technology Officer of Intelsat.

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



Intelsat 34 is the 50th satellite built by SSL for Intelsat.

## STAR ONE C4 AND MSG-4 LAUNCH

Arianespace has successfully launched two geostationary satellites: Star One C4 for the private operator Embratel Star One, a satellite communications company in South America, and MSG-4 for EUMETSAT, the European organisation dedicated to weather, climate and environmental monitoring.

The third Ariane 5 launch of the year took place on July 15 at 6:42 pm local time in Kourou, French Guiana, from the Guiana Space Center (CSG).

Star One C4, built by Space Systems/Loral (SSL), is the company's tenth satellite. It will increase Embratel Star One's telecom, broadcast and Internet service capacity in Brazil, other South American countries, Mexico and the United States. Arianespace and Embratel Star One have teamed up successfully for the last 30 years, with Arianespace launching all of the company's satellites.

With Star One C4, Arianespace and SSL celebrate their 50th joint mission to geostationary transfer orbit (GTO). Arianespace's current launch manifest includes 14 more SSL-built satellites to be launched.

The partnership between Arianespace and EUMETSAT, serving all European citizens, reaches back to 1981.

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

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## Thuraya launches Calling Card service

Thuraya has announced the launch of Calling Card – a market solution that reinforces value-for-money, convenience and versatility for both individual users and business managers.

Available in three denominations of 25 units, 50 units and 100 units, Thuraya Calling Card will come as a welcome relief to cost-conscious managers, particularly in the maritime and energy sectors, who need to control operational costs of both equipment and staff.

Thuraya Calling Card allows entire crews to use their individual Calling Cards to make personal calls from a single phone – ensuring that business and personal calls are kept separate. This also allows managers and ship owners to monitor budgets effectively, as usage is charged to the Calling Card and not the telephone account.

A fast and reliable way to communicate with friends, family and colleagues, Thuraya Calling Card can be used from fixed and mobile phone networks around the world and through the Thuraya

network and handsets in 140 countries.

Thuraya Chief Commercial Officer, Bilal El Hamoui, said: “Thuraya Calling Card is being introduced at a time when Maritime users in particular are cost-conscious and the need for a comprehensive product that offers transparent pricing is of vital importance. Businesses can keep commercial and personal calls completely separate, on the same terminal. Employees can make their own calls with complete confidence they are not running up a huge bill for the company.”



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

## ARIANESPACE INAUGURATES FCUBE FACILITY



Arianespace has inaugurated FCube (Fregat Fueling Facility), the new building dedicated to fuelling the Fregat upper stage of the Soyuz launch vehicle. Located at the Guiana Space Center, Europe's Spaceport in Kourou, French Guiana. This new facility will give Arianespace greater flexibility, while also increasing launch capacity with Ariane, Soyuz and Vega.

The FCube facility will help optimise the operation of the three launch systems deployed by Arianespace at the Guiana Space Center – Ariane 5, Soyuz and Vega. Each of these systems now has its own propellant loading systems at its launch complex.

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

## EUTELSAT 8 WEST B REACHES LAUNCHPAD IN FRENCH GUIANA

Eutelsat has announced that its latest satellite, EUTELSAT 8 West B, has arrived at the European spaceport in French Guiana and is now in final stages of preparation for launch by an Ariane 5 rocket on 20 August.

EUTELSAT 8 West B is poised to open

a new chapter of expansion in vibrant broadcast markets in the Middle East and North Africa. It will shore up the 7/8° West position, hosting Eutelsat and Nilesat satellites that is the point of reference for TV viewing in over 52

million homes from Morocco to the Gulf. With the launch of this new satellite, Eutelsat is ensuring that bandwidth is available for broadcasters to deliver High Definition today and the immersive viewing experience of Ultra HD in the future.

Built for Eutelsat by Thales Alenia Space, the 5.8 tonne satellite is equipped with 40 operational Ku-band transponders optimised to serve DTH markets in North Africa and the Middle East. It will also introduce a C-band mission of 10 operational transponders connected to a vast footprint covering the African continent and reaching west to South America.

The satellite will go into full commercial service early October following checks to validate its performance in orbit.



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

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



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# UP IN T

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Emirates is one of the first airlines in the world to introduce satellite connectivity on-board for passengers. Patrick Brannelly, Divisional Vice President of customer experience, IFE and connectivity at Emirates, speaks in an exclusive interview with *SatellitePro ME*, about how satellite connectivity is revolutionising travel for passengers

# THE AIR

**Emirates has deployed systems on-board its fleet of aircraft, that enable its passengers to use their own mobile phones to browse the Internet and make phone calls while 40,000 feet in the air. Powered by satellite, the technology has snowballed in popularity since it was introduced back in 2008. Although, not yet reaching terrestrial fibre speeds, the first step to on-board connectivity, using personal devices, certainly has travellers buzzing. Passengers are now not just connected for work, but also entertained through browsing the web and connecting with friends on social media, during long flights. It's time for BYOD to expand on-board too.**

Patrick Brannelly is the Divisional Vice President of customer experience, Inflight entertainment and connectivity at Emirates. A veteran at the airline, he has seen satellite communication evolve from its humble beginnings, to its current state on-board aircraft.

"The airline's passengers have always liked to be connected," says Brannelly.

"Many times over the past we've been told we're one of the biggest users of satellite communications in the world, apart from maybe the American military. What we're seeing today is an exponential growth in demand for connectivity to

browse the internet, chat to your friends on Facebook and SMS etc. So this always connected person is very much the reality of the world now, and people expect to be connected on-board beyond the traditional methods of voice and SMS."

Emirates tends to deploy technology before the demand for it is noticed. When it introduced the ability to use mobile phones on planes, within a couple of years the only complaints it received was when people boarded planes that weren't equipped with connectivity for passengers.

"They couldn't use their phones in-flight. We now see this happening with the Internet. Passengers are boarding the aircraft and getting upset that their planes are not fitted with Internet connectivity. Hence, as of today,

---

### **"It's becoming a more natural behaviour to get on-board and just stay connected"**

PATRICK BRANNELLY, Divisional Vice President of customer experience, IFE and connectivity, Emirates

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60% of our aircraft (127 planes) are fitted with Internet connectivity. We presently have 220 passenger planes, and are adding connectivity to about three to four planes a month. If you look at 81% of our planes, you can use your mobile phones and 60% of these will allow users to connect to the Internet through GPRS data," explains Brannelly.

Emirates will be retiring some of its fleet next year, and the brand new replacements will come fitted with full connectivity on board. It takes a few weeks to fit these systems onto the planes. This is generally done when aircraft is brought in for maintenance.

"We have the biggest airline engineering facility in the world, here in Dubai, and those hangers are maxed out doing the maintenance for aircraft as well as updating the equipment. I think the chances of you getting on a plane without connectivity is reducing every month by three or four aircraft. A lot of our routes are also pure connected routes. Heathrow, for instance, has five A380s that fly to that destination in a day. On these planes, you get seamless connectivity every single time. This is where the expectation is very high. We have 100% of our A380 fleets connected, and over 70 of our 777s are already equipped with WiFi," says Brannelly.

Emirates also has up to eight channels of

Emirates' A380 fleet is fitted with Inmarsat SwiftBroadband terminals for seamless in-flight connectivity.





Passengers on-board Emirates flights expect to be connected to the Internet at any given time.

live television. The primary focus of these channels is for live sport and news. As for live TV serials, this is a bit more complicated. The airline cannot show these on board until the rights have been released for the airline market. Once these airborne rights for the movies and TV content are bought, Brannelly says the programmes are usually available on-board the same day.

"In addition, when we take media to an aircraft and transfer it to the screens, we can transfer a very high quality version of that media. If you transmit it over satellite, you tend to go for a lower resolution with a lower bit rate, and compression is added.

"One thing that's surprising is the offers for roaming data from the telcos in the UAE. We are charging phenomenally less now on-board the aircraft, but people are still saying they want on-board connectivity for free. In this industry, sending anything over satellite is a super-premium methodology for getting data from one place to another. Emirates chooses to give our passengers the Internet almost for free on our aircraft, but that doesn't mean it's free for us. We're spending many millions of dollars every year to subsidise this service."

There are plenty of airlines with Internet, but not so many allow the use of

personal phones on-board the aircraft.

Brannelly says this is surprising in this day and age. "We were happy to be the first airline in the world to launch the service. We were surprised at how few have followed. Some of the big ones and those more focused on product have followed suit."

He explains that in the future, there will be an insatiable appetite for data. For instance, someone on-board the lounge in an A380 might want to take a picture with friends and post it on Facebook. Photographs on smartphones nowadays are a few megabytes in size, due to the very high resolution cameras on smartphones. Emirates is seeing that people generally will take a photograph, which will be a couple of megabytes, then attach it to an email and send it to someone. This picture is then uploaded to the cloud as well. Brannelly says through these seemingly nominal data transactions, nearly 6MB of data has been transferred between the aircraft and the satellite.

"Telling people to please switch off background synchronisation to your device is a bit of a pain at the moment. We need more bandwidth and to get this, we rely on the satellite community. Many operators may say they've got a satellite with bandwidth to

spare, but you can't just plug any satellite into an aircraft and expect it to work seamlessly. Our planes go all over the world, and we're looking for global broadband data, and I would think most of what is out there today is not broadband, its narrowband," says Brannelly.

Speaking about the types of terminals, Brannelly elucidates that the A380s use Inmarsat's SwiftBroadband terminal, and the 777s are largely Ku-based, provided by Panasonic. Regarding the speed of uploads and downloads, Brannelly says that this is dependent on various factors.

"If you are the only passenger using the Internet on an A380, you will probably get 432Kbits/second. If there are two passengers, they'd probably get the same bandwidth because there are two channels on the aircraft. However if you have 20 people using it, you can see how that can get shared. However, this is not necessarily linear, because the systems are pretty advanced and able to effectively manage peak usage. For communications such as e-mail, SMS, Facebook and all the others, latency is unseen by the customer.

"You're not going to get a good YouTube experience. Frankly, that is going to use so much bandwidth and would upset



Terminal 3 at Dubai International Airport is solely dedicated for Emirates flights.

other passengers on the plane, so those services tend to be managed. We also try to manage background synchronisation where passengers' Dropbox auto-synchronises, because that is not necessarily adding value on the flight. If you take the Ku service, it potentially uses significant data in the megabytes per user. This, however, also varies depending on the number of planes that are in the footprint of the satellite," says Brannelly.

Bandwidth and speed are two different things, and the reality is that they both have to improve, according to Emirates. He explains that the airline is at the forefront of working with satellite vendors to make this happen. It doesn't speak directly with satellite operators. Instead, it scouts for technology that is currently available, and certified for aircraft. Brannelly adds that most satellite operators are already in these conversations, and very well aware of what the future demands are - bandwidth and coverage.

"Being a global airline, we fly all over the world. When we fly over the South Atlantic, there is almost no coverage at the moment, because when satellites create their beams, they are looking at land masses where they can broadcast television channels. They need to maybe now look at where the main flight routes are, and add a little extra notch to their satellite footprint so it can cover the flight routes of the future. These routes are pretty predictable.

"On the North Atlantic, there are tonnes of bandwidth, because operators know there are hundreds of planes above it. There is a paucity of bandwidth in the South. There are planes there too, and they need connectivity. The South Indian Ocean also has coverage problems. In essence, coverage, bandwidth and redundancy are important. There is nothing worse for passengers than when an earth station is affected by the weather and they can't communicate on-board. Before you know it, we've suddenly got half

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**"Being a global airline, we fly all over the world. When we fly over the South Atlantic, there is almost no coverage at the moment, because when satellites create their beams, they are looking at land masses where they can broadcast television channels. They need to maybe now look at where the main flight routes are, and add a little extra notch to their satellite footprint so it can cover the flight routes of the future"**

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PATRICK BRANNELLY, Divisional Vice President of customer experience, IFE and connectivity, Emirates

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of Africa uncovered," explains Brannelly.

For Emirates, the biggest challenge is managing customer expectations. "They expect to have on a plane flying at 500mph, at 40,000 feet, the exact same experience that they have using the Internet at home through fibre. I think it is phenomenal what has been achieved in terms of keeping aircraft travelling at these speeds and these altitudes connected through satellites, which by and large were designed to serve terrestrial locations," says Brannelly.

Currently, Emirates is engaged in conversation about the technology of connectivity that it will have on its planes in the future. Brannelly, however,

thinks it will take another generation or two before high-speed connectivity is no longer an issue for airlines.

At the moment, Emirates gives all its passengers 10MB of data for free on-board. To chat on WhatsApp and browse Facebook, this is generally enough. The problem, however, is that when phones go into auto-synchronisation mode, they tend to use up the 10MB a little too quickly. Beyond the first 10MB, the airline charges \$1 for 500MB. This is just a token charge, whilst the real cost to the airline is about 100 times more according to Brannelly.

"For the extra data allowance, you can sign up on the seatback and that guides you through a PCI-compliant tunnel, where the transaction is handled on the ground through very secure infrastructure. We may adjust the pricing in the future, because we are trying to balance out the people that are leisure users, that just chat and send a few pictures, from hard-core businessmen that really need a lot of bandwidth. We get a lot of emails from customers saying they would rather we charge \$50 and give them dedicated access at higher speeds."

Since the introduction of the service price down to free, Emirates has seen a six-fold increase in usage. What is interesting is that the highest usage is on super long-haul flights. Brannelly says the number one flight last month was Seattle, with a 15-16 hour mission, where 35% of the passengers were using the on-board Internet services. Emirates is also seeing an increase of usage on short-haul flights, which are classified as sub three to four hour flights. On these, nearly 15% of the passengers are connected.

Brannelly concludes by saying: "It's becoming a more natural behaviour to get on-board and just stay connected. I think in the future people will expect free connectivity everywhere; be it in malls, on the roads, sports venues and most of all during air travel." **PRO**

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# Essential Satcom

Satellite communications are constantly relied on by military personnel, aid workers during disaster recovery, healthcare professionals and rural populations. We look at how satcom has helped countless people over the years, and where its future lies



Satellite connectivity is often the only reliable form of connectivity, for certain scenarios. Security, for instance, relies heavily on satcom for accurate and encrypted communication links. Natural or man-made disasters often leave other communication links like terrestrial and cellular unusable; in events like this only satellite communications can aid those affected by the disaster. Rural areas too are often left on the backburner when it

comes to communication links and the Internet. It is often difficult for terrestrial fibre and cellular networks to be laid out in these areas, and satellite connectivity is generally the optimum solution.

Nada El Marji, Director, Aid and Development at Inmarsat Enterprise thinks that satellite networks have a unique role to play in that they can access areas that no other technology can serve. They aren't reliant on investment in local

ground-based infrastructure, and so can be deployed quickly and easily anywhere, which is particularly useful in areas where existing infrastructure is congested or compromised, as well as for areas where such infrastructure simply doesn't exist.

"Inmarsat's global mobile satellite network helps to bridge the gap between urban and rural communities thanks to its ubiquitous, reliable coverage coupled with its broadband data speeds," says El Marji.



Adding to this, Serge Van Herck, CEO of Newtec says that it is crucial to bridge the digital divide and this is something which is high on the agenda of national and regional governments, because broadband penetration has a boosting impact on a country's economy.

"The service cannot be limited to cities. This requirement translates into 100% service obligations for Internet Service Providers (ISPs) covering the whole territory

of a country or region. Running these services in an economically viable way is a major challenge," explains Herck.

There are a range of different solutions provided by the satellite community, such as Thuraya's satellite handheld terminals for voice connectivity, and data terminals like (IP+) for broadband connectivity. Then there's the Public Calling Office (PCO), using prepaid or postpaid credit, which is typically used as a village phone. The

Thuraya PCO-2110 makes voice, fax, data and SMS services available in a user-friendly public telephone service station.

Inmarsat offers a range of satellite-powered connectivity services that enable voice, data and even machine-to-machine (M2M) communications. There is the IsatPhone 2, a satellite phone for dependable voice communications and IsatHub which allows the user to access the satellite network for broadband Internet,

from their own smartphone or tablet.

As for Newtec, the company provides two-way satellite broadband platforms which are designed for service providers wanting to offer broadband access in large geographical areas, independent of the number of households per square kilometre.

The key factors for ensuring success when launching broadband services are a low customer-acquisition cost and CAPEX aligned with network growth. Newtec's Dialog system helps with this challenge by enabling our customers to access different types of markets and applications. The flexibility of the system helps them to access different types of markets, be it consumer broadband, mobility, or machine-to-machine. In other words, they can use the same hub infrastructure—Newtec Dialog—to access different vertical markets.

All of these services are expanding broadband connectivity to rural regions enabling the extension of business and government services that have an immediate socio-economic impact for populations in remote areas.

As an example of the power of satellite connectivity in rural areas, Jean-Philippe Gillet, Vice President, EMEA Sales at Intelsat explains: "A network operator in Africa is expanding cellular services throughout the Democratic Republic of the Congo (DRC), a country the size of Western Europe, but with little infrastructure in place to connect remote regions to the rest of the country. Leveraging Intelsat's integrated satellite solutions, the operator is deploying portable, solar-powered mobile cell sites throughout the country. These sites require less power and are quicker and easier to deploy than traditional base stations that rely on diesel fuel. The resulting connectivity provides business services, distance education, health services and a sense of security for communities in the DRC's more remote regions."

Najwa Ayoub, Market Development Manager, NGO Relief, Thuraya agrees with Gillet and adds that Thuraya establishes effective communications to rural areas, providing them with medical help and medicine, food and emergency communications.

"Information and Communications

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### **"Information and Communications Technology (ICT) is used in almost all phases of the disaster management process: mitigation, preparedness, response and recovery"**

NAJWA AYOUB, Market Development Manager, NGO Relief, Thuraya

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Technology (ICT) is used in almost all phases of the disaster management process: mitigation, preparedness, response and recovery. In the disaster mitigation and preparedness process, ICT is widely used to create early warning systems as well as automatically notifying nearby law enforcement and emergency response units in the event of accidents, emergencies and disasters.

"Access to information is crucial, because ICT can be socially beneficial in a whole host of ways. It has the power to help eradicate poverty; improve health, and education; encourage better and more equitable use of resources; and raise participation in decision-making processes," says Ayoub.

Besides rural areas, healthcare and security services also rely on satellite communication.

El Marji says: "Inmarsat's services are often used to enable healthcare provisions in remote and rural locations. Inmarsat's BGAN broadband services can provide the essential connectivity that remote practitioners need to collaborate and consult with medical personnel in urban clinics and hospitals, so these rural communities can access healthcare services and expertise that would be otherwise unavailable. Our connectivity also enables the use of specialised eHealth and telemedicine solutions in remote locations, whether for epidemiological data gathering, patient diagnosis or even treatment."

An example of how satellite services can



improve healthcare is Intelsat's ongoing project with the Children's National Medical Center in Washington, DC, and the Kingdom of Morocco. The partnership began in 2007 with Intelsat providing satellite capacity for weekly telemedicine calls between paediatric cardiology experts in Washington, DC, and physician teams working at a hospital in Morocco. There were weekly calls, where the teams reviewed electrocardiograms

Militaries across the world use satcom services to communicate seamlessly and effectively.



and patient details to determine the best course of action in treating these young patients. Over the years, the physicians in Morocco have learnt from the doctors in Washington, expanding their capabilities to several hospitals within the Kingdom and even drawing paediatric cardiology patients from nearby countries of Nigeria and Mauritania. More than 400 children have benefited from the partnership, with

tremendous improvements in outcomes.

Van Herck says that the civil, government and defence marketplace have many applications which are mission-critical and require reliability, cost-effectiveness and bandwidth-efficiency.

"From first aid to restoration services critical information needs to be sent towards the outside world in order to support quick emergency response. After a cable break (sea

cable or terrestrial), communications can be restored over a high-speed satellite link.

"Newtec supports different applications and network configurations in this market. The understanding of our customers' applications in combination with our satellite communication products leads to reliable, cost-effective and bandwidth-efficient solutions. The more we understand of the application level, the better we can start

driving our technology into a direction that brings profitability and lowers costs for our customers. We do the same thing for all vertical markets – whether it is oil and gas, maritime, government, broadcast or consumer broadband,” explains Van Herck.

According to Gavan Murphy, Director of Marketing, EMEA at Globalstar, the mobile satellite service provider works in close partnership with numerous branches of the US Army and Navy, as well as international military groups, and has tailored features and settings of the company’s consumer product offerings to create new solutions that fit diverse military missions.

“The requirements of military customers are, for obvious reasons, the most demanding. Globalstar takes its already highly functional offerings and customises them to meet the exacting needs of this group. More military organisations are using the Globalstar system, in more locations and to support new kinds of missions. UK, French, Spanish and other NATO forces have set up mobile headquarters and command operations in new places around the world in recent years. They absolutely need more mobile communication tools for voice, data communications, and position location for safety and security.

“In 2014, Globalstar announced the latest milestone with Spain’s Ministry of Defence.

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**“SPOT devices are being used by firefighters to help control wildfires in remote communications-deprived regions – the devices help ensure that all the team knows the location of mission-critical equipment, while maximising the personal safety of the brave rescuers”**

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GAVAN MURPHY, Director of Marketing,  
EMEA, Globalstar

The Spanish MoD approved the use of the GSP-1700 satellite phone and procured additional SPOT Gen3 messengers to help safeguard personnel. On the first-responder side, Globalstar has had success supporting a wide range of agencies including mountain rescue, fire and other government agencies. For example, specialists in controlling and mitigating injury to people, wildlife and the

environment, as well as minimising damage to property from forest fires and wildfires, are using SPOT Gen3s to help them track fire engines and other vital rescue equipment and to help promote the safety of response teams. Every year, we learn of new ways in which our devices are being used by security services to help them carry out their important operations,” says Murphy.

Disaster recovery zones are another segment that require satellite communication. During disasters, the communication infrastructure is usually the first thing to break down; and it also takes time to repair that infrastructure once it does. On the other hand, satellite infrastructure is immune to physical disruption on the ground because it is operating safely up in space.

Ayoub says: “Local search and rescue teams and national disaster management departments are usually the first responders before international relief teams arrive. Satellite communication is vital in these circumstances, because it gives those first responders information about the areas that are worst hit, allowing them to raise vital relief appeal across the globe. The end user terminal portfolio offered by Thuraya meets the demand and requirements of disaster affected regions: it’s transportable, easy to use and easy to deploy; light and



small in size; and plug and play. Voice is number one. Through our handsets and data, and through our data broadband terminal the IP+, Thuraya also supports and provides location based services.”

With Inmarsat, besides providing vital communications, the company also provides M2M services that can be used for environmental monitoring to help prevent and prepare for future disasters. Furthermore, its connectivity powers eHealth, eLearning and eBanking initiatives around the world that help communities affected by a disaster to recover, rebuild their infrastructure and grow their economy.

So, what are the latest trends and how are they shaping the satcom industry as we know it?

El Marji thinks that the industry is beginning change its mindset, moving from a pure service provision stance to more of a collaborative focus, seeking out partners and developers to provide customers with end-to-end solutions to better meet their needs.

“Inmarsat works closely with third-party developers and solutions providers, holding annual developer conferences to promote collaboration, and certifying selected solutions through our Certified Application Partner (CAP) programme as ‘Inmarsat-ready’, meaning that the solution works well over our satellite services, and provides our customers with genuine business benefits,” says El Marji.

Gillet says that with satellites becoming more capable, and with new designs like Intelsat’s EpicNG platform, they can now deliver more quanta in capacity at a lower cost per bit. “This is in response to customers trying to support the explosion in demand for data. This increased demand presents great opportunity, but the services need to be delivered in a cost-efficient manner. Intelsat is designing its satellite services to provide performance economics and simple access. The primary trend is innovation in the sky and on the ground. Given the advances in higher performance capacity and innovation in access, we think in the future, satellite will be a bigger part of the communications landscape.”

Murphy adds that with Globalstar’s low-cost and flexible airtime options, more users of all kinds are discovering new ways in which its networks can improve their



operations, and their own personal conditions.

He says: “SPOT devices are being used by firefighters to help control wildfires in remote communications-deprived regions – the devices help ensure that all the team knows the location of mission-critical equipment, while maximising the personal safety of the brave rescuers. In our view the trend toward much more widespread uptake and diverse usage patterns, which we have seen in recent years will only accelerate. We really foresee a future where easy-to-use, affordable satellite communications will be relied upon as an everyday tool by untold millions of people, including many living and working in the most remote places.”

Van Herck points out that technology is driving the evolution. He says that DVB-S2X is definitely going to further improve the satellite industry by giving higher efficiency and higher speeds. A separate technology by

Newtec, called Mx-DMA combines features of SCPC and MF-TDMA, eliminating the need to choose between maximum return efficiencies and flexibility. Furthermore, double throughput can be achieved at increased levels of service availability.

“We are also continuing to see the rise of HTS, with the technology no longer confined to certain areas of the planet or to consumer broadband. HTS coverage has emerged in all regions and is now targeting applications from consumer/enterprise broadband, cellular backhaul, mobility and government. Even markets like the oil and gas industry, which require high capacity but also highly reliable service, are adopting the benefits of HTS: lower bandwidth costs combined with high capacity, but smaller terminals. Gone, therefore, are the days where a satellite platform will be used for one purpose,” concludes Van Herck. **PRO**

# Trends and Challenges in the Satellite Sphere

*SatellitePro ME speaks to renowned industry experts on the recent trends within the satellite industry, and the subsequent challenges the industry faces*





**“We believe 3G and 4G satellite backhaul is a huge opportunity, and HTS is well positioned to deliver these services”**

DAVE REHBEHN, Senior Director, Marketing International Division, Hughes

**Dave Rehbehn, Senior Director, Marketing International Division, Hughes**

**Trends:** We think there is a huge opportunity for satellite services. One of our messages is that the reach of satellite can be extended much more than the classic enterprise. There is a huge opportunity to deliver internet services to communities via cellular backhaul. We believe 3G and 4G satellite backhaul is a huge opportunity, and HTS is well positioned to deliver these services. We will see the throughput rates increase. There are still three or four billion people that are unconnected. We just see a continuing demand for connectivity, services and increasing demand for bandwidth.

**Challenges:** The challenge is for us as an industry to cost effectively bring services to those people who are not yet served. These are people that are lower on the economic spectrum, and that's where we believe community VSAT has good potential. VSAT connected to a small cell can enable internet services as well as voice services to many people in a very cost-effective way. In general, I think the way forward to connect the unconnected is through HTS, VSAT platforms and 3G and 4G backhaul.



**“There's a lot of demand for DTH. Even though a lot of people talk about OTT, DTH is still a dominant player”**

MOHAMED YOUSSEF, COO, President and MD of Middle East and Central Asia, ABS

**Mohamed Youssif, Chief Operating Officer, President and MD of Middle East and Central Asia at ABS**

**Trends:** There's a lot of demand for DTH. Even though a lot of people talk about OTT, DTH is still a dominant player. I read a report, where there was a need for 288 transponders, out of which 50% were for DTH. That is the trend in Asia now, and obviously DTH for satellite operators is an integral part of the business, because DTH suppliers tend to need a lot of capacity over a long time.

Normally, pricing for DTH too is a little bit higher than for telecom.

**Challenges:** The fact that all the operators know that Asia is a growth area, means that a lot of them are entering this market to provide capacity. However, what you will find is that different operators excel at different coverage needs for DTH clients. Not all coverage is the same. So we're all finding our own customer relationships.



**“As for broadcasting, SD channels are still the majority. We're looking at distribution and new ways to address their requirements”**

THOMAS ANTONY, Director of Sales, APT Satellite Company

**Thomas Antony, Director of Sales, APT Satellite Company**

**Trends:** From a business perspective it's back to the basics. How do you address your customer's needs. That's important. With the capacities that we have, new technology with higher throughput is something that we want to position with our customers so that they get more bits per Hz. With this we are able to give cost-effective solutions to customers, while still competing with other technologies. As for broadcasting, SD channels are still the majority. We're looking at distribution and new ways to address their requirements. With our teleport in Hong Kong we provide playout and backhaul, which allows the customer to sit anywhere in the world and uplink to our satellites.

**Challenges:** The biggest challenge is the need to constantly be vigilant of market pricing. Whether it's coming from customers or oversupply, it does not matter. Ultimately you cannot hoard bandwidth. It needs to be used. I think we have to work with market dynamics. There is definitely a challenge with ground equipment for new technologies, but ultimately Ku- band antennae and equipment are freely available in the market. Existing customers don't need to reinvest in equipment.



**“4K, HEVC and linear vs non-linear content, dynamic SCPC technology called MX-DMA and S2X are all buzzwords that the market is flooded with right now”**

THOMAS VAN DEN DRIESSCHE, Chief Commercial Officer, Newtec

**Thomas Van den Driessche, Chief Commercial Officer, Newtec**

**Trends:** Everything we look at is coming from consumer behaviour. It might be more channels on television, non-linear TV (OTT), high speeds on cellular phones, it might be the need to connected everywhere like on a cruise ship or plane and up-linking videos. All the trends come from this consumer behaviour which is the same as terrestrial market using satellite. So we need to accommodate all of this with the backbone of satellite. 4K, HEVC and linear vs non-linear content, dynamic SCPC technology called MX-DMA and S2X are all buzzwords that the market is flooded with right now.

**Challenges:** Data rates are going up, and costs are going down. To combine these two we need new and innovative technology. Hence you really need some disruptive technology to accommodate the fact that people are not going to pay more from ground equipment, they are going to pay less. Neither are they going to pay more for capacity, but they want higher throughput at the same time. Staying relevant under these constraints is a big challenge.



**“All bandwidth is not the same. We talk about ‘goodput’ – the ability to transport a quality bit of IP end-to-end”**

RASH (NEETIN) JHANJEE, Head of GX Strategy and Business Development Enterprise, Inmarsat

**Rash (Neetin) Jhanjee, Head of GX Strategy and Business Development Enterprise, Inmarsat**

**Trends:** In the satcom space, the major buzzword is HTS. Before it was battle of the frequencies and battle of the bands, but now the insatiable demand for satellite capacity is paramount in any market. Bandwidth is good. However all bandwidth is not the same. We talk about ‘goodput’ – the ability to transport a quality bit of IP end-to-end. People deflect

from that very easily because they go down to the lowest common denominator which is price. We aim to deliver high quality at a very economical price. Things that we’re seeing is that the usage patterns are changing. It’s very hard to see where the person will be in the future and what type of information they would want to access. So that’s one of things we focus on – ubiquity – the ability to have capacity anywhere on the earth. Hence one of the trends is mobility. The other one is globality. Another big trend we are seeing is machine to machine connectivity. The internet of things is one of the key backbones of what Inmarsat is trying to do. This is one of the areas that we are trying to move in to very aggressively.

**Challenges:** The challenges that any satellite organisation faces is that it takes a number of years to get a satellite launched. You try to predict where the future is going, and in some ways that’s advantageous to us, because of our satellite footprint we don’t concentrate on building satellites for specific geographic markets, we cover the world. The other challenge which is also an opportunity is the growth of OTT. Over-the-top content needs to be delivered everywhere and is being demanded by social networks. The problem is expectations are very high for social networks. A person thinks that he can get it on a smartphone over cellular networks, but why can’t he get it over satellite in a remote area. It’s the unpredictability of what the next big application is going to be to drive all this bandwidth, that is hard to predict.



**Andrew Bond, Sales Director at ETL Systems**

**Trends:** There are no such things as challenges, instead they are just opportunities. We are being approached for redundancy links. I feel teleports are taking some time to think about single points of failure, MTBF and MTBR, and we are working with them to design equipment to engineer out these problems. Every single link is a huge amount of revenue. If you think of a World Cup link, there are about two or three million people attached to that stream, where there are points of failure that can go wrong. I think that’s one of the philosophies of our designs to make sure that they can be rest assured there is redundancy built in. **PRO**



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# All set for IBC

IBC2015 will take place from September 10-15, and will cover fourteen halls across the RAI in Amsterdam. The show will host over 1,700 exhibitors spanning the creation, management and delivery of electronic and media entertainment. Read on for a preview of what some exhibitors will have on display

## Newtec to debut Dialog 1.2 and MCX 7000

Satellite operators and service providers stopping by Newtec's IBC2015 booth will learn how they can adapt to the trends currently shaping the industry, including HTS and multiservice, and prepare for the future, while reducing OPEX and CAPEX.

Making its IBC debut will be Newtec Dialog 1.2, an updated version of the multiservice platform which guarantees optimal modulation and bandwidth allocation, whether it is being used for broadcast, enterprise, mobility or HTS networks. Newtec's engineers have achieved this by inventing Mx-DMA, a new return link technology. It combines the best features of MF-TDMA and SCPC technologies to enable services to run more efficiently than ever before over satellite, while still providing the option to have the platform also run in either SCPC or MF-TDMA. Demonstrations of Newtec Dialog and its use within the different markets will take place throughout IBC at Newtec's booth A49, in Hall 1.

Also on-show will be the Newtec MCX7000 Multi-Carrier Satellite Gateway – a new dense DVB-S2X multi-carrier satellite

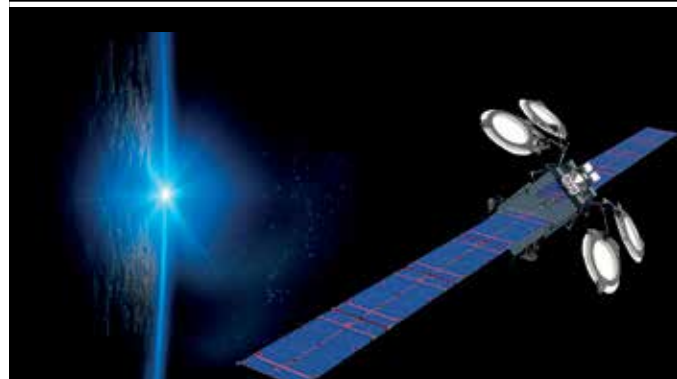


gateway for efficient distribution and contribution broadcast applications. Offering significant OPEX and CAPEX savings, thanks to its multi-carrier processing capabilities, and equipped with multistream and Newtec's Clean Channel Technology, the MCX7000 increases bandwidth efficiency by up to 51%. It is compatible with Newtec Dialog and features Newtec's linear and

non-linear pre-distortion technology Equalink 3, which can insert up to 15% more channels in a DTH carrier.

Finally, delegates will be able to view the MDM6000 R3.1, which incorporates Newtec's Bandwidth Cancellation (BWC) technology that allows to transmit two carriers and provides record-breaking spectral efficiencies and throughputs.

## ABS to showcase three Boeing satellites



At IBC2015 ABS will be showing off its latest satellite, ABS 3A – positioned at 3-degrees West, which will go into service in September.

ABS operates six satellites (ABS-2, ABS-3, ABS-3A, ABS-4, ABS-6 & ABS-7), covering

over 80% of the world's population, providing tailored services to customers across Europe, Africa, the Middle East, Asia Pacific, CIS, Russia and the Americas.

ABS-3A is based on the new all-electric propulsion satellite 702SP design. It will be

co-located at 3°W connecting the Europe, the Middle East, Africa and the Americas. The aim of the satellite is to will extend C and Ku-band coverage into the Atlantic Ocean region, with high performance C and Ku coverage will provide inter-regional and trans-Atlantic connectivity and services. The satellite will also support VSAT services, TV distribution, IP trunking, cellular backhaul and maritime services.

There are also two new Boeing 702SP satellites (ABS-2A and ABS-8) which are scheduled for launch in late 2015 and 2017 respectively.

Headquartered in Bermuda, ABS has offices in the United States, UAE, South Africa, the Philippines, Indonesia, and Hong Kong. ABS is majority owned by funds managed by Permira.

## Work Microwave to showcase DVB equipment



At IBC2015, Work Microwave will showcase the latest advancements in DVB-S/S2/S2X equipment, designed to provide satellite operators with increased flexibility, bandwidth, and margins while reducing their amplifier power, operating costs, and antenna sizes.

Work Microwave will also demonstrate improvements to its redundancy switch systems and block converter range.

Its platforms have been deployed by operators worldwide to support a range of applications within the satellite broadcast, satellite communications, and telco markets, including SNG, direct-to-home, IP trunking and backhaul, teleport, remote location, and more.

A key highlight at IBC2015 will be WORK Microwave's DVB-S2X Broadcast Modulator, the ideal solution for DTH broadcast, video contribution, and distribution applications over satellite. The DVB-S2X Broadcast Modulator is one of the industry's only solutions

that comes predistortion-ready for automatic group delay and nonlinearity compensation.

This allows operators to mitigate the negative effects in satellite filters and amplifiers, while reducing power and increasing beam coverage, throughput, and availability.

Other features include DVB-S2 multistream, TSolP, wideband up to 80Mbaud, and carrier ID. By supporting DVB-S2X extensions, WORK Microwave's DVB-S2X Broadcast Modulator provides operators with a future-proof platform that offers smaller roll-offs, advanced filtering, and higher modulation schemes, enabling operators to achieve sizeable efficiency gains compared with proprietary systems.

In addition Work Microwave's next-generation DVB-S2X IP modem brings maximum performance to IP trunking and IP network infrastructure applications, making it the ideal solution for telecommunication companies, Internet service providers, and teleport operators.

## Cobham goes SOLO at IBC

**Cobham Tactical Communications and Surveillance will launch "SOLO7-OBTx" and "SOLO8 SDR", two new transmitters, at IBC 2015.**

The SOLO7-OBTx is a new camera-back transmitter that features 1080p60 and 4:2:2 with integrated camera control. It includes swappable RF modules (340MHz – 8.6GHz) and H.264/MPEG-4 AVC video encoding. Its latency, depending on mode, ranges from 1s to an ultra-low 10ms, which when coupled with ultra-low power consumption delivers extended performance in the field.

Also being launched at IBC is the SOLO8 SDR, a dual-input HD-SDI COFDM transmitter with integral video analytics, recording and IP streaming. The transmitter includes 128GB of internal video storage; USB and Ethernet I/O interfaces; an integrated ISM band telemetry modem; and an integral, battery backed, real time clock for time and date stamp.

The underlying transmitter platform of the SOLO8, what Cobham calls "software-defined radio" (SDR), is seen by the company as the cornerstone of its next generation of wireless broadcast products, of which SOLO8 SDR is the first to be introduced.

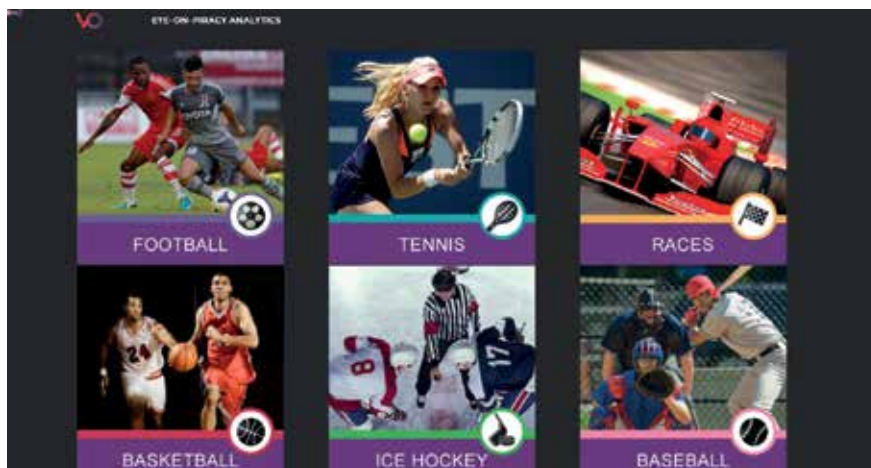
SOLO8 SDR's high density of connectors is designed for ease of integration. Its ultra-small form factor, coupled with its ability to take on many different functions in a single unit, will significantly reduce the amount of equipment needed to be carried into the field, resulting in levels of flexibility never before seen.

According to Cobham Head of Broadcast Sales, JP Delpont, "The SOLO8 SDR platform runs apps like a smartphone and can, depending on the application, change its personality instantly to suit the requirement in the field."

"We are very excited about introducing these new products to the world at IBC 2015."



## Viaccess-Orca to showcase **Eye on Piracy**



At IBC2015, Viaccess-Orca will showcase its **Eye on Piracy** solution, which helps content owners and operators track, fight, and prove various types of piracy, such as Web streaming and peer-to-peer content redistribution, getting the links removed within the first few minutes of broadcast.

A new "Snapshots" feature has been added to the Eye on Piracy service to capture illegally

redistributed video streams. This new capability enables rights owners to collect evidence on piracy, in real time, to build legal cases in the most efficient manner possible. During a live demo at IBC, attendees can see how the Eye on Piracy solution helps operators rapidly take down TV content from illegal sites and eliminate the redistribution of live events, such as major sports matches.

Viaccess-Orca will also showcase its new backend management console.

The console allows operators' marketing teams to build service offerings in a few clicks as well as promote selected content in order to improve cost effectiveness. It also enables operators to engage with customers by sending messages to segmented groups of customers. For example, all accounts registered to a certain SVOD service can be notified about a newly added series.

Through the console, operators can easily track problems such as failures in content preparation. The console uses advanced search and filter capabilities to pinpoint issues, while enabling operators to resolve problems quickly by performing bulk actions.

Viaccess-Orca will show front-end applications, powered by Viaccess-Orca and Zenterio, on a variety of devices. The apps provide a superior service to end-users by offering a personalized and intuitive viewing experience for every screen.

Leveraging the company's Voyage — TV Everywhere solution, Voyage apps enable seamless synchronisation between devices.

## **Volicon to demonstrate** Observer OTT

At IBC this year, Volicon will be demonstrating its Observer OTT which provides networks, video service providers, and broadcasters with a solution for logging and monitoring OTT A/V services that stream content to computers, tablets, and smartphones.

With the same suite of tools already proven for set-top box STB and transport stream (TS) monitoring, Observer OTT offers a complete, cost-effective quality monitoring and/or compliance logging solution for multiplatform media delivery. Users can ensure that video-on-demand and linear services are available 24/7 at optimal quality, validate service level agreements with content delivery networks using pixel-level verification of cloud delivery and playback, confirm



the presence of captioning, and determine that specialised apps are providing optimal quality of experience. In addition to providing a true recording of services, the system facilitates remote streaming and review as well as in-depth analysis of both unencrypted and encrypted content.

Volicon will demonstrate how Observer OTT ingests content from each point in

the OTT pipeline — including a variety of target mobile devices — not only to provide a valuable look at how consumers experience streamed content, but also to supply rich data that speeds isolation and resolution of any quality issues for content viewed on any device.

Addressing broadcasters' need for convenient, cost-effective long-term storage of aired content, Volicon has introduced a new Archiver option for the company's Observer Media Intelligence Platform. Providing multiple simultaneous users with random access to an indexed store of full-resolution, high-bit-rate content, as well as low-resolution proxies, this option makes programming, promos, and advertisements readily available for use cases.





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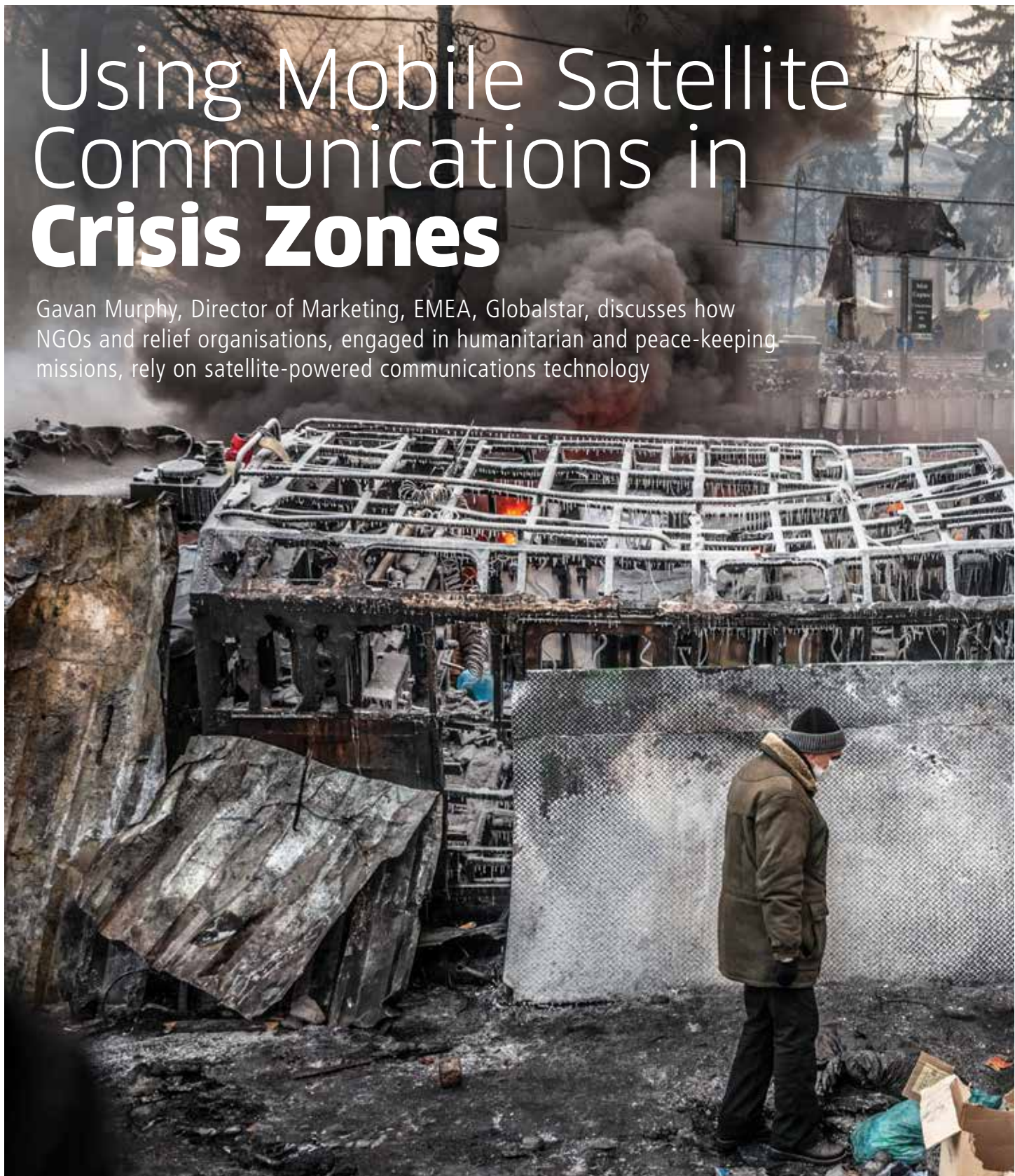


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# Using Mobile Satellite Communications in Crisis Zones

Gavan Murphy, Director of Marketing, EMEA, Globalstar, discusses how NGOs and relief organisations, engaged in humanitarian and peace-keeping missions, rely on satellite-powered communications technology





Globalstar's SPOT GEN3.



**“What we do is help to provide peace of mind for field workers and their supervisors as they in turn seek to help the vulnerable”**

GAVAN MURPHY, Director of Marketing, EMEA, Globalstar

During the many unfortunate natural and manmade humanitarian crises faced across the globe, NGO workers and relief organisations offer a vital lifeline to stricken communities. The dangerous nature of many of today's peace-keeping and humanitarian aid efforts makes it essential for first responders – many of whom are volunteers – to consider their own safety, and that of their equipment, prior to entering the crisis zone. Specifically, a number of crucial communications-based security measures need to be in place to make these workers' tasks easier to accomplish in what are extremely challenging conditions.

Consider the start of the Libyan crisis. The first NGO intervention happened very close to the Tunisian-Libyan border, where refugee camps were being set up. Several associations were there at the outset, wanting to help the refugees, the wounded and the homeless but the situation was extremely volatile. There

were concerns about sending first responders and equipment into Libya without effective communications backup. The fixed and cellular networks could not be relied upon, making a mobile satellite-based communications infrastructure the only viable option.

One of our value-added resellers in Africa, VMD, was able to help by providing a number of low-cost tracking solutions based on Globalstar's mobile satellite communications technologies – the SPOT Satellite GPS Messenger and the SmartOne geolocation Simplex asset tracking device. These solutions, configured to work with VMD's VMDtrac web-based tracking platform, were used by one of the first NGOs to enter Libya, to monitor the position of volunteers, vehicles, equipment and specialist medical kit as they provided humanitarian aid.

Globalstar's SPOT Satellite GPS Messenger was used to track, in real time, the first responders working on-site as they helped with the organisation of refugees and with aid distribution (blankets, food, medical supplies etc.).

Prior to embarking on the mission, a number of pre-agreed alerts were configured for the SPOT tracker via VMDtrac. In this particular case, the NGO chose to include the following alerts: 'SOS' (to be used in the case of a kidnapping); 'Help' (for any medical emergency); 'OK' (to send a message each time the user starts/finishes a task); and a 'need water and/or meal' custom message.

When an alert is sent from a volunteer in the field, the alert is flashed up onto a central dashboard immediately, showing the SPOT tracker's exact location and making it easy for the director back at base to share the SOS alert with the local emergency services, where appropriate – for example in the



case of a kidnapping. If the dashboard is not being monitored for any reason, the alert is sent immediately as an email to designated email addresses, and as a text message to designated mobile phone numbers.

VMD also provided the same NGO with the Globalstar SmartOne geolocation solution so that they could monitor cost-effectively, in real-time, their valuable mobile assets such as vehicles, containers and medical equipment. This provided the NGO with a flexible, low-cost way to track and trace the position of their assets, be alerted to any unauthorised movement, and extract reports and statistics that could be used to resolve problems such as missing kit. Geofencing alerts were also configured so that the team back at base would receive information in real-time every time a vehicle or valuable piece of equipment left the camp, or a suspicious movement was registered.

Elsewhere, Globalstar technology is also being used to help rescuers in the aftermath

of major disasters. Disaster Tech Lab is using Globalstar's satellite phones and SPOT messengers to improve the efficiency of its humanitarian rescue operations and enhance the safety of its volunteers. Disaster Tech Lab sets up networks that enable communications for aid organisations and NGOs as well as affected communities.

Disaster Tech Lab's volunteers in Nepal, for instance, setting up communications networks in the aftermath of the recent earthquakes, are already using SPOT Gen3 devices to trace rescuers' locations at regular intervals. The device enables a regular 'check-in' to be transmitted to Disaster Tech Lab's headquarters with a prepared message, indicating that all is OK, as well as acting as an emergency summon for help. Globalstar satellite phones are used by Disaster Tech Lab's communications and IT specialist volunteers to coordinate activities with head office, such as planning the shipment

of solar powered satellite terminals.

"With Globalstar technology, we can be less reliant on VHF radios and will be able to overcome logistical challenges in getting the right equipment to the right place, speeding up operations significantly," said Evert Bopp, founder of Disaster Tech Lab. "At times, we can have up to five separate teams operating in demanding circumstances around the world. With the SPOT app on my smartphone, I can easily see where every team is and be reassured that they are safe. Their friends and family can also have that reassurance."

Without the invaluable safety net provided by low-cost mobile satellite-based tracking systems, disaster relief workers and peace-keeping personnel would struggle to undertake many of their tasks safely. What we do is help to provide peace of mind for field workers and their supervisors as they in turn seek to help the vulnerable and the displaced during humanitarian crises. **PRO**



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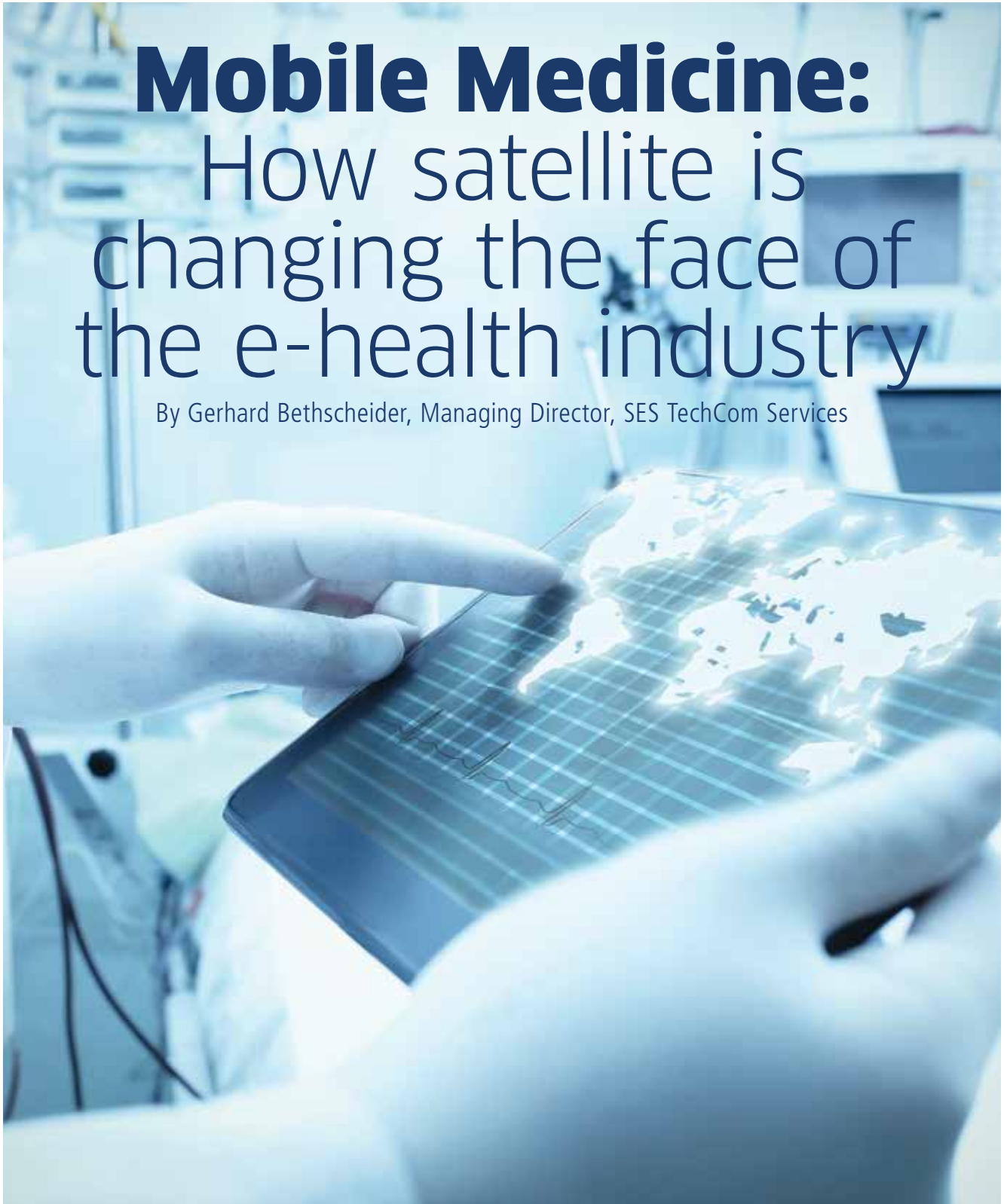


Official Courier Handler



# **Mobile Medicine:** How satellite is changing the face of the e-health industry

By Gerhard Bethscheider, Managing Director, SES TechCom Services



SES TechCom Services'  
SATMED e-health interface.

**“With the emergence of satellite Internet, the obstacles associated with providing connectivity and e-health solutions become reduced. As long as there is a base satellite installed to receive signals, fast Internet access can be provided wherever it is required”**

GERHARD BETHSCHEIDER, Managing  
Director, SES TechCom Services



Connecting people, to public services, through the Internet is the ultimate goal for operators and vendors. In today's digital age, Information and Communication Technology (ICT) is successfully used in a number of sectors to ensure quality control of workflows and improve the efficiency of an entire organisation. In the health sector, IT is particularly useful in enabling the delivery of national health training for medical professionals, as well as optimising public health programs. In rural or remote regions, however, achieving this is significantly harder for e-health operators and vendors, with terrestrial infrastructures often not living up to their urban counterparts. Here, providing connectivity is a challenge but one that must be overcome, especially when faced with situations like acute disease outbreaks as recently seen in West Africa.

With the emergence of satellite Internet, the obstacles associated with providing connectivity and e-health solutions become reduced. As long as there is a base satellite installed to receive signals, fast Internet access can be provided wherever it is required, no matter how rural or remote the location. Medical contact can be established quickly and easily and humanitarian aid delivered where it is most needed.

It is with these innovations in satellite technology that SES Techcom Services has created SATMED; a multi-layer e-health platform which addresses many of the challenges faced by operators and vendors. Changing the face of not just e-health, SATMED also aims to improve health in general in remote areas.

### Tackling the market

In terms of assessing the current market



and potential for e-health services to be delivered effectively, four major barriers are seen in emerging countries and resource-poor areas when using Health IT applications: The costs of secure data management and purchasing and maintaining software, low user-friendliness, poor interoperability between IT solutions and limited availability in remote areas.

In these remote areas, where there is a huge lack of trained health professionals, simplicity and ease of use is of paramount importance. Furthermore, multiple applications from a variety of organisations are coming to market, all with different data formats, which means the interfaces required for interoperability are often not provided. This lack of standards, and more importantly shared standards, presents large problems for doctors wishing to access shared medical records and data for

patient care across multiple applications.

Thanks to innovative cloud technology, though, communications between medical facilities can be vastly improved, potentially providing one single point of access for a global, unified system.

While communications standards may still be developing, the cloud provides a roaming service which is vital to mobile health services. This is because different applications can be integrated into one common platform and accessed by a single login.

### Introducing SATMED

It is without question that the introduction of satellite technology has changed the landscape of the e-health market both in terms of scale and delivery. While the advent of ICT services within the health market may have brought significant changes locally, remote access has brought the potential for information to be transmitted anywhere across the world, even in extremely remote or mountainous regions. In developing nations, satellite connectivity is vital since it is often the only solution where terrestrial access may be limited or poor, which can provide a fast connection over a vast coverage area.

SES Techcom Services' SATMED uses satellite Internet connectivity to address the fundamental issues that currently exist in the sharing of medical information. As a multilayer e-health platform, which is already making significant strides in medical advancement in developing nations such as Sierra Leone and Benin, SATCOM provides medical professionals with vital applications and tools for day-to-day tasks. Supported by Luxembourg's government, with input from medical health professionals, SATMED forms part of the disaster recovery platform Emergency.lu to provide worldwide coverage and humanitarian aid in times of need.

Utilising satellite technology and the cloud, the multi-layer platform overcomes the barriers of poor connectivity, cost of deployment and lack of interoperability between applications. By integrating multiple applications into one platform, information can be shared and transmitted quickly and easily, bringing significant advances to health care professionals, including not only doctors and nurses

but also, health managers, health IT personnel and epidemiologists.

In Serabu Community Hospital, Sierra Leone, for example, SATMED has been used as a communications tool between regional doctors and off-site German doctors looking to share medical expertise between medical professionals. Powering knowledge and proving its worth as a database, as well as a communications platform, SATMED integrates different medical applications, such as health records, a teleradiology system and information system, to record and analyse individual patient data, as well as document disease in public health.

Furthermore, the SATMED platform can be used for medical training. In West Africa, SATMED is being used to help improve conditions for the delivery of babies at Benin Maternity Hospital. Training will be delivered online across Africa, enabling midwives and health workers in training to have their performance monitored and evaluated. The end result will be improved healthcare systems at a local, regional and national scale.

### A connected future

Satellite technology has already made significant advances in enabling more and more people to become connected to the Internet. If that new-found connectivity can be used to share medical information, vast improvements in health services and, therefore, quality of life, can also be achieved.

SATMED brings with it the potential to realise the adoption of e-health systems across all manner of medical facilities, whether it be hospitals, medical universities, or national/international health programs. As a result, medical professionals can be freed of the shackles of poor connectivity, increasing their skills-sets and collaborating more than ever before. Finally, with SATMED, e-health also becomes more affordable.

In order to realise this bright future, we must now focus our attention on getting more e-health applications, professionals and facilities signed up to SATMED and further develop satellite technology to increase coverage. With these next steps, reaching the ultimate goal of a global unified health system is only a matter of time. **PRO**

# Protecting C-band networks

Vicky Wong, Senior Communications Systems Engineer at Asiasat, speaks about how sharing C-band with terrestrial applications can be detrimental in the long run

C-band frequencies have been shared with terrestrial applications throughout the entire satellite era, where traditional terrestrial applications were microwave links providing connectivity for a limited numbers of stations at fixed locations using directional antennas with controlled emissions and well-designed ground equipment. However, the new terrestrial applications of ubiquitous deployment of user terminals, using non-directional antennas and often without individual licensing of stations are imposing new threats to C-band Fixed Satellite Service (FSS). As a result, the interference scenario is completely different.

The disregard of existence of FSS by new terrestrial applications further worsens the sharing situation. For example, for some terrestrial communications, instead of pointing antennas down for better spatial isolation, terrestrial operators choose to put their antennas on high grounds to service wider coverage and reduce their network cost. These terrestrial applications no longer have a sharing desire (co-exist) but a simple strategy to dominate the FSS C-band frequencies and maximise convenience.

The two groups of new terrestrial applications are:

## 1. Broadband Wireless Access (BWA)/ Fixed Wireless Access / WiMax

Currently, in the Asia-Pacific region, BWA is seen introduced predominantly in the 3.4-3.6 GHz band. Nevertheless, it has been the main source of terrestrial interference in the entire C-band with many cases leading to outages and loss of services.

## 2. International Mobile Telecommunications (IMT) / LTE

In terms of interference into FSS reception, IMT and BWA are very similar. ITU studies



**“C-band FSS plays a key role in the socio-economic development of many countries to provide vital services and is also crucial for disaster relief”**

VICKY WONG, Senior Communications Systems Engineer, Asiasat

show that separation distances in the order of 5–500km are required depending on the deployment scenario and the emitting power of the deployed equipment. It can thus be seen that ubiquitous deployment of IMT affects vast areas and makes FSS reception unusable in the area.

It should be emphasised that C-band is heavily used for satellite communications throughout the world for a multitude of services. The wide coverage enables services to be provided to developing countries, to sparsely populated and geographically remote areas. Due to its ubiquitous coverage, high availability and instant connectivity, C-band FSS plays a key role in the socio-economic development of many countries to provide vital services and is also crucial for disaster relief operations. Furthermore, due to its lower frequency, C-band is the only realistic band where high availability FSS can be provided in high-rain regions.

The current use of C-band by BWA is causing significant interference and disruption of satellite networks. Further identifying C-band for IMT would mean even more disruption to all these vital services, which would have a huge impact on the socio-economic development of many countries. To protect the vital FSS services operating in C-band and to safeguard against the detrimental impact from BWA/IMT, it is instrumental that all administrations says NO to any further IMT identification in C-band at the WRC-15.

What can be done to reduce the effect of interference from BWA/IMT?

1. Take into account the usage/license situation when deploying a new service
2. Register your C-band earth station
3. Select proper pre-LNA/ pre-LNB waveguide filter with the proper rejection levels
4. Report any interference to your local regulatory authority **PRO**

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