Satellite Executive BRIEFING

Vol. 9 No. 6 September-October 2016

SATELLITE Markets & Research

Industry Trends, News Analysis, Market Intelligence and Opportunities

European Broadcast Satellite Market Trends

by Elisabeth Tweedie, Associate Editor

As has been mentioned in previous articles, in the Satellite Executive Briefing (March and July-August 2016) traditional linear broadcasting and traditional wide-beam satellites are both facing major challenges. So, is the IBC, which will be held this month, still relevant for our industry? In other words what are some of these challenges and how is the industry addressing them?

The first and inescapable one, is the transition to Internet Protocol (IP) coupled with the rise of Over-the Top (OTT) services. This issue is by no means confined only to the US market. According to a report from Digital TV Research, Western European OTT TV and video revenues will more than double between 2015 and 2021, reaching US$ 14.64 Billion. Netflix alone is forecast to have more subscribers outside the US than in the US by 2018; according to a new report from IHS. Western Europe will be the second largest market (the US being the first) by the end of this year. The UK leads this market with six million subscribers, closely followed by the Nordic countries and the Netherlands with a combined total of 5.4 million.

Netflix and Amazon, the two biggest names in OTT, are now being joined by another big name: Facebook. Facebook video is still in the experimental phase and is primarily focused on live video between individuals and groups. However, Facebook has allegedly signed contracts with nearly 140 media companies and celebrities for content for Facebook Live. Mark Zuckerberg has clearly articulated the importance of video to Facebook: "Right now, the big theme and strategy that we are executing is we're going to become video first." It remains to be seen whether consumers will respond to professional content from Facebook, or confine themselves primarily to using Facebook live for interaction with friends.

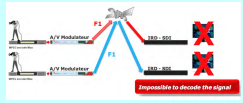
This move to OTT, impacts traditional linear broadcasters, many of whom are rising to the challenge by developing their own OTT offerings, as an enhancement to their legacy services. It also impacts the technology companies that serve the

Continued on page 4

What's Inside

From the Editor.....3

Brexit: Implications for the Satellite Industry.....9



TechBrief
Carrier ID.....25

Back and Forth
L. Zacharilla.....21

Conference Reports
WSIS.....14
CommunicAsia.....36

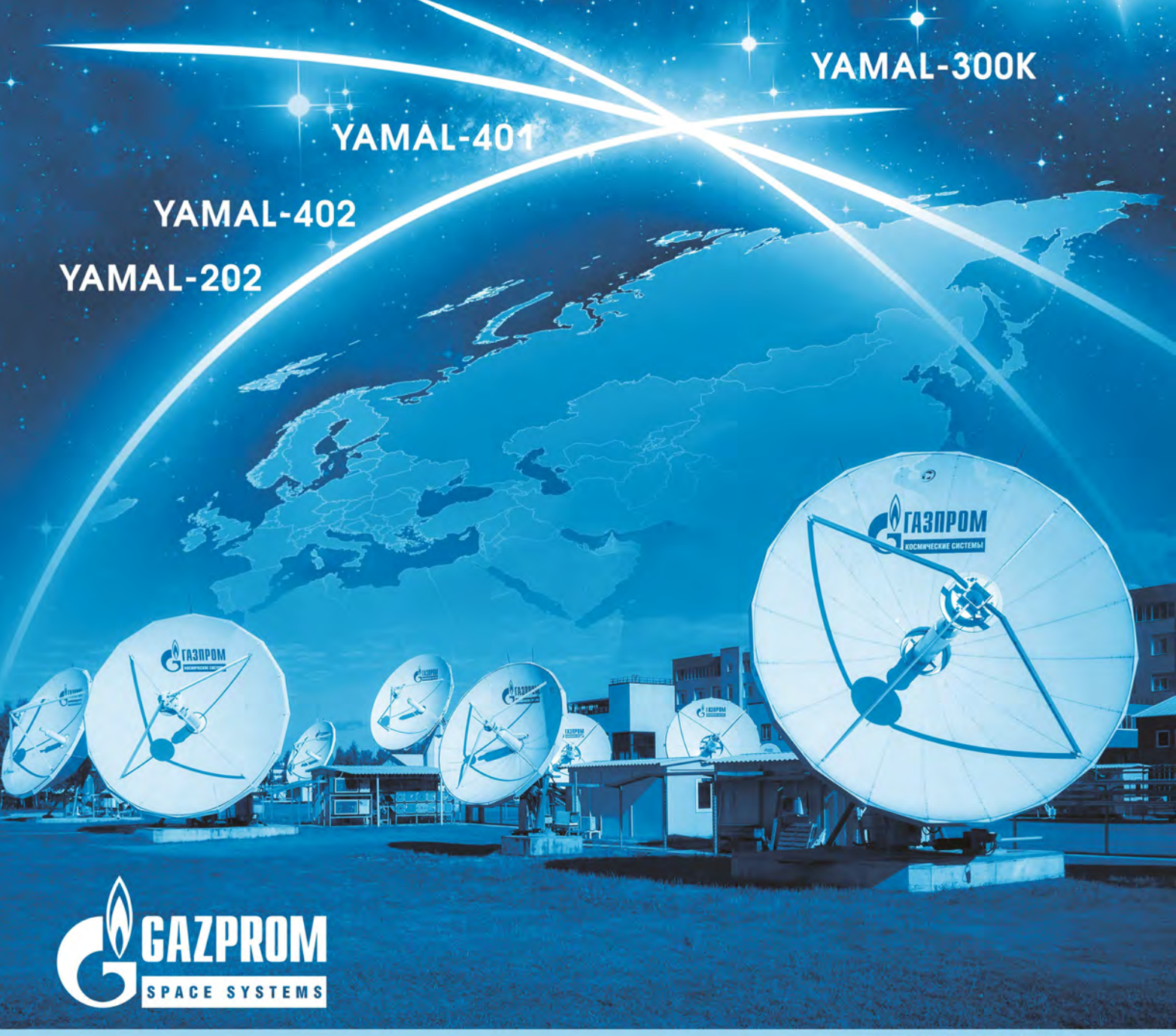
Products and Services MarketPlace: IBC 2016.....26

Featured Companies
Amphinicy.....12
SpaceBelt.....23

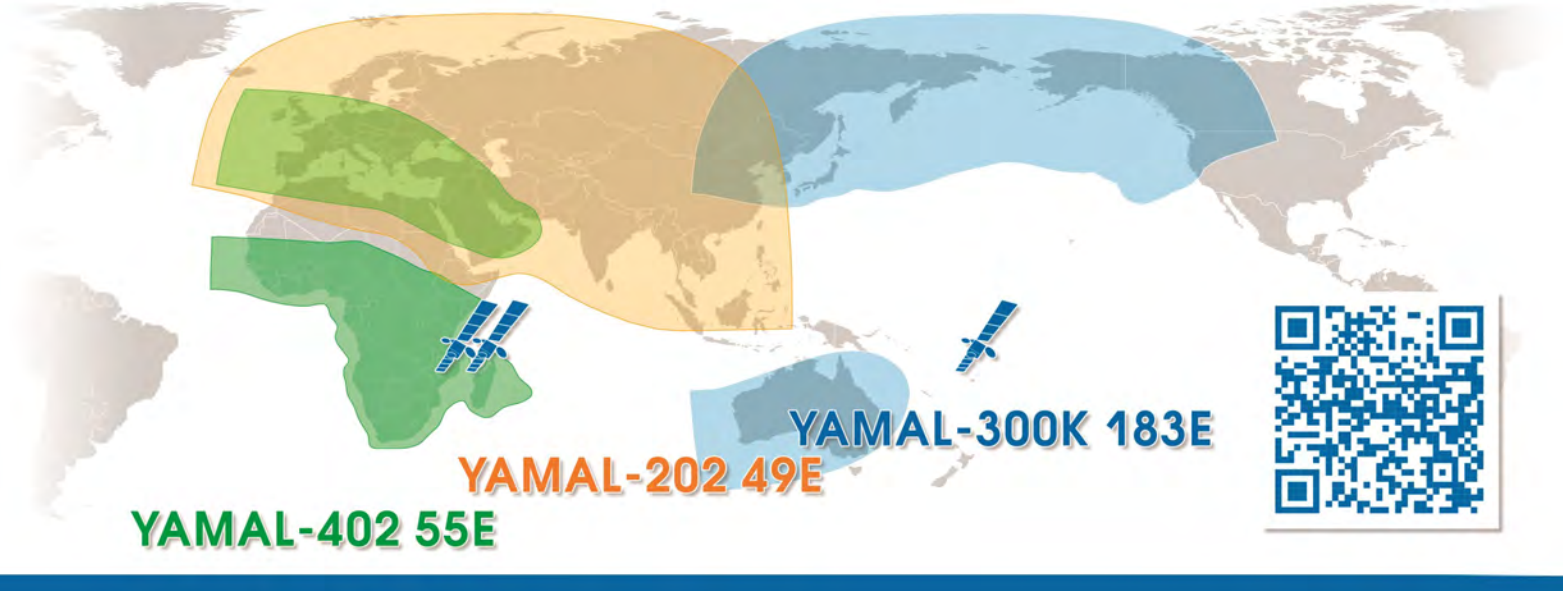
M & As.....35

MarketBriefs.....43

Advertisers' Index..50



www.gazprom-spacesystems.ru



The European Broadcast Market

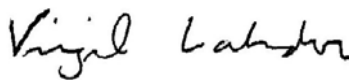
This month, the industry will be focusing on one of the most important shows of the year—the IBC in Amsterdam, the Netherlands. While mainly a European event, the IBC is always a good barometer of key industry developments and trends that have implications far beyond European shores.

Europe, like most of the rest of the world, is facing challenges to its traditional broadcasting industry. While the living room and linear viewing are still important, so too is Over the Top (OTT) and mobile viewing. 4K TV is gaining foothold.

According to Digital TV Research, satellite is also facing challenges in Western Europe, with more homes , paying for telco television than for satellite television. In the 18 countries surveyed for the report, there were 25.54 million homes with paid IPTV services, compared to 24.6 million paying for satellite TV.

Digital TV Research is forecasting that by 2021 there will be 32.53 million IPTV homes and the number of satellite homes will fall further to 24.31 million in Western Europe. OTT services in Western Europe are projected to generate US$ 8.5 Billion in revenues by 2021. Even Eastern Europe is getting into the OTT bandwagon and subscriber numbers there are climbing exponentially.

These developments are covered extensively in this issue and will be given more clarity at this year's IBC. We look forward to seeing you there.



Virgil Labrador, **Editor-in-Chief**

Satellite Executive BRIEFING
Industry Trends, News Analysis, Market Intelligence and Opportunities

Satellite Executive Briefing
is published monthly by
Synthesis Publications LLC
and is available for free at
www.satellitemarkets.com

SYNTHESIS PUBLICATIONS LLC
1418 South Azusa Ave. Suite # 4174
West Covina CA 91791 USA
Phone: +1-626-931-6395
Fax +1-425-969-2654
E-mail: info@satellitemarkets.com

European Satellite Broadcast Trends...From page 1

broadcasters. As Didier Mainard, Executive VP, Media Distribution Services at Globecast said: " As audiences become more fragmented, the broadcast industry has had to reinvent its relationship with its viewers. As a result, broadcasters and content owners have had to be more nimble than ever before. Not only do they have to find a way of responding to consumers' demand for anytime, anywhere, any device access to content, but also increasingly they are being expected to deliver a more personalized content experience."

"...As audiences become more fragmented, the broadcast industry has had to reinvent its relationship with its viewers. As a result, broadcasters and content owners have had to be more nimble than ever before. ..."

***-Didier Mainard,* Executive VP Media Distribution Services, Globecast**

Globecast is adapting to this need by providing a very flexible media management platform that allows broadcasters and telcos, to try out new concepts or markets without having to invest in new infrastructure. By providing a fully managed service, a customer has the option to try something out, with no upfront investment. If something doesn't prove to be successful, it's easy for the broadcaster to pull the plug and try something else. So, for example if it was decided to offer a new OTT service via a new platform – game console, smart TV etc. and for whatever reason it was not successful, it would be easy to move onto something else without having to redeploy staff or invest in additional equipment.

Globecast facilities covering the Tour de France.

For some of the service providers, namely those in the contribution market, challenges are coming from a different direction: terrestrial cellular operators. Historically, video from live news, sporting events, concerts etc., basically any outside broadcast, has been delivered back to the studio via satellite. In recent years, some of the major, permanent sporting sites, have gone to fiber, but now cellular from companies such as LiveU is providing serious competition to Satellite News Gathering (SNG). Bonded cellular is now even being used for HD and UHD transmissions. As Dr. Michael Weixler, Director Product Management and Marketing, ND Satcom, said; "We see strong competition from cellular networks in our SNG business when SD is sufficient or no live streaming is required. We see new activities to transmit HD or even UHD using bonded LTE connections to achieve the required bandwidth – competing with all the other phones in a public cell." ND Satcom is responding by being flexible. If a client wants bonded cellular as part of a solution, it will be integrated into the solution. But using cellular is never as reliable as satellite, as anyone who has ever suffered from a dropped call can attest. Even with the extra towers sometimes installed for special events, this often remains an issue. As a result for high-end clients, satellite is always needed, particularly for UHD or 3D video. Also, even in many of the developed countries, there are areas where cell coverage is either totally lacking or inadequate.

Video is still the key driver for the commercial satellite business, so changes impacting that industry, impact our industry, which is why companies strive to address these issues as smoothly and efficiently as possible. However there is another issue, that is also having a major impact on the satellite industry, and that, as we all know, is the impact of high throughput satellites(HTS). Some will argue that these, with the corresponding lower price per bit, are creating the "race to the bottom." Hopefully these doomsayers will prove to be incorrect; certainly there are some applications, broadcast being one of them, for which a traditional wide-beam satellite is far better suited. But either way, it cannot be denied that HTS is starting to have a major impact. This is an issue that the technology

SKYWAN 5G

The ONE Mastermind of Satcom Networks

Never before has a ONE rack unit VSAT hub been so powerful!
By converging VSAT & comprehensive IT capabilities into ONE single device, SKYWAN 5G enables the most flexible, scalable and reliable VSAT networks in history. The all-in-ONE unit fits all topologies, plays any network role and allows stacking of units to further boost performance of the network.
SKYWAN 5G's smart system design makes logistics and custom procedures a no-brainer.

- Keeps your data secure
- Supports any topology
- Makes anyone a hub
- Cost-efficiently boosts performance
- Smallest hub on the market

SKYWAN 5G – Mastermind of Satcom Networks

For detailed information use the QR code or visit our website: www.ndsatcom.com

ND SATCOM

companies are being forced to deal with. The first HTS were closed systems, targeted at the consumer broadband market. Many of the HTS satellites being launched now, are open system and therefore can be used by any network operator or service provider.

This is impacting the technology providers as many of their clients are now looking to be able to work with both wide and spot beam satellites. One company that is dealing with this, is Newtec. Kevin McCarthy, VP of Market Development, of Newtec said "Although the majority of VSAT terminals are deployed for broadband, much of the revenue actually comes from other applications including broadcast. By combining all these applications on a single platform, network operators can maximize economies of scale, while satisfying the demands of customers, and as an equipment provider, we have to be agile in providing these multi-service capabilities." Dialog is Newtec's solution to this. Dialog can be used for both traditional wide-beam satellites and for HTS. It gives operators the flexibility to adapt their business as the market changes, by enabling multiple services over a single IP-based platform. Globecast, as a service provider, enables operators to offer new services in new markets, as needed without any capital outlay. Newtec Dialog, gives operators the flexibility to introduce new services themselves. It enables the automation of broadcast workflows and makes the most efficient use of hardware and bandwidth resources. Dialog also incorporates the most efficient modulation technique, DVB-S2X.

"...We see strong competition from cellular networks in our SNG business when SD is sufficient or no live streaming is required. We see new activities to transmit HD or even UHD using bonded LTE connections to achieve the required bandwidth – competing with all the other phones in a public cell...."

***-Michael Weixler,* ND Satcom**

So, is IBC still relevant for our industry? I think so, and apparently so do the broadcasters. For the Olympics this year, according to SES, they booked more capacity, on more satellites to broadcast more hours, than for any previous Olympics. There are challenges and changes, but we're rising to them and creating new products and services in order to do so.

At the IBC Exhibition from September 9-13, 2016 in Amsterdam, companies mentioned in this article will be showcasing some of its products, among them include:

Globecast is pioneering a new remote production service, which means content owners will now be able to select from multiple "source feeds" at their own global locations, allowing them to create bespoke programming on their own production systems, and prepare their "ready to broadcast" feeds. We are also putting in place the technology to provide efficient access to "source feeds" - directly from cameras and elsewhere - to international broadcasters at key Globecast Media Center handover points, with delivery in secure IP format.

Globecast is also highlighting our cost-effective multi-tenant video headend solution. This allows any Telco, anywhere in the world, to deliver a video service to their subscribers, reducing upfront investments and speeding up time to market.

As part of the VOD Logistics offering, Globecast has also continued to increase its platform delivery reach, doubling the volume of content distributed.

ND Satcon: The company's IBC slogan is "News-On-The-Move": ND Satcom will highlight a combination of SNGs with COTM for contribution from a moving vehicle jointly with our capacity booking application Media Fleet Manager. The MFM application is in use by several broadcasters to dynamically activate COTM satellite capacity and may use GSM/LTE to communicate to the fully automated vehicles while transmitting video content while driving to/from the scene. That allows the broadcasters to have the same flexibility as when using a public/cellular network but using reliable/reserved satellite bandwidth everywhere - whether on the move or while parked.

Newtec: Release 1.3 of Newtec Dialog is one of its key products at IBC, with the latest release featuring DVB-S2X on the forward link, support for the new MDM5000 Satellite Modem, Layer 2 bridging and mobility support. It is also equipped with Newtec's unique technology, Mx-DMA® which enables MF-TDMA flexibility and on-demand variable bandwidth allocation at SCPC efficiencies. From release 1.3 onwards Mx-DMA rates up to 75 Mbps in the return are supported using shared capacity.

Newtec will also have the aforementioned MDM5000 modem on show. Designed for mid- and high-speed applications like connectivity for medium-sized enterprise networks, government applications, oil and gas, maritime and cellular backhaul, the MDM5000 completes Newtec's modem portfolio for low- up to high-speed applications, ensuring the optimal solution for every application and price point.

Finally, the 2.0 release of the MCX7000 Multi-Carrier Satellite Gateway – a dense 133 MHz DVB-S2X multicarrier satellite gateway for efficient distribution and contribution broadcast applications – will also be premiered at the show. This versatile platform can function as a quadruple modulator or as a modem with dual demodulator. The optional AES encryption of the baseband frames gives full protection for closed networks. This gateway can increase bandwidth efficiency by up to 51%.

For more information on other products and services being highlighted at the IBC 2016, go to the Products and Services MarketPlace section of this magazine on pages 26-29.

Elisabeth Tweedie is the Associate Editor of the *Satellite Executive Briefing*. She has over 20 years experience at the cutting edge of new communication and entertainment technologies. She can be reached at: elisabeth@satellitemarkets.com

Rugged. Ready. Reliable.

AvL TECHNOLOGIES
avltech.com

Broadest range of standard products in the industry.
Custom design antennas for special requirements.
WGS ready.
HTS operator approved.
Superior performance = lower TCO.
Industry leader - 24,000+ transportable antennas in active use.
Simple to operate - Green Button Go; Red Button Stow.
Backed by the best customer support in the industry.

The British Exit from the EU: Implications for the Satellite Industry

by Elisabeth Tweedie, Associate Editor

On June 23rd, much to the surprise of the rest of the world, and to that of many in the UK, the United Kingdom voted to leave the European Union. Thereby overturning the results of the previous referendum, which was carried out in 1975.

What impact will this vote have on the satellite industry? The first thing to understand is that nothing significant is likely to change before 2019, at the soonest. The UK is still a member of the EU and will remain a member until negotiations on the exit strategy have been concluded. These negotiations cannot begin until Teresa May, the new British Prime Minister, invokes Article 50, which is the formal petition to exit the EU. Once Article 50 has been triggered, negotiations should be completed within two years, unless an extension is granted. The new government has indicated that it does not intend to trigger Article 50 this year. Interestingly, although the government has stated that it intends to act in accordance with the referendum, legally it is neither obliged, nor, according to many, authorized to do so. Several lawsuits have been brought to court, challenging the government's right to invoke Article 50, arguing that under the current regulations only parliament can cause it to be triggered. The trial for the main case is scheduled to start in October. To complicate matters still further, Teresa May, has said that she wants to secure the support of Nicola Sturgeon, Scotland's first minister, before beginning exit talks. Scotland voted 62:38% in favor of remaining in the EU, so that support will not be easy to acquire.

Once Article 50 has been triggered, the long and complex process of unraveling forty years of legislation begins. Although growing in importance, the space industry is a small portion of the UK economy, so it remains to be seen, how much attention will be given to it during the negotiations.

Some things are clear, but most we can only speculate about. What is absolutely clear is that the UK will remain a member of the European Space Agency (ESA). ESA is independent of the EU and already boasts two full members (Norway and Switzerland) that are not EU members, and one associate member (Canada). Therefore, there will be no issue, about the UK remaining a member. However things soon start to get complicated. ESA is responsible for choosing the manufacturers for Galileo, the European navigation program, but the European Commission owns the network. 22 satellites have been ordered, most of which have now been built. OHB and Surrey Satellite Technologies Ltd. (SSTL), jointly won the contract for those, and have submitted a joint bid for the next round. SSTL is located in the UK, and although independent, is now owned by Airbus, a French company. To date there has been no indication that SSTL will be in any way disadvantaged in the bidding.

SSTL, is also building the platform for Eutelsat's quantum satellite, which has been funded by ESA, although most of the capital comes from the UK. Eutelsat is headquartered in France, a member of the EU. Eutelsat, has other ties to the UK. Its Broadband for Africa project, a collaboration with Facebook, is also located in the UK, as is the company's Global Government Division.

An integral part of Galileo is the Public Regulated Service (PRS). This is the heavily encrypted signal, potentially incorporating anti-jamming and anti-spoofing characteristics. Currently it is only available to EU member states, so potentially the UK could be excluded from using it, even though it has been a leader in developing the system. Norway and the US have already asked to be able to use PRS,

but to date no decision has been reached. To complicate matters even further, the backup Galileo Security Monitoring Centre (GSMC) is located in the UK. If the UK is not allowed access to the technology, there is no way this could be located in the UK. Moving that, would not only impact the UK, it could potentially delay full operation of the service.

Another very interesting area, is spectrum management. The UK will continue to be a member of the European Conference of Telecommunications and Postal Administrations (CEPT), which is not part of the EU, and through this organization will continue to cooperate with EU member states. However it will no longer be subject to EU decisions on spectrum allocations and use across the EU. But, given its geographical proximity, it is hard to envisage a situation where it would be in the UK's best interest, to not to follow EU decisions on this matter. As far as WRC-19 is concerned, the UK may not be a member of the EU delegation. Spectrum licensing is a huge topic, and as we well know, its impact is felt equally among broadcasters and telecoms operators as well as satellite operators. It remains to be seen, how this will all unfold.

The most immediate and noticeable impact has been the impact on the British Pound sterling. A year ago, it was trading at around $1.55, now it's hovering around $1.3, which is doubtless helping SSTL and other manufacturing companies in the UK.

In the last few years, the space industry has become more important to the UK economy, and pre-Brexit, it was announced that it was planned to develop this further, so as to account for 10% of the global space economy by 2023. To further this aim, Britain has been increasing the funding available for space projects. This has had the desired effect and companies from the EU and US have created British divisions as a way to gain access to the ESA and EU funding. It remains to be seen if this will continue.

The bottom line is that it is a huge mess, and ultimately the only winners may be lawyers who will be occupied for many years, trying to sort it all out!

Elisabeth Tweedie is the Associate Editor of the *Satellite Executive Briefing*. She has over 20 years experience at the cutting edge of new communication and entertainment technologies. She can be reached at: elisabeth@satellitemarkets.com

ABS-2A 75°E

Successful Launch

Expanded Capacity at the Prime Location of 75°E, Serving Africa, MENA, Russia, South Asia and South East Asia

High performance Ku-Band beams to support DTH services, enterprise networks, VSAT, maritime and mobility solutions.

Contact ABS for your satellite solutions at info@absatellite.com

KU BAND BEAMS
Africa | MENA | Russia | S Asia | SE Asia

ABS-2A Launch, 15 June 2016

@ SpaceX

www.absatellite.com

Celebrating 10 Years ABS Anniversary

Visit ABS at IBC 2016, Stand Number: 2.C28

Amphinicy Technologies

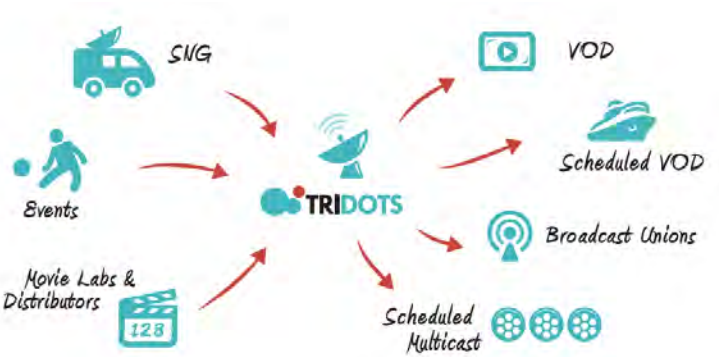
by Virgil Labrador, Editor-in-Chief

One of the companies to watch out for at the IBC this year is first-time exhibitor, **Amphinicy Technologies** (booth # 6.B03 in Hall 6). Although it has been in the market for over 20 years, Amphinicy has been quietly making waves with its cutting-edge products for satellite operators, equipment manufacturers, teleports, and multimedia and broadband service providers.

I personally have had the privilege of visiting Amphinicy's facilities in Zagreb, Croatia and was impressed by its very young and dynamic staff and the innovative way they go about their business and how they develop new products. At the IBC, watch out for Amphinicy which will be showcasing the following products at their booth:

AmphMonica - A solution for monitoring and controlling of teleports, SNG vehicles and ground stations. The unique selling point for Monica is that it is intended to be used as a FRAMEWORK on which you will build your complex solutions. It is based on enterprise Java frameworks and therefore is inheritable scalable. You can use a light version for SNGs, or you can cluster more units if you want to control complex teleport with hundreds of devices. Moreover, one can add its own, specific modules on it and based complex systems on Monica framework. Its HTML 5 based UI is responsive and can easily be extended with new screens and views. Several solutions built on Monica for big stakeholders like SES and ESA are already in production.

TRIDOTS - is a unique system optimised for secure storage of digital content and distributions over the satellite. It is meant to be used for SatLearning and SatMedicine system in remote (rural) areas. More use cases are in the broadcasting industry for VOD, Scheduled VOD, Broadcast Union content contribution, archiving and distributions, cinema content multicasting, archiving of content for broadcasters and similar. TRIDOTS is already in production on a project with Ministry of Education in Croatia, for delivering eBooks to primary schools students.



SatScout is a mobile application intended to be used for antenna site survey and alignment for VSAT networks or more complex teleports antennas. The framework can be easily integrated with VSAT modem or Antenna Control Units (ACU) to automate the line-up procedure. Amphinicy in the process of collaboration with a leading VSAT manufacturer to use SatScout for commissioning and certification process of their terminals, therefore completely removing any need for a paper based user manuals. This is both for end users and professional installers.

Blink is Aphinicy's most innovative product. The company has identified the necessity for affordable solutions Earth observation data acquisition domain that can be easy and fast maintained as well as delivered in short time frame. Current solutions where data receiving and extraction is based on FPGA boards are hard to implement which leads to long lead times as well as complex maintenance. Because there are only a few manufacturers worldwide these solutions also very high price tags, leaving the segment of startups on New Space industry uncovered. This is where Blink comes in - as a fully software based solution for CCSDS data acquisition, bundled with Software Defined Radio (SDR). It can quickly be configured for any space mission, maintenance can be done by debugging and remotely flashing firmware, while the price is 50% lower than existing hardware solutions.

When I ask Frane Milos, Chief Operating Officer of Amphnicy, what differentiates them from their competitors, he jokingly said "our FACE." He clarified that FACE is an acronym for **F**ocus, **A**fforable, **C**ustomer-oriented and **E**xperience. He elaborated:

" **F**ocus - providing **software** solutions ONLY for the **satellite** industry (we don't do software for other industries). This principle makes us recognised as an innovative company in the industry (we got the grant for our product Blink from EU fund for innovation H2020 as the best SME as in space topic). Also, based on our focus on this particular industry we have created valuable products that industry needs, and that are already in production around the globe.

Affordable - We have **first-class experts** and management while keeping very affordable **Eastern European prices**. Furthermore, by maintaining the focus on the satellite industry, we are more efficient than other software solution providers due to understanding the principles and challenges that stakeholders in the industry face on a daily basis. There is a high probability that we already have a solution to

Continued on page 31

AMPHINICY TECHNOLOGIES

Software that understands the satellite industry!

Who are we?

Amphinicy Technologies is a leading provider of complex software solutions and all-round software support for the SatCom, Earth observation and space industry.

Building a turn-key software solution for your satellite business - that's Amphinicy's cup of tea!

Our customer base includes international space and humanitarian agencies, satellite operators, teleports and VSAT vendors, RF equipment manufacturers and other important stakeholders in the industry.

5 Five important things about us:

- Unique company with excellence in software, satellite and space domain
- 20+ years on the market
- Offices in Luxembourg and Zagreb, Croatia
- Long-lasting collaboration with major industry stakeholders
- Continuously growing expertise in all segments

Our products:

Blink – Ultra Fast EO Telemetry Analyser

monica Monitor and Control Solution – Ground Segment Monitor & Control

SatScout – Antenna Aligning

TRIDOTS – Digital Content Repository

Luxembourg Office

74, rue du Dix Octobre
L-7241 Bereldange
Luxembourg

T +352 27033990
F +352 27033991
E info@amphinicy.com

Zagreb Office

Trg Nikole Šubića Zrinskog 15
HR-10000 Zagreb
Croatia

T +385 1 485 2814
F +385 1 485 2824
E info@amphinicy.com

Update on Bridging the Digital Divide: WSIS 2016

by Roxana Dunnette, Geneva Correspondent

This year the first World Summit on the Information Society (WSIS) Forum after the 10th year review and after the launch of the UN's Sustainable Development Goals (SDG), took place in Geneva in May.

Over 1800 international delegates including 85 government ministers and 250 high –level representatives met to discuss the progress of technology, implementation mechanism to achieve SDG goals by empowering people to be connected and to use information, communication technologies (ICTs).

Ambassador **Daniel A. Sepulveda**, Deputy Assistant Secretary and Coordinator for International Communications and Information Policy in the US State Department of Bureau of Economic and Business Affairs had been the Chairman designated for this event.

The Forum was hosted by ITU together with co-organizers UNESCO, UNCTAD, UNDP with the United Nations and its sister agencies .

The theme this year was "WSIS Action Lines: SUPPORTING THE IMPLEMENTATION OF THE SDG."

There are 17 SDG: No poverty; Zero hunger; Good Clear water and sanitation; Health and well being; Quality education; Gender equality; Affordable clean energy; Decent work and economic growth; Industry, innovation and infrastructure; Reduced inequalities; Sustainable cities and communities; Responsible consumption and production; Climate action; Life below water; Life on land; Peace, justice and strong institutions; and Partnerships for the goals.

WSIS Action Lines are tailored to support SDG.

The consultations and the debates were conducted in 150 sessions including thematic workshops, high-level sessions, policy sessions, ministerial roundtables and knowledge cafes .

The annual WSIS Price Ceremony recognized 70 Champions and awarded 18 Project Prizes to organizations or individuals which have demonstrated outstanding results in implementing projects and strategies to meet WSIS goals and promote digital inclusion.

To name just a few:

Enabling Environment

Winner : Life long learning and employment for people with disabilities – Ministry of ICT, Egypt

E – Business

Winner: ATTA System for helping charity organizations, Saudi Arabia

E- Health

Winner: Information of the public Health System, SOFTEL , Cuba

Media

Winner: Youth, women in media and journalism, NGO Network for Radio , Bangladesh

E- Learning

Winner: Mexico–Platform of massive open on line courses, National Institute of Strategy, Mexico.

And much more …

The Thematic Workshops were very interesting with subjects such as the following:

Accessibility to ICTs— There are about 1 billion people with disabilities globally that need to benefit from the advantages of ICTs enabled applications.

China, for example, has a "Road Map of Information Accessibility" in place from 2008 implemented in more then 100 cities and 100 Network Media and provides accessible on line services for elderly, disabled and low-educated people.

Affordable , Ubiquitous Broadband Networks –will be critical to social and economic growth.

ICT, Sustainability and Climate Change–Satellites, mobile phones and Internet have a key role in monitoring climate changes and assist in migrating to a green economy.

Cyber security, Emergency Telecommunications, Gender Equality, Smart Governments and Cities were among other subjects.

United Arab Emirates has an ambitious program to pass from E- Government to M-government in a short time and to have all government services delivered 24/7 to mobile devices.

The Government appointed new officials Minister of Youth, Minister of Happiness (to spread and share positivity), Minister of Tolerance and Minister of Future (to bring the future today).

A Museum of the Future is being built and will open in 2018.

Dubai already a smart city wants to become the happiest city in the world and in order "To Give Back to the Universe and Contribute to Humanity," UAE is preparing in collaboration with 200 universities and institutions a scientific MARS MISSION for 2021.

Youth and Innovation was on the agenda as well, and **FabLab** is an example of creating an innovating environment for young people.

A recent trend in ICT has been the creation of products by private citizens using digital fabrication equipment such as 3D printer and laser cutters based on data available over Internet.

This new " Maker Movement " is in full swing.

In Russia, for example, facilities are available at hundreds of locations, in the US the Government pledged in 2015 US$ 2.9 billion to install digital fabrication facilities in thousands of schools.

FabLab (Fabrication Laboratory/ Fabulous Laboratory) is a worldwide creative network supporting mutual cooperation to make better use of ICTs.

Products are made locally in needed quantities by young people like processors for local food ingredients developed in Ghana , wooded WIFI routers in Afghanistan or sensing devices for local agriculture in Pabal Pune in India.

In the Philippines the first Fab Lab in Bohol had such an impact that now the government announced the expansion of the FabLab network all over the country.

The discussions at this edition of WSIS marked a transition from infrastructure and devices availability, now in place in most countries , to applications and initiatives for social development to increase satisfaction in using ICTs.

Just days after WSIS the **GLOBAL CONFERENCE ON SPACE AND INFORMATION SOCIETY (GLIS)** organized by IAF International Aeronautical Federation took place at ITU in Geneva 6-7 June to support SDG.

"Satellite services are among the most efficient information and communication technologies for rapid and global connection to remote areas which lack a proper terrestrial ICT infrastructure. This means that particular attention should be paid to the long term sustainability of space activities and sustainable development on Earth and to facilitate the prompt resolution of harmful radiofrequency interference" said Mr. Houlin Zhao Secretary General of the International Telecommunications Union (ITU).

The urgency to contribute to meet SDG and support the Information Society was one of the theme of the conference but other subjects like regulatory, security, big data, space economy were treated as well.

Experts on Disaster Management (Communication, Navigation and Earth Observation), Climate Change, Tele Health, gather to give their view and present new initiatives :

1. A "CRISIS CONNECTIVITY CHARTER " for communications during **disasters** has been signed at the UN in Geneva with UNHCR , FAO and 8 satellites fleets : EMC (integrator) , Thuraya, Hispasat, Inmarsat, SES, Eutelsat, Intelsat, Arabsat.

This is the first Private Sector-UN agreement , and the satellite industry is the first to have one.

The agreement contains provisions on the following:

- pre-planned end –to- end satellite based solutions (not only bandwidth) in case of disasters
- connectivity for everybody up to 1000 people in affected areas not only field workers and UN staff
- immediate implementation of the plan , conference call in 12 hours, equipment shipped in 24 hours from designated cities with major airports
- only one point of contact
- training and capacity building assured by satellite experts

L , C, Ku, and Ka Bands will be used as each disaster is different.

Everything will be operational and ready to provide assistance in September 2016, a Global Disaster Observation System will be in place and data will be made available and shared free.

Is Comtech In Your Toolbox?

Service providers and end users globally rely on our ground equipment to support a variety of applications for the mobile & backhaul, government and premium enterprise sectors. From VSAT networking platforms, satellite modems and integrated network and bandwidth management to indoor and outdoor frequency converters and amplifiers, our solution suite features a unique blend of horsepower, efficiency and intelligence.

With ***Comtech in your toolbox***, you can meet your customers' increasing throughput demands, improve quality of experience, and prepare for the future.

Contact us today. We are ready to evaluate your network configuration and traffic mix to determine how our latest innovations can benefit your upcoming satcom infrastructure projects.

COMTECH EF DATA

+1.480.333.2200
sales@comtechefdata.com
www.comtechefdata.com

"...Satellite services are among the most efficient information and communication technologies for rapid and global connection to remote areas which lack a proper terrestrial ICT infrastructure..."

—Houlin Zhao, Secretary-General, ITU

2. Today 50% of all mobile applications rely on Global Navigation Satellite Systems – (GNSS)to provide positioning information and Location Based Services –(LBS).

GNSS applications play an increasing role in tracking devices, digital cameras, fitness gears. These devices and wearables are more and more used in **healthcare** sector supporting mobility or monitoring elderly and impaired people.

LBS products represent a new opportunity for the integration of GNSS constellations into chipsets and receivers that provide solutions to reduce barriers to access public , private infrastructures for people with disabilities or to secure emergency assistance.

For example: one device designed to support safe mobility for blind people Seeing **Eye GPS** is using a voiced activated smartphone that gives information on streets, intersections, points of interests etc.

GNSS tracking can also help locate people with Alzheimer wearing a smart watch.

Today here are many applications for the management of various health conditions and more to come as new technologies for autonomous vehicles , VR , smart cities, smart wearables will improve the life of individuals with disabilities and will create the environmental conditions for the well being of the society .

In developing countries health issues are overwhelming .

To detect, map areas of wide spread epidemics and share the information is a challenge and again the satellites are key to provide observation , monitoring and connectivity to share the information.

An "EXPERT GROUP " with representatives from the Satellite Industry , WHO , FAO , academics has been created to better use space technologies for health and to create a global observation system of various widespread epidemics.

3. Satellites and Global Internet Connectivity for measuring **Climate Changes** was also on the agenda.

At **COP21** in Paris last November, 75 countries reached an Agreement on climate change issues , the urgency is to act now. It was followed by "New Delhi Declaration" in April this year and the progress will be reported at the next Conference in Guadalajara in September.

Space is the only global continuous observatory to monitor climate changes in order to provide timely warnings.

Satellite industry will work closely with academics on climate change research, atmosphere composition and will set up a data center available to all.

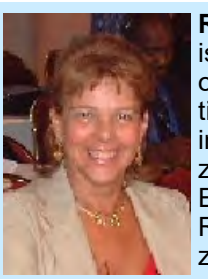
It will do not only climate control monitoring and measures of the carbon print but will also monitor governments respect of the rules and agreements.

A worldwide effort led NASA, CNES , NOA is being made on monitoring the oceans, winds and wave movements and sharing the information.

New players in the field like ONEWEB were equally concerned about meeting SDG and plan to provide solutions for first responders , emergency services , disaster relief and promote a CLEAN SPACE – no debris.

Earth observation, real time monitoring of rainfalls, crop yield forecast, refugees camps, forests, emergency rescue, ship routes, disaster risks, imaging remote sensing and interpretation of the process together with a global connectivity for data continuity delivery is indispensable in achieving space related Sustainable Development Goals .

There are synergies in place and a strong will from all players in ICT sector to help implement the SDG, to accelerate the social inclusion, to speed up the economic growth and innovation , to bridge the digital divide, to use new technologies for health, education, environment , save the planet for the generations to come and create a real happy information society.



Roxana Dunnette is a correspondent of Satellite Executive Briefing based in Geneva, Switzerland. She is Executive Director, R&D MEDIA , Switzerland , has had an extensive career in Broadcasting and media including senior management positions at Worldspace corp.,Washington, CBS and PBS in New York and international telecommunications regulatory work at the UN in New York and ITU in Geneva as US government representative. She accomplished many development projects in Africa based on satellite technologies, broadcasting , Internet and accessibility. She can be reached at: roxanadunnette@gmail.com


عرب سات
ARABSAT
عالمنا... عالمكم.
Our world. Your world.
Multi-Spot Beams in Ka-band
30
Transponders in Ku-band
Arabsat BADR-7 @ 26°E, with unparalleled market specific beams covering the Middle East and Africa
with unrivaled Ku and Ka-band payload and a special Ka-band mission tailored to deliver broadband and tripleplay services from satellite.
www.arabsat.com

THE WORLD'S LEADING MOBILE **AUTO-ACQUIRE** ANTENNA SOLUTION

C-COM SATELLITE SYSTEMS INC.

HIGH QUALITY, ROBUST & COST-EFFECTIVE VSAT SYSTEMS

Antenna Models Available in various bands

Ka Ku C X

iNetVu by C-COM

Works Anywhere, Deployed Everywhere

2016

Visit our Booth #4.C53!

Oil & Gas Exploration • Satellite News Gathering • Cellular Backhaul • Homeland Security • Military • Mobile Medical Services • Emergency Response • Disaster Relief • Exploration/Mining • Construction • Mobile Education • Mobile Offices • Mobile Banking • Recreation Vehicles

WWW.C-COMSAT.COM

Teleports of Tomorrow: Are the Guest in the Room We May Not Want to Talk About

by Lou Zacharilla

Cybersecurity events and threats have ranged from the USA's president election, the hacking of a Paris TV station by a presumed Islamic terror group, the infamous North Korean attack on SONY studios in California (talk about not liking a movie!) and most recently even Pokémon.

How long can it be before the satellite industry also becomes prey. The former counsel to the USA NSA said about this, "Anyone can access any network, really." Crystal's CEO Roger Franklin told an audience of teleport operators that "RF can be tapped into and monitoring needs to undergo a complete adaptation to the new threat."

Franklin sits on the board of World Teleport Association. At the most recent board of directors meeting of World Teleport Association www.worldteleport.org, the board spoke about cybersecurity during an internal discussion. Without divulging too much detail from the closed discussion, I can say that cybersecurity and the overall lack of preparedness was top-of-mind. Cybersecurity continues to advance as a critical issue. The persistent attacks nearly everywhere on the globe have revealed to a global communications industry like ours the need to address this issue. With the theft of personal communications ending careers, perpetuating international diplomatic crises and threatening the stability and prosperity of nations and corporations, it is a BIG DEAL.

For background on the concern among teleport operators and how cybersecurity experts suggest they look at the issue, I went Back and Forth with Robert Kubbernus, CEO of Signalhorn, a teleport operator based in Europe and Andrew Silberstein, formerly with teleport operator Globecomm (USA) and now a principal with CyberESI (URL) a cybersecurity company based in Baltimore, Maryland. His company works with the satellite community. Excerpts of the back and forth with Kubbernus and Silberstein follows:

Lou Zacharilla (LZ): Signalhorn runs large technical facilities and teleports in critical parts of Europe. What are your major concerns regarding the cybersecurity of your teleports?

Kubbernus: Unlike in the USA, European companies are not required by law to report cybersecurity incidents. However, my primary concern is that if there was a breach, the word would get out. It would affect our brand and certainly make news. It would be used by our competition in a negative way. The loss of confidence of customers and potential financial damages, therefore, makes us very focused on this issue. Having said that, it is extremely hard to control or mitigate an attack.

LZ: Really? Why is that?

Kubbernus: Yes. Teleport networks have multiple entry points from satellite feeds to terrestrial connections through to customers' equipment. The only safeguard, I believe, is 100% encryption on the data streams, which adds latency. Customers do not like latency. It is a compromise because customer expectations have to be factored in

LZ: That's the reality of the business, but it seems that it may leave a teleport vulnerable. Andy, what can a teleport operator expect its customers to ask about cybersecurity and is there a good point of compromise?

Silberstein: Customers are asking with increased frequency about the type of protections that are in place to protect sensitive data and their networks. Many want to know if teleport operators have an existing security policy and a plan based on accepted industry standards. They will absolutely want to know what happens if a breach occurs. In Robert's case they might ask about Signalhorn's Incident Response (IR) plan. They will want to know how long will it take to contain a breach.

Robert Kubbernus

Kubbernus: That's interesting to know because our experience is that customers are reactive and have not insisted on verification of security or to issue standards, with the exception of the banking networks. Our customers take it for granted that we provide the appropriate security. It is like the elephant in the room. If no one talks about it, the issue

does not exist.

LZ: So how do you assess the security of your teleports?

Kubbernus: We have a full time CSO and, effective this year, a department dedicated to this issue. We perform periodic threat tests and third party penetration testing. What makes this side of customer service different is that we cannot publish our results or brag about our levels of security because it invites attacks. We also provide internal training and spot check our staff constantly.

LZ: Andy, is this good practice? It sounds like the right approach.

Silberstein: Robert's looking at it from the customer side, which is right. Customers should ask about the type of protections that are already in place beyond basic cybersecurity infrastructure – such as firewalls and anti-virus software – as these are generally breached on a daily basis. The myriad of industry and government reports and statistics, not to mention the high profile data breaches we all see in the news, illustrate with alarming clarity the annual rate of cybersecurity incidents and breaches.

LZ: It sounds as if customers just kind of assume it's there and are crossing their fingers. Is that going to be good enough for teleports, which are vital to global communication?

Silberstein: Having been on that side of the street, we know that as Robert said, customers' expectations force a comprise. There is also a "compromise" that needs to be looked at from the bottom line. When I was with Globecomm, a global teleport operator, we operated on thin margins and limited budgets in most cases. Most teleports do. But security threats do not care. So by implementing a cost-effective solution that combines machine applications with human intelligence, teleports can assess where positive compromises can be made. They can build an appropriate cyber castle.

CyberESI says that teleports should focus on their core business to offer efficient, effective, and reliable communications, data storage and other solutions. That is hard enough to do. These organizations have IT infrastructure and personnel to manage and maintain these systems and operations. Cybersecurity, however, requires an entirely different skill set of varied infrastructure solutions that protect customer sensitive data and corporate and personal identifiable information (PII) data. It is the outsourced argument. We know the business better than you do. Our industry has established a very cost-effective solution: engaging with cybersecurity experts who are able to provide what is commonly referred to as "defense in-depth."

LZ: That is the classic outsourcing model. Teleports know their business and security companies know theirs.

Andrew Silberstein

Silberstein: Right. We are continuously are learning about – and learning to defeat – the latest cyber threats. This is an industry which moves fast. These threats come at you daily. We've never seen anything like this. It is a direct threat to a business.

LZ: Scary stuff, especially when you consider what runs through our industry's teleports. Robert, is the primary concern to your cybersecurity team "ransomware?" Or are there other threats that are more likely?

Kubbernus: We have had minor cases of ransomware. However we do not negotiate - ever. We immediately inform authorities and work with them. All European countries have procedures and departments that deal with these types of issues. It is not well known but such governmental cyber departments and digital crime units exist and are robust in Europe. In every case of ransomware, our governmental counterparts knew of the attack and were already investigating long before we were attacked.

LZ: Finally, Andy, Signalhorn is located in Europe. The WTA's teleports are on every continent. Do threats vary from region to region?

Silberstein: To the extent an adversary/criminal has an interest in a specific region that has a unique data set of interest, or in a particular region known to have less sophisticated or fewer cybersecurity protections and government regulations there is a regional variance. These factors may make specific teleport operators targets. However, we see that threats are typically focused on an industry sector. Threats that have recently made national news include industries like defense, retail, telecom, health care, and hospitals.

NOTE: The World Teleport Association (www.worldteleport.org) has published white papers on teleports and cybersecurity and the teleport of tomorrow.

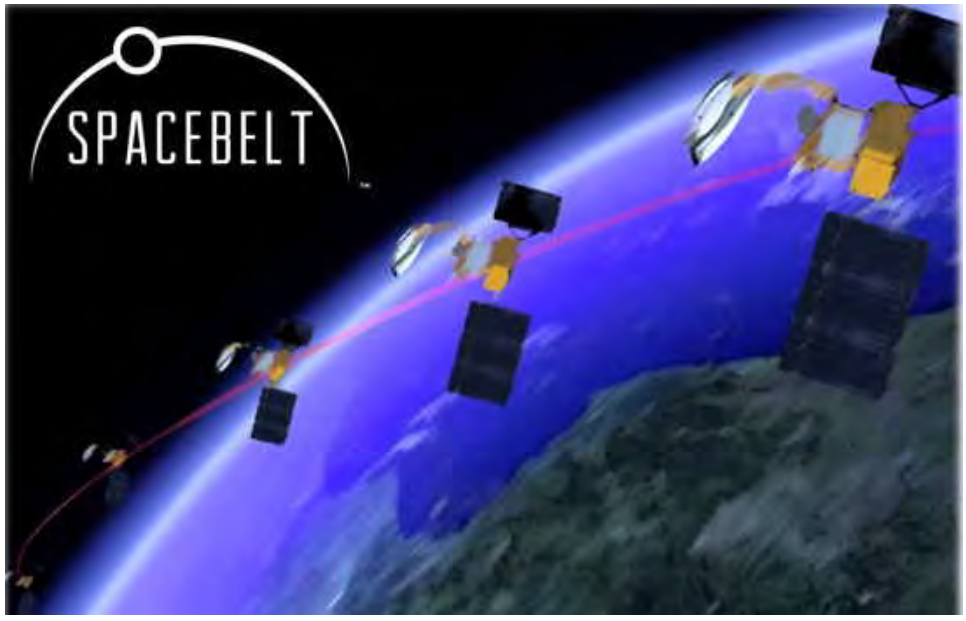
Lou Zacharilla is the Director of Development of the Society of Satellite Professionals International (SSPI). He can be reached at: LZacharilla@sspi.org

SpaceBelt: Security in the Clouds

Every now and then, you hear of a new product or service, that appears both brilliant and at the same time, so blindingly obvious, that it makes you wonder why any one hasn't thought of it before. Such is the case with SpaceBelt, a cloud service that really is in the clouds, or to be more precise on a network of satellites.

According to the 2016 State of the Cloud report from RightScale, 95% of companies around the world are now utilizing the cloud. Yet, the shared, on-demand nature of cloud computing, makes those organizations more vulnerable to security threats.

Cybercrime is rampant. Rarely a week goes by, without a story of an attack on some enterprise or institution hitting the headlines. Usually by the time it has been noticed and reported the breach has been going on for some weeks or months. According to the Breach Index Report from Gemalto, 707.5 million records were breached last year in 1,673 incidents. Two of the more spectacular cybercrimes in 2015 were: the US Office of Personnel Management, which had the records of 21.5 million-government employees stolen, including fingerprints and security clearance data, and US Health Insurer Anthem, that had personal data relating to 80M customers stolen. According to IBM the average cost of a data breach is US$ 3.8 million. So it is no wonder that security was listed as one of the top concerns in the RightScale report.



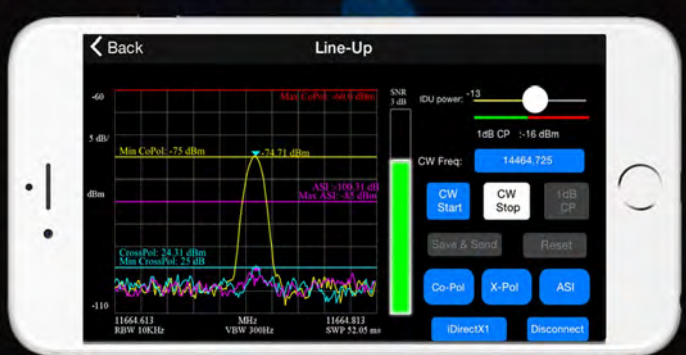
SpaceBelt was invented specifically to circumvent all that crime. It is designed to provide secure storage and transport of mission critical and sensitive data. It is a totally independent network, accessible only on a customers' premises, through secure military grade VSATs with hard-wired encryption. Totally bypassing the Internet and Leased Lines, so insulating the data from any of the usual entry points for attacks. Target markets are governments, the military and large enterprises who handle a lot of sensitive data: financial and healthcare for example. An additional market is focused on drones. These are deployed all over the world, particularly in conflict zones, and usually controlled remotely. US drones operating in the Middle East, will be controlled from the US for example. This means that data from the drones, which is relayed by satellite, frequently involving multiple hops can take as long as three seconds to transit. Using SpaceBelt, the data can be transported around the world, and delivered to the control location in less than one second.

Procurement discussions are underway with manufacturers, and the system, which will cost less than US$ 500 million, is currently due to start operations in 2019. It will initially have eight interlinked satellites, modularly growing to provide exabytes of storage in space. The system is a global one, and according to Scott Sobhani, the co-founder and CEO, data stored on SpaceBelt can be delivered to anywhere on earth in around a third of a second.

Relatively inexpensive, fast and secure, this could definitely be a winner and move satellites into an entirely new market. Watch this space!

Most Innovative Technology for Carrier Monitoring VSAT Autocommissioning Virtual Network Maintenance

2014 Vision Awards Winner
Most Innovative Product of the Year Award



VSAT INDUSTRY AWARDS 2015
WINNER
VSAT Technology Innovation of the Year

INTEGRASYS

Building Success from Innovation

For Demos at VSAT Event and IBC contact
info.sales@integrasys-sa.com
www.integrasys-space.com

Satellite Signal Interference and Carrier ID

by Dr. Andrea Franz

Introduction

Radio Frequency (RF) Interference is the largest single issue that impacts Quality of Service for satellite operators and their customers. Occasional use satellite transmissions and temporary feeder links are particularly impacted, as compared to full time DTH services where the owners and locations of the uplinks are well known and can be identified by the respective DVB -SI data. Whilst interference can come from many sources, various satellite operators have confirmed that a significant amount of interference comes from so-called "rogue pirate carriers." Unintentional interference is often caused by failed equipment or by systems improperly designed and/or configured due to human error.

Various actions are being taken by operators, customers, vendors and industry groups to tackle interference, including training for installers and operators; data sharing to improve operational processes; and new innovations such as Carrier Identification (CID).

Carrier ID – what is it?

The Carrier ID is used to identify the signal broadcasted via a transponder. It is a kind of watermark on every carrier in a transponder. The basic idea is to highlight the owner of the RF signal so that it can be ensured that he respects his contract with the satellite operator who provides a determined bandwidth during a determined schedule.

In North America the FCC has mandated the use of Carrier ID by September 2017.

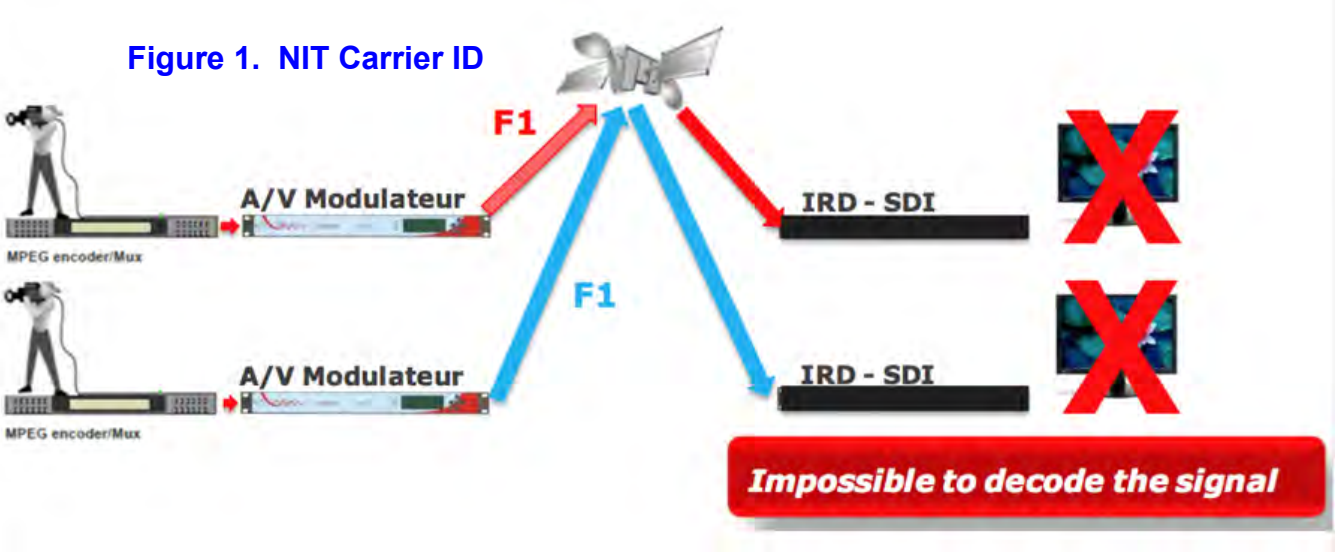
Technologies

Two technologies are proposed to generate a Carrier Identifier at the modulator level:

NIT Carrier ID at the MPEG transport stream (TS) level where the NIT (Network Information Table), as defined in the MPEG standard, is used to identify the emission point of the RF signal. This information may be added by the encoder or the modulator.

DVB (RF) Carrier ID at the RF level where a very small RF signal is added – without impact to the global budget link – to the useful RF signal (either in DVB-S/S2/S2X) to broadcast the information of the emission point of the RF signal. The DVB Carrier ID process is done with the modulator where the CID is added to each carrier.

Figure 1. NIT Carrier ID



NIT Carrier ID vs DVB Carrier ID System

Figure 1 depicts a configuration using NIT CID: two modulators are broadcasting at the same time, on the same frequency, on the same transponder, two different contents.

In this case, no IRD can demodulate the signal because each RF signal is a noise to the other. That means the MPEG-TS content cannot be recovered, the NIT information is lost and the Carrier ID cannot be extracted. Therefore it is impossible to identify who is broadcasting at the same time just by analyzing the RF signal on the transponder.

Continued on page 30...

Products and Services MarketPlace

A guide to key products and services to be showcased at the IBC 2016 in Amsterdam, The Netherlands from September 9-13, 2016.

ABS
Hall 2 booth # 2.C28
www.absatellite.com

ABS operates a global fleet of 7 satellites including the recently launched ABS-2A satellite at 75°East. Its extensive teleport network provides comprehensive coverage to 93% of the world's population. ABS has strategic alliances and partnerships with state of the art communication hubs, to deliver the best satellite solutions. Headquarters in Bermuda, ABS has offices in the United States, United Arab Emirates, South Africa, Germany, Philippines, Indonesia and Hong Kong. ABS is majority owned by the Permira funds which are advised by European Private Equity firm Permira.

ABS' integrated satellite solution can seamlessly connect you to premium neighborhoods and cable TV headends around the world. ABS' prime video neighborhoods include: 75°E, 3°W, 159°E delivering TV content to audiences worldwide.

Advantech Wireless
Hall 1 booth # 1.F40
www.advantechwireless.com

Advantech Wireless supports the critical need for High Throughput Satellite communications in a rapidly expanding digital environment. Our proven low-cost and highly reliable system solutions are meeting the ever-increasing need for high-bandwidth communications essential to broadcasters, cellular network providers, military and government requirements, robust corporate networks, and security. We integrate award-winning research and development engineering into our designs. The result: custom solutions with lowest overall capital and operating costs, together with an unparalleled commitment to lead the industry in materials, design and reliability.

Amphinicy Technologies
Hall 6 booth # 6.B03
www.amphinicy.com

Amphinicy Technologies is a leading provider of complex software solutions and all-round software support for the satellite and space industry. The company operates from Luxembourg and Zagreb, Croatia, providing premium quality support to its clients, both in Europe and abroad.

Amos Spacecom
Hall 1 booth # 1.C65
www.amos-spacecom.com

Spacecom is a leading global satellite service provider operating a constellation of advanced satellites across Europe, Asia and the Middle East. Our fleet consists of **AMOS-2** and **AMOS-3** co-located at 4°W and **AMOS-4** at 65°E. The AMOS satellites provide high-quality broadcast and communications services in Europe, Africa, Russia, Asia, the Middle East, & North America.

ARABSAT
Hall 1 booth # 1.B38
www.arabsat.com

Founded in 1976, **Arabsat** has been serving the growing needs of the Arab world for over 30 years. Now one of the world's top satellite operators, it carries over 500 TV channels, 160 radio stations, pay-TV networks and wide variety of HD channels reaching tens of millions of homes in more than 80 countries across the Middle East, Africa and Europe—including an audience of over 170 million viewers in the (MENA) tuned into Arabsat's hotspot at 26° E. Operating a growing fleet of owned satellites at the 20° E, 26° E, 30.5° E and 34.5° E, ARABSAT is the only satellite operator in the MENA region offering the full spectrum of Broadcast, Telecommunications and Broadband services, making Arabsat satellites' fleet the youngest in the region.

AvL Technologies
Hall 5 booth # 5.A45
www.avltech.com

AvL Technologies' booth at IBC 2016 will feature a number of new and cutting-edge antennas. On display will be two O3b MEO tracking Ka-Band antennas - 85cm and 2.4M. The antennas offer the power of O3b's high throughput, low latency connectivity. These tactical terminals are easily transportable, rapidly deployable and operate in tandem pairs (same size) with make-before-break communications and can be set-up and on-the-air within two hours.

Featured will be our new 85cm auto-deploy fully-integrated flyaway system which features a mission-configurable weatherproof electronics enclosure and repre-

sents the latest power efficient technology in a lightweight, airline checkable, 2-case solution. This unit is loaded with features including multiple modem choices and offers options such as on-board WiFi, fiber connectivity and AC/DC prime power.

In addition, on display will be a 1.2M SNG motorized vehicle-mount Ka-band antenna, a 1.0M vehicle-mount Mobile VSAT antenna with a cowling, and the case-based version of AvL's model 9066 FlyAway antenna used worldwide by broadcasters and militaries due to its reliability, ruggedness and high-performance.

Additionally in our booth will be our 60cm ultra-lightweight, compact and robust manual flyaway antenna. This 60cm antenna operates in harsh conditions and packs into a commercial airline carry-on sized backpack. With its fast interchangeable feed system with tri-band capability, this antenna operates in Ku-, Ka- or X-band and is DBS capable.

C-COM Satellite Systems Inc.
Hall 5 booth # 5.C53
www.c-comsat.com

C-COM Satellite Systems Inc. is a leader in the design, development and manufacture of commercial grade mobile SOTP antennas. iNetVu® systems are available in Vehicle Mount, Flyaway, Airline Checkable and Fixed Motorized platforms. More than 7000 C-COM antennas have been deployed in 103 countries around the world in a variety of vertical markets including SNG/Broadcasting, Emergency Response, Oil & Gas, and many more.

Under development now, is a new generation of Ka and Ku-band SOTM (Satcom-On-The-Move) antennas. Be sure to stop by C-COM's booth 4.C53 at IBC and catch a glimpse of the NEW Ka-band inMotion terminal.

Also on display will be the 75cm Flyaway antenna the iNetVu® FLY-75V and the iNetVu® 1202 Drive-Away Antenna, a 1.2M Ku-band auto-acquire satellite antenna system which can be mounted on the roof of a vehicle for Broadband Internet Access over any configured satellite. The system works seamlessly with the iNetVu® 7710 Controller providing fast satellite acquisition within minutes, anytime anywhere and is field upgradable to Ka-band.

COMTECH EF Data
Hall 1 booth # 1.F80
www.comtechefdata.com

Comtech EF Data Corp. is the global leader in satellite bandwidth efficiency and link optimization. Our integrated SatCom infrastructure solutions encompass Advanced VSAT Solutions, Satellite Modems, RAN & WAN Optimization, Network & Bandwidth Management and RF Products. The offerings feature groundbreaking efficiency (industry-leading coding, modulation, compression and physical layer operation), robust intelligence (traffic shaping, dynamic bandwidth allocation and integrated network management) and unparalleled horsepower (processing power for your pps and Mbps transmission requirements). Commercial and government users utilize our solution suite to reduce OPEX/CAPEX and to increase throughout for the most demanding fixed and mobile networks.

COMTECH Xicom Technology
Hall 1 booth # 1.F80
www.xicomtech.com

Comtech Xicom Technology provides a broad product line of KPAs, TWTAs, SSPAs and BUCs for worldwide satellite uplink covering C-, X-, Ku-, DBS-, Ka-, Q-band, Tri- and Multi-band with power levels from 8 to 3,550 watts and available in rack-mount and antenna-mount ODU packages.

At the IBC, Comtech Xicom Technology will be showcasing its SuperCool™ family of amplifiers which has many practical advantages over traditional air-cooled amplifiers including: ambient noise reduction, ease of service and maintenance, higher reliability, reduced heat load in hubs, flexible and compact installation and gain stability over ambient temperature.

The Comtech Xicom design incorporates integrated cooling channels in the amplifier baseplate, external to the high voltage and RF circuitry and drip-free connections. Liquid cooling is available across the high-power end of the product-line, including: the new SuperPower 2000W, and 1500W products; the 1250W, 750W, 500Ka and 250Ka family of amplifiers.

Gazprom Space Systems
Hall 5 booth # 5.B68
www.gazprom-spacesystems.ru

Gazprom Space Systems (GSS) – one of two Russian national satellite operators which holds 30% of the satellite capacity market in Russia. At IBC2016 GSS presents new opportunities of its space telecommunications system based on four satellites: Yamal-202 (49E), Yamal-402 (55E), Yamal-401 (90E), and Yamal-300K (183E). Total Yamal satellite constellation capacity amounts to 248 equivalent transponders of 36MHz and about a third of it is concentrated in beams pointed over territories outside Russia.

Globecast
Hall 1 booth # 1.A29
www.globecast.com

Globecast provides agile and seamless content acquisition, management and distribution services globally. The company constantly innovates in an evolving IP-centric environment to provide reliable and secure customer solutions. Globecast has created the number one global hybrid fiber and satellite network for video contribution and distribution. This network enables multiplatform delivery including TV Everywhere OTT, Satellite, cable, Video on demand, CDN delivery as well as cloud-enabled media services. The company remains the trusted partner for coverage and international delivery of news, sports, and special events around the globe. Customers enjoy a seamless global experience on the ground from 12 interconnected Globecast owned facilities, including Los Angeles, London, Singapore, Paris, Rome, and Johannesburg.

Hispasat/Hispamar
Hall 1 booth # 1.D40
www.hispasat.com

The **HISPASAT Group** is composed of companies with a foothold in Spain as well as in Latin America, where its Brazilian affiliate HISPAMAR, sells its services. The Group is a leading Spanish- and Portuguese -language content broadcaster and distributor, including over important direct-to-home television (DTH) and high-definition television (HDTV) digital platforms. HISPASAT is one of the world's largest satellite companies in terms of revenue in its sector, and the main communications bridge between Europe and the Americas.

ND Satcom
Hall 5 booth # 5.A60
www.ndsatcom.com

At IBC **ND Satcom** will be showcasing its SKYWAN modem family— a reliable, flexible and versatile satellite communication platform for customer centric networks. It is a bi-directional MF-TDMA plus DVB system that supports voice, video and data applications in the most bandwidth efficient manner.

The new SKYWAN **5G** unlocks new business opportunities for service providers. Total cost of ownership is significantly reduced thanks to the fact that only one type of device is needed for all roles in the network.

Newtec
Hall 1 booth # A49
www.newtec.eu

Newtec, a specialist in designing, developing and manufacturing equipment and technologies for satellite communications, will be showcasing at the IBC its most advanced VSAT modem to date – the first on the market to support wideband DVB-S2X , the Newtec MDM5000 Satellite Modem. The MDM5000 is capable of receiving forward carriers of up to 140 MHz, and processing over 200 Mbps of throughput. On the return channel, it supports SCPC, TDMA and Newtec's unique Mx-DMA™, up to 75 Mbps.

RF-Design
Hall 1 booth # 1.F45
www.rf-design-online.de

RF-Design is specialized in developing, manufacturing and marketing high quality RF distribution solutions for the international Satellite-, Broadcast- and Broadband communications market. Our product range includes Switch/Routing Matrices, RF-over-Fiber solutions, Splitters/Combiners, Switches/Redundancy Switches, Line Amplifiers, RF/DVB Signal Quality Analyzers and LNB-supply/control systems...perfectly suited for applications in Teleports, Satellite Earth-Stations as well as Broadcast- and Broadband RF distribution infrastructures. We also have strong capabilities to design and to manufacture custom-made RF distribution solutions for your individual needs.

At IBC 2016 we will demonstrate our new unique, innovative and clever Switch Matrix systems "FlexLink-K7-Pro" and "FlexLink S7" as well as our new RF-over-Fiber system "RedLink FLCRplus" allowing N+1 and N+2 redundant optical transmission. We look forward to welcoming you at our

stand and to talking about your individual RF distribution requirements.

RSCC
Hall 1 booth # 1.F89
www.rscc.ru

The Russian Satellite Communication Company (RSCC) is the national state satellite operator whose spacecraft provide a global coverage. RSCC belongs to the ten largest world satellite operators and owns five teleports and its own optical fiber infrastructure. The company possesses the largest satellite constellation in Russia located in the geostationary orbital arc from 14 West to 140 East and cover the whole territory of Russia, the CIS, Europe, the Middle East, Africa, the Asia Pacific region, North and South America, and Australia. RSCC offers a full range of telecommunications services such as TV and radio broadcasting, data transmission, telephony, multimedia and others using its own terrestrial engineering facilities and satellite constellation.

Satservice GmbH
Hall 1 booth #1.F87
www.satservicegmbh.de

SatService GmbH is pleased to present at IBC 2016 the new ***sat-nms*** KuBRX19 Beacon Receiver with Ku-Band input and the improved ***sat-nms*** ACU19V2 Antenna Controller.

The ***sat-nms*** KuBRX19 is based on the proven ***sat-nms*** LBRX L-band Beacon Receiver module operating jointly with an integrated wide band Ku-band block down converter in front of it. Other frequency bands such as C- to Ka-band are

also available. The main application of this receiver is in antenna tracking systems, where the receiver provides the tracking signal level to the antenna step track controller.

The ***sat-nms*** ACU19V2 is an improved automatic tracking antenna controller. It can be used as a cost efficient antenna tracking system to replace existing controllers of other manufacturers. Huge efforts have been spent in order to make this unit as compatible as possible to other brands. As result the replacement is simple plug and play by reusing the existing cables of an antenna installation.

Terrasat Communications, Inc.
Hall 1 booth # 1.F61
www.terrasatinc.com

Terrasat began in October, 1994, specializing in engineering design and manufacturing of advanced radiofrequency products for satellite and terrestrial microwave communications systems. Today, the company is focused on innovative RF solutions for satellite communications. The groundbreaking IBUC – Intelligent Block Up converter – brings full-featured, carrier-grade performance to commercial and military satellite communications terminals.

UHP Networks
Hall 1 booth # 1.A95
www.uhp.net

UHP Networks, formerly known as Romantis Inc, is a leading manufacturer of high-performance VSAT network equipment. Our solutions are field proven with over 170 networks and 11,000 remote terminals installed, many operating in most demanding applications with Tier 1 enterprise, broadcast and government customers. The company has its headquarters in Montreal, Canada, with manufacturing operations in Germany and sales and support offices worldwide.

Walton De-Ice
booth # 1.A62
www.de-ice.com

Walton De-Ice, the world's leading designer and manufacturer of satellite earth station antenna (ESA) weather protection solutions, Walton will showcase its latest Ka-Band satellite ESA weather protection solutions, **Ice Quake, Rain Quake**, and **Snow Shield** at IBC 2016.

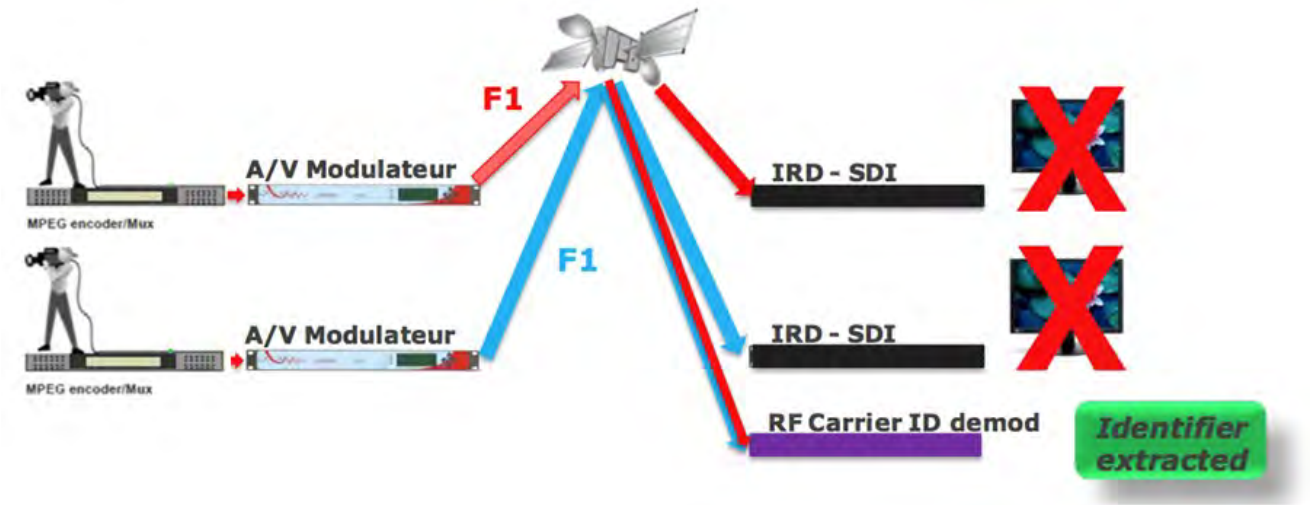
Work Microwave
Hall 5 booth # 5.A77
www.work-microwave.com

At IBC2016, **WORK Microwave** will demonstrate the latest innovations in analog and digital satcom solutions, increasing flexibility, bandwidth, and margins for satellite operators while reducing their operational costs. Key highlights at the show will include the company's new A-Series IP-based DVB-S2X family of modems, demodulators, and modulators, along with the debut of greater design options for frequency converters based on market demand.

WORK Microwave devices have been deployed by operators worldwide to support a range of applications within the satellite broadcast and satellite communications markets, including SNG/contribution, direct-to-home, IP networking, teleport management, governmental, and more.

....Carrier ID From page 25

Figure 2: DVB Carrier ID with a separate CID demodulator



Using the DVB Carrier ID (Figure 2) the identifier of each carrier is included in a very small and robust RF signal added to the useful RF signal.

NIT Carrier ID – details Generation at the Modulator/Encoder site

The NIT Carrier ID uses the PSI/SI DVB standard that allows to add some information to the MPEG-TS content: e.g. encoder details and the GPS position of the modulator which broadcasts the content as RF signal. The Carrier ID information table should be located in descriptor tag 196 (0xC4) of the NIT table. This new descriptor is added by table-inject to the original NIT.

Parameters	Example Value	#char	Description
Latitude	+00.0000	8	Latitude in +/- degrees and decimal minutes
Longitude	+000.0000	9	Longitude in +/- degrees and decimal minutes
Telephone	+18885551111	17	Contact phone number including country code
User Data	Test	24	user data in ASCII format

Monitoring at the Receiver site

The NIT Carrier ID is more or less easy to monitor because most of the IRDs (integrated receiver/decoders) support the NIT Carrier ID extraction. Therefore both DSNG players and Satellite operators can manage the NIT Carrier ID. However, as mentioned at the beginning, it is only possible if the received satellite RF signal is not too much disrupted by interference.

DVB Carrier ID – details Generation at the Modulator/ Encoder site

For the DVB Carrier ID there is a very small BPSK spread spectrum RF signal generated and superimposed on the main carrier by the modulator. There is no effect on the useful signal. The standard allows up 0.28dB of degradation for the C/N margin, typically it is less than 0.1dB.

Monitoring at the Receiver site

For the DVB Carrier ID a dedicated RF demodulator is required, as depicted in Figure 2. Up to now, only some satellite operators have upgraded their monitoring solution to support the DVB carrier ID by adding a Carrier ID receiver in parallel to the DVB-S/S2/S2X demodulator. Even if the DVB-S/S2/S2X signal cannot be demodulated, the DVB Carrier ID can always be extracted!

Conclusion

Carrier ID is not expected to be a perfect solution to solve all satellite signal interferences, but it will be a key technology in contributing to the rapid identification of interferences and reducing their negative impact on operators, customers, and the satellite industry as a whole. Carrier ID will enable the operators and users to:

- Quickly identify interfering carriers and respond to interferences reducing the duration of each event.
- Improve Quality of Service and reduce operating costs.

Parameter	Example Value	#char	Description
Global User Identifier	00:00:00:00:00:00:00	14 (hex)	This identifier is computed using the modulator MAC address (consisting of an organization unique identifier including a CRC at the beginning; and the Serial number
Format	1	1	Version control
Latitude	00.0000 N/S	24	Latitude in degrees and decimal minutes plus N or S
Longitude	000.0000 E/W	24	Longitude in degrees and decimal minutes plus E or W
Telephone	+18885551111	18	Contact phone number including country code
User Data	Test	24	User data in ASCII format

- In the long term, lower the number of interference events and release bandwidth being used to overcome current and ongoing events.

TeamCast has been a long-time partner in the DVB standard committee, and is also a member of the Satellite Interference Reduction Group. They have developed state-of-the art modulators following the DVB-S/S2/S2X standard (Vyper and Tyger, as well as OEM modules), and recently released the stand-alone CID receiver which can extract the Carrier ID information.

Dr. Andrea Franz, Partner at A.G. Franz Associates, LLC, has over 25 years of engineering and program management experience in the telecommunications, aerospace, and broadband media industries. Dr. Franz received her PhD in Electrical Engineering from the Technical University of Vienna, Austria. She is a member of the Institute of Electrical and Electronics Engineers (IEEE) and the Society of Women Engineers (SWE). Dr. Franz is the author of several technical papers. She can be reached at: andrea@agfranz.com

....Amphinicy Technologies From page 12

Your problem, and can **kick-off the project immediately** or in an extremely short time frame. A lot of our solutions are based on our products so we don't need to start from scratch which additionally speeds up the process.

Customer oriented-most of our revenue comes from providing services of designing, developing, and delivering the **tailor made software solutions to clients**. Therefore, we are used to collaborating on **big projects**, and with big customers like space agencies, satellite operators and other important stakeholders from the industry.

Experience-last but not the least, actually the most important thing, Amphinicy is on the market for **20 years,** with 100+ successfully finished international projects, and vast expertise in SatCom ground and satellite solutions, VSAT satellite networks, humanitarian projects, Earth observation, and satellite multimedia solutions!

Today, because of our FACE, we have an ongoing collaboration with SES, ESA, Astrium D&S, Newtec, RSS, O3b, iDirect, and many more," said Milos.

From their headquarters in Zagreb, Croatia and offices in Luxembourg, Amphinicy is seeking to expand into global markets such as the USA, among others.

"Having the office in Luxembourg brings us closer to our most important customers from the Benelux region, opens a possibility of collaboration with ESA (European Space Agency) projects (Croatia is still not the member of ESA), and helps to attract senior space engineers into that office. On the other side, Amphinicy Zagreb, employs over 40 high-quality software engineers certified for the satellite industry. This combination of experienced space engineers on-site in Luxembourg, and highly educated, and cost-effective software engineers from Zagreb, makes a solid competitive model and a clear advantage for the market," said Milos.

According to Milos, Amphinicy is planning an aggressive expansion in the next five years, after having years of stable growth. It certainly is a company worth watching.

Passport, Tickets, Luggage? E-mail, Browsing, Social Media?

by Martin Jarrold

If you are reading this column having just flown into Schipol airport to attend IBC 2016, and if your annual summer holidays, recently concluded, included air travel, there is a distinct, and increasing, probability that while you were cruising at 35,000 feet you would have been able to keep in touch with family, friends and work colleagues via voice, email, and social media just as though you were on *terra firma* at home, in the office, or in your local coffee shop.

During a keynote speech by Joe Leader, CEO of the Airline Passenger Experience Association (APEX), entitled 'Airline In-Flight Connectivity: The New Paradigm of Passenger Experience' in February 2016 at the opening of the GVF-EMP London conference **Connectivity 2016: Air, Sea, Surface, and Rail: Evolving the "New" New Verticals**, it was noted that "According to a recent APEX survey of global passengers, Wi-Fi was rated the highest in terms of increasing satisfaction with the in-flight passenger experience. This demonstrates a huge opportunity for in-flight connectivity with an insatiable desire for higher broadband speeds."

Mr. Leader further noted that as of 2015, 72 of the world's airlines were already offering, or planning to offer, customer in-flight connectivity. Also during 2015, *The Economist* magazine reported on US$10 billion of on-board passenger experience upgrades during 2015 for existing aircraft alone, and that half of all airline profits, industry-wide, are being redirected to enhance the in-flight passenger experience with Wi-Fi.

Additionally, of course, and reflective of this, satellite operators are increasingly covering the world's principal commercial flight corridors with high throughput satellite (HTS) beams and service solutions. The greater availability of broadband capacity over airline routes is increasingly able to ensure that the connectivity demands – or the In-Flight Entertainment & Communications (IFEC) demands – of the mobile broadband consumer as airline passenger are met.

Fully appreciative of the qualitative impact and quantitative magnitude of these inter-related market trends, and encouraged by Mr. Leader's support for a further conference specifically and wholly dedicated to the aeronautical segment of the he Communications-on-the Move (COTM) market, the GVF-EMP Partnership announced plans to expand and enhance its core portfolio of leading communications connectivity events by extending its thematic coverage to encompass detailed analysis of the technologies, services, equipment deployment and markets of the aeronautical connectivity and entertainment space.

The program, the next in the GVF-EMP portfolio of events, and taking place in London on 11th November, is **AeroConnect 2016 – The In-Flight Online Revolution (www.uk-emp.co.uk/current-events/aero-**

connect-2016/). Sponsored by **Hughes** and **Intelsat**, and organized in association with the **Airline Passenger Experience Association (APEX)** and **HMG Aerospace** (publisher of ***Inflight*** - **www.hmgaerospace.com/news/inflight-online/**), this event agenda will cover four principal themed sessions – on **Technologies**; on **Aeronautical Applications & Passenger Services**; on **Terminal Equipment**; and, on **The Expectations & Capabilities Matrix (of the connectivity user, and the solution provider)**.

"...satellite operators are increasingly covering the world's principal commercial flight corridors with high throughput satellite (HTS) beams and service solutions. The greater availability of broadband capacity over airline routes is increasingly able to ensure that the connectivity demands – or the In-Flight Entertainment & Communications (IFEC) demands–of the mobile broadband consumer as airline passenger are met...."

The program will not only look at the airliner seat as a fully functioned extension of the office desk and domestic living room, that is the passenger (as consumer) experience of IFEC, but also at the airline carrier (and its employees) as consumers/users within this new paradigm of the in-flight connectivity ecosystem.

The event program as a whole will seek to characterize the various determinants of, and the prime drivers of, the nature and scale of the investments being made today – and the investments being planned for tomorrow – by key market players to provide the infrastructure for the current generation, and for future generations, of in-flight connectivity.

This extension of office, home and earth-bound mobile broadband brings massive new revenue potential not only for the COTM solutions provider marketplace, but also for the airline carriers, the connectivity investment budgets of which will be well-positioned within a multi-billions of dollars virtuous circle of enhanced revenues-increased profits-expanded investment..., and so on.

With the aeronautical connectivity ecosystem encompassing not only the passenger IFEC experience –

Entertainment (streaming, general web browsing, etc.);

Productivity (work email, LinkedIn, etc.);

and,

Communication (Skype, social media such as Facebook, Instagram, etc., as well as voice); together with general travel planning websites (Expedia, TripAdvisor, etc.) and airline carrier-specific travel, reservations, ticketing, baggage tracking, on-board duty free shopping apps – but also airline carriers' operational requirements the program will additionally cover the data environments of:

- the **aircraft cockpit** (flight navigation, real-time flight-tracking, weather situational awareness, QAR, etc.);
- **cabin crew** (digital crew operations, live on-board sales, telemedicine, etc.);

aircraft management & maintenance (aircraft operations IT);

and,

air traffic management (ATC, tower communications, etc.).

Here's an overview of the overall draft program:

Session 1: Technologies – Space Segment Evolution – Enabling In-Flight-Online**;** Ku-band and Ka-band in the Mix**;** GEO FSS and GEO HTS Capacity for World's Carrier Corridors**;** Satellite Coverage & Airline Fleet Connectivity Offerings**;** The Wi-Fi Cell & the VSAT Terminal**;** Broadband Satellite Capacity Futures: Is there a Need for a Technological Future for Mobile VSAT & new LEO Constellations?

Session 2: Aeronautical Applications & Passenger Services – The Cloud & Big Data from Gate-to-Gate**;** The Airline App Environment**;** The Passenger Online Environment (From Laptop, Tablet & Smartphone to Facebook, Instagram, LinkedIn, Skype... and Beyond)**;** The Airline Carrier Operational Data Environment**;** The Passenger In-Flight Experience as Carrier Ancillary Revenue Profit Centre**;** Economies of User Market Scale.

Session 3: Terminal Equipment – Type Approvals & Product Quality**;** Solutions Architecture, Design & Engineering Strategies**;** Terminal Design & Airframe Compatibilities**;** Terminal Capabilities for the Passenger & Carrier Requirement**;** Terminal Evolution & Future Proofing**;** Future Antenna... Aeronautical SOTM as an Innovation Accelerator.

Session 4: The Expectations & Capabilities Matrix – The Passenger, the Airline, and the Satellite Solution Provider**;** Deployment & Installation Planning: The Aircraft Manufacturer & the Airline Carrier**;** Broadband Bandwidth: Reconciling Supply & Demand Realities**;** Passenger Choice Drivers & Carrier Offerings**;** Future Proofing: Connectivity, Upgrades & Speed**;** Multiple Device Connectivity & the Second Screen.

More information about the event can be viewed at **www.uk-emp.co.uk/current-events/aero-connect-2016/**, or by contacting Martin Jarrold (martin.jarrold@gvf.org) or Paul Stahl (paul.stahl@uk-emp.co.uk).

Martin Jarrold is Director of International Programs of the GVF. He can be reached at

Making Space Feel Closer. AMOS Satellites.

More Coverage. More Throughput. More Services.
Across the Middle East, Europe, Africa and Asia.

Meet us at
IBC
September 9-13, 2016
Amsterdam
Hall 1, Booth C65

Spacecom's AMOS satellite constellation, consisting of **AMOS-2** and **AMOS-3** co-located at 4°W and **AMOS-4** at 65°E, provides high-quality broadcast and communications services across Europe, Africa, Asia and the Middle East.

AMOS by Spacecom
MAKING SPACE FEEL CLOSER

Speedcast Acquires WINS Limited

Sydney, Australia, August 8, 2016-SpeedCast International Limited (ASX: SDA), a global satellite communications and network service provider, announced the acquisition of WINS Limited (WINS), a leading Europe-based provider of innovative broadband satellite communications and IT solutions for the maritime sector.

WINS provides services to over 100 passenger carrying vessels such as cruise liners and ferries and more than 2,000 merchant shipping vessels with a portfolio of VSAT, L-Band, Accounting Authority Services and International Maritime GSM services. The combination of SpeedCast's unrivaled global service and operational network and WINS' strong establishment in the European market will enable SpeedCast to grow its business rapidly in this exciting market.

"We are very pleased to welcome WINS to our family," SpeedCast CEO, Pierre-Jean Beylier, commented. "This acquisition is further affirmation of SpeedCast's growth strategies, and is a significant milestone for us. WINS brings a strong local presence in Germany, a major maritime market, as well as expertise in the cruise industry in Europe, a fast growing user of satellite communications. Together, we are well poised to expand our network to support the growing demand of VSAT services in the maritime sector."

Tony Mejlaq, Chairman and CEO of WINS said, "We founded WINS with a vision of connecting users in any location, no matter how remote. Becoming part of the SpeedCast family enables us to join a group with real international connections, providing us with access to new markets. We are very excited to join the SpeedCast family and deliver new service capabilities to our customers. Our customers will benefit from the enhanced customer service network and world class infrastructure."

Kudelski Group Acquires NexGuard Labs

Cheseaux-sur-Lausanne, Switzerland, July 8, 2016-The Kudelski Group announced the acquisition of 100% of NexGuard Labs BV (formerly Civolution BV), a digital content watermarking solutions provider. This move expands the Kudelski Group's portfolio of end-to-end content protection security solutions, enriching the existing offer to content owners and pay-TV operators.

NexGuard Labs BV, based in the Netherlands with offices in Los Angeles, New York, London, Dubai and Rennes (France), is a leading provider of forensic watermarking technology and solutions for protecting media content against illicit redistribution. It offers an extensive portfolio of industry-leading digital watermarking tools to help media content owners, rights holders and distributors protect and manage their assets.

With US$ 90 billion of protected revenues for 530 clients worldwide, the Kudelski Group has 30 years of experience acting as a mission-critical partner for pay-TV operators and content owners. Its security solutions are designed to be capable of continuous evolution and dynamic upgrades to counter any security risk, in broadcast, hybrid and connected environments. The security specification and certification standard the Group has established is one of the most inclusive and reliable, reducing overall business risk for the pay-TV ecosystem.

André Kudelski, Chairman and CEO, Kudelski Group said: "the acquisition of NexGuard further strengthens our content protection offering and represents a key milestone in executing our growth strategy in security."

Watermarking is a key component of the content protection chain, helping to prevent illegal sharing, ensure full traceability and provide guarantees to end-users in terms of quality. The use of this technology has become a major requirement from content owners, especially regarding 4K, High Dynamic Range or live sports events distribution. It also helps pay-TV operators ensure that content is not distributed illegally.

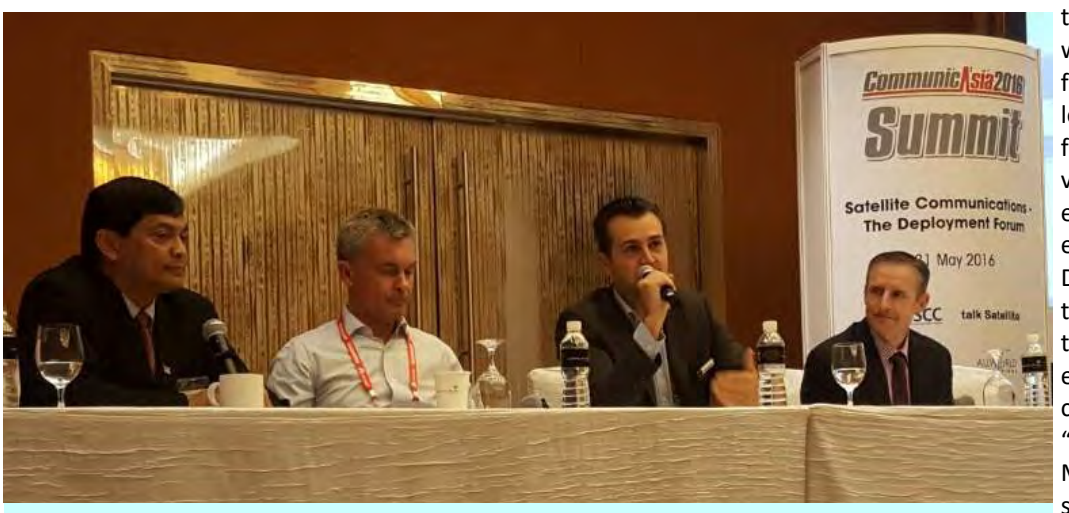
The watermarking technology developed by NexGuard does not impair the viewer experience and is robust against severe degradation of the content. It will reinforce the Kudelski Group's existing watermarking technology, anyMARK, and will be available on all Kudelski Group digital television products.

Terms of the transaction were not disclosed.

CommunicAsia 2016 Highlight HTS, Among Others

There were some general themes common to both Casbaa and CommunicAsia this year. As would be expected, high throughput satellites (HTS) and the evolution of 4K were frequent topics. But underlying these sessions and most of the others, was another common theme: that of change. We work in technology, so as an industry we know that things are never going to be static, but right now, we seem to be faced with change on many fronts simultaneously.

Deepak Mathur, Senior VP, Commercial, Asia-Pacific and Middle East, SES and Tom Choi, Cofounder and CEO of ABS, both spoke of the tremendous demand in the region, while Bill Wade, President and CEO of AsiaSat pointed out that we are shooting ourselves in the foot, by lowering prices too much. Steve Collar, CEO of O3b, disagreed, saying that lower prices are stimulating demand, leading to more revenue. Choi took the idea even further, and suggested that manufacturing prices are falling so much that he can envisage reaching a point where the entire ecosystem has changed, and capacity, and broadband in particular will be offered free of charge, in the same manner that Google and Facebook do today with their services. While not suggesting that broadband will be offered free of charge, Erwin Hudson, VP and General Manager, Commercial Satellite Communications, ViaSat, said that ViaSat's prime objective was to drive satellite capacity up and the price per Megabit down. The objective being, to reach a price point sufficiently low, that new markets and applications, will be created. He also admitted that ViaSat understood the US market very well and has great partnerships in Europe, but is finding the Asian market more difficult to enter.



One of the panel sessions at the CommunicAsia Summit was on an update on HTS and upcoming LEO constellations chaired by Satellite Executive Briefing Editor-in-Chief **Virgil Labrador** (from left) and included **Mark Rigolle**, CEO of Leosat, **Thomas Van Den Driessche,** Chief Commercial Officer Newtec and **Todd McDonnell,** VP-Government Solutions of Inmarsat.

Important though broadband/HTS is, according to Newtec, it accounts for 79% of capacity, but only 24% of the revenue of satellite services. It will be interesting to see how this ratio changes with the introduction of all the new capacity and the drive to decrease price.

Paul Brown-Kenyon, CEO, Measat, pointed out the difficulty faced by satellite operators who are currently forced to deal with a 15 year business case, whereas the terrestrial competition can work with much shorter time horizons. Silicon valley in particular tends to look for a one to three year return on investment.

Paul Sheridan, Vice President of Optus, pointed out that the customer was looking for "thought leadership" from the service providers, a thought echoed by Deepak, who talked about the need to educate the customer, "that not all MHz are the same." However, the need to be more integrated with terrestrial networks was something that everyone agreed upon.

No conference with Tom Choi, would be complete without him expressing his hatred of all things non-GEO, and this was no exception. He asserted that ABS were picking up former O3b customers, who "hated the service." Steve Collar countered by pointing out that O3b had already upgraded 12 customers this year.

On the subject of HTS, everyone agreed that in Asia, lack of HTS capacity was a real issue, however opinions differed regarding how to rectify the situation. HTS doesn't have to be Ka-Band, as demonstrated very clearly by Intelsat Epic,

Continued on page 40....

Business Communications for Enterprise

The future's Onlime

Comprehensive and fully flexible range of high-quality, secure and reliable satellite and terrestrial communications services for customers across the globe.

Want to know more? Call +44 1483 377101 or e-mail sales@onlime.com

onlime
Business Communications

Satellite Solutions | Fibre Solutions | Satellite Technology | Wireless Solutions | Teleport Solutions | Voice Solutions | Network Solutions | Broadcast Solutions | Satellite Exchange | Coverage

Following the Signal

AVCOM

Of Virginia Inc.

Unique Monitoring System Solutions and Spectrum Analyzers

SBS2
Embedded Spectrum Analyzer
and Beacon Receiver

RSA Series
Rackmount Spectrum Analyzer

PSA Series
Portable Spectrum Analyzer

www.AvcomOfVA.com 804.794.2500
MADE IN USA

WALTON DE-ICE

- Any Antenna from 0.6 to 32 Meters
- The World Leader in Antenna De-Icing for over 36 years
- CE Certified Natural Gas, Liquid Propane, and Electric Heaters
- Ka-Band Specialists
- Turnkey Integration, Installation, and Maintenance
- 24/7 Tech Support

See us at Stand 1.A62

2016 AMSTERDAM

WB Walton Enterprises, Inc.
P.O. Box 9010
San Bernardino, CA 92427 USA

+1 (951) 683-0930
sales@de-ice.com
www.De-Ice.com

CommunicAsia report from page 36….

but it is generally associated with that frequency; so is usually not regarded as suitable for areas of heavy rainfall, such as is found, in large parts of Asia. To counteract this, Intelsat is about to rollout a new small C-Band antenna. Ku-Band will be used most of the time, but when heavy rainfall is detected, the system will shift to C-Band. This means that it is able to guarantee 99.9% availability.

SES is reiterated, that it is adopting a more cautious approach to HTS, it has just increased its investment in O3b, to take control of the company, but is not introducing any other dedicated HTS. Rather it is launching satellites that combine "regular" shaped beams with HTS beams.

One of the most important shows for the telecommunications industry in Asia, this year's event attracted over 48,000 attendees from 102 countries.

At the CommunicAsia Satellite Summit, one of the key sessions was on an update on HTS and the upcoming LEO constellations which included speakers such as Mark Rigolle, CEO of Leosat. The planned LEO systems backed up by major playes such as Google and Facebook were generally seen as a potential threat s we ll as an opportunity of current GEO systems.

For those parts of the world where consumers either don't have access to broadband from HTS or can't afford that service, SES in conjunction with Gilat, announced the introduction of a hybrid broadband service. The solution uses SES-9 capacity and Gilat's Libra modem. Download speeds from the satellite of up to 20Mbps are offered and are received via the same dish and set-top box used for DTH. This is therefore a very cost efficient way of delivering broadband connectivity to unserved regions. The return path is via existing cellular or DSL networks. Obviously the service is capitalizing on the fact that, YouTube not withstanding, even today, the majority of Internet traffic remains asymmetrical.

Broadband is not the only application, dealing with changing business models and ecosystems. Video is in the midst of an even greater change. IP is becoming the dominant format and over-the-top (OTT) services continue to gain traction. However Peter Siebert of the DVB Alliance, put this into perspective, clearly separating the hype from the reality, by showing a very interesting chart, indicating that 92.4% of European Film and television revenues come from broadcast television, and a mere 3% from OTT. (The rest comes from the box office and DVDs etc.)

Whether OTT or linear, 4K is starting to take a real foothold and increasingly 4K alone is not sufficient. High Dynamic Range, as discussed in June's magazine is touted as the "magic" ingredient that really "makes" 4K. Newtec, in conjunction with Measat had the world's first demonstration of HDR over satellite at CommuncAsia.

Lim Kian Soon, Head of Satellite Business Group, Enterprise for Singtel, had a totally different priority to the other speakers in Singapore. He chose to focus on cyber security. The importance of this topic was clearly demonstrated in his first graphic, indicating that on average it is 205 days before a cyber attack is actually detected, and even then it is usually an outside agency that makes the discovery. Singtel as a company is making this a priority and in the last 18 months has formed partnerships or alliances with Trustwave, Bitsight, Fire Eye amongst others. It has also set up the Cyber Security Institute of Singapore to provide resources and training to companies.

So change on all fronts, as Paul Brown Kenyon said – "the only way to survive is to adapt."

UHP HTS - BE PREPARED FOR NEXT GENERATION SATELLITES!

VSAT HUBS

* High-Throughput, Carrier-Grade Multi-beam TDM/TDMA Hub
* M:N Redundancy of all Key Elements
* Multiple TDM Outbound Modules up to 250 Mbps, 5% RO, 32APSK
* Traffic Load Balancing Across Multiple Beams
* High-Density 8-Carrier TDMA Demodulator
* Multi-Carrier High-Speed TDMA Mesh
* DVB-S2 Return Carriers up to 210 Mbps
* Advanced NMS with support for Multiple Beams and VNO
* API to Integrate with OSS/BSS
* Layer 2 over Satellite Network
* Hierarchical QoS
* Automatic Beam Switching to Support Mobility

VSAT TERMINALS

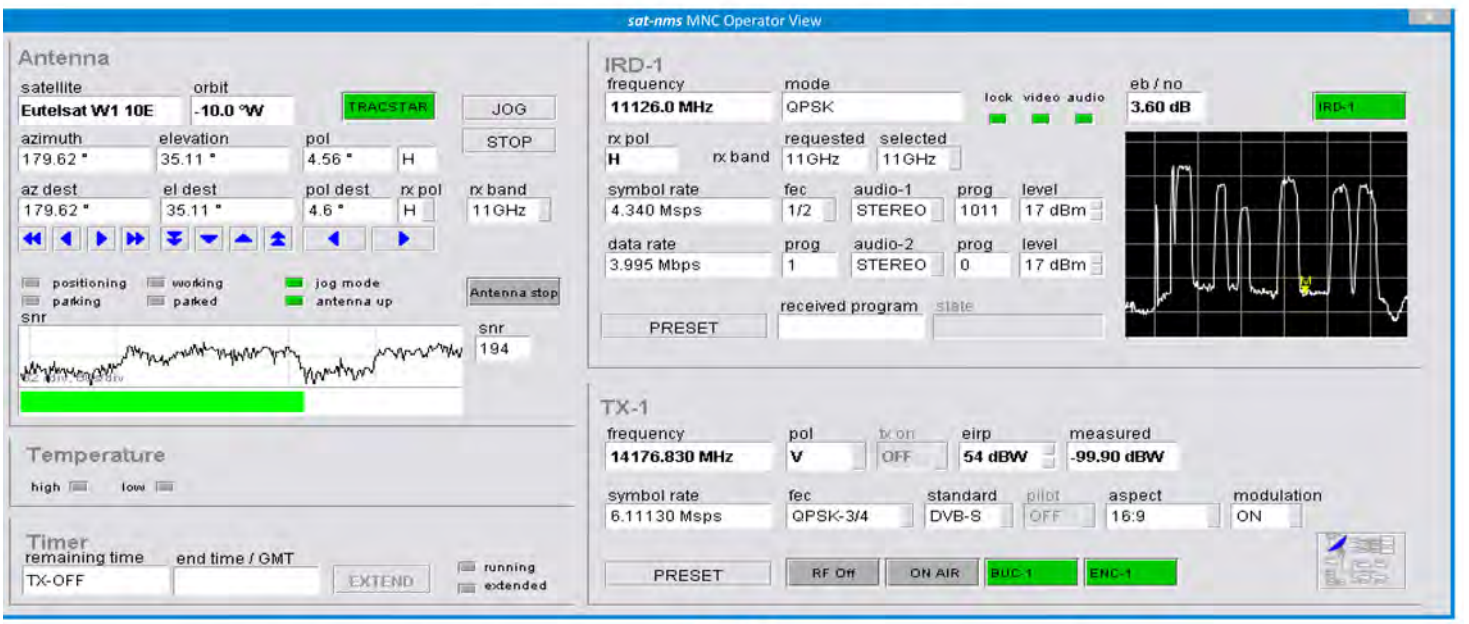
* Enterprise UHP-200 Router (300,000 PPS) with TDMA Mesh and 210 Mbps SCPC
* Broadband UHP-100 Router (200,000 PPS) with Cost Effective Design
* High-Speed Dual Receiver for Multiple Beams
* Jumbo Frame support
* AES 256 Encryption

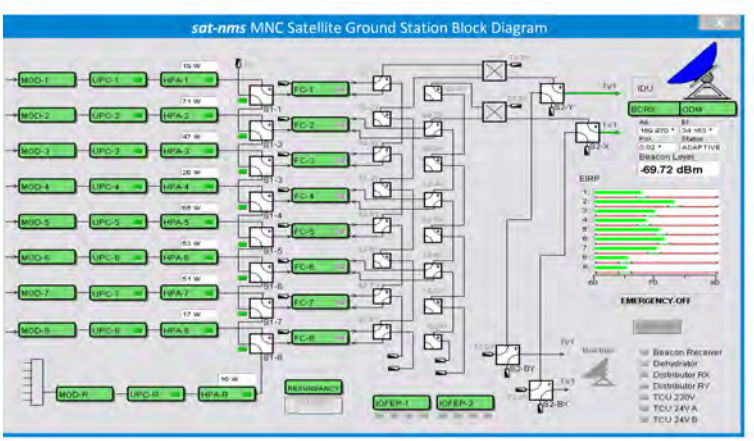
UHP. NETWORKS

WWW.UHP.NET

OPERATORS DO NOT WANT TO SEE BLOCK DIAGRAMS...

... BUT ENGINEERS DO !





- ✓ easy re-configuration
- ✓ operator friendly GUIs
- ✓ smart work flows
- ✓ vendor independent configuration

***sat-nms* MNC and *sat-nms* IOFEP:**
complete soft- and hardware solution

sat-nms M&C SYSTEM PROVIDES BOTH:
BLOCK DIAGRAM AND TASK ORIENTED USER INTERFACE

SatService
Gesellschaft für Kommunikationssysteme mbH

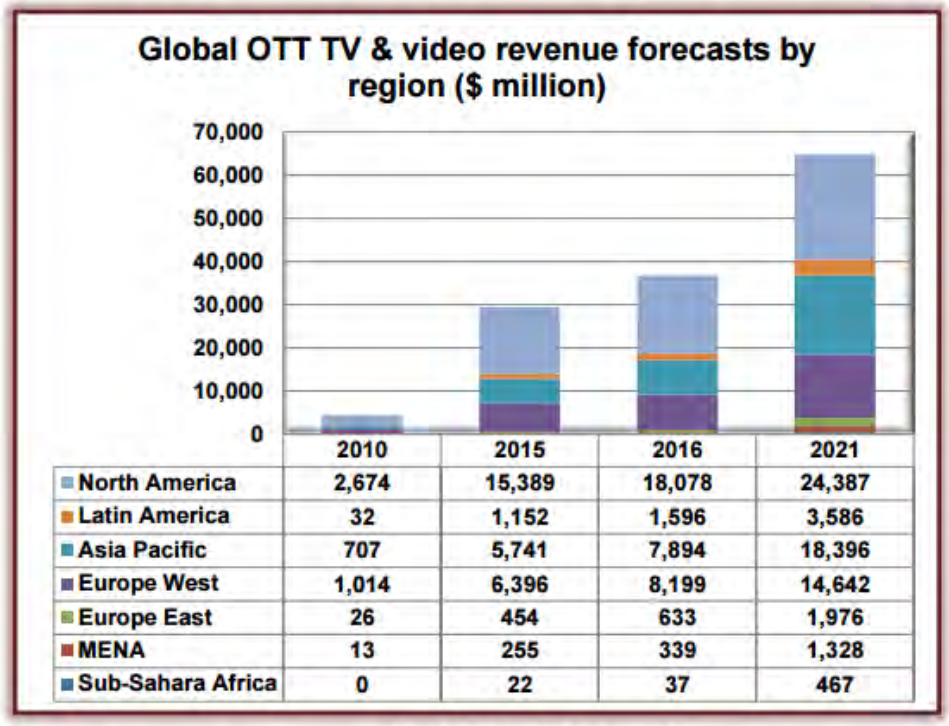
www.satnms.com
www.satservicegmbh.de

sales@satservicegmbh.de
Phone +49 7738 99791 10
Hardstrasse 9, 78256 Steisslingen, Germany

OTT and TV Video Revenues To Generate US$ 65 Billion

Global OTT TV and video revenues [for 100 countries – up from 64 in the previous edition] will reach $64.78 billion in 2021; a massive increase from $4.47 billion in 2010 and $29.41 billion in 2015.

From the $35.37 billion extra revenues between 2015 and 2021, Asia Pacific will contribute $12.65 billion, Western Europe $8.25 billion and North America $9.00 billion. The Global OTT TV & Video Forecasts report estimates that Latin American revenues will nearly triple, with even greater growth expected in Eastern Europe and the Middle East & Africa.



	2010	2015	2016	2021
North America	2,674	15,389	18,078	24,387
Latin America	32	1,152	1,596	3,586
Asia Pacific	707	5,741	7,894	18,396
Europe West	1,014	6,396	8,199	14,642
Europe East	26	454	633	1,976
MENA	13	255	339	1,328
Sub-Sahara Africa	0	22	37	467

Source: Digital TV Research

The US will remain the dominant territory for online TV and video revenues – which will rise by $8.24 billion to $22.82 billion between 2015 and 2021. China will add a further $6.24 billion, with its total revenues nearly quintupling over the period to give it second place.

SVOD will become the largest revenue source by 2018, but AVOD will regain top position by 2020. SVOD will add $14.58 billion in revenues between 2015 and 2021, with AVOD up by even more ($15.37 billion).

Online TV and video advertising has been boosted in recent years by the rapid growth in mobile advertising. Fast growth will continue; reaching a global total of $26.96 billion in 2021.

SVOD revenues will soar from $0.89 billion in 2010 to $11.13 billion in 2015 and onto $25.71 billion in 2021. This means that SVOD will contribute 40% of total OTT revenues in 2021; double the 20% recorded in 2010.

Digital TV Research forecasts 383 million SVOD subscriptions by 2021, up from 21 million in 2010 and 163 million by end-2015.

Simon Murray, Principal Analyst at Digital TV Research, said: "It is important to note that these figures are for gross subscriptions. A home or a person can pay for more than one SVOD platform. This is reasonably commonplace in some countries such as the US, Scandinavia and the UK."

He added: "Furthermore, subscription figures for several countries (notably the US, Germany and the UK) are boosted by the inclusion of Amazon Video. Most of these homes access Amazon Video as part of their Amazon Prime subscription so they are not directly paying to receive Amazon Video. A significant proportion of Amazon Video viewers would probably not pay for it as a separate service."

Murray continued: "Mobile SVOD is growing rapidly in Asia – and will do so in the Middle East and Africa. Mobile broadband is more established than fixed broadband in many developing countries." From the 220 million SVOD additions between 2015 and 2021, 107 million will be in the Asia Pacific region and 28 million in the Middle East & Africa.

The North American market has still not reached maturity, with 28 million additions expected between 2015 and 2021. Western Europe will bring in an extra 30 million to its total.

EXCELLENCE IN RF-DISTRIBUTION

- Unique, innovative & clever Switch/Routing Matrix systems
- Flexible RF-over-Fiber solutions for indoor & outdoor applications
- Multi input Signal Quality Analyzers for RF & DVB monitoring
- RF line-amplifiers, Switches & Redundancy switches
- Stand alone & modular Splitters & Combiners
- Stand alone & modular LNB supply/control systems
- Custom-Made products and solutions tailored to your needs
- Perfectly suited for applications in Teleports, Satellite Earth-Stations, Broadcast- and Broadband facilities...

NEW

„FiberLink“ RF-over-Fiber series

- Versatile & scalable RF-over-Fiber systems
- Suited for indoor & outdoor applications
- LNB-supply, gain-control, RF power monitoring...
- Supports various redundant optical transmission such as 1+1, N+1 & N+2
- Excellent quality and performance

NEW

„FlexLink“ Switch Matrix series

- Unique - Innovative - Clever
- 1RU/19" in sizes 8:8, 8:16, 16:8, 16:16 & 8:24
- 6RU/19" scalable version 8:8 to 256:256
- Variants with optical inputs
- LNB-supply, 10MHz feed, gain-control, RF power monitoring, RF/DVB signal monitoring

RF-Design • Marienburger Str. 3 • 64653 Lorsch/Germany • www.rf-design-online.de
Headquarter: +49 6251 80 384-0 • Sales/Marketing: +49 6251 80 384-22 • contact@rf-design-online.de

Russian Satellite
Communications Company

Best Regional Operator of the Year

www.rscc.ru

Visit us at IBC Show
Stand 1.F89

INTRODUCING THE NEW IBUC 2G

1/4 the size. 1/3 the weight.
All of the IBUC features.

IDEAL FOR:

MOBILE SYSTEMS

SMALL APERTURE TERMINALS

FLY-AWAY SYSTEMS

80W Ku-Band, 100W C&X-Band, 40W Ka-Band (GaN P_{sat}) in the compact IBUC 2 enclosure.

ENGINEERED TO ENDURE

Contact us:
+1 408.782.5911
www.terrasatinc.com

TERRASAT Communications, Inc.

Soaring Demand for Video-on-Demand Service in Europe

The availability of fast fixed and mobile next generation networks has significantly changed video consumption habits in Europe, driving mobile video, on-demand video and multi-screen viewing, according to insight from Pyramid Research.

The company's report* states that an increasing consumer appetite for on-demand video services presents an opportunity for operators to complement their core portfolio of services and add new revenue streams. Satellite operator Sky UK, for example, has achieved this by launching its internet-based over-the-top (OTT) service, Now TV.

Stephanie Char, Western Europe Analyst at Pyramid Research, explains, "European markets offer a favorable environment for OTT adoption due to high fixed and mobile broadband penetration rates, high proliferation of connected devices, greater volume of online video catalogs and increasing pay-TV penetration, which will reach 73% of households in Central and Eastern Europe (CEE) and 69% in Western Europe (WE) by 2020."

According to Pyramid Research's Digital Consumer Analyzer, the adoption of subscription-based OTT video and video on demand (VoD) services has grown steadily in the UK over the past two years, reaching 37% and 23% of pay-TV users respectively in the second quarter of 2016.

Netflix and Amazon Prime play an important role in driving the adoption of OTT video services. UK consumers show a clear preference for Amazon Prime and Netflix video services as providers of the most desired content bundled with mobile services, with scores of 27% and 18% for smartphone users, and 29% and 20% for tablet users respectively.

Char continues: "The OTT video market in Europe is likely to witness robust growth, owing to strong interest from customers in content and OTT players' investments in content and platforms. LTE service adoption will play an important role in driving OTT video adoption across Europe. Pyramid Research expects 4G connections to reach 66% of total SIM cards in WE and 29% in CEE by 2020.

"OTT players should focus on domestic content and local languages to boost the uptake of their services and revenue. Content is vital to any successful paid video service. However, linguistic diversity in the European markets has posed a challenge to OTT service providers. The lack of availability of foreign content in local languages limits market penetration for international OTT players.

"Netflix, however, has started to combat this by producing original content in local languages, such as the TV series *Marseille* in France, and will launch similar content in Germany and Spain starting in late 2016. For EU member countries, the EU encourages OTT providers to include at least 20% European content in their catalogs."

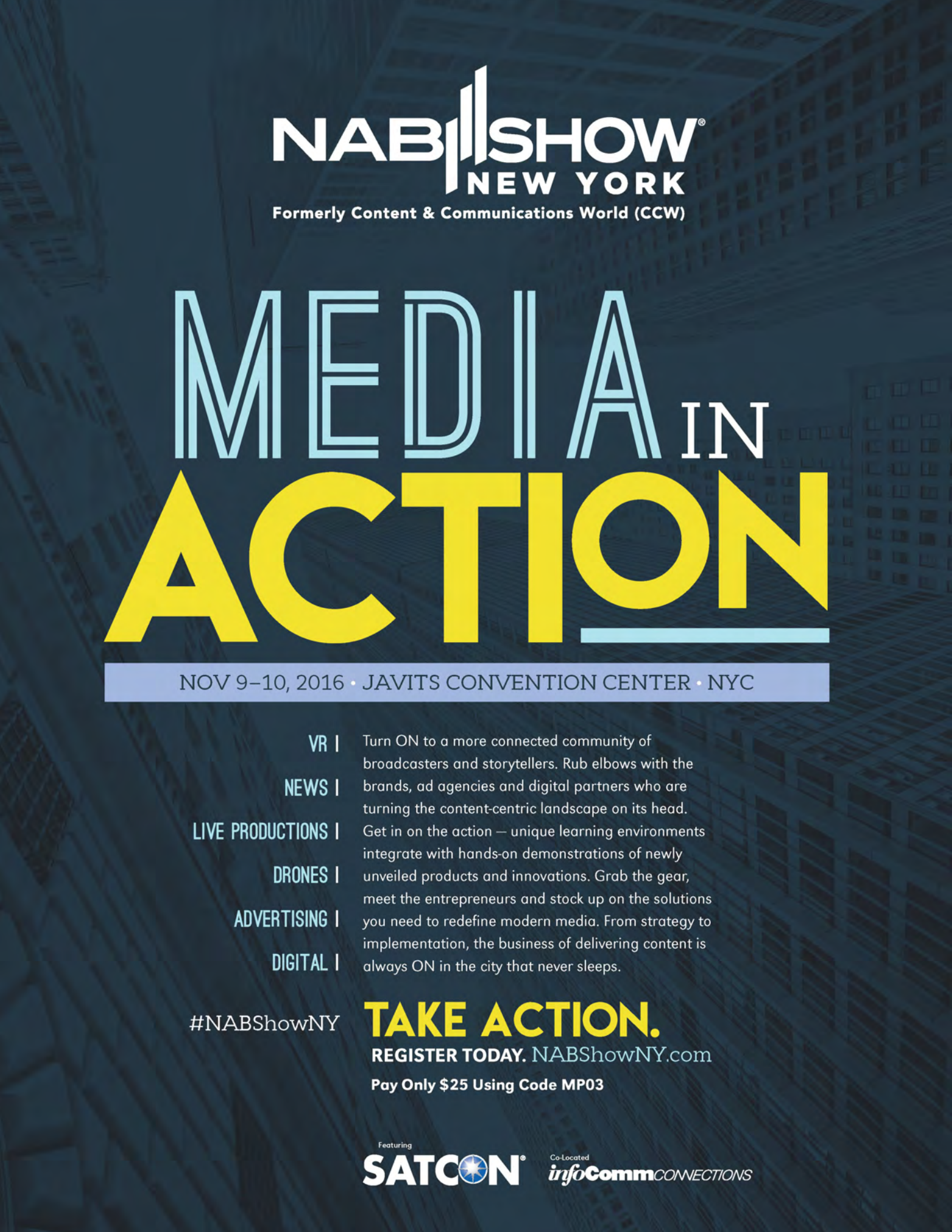
Eastern Europe Wakes Up to OTT

Eastern European OTT TV and video revenues [for 18 countries] will reach US$ 1,976 million in 2021; up from only US$ 26 million recorded in 2010 and $454 million in 2015, according to a new report from Digital TV Research. The Eastern Europe OTT TV & Video Forecasts report states that Russia accounted for half the region's OTT revenues in 2015 and will remain at around this level for the next five years.

From the $1,522 million additional revenues between 2015 and 2021, Russia will provide $724 million, with Poland bringing in a further $220 million.

Simon Murray, Principal Analyst at Digital TV Research, said: "The Eastern European OTT TV and video sector is more immature than most of the rest of the world. Although this is changing with several platform launches, the region will still have lots of room for growth after 2021."

SVOD [subscription video on-demand] will become the region's largest OTT revenue source in 2016. SVOD revenues will total $1,142 million by 2021 – up from only $4 million in 2010. Russia (up by $460 million between 2015 and 2021 – or more than sextupling) will remain the SVOD revenue leader, with Poland taking second place. Digital TV Research forecasts 19,706,000 SVOD subscribers by 2021, up from 125,000 in 2010 and 3,356,000 by end-2015 – sextupling between 2015 and 2021. Russia will have more than 10 million SVOD subscribers by 2021. Murray explained: "Netflix launched across the region in January 2016. However, it has been criticized for being too expensive [€8-12/month], lacking local content – or even being too English-language, and is yet to announce any local distribution partnerships. Perhaps Netflix has plans to rectify this, but it better move quickly."


NAB SHOW NEW YORK
Formerly Content & Communications World (CCW)
MEDIA IN ACTION
NOV 9–10, 2016 • JAVITS CONVENTION CENTER • NYC
VR |
NEWS |
LIVE PRODUCTIONS |
DRONES |
ADVERTISING |
DIGITAL |
Turn ON to a more connected community of broadcasters and storytellers. Rub elbows with the brands, ad agencies and digital partners who are turning the content-centric landscape on its head. Get in on the action — unique learning environments integrate with hands-on demonstrations of newly unveiled products and innovations. Grab the gear, meet the entrepreneurs and stock up on the solutions you need to redefine modern media. From strategy to implementation, the business of delivering content is always ON in the city that never sleeps.
#NABShowNY
TAKE ACTION.
REGISTER TODAY. NABShowNY.com
Pay Only $25 Using Code MP03
Featuring
SATCON
Co-Located
infoCommCONNECTIONS

WORK MICROWAVE

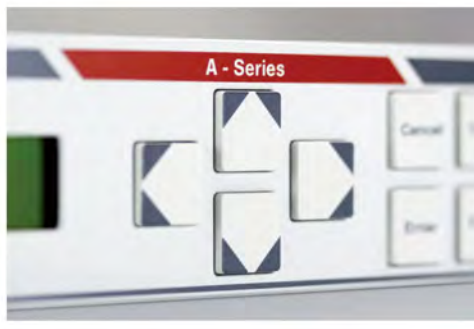
we are the wave –
excellence in high frequency

A-Series – unlimited scalability for today and the future ...

Through a powerful all-IP structure the A-Series provides a scalable platform with no limits.

A-Series modems support the new DVB-S2X standard up to 256APSK and feature expandability for customized waveforms.

The flexible architecture allows user-defined data processing for a wide range of applications.



DVB S2X®

www.work-microwave.com

Advertisers' Index

ABS.....*11*
www.absatellite.com

Advantech Wireless.....*52 (back cover)*
www.advantechwireless.com

Amos Spacecom.....*34*
www.amos-spacecom.com

Amphinicy Technologies.....*13*
www.amphinicy.com

Application Technology Strategy LLC.....*3*
www.applicationstrategy.com

ARABSAT.....*19*
www.arabsat.com

AVCOM of Virginia.....*38*
www.avcomofva.com

AvL Technologies.....*8*
www.avltech.com

C-COM Satellite Systems.....*20*
www.c-comsat.com

Comtech EF Data.....*17*
www.comtechefdata.com

Comtech Xicom.....*7*
www.xicomtech.com

Gazprom Space Systems.....*cover and page 2*
www.gazprom-spacesystems.ru

Hispasat/Hispamar.....*15*
www.hispasat.com

Integrasys.....*24*
www.integrasys-space.com

Onlime Communications.....*37*
www.onlime.com

NAB New York 2016.....*48*
www.nabshowny.com

Newtec.....*51*
www.newtec.eu

ND Satcom.....*5*
www.ndsatcom.com

RF Design.....*44*
www.rf-design-online.de

RSSC.....*45*
www.rscc.ru

Santander Teleport.....*10*
www.santanderteleport.com

Satservice Gmbh.....*42*
www.satservice.gmbh.de

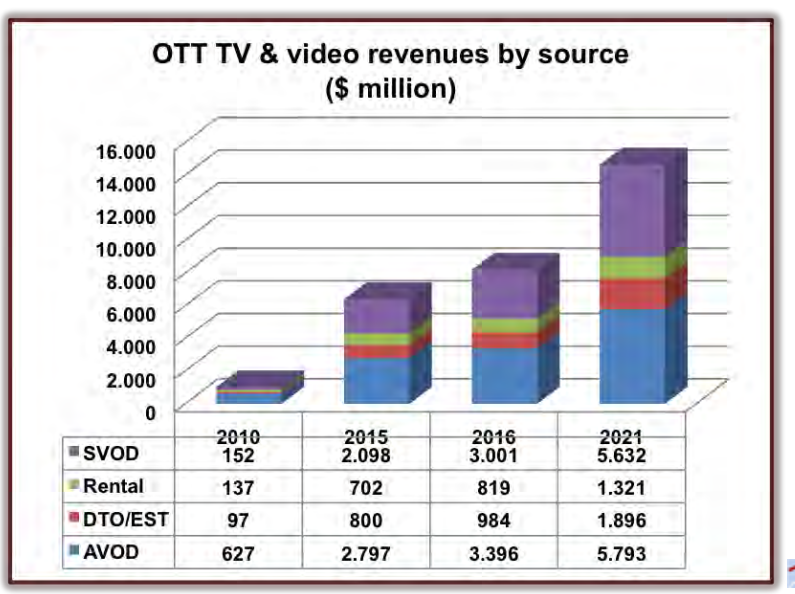
Terrasat.....*46*
www.terrasatinc.com

UHP Networks.....*41*
www.uhp.net

Walton Enteprises.....*39*
www.de-ice.com

Work Microwave.....*49*
www.work-microwave.de

Western European OTT TV and video revenues will more than double between 2105 and 2021 according to the latest research by Digital TV Research.



	2010	2015	2016	2021
SVOD	152	2.098	3.001	5.632
Rental	137	702	819	1.321
DTO/EST	97	800	984	1.896
AVOD	627	2.797	3.396	5.793

MEET NEWTEC DIALOG THE PLATFORM THAT EMBRACES CHANGE

Newtec Dialog allows you to adapt your infrastructure easily as your business changes.

THAT'S FLEXIBILITY

Newtec Dialog offers you a platform to build your business to the size you need it.

THAT'S SCALABILITY

Newtec Dialog enables the most optimal modulation and bandwidth allocation.

THAT'S EFFICIENCY

NEW RELEASE 1.3
MOBILITY MEETS EFFICIENCY!

NEW MDM5000
FIRST DVB-S2X HIGH THROUGHPUT VSAT MODEM

LIVE DEMO
SEE MX-DMA® IN ACTION AT IBC, HALL 1 STAND A49

VISIT US AT

IBC 2016
SEPTEMBER 9 - 13
HALL 1 STAND A49
AMSTERDAM

#NewtecDialog
www.newtec.eu
Follow Newtec Satcom on

Newtec Dialog®

INNOVATIVE SOLUTIONS FOR REAL-WORLD CHALLENGES

Advantech Wireless | SMARTER SOLUTIONS, GLOBAL REACH.

Next Generation Discovery VSAT Hubs with A-SAT™ II Optimization

Second Generation UltraLinear™ GaN based SSPAs and BUCs

SMARTER SOLUTIONS, GLOBAL REACH.

Advantech Wireless delivers intelligent broadband communications solutions that achieve excellence, maximize performance and minimize operational costs, all with uncompromising quality. Ultimately, we help people stay connected and informed by designing and manufacturing the most advanced terrestrial and satellite communication technologies on the planet.

INDUSTRIES

Commercial
Critical Infrastructure & Government
Military

SOLUTIONS

Broadcast
Mobile Wireless Communications & Satellite Backhaul
Government & Military
Disaster Recovery & Emergency Management
Homeland Security
Maritime & Cruise Ships
Oil & Gas
Direct-to-Home Satellite Television & Internet
Enterprise & Corporate

www.AdvantechWireless.com