

ISSUE 38 | MARCH 2015

# SATELLITE PRO

TECHNOLOGY INTELLIGENCE FOR THE SATCOM MARKET

MIDDLE EAST

## JUICING UP VSAT

Evolving technology increases bandwidth at lower costs

## IT'S SHOWTIME

A look at the best of what CABSAT has in store this year



# THE RIGHT FIT

Ali Al Hashemi, GM of YahService at YahSat, on customising satellite communication platforms for the market



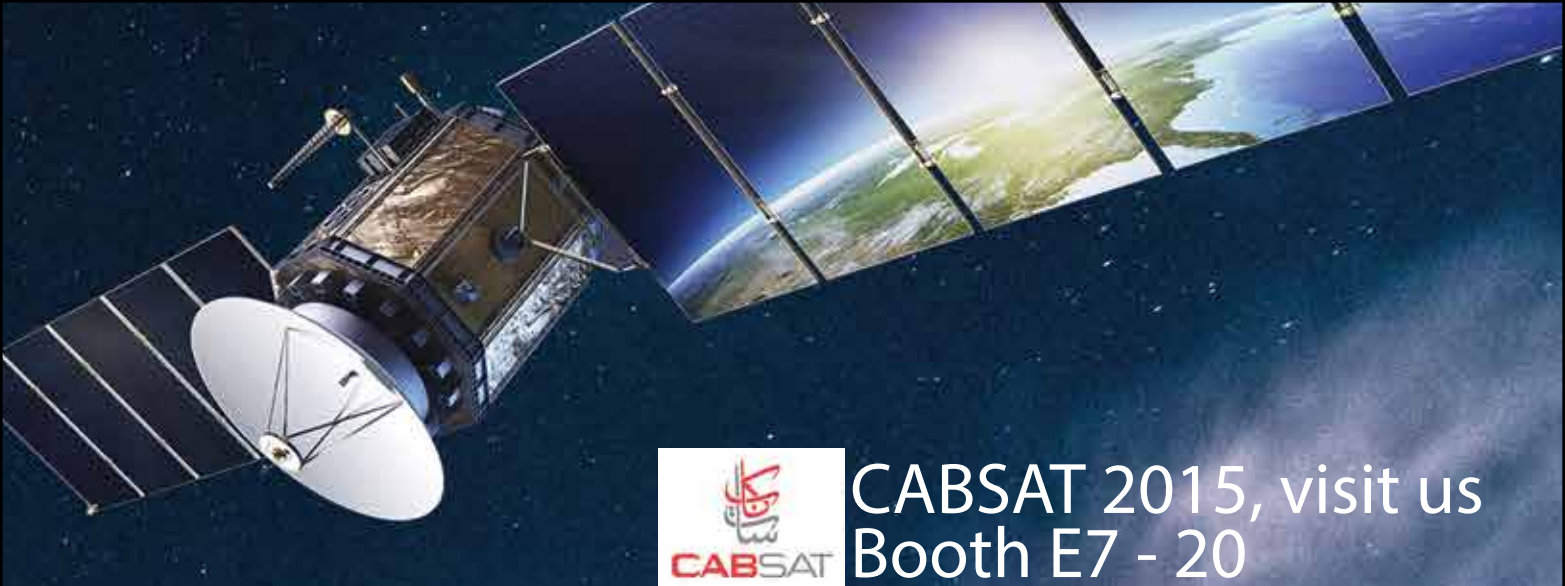
**NorthTelecom**

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-  Transponder lease
-  Oil & Gas service
-  MVSAT
-  Teleport service
-  Private network



# TV & Radio Broadcasting





CABSAT 2015, visit us  
Booth E7 - 20





## Let the Show Begin

It's that time of the year again, when everyone in the broadcast and satellite industry get together in Dubai for the biggest show ever, CABSAT. The madness has started and every company worth its salt is working at getting their stand designs right, flights and hotels re-checked, and making sure their top brass are flown in to interact with the deluge of visitors from all over the MEASA.

It won't come as any surprise that due to this the world is spinning twice as fast for everyone involved in the exhibition, and as the days draw nearer, the nerves start kicking in. I for one am extremely excited to meet old friends and new, and learn about the latest in the techno-sphere.

All the biggest names from the satellite industry, will call Dubai home from the 10-12 March, and whilst there will be rampant marathons during the day, the evenings are a time to kick your feet up and enjoy lighter moments with business colleagues.

The organisers of CABSAT at the Dubai World Trade Centre estimate there will be more than 900 exhibitors from 60 countries at the show. With the Middle East and North African market expected to grow from \$16 billion in 2014 to \$24 billion in 2019, the exhibition aims to examine the global impact of industry-evolving mega trends, and highlight how companies in the region can adopt various products and strategies to increase monetisation and growth opportunities.

In addition to this, the GVF Summit that previously used to be a dedicated two and a half day, invite only, closed door conference, is now a three-day, free to attend conference programme, covering challenges, trends and the latest technology influencing satellite companies.

So grab your walking shoes and be prepared to be whisked away into the wonder that is CABSAT.

**Clayton Vallabhan**  
Editor

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"There is a business case to be made here; as urban markets are saturating, the rural unconnected represent a massive untapped market for the savvy telco."

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With the proliferation of multiple screens, there is almost unlimited content to consume. Expectations for high-speed, high-quality service anywhere triggers an unprecedented demand for bandwidth

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Ahmed Hassan, CEO of Wiseband, speaks about how the company is changing the satellite industry by thinking outside the box to create new business models that can sustain rural markets

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## Es'hail 1 starts broadcast of Al Araby TV

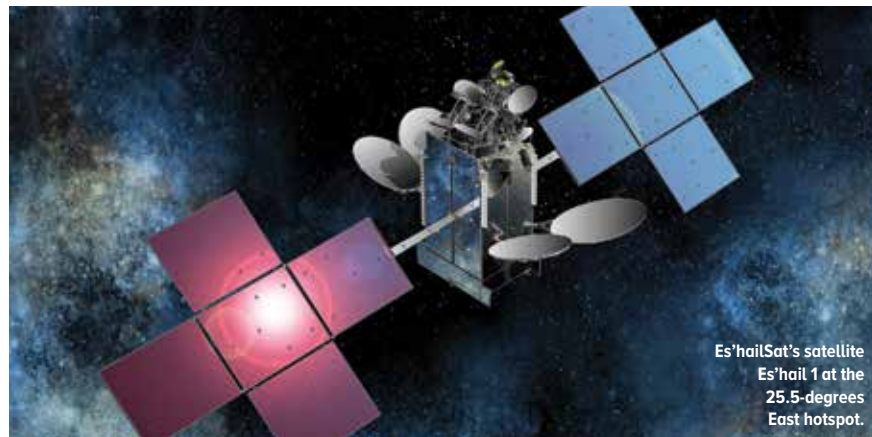
Es'hailSat said that Al Araby Television Network will broadcast via the Es'hail 1 satellite located at the 25.5° East hotspot neighbourhood covering the MENA region.

Al Araby Television Network is a new channel based in London, which aims to be a platform for Arab youth, talent, energy and aspirations.

The channel is available in HD and further adds to the attractive line up of content currently broadcasting via Es'hailSat.

Es'hailSat's CEO, Ali Ahmed Al Kuwari said: "We are honoured that Al Araby Television Network has chosen to launch its channel on the Es'hail 1 satellite at the leading hotspot for TV content covering the MENA region. A growing number of broadcasters are selecting Es'hailSat, further demonstrating the value of our broadcasting independence, quality of service, and our market penetration."

Mr. Eslam Lotfi – Chief Executive of Al Araby TV, expressed his confidence in the



Arabic Television Network Management's decision to broadcast on Es'hailSat. He stated: "After a thorough assessment process we decided that having the Al Araby Television channel included in the Es'hailSat broadcast packages will help to spread the

channels popularity to a wide audience in the Arab region and in particular the Gulf. It is an important strategic factor for the launch of the Al Araby television Channel".

[www.eshailsat.qa](http://www.eshailsat.qa)

## ETL SYSTEMS MATRIX ROUTERS SUPPORT DU ON ITS IPTV NETWORK

ETL Systems has provided du with three RF matrices as it continues to develop its IPTV network further.

Two 32 x 128 L-band Vortex Matrix systems have been installed and commissioned, with one primary unit going into operation in Dubai and a second unit installed for geo redundancy purposes in Abu Dhabi. A third 64 x 128 L-band Vulcan Matrix has also been installed and commissioned at du teleport in UAE – the largest facility of its kind in the Middle East region.

The number of subscribers signed up to du's IPTV service is growing with all those ordering new home service packages getting access to the du TV+ service. This includes more than 200 local and international channels, many of which are received by du via satellite link before being re-transmitted over its cable and fibre network to customers.

"We are building extra capacity in our IPTV network as we extend our subscriber base further and also want to ensure full resilience in the network. Providing the best customer experience



is number one on our list of priorities and achieving full resilience is an important part of this. We have worked with ETL Systems for many years and have full confidence in the product performance," said Ahmed Almuhaideb, Vice President - Broadcasting & IPTV Services, du.

The deal was agreed with support from ETL Systems' reseller partner in Dubai, Mena Nets, which is a global provider of managed network communication solutions.

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

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

## MEASAT SIGNS CAPACITY DEAL

MEASAT has signed an agreement with Cobbett Hill Earth Station ("Cobbett Hill") for capacity on the AFRICASAT-1a satellite.

Under the terms of the agreement, Cobbett Hill will use the high-powered AFRICASAT-1a capacity to offer VSAT services to customers in Africa. The fast-growing company is currently ranked #4 on the World Teleport Association's Fast Twenty Teleport 2014 rankings. It looks to continue growing its business in Africa in 2015.

"Cobbett Hill will be able to expand its African business with AFRICASAT-1a," said Gavin Rose, Sales Director, Cobbett Hill. "The satellite's pan-African coverage and high throughput allows us to grow our presence and reduce cost."

"MEASAT is pleased that Cobbett Hill has dedicated teleport resources to AFRICASAT-1a in support of its growth in Africa," said Raj Malik, Senior Vice President – Sales & Marketing, MEASAT. "Cobbett Hill's decision affirms that AFRICASAT-1a is on track to be the preferred satellite for service providers looking to expand their business into Africa."

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

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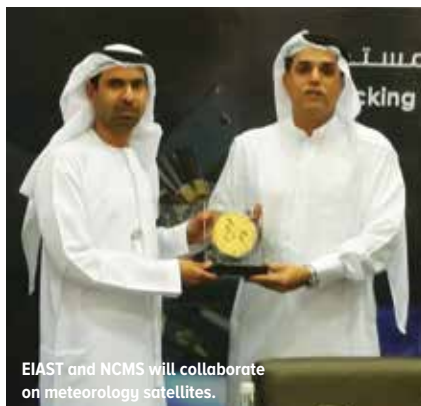
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## EIAST discusses collaboration on meteorology satellites

» A team from the National Centre of Meteorology and Seismology (NCMS), headed by Executive Director Dr. Abdullah Ahmed Mandoos were received at The Emirates Institution for Advanced Science and Technology (EIAST) and met with the institution's executives headed by Yousuf Al Shaibani, Director General of EIAST. The NCMS delegation expressed their interest in collaborating with EIAST on satellite systems and technology in the field of meteorology.

"EIAST is always looking for ways to extend the technology we have developed and continue to develop, towards fields beyond space science," commented Al Shaibani during the NCMS visit. "One of our aims for the institution is to benefit all industries in the UAE and help develop the nation further as a leading hub of business and technology. EIAST has so far been specialised in earth observation satellites; however,



there are no meteorology satellites made specifically for the region, so institutions like the NCMS gather their weather, climate and environmental data from global sources. This could be an opportunity for EIAST to develop new systems and technology

specific to their needs. We look at a genuine cooperation between both institutions, which we expect to bring results that will positively impact various fields."

Dr. Mandoos was equally enthused by the visit, saying, "We have been looking into a possible collaboration with EIAST for some time as we have been very impressed with what they have accomplished in such a short time since the launch of DubaiSat 1 and 2. One of the things we are most keen to learn about is the progress they are making on KhalifaSat and the ongoing development programs for Emirati engineers. The development of satellite technology for meteorology and seismology in the UAE is still in its infant stages and we at NCMS believe that EIAST's knowledge and expertise would benefit us greatly."

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

### THURAYA APPOINTS MARITIME PRODUCT MANAGER



Thuraya has further strengthened its maritime team with the appointment of Keith Murray as Maritime Product Manager, based in Dubai.

Murray's key tasks will be to increase the penetration of the Orion IP maritime broadband terminal in the market and oversee the commercial roll-out of the new Atlas IP broadband terminal in the first quarter of 2015.

He will work closely with Maritime Market Development Manager Leticia Diaz Del Rio and Maritime Sales Manager Phoebe Wang as Thuraya continues to thrive in maritime, shipping and offshore markets.

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

### INMARSAT LAUNCHES SECOND GLOBAL XPRESS SAT

Inmarsat has announced the successful launch of its second Global Xpress (GX) satellite (Inmarsat-5 F2) on board an International Launch Services (ILS) Proton Breeze M rocket launched from Baikonur Cosmodrome in Kazakhstan on Sunday, 1 February at 12:31 GMT.

The satellite was correctly acquired by the Inmarsat ground station at 18:10 GMT, 1 February and the Inmarsat-5 launch provider, ILS, confirmed a successful spacecraft separation at 04:02hrs GMT (2 February).

Over the coming weeks, the Inmarsat operations team will command the satellite to perform a series of manoeuvres to raise Inmarsat-5 F2 to a geo-synchronous elliptical orbit, while towards the end of the month, the satellite will have completed deployment of its solar arrays and reflectors. This will be followed by the electrical orbit-raising phase, taking the spacecraft to its final geostationary orbit. This is scheduled to be completed by the end of March, ready for the start of payload testing at the beginning of April.

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

### OPERATORS STRESS IMPORTANCE OF C- BAND FOR AFRICA

Speaking on behalf of the international satellite community, Michel de Rosen, CEO of Eutelsat, warned African states of the consequences for the continent if C-band resources are reallocated to mobile operators.

Michel de Rosen was speaking to delegates from African countries gathered in Nigeria for a meeting organised by the African Telecommunication Union (ATU) to prepare for the WRC scheduled to take place in Geneva from 2 to 27 November. During the meeting in Abuja, African states will define their position on access to the C-band that is currently allocated to sat operators and claimed by mobile operators.



Michel de Rosen,  
CEO of Eutelsat.

+ [www.atu-uat.org](http://www.atu-uat.org)

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## **THE N° 1 SATELLITE BROADCASTER FOR MENA**

The 7/8° West orbital location is the recognised leading hotspot in the Arab world, where 9 out of 10 homes receive programmes from the Eutelsat-Nilesat cluster at that position. More than 1,200 channels are currently broadcast from 7/8° West and this neighbourhood will be further strengthened by the new EUTELSAT 8 West B satellite, which will be launched in 2015.

**Meet us at CABSAT  
10-12 March 2015  
Stand A7-10, Hall 7  
[www.eutelsat.com](http://www.eutelsat.com)**

## Satcom is vital for national security and the economy

» The benefits of developing satellite communications for national security and commercial purposes were highlighted at the 4th Annual Milsatcom Middle East conference held in Abu Dhabi. Industry leaders from across the globe gathered to analyse the challenges that the industry faces in terms of capability constraints, budget revisions and a trained workforce.

The Director General of the UAE Space Agency Mohammed Al Ahbabi explained how developing solid space foundations and applications has proven its positive impact on improving the quality of life worldwide and on global economic growth, with benefits that extend beyond the borders of the space faring nations.



Milsatcom Conference at the Ritz Carlton in Abu Dhabi.

Al Ahbabi emphasised how military operations today depend on space, noting that approximately 60 nations own and operate at least one satellite. Space capabilities are crucial for a range of military activities including responding to humanitarian relief after natural disasters and wars.

The market size for the Global Milsatcom Applications market is estimated to be \$3.05 billion in 2013 and will reach \$3.82 billion by 2022, growing by a CAGR of 2.5%. Major growth will be seen in the fixed satcom segment about 33% during the coming decade.

+ [www.milsatcom.me](http://www.milsatcom.me)

### ARABSAT AND MEDIA SPEED TO BUILD BROADCASTING PLATFORM



Arabsat and Media Speed Company have signed a contract for providing, installing and operating the digital Satellite TV broadcasting platform in Riyadh, through Arabsat satellites.

Dr. Riyadh Najm President of the General Commission for Audiovisual Media stated that the General Commission is looking forward to the constructing of the Saudi Media Platform that has been authorised by the Commission on the date planned to enable Saudi TV Channels to broadcast from this platform.

Khalid bin Ahmed Balkheyour President and CEO of Arabsat said: "We are delighted that Arabsat is the first satellite operator involved in building and operating this platform, hoping this to be a real start for

building Media Cities all over the major regions of the Kingdom in the near future, as Saudi Arabia is highly ranked globally, economically, politically and religiously." He also added that the contract is valued at 10 million Saudi Riyals.

Mofleh Al-Haftah Media Speed Chairman said: "We are happy and honoured that Arabsat has chosen Media Speed to build the digital Satellite TV Broadcasting platform to broadcast on Arabsat satellites. We gained the trust of Arabsat because of what we have of competencies and expertise that enable us to carry out such important projects at the highest professional levels. We have been keen through our offer to provide the State-of-Art technical solutions and systems from major international companies to ensure the highest levels of quality and regularity of the broadcast to meet Arabsat high standards. We hope through carrying out this project in addition to what we are doing now by building the Saudi Media Platform (Shamas) to contribute in building a distinct infrastructure for the satellite channels operating in the Kingdom and creating an attractive environment for investment and new projects in the field of visual media."

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

### THOR 7 READY FOR LAUNCH

SSL has announced that the THOR 7 satellite, designed and built for Telenor Satellite Broadcasting is ready for launch and will ship to the European Spaceport in Kourou, French Guiana later next week., for launch aboard an Ariane 5 launch vehicle.

THOR 7 is a multi-mission satellite equipped with Telenor's first high performance Ka-band payload, designed to serve the maritime market. The HTS Ka-band payload on THOR 7, designed specifically for the mobility VSAT market, will provide cost-effective solutions and offer high powered coverage over the North Sea, the Norwegian Sea, the Red Sea, the Baltic Sea and the Mediterranean. The satellite also has a Ku-band payload for broadcast and television services in Central and Eastern Europe.

"SSL and Telenor Satellite Broadcasting share a commitment to providing satellites and services that improve the human experience," said John Celli, President of SSL. "We are pleased that THOR 7 is ready to ship and we look forward to working with TSBC and Arianespace on the final preparations for launch."

THOR 7 was designed with up to 25 simultaneously active Ka-band spot beams and a steerable beam for flexibility in meeting changing market requirements.

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



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

**Extreme conditions** call for  
**exceptional connections**



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A portrait of Ali Al Hashemi, a man with a light beard and mustache, wearing a white thobe and a white ghutra with a black agal. He is looking directly at the camera with a neutral expression. The background is a soft, out-of-focus light blue and white. On the far left, a portion of a satellite dish is visible.

# The Right Fit

Ali Al Hashemi, General Manager of YahService, the managed satellite communications services arm of Al Yah Satellite Communications Company (Yahsat), speaks to *Clayton Vallabhan* in an exclusive interview about how YahService is committed to delivering tailored satcom solutions to end users



YahService, the managed satellite communications services arm of Al Yah Satellite Communications Company (Yahsat), offers end-to-end managed satellite communications solutions to customers from both governmental and commercial sectors covering land, air, and maritime platforms by bringing together tailored satellite product capabilities and expertise using satellite capacity from Yahsat.

Ali Al Hashemi, General Manager of YahService says: "Our expertise ranges from working with government and defence organisations, rural communications, border control services, oil and gas companies, the health sector, banks as well as emergencies and disaster relief across the globe. We offer end-to-end, tailored SatCom solutions that are aligned to meet

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**"Working closely with our customers we strive to first understand the objective at hand. We ascertain what they need in terms of satellite communications, and we start from there"**

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the needs of end users. This is done most efficiently by examining the whole value chain and studying their requirements."

Al-Hashemi says that the strength of YahService comes from working closely with its customers and listening to their needs. "Working closely with our customers, we strive to first understand the objective at hand. We ascertain what they need in terms of satellite communications, and we start from there. Is mobility an important factor

for them? What kind of platform will the terminal be installed on? What are their installation constraints and the impact on the equipment we choose? What are their communication security needs? What is the operating environment of the satellite communication terminal? These are the kind of questions we ask to comprehend their requirements and be able to find the best customised solution to offer them."

A key aspect focused on when tailoring

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the solution is the customer's security needs, such as the type of encryption required, type of terminal model, and what type of data will be communicated. Based on this knowledge, YahService can build a unique solution for the customer.

Al-Hashemi also adds that YahService works with a number of expert manufacturers, which enables them the flexibility to select the right supplier for the equipment and solution required for their customers.

"We partner with a number of suppliers in the business and continuously update our capabilities by studying the market trends and technological developments to ensure we're able to deliver the next-generation solutions for our customers," says Al-Hashemi.

A satellite stays in orbit for 15 years, so in effect it is essential that the technology of the equipment used on the ground is continuously developed and enhanced to stay ahead in today's fast-paced world. Al-Hashemi explains that at YahService, there is a continuous update of its services to keep in alignment to the latest industry technology, based on which it then focuses its product portfolio. However, Al-Hashemi emphasised that though they do their best to develop the latest portfolio of services, each customer's solution is unique. Adding that it is essential to work closely with the end-users to ensure the solution works seamlessly to meet the customer's objectives.

"We have the knowledge required to tailor the solution, but it is through working closely with our end users and understanding the environment in which they work in and the results they wish to achieve, is what enables us to tailor a unique solution. Take an oil-exploration team in the middle of the sea or land, as an example, who have no traditional ground infrastructure to support their connectivity needs. Depending on their requirements, we would build them a satellite communications solution to support their communication needs while on-the-go, keeping the equipment they would need to carry for this to a minimum. It can be for basic connectivity needs such as emailing, or more complex requirements, adding other services such as

video-conferencing capabilities and cloud computing data-centres. If our customers' requirements are beyond our coverage area, we seek partners who could support in extending our coverage to provide our customers with a complete end-to-end managed solution," says Al-Hashemi.

The company is always thinking about creating simple solutions that are efficient. Yahservice also offers backup-solutions for the business sector.

"Some organisations understand the importance of having a backup-service ensuring their connectivity is seamless, and uninterrupted. Yes, you may pay less for capacity without backup, but losing connectivity for one day is more detrimental, so having this service is an investment well worth it, especially to the financial sector. For example, the majority of the banks in the USA, use satellite as a backup means for their communication capabilities, and we are looking forwards to providing such services to similar organisations here. Using satellite solutions for disaster recovery services is still a new facility to the region, but it is gaining momentum as more and more organisations are becoming aware of what satellite solutions can provide them with," explains Al-Hashemi.

Satellite connectivity plays a major role wherever there is limited or a lack of infrastructure, be it due to environmental conditions, or difficult terrain, or just cost, as traditional infrastructure for connectivity requires time and significant costs to set up. Whereas satellite connectivity just requires an antenna, modem and a computer to get you connected. Al-Hashemi, however, says that the company doesn't compete with the telecommunications industry, rather it complements its services. "Satellite connectivity complements the connectivity provided through traditional fibre infrastructure. Fibre provides speed, but is limited in terms of reach, as it is dependent on underground infrastructure, a complex process, which takes both time and is costly. Satellite connectivity, however, provides reach and mobility and is not hindered by terrain conditions. In rural areas, the probability of not having traditional telecommunication services is very high, so having this solution is a need.





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**"Satellite connectivity complements the connectivity provided through traditional fibre infrastructure. Fibre provides speed, but is limited in terms of reach, as it is dependent on underground infrastructure"**

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For some operations, some companies use both solutions, satellite as well as traditional telecommunication services, both used for different reasons, ranging from security to simply as a back-up solution."

Yahsat offers four services, YahService, which offers managed end-to-end tailored solutions to governments and organisations; YahClick which offers business and individual consumer broadband connectivity; YahLink, which offers IP trunking solutions, corporate networking and backhauling capacity, and Yahlive, a joint-venture solution with SES, a global satellite operator, to provide free-to-air premium HD channels. Al-Hashemi says, there is a lot of investment behind the scenes where software, encryption, end product and mission type all play a role.

"We know the market and understand it very well, which benefits the customer as they would receive tailored solutions, enabling them to obtain the best value for what they pay for, as well as continuous support beyond simply deploying the solution. We provide our customers with the service, as well as operational maintenance and on-going support.

"We also invest heavily in cloud services in order to remove the capital expenditure burden from our customers. In such cases, our customers can benefit from this by buying a licence to use the service (email, video conferencing, telephone connectivity) as opposed to investing in expensive servers, configuring the hardware and operating and maintaining it," says Al-Hashemi.

Al-Hashemi further pointed out the trends he sees in the industry, and how most of these need to happen in order to help satcom evolve from being affected by increased bandwidth and lower costs. He says this will not only help YahService reach more clients, and expand its reach, but help the industry as a whole to be more efficient.

He adds: "The smaller the satcom terminal, the more satellite bandwidth it will require. We need to reach a compromise where we have compact terminals using efficient satellite bandwidth. This can be achieved by improvement to the terminal design, waveform implementation and careful use of satellite capacity resources." **PRO**

A satellite view of Earth from space, showing a vast expanse of blue oceans and white, swirling clouds. The horizon of the Earth is visible on the right side, with a bright, glowing arc of light representing the sun or moon. The overall image has a high-contrast, ethereal quality.

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Hall : 8 Stand: B 8-10

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# Change is **on the Horizon**

VSAT and backhaul have been used extensively across a range of different verticals. With increasing demand for bandwidth, technology is evolving to meet these demands, whilst driving down cost for operators and end users





Back in 2002, the demand for bandwidth increased steadily especially for applications such as mobile telephony and SMS services. Nowadays, mobile communications and applications, with internet “everywhere” and entertainment “on-the-move” have become incredibly popular.

The reason for this increased demand is the proliferation of the use of mobile communication devices such as smartphones, tablets and laptops, which allows data to be consumed in any location.

According to Hisham Ansari, EVP, Horizonsat, “whereas many of the major metropolitan areas are covered with terrestrial mobile networks such as GSM (Global System for Mobile Communication) and RAN (Radio Access Network), millions of people in growing rural areas have limited or no access to cellular services.

“These markets are mainly in the Middle East and fast developing African countries, India and Asia. With increasing communication needs predominantly in rural areas, satellite backhaul can be used to extend terrestrial GSM networks. With satellite backhaul mobile telecom providers can extend their 2G, 3G, 4G and LTE or WIFI/WiMax networks.”

Ahmed Almuhaideb, VP of broadcasting and IPTV services at Du says: “Through VSAT we can reach any location on earth, more importantly remote sites, where establishing a fibre or microwave link requires a large investment. VSAT is also an ideal solution for ships and airplanes. Another application for satellite transport is the secure connectivity thru a single or a double hop satellite link versus the high probability of interruption through long fibre hauls.

“In recent years we’ve become used to experiencing slow internet because of fibre cuts in different regions in the world. Satellite can be a safer alternative for especially, critical services. The advantage of ubiquitous reach is countered by the economics. VSAT is not always the ideal solution cost wise, especially when fibre and microwave links are accessible. Another disadvantage of VSAT is the delay or latency of circuits



Ahmed Almuhaideb, VP of Broadcasting and IPTV services at Du.

**“VSAT is not always the ideal solution cost wise, especially when fibre and microwave links are accessible. Another disadvantage of VSAT is the delay or latency of circuits for applications where two way high speed data is a requirement”**

AHMED ALMUHAIDEB, DU

for applications where two way high speed data is a requirement.”

Jean-Philippe Gillet, VP of EMEA Sales at Intelsat says: “The advantages of providing backhaul services via satellite-enabled VSAT are that the service is universally available regardless of terrain limitations or available equipment. It can be able to be deployed quickly, enabling faster expansion of services into rural areas, and certain high-powered services can be deployed using solar power, expanding their reach into far greater settings than fibre.”

Typical services enabled by satellite backhaul include rural cell backhaul services and international trunking

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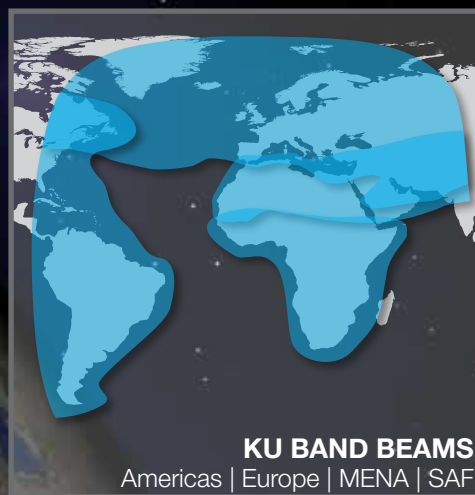


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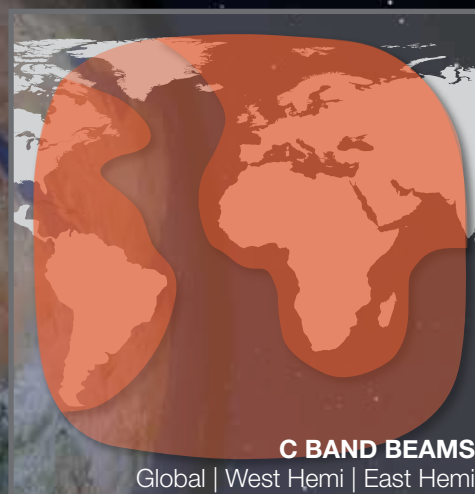
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services for mobile operators.

Several industries have found VSAT as being an effective means to serve their business requirements. Some of these are: Oil & Gas Field developers; Military, Security, Emergency services; Airlines; Telecom operators expanding their networks to remote locations; and banks with ATMs and branches serving remote communities.

Almuhaideb says: "The majority of du's customers of VSAT services come from these industries. Du offers a range of services thru VSATs within and outside the boundaries of UAE and we're seeing a growth in the demand of our VSAT services. The growth is despite the fact that the telecom networks in UAE are highly advanced and that now fibre reach is made to some of the most remote locations. This is because of the UAE's rapidly growing economy and development.

"For example, the UAE enjoys one of the highest smartphone penetration rates in the world – pushing telecom operators to expand their 3G and 4G coverage to the edges of their service areas. Infrastructure development continues to be growing at a high pace all over UAE. Our VSAT services are now being used for Mobile Network backhauling; Oil & Gas Fields are one of our most important sectors, and we've used VSAT to transport TV video to terrestrial transmitter sites."

With technology improving, costs for VSAT applications and backhaul are reducing. Gillet says HTS is one of these technologies that will result in cost savings. "Intelsat is evolving its network with the development of Intelsat EpicNG, our high-performance, next-generation satellite platform. Epic is more efficient than traditional satellites, delivering more throughput per MHz of spectrum. This platform will integrate seamlessly with our existing infrastructure, adding high-throughput satellite (HTS) services for customers. By building an open-architecture HTS platform that features a backward-compatible design, Intelsat EpicNG will deliver the lowest total cost of ownership for customers. This increase in throughput and the lower overall costs will allow wireless operators to expand

**"Epic is more efficient than traditional satellites, delivering more throughput per MHz of spectrum. This platform will integrate seamlessly with our existing infrastructure"**

JEAN-PHILIPPE GILLET, INTELSAT

services to less populated regions."

Cost efficiencies were achieved through advancements in technologies. Most of VSAT costs are operational for leasing a certain bandwidth of the spectrum on the satellite. Hence, the developments were mainly targeted at reduction of the bandwidth requirement explains Almuhaideb. "Compression technologies, in voice and video, have brought in huge dividends in spectrum savings. Additionally, new solutions were introduced by some manufacturers. These



Jean-Philippe Gillet, VP of EMEA Sales at Intelsat.

Du's teleport hub in Dubai.



solutions are used for specific applications; e.g. a solution to reduce bandwidth on satellites in order to transport voice services for mobile networks; another compression solution utilised video for broadcasters; there are solutions which are used to set up a network via satellites for a relatively high number of sites. These solutions are branded by solution owners and well known service providers."

Ansari says: "Evolving technology allows teleports to cover the growth in satellite backhaul better, by using effective satellites with strong coverage, top-of-the-line equipment using latest technology with best possible modulation such as DVB-S2 or extended DVB-S2X, ACM option (Adaptive Coding and Modulation) - in order to maximise throughput regardless of link conditions.

"For non-symmetrical 3G and mobile broadband service a point-to-multipoint topology is the best solution where the downlink traffic to the different remotes can be multiplexed aurally and temporarily taking advantage of the burst of such networks. For symmetrical satellite links SCPC with modern Forward Error Correction (FEC) techniques, such as VersaFEC, can be used as it enables further optimisation and reduction of power requirements. The optimisation of bandwidth and power leads to a

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**"The next generation of wireless techniques will be with 4G. Applications such as entertainment and TV on the move will become more and more popular, which will boost the demand for satellite backhaul. To cover this increasing demand the satellites – as seen in the past - will become more powerful and will have more capacity. At the same time antenna size will decrease and more effective compression and modulation technology will be offered from satellite equipment manufacturers"**

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HISHAM ANSARI, HORIZONSAT

reduction in satellite backhaul costs, especially for space segment, BUC power costs and also energy saving."

Besides satellite backhaul there are different terrestrial backhaul options such as DVB-T, DVB-T2 for TV, DVB-RCS (cable TV), fibre connections and RAN networks with new and effective BTS towers which can serve 3G and 4G mobile communication generation. The decision of what to use is a commercial decision and a question of regional availability.

So what's next on the Horizon? Almuhaideb says that there has been great development in increasing the throughput via a satellite network. High Throughput Satellite (HTS) systems combine the exceptional spectrum efficiency and performance of spot-beam antennas with ultra-wideband transponders to enable unprecedented levels of bandwidth and throughput. "The advent of high-throughput satellites enables network service providers to offer a new generation of communications solutions. Perhaps this is the current trend and the future outlook is towards achieving more efficient and higher speeds delivered via satellite networks," adds Almuhaideb

According to Ansari, "The current generation of wireless communications technology is 3G which allows telco operators to offer wireless data services to clients in any location. The mobile phone becomes the primary communication device which will increase the demand for cellular backhaul demand from subscribers. Therefore, the deployment of 3G mobile broadband in remote areas will happen faster than initially anticipated, driven by the device market and the user.

"The next generation of wireless techniques will be with 4G. Applications such as entertainment and TV on the move will become more and more popular, which will boost the demand for satellite backhaul. To cover this increasing demand the satellites – as seen in the past - will become more powerful and will have more capacity. At the same time antenna size will decrease and more effective compression and modulation technology will be offered from satellite equipment manufacturers," concludes Ansari. **PRO**

# It's Showtime

This year CABSAT's expanded Content Delivery Hub zone will showcase solutions, services and platforms to monetise Pay-TV and Free-to-Air entertainment content. The GVF Satellite HUB will also present senior level debates that address technical trends and challenges across the industry







**CABSAT 2015 will examine the myriad challenges currently facing satellite companies and regional telcos as consumer viewing habits change.**

As broadcasters and content-savvy telcos battle to win viewers and subscribers in the increasingly competitive free-to-air and paid TV sectors, the race to win market share via enhanced 'anywhere, anytime' content delivered across multiple, multiscreen formats is intensifying. With the value of the Middle East and Africa TV On-Demand market expected to increase to \$132 million between 2014 - 2018, the rapidly growing sector is increasing pressure on satellite loads and forcing satellite companies - key contributors in delivering richer TV on-demand products - to expand their operational capacity.

A host of exhibiting companies at CABSAT 2015, which runs 10-12 March at Dubai World Trade Centre (DWTC), are showcasing a series of solutions designed to absorb the market changes, and launch cutting-edge tech products to help content providers win audience share and solve transmission issues.

"Keeping pace with a rapidly changing content delivery market is a complex task. That's why we have compiled an integrated, flexible ecosystem of OTT offerings that offer leading edge, future-proof technologies - so tomorrow won't take our customers by surprise," said Karim El-Khazen, Vice President, Business Development and Innovation, Deutsche Telekom.

"Our aim is to create value and expand business potential for the entire digital content delivery market. That's why we work together with other technology leaders toward developing a global network of innovation. By accelerating know-how we help our customers maximise monetisation of their online assets while improving performance and keeping viewers engaged longer."

Hans-Martin Steiner, Head of the Business Unit Space, Siemens Convergence Creators, added: "The growing number of satellite services will, as a side effect, increase the amount of interference and anomalies, with negative impacts on data transmission. As a result, there is an urgent need for more effective interference mitigation solutions."

The utilisation and popularity of satellites to distribute content is only going to grow, added

Sami Boustany, Chief Executive Officer, Yahlive. "The number of linear TV channels over satellite in the regions we cover is constantly increasing and it is true that viewing habits are shifting fast towards IP-delivered interactive and on-demand content," said Boustany. "The lack of adequate terrestrial IP-based infrastructure in most of our footprint territories combined with the fact satellites can cover close to 100% of a country's population, mean satellites will continue to be the preferred and most economical distribution platform for most broadcasters."

Neil Berry, Executive Vice President of Commercial, EMEA, Píksel, added: "The OTT model for content delivery has become a serious consideration for TV service providers and content owners, as users gravitate towards services that give them greater control over when, where and how they view their entertainment. At Píksel, we help companies navigate the hundreds of variables which need to be considered when developing an OTT service, and calculate the most sustainable monetisation strategy for their unique business."

CABSAT will provide numerous opportunities for the entire market to discuss inherent challenges. Reflecting the continued growth of the global OTT market, CABSAT 2015 will present the two-day GVF Satellite HUB - held in partnership with GVF - where senior level executives will debate technical trends



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and challenges across the satellite industry. With more than 30 international speakers participating in 12 sessions covering the entire satellite sector, the headline session – ‘Proactivity and Reactivity to Ensure Interference-Free Satellite Services’ – will feature Nigel Fry, Head of Distribution, BBC Global News, and Naji Tamimi, Commissioning Producer, Al Jazeera Media Network, amongst others. Other sessions will see speakers from a range of private sector companies including AdvanTech Wireless, Arab Avisors Group, APT Satellite Co., ArabSat, C-Com Satellite Systems, Globecomm Systems, KTsat, Inmarsat, ITU, Newtec, ND SatCom, Satellite Interference Reduction Group (IRG), SES, Telenor Satellite Broadcasting and many more.

### **“The Middle East and Africa TV On-Demand market is expected to increase to \$132 million between 2014 to 2018”**

In addition, CABSAT’s expanded Content Delivery Hub will see more than 60 exhibitors take part in three days of live discussions relating to monetising paid-for TV entertainment content via IPTV, OTT and online digital platforms, solutions and services.

Across the exhibition, companies will present their products and services for the satellite sector, including **RF-Design (Hall 7, Stand D7-43)**, which will present the first global opportunity to see the FlexLink-K7-Pro L-Band Switch-Matrix system. The new system, which is the next-generation of L-Band Switch-Matrix system used by major teleports, satellite earth-stations, satellite operators and system-integrators around the globe, is an all-in-one device built into a space-saving 6RU/19” rack-mount chassis with only 500mm depth. The system performs as a scalable L-Band switch/routing platform and is available with various input/output configurations from 8:8 to 64:64 in one chassis and up to 256:256 with additional slave-chassis. It covers the L-Band frequency range (950...2150MHz) and is designed for today’s and future signal management requirements, offering flexibility combined with state-of-the-art functionalities, features, excellent RF performance and many unique options.

**SatComm Broadcast (Hall 7, Stand B7-30)**, will launch the Mk II Karbon-75 fully integrated multi-platform Ka-band flyaway terminal. With an improved RF performance, greater wind stability and a lighter weight, this latest version of the best-selling antenna sets new standards for the challenge of lightweight newsgathering. The Karbon-75 can be supplied with replaceable transceivers and interchangeable satellite modem packs in weatherproof casings allowing it to be deployed onto any Ka-band High Throughput Satellite (HTS).

Another new player in the market, **SIS LIVE (Hall 7, Stand B7-31)**, will show the ManPak6oT, the latest addition to the ManPakT range of portable, compact VSAT terminals, for the first time in the MEASA region. The new model is equipped with a 60cm carbon fibre reflector and is available in the Ku and Ka band.

Lastly, being showcased at **Tedial (Hall 3, Stand C3-40)**, will be the Middle Eastern launch of its Media Exchange Platform, which enables content producers, broadcasters, pay TV operators, service providers and telcos to work collaboratively on media securely and efficiently.



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## Eutelsat introduces **new satellite at CABSAT**

Eutelsat returns to CABSAT this year and is located at stand A7-10 (Hall 7). The team will exhibit a future satellite that features next-generation advanced functions designed to further raise the bar of performance, flexibility and signal security. The EUTELSAT 8 West B satellite, to be launched in the third quarter of 2015, will boost the satellite company resources at 7/8 degrees West position, one of the most dynamic in the global satellite TV market, with a rapidly growing audience and channel line-up. Adding powerful new broadcasting resources to the position, the new satellite will also be able to mitigate the effects of interference, as well as to increase the number of active channels by optimising a satellite payload's use of the electrical power generated by its solar panels.

Eutelsat will also showcase its other key hotspots, notably its second flagship position, HOT BIRD, which is a key bridge for Arab communities living in Europe and for Europeans living in MENA. Operational since the 1990s, the HOT BIRD coverage encompasses Europe, the Middle East and North Africa.

With two thirds of its 34 satellites located



between 5° West and 70° East, Eutelsat has already attracted anchor tenants like Al Jazeera, beIN SPORT, MBC, OSN as well as market-leading service providers like Nilesat, Noorsat, Gulsat and Viewsat. The company is now looking to develop new relationships with

existing and future customers, to support the creation of digital channels, particularly in the context of digital migration, the increased adoption of HD channels and the upcoming arrival of Ultra HD.

Beyond regional broadcasting, Eutelsat global fleet can support the expansion of Arab broadcasters into the world thanks to the scale and diversity of Eutelsat in-orbit resources. The HOT BIRD neighbourhood, together with 16° and 70.5° positions as well as the upcoming satellites EUTELSAT 8 West B, EUTELSAT 115 West B and EUTELSAT 117 West B will enable Eutelsat regional customers to benefit from a gateway to Europe, Africa and Latin America to reach new markets.

Ali Korur, Eutelsat's Regional Sales Director for MENA, commented: "The Middle East and North Africa is more than ever a key market for Eutelsat. Working with many of the leading companies in the region, we see great potential for growth, exciting technical challenges and considerable scope for innovative solutions. Going forward, we believe that the move to higher quality afforded by HD and, for the future, 4K will further consolidate satellite as a core infrastructure in the region."

## VISLINK launches **NewStream at CABSAT**

**VISLINK, present at stand G3-30, is debuting the international launch of its NewStream multi-mode mobile vehicle transmission system at CABSAT 2015.**

To cater for the global broadcast market, the NewStream now features a new antenna array offering unparalleled levels of performance within the industry, providing greater than 72% efficiency across all cellular bands. The upgraded NewStream is also equipped with a universal modem design for use on a variety of frequency bands outside the United States.

"The NewStream is a multi-mode system intended to give today's broadcasters the

flexibility to transmit multiple video streams at once," said Michael Payne, VISLINK's President of the Americas and Group CTO. "With its cellular, microwave and satellite transmission capabilities, and the ability to operate on multiple frequency bands, the NewStream offers the ultimate newsgathering platform through a single, compact rack mounted unit."

As part of the VISLINK portfolio, the NewStream can easily integrate with a variety of other VISLINK uplink products for additional data and video

applications. Designed to meet both current and future demands, and based on a future-proof platform, the NewStream also offers broadcasters a clear upgrade path to multi-channel newsgathering. With a vendor-agnostic design, the NewStream can easily provide multi-channel support to any existing newsgathering system.

The NewStream also complements VISLINK's broad range of portable point-to-point microwave broadcast equipment as well as the portable and rugged MSAT satellite data terminal, ideal for satellite newsgathering.



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



[www.eshailsat.qa](http://www.eshailsat.qa)



## Yahsat to promote extensive portfolio at the show



Yahsat has returned to CABSAT for the seventh time, and this year, for the first time, its broadcasting arm Yahlive will also be the Associate Sponsor of the conference. Present at D7-10, Hall 7, the company says CABSAT is one of the most important events in its industry, since it brings together all the different players involved in the transmission of information and entertainment through satellite channels in the MENA region. Furthermore, it facilitates the exchange of ideas, the sharing of knowledge and the promotion of new ways to improve consumer choice and the experience of accessing content.

Yahlive is also hosting a panel discussion based around "Connecting with Communities". The panel, which will be moderated by Yahlive's CEO Sami Boustany, will consist of experts from the satellite, broadcasting and broadband industry, who will be assessing how they are able to interact with communities which were previously out of reach. By promoting this debate, Yahlive hopes to set the benchmark for delivering the right content to the right people at the right time, making them feel connected with their communities and the rest of the world, no matter where they live.

Yahsat will be showcasing its entire portfolio of products – YahClick, YahService, Yahlink and Yahlive – which in their own individual ways achieve a common objective: the provision of multi-purpose satellite solutions for broadband, broadcast, government and communications use across the Middle East, Europe, Africa, Central and South West Asia.

YahClick has just launched its new product packages, building on previous success stories such as supporting the banking industry in Pakistan and Yemen by linking up networks of ATMs. Looking further ahead, next year will see the launch of Yahsat's third satellite Al Yah 3, boosting Yahsat's capacity and enhancing its ability to deliver the right content at the right time.

## ABS unveils ABS-3A's capabilities at CABSAT

ABS has returned to CABSAT this year, and will be located at C8-20 in Hall 8. It will be exhibiting its fleet of satellites and showcasing its new satellite ABS-3A. The new satellite will be located at 3-degrees West, connecting the Middle East, Africa, Europe and the Americas. It will have 24 C-band and 24 Ku-band transponders supporting VSAT, TV distribution, IP trunking, cellular backhaul and maritime services. The satellite will be launched on a SpaceX Falcon 9 launch vehicle.

ABS is an international satellite operator which has a regional hub in Dubai. The company focuses heavily on this key growth region for broadcasting, data and telecommunication services.

As ABS's Chief Operating Officer, Mohamed Youssif is responsible for global sales and revenue for the company as well as directly managing business development for the Middle East region. He says: "The Middle East is a booming region to expect very strong growth potential for ABS in 2015 and beyond. ABS has established great working relationships with their clients and will continue to bring value added services and tailor their products to meet their clients evolving needs."

"The exhibition is a great event for us to meet with our existing customers and to target new potential customers. We are always looking for partners who add value to our chain. We are enormously appreciative for this delightful acknowledgement by numerous partners and loyal customers who have put their trust in ABS to support their requirement for satellite connectivity in the region. ABS has designed and procured ABS-2, one of the biggest satellites ever commissioned to serve the region and provide additional capacities for the region's growing demand for space segment capacities both for Broadcasting, DTH and data services," adds Youssif.



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## AsiaSat showcases its **latest satellite AsiaSat 8**

AsiaSat will be returning for the fourth year at CABSAT, and will be present on Stand 703 in Hall 7. It will be highlighting its capability in UHD/HD transmission and AsiaSat's premium TV program neighbourhood with a portfolio of more than 450 TV and radio channels in 30 languages.

AsiaSat is committed to serving the MENA region, one of the world's fast growing communications markets where it sees a significant need for satellite capacity. It is also looking for opportunities to expand its business and services to the region through local partners or agents.

Also being showcased at the exhibition is the AsiaSat 8 satellite that is designed with a high-powered Ku-band Middle East beam customised for the provision of direct-to-home (DTH) television, data broadcasting and broadband services. With its Ku-band TWTAs at 210 watts, the most powerful

amplifiers ever launched in Asia, AsiaSat 8 offers high downlink EIRP up to 57 dBW across major cities in the region. AsiaSat 8 also offers powerful Ku-band beams over China, India and South East Asia, with inter-beam switching capability to provide greater flexibility of usage.



The company loves coming to CABSAT as it feels it is the region's most important satellite and broadcast event that connects participants from around the world to the latest and most innovative technologies and services in the satellite and digital media sectors.

Preston Lau, Director, Sales at AsiaSat says: "We are excited to have the opportunity to connect with key players from around the world and share with them market information, our experience and insight in the new digital media world at CABSAT. AsiaSat endeavors to provide high quality and reliable satellite services, and technical excellence for our clients. I'm confident that our expanding satellite fleet including our latest AsiaSat 8 provides the capacity and services tailored to meet the fast growing demand for DTH television and data broadcasting in the MENA region."

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G/T: -1 dB/K



Central Asia and Europe Beam

### Peak

ERP: 43 dBW

G/T: 15 dB/K



## Ku-Band

Uplink: 13.740 GHz, Downlink: 12.982 GHz

Polarization: V/H

Europe Beam

### Peak

ERP: 54 dBW

G/T: 9 dB/K



Central Asia Beam

### Peak

ERP: 53.5 dBW

G/T: 9 dB/K



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# From Voice To Dominant Data: **Examining Satellite Mobile Backhaul**

As the proliferation of mobile data and video content in remote regions continues to grow, operators face a difficult choice meeting the demand created, both in terms of roll-out and catering to user expectations. This article examines the development of satellite mobile backhaul as a viable solution and the challenges operators face in an ever-changing consumer habit environment

Mobile operators in emerging markets are under pressure to extend their services in rural areas. Either their markets are becoming mature or governments are now willing to bridge the digital divide and are ready to enforce Universal Service Obligation (USO) programs. Satellite backhaul is often the only mobile transport available in these remote regions, providing reliability and quick service roll-out, but also bringing increased latency and operational costs. These challenges must be mitigated with the right solutions.

2G voice is still the main revenue source and primary mobile service deployed; however, 3G (voice and data) is also being rolled out. A few markets are even looking at HSPA+/4G with small cells for a mobile broadband offering. At the same time, consumers' mobile usage habits are changing drastically, where the network permits, and have gone from voice-centric to increasingly data-oriented (including video). This technology and usage shift has a direct impact on the evolution of the mobile backhaul solution.

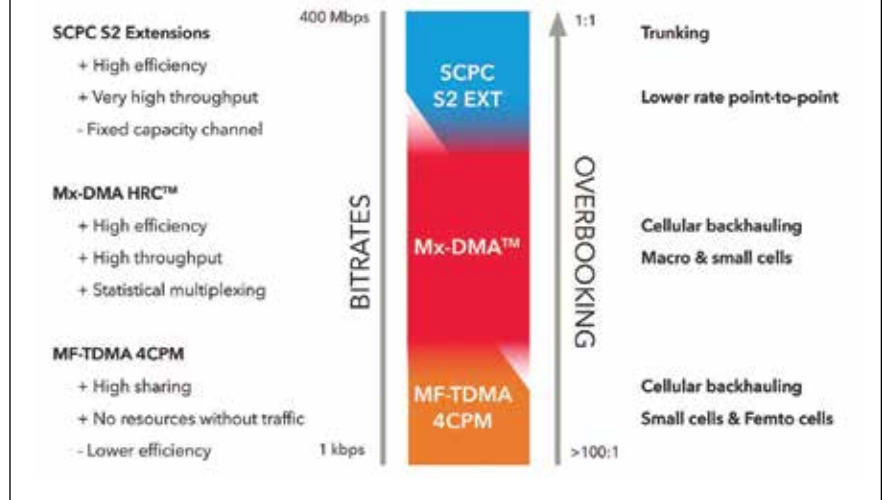
#### Technology Disruption

If significant optimisation has been achieved on the forward satellite channel, the return channel has been somehow overlooked. Here, for a long time, the industry has been entangled in debate between Single Channel Per Carrier (SCPC) and Time Division Multiple Access (TDMA) technology. SCPC provides efficient and dedicated capacity with lower jitter (ideal for 2G voice) but can be expensive for low traffic requirements. TDMA allows the bandwidth to be shared between the base stations and maximizes usage but cannot guarantee voice calls will not be dropped during peak traffic conditions.

On the other hand, mobile traffic patterns are evolving from a symmetric voice-centric to an asymmetric profile, with increasing data. The infrastructure is getting even more varied with the addition of small cells to the picture.

Mobile operators want to protect their voice traffic under any circumstances and do not want to be in a situation where there is not sufficient provision to guarantee it. They also want to reduce

#### Mx-DMA with HighResCoding™ technology maximises satellite efficiency



**“Consumers’ mobile usage habits are changing drastically, where the network permits, and have gone from voice-centric to increasingly data-oriented. This technology and usage shift has a direct impact on the evolution of the mobile backhaul solution”**

their OPEX and ensure that a sound utilization of capacity is performed since newer types of data traffic are bandwidth hungry. Both SCPC with its service guarantee and efficiency, and TDMA with its flexibility could help, but they would have to operate almost simultaneously.

Enter our patented technology: Mx-DMA™ or Cross-Dimensional Multiple Access. Mx-DMA combines the benefits of SCPC and TDMA, ensuring that all the traffic is accommodated at each remote base station while efficiently multiplexing the bandwidth between these remotes

to decrease the backhaul operating costs. The Mx-DMA access technology also includes a new low latency and highly efficient waveform called HighResCoding™ (HRC). HRC brings a very high granularity in MODCODs so that the highest transmission efficiency and link availability is achieved at any moment in time.

As a result, the technology for satellite backhaul has to be repositioned for maximized efficiency. SCPC is then focused on very high services (trunking) or point-to-point, MF-TDMA provides the lower end while Mx-DMA covers the largest range of dynamic services.

#### Quality of Service

Mobile operators usually assign a higher priority to voice and signalling compared to data. However, the ability to differentiate traffic, manage the peak requirements and get a service level commitment is equally important in newer backhaul solutions where data occupies a substantial share of the overall service.

Mx-DMA is based on a seamless and continuous adjustment of the whole carrier plan to adapt to the network conditions, ensuring that the highest quality of service is available at all mobile base stations with the lowest jitter and delay. Any mobile traffic, therefore, is

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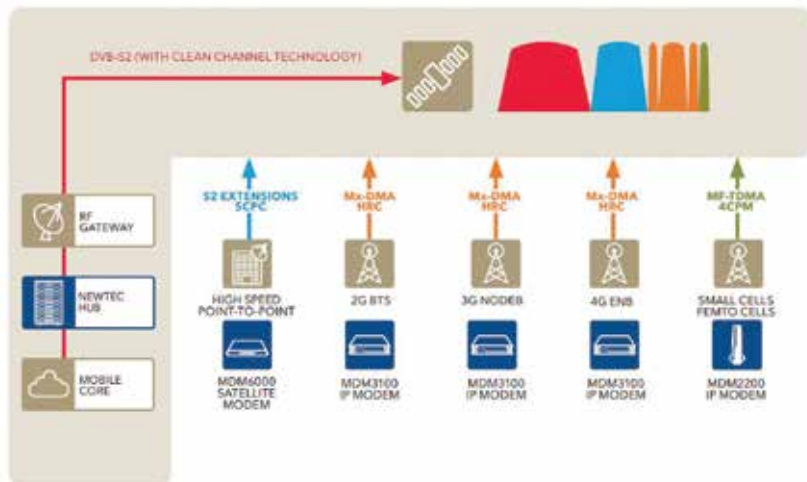
Additionally, Mx-DMA implements a smart management of link margins which is particularly useful with High Throughput Satellites that typically leverage Ku- or Ka-bands which are more sensitive to rain fade. Furthermore, Mx-DMA guarantees maximum throughput while constantly adapting to the rain effect.

#### Efficient, Scalable and Flexible Solutions

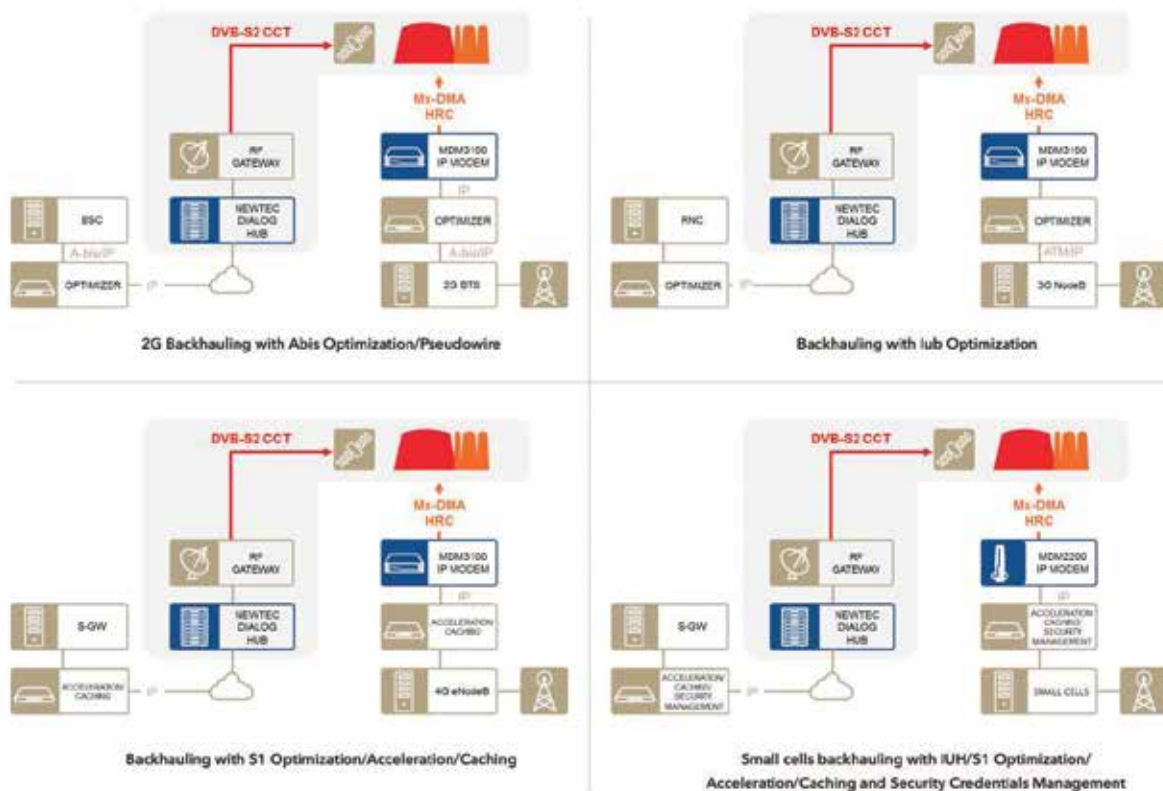
Newer backhaul solutions also have to be extremely flexible and must be able to serve all mobile technologies, including 2G, 3G, 4G and small cells; applications, like voice, data and signalling; architectures, such as point-to-multipoint, point-to-point and trunking; and satellite services.

Bursty and lower traffic volumes, for example, which can be expected in rural small cells, can be conveyed through

#### Clean Channel Technology® ensures efficient performance without additional jitter



#### Overview of bandwidth optimization solutions integrated in backhaul deployments



the appropriate MF-TDMA technology. Increasing volumes with video shall leverage the disruptive Mx-DMA while trunking to international gateways or point-to-point applications for dedicated voice can utilize SCPC. Newer networks are also looking at aggregating the traffic of thousands of small cells, making scalability key.

On the other hand, efficiency should not be forgotten and satellite bandwidth must be spared. Mx-DMA works in conjunction with our end-to-end technology called FlexACM® and Clean Channel Technology®; the result is lower operating costs without the introduction of any additional jitter.

#### Bandwidth Optimisation:

##### Reduce OPEX and Enhance User Experience

Different bandwidth optimisation solutions also need to be integrated in backhaul deployments to increase efficiency and service offering. For 2G E1, Abis optimisation removes unnecessary information and gains additional capacity, while bandwidth cancellation helps reduce the OPEX but only for point-to-point configurations. In 2G IP and 3G IUB, advanced compression techniques subsequently reduce the bandwidth requirements. For 4G, acceleration, compression, caching and traffic shaping help enhance the user experience, becoming key as the traffic becomes more data/video centric.

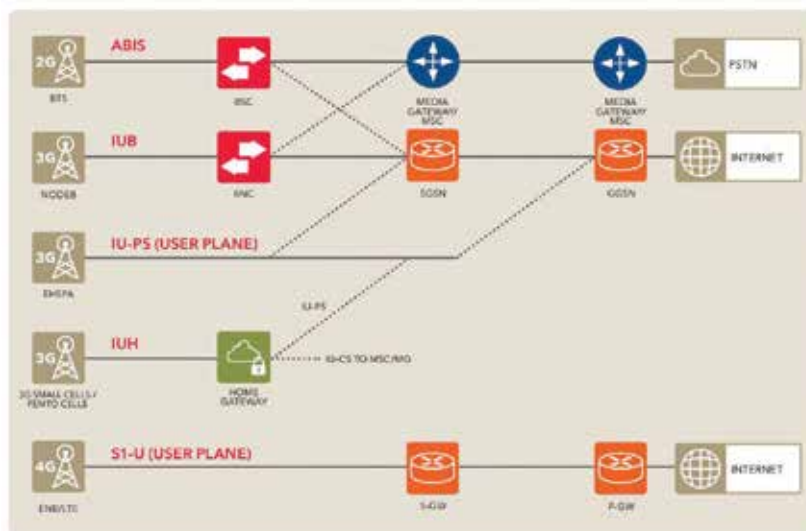
#### Typical Deployment

The mobile infrastructure is driven by the standards defined by the 3GPP organization. It typically leverages different types of interfaces for the different technologies. These interfaces can also have different variants (TDM/IP) and protocols (Abis/iub/iu-ps/iuh/S1). The satellite solution can operate at the access (e.g. Abis), between the BSC and MSC or even for trunking (e.g. between the media gateways).

#### Conclusion

Early satellite backhaul deployments were focused on voice only, but the landscape has radically changed since then. Newer habits and newer mobile technologies

### Deployment of the mobile infrastructure



**“Mobile operators have to invest in solutions which can best serve them today and are also geared towards their fast evolving environment”**

and devices are driving towards solutions which have to be the best in efficiency, scalability and flexibility. 5G will provide even higher speeds and more services in a Cloud environment and with demanding QoS. Mobile operators have to invest in solutions which can best serve them today and are also geared towards their fast evolving environment. **PRO**

*By Semir Hassanal, Market Director Cellular Backhaul & Trunking, at Newtec*



# Empowering Military Satcom

Military and government leaders are looking to improve satellite performance through seamless network service. This panel at Milsatcom discussed the requirements to achieve network success and future trends with satcom







### Panellists

**Hisham Fadel**, Executive Director, Business Operations, YahService, Yahsat  
**Dr. Mohamed A. Hasan**, Lockheed Martin Fellow, Lockheed Martin Space Systems  
**Julien Veyssiere**, SATCOM Project Manager, Thales Communications & Security

**Moderator:** LTC John J. Hennessey, Chief of Operations, United States Army

**Moderator:** What is the threat for satcom, and what are the challenges that customers are facing with it? What do you see as the current trend with jamming and how is that going to affect systems in the future and the resources we have put towards it?

**Julien Veyssiere:** From my point of view, the trend is not good. Jamming has been identified as a threat for quite a long time. From my experience with French forces and NATO forces, and we have seen occurrences of jamming in the systems that are deployed – both in African

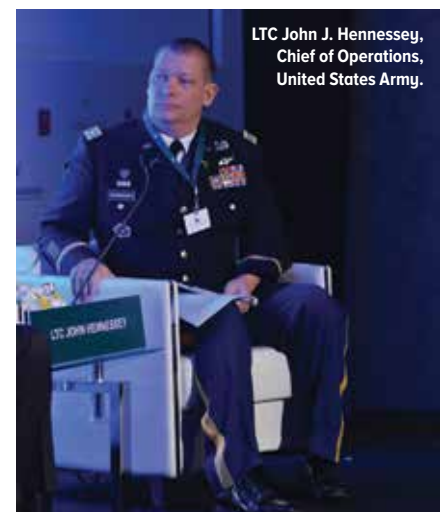
deployments and Asian deployments.

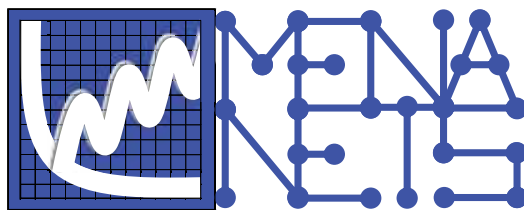
This has become a real threat over the past years. The trend is not only large jamming which would disrupt the whole system, but also towards small tactical jammers, that as far as the enemy is concerned, are easy to deploy, and hide after the jamming has been done, and it is a threat which is physically very difficult to mitigate. We are seeing this across all deployments. Also, there is another trend which must be taken into account, which is a growing trend and very important. As we are moving towards higher frequencies, with Ku-band, we are getting unintentional jamming from adjacent satellites. As we are getting more users, not just military, but even in other spheres, we are seeing more and more accidents.

So if military or government are using these bands for their critical communications, it is very important to ensure that these threats do not cause immediate disruption of the services. If you are a commercial TV broadcaster, and you have a disruption it is dramatic, and has a huge financial loss attached to it, that cannot be estimated, but this is even more so if you are military and a user satellite bandwidth. You cannot

just afford this disruption of services.

This is why we put forward our system which operates with frequency hopping that is intrinsically designed to mitigate jamming. It is a military system that has been enhanced and developed to provide full-time protection. The anti-jamming capability of the modem is always active. The modem 21E system developed by Thales is a system that is capable of





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Hisham Fadel,  
Executive Director,  
Business Operations,  
YahService, Yahsat.



Julien Veyssiere,  
SATCOM Project  
Manager, Thales  
Communications  
& Security.

reconfiguration and dynamic adaptation.

**Moderator: Hisham what do you see as the challenges facing military satellite communications users today?**

**Hisham Fadel:** The first is that there is a continuous drive to reduce the size of the terminals. It doesn't matter how small the terminals are. There is always a request from the end user to create a smaller and more agile terminal. We all know when the size of the terminal decreases, the beamwidth increases. When this happens, you are splashing more on the neighbouring satellites, so you have to spread more. When you do this, more capacity is being used, hence the price per megabit per second increases.

The second challenge that we see is the inherent high cost for any newcomer to be part of the sovereign milsatcom arena. To be able to afford to launch a satellite, secure an orbital slot and be in a position to offer services in an effective time-frame, is no easy task. Another big challenge that we see for the various users are that every modem manufacturer sings their own tune. You have a standard called DVB-RCS, yet no one follows that standard. One can argue that the most effective part of the satellite industry has been DTH TV broadcasting, basically the manufacturers standardised. Everything was interoperable, and then you saw a great boost for the use of DTH via satellite.

In the milsatcom world, while you can understand there to be certain particularities between one approach and the other, there is absolutely no commonalities between the various solutions. The increase of cost in the various terminals is also there. A milsatcom terminal can easily run in the six-digit or seven-digit figures. This is another issue that we face.

**Mod: Dr. Hasan, both Julien Veyssiere and Hisham Fadel have mentioned the cost for either anti-jamming capabilities, terminals and other equipment. How do you see companies going forward offering a cost-effective method of securing satellite communication?**

**Dr. Mohamed A. Hasan:** One cost-effective methodology that we have invested significantly in is advanced digital processing capabilities. We have a digital processor that can offer frequency-hopping at a reasonable cost compared to others. It is an FPGA based system that can be re-used and re-configurable for multi-mission applications. We call it Re-configurable Advanced Mission Processor. This Mission Processor can provide the frequency-hopping solution which is very cost-effective compared to ASIC-based solutions that would achieve the same mission. The processor is on-board the satellite. It supports frequency hopping from one user terminal to another, and so it provides a lot of anti-jamming capability.

It can be produced at a reasonable cost and schedule compared to a specific ASIC design. Lockheed Martin is currently offering this not only to government customers but also commercial customers who want to offer services to government users. That is one application, where we can secure communications using digital processing.

Another technology that can be used, even though it is not as cost effective yet, but there is a lot of effort to minimise the cost of production of active array systems. This could provide anti-jamming capability on the satellite by the antenna. This is a bit more challenging in terms of cost, because you need to produce many active arrays, but it is something else we are investing in to mitigate intentional jamming and hacking. This is not comparative to unintentional interference.

**Moderator: Hisham, to put a satellite in orbit. To design it and launch it, takes many years. The ground terminal seems to be the quicker solution for some items to make things more secure. Where do you see the trend going with ground terminals?**

**Hisham Fadel:** The technical solutions out there might be industry shakers. Things like Negative Impedance or meta-material where you need significantly less complex solutions to get above a certain surface area. Another very important factor going forward is the High Throughput Satellite (HTS) revolution. Over the past years HTS

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**Tanja Masson-Zwaan**  
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has become the norm in the industry where the frequency being used and increase in bandwidth significantly going forward. What this does is that it reduces the cost per megabit per second for the user.

Another thing is the self-healing networks. We in the space industry are nowhere close to the ground industry regarding self-healing networks. If you have certain fibre-optic connectivity, you use certain protocols in order to go around a certain failed line. On the satcom side you have to be a bit cautious in how you plan things. You have multiple plans available in your network. If you use a certain node, you go into a backup plan.

Last but not least would be the modem optimisation. There are a lot of improvements happening in order to improve modulation, coding scheme, and in order to fit more bits into a certain scale. So this is how we see the whole trend moving forward.

**Moderator: Julien what do you think about the trend in ground terminals?**

**Julien Veyssiere:** As far as Thales is



**Dr. Mohamed A. Hasan,**  
Lockheed Martin  
Fellow, Lockheed  
Martin Space Systems.

concerned we are seeing the recent evolution of going towards on-the-move solutions like vehicles and ships.

The most recent trend we have seen is focussing on more advanced solutions

regarding UAVs and observation airplanes that require high throughput for satcom services. There is also the integration of satcom communications into the fighter airplanes. This is one part of getting the OTM applications, which was a trend less than a decade ago, but which is now a real market.

Another trend we see in the usage of satcom assets is that now they are being used more in the combat zone. Our experience in the early-2000s, was that the French forces and NATO used HTS that was very resilient from the mainland to HQ. Now the requirement that we see is putting satcom in vehicles.

There are very small terminals that can allow soldiers to take satcom to the battlefield. As a solution provider this means we have to adapt to this new usage of satcom, by providing smaller terminals which are more integrated and tactically robust. This also means that the antennas are smaller, so you need to have a transmission system which is compatible with respect to the frequency co-ordination constraints. **PRO**



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## THE WORLD WITHIN REACH

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# Addressing Insatiable Demand **with Infinite Choice**

Entering the Zettabyte Era:  
Satellite plays a key role in future  
hybrid communication networks

## **Upheaval in the Global Video Market**

The global market for video content delivery is undergoing an upheaval of major proportions; virtually all the previous limitations in this market: space, time, size, cost, complexity and functionality no longer deflect consumer demands for more content, better quality, wider access, increased choice and faster delivery.

Multiple screens are almost everywhere, from living rooms to large cinemas and from giant outdoor screens to inside pockets; they offer almost unlimited content, dozens

of platforms, providers and networks. Consumers' expectation for high-speed, high-quality service anywhere, anytime, triggers a historically unprecedented demand for bandwidth and network capacity.

The network giant Cisco predicts an increase in annual global IP traffic to a mind-blowing one Zettabyte – one thousand billion Gigabytes – by 2016.

Heavier and heavier individual usage could require as much as a 100-fold increase – or even more – in multi-connected households' data consumption in Europe.

Can networks cope with this? Can operators afford such traffic? Can we expect it to generate residual, if any, transport value? Is the implied carbon footprint explosion acceptable? Would citizens have equal access to the content?

The answer to all of these questions is far from a straightforward “yes”.

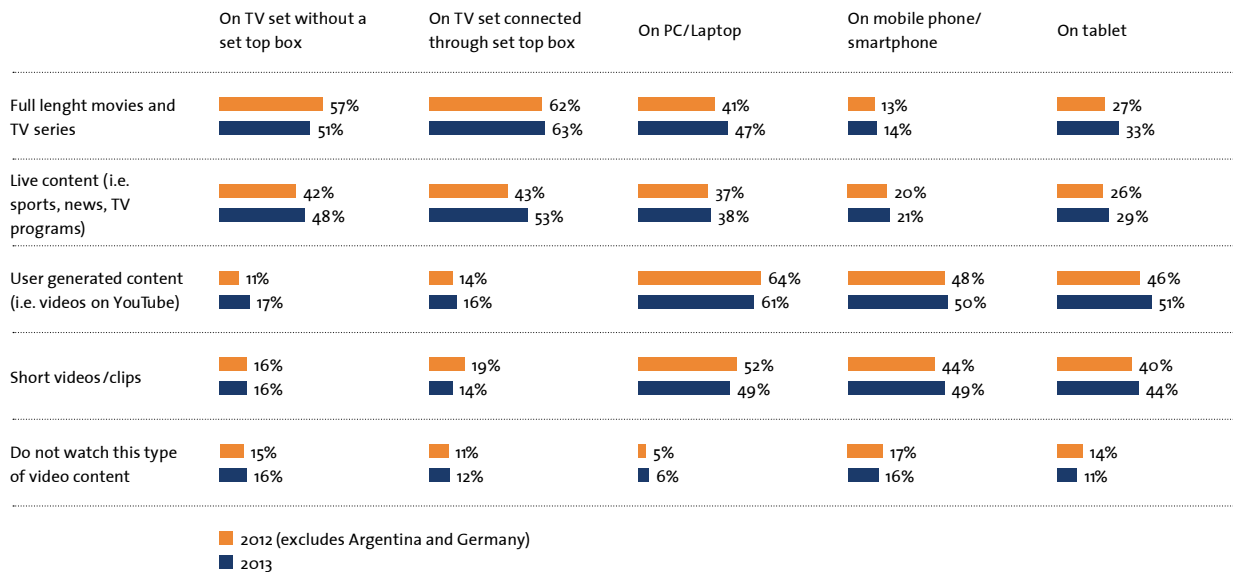
## **The Technology Supernova**

People no longer care from where they get their video. They want it anytime, anywhere and on any device.

Video is on the way to becoming an infinite

## CONSUMPTION OF VARIOUS CONTENT BY DEVICE TYPE

What type of video content do you usually watch over the internet on each of the following devices?



Source: Accenture Video Solutions Survey 2013

and personalized choice with unimpeded access. Triple and quadruple play offers, on demand non-linear media, Next Generation Video, over-the-top content, multi-play, mobile, M2M: network architectures and infrastructures are preparing for the gigantic

approaching wave of insatiable demand.

We are witnessing the creation of an explosive new communications culture in many ways similar to a kind of controllable technology supernova, signalling and illuminating the end of one galaxy and the beginning of another.

A new generation of delivery technologies is fast emerging, such as Next Generation Access (NGA) networks, optical fibre in broadband networks, new mobile communication standards and an enhancement of the Long Term Evolution (LTE) standard, developments aiming at TV White Space, WiFi, and fifth generation mobile networks.

These new technologies are backed and complemented by new fibre networks and innovative assets in space: ultra-high throughput satellites, low- and medium-earth orbit, geostationary high bandwidth satellites and high altitude aircraft in the stratosphere providing unprecedented

Delivery to multiple screens has become something consumers expect

broadband coverage around the globe.

Understanding this technology supernova – getting the moving elements technically and commercially right – will be critical for the economic and social viability of communications media over the next decades.

### Ultra High Definition (Ultra HD)

Terabytes of traffic per household, a 100-fold increase in data consumption and above all, the emergence of Ultra HD, are completely changing the equation.

Ultra HD is revolutionizing image quality, and in the process is ringing the changes in everything from program production to distribution technology.

Ultra HD (often also referred to as 4K) television sets are already available from most major TV manufacturers and are the harbingers of a new content-driven mass market.

The headline facts are dramatic: Ultra HD delivers four times the picture resolution of 1080p full HD, and will produce up to 120 images per second, with substantially more colours and more contrast, thus improving image clarity with finer detail, and greater texture. Once seen, the impact of Ultra HD is never forgotten.

Ultra HD will become the driver of a high quality video market within the next decade. It is set to bring everything else into focus. According to research, two thirds of consumers want to have an Ultra HD screen once they have seen it, and every 4th consumer would be ready to pay more to receive High or Ultra High quality. The necessary technology has been developed and is coming to market, as is (and will be) the necessary content.

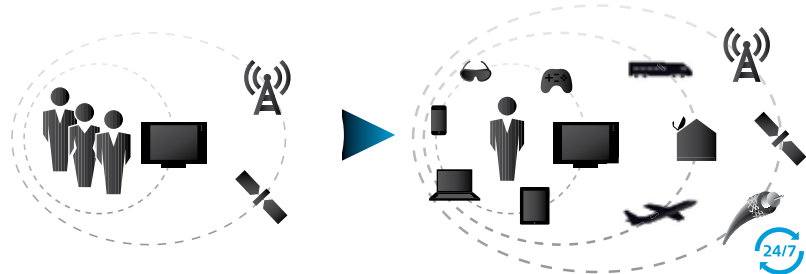
Industry forecasts agree on the market outcome, with predictions of over 1000 Ultra HD channels, over 500 million Ultra HD screens sold, and more than 400 million HEVC set top boxes installed by 2025.

Additionally, it is predicted that no less than 55% of European consumers will have bought Ultra HD TV by the same date. 9 4K is the Digital Cinema resolution of 4096x2160 pixels. UHF features 3840x2160 pixels. 10 Ericsson Consumer Lab 2013 11 High Efficiency Video Coding 12 Sources: GfK, IHS, Ericsson

### UNIVERSAL CONSUMER PREFERENCES



### FOSTERING A NEW ECOSYSTEM



**“Ultra HD will become the driver of a high quality video market within the next decade. It is set to bring everything else into focus”**

Consumer Lab, Strategy Analytics 2014  
Strategy Analytics Consumer Metrix.

**What does an ideal future video network look like?**

The challenge for the stakeholder companies and potential partners is a significant and onerous one.

Using today's resources, it is estimated that HD-quality video throughout



Europe requires 35 times more gigabytes of video per month than are currently consumed in each European household.

Only just over half the population could receive this, leaving out 45% of the potential viewers.

Ultra HD would need 100 times more gigabytes per month per household, and this would leave out

four fifths of the population.

The bill to implement very significant and complex technology upgrades and to provide the terrestrial connections to accommodate the faster speeds on present estimates would cost no less than an estimated 150 billion euros in Europe for the terrestrial infrastructures alone.

To this figure must be added an

unquantifiable extra and ongoing operating cost costing, over time, many more billion euros for the necessary ground installations.

It will certainly be a challenge for governments and private companies to foot this dimension of bill and find the necessary public funding as well as commercially attractive business models to live up to such open ended commitments.

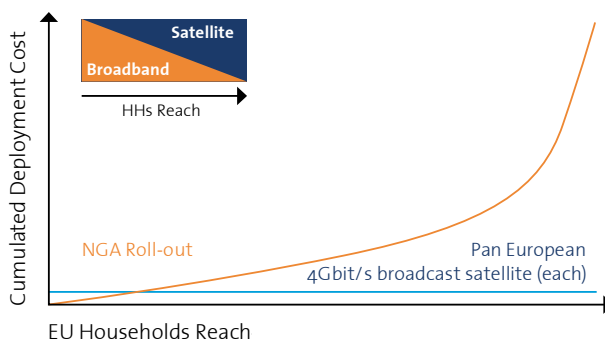
This scenario might also introduce and establish a two-tier market of media haves and have-nots, opening a wide and long-lasting media crevice in European culture and society, which the European Commission has already issued a warning about.

The solution to this challenge cannot therefore be monolithic.

Telecommunications operators know that they cannot spread and deploy fibre everywhere, and this explains why they have been working on complementary technologies. The limitations on the spread and reach of cable are well known, as such work inevitably involves renewed digging of trenches and holes in streets and roads across the world.

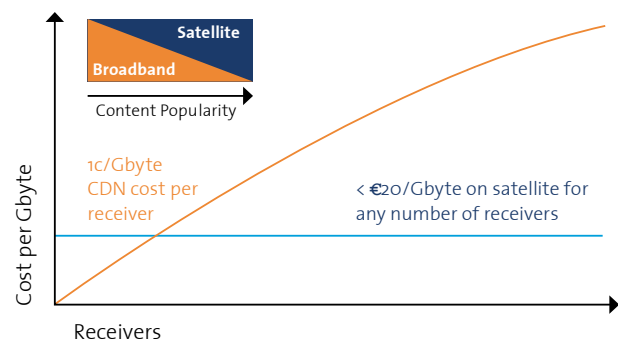
In mobile technology, network costs have started to overtake and become decoupled from revenue, and any new market such as HD must avoid the same mistake. This would happen again with Ultra HD and so there is a major premium

## REACH

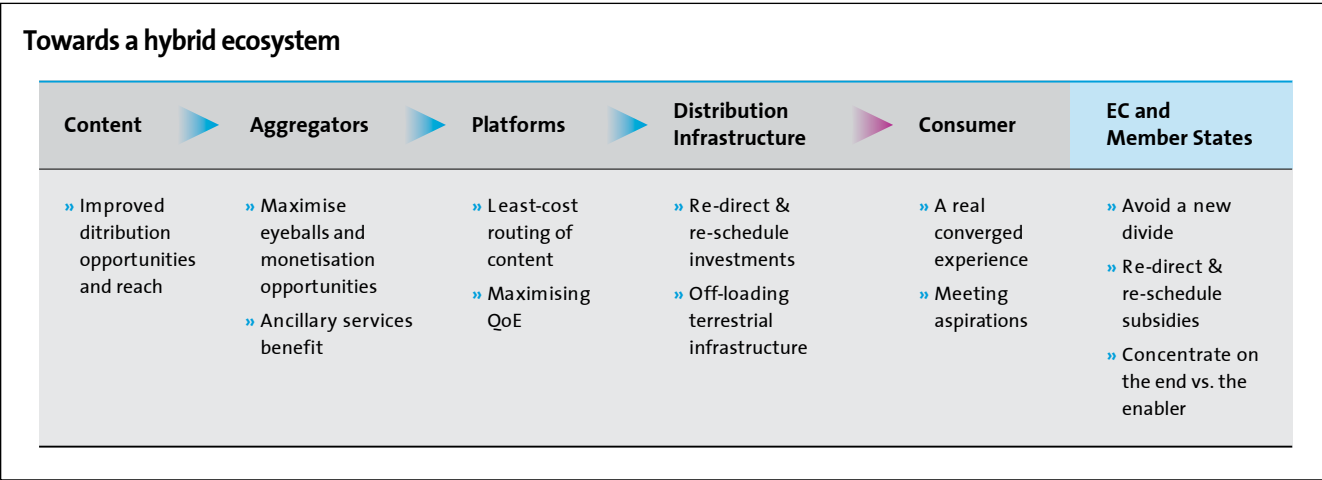


- » NGA deployment cost going exponential
- » Incremental satellite user cost unchanged and an installed basis of 86 Mio HHs in EU (46 Mio HHs from SES' 19.2 degrees East orbital slot alone)

## DISTRIBUTION COST



- » Satellite to stream and push most popular content (video + others) to a "home-CDN"
- » Terrestrial for interactivity, long tail and time-critical access



on getting the business model right.

The operators also know that the strongest factor driving capacity demand on the internet is the growing demand for video traffic. This cannot realistically be satisfied by streaming over the non-linear networks.

In summary, as the market currently stands, there is no single technology that will create the global and popular video network offering on its own.

Satellite in the Zettabyte Era

But satellite has a particular value in this equation.

In delivering television directly to nearly half a billion households worldwide, satellite is already in the Zettabyte Era.

Each single satellite is a direct 4-Gigabyte-per-second-pipe, accessible to any user or household within the footprint for any kind of live, downstream and push video or non-video content.

**Hybrid is:**

- Enabling smarter networks by combining terrestrial and satellite strengths, delivering connectivity and content in the most cost and quality effective ways to the largest number of households and users
- Satellite blends in terrestrial at any network node from central offices and Internet exchanges down to wireless stations, caches or to the home.

**“A satellite network does not slow down or cost more when additional receivers are added because the satellite is consistently broadcasting into a specific geographical area”**

A satellite network does not slow down or cost more when additional receivers are added because the satellite, once deployed, is consistently broadcasting into a specific geographical area and the signal is ever present.

The number of receiving households becomes irrelevant with satellite broadcast, but for a telecoms operator it is significant and substantial, knocking the previously successful business model off balance.

This is exactly where and why the business model of satellite provision needs to be placed at the centre of the technology supernova.

With its unsurpassed universal capacities and its unmatched economies in one-to-many traffic, satellite is an ideal infrastructure to complement other networks and play a central role in building an optimal, smart and future-proof next-generation network.

It is therefore vital to cooperate on

hybrid satellite-terrestrial solutions as they operate at a fraction of the cost. They help offload networks and redirect investments; they accelerate the delivery of multi-play benefits, allow the distribution of a new digital dividend to citizens and thus help to avoid a new digital divide.

Towards a hybrid ecosystem

The clear conclusion is that the ideal future network is hybrid, and that it is possible, viable and capable of being created now. In a spirit of composition and collaboration, meeting and satisfying the “insatiable” consumer demand can only be done efficiently by bringing together a wider range of industry interests.

Companies and interest groups should be encouraged and recommended to find competitive combinations of the ideal characteristics of different networks, and of the traits that can be brought into hybrid ecosystems that can compete with each other on the basis of their product and service mix.

The intent of the 5G initiatives is precisely to transcend networks and delivery infrastructures to create a ubiquitous, flexible and future-proof digital space.

Competition will preserve and sharpen the qualities of the new hybrid constellations in their knowledge and in the extent of their provision of what the consumer wants and will pay for. This is also particularly relevant when countries agree to invest in telecommunications infrastructure in order to accelerate the

deployment of Next Generation Networks.

As with our original role a generation and more ago in feeding cable networks, and also more lately in supporting the deployment of digital terrestrial infrastructure, the satellite can again be a primary infrastructure player, bringing critical components to improve the performance quality of other networks.

Two examples point the way towards this possibility. SES's subsidiary, HD+, offers a harbinger of the change: it supplies a free-to-view ecosystem with high quality content and has built a platform that allows commercial broadcasters to encrypt and protect their signal, and provides a business model for HD broadcasting of their content, thus giving consumers access to incremental HD video.

In addition, Oi, the largest telephony company in Brazil and the second largest in Latin America, with 22.2 million landlines and 31.7 million wireless customers, also provides a view of the future. Now merged with Portugal Telecom, Oi has contracted a large part of the SES-6 satellite to transmit triple- and quadruple-play hybrid services, extend its reach and deliver uniform Quality of Experience. No less than a third of Oi TV's 200 channels are HD.

SES has also made a first inroad into this content mobility by developing its SAT-IP technology which allows the translation of satellite signals at the home reception point, namely the

Wi-Fi box or the dish, into an IP signal, reaching multiple screens (laptops, desktops, notebooks, tablets and smart phones).

Our conclusion is that a new type of network needs to be a unique blend, a collaboration of capabilities. And satellite can facilitate these emerging hybrid constellations.

Broadcasters get revenue share, signal protection, a Conditional Access platform for additional opportunities, Hybrid Broadcast Broadband TV (HbbTV), replay, Video on Demand and streaming. Retail partners get recurring commissions, hardware revenues, sales support and floor traffic in exchange for point of sale coverage and technical reach. Set top box manufacturers would get their specifications implemented in exchange for providing hardware varieties.

Customers get access to a wide

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**"The intent of the 5G initiatives is precisely to transcend networks and delivery infrastructures to create a ubiquitous, flexible and future-proof digital space"**

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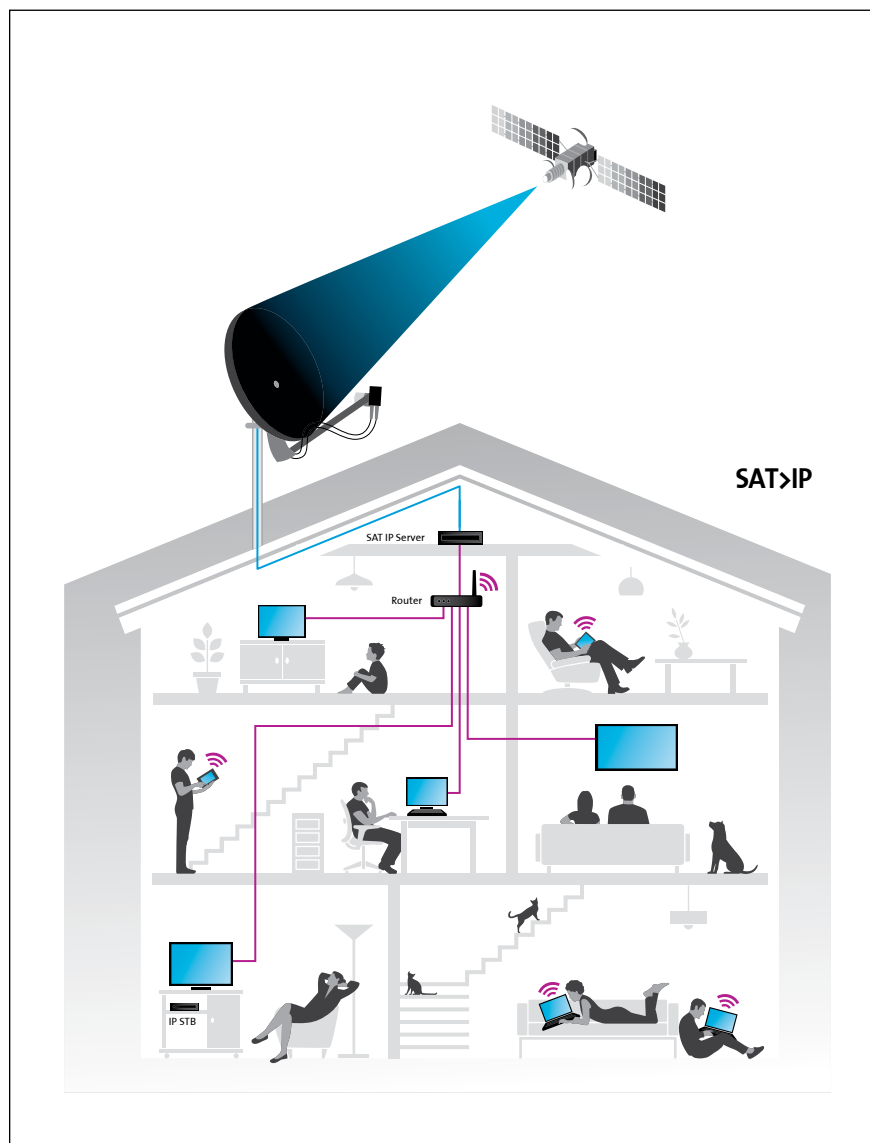
choice of content and in the process may care even less about exactly how the network has been delivered.

The industry, working collaboratively, should be ready and capable of fulfilling their demands.

SES believes that the technical network can be constructed to enable this vision, and enable operators to develop and offer a multitude of network choices for consumers who are becoming indifferent to particular networks or architectures.

The future is already here. Together all we have to do is to realise it. **PRO**

*SES White Paper. Published in July 2014*



# Connecting the Unconnected

Wiseband CEO, Ahmed Hassan speaks about how the company is integrating satellite technologies into under-served markets to 'enhance people's living'

**While satellite operators keep building new satellites to expand their fleet, there are more powerful satellites with increased throughput, bandwidth and thousands of Megahertz already available in the market. However there is still satellite demand that is not being met, even with all the available capacity in the market. A lot of hardware manufacturers such as amplifier and antenna manufactures are shutting down, and even ISP's using Ku-band and C-band are slowly disappearing.**

All this is happening because their market strategy was the same, which was to provide internet via satellite. None of the satellite operators or satellite manufacturers were looking at a low-cost option for satellite solutions. The cost of equipment is high, as are monthly bandwidth charges. With expansions in fibre and laying submarine cables around the world, the price of communications is driving prices lower and lower, while LTE is growing fast. In this case most people will decide on choosing the lower cost option available for them.

We needed to create the opportunity with our customers to offer them a powerful solution. The solution had to be always on, by making satellite connectivity useful for them always, not only as an option for war time. We are offering solutions for medical use when communication-on-the-move is a must for ambulances, as an example to send all needed information about the patient on the move till he reaches the hospital, whilst adopting the latest technology being used in telemedicine which is traditionally connected via an ethernet interface.

Other applications where we use satellite connectivity include offering offshore workers communications with their families in their homes to help reduce the number of suicides for workers who stay away from their families for more than 40 days on each trip.



**"Three out of five people are not online, an almost unfathomable number to those of us who enjoy the privileges of broadband connection"**

Ahmed Hassan, CEO, Wiseband

We are basically integrating many different technologies to be introduced in the market to create real solutions that enhance people's living.

We aim to adopt the latest satellite technologies to connect the unconnected. Three out of five people are not online, an almost unfathomable number to those of us who enjoy the privileges of broadband connection, but to bridge this gap will require more than just technology, power and space. The unconnected often lack the skills, means or incentives to utilise the internet, or even someone to help them acquire this.

The digital divide follows the same lines that divide town versus country, and bridging one will help bridge the other in many areas, including education, information, and healthcare. However, this is not just a case of doing the right thing. There is a business case to be made here; as urban markets are saturating, the rural unconnected represent a massive untapped market for the savvy telco. Industry stockholders must think outside the box to create new business models that can sustain rural markets and bring benefits to the whole industry.

We need to create services that offer the scale and expertise to create a complete solution for clients. From design, to planning, implementation to installation and commissioning to operation and support. We need to have the depth and experience to respond to your unique challenges and opportunities. Wiseband turn-key integrated systems provide our customers with the complete benefit of our experience. We hand-pick each component as though we were building our own earth solution. We rely on our established long-term relationships with major industry suppliers who provide us insight into the latest technologies currently available as well as what is coming to the market. **PRO**

# Shaping the future with SES

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

We cover the Middle East with 9 satellites, offering our customers a balance of capacity, customized support and local market knowledge to fuel the Middle East's demand for innovation and expansion.

Find out more about how we can extend your reach across the Middle East and beyond at [www.ses.com](http://www.ses.com)



# wiseband

Communication Without Limits

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