ISSUE 43 | SEPTEMBER 2015

SATELLITE PRO

TECHNOLOGY INTELLIGENCE FOR THE COM MARKET

MIDDLE EAST

2015

THE CLEAR PICTURE

Satellite operators prepare for 4K

SENDING A SIGNAL

All eyes on Du's Samacom

SPACE BOUND

The successful launch of Eutelsat 8 West B will bring increased capacity to broadcasters in the MENA region


A new star for broadcasters
eutelsat
EUTELSAT 8 West B was successfully launched on August 20th, 2015 and will join the satellites already operated at the adjacent 7° West position by Eutelsat and Egyptian satellite company, Nilesat. The 7/8° West video neighbourhood is one of the most dynamic in the global satellite TV market, with a rapidly growing audience and channel line-up. 52 million homes in North Africa and the Middle East are already equipped for DTH reception.
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SATELLITEPRO
TECHNOLOGY INTELLIGENCE FOR THE SATCOM MARKET MIDDLE EAST

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A Launch to Remember

Last month, I witnessed the launch of a satellite. How many people can say that without batting an eyelid? I certainly can. I tell you dear reader, it was nothing short of phenomenal. I would say it was out of this world, and that might seem clichéd, except in this case, that's exactly what it was.

The launch took place at the Arianespace launch facility in Kourou, French Guiana. Being an enthusiast about all things space, it felt like a childhood dream had come true, and the rush of emotion that filled this young soul, just couldn't be contained. The ground at the Toucan viewing site, situated 5km from the launchpad, was shaking due to the immense force by which the Ariane 5 spacecraft was propelled into the cloudy skies. The thunderous sound emanating as the rocket tore through the skies was deafening, and felt akin to a series of well-timed sonic booms. Nothing I say, would truly be able to describe the excitement, the adrenaline rush and the sense of pure and unadulterated awe, I felt on that fair day. Read the whole story on page 12 of the magazine.

In other news, it's that time of the year again, when broadcasters, satellite operators, equipment manufacturers and everyone else that comprises our industry, is looking forward to IBC 2015. We'll be there en force, and would love to meet all of you. I'm excited to get up to speed on what the latest technologies in our industry are, and what your companies are working on for the future. Get in touch with me so I can schedule appointments for the times that suit you. If last year's exhibition was anything to go by, then this year certainly will be one heck of ride.

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

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Arianespace launches two satellites on Ariane 5 launcher

Arianespace's Flight VA225, carrying the Eutelsat 8 West B and Intelsat 34 satellites, lifted off on August 20th at 5:34 pm (local time) from the Guiana Space Centre, Europe's Spaceport in Kourou, French Guiana.

Eutelsat 8 West B is the 30th satellite orbited by Arianespace for Eutelsat, the leading satcom operator in Europe, North Africa and the Middle East, and number 3 worldwide in terms of revenues. Arianespace currently has three more satellites in its order book to be launched for Eutelsat.

Intelsat 34 is the 55th satellite orbited by Arianespace for Intelsat. Arianespace has four more Intelsat satellites in its backlog of launch orders.

Ariane 5 launchpad in French Guiana.

Shortly after the announcement that the two satellites had been injected into orbit, Arianespace Chairman and CEO Stéphane Israël said: "Arianespace is very proud of our successful dual launch this evening for the two leading commercial customers of our heavy launcher, Ariane 5. I would like to thank Intelsat and Eutelsat for their unwavering trust and loyalty over more than 30 years.

"I would also like to thank all our partners who contributed to this seventh launch of the year, the 67th successful launch in a row for Ariane 5 ... the men and women of Arianespace, whose commitment and professionalism underpin our goal of setting a new record for the total number of launches in 2015," said Israël.

+ www.arianespace.com

+ www.eutelsat.com

ES'HAILSAT AWARDS CONTRACT FOR NEW TELEPORT

Es'hailSat has contracted with Promer Qatar Contracting Company W.L.L to design and build the Es'hailSat Teleport.

A dedicated 50,000 square metre site north of Doha has been chosen as the location for the new, state of the art teleport facility which will provide satellite control and communications support (TT&C) and capacity management, together with a wide range of teleport services such as uplink, downlink, contribution, multiplexing, encoding, playout and broadcasting, tailored for our business partners.

The high-tech teleport will also provide back-up studios for TV channels and serve as a disaster-recovery facility for broadcasters. The site will be connected with the key media broadcasters in Qatar by means of a redundant, dedicated fibre optic link.

Design for the new teleport is expected to be ready by Q1 2016 and the site build and project completed by Q1 2017.

Both Es'hail 1 and Es'hail 2, scheduled for launch in Q4 2016, have been designed with advanced anti-jamming capabilities and with a dedicated ground infrastructure

Ali Ahmed Al Kuwari, CEO, Es'hailsat.

Es'hailSat's CEO, Ali Ahmed Al Kuwari said: "The establishment of Es'hailSat's own teleport marks a significant milestone in our plan provide a secure and independent satellite system to meet the needs of stakeholders now and in the future. The teleport is being designed from the outset to allow for significant growth and will feature all the major requirements to provide customers with satellite ground station and platform services."

+ www.eshailsat.qa

JAPANESE AMBASSADOR TO THE UAE VISITS MBRSC

The Ambassador of Japan to the United Arab Emirates, H.E. Kanji Fujiki, visited the Mohammed Bin Rashid Space Centre (MBRSC) where he met a number of executive officials, most notably, Salem Humaid Al Marri, Assistant Director General for Scientific and Technical Affairs at MBRSC. The two parties discussed ways to enhance their bilateral relations in the field of space science, technology and research. During the visit, H.E was briefed on the Centre's projects, namely the Emirates Mars Mission -Hope Probe and KhalifaSat.

+ www.mbrsc.ae

MBRSC's DubaiSat-1 turns six

Mohammed Bin Rashid Space Centre (MBRSC) celebrated the sixth anniversary of DubaiSat-1, the first remote sensing satellite owned by the United Arab Emirates (UAE), making the first step the country has taken in its journey into the satellite manufacturing sector. DubaiSat–1 marked the occasion by taking high quality images of Burj Khalifa and Emirates Towers areas.


Satellite image taken by Dubaisat-1.

H.E. Yousuf Hamad Al Shaibani, Director General, MBRSC said: "Today marks six years since the launch of DubaiSat-1. It is a matter of patriotic pride for us that Emirati engineers participated in 30% of the building tasks when we were at the manufacturing stage, and that they have been fully responsible for its operations. Today, six years after its launch, the satellite remains accurate and maintains regular operations to date. This is a proof of the capabilities of the UAE's engineers and the ability of the Centre to leverage the latest research and information in advanced technology and transform it into a satellite, thereby empowering the credibility of the Emirates in space science".

He added: "Our mission has been to develop our local human capital in space science, and attain expertise in the field at the local, regional and international levels. Our agenda is directly in line with the UAE Vision 2021, which promotes a knowledge-based society and economy. It also aligns with the national strategy in innovation, aiming at making the UAE one of the most innovative countries in the world in space."

+ www.mbrsc.ae

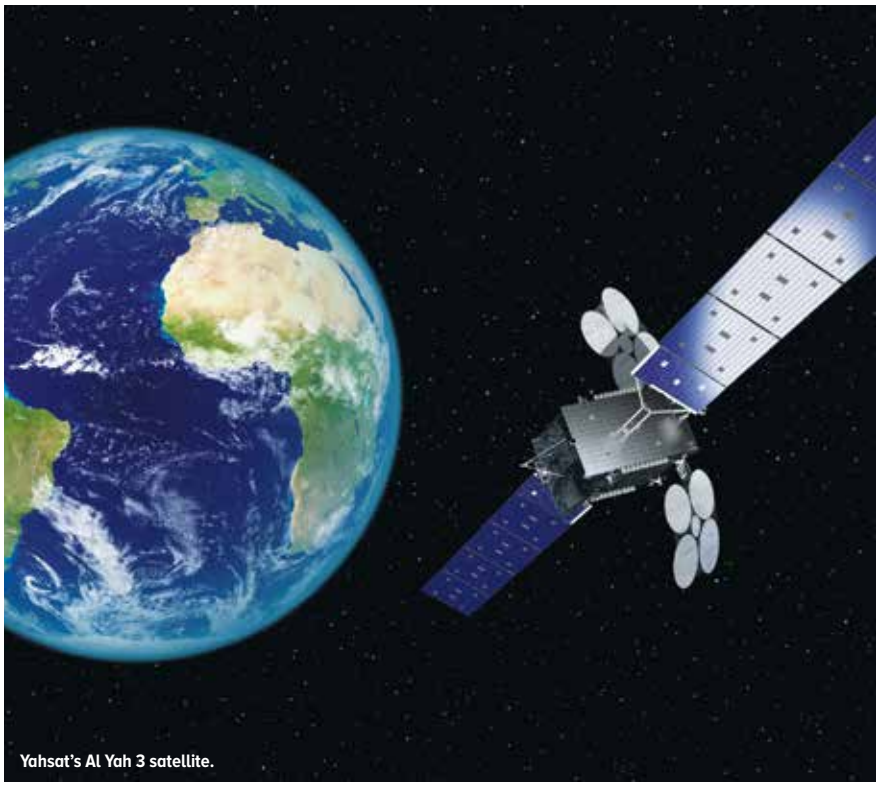
MEOSAT'S O3B SYSTEM GOES LIVE IN IRAQ

MEOSAT has announced that its O3b system is live and operational, delivering uninterrupted network service to Southern Iraq. Oilfields enabled by digital technologies provide the highest ROI and have the greatest potential to reduce risk, optimise production and contribute to higher operational efficiency for Oil & Gas operators. This is made ever more relevant and urgent with the recent fall in oil prices.

Michael A. Iwanow, MEOSAT's CEO said: "For the first time in history in Iraq, Internet with 140ms steady round-trip latency can be experienced live, with no downtime. The result for operators is significantly enhanced operational efficiency, cost savings, enablement of cloud sensitive applications and a seamless user experience"

"A high performance wide-area network is key to improving efficiency and productivity in oil field operations," added Robert Williams, Redline CEO.

+ www.meosat-int.com


Yahsat's Al Yah 3 satellite.

YAHSAT'S AL YAH 3 COMPLETES CRITICAL DESIGN REVIEW PHASE

Yahsat has announced a major milestone in the construction of its third satellite; Al Yah 3, due to be delivered by the end of 2016. In partnership with Orbital ATK, Yahsat has now completed the Critical Design Review (CDR) on the Al Yah 3 satellite.

David Murphy, Chief Commercial Officer at Yahsat said, "This is an important moment for us. Today's achievement demonstrates that we are on track for our scheduled launch. Our customers have told us they need more services, greater speeds and a wider coverage area and we've listened; Al Yah 3 will provide all three of these things."

The Critical Design Review was the last chance to make any changes to the satellite design. Al Yah 3 now moves into the spacecraft integration phase of construction.

Murphy went on to say, "Al Yah 3 will be all Ka-band, which we've found works extremely well in the African markets we already serve."

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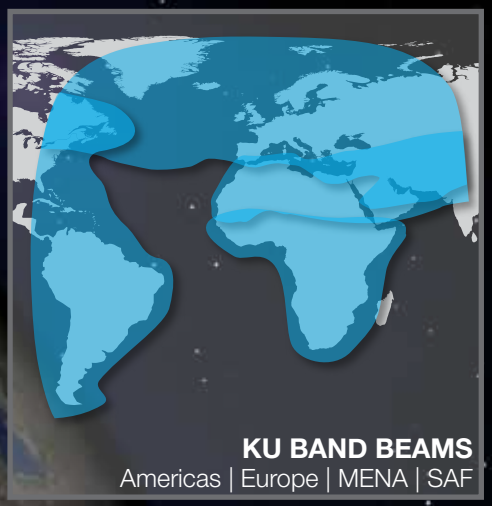

www.absatellite.com

Satellite rendition courtesy of the Boeing Company

Visit ABS at IBC: Booth 2.A27 Hall 2

Lockheed Martin to provide launch services to Echostar

Lockheed Martin Commercial Launch Services has been selected by EchoStar Corporation to provide commercial launch services for the EchoStar XIX communications satellite. The satellite is scheduled to launch in late 2016 on a United Launch Alliance Atlas V rocket from Cape Canaveral Air Force Station, Florida.

EchoStar XIX, also known as JUPITER 2, is a large, multi-spot beam Ka-band satellite that will help meet the growing demand for HughesNet high-speed satellite internet service in North America. The satellite, built by SSL in Palo Alto, California, is designed to provide service for 15 years or longer.

Lockheed Martin Atlas V launch vehicle.

"This is an important launch to HughesNet customers and the Atlas V rocket makes it an ideal choice for this launch," said Steve Skladanek, President of Lockheed Martin Commercial Launch Services.

"We are looking forward to the EchoStar XIX launch with Lockheed Martin Commercial Launch Services and appreciate the vast experience and expertise that they bring to the table as we work toward a mission success." in late 2016," said Michael Dugan, President and CEO of EchoStar Corporation.

+ www.lockheedmartin.com

SPEEDCAST AWARDED COMMUNICATIONS CONTRACT WITH VROON

Speedcast has been awarded a multi-year communications contract by international shipping company, Vroon. The new Ku-band satellite service will facilitate high-performance broadband connectivity with multi-megabit speeds, providing "hotel experience" Internet facilities for Vroon clients aboard specific categories of vessels. These include subsea-support vessels (10-25 passengers), walk-to-work vessels (with up to 60 passengers) and wind turbine installation/maintenance vessels (up to 110 passengers). Vroon operates and manages a diverse fleet of approximately 170 vessels, with more than 400 shore-based staff and around 4,000 marine personnel worldwide.

Vroon's modern vessels are active in livestock transportation, offshore support, offshore wind turbine installation and maintenance, dry cargo, container and other segments, including product/chemical tankers, asphalt/bitumen tankers and car carriers.

SpeedCast was selected for its ability to meet a stringent set of requirements, which will enable Vroon to deliver future-proof, high-capacity and scalable VSAT Internet services.

+ www.speedcast.com

Speedcast will provide Internet connectivity onboard Vroon vessels.

THURAYA PARTNERS WITH AIRTEL GHANA

Thuraya Telecommunications, in partnership with Airtel Ghana, has announced its strategic launch to provide Ghanaians with 100% coverage through terrestrial and mobile satellite connectivity.

Thuraya's satellite-based solutions help bridge the digital divide both for individuals and businesses. The agreement with Airtel Ghana gives people living in rural and remote areas greater and clearer access to voice and data connectivity.

Bilal Hamoui, CCO, Thuraya, said: "We are working in partnership with Airtel Ghana to make it possible for people to be connected at all times. Our voice communications and broadband services are reliable and robust, and they connect even the most remote and inaccessible places."

Maxwell Dodd, Director of Airtel Business commenting on the partnership said: "We are proud to be the only Enterprise business solution in Ghana that offers a bouquet of services categorised under communication, connectivity and collaborative solutions. We are also proud to be the first in our market to provide dedicated enterprise solutions to homes. This is what we call, the 'Home Business Solutions'."

+ www.thuraya.com


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Yahsat partners with Sevis Systems

Yahsat has announced a successful collaboration with Texas-based mobile backhaul technology developer Sevis Systems, to deliver an optimised backhaul solution that facilitates the expansion of mobile networks across the Yahsat Ka-band footprint.

Yahsat's pursuit of an optimised satellite backhaul solution stems from a demanding mobile broadband market and sophistication in today's mobile devices, which push usage patterns towards an increasingly data-dominated mobile environment. This puts a considerable strain on cellular backhaul infrastructure, particularly in locations unserved or underserved by terrestrial networks.

David Murphy, Chief Commercial Officer of Yahsat said, "As an organisation, Yahsat always seeks to adopt the newest and most efficient service delivery platforms in order to support our partners, grow our business and expand our geographic footprint. We are excited by the prospect of further improving mobile connectivity in our markets and look forward to continuing our work with Sevis to activate this service on the ground, post the validation phase."

+ www.yahsat.ae

David Murphy, CCO, Yahsat.

EUTELSAT PARTNERS WITH STARBURST ACCELERATOR PROGRAMME

Eutelsat has become a partner of Starburst Accelerator, a start-up accelerator that stimulates innovation in the aerospace industry.

Starburst Accelerator was set up in 2013 to propel innovation in the aerospace sector by closing the gap separating new ventures from established companies, public organisations and venture capital firms. It provides young start-ups with a set of services enabling them to fast-track their growth, including support for business plans, interface with investors and industrial groups, office space and participation in regular workshops. It has also initiated partnerships with university labs in Europe and is expanding this network in the USA.

As the first corporate partner with an operator profile to support Starburst Accelerator, Eutelsat will strengthen the incubator's interest in start-ups developing services, applications and downstream technologies and will be part of the selection committee, joining innovation experts from partners that include Airbus, Thales and others.

+ www.eutelsat.com

THAICOM CELEBRATES A DECADE IN SPACE WITH IPSTAR

Thaicom is marking the tenth anniversary of IPSTAR – a High Throughput Satellite (HTS) and one of the catalysts of the huge shift the satellite industry has undergone over the past decade.

When it was launched in 2005, IPSTAR was the heaviest commercial GEO satellite ever orbited with a launch mass of nearly 6,500 kg. It was also the first satellite to achieve a maximum 45 Gbps of capacity and was one of the first commercial satellites to use electric propulsion.

Since 2005 IPSTAR has been Asia-Pacific's leading broadband satellite platform and service, underlining Thaicom's innovative and pioneering role in the satellite industry. Designed for high-speed, two-way broadband communication over an IP platform, IPSTAR provides coverage over most of Asia-Pacific via multiple narrowly focused spot beams. As is typical of HTS, IPSTAR is capable of maximising the available frequency for transmission and increases bandwidth by a factor of twenty when compared to traditional Ku-band satellites, resulting in more efficient operations.

The technology, according to Thaicom's CEO Suphajee Suthumpun, kick-started a massive shift in the satellite industry and satellites' capabilities, enabling new services, like the provision of high-speed broadband to previously underserved and unserved areas.

"Since the launch of IPSTAR, HTS has proven its staying-power with widespread use in a variety of broadband applications and, even after ten years, remains more relevant than ever," said Suthumpun. "With HTS having grown so popular, the satellite market must continue to evolve through the influence of new technology."

+ www.thaicom.net

Es'hailSat سهيل سات

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- Business Communications and Corporate News
- Trunking Service and other Telecommunication Services.

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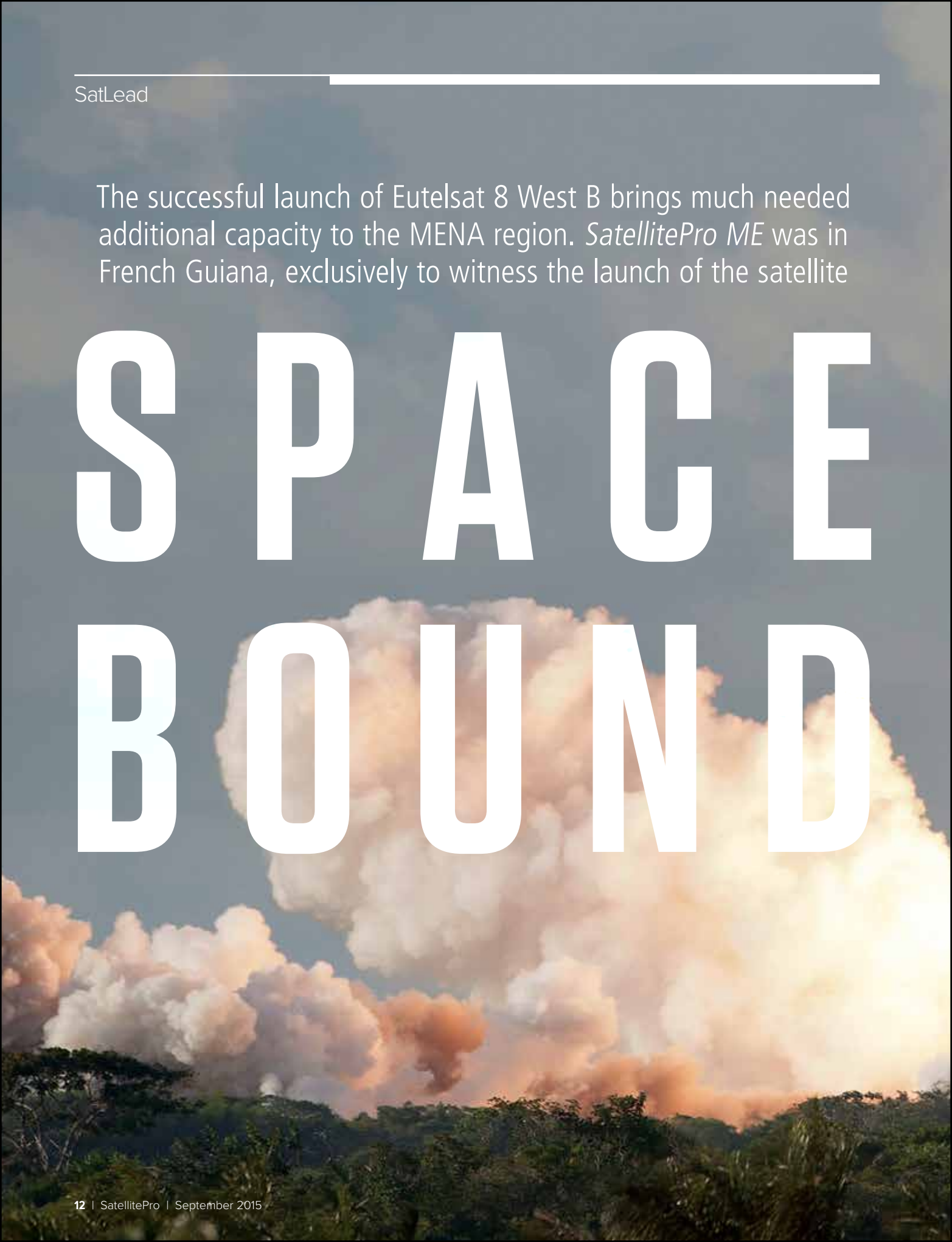
Our First Satellite, Es'hail 1, was succesfully launched on 29 August 2013 and our second satellite, Es'hail 2, will be launched in 2017. Both Satellites will be collocated at the 26ºE hotspot neighbourhood.

www.eshailsat.qa

The successful launch of Eutelsat 8 West B brings much needed additional capacity to the MENA region. *SatellitePro ME* was in French Guiana, exclusively to witness the launch of the satellite

SPACE BOUND

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ariane

One of the most prominent factors on any space enthusiast's bucket list is to watch a rocket take off into the depths of space. There's nothing quite like it, and even though some people consider satellite launches as passé, as there have been so many of them, only someone with a lingering passion for space would truly appreciate the grand spectacle of sending a metal bird into the cosmos.

Arianespace's Flight VA225 was ready for launch on August 20 2015. Onboard the launch vehicle were two satellites, Eutelsat's 'Eutelsat 8 West B' and Intelsat's 'Intelsat 34'. The time for the launch was set at 1710, Kourou time in French Guiana.

The rocket was moved out to the launchpad 48-hours prior, and checks, pre-checks, more checks and then furthermore checks made sure that every single component of the launch vehicle and its payload was in prime condition for a smooth liftoff.

The Jupiter room was the nerve centre of the launch, and in the left corner of the room was a screen that had different lights that showed every aspect of the health of the package. Green was the colour that everyone was looking for. In the event any one of those lights turned red, there was an issue that required immediate attention. Luckily, on the morning of the launch, nothing looked amiss. Everything was going just fine, when for the first time in eight years, in French Guiana's 'dry season' in August, it began to drizzle. The sky was overcast and an uneasy panic set in. It was only 1100. Perhaps the skies would clear closer to launch. After all, the launch window was quite large, and ranged from 1710 to 1856, Kourou time. Everyone tried to stay optimistic. The weather check at the time of launch and status of the rocket showed no critical anomaly.

The countdown to liftoff comprises all final preparation steps for the launcher, the satellites/spacecraft and the launch site. It culminates in a synchronised sequence, managed by the control station and onboard computers starting at T-7 minutes. Any anomaly could stop the countdown in its tracks and delay liftoff by a few hours or even days, depending on the severity of the problem.

About three hours prior to launch, there was a build-up of a huge military presence near the space centre. It is protocol to close all roads leading to the space centre one day prior and one day post launch. The Air Force and Navy was also called in to ensure there was no air or maritime traffic in the vicinity and the projected trajectory of the launch vehicle.

As we approached zero hour, there was an eerie calm at the Toucan viewing site, which is situated 5km from the launchpad. The birds stopped chirping and the mosquitoes kept their distance. It was almost as though the rainforest was looking forward to this launch as much as the people at Toucan.

A little prior to T-7, the countdown was stopped, and a message flashed on the digital displays that said the countdown was temporarily postponed. While it seemed that this was the harbinger of something truly ghastly, none seemed to flinch, and it was business as usual.

All eyes were on the Jupiter room, and while one might expect panic, instead all you could see was, clear, methodical steps being taken to rectify what seemed to be a minor snag.

Seventeen minutes later, the clock restarted its seven-minute countdown. All lights green, all checks satisfactory, this bird was going to fly.

At 1734, Flight VA225 bellowed thick plumes of white smoke from its boosters, and there was a blinding explosive flash that hurtled the spacecraft off the ground. Why was everything quiet? High school physics would tell you that light travels faster than sound. What followed next was a deafening boom that only got louder as the Ariane 5 launch vehicle gained altitude at a rapid pace. The ground at the Toucan viewing site started shaking and it felt like the tremors were getting stronger with every passing second. The crowd was exhilarated and cheered the rocket on for what seemed like an eternity, but in reality, only lasted about two minutes.

VA225 launched successfully, and at 28 minutes and 19 seconds in flight, Eutelsat 8 West B separated leaving the ground crew and viewers alike, ecstatic.

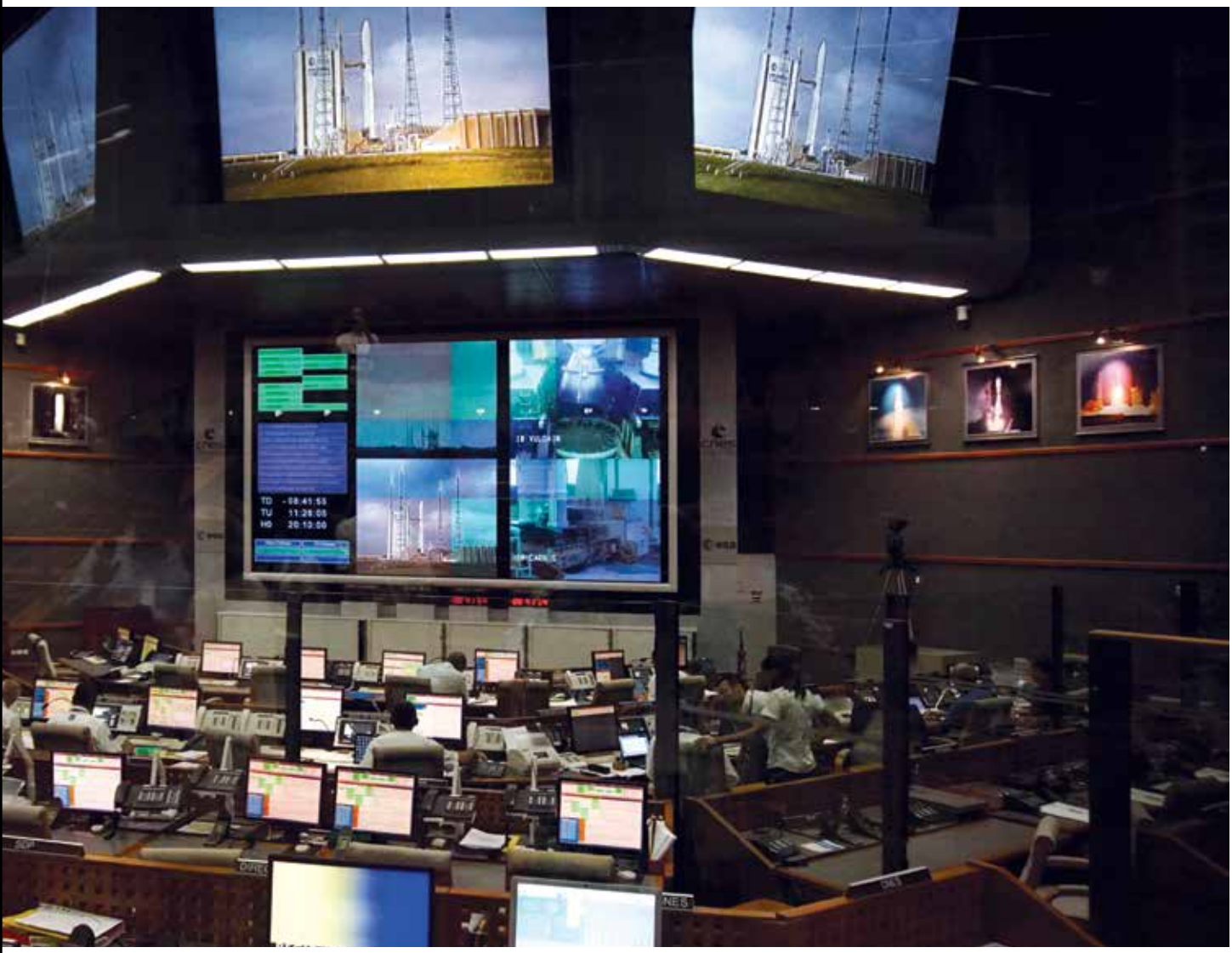
From here on, controls were handed over to Eutelsat's ground crew. The solar panels on the satellite opened approximately four hours post launch,

The Jupiter room at the Arianespace facility.

another engineering success. It would now take another eight days for Eutelsat 8 West B (E8WB) to reach geostationary orbit.

The satellite

Eutelsat 8 West B was designed to bring incremental capacity to other Eutelsat satellites already positioned at the 7-8 degrees orbital slot. This position serves the DTH market in the MENA, and through operating Eutelsat 8 West B at this position more channels can be added to the 1,000 already broadcast to the region. For the Middle East, this arc shared by Nilesat and Eutelsat make it, by far, the largest satellite operators.



"We regularly measure the audience that are watching satellite TV in the Middle East, and saw in our most recent survey that 52 million households, equivalent to about 250 million viewers have antennae that point to this orbital position. The other players in the region are Arabsat, which claims 164 million households at 26° East. Because this 7-8 West neighbourhood is so popular in the region, it's like a virtuous circle. You bring new services more easily when you already have an existing audience, and you can develop a premium neighbourhood because clients get higher revenues from advertising or subscription, because of the large and growing consumer base," says Michel Azibert, CCO and Deputy CEO, Eutelsat.

"In television it's a little bit easier to sell than in telecommunications. If you invest in building a good hotspot, you can generate demand"

MICHEL AZIBERT, CCO and Deputy CEO, Eutelsat

There are an additional 14 transponders that are being added to this position. This generally works out to about 10-12 channels in SD per transponder, or four to six in HD. With more capacity, Eutelsat's customers will be able to introduce more services, either with more channels or by migrating SD channels to HD.

In this case they will need more spectrum, and the signal quality of the platform being delivered will improve. The operator has seen an increasing need for this additional capacity and it is working at drawing a quality line-up to this orbital position, as well as migrating

existing channels to higher definition.

Azibert breaks down Eutelsat's business model with the example of the Eutelsat 8West B satellite and explains: "The business model itself is that we invest to the tune of 250m Euros ($289.65m) for mostly the satellite and launch service. There isn't much cost associated with the ground support and teleport, so that is negligible. You have an investment spend over three years, which is generally the time it takes to get the satellite ready. After launch and service commencement, the satellite starts generating revenue almost immediately through the transponders which are leased out. Depending on the satellite, this generates about 50m Euros ($57.95m) annually, which means you can amortise the cost of the satellite within five to eight years. Keeping in mind the satellite is in orbit for 15-20 years, this model is characterised by its predictability."

The MENA region draws in about 25% of Eutelsat's revenue, this is a significant part of the satellite operator's business. Partners are a key part of the operator's strategy, and more than a decade of doing business in the region has fostered ties with many good service providers.

"The way the market is structured in the Middle East is that we address the television customers through service providers who are our partners. We have already pre-sold capacity prior to the launch, to service providers. Nilesat is also a "co-owner" of the orbital slot, and owner of twin satellites located there. Noorsat too is a big customer, who started about 10 years ago and developed the business. Gulfsat is a third customer that concentrates on the Middle East with a particular accent on the Gulf States.

"In this region these companies provide services to free-to-air broadcasters and pay-TV operators. The characteristic of this region compared to others is that pay-TV is still in in its relative infancy. You have two main services, BeIN and OSN. Our policy is not to bypass our partners when they are well-positioned. For the free-to-air market, which is very diverse, we prefer if broadcasters are happy with our partners, and we let them deal with the broadcasters directly," says Azibert.

"The way the market is structured in the Middle East is that we address the television customers through service providers who are our partners. We have already pre-sold capacity prior to the launch, to service providers"

MICHEL AZIBERT, CCO and Deputy CEO, Eutelsat

This is quite different in other continents. For instance in Europe, Eutelsat serves pay-TV operators directly and the free-to-air market is mainly targeted through providers. In Latin America, they serve nearly the entire market directly. This is the way the operator builds revenue, and this revenue corresponds to additional channels.

"We see dynamic growth across the Middle East footprint. For example, in Algeria and Morocco there is a process to have new commercial channels licensed by local authorities. This may generate additional business, where channels would be broadcast terrestrially but also on the satellite, just because most of the audience receives broadcast through satellite and there are regions where terrestrial networks would not be cost-efficient," he says.

According to Azibert, the biggest challenge in the Middle East is the political situation in a number of countries which prevents business as usual. He says Libya is particularly difficult, and Syria and Iraq as well.

"The number one challenge is to live through these difficult times, expecting that in time, things will become normal, and in this difficult environment, the service providers (our partners) are a true asset because of their proximity to the market. The challenge of technology, infrastructure and new consumption patterns exists in all continents including the Middle East, although the impact of non-linear viewing is most advanced in parts of Europe and North America. In the Middle East, because of the high penetration of satellite technology and the lack of terrestrial infrastructure, we do not see a radical change in viewing habits for the next five to ten years," he adds.

Eutelsat has different divisions within the company that all play a part in getting a satellite up in space. Ahead of time, there is the design of the satellite. This team is a relatively small one of about 10-15 people that work on the design of the satellite in question. This takes place three to four years prior to the launch.

Once the satellite is procured, around two years prior to launch, it is the engineering team of Eutelsat that allocates 11 dedicated people to the programme, including one located on-site at the manufacturer. Around the launch period eight people are dedicated to the preparation of the launch at the launch site. All the post-launch, In-Orbit Testing (IOT) and monitoring of the satellite by the teleport comprises teams of about 30 people.

"What characterises this industry is that there is a very close proximity between the designer and owner of the satellite, which is us, and the manufacturer. In addition to the technical people, there is also a lot of work done on pre-sales, with the commercial team at Eutelsat. One of the characteristics of this satellite is that all of the capacity for MENA was pre-sold before the launch.

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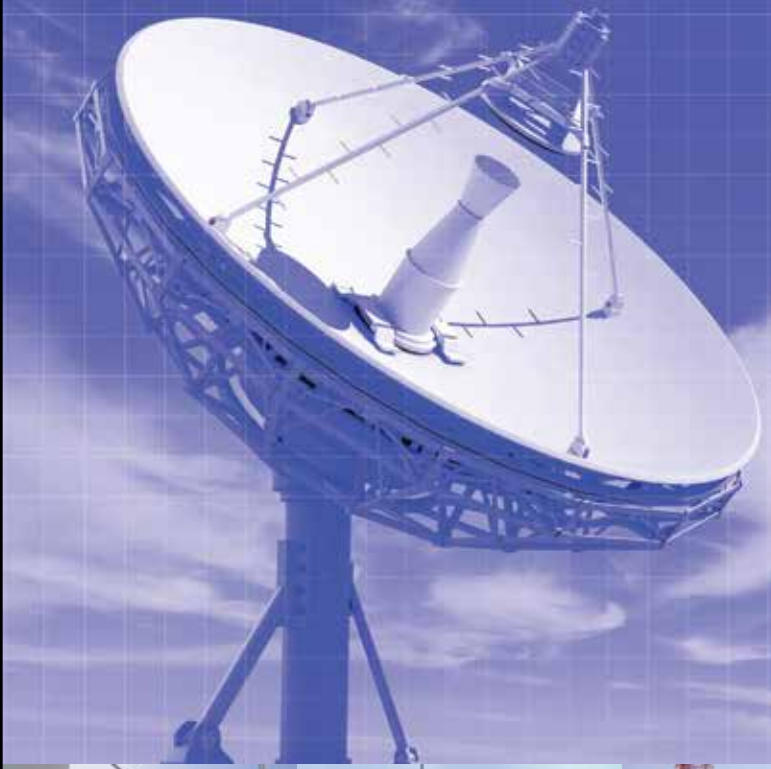

MENA NETS PROVIDES 4 ACTIVITIES TO THE MENA REGION:

i. System integration where we design and provide solutions over satellite

ii. Supply hardware as resellers and authorized distributors of many manufacturers like ASC Signal, Skyware Global, Cobham, Xicom/Comtech, Anacom, Codan/CPI, NJR, SMW, iDirect, Thomson, etc.

iii. Ground operations which includes installation, technical support, maintenance repairs, etc

iv. Training and consulting such as the GVF HOST.

THESE 4 ACTIVITIES ARE DELIVERED THROUGH 6 PRODUCT LINES:

i. Earth station antennae (3.5 meter to 9.4 meter) from ASC Signal

ii. VSAT antennae (75 cm to 2.4 meter) form Skyware Global

iii. Mobile satcom (on the move and on the pause) from Cobham

iv. Outdoor electronics: TWTs, BUCs, LNBs, Feeds, etc from Xicom/Comtech, NJR, Anacom, Codan/CPI, SMW, etc

v. Indoor electronics: broadcast encoders, decoders, multiplexers, video servers, power supplies, combiners, splitters, routers, satellite modems, redundancy controllers etc from Thomson, Paradise/Teledyne, iDirect hubs/modems and others.

vi. Installation, maintenance, support, logistics and training (GVF) and turnkey solutions involving system integration of all activities and product lines to provide customers with a complete end-to-end product. The objective is simple: meets customer needs with the latest technologies at the best price/quality mix delivered through experience.





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There are around 10-15 people working on pre-sales and contracts, essentially all on the commercial side. In television it's a little bit easier to sell than in telecommunications. If you invest in building a good hotspot, you can generate demand," explains Azibert.

Launch and Insurance

Arianespace priced the launch service on the basis of the joint launch with the Intelsat 34 satellite. Azibert explains that the cost of the launch is going down over time, especially because of competition with companies like SpaceX. At present, it comprises approximately 35% of the cost of the programme. Then there is the insurance and other capitalised expenses that need to be taken into account. On average Eutelsat's annual capex is 500 million Euro ($567 million).

"We use Willis as our insurance brokerage firm. Willis deals with the insurers themselves. In the case of Arianespace because of their high reliability and track record, we get a lower cost for the insurance.

"There are two insurances. The first is the insurance for the launch and the year following the launch. This is the most expensive insurance, because that is when critical issues can happen. Then there is the second insurance, In-Orbit insurance, which covers the lifetime of the satellite from after the first year and until end-of-life. This is less expensive and comes as OPEX. What is not insured, of course, is loss of revenue. If there is a launch failure you will get back the cost of the satellite, but there will be the loss of a business opportunity," says Azibert.

The post launch period is relatively critical in terms of operations. With Eutelsat 8 West B, first the solar arrays are partially deployed and in the next three stages, Eutelsat will use part of the fuel which is used to propel the satellite thrice, at the apogee of the satellite. In essence, when the satellite is very far from earth at about 36,000km, there needs to be a modification to the trajectory of the satellite to change the orbit from elliptical to circular. The total deployment of the solar panels will happen after that.

"The In Orbit Testing then follows, which is a long sequence of events where we test all the parameters. The functioning of the antenna system is tested, along with the entire payload, Ku-band transponders and the C-band transponders, and the operation of all the switches on board. This takes approximately two to three weeks. These manoeuvers and tests are not performed at the final destination of the orbital slot, but instead are tested at another slot, which is 1.7-degrees East. Post this, the satellite will be moved to 8 degrees West and go into operation in October.

"Thales Alenia Space works closely with us for the monitoring of the satellite, everything related to the platform, and what we call the 'attitude' of the satellite. We check constantly that it is physically responding well, and if it's not the case if it can be corrected. The platform is mostly mechanical, and the payload is mostly electronic," says Azibert.

Fuelling of the Eutelsat 8 West B satellite at the Arianespace facility.

"One of the characteristics of this satellite is that all of the capacity for MENA was pre-sold before the launch"

MICHEL AZIBERT, CCO and Deputy CEO, Eutelsat

There are many different scenarios that could have gone wrong with this launch, but thankfully it didn't. There is the scenario of total loss. Another is that the satellite doesn't reach the orbit like it is meant to, so there will be a reduction of lifetime or power. It needs to use up more fuel which will result in shortening the life of the satellite. There are also scenarios related to the solar panel deployments where there are instances one might not work as required.

"In case of the worst case scenario, which is the total loss of the satellite, what you try to do is mitigate the problem short-term. In this case we have three satellites at this position, one which has a longer lifespan (Eutelsat 7 West A).

"If there had been a launch failure, we would have kept the satellites already in orbit, so that they can continue to serve existing customers. It is very important to anticipate well in advance, so you don't wait till the satellites are already up there and coming to the end of their lives. If you lose the availability of the new one, then business continuity can get challenged. Hence you have to work several years in advance. In terms of risk mitigation a very important factor is the size of your fleet. It is a business where there are economies of scale, coming from the fact that if you are facing a challenge, and you have 37 satellites it's easier to address the problem than if you have a smaller fleet," concludes Azibert. PRO

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The Clear **Picture**

Broadcasters are recognising the importance of 4K for premium content, sport and eventually all DTH. Satellites are prepared for this paradigm shift, with HTS furthering the cause, and equipment manufacturers are on the path to integrating support for new codecs in their devices. All in all, the future looks bright

Offering four times the resolution of HD, 4K is the next logical step of evolution in video viewing. Because this leap in quality means a higher amount of bandwidth, satellite is the ideal infrastructure to deliver Ultra HD in the best quality available and cost-effectively worldwide, thanks to its extended coverage.

This technology will be a key differentiator for TV broadcasters in the region, who would like to offer premium services with ultra-high quality content, to end users.

Wilfried Urner, CEO, SES Platform Services says with Ultra HD already available in Japan, South Korea and India, and Europe's first Ultra HD channels to be launched in September, we're definitely entering into the new era of broadcasting.

"As the price of UHD TV sets is going down, we expect the number of UHD TV sets to reach between 700,000 and 1m by the end of 2015 in the major markets. This is actually where the critical mass of households that can receive Ultra HD starts," explains Urner.

Northern Sky Research predicts there will be more than 820 channels of Ultra HD content delivered via satellite by 2025. This gives SES a good reason to believe that adoption of Ultra HD could be quicker than expected, and it may well be that 4K becomes mass market by 2016 to 2017.

While 4K might take some time to be completely successful, service providers should be prepared for the growing popularity of it, by investing in technologies which support the latest standards and go

"As the price of UHD TV sets is going down, we expect the number of UHD TV sets to reach between 700,000 and 1m by the end of 2015 in the major markets"

WILFRIED URNER, CEO,
SES Platform Services

hand-in-hand with UHD TV. These include DVB-S2X and HEVC, says Hans Massart, Broadcast Market Director, Newtec. In the case of DTH, to receive 4K and benefit from HEVC, new set-top boxes are required anyway, so it is only logical to address those which are DVB-S2X compatible.

So what are satellite operators and equipment manufacturers doing to ensure 4K becomes more mainstream?

According to Ali Al Kuwari, CEO, Es'hailsat, the operator is ensuring that its satellites and upcoming teleport are fully compatible with new standards.

"We are willing to work with the broadcasters to demonstrate the technology in order to prepare for the launch of new services. We understand that much progress is being made in the standardisation and development of equipment for TV production, playout and distribution which will enable the service to become mainstream," says Al Kuwari.

In April 2015, Intelsat, alongside Newtec, PSSI and iStream Planet demonstrated the evolution of true 4K UHDTV using HEVC compression and Content Distribution Networks (CDNs) with end-to-end video transmissions via satellite and the internet. At the NAB show, Intelsat introduced IntelsatOne Prism, a new next-generation, IP content distribution managed service that is fully integrated with Intelsat's global satellite fleet and IntelsatOne terrestrial network.

"IntelsatOne Prism provides customers the ability to conduct multiple content transmissions via one platform, enabling efficient, high-quality multiscreen content delivery. IntelsatOne Prism also enables media customers to improve bandwidth management with minimal investment and simplify overall content delivery and operational networks – all which support media customers' ability to deliver 4K UHDTV content," explains Peter Ostapiuk, Head of Media Product Services, Intelsat.

As innovation within the 4K UHDTV ecosystem continues, each technology improvement in compression will enable a lower barrier of entry for new channels and services. Just as MPEG2 facilitated analogue to digital conversion, MPEG4 is driving HD growth, and HEVC and transmission efficiencies driven by DVB-S2X technology will bring 4K UHDTV services to consumers.

Equipment manufacturers know that satellites are not directly impacted by 4K.

"By using new equipment, which takes advantage of H.265, operators can benefit from the bandwidth savings on offer"

ALI ZARKESH, VP, Product Management, Vislink

Wilfried Urner, CEO, SES Platform Services.

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Ali Zarkesh, VP Product Management, Vislink.

Peter Ostapiuk, Head of Media Product Services, Intelsat.

They only play the role of passing data being sent through them, whether that's SD, HD or Ultra HD. This is why players like Vislink, and those offering video encoders and decoders, are adamant on delivering these to the market as soon as they can.

"By using new equipment, which takes advantage of H.265, operators can benefit from the bandwidth savings on offer. Equipment like Vislink's UltraCoder and UltraDecoder are capable of transmitting 4K video with H.265 using half the bandwidth needed compared to performing the same task through H.264," says Ali Zarkesh, VP, Product Management, Vislink.

Additionally, ETL Systems is designing larger switch matrix systems to handle more RF feeds which operate over extended L-band, for use in Ka-band applications.

"This will make it easier for broadcasters to implement 4K," says Andrew Bond, Sales Director ETL Systems.

Sporting events would probably take the most advantage of 4K broadcasts. This will continue to gain momentum over the coming years according to Massart. For instance some parts of the FIFA 2014 World Cup were produced and broadcast in 4K.

"DTH applications will quickly follow due to the introduction of channel bonding into DVB-S2X which was done specifically to increase the statistical multiplexing for UHDTV transmissions"

ANDREW BOND, Sales Director, ETL Systems

"DTH applications will quickly follow due to the introduction of channel bonding into DVB-S2X which was done specifically to increase the statistical multiplexing for UHDTV transmissions. With this feature a single big transport stream is sent over several different transponders at the same time. The capacity of these transponders is merged and will provide extra gain, to the effect of an extra 12% for three bonded channels. The accumulated gain will accommodate an extra UHDV channel in the big transport stream by using the spare capacity of the individual transponders," he says.

Al Kuwari thinks that high-value broadcasters will be the pioneers to move 4K programming from trials to full-blown service.

"Our customers such as Al Jazeera News and beIN Sports would be ideal to launch such services, bringing popular, rich and unique content in a new super clarity format of 4K. For specific events 4K may be first released by the pay-TV platforms given the high value of the premium content."

Urner says that besides sporting events,

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he is seeing more lifestyle and fashion channels that are hoping to revolutionise their business approach, through 4K.

"One example is the German shopping channel pearl.tv, which is utilising Ultra HD cameras to their full advantage by radically changing the way they feature their products. Instead of being staged in the studios, the products are filmed in their natural setting, indoor and outdoor, allowing viewers to better picture themselves using the products."

All of this translates to a need for higher capacity, and with the imminent deployment of HTS satellites, the technology will allow operators to deliver this to their clients. Moreover, modern satellites are extremely powerful and are capable of supporting high data throughput, but advanced broadcast equipment is reducing the dependency on capacity, by focusing instead, on efficiency.

"Even though 4K demands double the bandwidth of HD, because it uses advanced H.265 encoding and decoding it's possible to transmit 4K at half the required bit rate without compromising on quality. This makes it possible to transmit 4K video via satellite without upgrading transponder capacity. Much like 4K is to next generation video, H.265 is the next generation of compression," explains Zarkesh.

"For the majority of the globe, we do not foresee broadcasters skipping 4K UHDTV and moving to 8K UHDTV directly. With the exception of developed economies in Asia, broadcasters are focused on the rollout of 4K UHDTV"

PETER OSTAPIUK, Sales Director, Head of Media Product Services, Intelsat

But will 4K become obsolete before it even reaches homes? With talk of 8K already on the horizon, it wouldn't be unwise to assume that broadcasters might just skip going mainstream with 4K, and instead concentrate efforts towards developing technology for 8K transmissions.

The industry gurus though, paint a different picture.

Massart thinks that although pushes for 8K are being seen from certain parts of the world, most operators, service providers and equipment vendors are still contemplating how to implement 4K services, and there is no evidence – unlike with 4K – that 8K would be commercially successful. Additionally, to get to the stage where 8K is mainstream would require increased investment in production equipment.

Zarkesh agrees and says: "The broadcast industry has made a huge investment in 4K. The main camera-makers, including Sony, Ikegami, Hitachi, and Blackmagic, are all investing in this technology. Companies like Ericsson, Thompson and Vitec are hedging their bets on 4K too. Given such widespread support it's highly unlikely 8K will replace 4K in the foreseeable future, or that broadcasters will be able to justify skipping this technology altogether."

Ostapiuk says: "For the majority of the globe, we do not foresee broadcasters skipping 4K UHDTV and moving to 8K UHDTV directly. With the exception of developed economies in Asia, broadcasters are focused on the rollout of 4K UHDTV – they're developing more content and determining the best business model to monetise 4K UHDTV content.

"Intelsat and its partners have proven the ecosystem is ready to technically support mainstream adoption of 4K UHDTV. The focus now is on developing more 4K UHDTV content and determining the business model best suited for ROI," he adds. PRO

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Sending **a Signal**

The launch of Du's Samacom, more than a decade ago, gave a boost to the industry by transforming the UAE into a broadcasting and telecommunications hub. With many accolades to its credit, the teleport now manages the needs of broadcasters from North Africa all the way to Asia Pacific

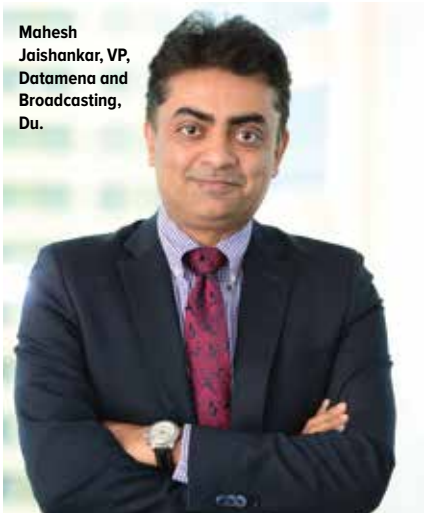
The Samacom teleport in Jebel Ali was set up in 2003. At the time, the idea was to cater to creating UAE as a hub for broadcasting and telecom services. It has quickly grown to become one of the largest teleports in the region.

"In the Middle East, we've been very successful in terms of the satellite channels and customers we handle. The teleport supported the growth of the UAE as a media production and broadcasting hub. This was during the same time that the attention in the country was growing to create Media City, Internet City and all the other media initiatives in Abu Dhabi. This was primarily to provide a platform to allow broadcasters to reach out from the UAE using end to end solutions for broadcasting," says Mahesh Jaishankar, VP, Datamena and Broadcasting, Du.

This facility along with a dynamic team that was flexible and open to the idea of listening to its customers, helped Samacom reach the status of being one of the top teleport operators in the world. This was recognised through three awards presented to the teleport, by the World Teleport Association, in 2013 and 2014.

"We cater to almost every television channel in the region. Out of nearly 300 channels almost every channel touches and goes through Samacom in one way or another. All of the large broadcasters are our customers in some form. There are broadcasters from North Africa, all the way to Asia Pacific. The limitation only seems to be the satellite footprint that we can see, and the customers' preferred footprint. The predominant USP here is the fantastic location that UAE has, by being geographically placed between Europe, Asia and Africa. This allows us to connect with a lot of satellites and turnaround quickly. If you have a broadcaster in Europe that wants to turnaround for content in Asia, you can use the UAE as a hop and get onto another satellite," he says.

At Samacom, the majority of the traffic that goes through the teleport is from broadcasters. There is some backhaul as well, but this is to a lower extent. Du also has significant investments in submarine cables and terrestrial infrastructure which it offers to its customers for backhaul.



Mahesh Jaishankar, VP, Datamena and Broadcasting, Du.

This is generally more cost-effective and faster in terms of its latency.

Customers are increasingly looking at an end-to-end and an on-demand solution, so teleports need to offer an end-to-end integrated service for content management, hosting, recording and playout.

"We need to also have services that increasingly reach the multi-screens that end users are looking for. From our perspective, we see the teleport as an extensive part of the platform that we offer to our media and content providers, as well as production houses. Whether it's to customers on their laptops or their tablets or their TV screens through DTH. We are able to provide those services," says Jaishankar.

The infrastructure at the teleport has been constantly upgraded since it was set up. According to Jaishankar, Du has always looked at state-of-the-art equipment and been ahead of the curve in terms of what was required.

"We let customer requirements come up and then deploy them as customers need. We launched a complete HD transponder because of the demand from broadcasters. 4K is not there as yet, in terms of end-to-end 4K content. Once that comes in, it's definitely on the cards and we are upgrading as we speak for our customers that want certain specialty services," says Jaishankar.

However for 4K to become mainstream, more content needs to become available and there need to be delivery mechanisms and end products so users can view the media.

Samacom's network operations centre (NOC).

The entire value chain has to be populated and available in order for this to happen.

Jaishankar also says that meanwhile people are talking about 8K, and it's uncertain if technology will leapfrog 4K and go straight to 8K.

"I think we all need to wait and watch a little bit. The customer has become a lot less discerning. A lot of us are very content watching videos on Youtube with our 5-inch smartphones. I think it's an interesting space, where we're looking for high definition content but we're also increasingly consuming a huge amount of content on smartphones. The trend is not linear. There is a mixed approach," explains Jaishankar.

The operations of the Network Operations Centre (NOC) is manned by Du's own team of professionals, 24x7, and this includes all the services provided through it. The maintenance of the equipment itself is contracted out to the manufacturers directly. They maintain spares, replacements and consumables that are required to keep the teleport running on an ongoing basis. This is supervised by the teleport's operations team.

"One of the key things that we do on a monthly basis is to test the backup generators and uninterrupted power supply (UPS), to ensure they will turn on in an emergency. On other specific equipment there is separate time-scheduled maintenance that is put in place. For passive equipment like an antenna, it does not need a lot of maintenance. Cleaning is done on a periodic basis to ensure that it is dust-free," says Jaishankar.

Du has built several layers of redundancy within the teleport. There are UPS', with battery backup, that come on in case of any power outage. Beyond that, there are backup generators that will take over from the UPS should anything happen beyond the time that the UPS can run. Fuel is maintained on-site, that allows the generators to run for a longer period.

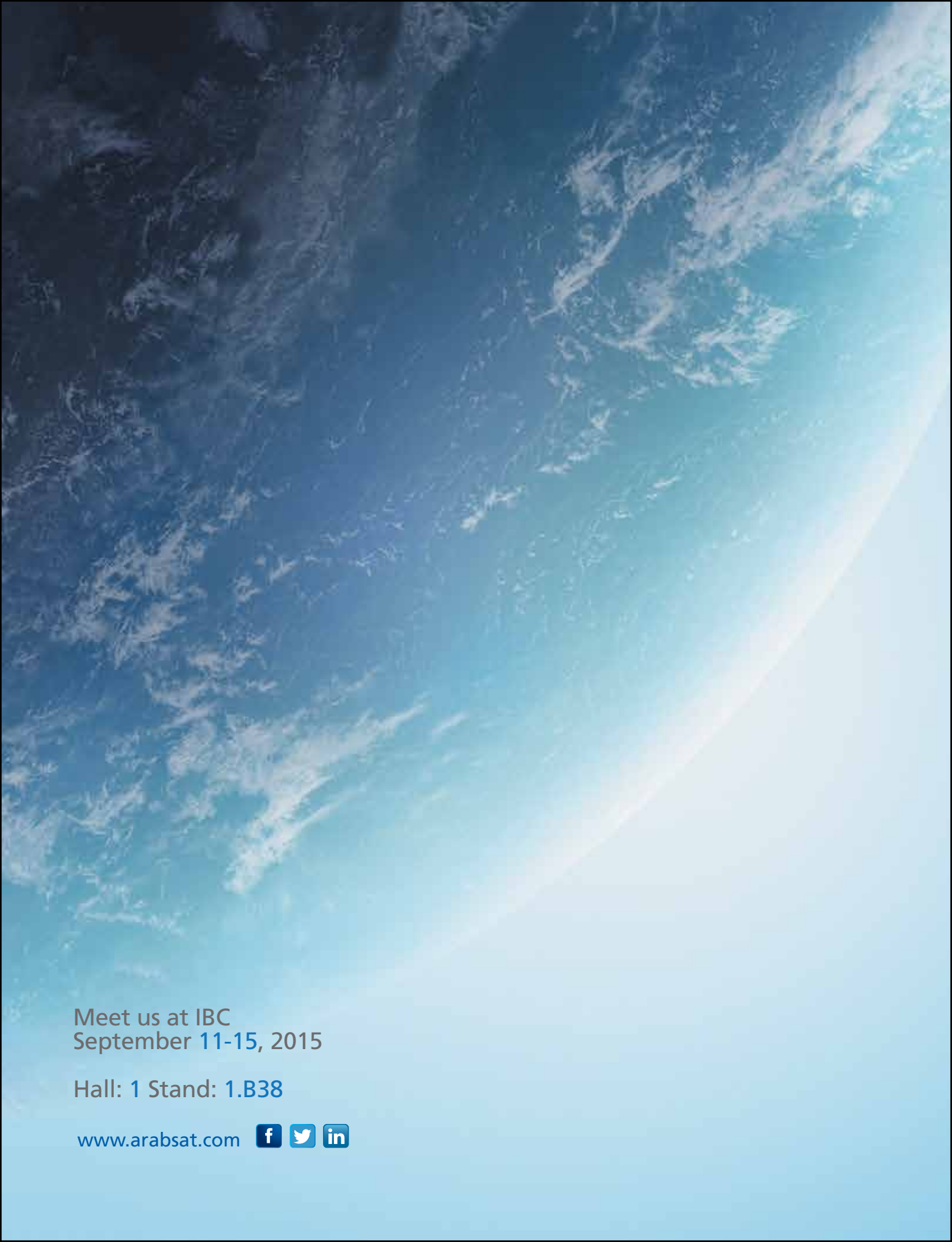
The facility is also served through dual power feeds, hence minimising any single point of failure within the infrastructure. In terms of passive infrastructure spares are maintained on-site.

"On the antenna farm, we have spare antennas available. Should one of the antennas have any sort of problem, we can quickly deploy another antenna and point it in the right direction. We also have back-to-back agreements with our active equipment manufacturers for replacements, cards and any other devices, with stringent SLAs in case there are failures. Multiple layers of redundancy have been designed very carefully by our teams to ensure that there are minimum single points of failure," says Jaishankar.

In conclusion, Jaishankar advises that the focus today is multiscreen, and Du has the ability to allow its customers to go multiscreen. With the combination of the Internet exchange, CDN platform, terrestrial network, datacentre and the teleport, the operator can provide an end-to-end solution for customers. PRO

"We need to also have services that increasingly reach the multi-screens that end users are looking for. From a Du perspective, we see the teleport as an extensive part of the platform that we offer to our media and content providers"

MAHESH JAISHANKAR, VP, Datamena and Broadcasting, Du



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Trends, Trials and Satellites

Tomaz Lovsin, General Manager, STN, speaks in an exclusive interview with *SatellitePro ME*, on the trends he sees in satellite broadcasting

What are some of the trends you are seeing in the satellite market?
Old technologies are fading out and new technologies are phasing in. New services are being implemented and there are projects that are more demanding than ever. Uplinks, downlinks, playout services, technology upgrades, new channels on air and another platform filled – this is just another normal day at STN and in the general satellite industry.

In our business, the pace is fast and with the demand for new channels to go on air and the vast array of services, it's no surprise that we are all seeing a huge increase in the amount of new satellites (by relatively new companies, i.e. companies not including the three major ones being Intelsat, SES and Eutelsat) being launched. As a consequence, the geostationary orbital slots are getting oversaturated. Obviously, there's the continuation of demand for satellite space capacity but, on the other hand, there's also a demand to decrease costs per megabit.

How can the market address this?
In my opinion, it depends on the type of application – for example, broadcast segment or data segment – this can be achieved by several enhancements that today's technology, while not implemented widely yet, offers. For the broadcast side we are witnessing the emergence of the next generation compression technology; namely the successor to the widely used MPEG-4 (h.264) standard which is the HEVC (h.265). High Efficiency Video Coding (HEVC) is a video compression standard and it is said that it is capable of doubling the data compression ratio compared to MPEG-4 AVC (h.264) at the same level of video quality.

It can alternatively be used to provide substantially improved video quality at the same bit rate. It can support 8K UHD and resolutions up to 8192x4320. We have already performed various tests with HEVC compression both in SD and HD resolutions and we can affirm the fact that the potential of HEVC is enormous. While we currently have the first generation of HEVC encoders on the market, they are already proving that the above statement is not overrated. While not quite there yet, we can make a safe assumption from previous compression standards (both MPEG-2 and MPEG-4) that each generation of encoders gives improvement over the previous one in the rank between 15% and 25%.

For data (though equally can be applied to broadcast) applications, we have the DVB-2X and NS4 modulation standards that again enable the teleport to further optimise the resources by obtaining more megabits per megahertz than ever before. The third big thing in the satellite industry is carrier ID. The U.S. Federal Communications Commission's (FCC) Carrier ID has already been mandated. Satellite access centres can use this system to immediately identify carriers that they control access for. Satellite operators can use this system for background Carrier ID detection and authentication. Furthermore, the technology reduces the time it takes to identify a source of interference. It would be beneficial if all the satellite owners would make Carrier ID mandatory, if a teleport wants to access their space segment.

What do you think about the efficiency of new codecs?

STN has already carried out live tests over satellites, using HEVC encoders to evaluate two critical questions: the first one was to evaluate peak signal-to-noise ratio, often abbreviated as PSNR, which is an engineering term for the ratio between the maximum possible power of a signal and the power of corrupting noise that affects the fidelity of its representation between different resolutions and compression settings using the same bitrates (and of course the same high-quality source) simultaneously encoded once in MPEG-4 (h.264) and once in HEVC (h.265) compression standards.

The second test was to see at which lower bitrate using HEVC compression the same quality is achieved as the same (higher) bitrate encoded MPEG-4 stream. Considering that we are dealing with the fourth generation of MPEG-4 encoders and first generation of HEVC encoders the results were both very educating and quite impressive. Again, these were live encoding tests, not pre-encoded material being played out in HEVC compression and they were done over satellite.

We have also prepared for Carrier ID, and indeed we are already using it on some carriers with some satellite operators. We have also looked at the DVB-2X modulation and performed extensive testing to evaluate its increase in bandwidth, which provides users with the option of having more megabits per megahertz due to smaller roll-offs, increased granularity in MODCODs, higher order modulation support (64/128/2566 APSK), etc. While STN is serving and providing IP Trunking and Backbone services to some ISPs and telecom operators, the operators themselves have not yet decided to migrate to this particular new technology, but we are in constant contact with such clients and are ready to support them today.

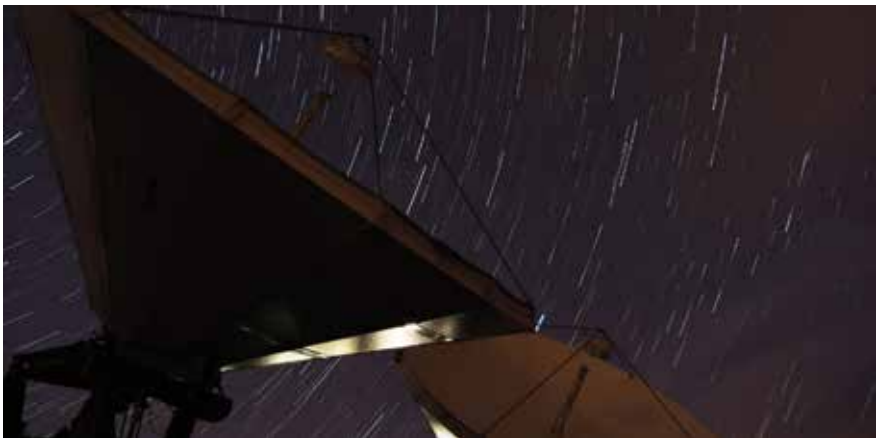
What challenges are you facing and is this making a dent in commercial viability?

With all this new activity going on in technology, the commercial side of the business also has its own matters to address. Although it's clear within the industry that the satellite business is still very lucrative especially on the main orbital positions, we need to be aware of the increasing presence of all IP based content delivery.

"Although it's clear within the industry that the satellite business is still very lucrative especially on the main orbital positions, we need to be aware of the increasing presence of all IP-based content delivery"

TOMAZ LOVSIN, General Manager, STN

STN's teleport facility.



The challenge arises on how to compete with these much more cost effective IP solutions. This makes satellite operators' jobs more difficult especially in more mature markets in Europe and North America.

However, we must keep in mind that for now most other regions such as Africa, Middle East, South America, and a large area of Asia are still traditional TV users and we think it will remain this way for the foreseeable future.

What does the future look like?

Overall, in our opinion, the satellite business will continue to grow and remain powerful for the coming years. The proof of this is seen in the amount of new satellite launches and more planned for the near future. But the question is how it will keep pace with the growth and tempo of the new IP based distributors? Only time will tell!

A strong strategy is needed to survive for the long haul in this fast changing environment. PRO

Vox Pop

How much of a threat is OTT programming to linear TV?

Ali Al Kuwari
CEO, Es'hailsat

There has been much debate on this subject and clearly, there will be some impact on TV broadcasting. The question is will it be a threat in the MENA region? The premise is that the availability and quality of OTT is sufficient to replace satellite broadcasts. The fibre network is well developed in certain GCC countries but in the wider MENA area, there is no ubiquitous solution unlike satellite broadcasts that are available to all and can provide reliable high data rate services for programming today and in the future.

Secondly, some programming lends itself better to the broadcast nature of satellite: live events such as news and sports, and high data rate services like UHDTV. So we believe linear TV is not dead as some commentators would like to report. We see this is true in the MENA region with the large investment by beIN Sports in broadcasting the best content on our satellite Es'hail 1 at 25.5 East.

This is not just our opinion but studies from reputable market analyst such as Deloitte have concluded (in their recent report on TMT predictions for 2015) that linear TV still is a significant market and that while OTT and short form videos (e.g. YouTube) are growing it is mainly in the under-25 age-group that have limited spending power.

Mohammed Alhaj
Chairman, Gulfsat

I think the main driver is the viewership. OTT is mainly driven for individual viewing, but with mass broadcast, DTH will still be the most cost-effective. In terms of OTT, delivering content in the convergence world, will complement the model. Gulfsat has always tried to look at ways of how to deliver programming over mobile phones or other platforms, but in the MENA region for the next 10 years, at least, viewers will depend on the DTH platform especially with high-quality content in HD. Hence it's not a threat.

Peter Ostapiuk
Head of Media Product Services, Intelsat

The introduction of OTT programming is resulting in a fragmentation of the media market – while the same amount of content is being consumed, viewers' consumption habits are increasingly delineated by generation. For example, millennials are 'cutting the cord' and opting to consume media on-demand and on mobile devices. That contrasts with many in older generations that still prefer content via traditional linear TV broadcasting.

While linear TV is still the number one way viewers are consuming content today, more and more viewers are watching content across multiple devices. While consumer viewing habits are rapidly shifting, media companies are still developing business models that will monetise viewers consuming content via traditional linear TV as well as those viewing content on multiscreen devices.

That being said, we do not foresee multiscreen viewing completely replacing linear TV. Instead, we believe it will serve as a complementary way to view content, as there is still significant demand for traditional viewing. Moving forward, broadcasters will need to ensure that they can handle viewer demands regardless of device, not compromise the integrity or reliability of the content and develop business models that monetise the increased consumption of content via multiscreen devices.

Khalid Balkheyour
President and CEO, Arabsat

OTT takes benefit from the increasing power it lends to the end-viewer, by taking control of what they want to watch, when they want it and where, threatening to sweep viewers from linear TV broadcasting. While the experience is changing for viewers, OTT services are facing many challenges where the linear TV broadcast can outdo them. The currently available internet bandwidth is a great limitation to satisfy the need for seamless viewing experience, that is clearly visible for transmission of live events from sports to musicals. Their current return on investment is a huge hurdle on their way to acquire content, the real threat here is introduced to pay-TV services rather than FTA (FTA is controlling about 90% of the TV viewership in MENA). Popular content is expensive by nature, in the region where big broadcasters are the ones with financial means to acquire content, they are also launching successful OTT platforms utilising their own content, which is challenging for pure OTT service providers, who are dovetailing with telcos to overcome some of their cost issues, by having access to telcos' customers base.

It's fair to say that they currently don't pose a huge threat, they are learning to survive, plus they are facing internet connectivity issues, because of the infrastructure,

which is limiting their reach in the region. Furthermore comes the cultural issues where viewers are not accustomed to paying for content, which is slowly changing.

Michel Azibert

CCO and Deputy CEO, Eutelsat

I don't see it as an immediate threat because for OTT to thrive, you need good quality infrastructure for consumption of video over the internet. If you don't have the right terrestrial infrastructure, it wouldn't work. The threat is extremely remote in emerging markets. In mature markets like Europe it exists, and might be seen two ways. The first is the reduction of audience, because young generation viewers would use the internet, they would not even have a TV set. The second is that the number of thematic channels might go down and exist purely on the internet.

What strategy are satellite operators adopting to counter this?

Ali Al Kuwari
CEO, Es'hailsat

Satellite operators are working with our customers, the broadcasters, to ensure that we provide the most compelling line up of programs in the latest formats on a robust platform. Es'hailSat has invested in the launch of Es'hail 1 and the procurement of Es'hail 2 (in-service early 2017) to provide the latest designs in satellite technology to support current and future broadcast standards with additional carrier protection to mitigate interference. Further, we are investing in the state of art teleport to control satellites and provide the infrastructure to support the growing demand for media uplink services.

Mohammed Alhaj
Chairman, Gulfsat

Part of our strategy is to join into an alliance with certain OTT players around the globe to allow for an exchange of content and have different methods to aggregate the content other than through satellite. This is for customers who want to aggregate content in areas of limited coverage, here OTT will be the best model.

Peter Ostapiuk
Head of Media Product Services, Intelsat

Satellite continues to provide media customers flexible, hybrid solutions to meet the demands of the evolving media landscape. For example, IntelsatOne Prism is a fully automated managed service that enables service providers to conduct content transmissions via a single platform, including live video, file transfer, VoIP, Internet access and data exchange. Satellite remains the most cost-effective way to multicast linear channels at a predictable cost and will continue to provide solutions for traditional and new ways of viewing content while delivering large-scale transmissions that are high quality, reliable and secure – regardless of the screen.

Khalid Balkheyour

President and CEO, Arabsat

Satellite operators have little to do about OTT adoption. We in Arabsat have geared up to be ready to support possible transition in the future where OTT services are demonstrating a slow growth but not negligible. We coped with that by introducing HbbTV broadcasting standard to broadcasters on Arabsat's network to enable them to take advantage of the interactivity with their viewers thereby cementing their relationships. The advantage of HbbTV to pure OTT is that it's not bandwidth consuming, and delivers many applications and services on the same box with no subscriptions.

Michel Azibert

CCO and Deputy CEO, Eutelsat

What we are trying to do is leverage the competitive advantage of satellites, by having more HD and UHD. This may translate to a slight drop in the number of channels, but those that do exist would be high-quality channels, where bandwidth would always be the same. This is our offense position. Defensively we are fitting satellites with a number of newer features, which allow them to be interactive and their satellite signals to be received through laptops and smartphones, though this will not be as high quality as the signal received by TV sets. PRO

Leading the Charge **Against Jamming**

Intentional interference is a tricky subject and one which opens up a host of political and commercial issues. In reality, only a small percentage of all interference instances can be attributed to intentional, and for the most part it is targeting broadcast services, so most users of satellite services are unaffected. However, we cannot ignore that it does happen, and as with any interference, we need to do all we can to resolve it. It is also true that, although on the decline currently, the Middle East remains the worst affected area.

Types of Jamming

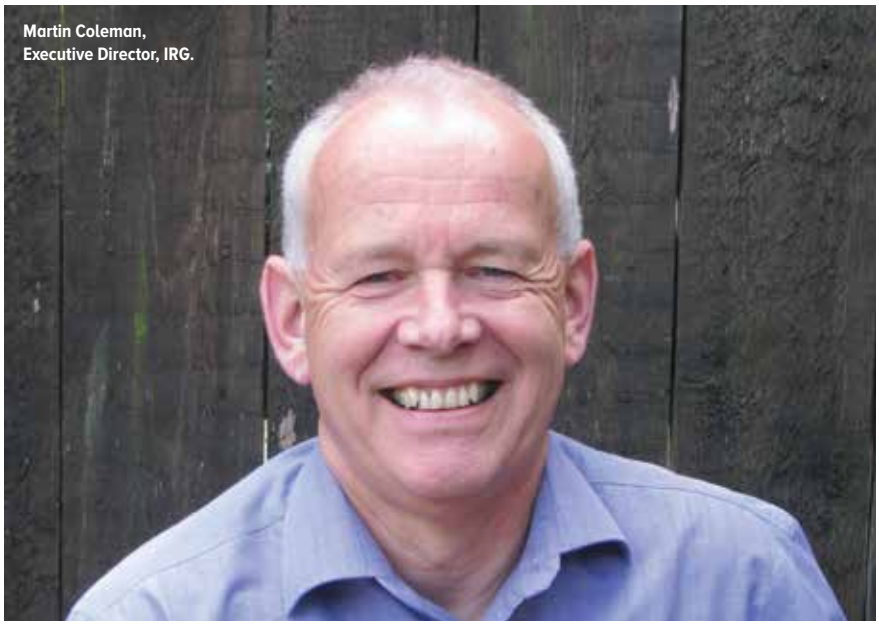
There are two basic types of jamming. Firstly, there are commercial motivations, such as during the FIFA World Cup in 2010, where Al Jazeera Sports channels were severely affected by intentional interference, apparently for commercial reasons.

The other type is politically motivated jamming, with jammers trying to block certain content or news items from being viewed in a particular country. Naturally that is high on the list in the Middle East region, and whilst the political scene remains in a certain amount of turmoil deliberate interference will remain an issue. An example is the recent intentional jamming instances in 2014 targeting ARABSAT and Eutelsat Satellites originating from Ethiopian Territories.

A Wake-Up Call

The specific problems faced in the Middle East with deliberate jamming a few years ago had a huge impact on the industry. Whilst it was detrimental at the time, what it did on the other hand was to make us all wake up and realise this was a problem we needed to solve. In the IRG organisation, it led us to setup a new working group focusing solely on what we refer to as the "difficult cases" of interference, where many of the traditional methods of resolution simply won't work.

The satellite industry, including the IRG Working Group and other bodies, recognised that the resolution was more



Martin Coleman, Executive Director, IRG.

"Support from organisations such as the ITU really changed the game for preventing jamming and had a major impact. We have been invited to a number of ITU meetings, for example, since that time where intentional interference has been high on the agenda. They are actively looking for ways to introduce better regulation to fight this, and they are looking to the wider satellite industry to understand the challenges better in order to be more equipped to do that"

MARTIN COLEMAN, Executive Director, IRG

complex than for traditional unintentional interference in two major ways: Firstly, the regulators had to become involved, which was absolutely crucial; and secondly, improvements in technology would be needed to reliably and more accurately identify the interference sources.

Actions Taken

Support from organisations such as the ITU really changed the game for preventing jamming and had a major impact. We have been invited to a number of ITU meetings, for example, since that time where intentional interference has been high on the agenda. They are actively looking for ways to introduce better regulation to fight this, and they are looking to the wider satellite industry to understand the challenges better in order to be more equipped to do that. We are trying to help regulators accept evidence of intentional interference, whether from the affected operator, or by accepting supporting evidence from other operators.

Of course, a massive challenge is the fact that often there is a need to cross borders, with the affected service in one country, and the jammer in another.

Therefore, the Satellite operators in the region are continually working with the regulators and the ITU, and together they are trying to improve and speed up cross-border processes to deal with these challenges.

Nowadays, operators are working much more closely together, to share information on an event, characterise it, and perform geolocation, to produce solid evidence for delivery to regulators.

Operators are also out front in seeking enhanced tools and improvements in technology, we took the problem to the manufacturers and asked them to help us solve it, and they have really stepped up. Just look at the plethora of advancements and new solutions being launched for geolocation, for example. The accuracy for these services has increased to an amazing degree, and now operators are more often than not, able to pinpoint the jammer, and often in very little time. There have also been important advancements in signal cancellation technology, enabling services to continue regardless of the attempts of a jammer.

Having an impact

The result of all this hard work is beginning to have an impact. The majority of harmful interference cases are targeting the broadcast sector, especially news channels, and the goal is generally that of preventing certain media or content reaching the viewers. However, most operators in the region are reporting that jamming instants in the region have started to decline. Statistics from Arabsat show that intentional interference has steadily declined over the past couple of years, from 24% of all cases in 2012, to 10% in 2013, and in 2014 that figure was just 8%.

There are a number of reasons for this, including the support from the regulators, coordination between operators, and improved technology as mentioned above. Indeed, the operators in the region are investing heavily in new technology to help combat this.

It is also true that operators are working much more closely together than ever before, to ensure services remain intact and that is helping them gain experience from each other as well. All this means that the operators are much better equipped to deal with jamming when it happens than

they were several years ago. Naturally this also means that when it does occur, the downtime is now drastically reduced.

Technology and Data

As an industry, we cannot solve the political situation, therefore we cannot stop instances of deliberate jamming happening, and at any point the situation could worsen, potentially causing the cases to spike dramatically. Therefore, it is crucial that we do everything that is in our power to be ready. By getting smarter, we can reduce, or try to prevent their effects when they do occur. Technology has greatly improved, but it needs to get even smarter, helping us to prevent more instances, and resolve others more quickly.

Improving processes is also important, helping the resolution of interference run more smoothly, even when it involves cooperation with several different operators, in several different countries. In some cases, we should even consider introducing standards. For example, I believe that standardising the geolocation reporting process would lead to a much more cohesive approach, quicker recognition and acknowledgement of an intentional event, and faster resolution. It is something we need to work to achieve, together with the geolocation manufacturers and regulators.

Correct Operation

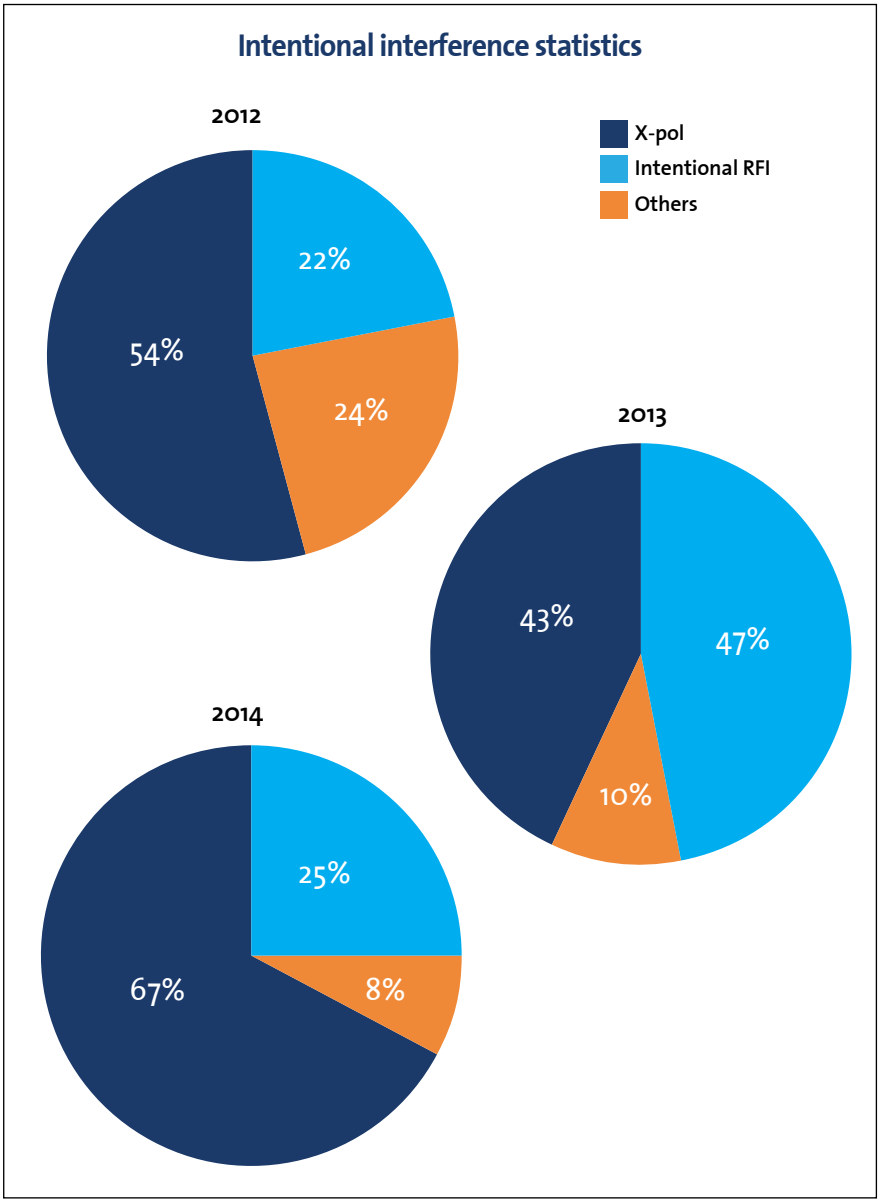
There is also a great amount to be gained by ensuring everyone in the region is operating correctly. For example, ensuring staff at all the broadcasters and uplinkers are properly trained will mean they are equipped to ensure they are not unintentionally causing interference and adding to those general statistics. It also means that they can easily identify interference when it occurs and determine the cause, and more importantly the steps they need to take to resolve it, whether that is talking to another operator, talking to the regulators, performing geolocation, or all of those things.

We have talked a lot about Carrier ID (CID) over recent years and in the cases of intentional interference, it does not seemingly play a big part, because of course the jammer is very unlikely to transmit an ID. However, think about a road with cars. If someone robs a bank then drives away in a car with no licence plates, as long as everyone else has a properly displayed licence plate, the robber will stand out like a sore thumb and be easy to catch. It is the same with CID, if we ensure every legitimate uplink carrier has CID, then spotting those jammers will be much more easy! PRO

Martin Coleman is the Executive Director at the Satellite Interference Reduction Group (IRG)

"Nowadays, operators are working much more closely together, to share information on an event, characterise it, and perform geolocation, to produce solid evidence"

MARTIN COLEMAN, Executive Director, IRG



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Change Ahead

By Jo De Loor,
Market Director for
Multiservice, HTS and
Enterprise, Newtec

High Throughput Satellite (HTS) technology, bringing higher throughputs and lower transmission costs, has definitely secured its position in the satellite industry's future.

HTS Everywhere

HTS has now emerged in all regions, be it using Ka- or Ku-band, and is now targeting various applications: consumer/enterprise broadband, cellular backhaul, mobility and government. Even the most demanding markets, like oil & gas, which require high capacity and highly reliable services, are rapidly adopting HTS benefits: lower bandwidth costs, high capacity and smaller terminals.

Multiservice

HTS is truly a multiservice environment. The increased complexity of an HTS' spot beam networks demands the same infrastructure be used across multiple applications and markets to be served. This is certainly an aspect service providers have to take into account when deciding their approach to adding HTS-based services.

Effect on Managed Services and Business Models

HTS has significantly impacted the way services and infrastructures are managed for every player in the value chain. Business models for managed satellite services are also adapting to address individual customer needs operating in an HTS environment.

Closed Model

With the closed model, satellite operators have complete control over the entire service value chain – they provide wholesale service profiles to a reseller which does little value-add with the service before delivering it to end-customers. In some cases the satellite operator will even directly address the end-customer.

The primary objective here is to achieve the lowest possible cost of the satellite service. Through a vertically integrated infrastructure, a single entity fulfills

the roles of satellite operator, as well as network operator. OPEX is minimised and the overall process streamlined.

One drawback is that service providers have few options to compete and differentiate in such a fully vertically integrated landscape.

Open Model

The more traditional open model is generally used by traditional satellite operators and service providers. VSAT providers purchase bulk space – often in MHz – from satellite capacity providers to build their own platform and network.

It provides greater personalisation and flexibility for end-customers, as VSAT providers can deliver tailored services by packaging the space segment with different hubs and terminal equipment, creating a bespoke system.

Using the open model for HTS service deployments also brings challenges, though. Services using an HTS spot beam configuration require a higher infrastructure complexity compared to the traditional wide beam services and the initial investment required in RF and service platform can be a burden.

Consequently, the satellite services value chain has been adopting an additional level of innovation.

Managed Services as Virtual Network Operator (VNO)

Service providers will buy wholesale managed services, in Mbps, from the platform operator deploying and operating the network infrastructure.

Using the VNO capability of a service platform, service providers can define and productise their own tailored services towards the end-customers. There is no need to invest in the initial network infrastructure but it still provides a significant level of independence.

At the same time the platform operator can share its network investments over multiple service providers addressing various markets.

A New Hybrid Offering: MHz and Infrastructure Package

A new offering emerging is the 'semi-open' platform which allows service providers to buy wholesale space (MHz) from the satellite operator and have access to the needed network infrastructure.

This allows service providers to operate their own services fully independently without the need for upfront investment in platforms and RF infrastructure.

Here, service providers benefit from full operational flexibility and independence as they run their own network, maximising competitor differentiation but also bringing a reduced CAPEX to start the services.

Broadcast Managed Services

Media companies are under pressure to deliver content in new ways to multiple devices and in different formats. To do so, though, is incredibly complex and potentially costly. Additionally, workflow management is becoming more complex and ever shorter time frames to deliver live coverage are being set.

This is where a next-generation, fully automated and converged-IP multiservice broadcast solution comes into play, allowing multiple content transmissions, including linear video, file transfer, VoIP, Internet access and data exchange, via one platform. Seamless implementation of digital media networking using legacy assets, improved bandwidth management with minimal investment and simplified content delivery and operational network is also enabled.

Opportunities for service providers to expand their media services offering are also created. The hub can be expanded with equipment dedicated to typical broadcast workflows, for example, high-speed modems and codecs, an umbrella management monitoring and control system and specific tools to optimise satellite bandwidth and session management, as well as file exchange.

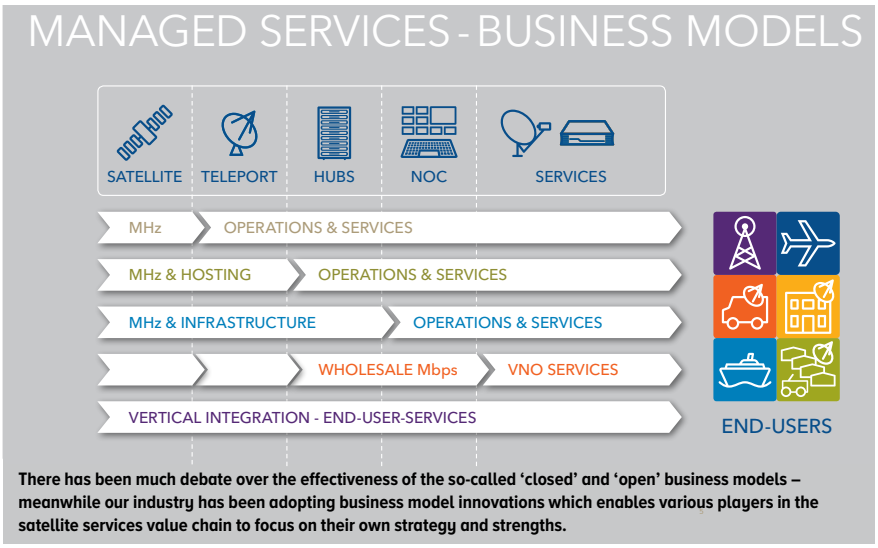
What Does the Future Hold for Managed Services and Managed Capacity?

Essentially, future-proof technology is needed to ensure HTS continues to function to its utmost potential.

Newtec Dialog® (Newtec's multiservice platform) is an example of this and as demand for HTS continues to grow, we remain committed to developing and applying future-proof technologies that deliver unsurpassed performance, efficiency, flexibility and scalability, all the way through the chain from the satellite operator to the end-customer for various applications and markets. PRO

"Media companies are under pressure to deliver content in new ways to multiple devices"

JO DE LOOR, Market Director for Multiservice, HTS and Enterprise, Newtec



There has been much debate over the effectiveness of the so-called 'closed' and 'open' business models – meanwhile our industry has been adopting business model innovations which enables various players in the satellite services value chain to focus on their own strategy and strengths.

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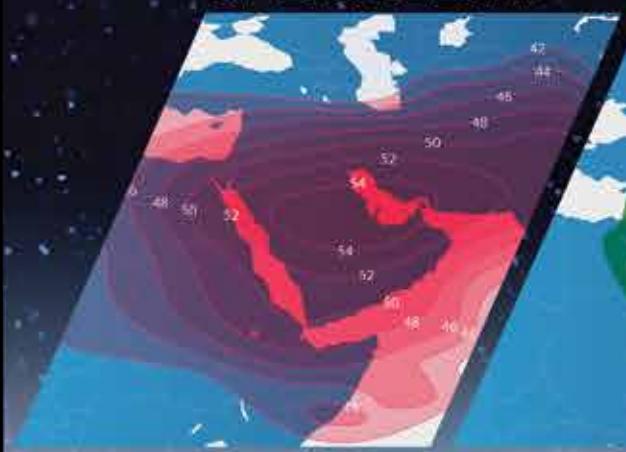

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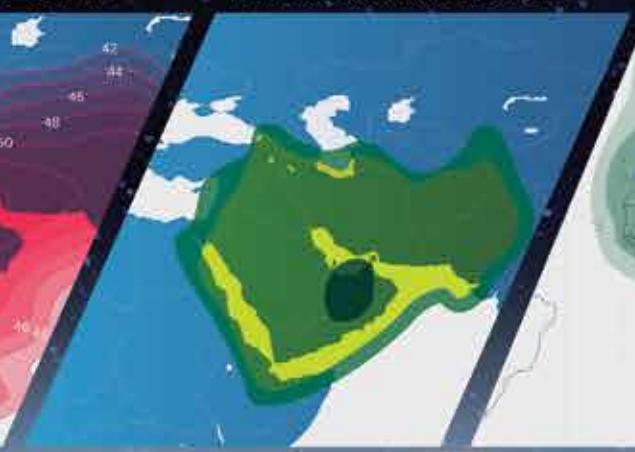

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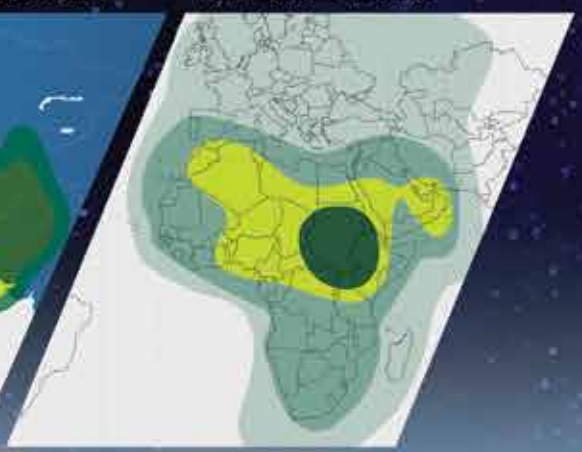


What to see **at IBC**

IBC's exhibition and conference encompass the very latest developments in traditional media, mobile TV, IPTV, satellite and R&D. This year's show will attract over 55,000 professionals and more than 1,700 exhibitors from 170 countries


ERICSSON

Inmarsat stresses the **importance of partnership at IBC**

As everyone in broadcasting knows, the vital ingredient behind every success is partnership and that's Inmarsat's theme for IBC2015. Its stand has two key channel partners – Network Innovations and NSSL – as well as Parrot, which is showing its unique flying camera, optimised for BGAN.

Also on preview will be the global Ka-band service, Global Xpress, which enables HD video to be transmitted from anywhere in the world. Leading international broadcasters have already used GX on air from Athens and Nepal and Inmarsat is demonstrating just how simple it makes HD newsgathering.

Together with bonded BGAN HDR, which gives VSAT-type performance in a minimalist form factor, Inmarsat is proud to enable content providers to take their audiences to the heart of the action, wherever that may be.

Satellite is only one part of the solution and the company is also highlighting how it

continues to work with partners to ensure its services work seamlessly alongside other forms of connectivity. As part of this, Inmarsat is also demonstrating how it supports IP production workflows which enable cameras and other equipment to be controlled remotely thus reducing costs and increasing flexibility. This approach to production means partnership is more important than ever and at IBC2015 Inmarsat is showing how this underpins every aspect of its approach to the broadcast market.

ETL systems showcasing slew of products

ETL Systems is showcasing new and improved RF technologies at this year's IBC.

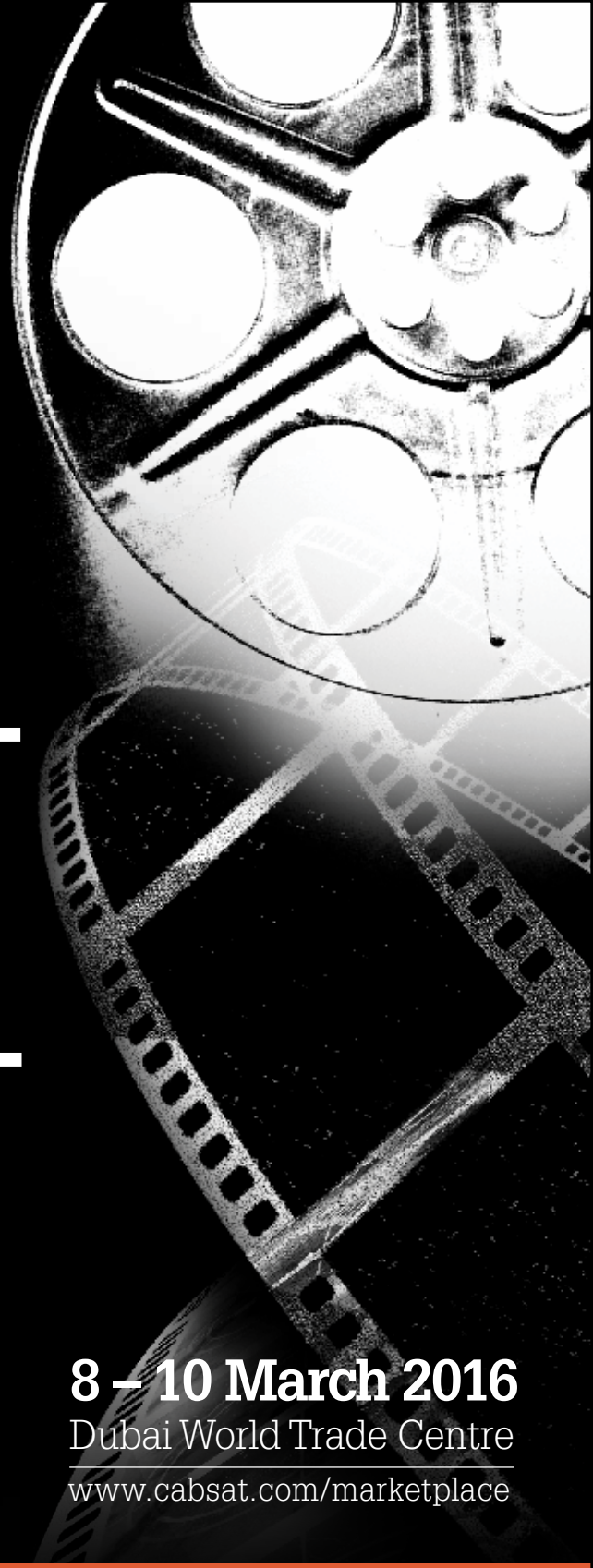
Amongst these technologies are ETL Systems' new 64x64 Hurricane L-band Matrix, Stingray RF over Fibre, Piranha LNB Power Supply units, and the LS Series Monitoring Switch upgrade.

The design of the 64x64 L-band Hurricane matrix allows the customer to select input modules that exactly match what the teleport or broadcaster needs. Each input port can be tailored with its own modules including Fibre L-band input, LNB powering, variable gain/ slope compensation and RF level detection. This flexibility also allows the matrix performance to be optimised. The user does not need to compromise the performance of the whole system by, for example, having unused gain available which inhibits performance.

ETL's proprietary technology minimises the power consumption of the matrix, reducing it by 25% compared to traditional matrices. The Hurricane's compact design eliminates the need for additional chassis for fibre receiver modules and/or LNB powering as it can all be integrated within the matrix.

Furthermore, customers can upgrade their 32x32 Enigma matrix to a 64x64 Hurricane matrix and still have valuable spare rack space. It offers a compact modular design with 4U form factor even when powering 64 LNB's.

Visitors to the stand can also see ETL's StingRay RF over fibre technology, the Alto line of amplifiers and new Piranha power supply units.



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Livewire Digital promotes **NetCaster and Razorlink technology at the show**

For Livewire Digital, action-packed news, sport, entertainment and corporate footage is top of the agenda this year. It is showcasing new versions of its M-Link Live X and M-Link NewsCaster portable HD and SD newsgathering solutions for deployment by a single reporter. Designed to support live video over IP circuits such as 3G/4G, Inmarsat's BGAN and other portable satellite systems such as Ka-band/VSAT and Thuraya-IP, M-Link Live-X now comes with integrated 'RazorLink technology' enabling users to transmit high quality low latency video over bonded links such as multiple cellular modems. RazorLink technology benefits both live and file based workflows, offering exceptional resilience and outperforming some competitive products by a factor of three or more, offering low latency high quality video and ensuring file delivery is as fast and reliable as possible.

Also making its debut on the Livewire stand is the 'commercial release' of NetCaster designed to allow groups of untrained personnel to contribute to a broadcast or streamed shows from an iPhone or iPad. Key developments since it was previewed include event management and workflow functionality for full integration and contribution of both file based media (video files, audio file, photographs) as well as live footage over low bandwidth links using RazorLink technology.

Live event and crew management staff are invited to view Livewire's new CrewLink intercom system for crew working on outside events, in a broadcast truck or studio, which comes complete with two push-to-talk hard wired handsets and a wireless iPhone app.

Newtec debuts **Dialog 1.2 at the show**

At the show this year, Newtec is talking about how satellite operators and service providers can adapt to trends currently shaping the industry. These include HTS and multiservice and ways on how customers can prepare for the future, all while reducing OPEX and CAPEX.

Making its IBC debut is 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 are taking place throughout IBC at Newtec's booth A49, in Hall 1.

Also on-show is Newtec's 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 are able to view the MDM6000 R3.1, which incorporates Newtec's Bandwidth Cancellation (BWC) technology that allows to transmit two carriers in an overlay fashion and which provides record-breaking spectral efficiencies and throughputs.

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PRO50

TOP 50 COMPANIES YOU NEED TO KNOW

PRO50 has all you need to know about the top players in the region's broadcast and satellite market. A compilation of profiles of 50 broadcast and satellite companies in the GCC, the hardback coffee table book is a valuable resource for not only business entities but also customers looking for a ready reckoner of key industry players.

- Print run 15,000 copies
- E-version
- Four pages company profile
- Fifth edition

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DVB equipment highlighted at the show

At IBC2015, Work Microwave is showcasing 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 is also demonstrating 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 is 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, TSoIP, 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.

The DVB-S2X IP modem now features a powerful architecture that fully supports the new DVB-S2X standard, as well as future extensions, providing users with a future-proof solution. Advanced features and benefits include higher modulation schemes up to 64 APSK, a finer granularity of ModCods, and advanced filtering. The modem also includes an improved ACM controller, giving users easy access to these new features so they can fully exploit the benefits.

Hiltron exhibits HMAM antenna mount

Hiltron Communications is exhibiting the latest version of its HMAM high-precision motorised satellite antenna mount at IBC2015. Designed for two-way VSAT communication or receive-only downlink applications, the antenna mount can be used for a wide range of applications including broadcast and telecom downlinks.

The HMAM will be displayed in compact form for up to 2.4 metre diameter dishes. Making its first exhibition appearance will be a new motorised feed changer which allows the head to be moved quickly to a new position for switching between two different frequency bands. The system comes complete with professional-grade drives for azimuth and elevation plus a high-accuracy polarisation drive. The combined head and drive form a three-axis

motorised system with 180 degrees of azimuth adjustment, 90 degrees of elevation adjustment range and fully adjustable polarisation. The HMAM is fully compatible with Hiltron's standard HACU antenna positioning system.

The Hiltron HMAM-IOT variant incorporates inclined-orbit tracking. To conserve guidance propellant, older satellites are allowed to drift further from their nominal target position than during their main service life. Operators therefore offer greatly reduced transponder capacity pricing. The HMAM-IOT's advanced tracking capabilities enable the antenna to follow these variations in position. It is the ideal solution for cost-efficient uplinks on inclined-orbit satellites.

Hiltron communications will be exhibiting on stand 4.B89, at the RAI.

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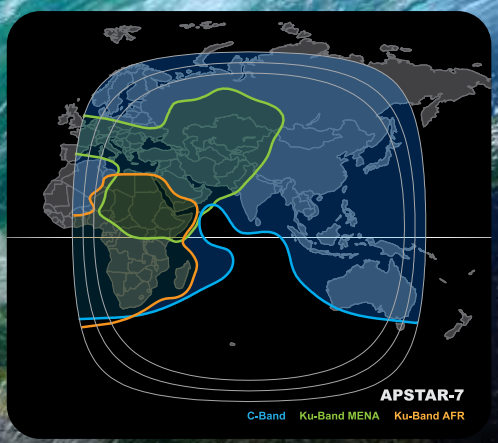

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VSAT **Interference**

Petter Amundsen, CEO, VeriSat explains how the process of resolving VSAT interference is becoming much more efficient

It is well know that the VSAT environment is a challenging one, with systems often operated in remote, unmanageable locations, and increasingly used in mobility applications. Equipment quality and accuracy of the installation is paramount, yet at the same time difficult to achieve under a wide range of varied circumstances, and over the life-time of operation. All this means that VSAT terminals are all too unwittingly often causing interference.

The VSAT Problem

According to the Satellite Interference Reduction Group (IRG), VSAT is responsible for around 40% of all interference instances, and 50% of all downtime. This is due to the very nature of VSAT systems, operating on shared frequencies in TDMA mode in those remote and often mobile locations, which makes resolving that interference an extremely time-consuming process. Equally, in such remote environments, especially if the terminal is often being moved, it is all too easy to misalign the antenna and cause cross polarisation (XPOL) or adjacent satellite interference (ASI).

The VSAT community has long argued that Carrier ID (CID) simply won't work in this environment, especially with terminals continually being moved about. However, having no CID means that there is no standardised way to detect the identity of the interfering VSAT terminal.

At the same time, the entire satellite industry, including the VSAT operators, have a keen interest in reducing satellite interference, as naturally it leads to a number of business problems throughout the chain, such as degraded services, loss of revenue due to unusable bandwidth, unsatisfied customers and annoyed neighbour satellite operators.

Solving VSAT Interference

Currently, satellite operators use various tools and manual processes to identify and manage VSAT interference, like automated cross-polar measurements and manually moving groups or individual terminals to other frequencies. If only one terminal is causing interference, geolocation solutions can be used, but this is generally not feasible without knowing which burst belongs to which terminal.

"If only one terminal is causing interference, geolocation solutions can be used, but this is generally not feasible without knowing which burst belongs to which terminal"

PETTER AMUNDSEN, Petter Amundsen, CEO, VeriSat

Therefore, given our experience delivering test equipment and monitoring solutions for interactive satellite communications and VSAT technologies, SES approached us to ask for help to quickly and efficiently identify the terminal ID causing the interference, whilst measuring the ASI at as low ASI level as possible, ideally at a level lower than where interference causes significant problems. The other requirement was that the solution should be able to run independent of the VSAT hub.

We developed a new product to tackle this problem, SatGuard, which is able to identify the source of ASI and XPOL caused by VSAT terminals by the determining terminal ID.

SatGuard uses VeriSat's software radio technology together with off-the-shelf hardware. It captures and analyses the signals from both the operational and the interfered links. The system then finds the terminal ID by decoding the operational satellite links and correlates this information with the bursts detected in the interfered signal, where it is only the burst presence that is detected as the SNR here is normally too low to decode any contents. The source of interference, the terminal ID, is then determined.

The Result

The main focus for the satellite operators has been about making the process of resolving VSAT interference much more efficient. The result is that they can now measure interference levels as low as-10 dB SNR. This process of identifying the interfering terminal, which previously may have taken weeks, can all be done in a matter of minutes! PRO


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With our expanding fleet of over 50 satellites, SES combines a strong local presence in the Middle East with global reach.
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www.ses.com

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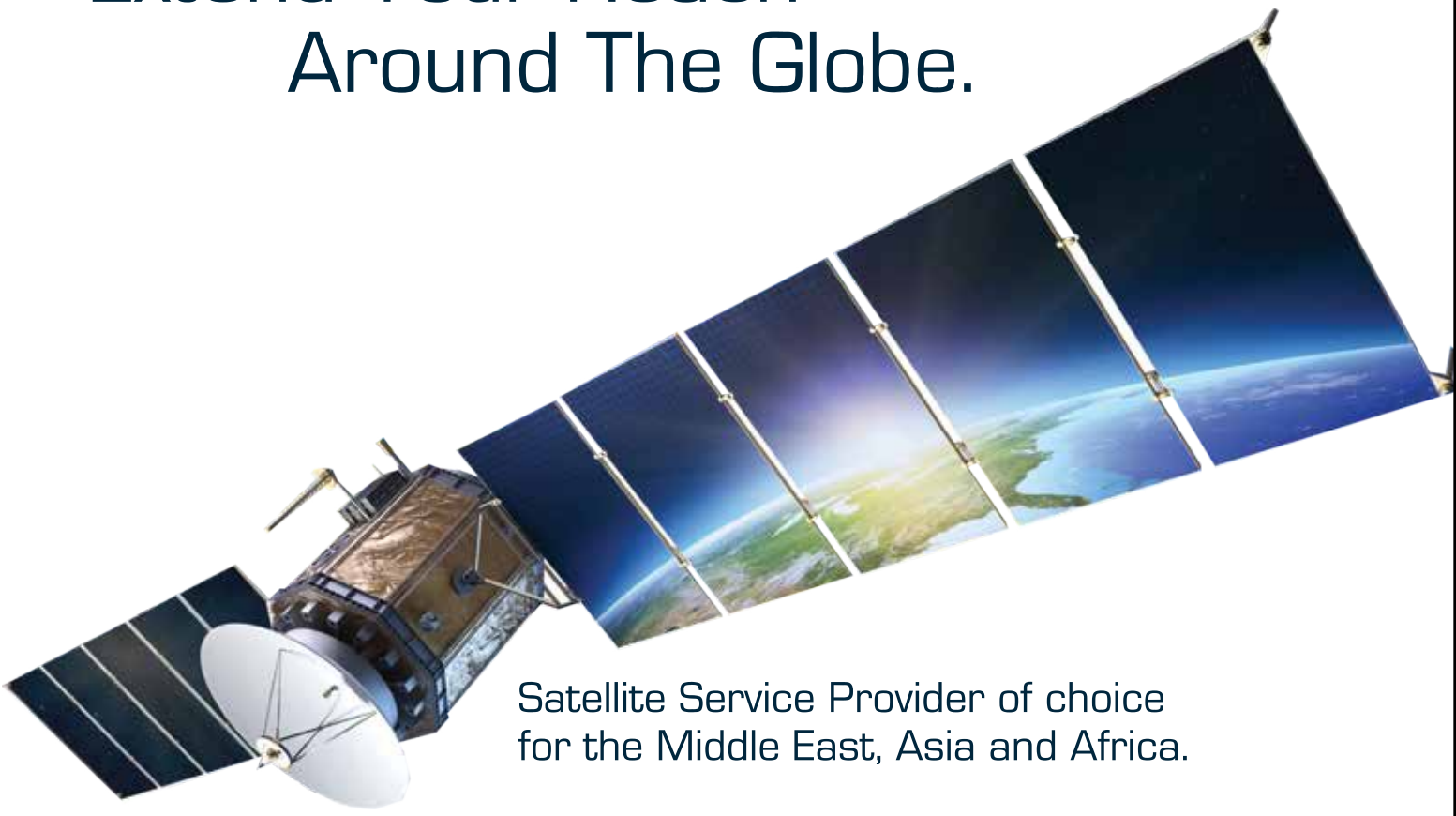


Satellite Service Provider of choice for the Middle East, Asia and Africa.

HorizonSat is recognized as a key provider of satellite communications services in the Middle East, Asia and Africa. Supporting institutional clients in the fields of Telecommunications, Broadband, Corporate Internet and Broadcasting, HorizonSat attributes its success to its dedication in implementing solutions that leverage the latest satellite technologies and support through its 24/7 NOC.

To serve our clients more effectively, we have enhanced our service through our state-of-the-art teleport, Horizon Teleports, strategically located in Munich, Germany covering a look angle from 55 degrees West to 78 degrees East.

Horizon will continue to work closely with its customers, focusing on their objectives and creating solutions that ensure continued success in their mission critical applications.

www.horizonsat.com

HORIZONSAT

connecting people across horizons

Newtec

TECHNOLOGIES

by NEWTEC

EFFICIENCY • RELIABILITY • INNOVATION

INTRODUCTION

Newtec is specialized in designing, developing and manufacturing equipment and technologies for satellite communications. As a pioneer in the industry, Newtec is dedicated to creating new possibilities for the broadcast, consumer and enterprise VSAT, government and defense, cellular backhaul and trunking and mobility, offshore and maritime markets. Our products and technologies can be applied in a wide range of single and multiservice applications from DTH broadcasting, video contribution and distribution and disaster recovery and backbones for backhauling, to small and medium enterprises, SCADA networks, manned and unmanned aircrafts, trains, border control, Morale, Welfare and Recreation (MWR) and maritime.

For over 30 years, our dedicated team of specialists has set industry standards with the most efficient, scalable and economical technology solutions. New challenges and customer needs offer opportunities to explore new boundaries. This empowers us to work even harder, helping customers to perform their best so that, together, we can make the world a safer, more informed and connected place. As a result, more than 3 billion people watch TV every day thanks to Newtec technology.

With its passionate commitment to Research and Design (R&D), Newtec remains at the forefront of technological development. Pioneering contributions have led to industry standards (including DVB-S2 and DVB-S2X, DVB RCS) and barrier-breaking technologies which help customers to achieve greater efficiency, increase performance and expand market reach.

In the following pages we provide you with a comprehensive overview of Newtec's latest technologies and how they are used in Newtec solutions.

Newtec

Mx-DMA™
by NEWTEC

Newtec MX-DMA™
Seamless Dynamic Bandwidth Allocation at SCPC Efficiency

WTA AWARD 2015

Summary

What is it?

A patented efficient and dynamic multiple-access scheme which enables operators to share satellite capacity over a group of satellite terminals transmitting to a central location.

What does it do?

The Mx-DMA return technology adjusts the frequency plan transmission parameters for every terminal in the satellite network.

Gain?

Compared to SCPC DVB-S2 with 20% roll-off, it provides 50% bandwidth savings or doubles the number of customers per MHz. Compared to MF-TDMA 4CPM, it also provides 50% bandwidth savings.

Applications?

Both fixed rate and variable rate applications, ranging from as low as 32 kbps to 21 Mbps.

ADVANTAGES

- Eliminates the difficult choice of having to select either MF-TDMA or SCPC
- Maximum return efficiencies
- Dynamic bandwidth allocation on the fly
- Low jitter and delay
- Seamless operation with no packet loss

More Info

Newtec's Mx-DMA™ is the return satellite technology which incorporates the best features of MF-TDMA and SCPC technologies, solving the difficult choice of having to select one or the other.

The Mx-DMA return technology on the Newtec Dialog® platform adjusts the frequency plan, the symbol rate, the modulation, coding and power in real-time for every terminal in the satellite network. These adjustments are based on the return traffic demand, the network Quality of Service (QoS) management and channel conditions for the terminal population in the network. Within the Mx-DMA return link, each carrier is assigned to only one terminal, achieving SCPC-like maximum return efficiencies.

At the same time, the flexibility of MF-TDMA can be maintained; it remains possible in Mx-DMA to allocate bandwidth on demand and in real-time. In other words, as the traffic demand for a remote terminal is changing, bandwidth will be allocated on the fly. If the traffic within the terminal becomes more important, extra bandwidth will auto-dynamically be assigned to the carrier inside the link based on QoS and priority rules. The entire operation is performed seamlessly without any data packet being lost.

The implementation of Mx-DMA typically doubles the transponder throughput using the same bandwidth or alternatively reduces the required space segment capacity by 50%. The new technology also ensures low jitter and delay, making it perfect for applications like voice and streaming video.

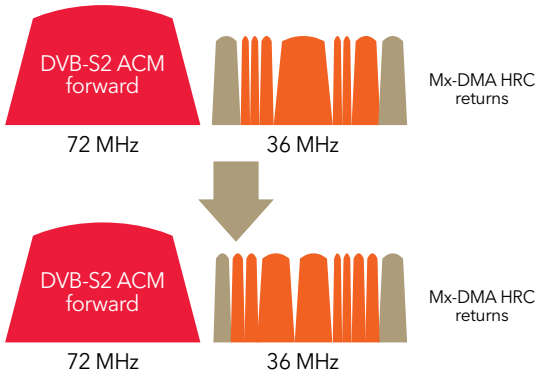


Figure: Seamless dynamic bandwidth allocation with Newtec Mx-DMA return channels

HighRes Coding
by NEWTEC

NEWTEC HIGHRESCODING - HRC™
Highly Efficient Return Waveform

Summary

What is it?

Increase throughput or save bandwidth in a satellite link.

What does it do?

HRC maximizes the amount of bits that can be transmitted through a given satellite capacity. Its wide range of MODCODs provides the means to do this under varying satellite link conditions. The carrier sizing gives fine granularity and high range of traffic rates while the short block code minimizes the delay and jitter on the traffic.

Gain?

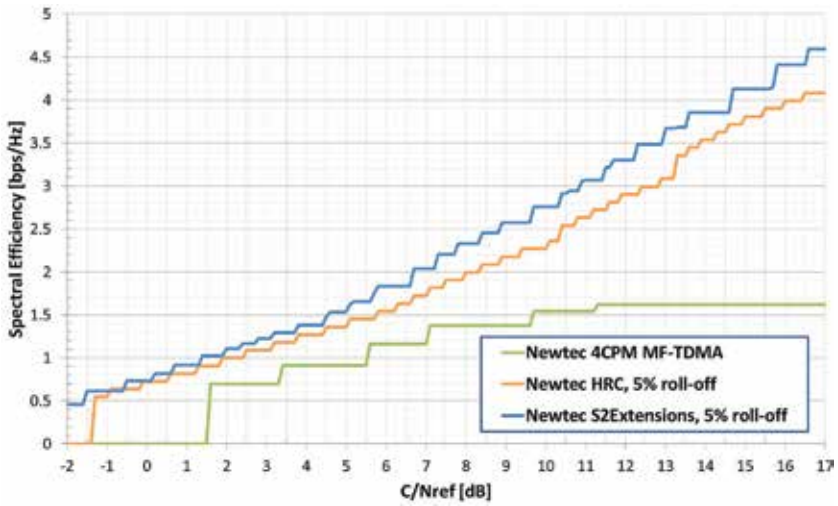
HRC provides a level of efficiency comparable to DVB-S2 short frame with a 5% roll-off factor while the block size is five times smaller than DVB-S2 short frames.

Applications?

Low-to-medium rate Satcom applications which are sensitive to latency, jitter and variable bandwidth conditions.

More Info

HRC™, the innovative next-generation waveform, is typically suited to low-to-medium rate applications between 32 kbps and 21 Mbps. HRC provides a level of efficiency comparable to DVB-S2 with a 5% roll-off factor in order to get as many bits through the available bandwidth as possible. In contrast to DVB-S2, the HRC coding also handles low throughput speeds in SCPC mode without the harmful latency effects that could hamper voice traffic or video streaming services. HRC optimizes low-to-medium rate traffic and avoids latency over satellite by using short block codes.



The high granularity of MODCOD choices (40 MODCODs from QPSK to 32APSK) provides the best modulation and coding per link. In combination with ACM the most efficient mode is selected automatically depending on the available bandwidth and instant satellite link conditions.

ADVANTAGES

- A level of efficiency comparable to DVB-S2
- Optimized for low and medium rate traffic
- No latency effects over satellite

Newtec

Clean Channel Technology®
by NEWTEC

Newtec Clean Channel Technology®

Improving DVB-S2 Efficiency with Small Roll-offs and Advanced Filtering Technology

Summary

What is it?

A combination of improved roll-offs (5%, 10%, 15%) for DVB-S2 and advanced filtering technologies to allow optimal carrier spacing.

What does it do?

Improves satellite efficiency by up to 15% when compared to the DVB-S2 standard and ensures the modulator output spectral shape is better than competition (side-lobes 60dB below carrier level).

Gain?

Increases efficiency by up to 15%.

Applications?

All multiple-carrier per transponder scenarios. Also single-carrier per transponder in case the service provider or network operator needs to optimize (read: increase) the carrier size.

More Info

Clean Channel Technology® further improves satellite efficiency by up to 15% compared to the current DVB-S2 standard for IP trunking, backhauling and government networks, as well as broadcast contribution.

The first phase of Clean Channel Technology applies a smaller roll-off percentage than currently used in the DVB-S2 standard. In DVB-S2, the 20% and 25% roll-off percentages are common, which basically means these percentages need to be added to the desired bandwidth over satellite. Reducing these roll-offs to 5%, 10% and 15% results in a direct gain in bandwidth. Looking at the spectral image when implementing smaller roll-offs, the slope of the carrier becomes steeper when compared to DVB-S2 but still fits nicely in the allocated bandwidth.

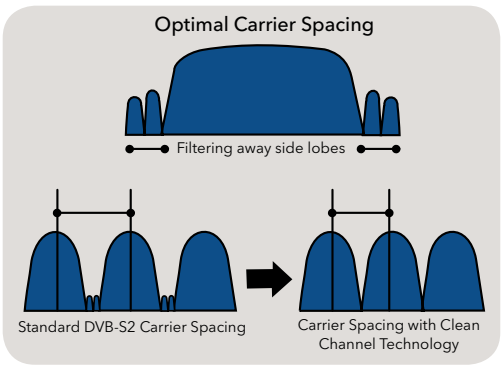
The second phase of Clean Channel Technology deals with noise levels (side lobes) on both sides of the carrier. These side lobes prevent satellite carriers being put close to each other. Applying advanced filter solutions such as Clean Channel Technology has an immediate effect on bandwidth savings as the spacing between carriers can be put as close as 1.05 times their symbol rates.

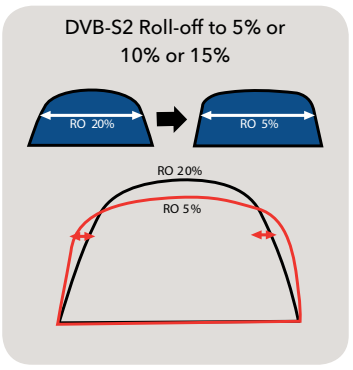
Clean Channel Technology can be applied in satellite links with single carriers, multiple carriers or carriers sharing the same transponder with other providers. It allows you to do more with available bandwidth or cut OPEX costs.

Newtec's customers will be able to immediately benefit from Clean Channel Technology as it is available as a software field upgrade on existing Newtec equipment.

ADVANTAGES

- Do more with available bandwidth or cut OPEX costs
- Advanced filter technology
- Upgrade available on existing Newtec DVB-S2 equipment
- Available as option on new equipment





DVB-S2X Standard

New DVB-standard on Board Newtec Professional Equipment

Summary

What is it?

The DVB-S2X waveform is the DVB and ETSI approved standard which was launched in March 2014 as a successor to the DVB-S2 standard.

What does it do?

DVB-S2X offers improved performance and features compared to DVB-S2 for professional applications such as contribution, digital satellite news gathering, DTH, VSAT, trunking, cellular backhaul and mobility. The technologies implemented in DVB-S2X range from lower roll-offs and higher modulation up to 256APSK to adding higher granularity, increasing the standard from 28 to 116 MODCODs.

Gain?

The efficiency technologies contributed by Newtec to the new DVB standard boost the satellite link up to 20% in DTH networks and 51% in other professional applications when compared to DVB-S2. When adding wideband to the equation, an extra 20% can be added to the total. These gains already exceed the results by proprietary systems available on the market today.

Applications?

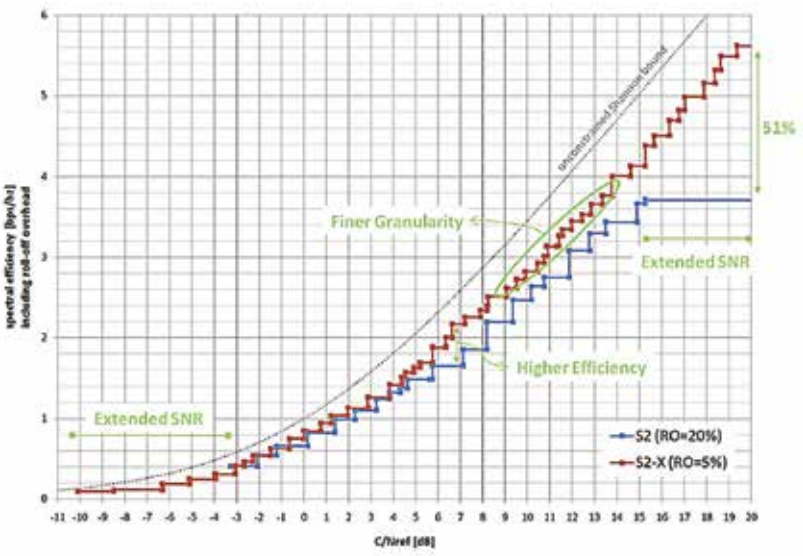
The applications that will adapt quickly to the DVB-S2X standard are mainly IP trunking, broadcast contribution and exchange, backhauling and professional IP access networks, as well as applications within the government and defense market (ISR, MWR, disaster recovery). These are applications that typically require higher throughput or need better margins to remain profitable.

More Info

The successor to the DVB-S2 standard is a combination of innovative technologies that improve overall efficiency over satellite links. In fact, we can identify 10 main innovations which make DVB-S2X a waveform standard capable of being maintained for years to come:

1. Smaller roll-offs
2. Advanced filtering of satellite carriers
3. Increased granularity in MODCODs
4. Higher order modulation: 64/128/256 APSK support
5. Linear and non-linear MODCODs
6. Better implementation of MODCODs
7. Wideband support
8. Very low SNR support for mobile applications
9. Channel bonding
10. Additional standard scrambling sequences to mitigate co-channel-interference (CCI).

The first seven innovations are part of the standard basic definition. The other implementations, such as very low SNR support for mobility applications, are addenda to the standard and applicable if the technology provider covers the dedicated application.



Newtec

Equalink®
by NEWTEC

Newtec Equalink® 3
Pre-distortion Compensating Filter & Amplifier Effects

Summary

What is it?
A revolutionary linear and non-linear pre-distortion technology (implemented in the modulator).

What does it do?
Mitigates linear and non-linear distortion effects. The latest Equalink version (Equalink® 3) can also provide significant gain for Direct-to-Home (DTH) applications.

Gain?
For DTH applications: Additional data traffic of up to 15% in the same satellite capacity or a link margin improvement of up to 0.6dB.
For professional applications: Similar efficiency gains and up to 4dB link margin improvement.

Applications?
All single-carrier per transponder scenarios. In particular, DTH carriers, professional distribution carriers and VSAT outbound carriers.

ADVANTAGES

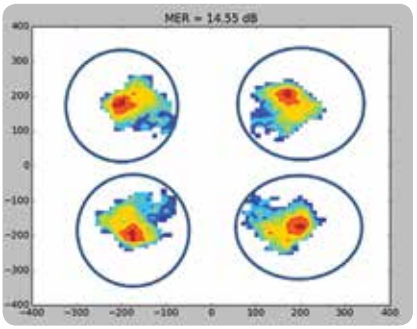
- Dramatically increases link margin of set-top boxes
- Up to 15% more throughput in DVB-S2 8 PSK

More Info

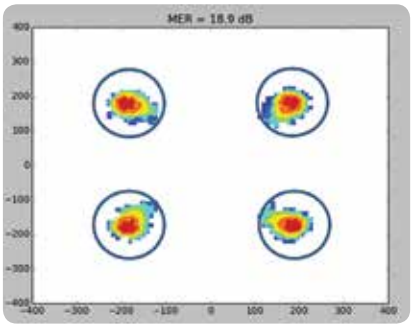
Equalink® 3 is Newtec's linear and non-linear pre-distortion technology. The newest version, available in Newtec's broadcast modulator/modem MDM6100 R2.6, provides breakthrough performance gains on DTH satellite links. Operators can increase the link margin of all set-top boxes in the field by simply enabling Equalink 3 at the modulator side. Live satellite tests have demonstrated 0.4 dB gain for QPSK 5/6 (10% throughput gain) and more than 0.6 dB gain for 8PSK 5/6 (15% throughput gain). This extra link margin can be used to improve the coverage/availability or it can be used to increase the symbol rate in combination with a lower roll-off factor. In this way, it inserts up to 15% more TV channels in a DTH carrier.

Equalink 3 is a set of advanced digital filters and algorithms implemented in the modulator. The linear filter compensates for group delay and frequency response imperfections of the satellite input multiplexer (IMUX), while the non-linear pre-correction compensates for the combined effect of matched filters and transponder Travelling Wave Tube Amplifier (TWTA) non-linearities (AM/AM and AM/PM conversions).

Equalink 3 can be used in conjunction with any standard satellite receiver and is very easy to operate.



No pre-distortion



Equalink 3 pre-distortion

Bandwidth Cancellation (BWC)

Unrivalled Capacity Gain Through Full Digital Processing

Summary

What is it?

Bandwidth Cancellation (BWC) is a technology which allows transmission of two carriers into the same leased satellite bandwidth.

What does it do?

At the receive side, the cancellation mechanism will cancel out the modem's own uplink signal in order to be able to demodulate the desired carrier.

Gain?

A gain of up to 30% in space capacity can be achieved for symmetrical links. When an existing link is bandwidth limited (not using all available transponder power of the leased bandwidth) gains of up to 100% are possible. This saving enables considerable OPEX savings or deployment expansion by adding services within the same available bandwidth.

Applications?

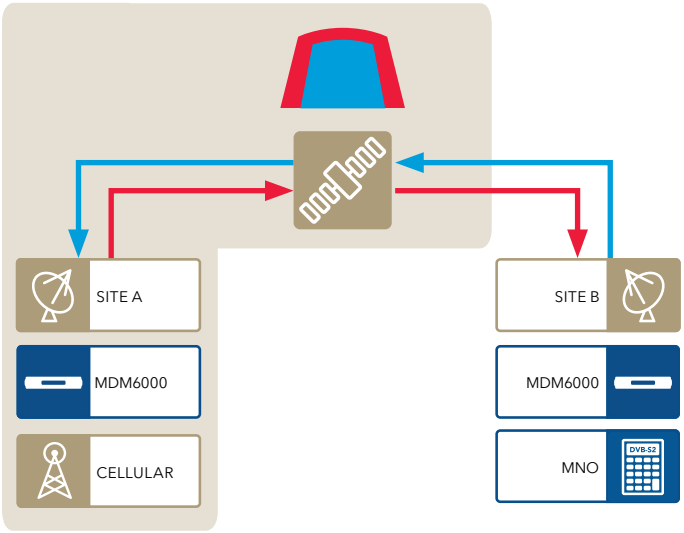
Bandwidth Cancellation can be used in any point-to-point application, with the main usage in trunks and backhaul circuits.

More Info

Bandwidth Cancellation is a technology built into Newtec modems which processes signals completely in the digital domain (rather than using the traditional analogue processing). This enables the use of several algorithms to significantly increase the cancellation performance, speed up synchronization and add several additional monitoring parameters for simplified operation.

The Bandwidth Cancellation algorithm coexists with other technologies, such as FlexACM® and Intelligent AUPC, resulting in the most efficient usage of space capacity.
A very high tolerance for carrier power density and symbol rate unbalance makes BWC a viable choice in almost any case.

A high performance built-in equalizer enables cancellation at any carrier rate, ranging from a simple 1Mbps circuit all the way up to a super high rate trunk with full transponder operation.



ADVANTAGES

- Fast synchronization
- Easy operation and monitoring
- Highest spectral efficiency

Newtec

SHAPING THE FUTURE OF SATELLITE COMMUNICATIONS

Other Technologies to Discover

Newtec Acceleration & Compression Technologies: Improves the user experience of internet or enterprise applications, while increasing satellite bandwidth efficiency at the same time

Newtec Cross-Layer-Optimization: Automated end-to-end optimization technology between the RF and the IP layers

Newtec Point&Play®: Self-installation system for antenna positioning

Newtec FlexACM®: End-to-end solution optimizing satellite channels suffering from variable link conditions

Carrier ID (DVB-CID): Identifies the source of an interfering carrier

Newtec Multistream: Allows users to aggregate a number of independent transport streams or IP streams into one satellite carrier

Newtec S2 Extensions: Combination of Newtec innovative modulation technologies to improve the DVB-S2 standard

Newtec Multicast: Efficient distribution technology for content and media

More Information

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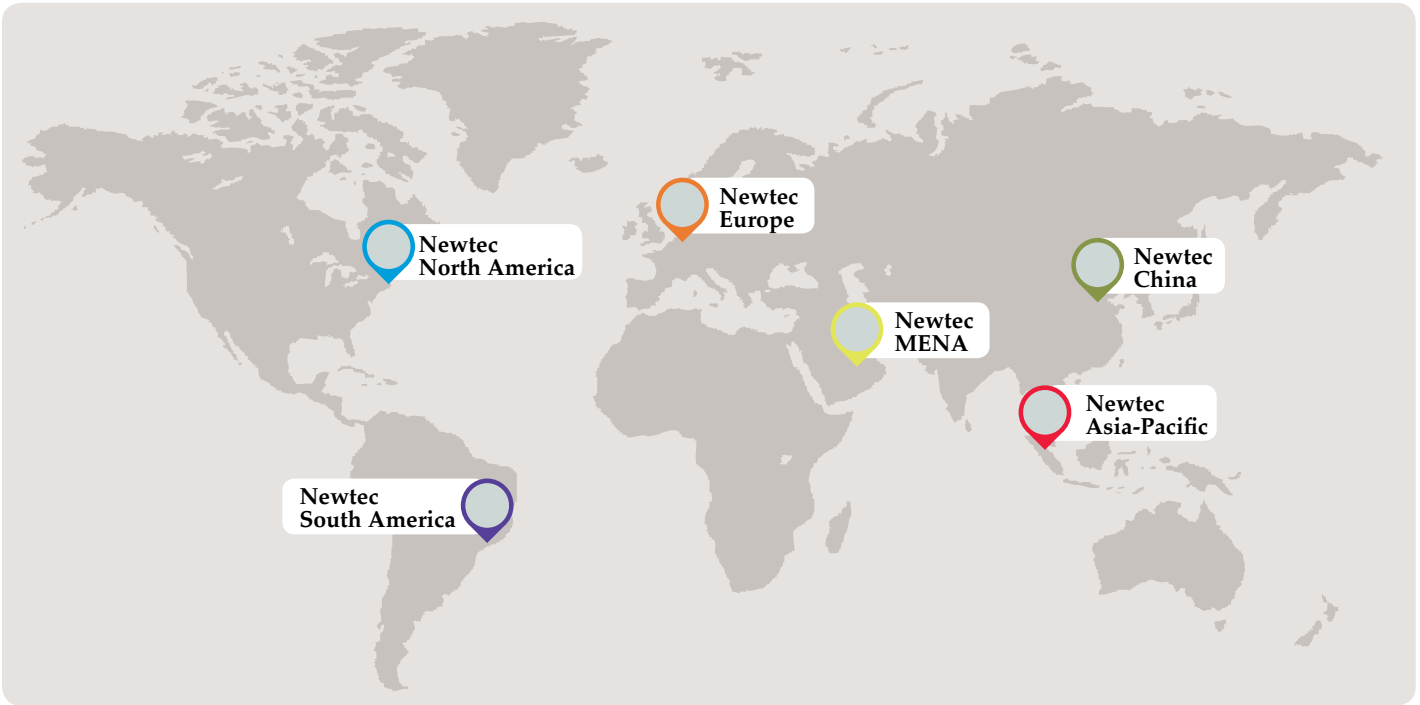

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