

Industry Trends, News Analysis, Market Intelligence and Opportunities

of the Epic system) scheduled for a 2016 launch. Arabsat also has three more HTS on order, sched-

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#### **High Throughput Satellites in the EMEA Region**

by Elisabeth Tweedie, Associate Editor

igh Throughput Satellites (HTS) have been uled to be launched in 2017-18 and Spacecom says the talk of the town for several years now, that it is already thinking about a follow-on satellite taking a dominant position at most confer- to Amos-6. ences. How is all this hype translating into reality? Is the anticipated business materializing or are we a region. NSR forecast that between now and 2023, heading into an oversupply situation? This article global demand for HTS capacity will equate to less focuses on the situation in Europe and the Middle than 50% of the capacity available. Nevertheless,

East. (EMEA) This region has long been regarded as a more difficult market because of the multiplicity languages, of regulations and distribution systems. Something Eutelsat found out when KA-SAT first was launched.

The first two HTS for the region KA-SAT and Hylas-



KA-SAT spot beam coverage over Europe. (image: Eutelsat)

1 (owned by Avanti) were launched in 2010. These ity Report which projects a twenty-fold growth in were joined by Hylas-2 and Yahsat 1B in 2012. mobile data traffic in Sub-Sahara Africa between Now satellites with an HTS payload covering the 2013 and 2019. Cisco concurs with this growth. Thor-7 and O3b, but these will soon be joined by July, shows a CAGR of 44% for IP traffic and 72% for Arabsat's Badr-7, due to be launched later this year, mobile data traffic, in the MENA region between Spacecom's Amos 6, due for launch early 2016, 2014-19. In Western Europe the CAGR for the same Hylas-3 and 4 in 2016 and 2017, SES-14 and 15, years, for IP scheduled for a 2017 launch, Al-Yah 3 (Yahsat) due 48% for mobile. The question is; how much of this to be launched late in 2016 and Intelsat 33-E (part

region include: Global Express F-1, Arabsat 5C, The latest Visual Networking Index published in traffic is 21% and Continued on page 4

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#### From the Editor

### Unstable Markets?



f you own any stocks or follow the stock markets closely, you've had an up and down summer. With oil prices at its lowest levels in a decade and the Chinese market seemingly in a free fall—there are legitimate causes for concern for the world's economies, after several years of growth and recovery from the great recession of 2008-09.

There are, however, fundamental differences between now and 2008. The U.S. economy, while not exactly performing up to its potential, is on solid footing and will likely hold steady at least for the next few years. Europe is also on the road to recovery, despite some hiccups. Most of the problem is in the Chinese market, which is closed to the satellite industry anyway. Moreover, the Chinese market is tightly controlled by the government, so it can institute mechanisms to prevent a catastrophic collapse. Euroconsult in its recent study of the Fixed Satellite Services market (see page 46) notes that the main satellite companies have stable revenue streams which should bode well in the transition period it is now facing. Also, unlike in 2008, the satellite industry is more diversified now with new opportunities in various vertical markets such as inflight broadband, maritime, consumer broadband, among others.

A good barometer of the robustness of the industry is the amount of Mergers and Acquisitions (M&As) occurring in recent months. As you all may know by now, we cover mainly four types of stories in this magazine and in our website <u>www.satellitemarkets.com</u>: M&As; financial results; market trends and opportunities. Over the years, we find that these type of stories are the best gauge of where the industry is heading and where the opportunities are, as opposed to product announcements and contract signings.

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Vingel Labor

Virgil Labrador, Editor-in-Chief

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#### **EDITORIAL**

Virgil Labrador Editor-in-Chief virgil@satellitemarkets.com

Elisabeth Tweedie Associate Editor elisabeth@satellitemarkets.com

#### **Contributing Editors:**

North America: Robert Bell, Bruce Elbert, Dan Freyer, Lou Zacharilla

Latin America: B. H. Schneiderman

Europe: Martin Jarrold, London Hub Urlings, Amsterdam Roxana Dunnette, Geneva

Asia-Pacific: Peter Galace, Manila, Naokira Kamiya, Tokyo Riaz Lamak, India

Editorial Assistant: Niko Rodriguez

#### ADVERTISING

For Advertising enquiries send an e-mail to:

sales@satellitemarkets.com

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#### SYNTHESIS PUBLICATIONS LLC

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

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#### High Throughput Satellites...From page 1

growth will end up on HTS systems?

Khalid Balkheyour, President and CEO of Arabsat took a very pragmatic approach to the matter, stating "The key matter here is to avoid being the subject for such supply vs. demand cycles by trying to customize and design HTS payloads for the specific use of pre-committed customers and partners in both government and private sectors, benefitting from the rising trend of national broadband projects and the growing needs for business networks to reduce their running costs." Time will tell, whether this very logical approach will prove to be as easy to implement, as it is to talk about.

Gez Draycott, Vice President Portfolio Management Data Mobility at SES was even more optimistic: "We think that applications are going to drive demand. HTS gives us different technology and lower cost per bit, which will therefore attract new customers and there will also be certain hotspots that will require a lot of capacity."

Thierry Guillemin, Chief Technology Officer at Intelsat stressed the importance of not relying solely on capacity: "...as more supply comes to the market it is critical that satellite operators do not rely on capacity alone. Our customers want and need differentiated satellite solutions and services that deliver high performance, better economics and provide simpler access to satellite technology. They are looking for satellite operators to deliver this, complement their existing networks and provide full end-to-end service."

Initially consumer broadband was the primary target market for HTS; with Hughes, ViaSat (both in North America) and Eutelsat launching satellites designed to serve this market. In north America the demand was there and a homogenous market, made it a comparatively easy - and successful - strategy to implement. In EMEA the situation is very different. Each country has



NSR forecasts that between 2012 and 2022, global demand for HTS capacity will go up by 2,000%.

it's own regulations, language and distribution systems making the consumer first came into being; mobility is rapidly market harder to penetrate. However that market is still a key one for HTS operators. For some more than others. Olivier Anstett, Director of Multimedia and Value Added Services, Eutelsat operators and mobile satellite operasaid: "Consumer broadband is a very tors, resulting in more options to the important part of the business as it end user. HTS will allow operators to allows us to build very large satellites provide services to mobility sectors with low cost per megabit. All other with lower CAPEX and running costs. applications piggyback onto it." That The total cost of ownership will be resaid Eutelsat is branching out into new duced significantly in a way that will markets as well: backup for corporate add major value to the consumer." networks for example. This service is Julian Crudge, Divisional Director, Netbeing sold to large telcos who make it work and Data services, Telenor saying available to their terrestrial clients on that for the recently launched Thor 7 it an as needed basis, allowing them to will primarily be targeting the maritime offer 99.999% availability. Eutelsat is mobility and oil and gas sectors. In also targeting Small Offices and Home later years "as the technology matures, Offices (SOHOs) and Small and Medium aeronautical will also become an im-Enterprises (SMEs) offering service up portant market." Intelsat is already a to 50Mbps.

Yahsat has a more diversified strategy and according to the CEO, Masood hopes to capitalize on this. M. Sharif Mahmood "has enjoyed considerable success across a range of sectors, such as energy, agriculture, financial services, education, public sector services and Non Governmental Orschools and hospitals.

Although not mentioned when HTS becoming the most talked about and targeted market for the operators. As Khalid Balkheyour said: "HTS has bridged the gap between fixed satellite major player in the global maritime market and with the Epic satellites

Intelsat's Guillemin stated that "capacity demand for maritime mobility is expected to increase at a CAGR of 6.4% for C- and Ku-Band FSS capacity (+69 TPEs for a total demand of 149.8 ganizations (NGOs)." It is also explor- TPEs) and 60.9% for HTS capacity ing large connectivity projects for (+21.2 Gbps for a total of 65Gbps) over the next 10 years." This demand is



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being fueled partially by crew welfare It has been clearly demonneeds. strated that being able to offer onboard Internet so that crew members can keep in touch with family members and also enjoy similar connectivity facilities at sea as they do on land, is a significant factor in attracting and retaining good crew members. However the growth, is also being driven by shipboard management - downloading of navigation charts for example and now machine-to-machine communication or the Internet of Things (IoT), as shipboard data from sensors is automatically transmitted back to shore based management and technicians.

routes. SES' Draycott says, "our HTS are designed to include beam coverage on maritime routes. Beijing to Suez for example." Merchant shipping vessels obviously are not the only maritime users of satellite connectivity. Luxury clude cellular backhaul, IP trunking, yachts can be heavy consumers of

"...HTS offer a significant cost per bit improvement when compared to traditional satellites. These new economics are opening up markets that were previously closed to the satellite industry and greatly expanding others. Consumer broadband is the classic example ... "

the latter segment. Masood M. Sharif Mahmood also mentioned the increasing importance of mobility: "As people bile defence applications." Obviously it are getting more and more accustomed to the "always-on" lifestyle connectivity on-the-move will become more of awarded the Queens Award for Entera necessity than a luxury. As such we prise in recognition of outstanding are exploring multiple avenues for us achievement in delivering growth in SES is also targeting maritime to explore that space." Olivier Anstett exports. also recognizes the importance of mobility, stating that "when the market is nies agreed that consumer broadband fully developed, mobility will take 20- and mobile would both continue to be 25% of KA-SAT's capacity."

enterprise and government. As David

had well publicized success in selling to tem can do anything from simple low cost consumer broadband through to 3G backhaul and highly encrypted mois doing it very successfully, as earlier this year the UK based company, was

Looking to the future the compagrowth sectors. Intelsat also pointed to Other markets being targeted in- the IoT as a "fast and emerging opportunity for satellite operators."

As we all know HTS offer a signifibandwidth as can cruise ships. O3b has Williams, CEO of Avanti said: "Our sys- cant cost per bit improvement when



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#### **Cover Story**

These new economics are opening up markets that were previously closed to the satellite industry and greatly expanding others. Consumer broadband is the classic example. But so is maritime. Whilst not closed to the industry, since there is no alternative service; the cost of L-Band and even C and Ku-Band limited the amount of bandwidth that was used. Aeronautical is another. this article, all of the operators were To date it has had a somewhat rocky start, with low usage rates (2-7%) onboard commercial aircraft. JetBlue - a domestic US airline - uses Viasat-1 a HTS, and report usage rates of around Masood M. Sharif Mahmood who is 40%. Two factors distinguish the Jet-Blue service. First of course, is that it is provided from a HTS so speeds of up to 10Mbps per passenger are obtainable, compared to the 1-4Mbps offered from air-to-ground services or conventional wide beam Ku satellites. Secondly, unlike other services, it is provided free of charge. Which of those two factors is really driving the market will only become apparent, when other airlines

compared to traditional satellites. ViaSat 2 is launched in 2016, an agree- be able to function through copper and HTS to planes. Intelsat of course is already in this business, with global broadband aeronautical throughput of 350Mbps across existing wide-beam satellites. It is expecting this figure to "take off" once Epic comes into service.

> As mentioned at the beginning of very optimistic about the future prospects for their satellites and HTS in general.

> perhaps looking further ahead than many: "The smart cities in the newer economies of the 21<sup>st</sup> century will not

ment with Eutelsat will mean that it fiber networks on their own, they will will be possible to provide transatlantic require additional connectivity, particularly with the roll out of the IoT. In addition, as the world's population grows, demand for food, water, natural resources and raw materials is increasing all the time. That will mean more commercial and industrial activity taking place in more remote areas: LNG facilities, power stations, desalination plants, mines, refineries, chemical installations, irrigation, industrial farms: all of this potentially needs to be sup-The last word goes to Yahsat's ported by HTS based communications."

~



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. During her 10 years at Hughes Electronics she worked on every acquisition and new business that the company considered during her time there. She can be reached at:

utilize HTS and charge for it. When elisabeth@satellitemarkets.com

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## Next Generation Video Networks

#### by Hub Urlings and Simon Pryor

Enabled by the devices and networks of a computerized connected society, audience video viewing habits have changed from purely linear TV consumption to be ear pay TV (in SD/HD and increasingly UHD), short-form IP complemented by on-demand streaming, wherever and whenever.

pay per view are changing the business models and dynamics of providing these broadcast services. Nimble innovative challengers threaten existing players in broadcasting. The networks.

workflows to follow and meet their audiences changing but low-cost computerized multi-camera production and habits. Next-generation video networks have increased in post means it is economically viable to do lower commercial

he broadcast industry is undergoing major disruption. casting networks on their living room TVs. Broadcast networks are evolving to offer these diverse services.

While live sports remain the key business driver for linvideo from YouTube and long-form from Netflix have disrupted the programs, films and news video markets. As mo-The money from rights, advertising, subscriptions and bile networks speed up from 2/3G to 4/5G and smartphones, phablets and tablets improve; mobile online video market share is soaring.

Setting up new TV channels can now be done in a few insatiable demand for video content is clogging up IP access weeks and the cost of running a channel has hit an all-time low. Audience size used to be at a level of an entire country Broadcasters need to adapt their infrastructure and to make it viable (think Dutch/British public broadcasters)



complexity and performance to fulfill these different broad-value sports (e.g. second division football, minor league cast services and satisfy the consumer demand. While it can hockey, etc.) Low cost IP transmission of content (both for be challenging to even understand, let alone design & manage the increasing complexity of broadcast operations, hidden from view.

#### **Broadcast Network Drivers**

TV technologies evolve at an ever-increasing rate, enabled by powerful devices, IP networks and storage. Customers view content on demand, OTT and streaming of IP content, wherever there is connectivity at times that suit these services is also evolving too. The traditional Broadcast them as a complement to the improved traditional broad-

contribution and distribution) has enabled 'geographically dispersed channels' (you may have seen the ads for global many of the traditional Broadcast network elements like access to Real Madrid TV via the Microsoft cloud). The rise satellite & cable remain vital enablers, even if somewhat of thematic channels, whether for 'binge viewing' or serving expat markets (e.g. Filipino and Sri Lankan language TV for workers in Middle-East), is noticeable.

> The demand is there: For example, UK's BBC iPlayer is supposed to only be viewable from UK but globally, almost 65 million non UK users are using VPNs in order to access the service, with over 38 million of them being in China.

> As viewing habits have changed, the monetization of systems struggle to keep up and there are massive cost &

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like the satellite industry.

#### Satellite Broadcast Market

The major part of the satellite business has traditionally come from the broadcast market. As this broadcast transmission market is changing, there are strong commercial and satisfy the consumer demand ... " requirements for the satellite industry to provide more flexible, easier to use, lower cost & higher throughput connec- one to build open next-gen video networks today, enabling tivity for video contribution and distribution.

With the introduction of High Throughput Satellties (HTS), and the increased inherent complexity, there has been a shift in the value chain, where some satellite operators have become vertically integrated, providing IP services me: "we now use satellite because it is often cheaper. I rather than purely transponder bandwidth, with the promise of lower prices. Often referred to as 'closed' rather than

the traditional 'open'. Whether out of necessity or in response to perceived business opportunities (or a mix of both) the result is highly disruptive to the existing players in the value chain (like system integrators, independent service providers & teleport operators).

Analysts fear a vertical approach results in

a reduction in the availability of hardware equipment HEVC) and you can reach much higher efficiencies over satchoices, as vendors move towards system offerings, with ellite (approaching 10 bits/Hz for specific applications) eimany traditional customers feeling 'left out in the cold'. A ther enabling UHD or getting broadcasters a lot more SD/HD serious aging and reduction of skilled staff, who really un- from the same satellite bandwidth (costs). derstand both the traditional and newer technologies, only exacerbates the problems for many players.

Change is always tough but value chain disruption also brings opportunities. As they say: 'every cloud has a silver lining'.

#### **Satellite Broadcast Opportunities**

Many broadcasters have adopted vertically integrated satellite IP services (e.g. Ka-band HTS spots) for certain types of contribution (delay insensitive live & file), as they are cost-effective, easy to use, compact and often do the job. They also use bonded 3G/4G IP backpacks (e.g. TVU-Pack powered by Vislink hybrid technology) & MIMO meshed microwave for similar reasons.

However, one should be careful getting carried away with vertically integrated HTS system marketing hype. There is a lot more innovation in the satellite industry, allowing

value chain pressures for 'broadcast transmission' suppliers "...Broadcasters need to adapt their infrastructure and workflows to follow and meet their audiences changing habits. Next-generation video networks have increased in complexity and performance to fulfill these different broadcast services

> lower-cost IP live/file contribution, do SD/HD/UHD transmissions with broadcast grade QoS, and offering maximum flexibility in a manageable solution.

> I remember one CTO of a broadcasting company telling never thought you'd ever hear me say that!" That's a message that many potential customers still don't appreciate

> > even when they fully understand the reliability, multicast and geo-flexibility advantages: We see fly-away / drive-away antenna suppliers introducing multiple network antenna's enabling "least cost routing" for the SNG crew. New modems are on the market providing a more efficient transmission.

Combine this with the DVB-S2X standard, and with encoding improvements (like

The traditional modulator/encoding choice of either SCPC for 'fat pipes' or TDMA variants for low bitrates have been expanded by hybrid schemes (like Mx-DMA from Newtec) which nicely fit some realize use-cases in the grey area between the 2 extremes and again improves the overall 'goodput'.

As OTT, CDNs, Cloud, mobile and multi-screen become normal elements in a broadcast network, as the system complexity increases as transmission, IP and video networks get integrated. An effective management of this all becomes vital, which means business for the NMS/OSS vendors.

People increasingly expect to consume video everywhere, all the time. This usage is clogging up mobile 3/4G and other IP access networks. Multicast solutions to push video, relieving the congestion, is happening everywhere from CDN to LTE broadcast (eMBMS) yet is something inherent in the satellite antenna and LNB on your roof and one of



the reasons why satellite has always been a key broadcast distribution solution and will remain so in the hybrid broadcast/broadband TV era.

#### Conclusion

The major changes and disruption to the broadcast industry have significant impact to the satellite industry.

Both technological innovations and business viability drive needs for next-generation video networks to evolve to satisfy the needs of the hybrid broadcast/broadband TV era.

Satellite is also evolving and changing as it strives to stay as relevant to the broadcast industry as it always has been.

While maybe less visible to the broadcast industry than before, the technical and commercial characteristics of satellites will keep it a vital element for video contribution and distribution for many years to come.

Whether through the vertical approach a lot of HTS satellite operates are promoting or via a more horizontal ecosystem approach that a lot of equipment suppliers, system integrators and service providers are doing, the satellite industry will remain an important partner of broadcasters in the future.



This article was written by Hub Urlings and Simon Pryor of the EUsatcom (the European Professional Satellite Association) an association for European satellite professionals and companies.

The EUsatcom conference @ IBC2015 and subsequent online conferences provides in depth coverage of HTS video applications and markets, giving insights from industry experts for the benefit of EUsatcom members: <u>http://eusatcom.org/</u>



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## **Redundancy Schemes for Frequency Converters**

#### by Dr. Andrea Franz, A.G. Franz LLC

ootball season is just around the corner and fans are gearing up for tailgate parties at live events, or at home with friends to watch their favorite teams in front of their TVs. Most of these transmissions from stadium to consumer involve a satellite link somewhere in the chain and therefore frequency conversions from Baseband to X-, C-, Ku- and Ka-Band, depending on the satellite segment. So what happens when for some unlucky reason a frequency converter breaks, i.e. no longer supports the delivery of the video to the fans' TV? Satellite earth-station operators approach this very real

failure scenario in different ways – from hardly noticable to the consumer to a complete outage and black screen for hours. The following paper describes these different redundancy schemes in greater detail.

#### **Agile Frequency-Converters**

At satellite earth stations numerous satellite transponder signals are being directly received from the satellites and downconverted for further processing at intermediate frequencie or they are upconvertered from the intermediate frequencies to be sent to the satellites. Typical applications include X-, C-, Ku- and Ka-Band satellite payloads.

#### Redundancy

In order to ensure highest reliability and availability for their satellite customers, earth station operators apply redundancy schemes for the up- and down-link equipment chains. Depending upon the system deployment reliability and availability requirements, operational complexity as well as budget and space constraints, different redundancy configurations are deployed. Each configuration requires additional equipment or component parts to implement the chosen redundancy scheme.

In the following discussion the term "detected fault" is defined as either a failure of the unit, or a catastrophic (power) failure.

#### 1-for-1 Passive Redundancy

This approach is the simplest and least expensive implementation. The configuration relies entirely on the internal control capability of the converters: any two identical converters will operate as a 1-for-1 passive redundant pair, with no other equipment except for a single interconnecting CANBUS<sup>®</sup> control lead, two power splitters /combiners and



Fig.1: 1-for-1 Passive Redundancy

RF cables to connect the units in parallel. (see Fig.1)

Both converters operate continuously, performing their conversion function on the incoming signals, but only one unit enables its output. Each converter continually provides status to the other unit's 1-for-1 control logic. There is no pre-assigned master and slave unit. Change-overs are minimized, i.e. a unit disabled due to a reported fault, will remain disabled even if it returns to the non-alarm state.

In the event of a catastrophic fault, such as a power supply disconnection etc., the control circuitry (which is distributed between the two units) will automatically disable the faulty unit and enable the operational unit.

The biggest disadvantage of such a configuration is that it includes passive two-way splitters & combiners, each with a theoretical 3dB loss, so an associated overall loss of typically 8dB (does not include converter gain) can be expected through the system which will typically be higher than on a traditional co-axial 'switched redundant' system, resulting in signal loss that may require additional gain to compensate.

#### 1-for-1 Redundancy with an External Switching Unit

Any two identical converters will operate as a 1-for-1 redundant pair, without the need for an additional controller. All that is required is a switch unit with all necessary



Fig.2: 1-for-1 Redundant Upconverter System with External Switching Unit



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Fig.3: 1-for-1 Redundant Downconverter System with External Switching Unit

interface cabling. UpConverter systems require a unit comprising an input IF splitter and an RF coaxial switch to switch the output. (see Fig.2) DownConverter systems require a unit comprising an input RF coaxial switch and an IF combiner at the output. (see Fig.3)

Both converters monitor the alarm status of each other and control the output coaxial switch, ensuring that the online converter is always connected to the output. If the online converter develops an alarm condition, the standby converter will assume master control and initiate switching, routing itself to the output.

Change-overs are minimized, i.e. a unit taken off line due to an alarm, will remain off- line even if it returns to the non-alarm state. If it does return to the non-alarm state then it will act as the standby unit.

Although an external unit containing the switching and splitting/ combining parts is required, this is still a very cost effective solution as it utilizes the Converter control system. It is very simple to set up and the biggest advantage of this hybrid system of passive combiners/ splitters and active switches is that the loss is reduced to typically 5dB (does not include converter gain) through the system.



Peak Communications offer these flexible redundancy schemes described in this article for their P7000 series converters, a next generation fully synthesized combined L-Band Up and DownConverters. The P7000 converters provide a very efficient solution for systems requiring an IF interface at 70MHz 18MHz or 140MHz 36MHz. Depending on the system requirements and budgets these systems can be tailored to every applications' needs.



Fig.4: 2-for-1 Redundancy Upconverter System with External Switching Unit



Fig.5: 2-for-1 Redundancy Downconverter System with External Switching Unit

## 2-for-1 Redundancy with an External Switching Unit

Similar to the previous 1-for-1 configuration, an external switching unit is used that is now controlled by two on-line units, switching the off-line unit into the appropriate path. (see Fig.4 and Fig.5)

All converters monitor the alarm status of the other units and control the coaxial switch positioning. If an online converter develops an alarm condition, the standby converter will assume master control, configure itself to replicate the appropriate online unit and initiate switching, routing itself to the appropriate output. Priority can be set, so that if there is a second failure the higher priority path will remain operational.

Generally for any 2-for-1 system, reliability/ availability of each path is slightly reduced when compared to two 1-for -1 systems, since in the case of a double failure there is no redundant unit available for the second path.

Due to the additional channel switching, the loss is greater than with a 1-for-1 system, and would typically be 8dB (does not include converter gain) through the system.

This configuration is available with priority path setting,

#### **Technical Brief**



the minimized loss, which can be typically 3dB (does not include converter gain) through the system.

In a 2-for-1 system the priority can be set so that in the event of both online converters becoming faulty. the standby unit is switched to the highest priority path. (see Fig.7)

For a 2-for-1 redundant system the expected path loss (not including converter gain) is typically 5dB through the system.

Fig.6: 1-for-1 Redundancy with a Stand-Alone External Control Unit

to behave like a 1-for-1 system.

#### **Redundancy with a Stand-Alone External Control & Switching Unit**

Traditional implementations utilize external, standalone, fully co-axial switched redundancy units. Additionally the switch units can be used for either Up or DownConverters. (see Fig.6)

These external control & switching units typically are



#### Fig.7: 2-for-1 Redundancy with a Stand-Alone **External Control Unit**

available for manual or automatic mode, depending on the capability to automatically configure the gain and frequency settings of the offline converter unit to replicate the online converter at the time of change-over. This is performed via the CANBUS® interface.

Changeovers are minimized, i.e. a unit taken off line due to an alarm, will remain off-line even if it returns to the nonalarm state. If it does return to the non-alarm state then it and Electronics Engineers (IEEE) and the Society of will act as the standby unit.

switching, the biggest advantage of these configurations is and rea@agfranz.com

#### and can be partially populated (with only two converters), n-for-1 Redundancy with a Stand-Alone External **Control & Switching Unit**

Similar to the 2-for-1 configuration above, systems can be implemented for a range of n-for-1 switching units. The separate control and switching units are typically modular in a larger-than-1RU chassis and can be either partially populated to suit the exact number of ways required, or fully populated to allow for future expansion by simply adding converters, as required.

#### Summary

Now back to the football game – every consumer would prefer not to have to deal with equipment failure. After all, it's not their fault and they paid for the service. So she/he should be able to see every pass and its analysis, and even the commercials, without interruption. However satellite earth station operators have to weigh the pros and cons of their redundancy implementations, cost versus availability and reliability. The P7000 Series converters from Peak Communications support all the previously described redundancy scenarios with their low-power satellite earthstation equipment.



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

Women Engineers (SWE). Dr. Franz is the author of As co-axial switches are used for both input and output several technical papers. She can be reached at:



n the past 90 days, two members of my family have been the targets of cybercrime. One attempt was successful. The other was clumsy enough to tip off the would-be victim that something just wasn't right.

It's funny how much more weight personal incident carries than a whole reading room full of news stories. Sony, UPS, JP Morgan Chase and the US Office of Personnel Management can suffer massive data breaches and we shrug – but steal from me or mine and it's another matter altogether.

There is a wonderful and terrible irony to the issue of cybersecurity. In the days when you waited in line at the bank to get cash and used it to pay for things at the store, nobody was hacking your bank or credit card account. Broadband and information technology have made doing business unbelievably convenient and efficient. They have sucked what economists call "friction" out of transactions faster than a hipster can suck down a Frappuccino on a hot summer day. Yet it is precisely this frictionless convenience that creates such an immense opportunity for cybercriminals.

#### It's a Cyber Satellite World

In July, the World Teleport Association published a report titled *Cybersecurity for Teleport and Satellite Operators*, based on interviews with CIOs at companies around the world. It was another in our series of FourNines reports promoting excellent in operations, business and technology – but it generated three times the normal feedback. The report was sponsored by DataPath, and we soon found ourselves arranging media interviews and conference participation for their cybersecurity expert, Peggy Rowe.

Why did it strike a cord? Because, according to the people we interviewed, cybersecurity is rapidly becoming a dominant issue for service providers. One respondent said "I wish it was less dominant! It's critically important – but we don't earn any money on it."

#### **IP-Enabled Control**

Teleports and satellite operators have potential vulnerabilities that did not exist a decade ago. The reason goes back to efficiency. A signal moving between satellite and terrestrial traverses a substantial chain of equipment at the teleport. Over the past ten years, most of that equipment has been IP-enabled so that it can be remotely controlled over a standard data network. This has yielded substantial gains in operational efficiency and cost, but has also created a potential threat worth taking seriously. If control of these devices takes place over the teleport's internal network, and that network inevitably connects to the Internet, it creates the possibility for unauthorized users from outside to take control.

There is enough concern in the industry that some equipment vendors are starting to issue software patches specifically to improve security – a relatively new phenomenon for satellite equipment.

#### **Constant Vigilance**

When executives complain about the dominance of the cybersecurity issue, it is for good reason. There is no cure for the problem except constant vigilance. As one executive put it, "The most important technology on the market is between your ears. Management buy-in, training, practice, ownership of the process and vigilance are the most valuable aspects of a cybersecurity assessment and mitigation strategy." Another said, "You can have great software, but the staff need to be fully trained – otherwise, they become

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#### Opinion



the weakest link in the chain." Pessimists are ideally suited to the task. One operator commented that cybersecurity planning begins with the assumption that the network will be hacked. Executives advised their peers to de-

velop a comprehensive set of processes that detail how to respond, how to recover and how to maintain business continuity.

For dedicated pessimists, there is another level of risk to worry about. Today, the biggest security threats stem from the fact that our networks inevitably connect to the public Internet, which provides the on-ramp for cybercriminals. But in 2013, a network security company called IOActive set out to test a selection of widely deployed satellite terminals. Its report described multiple vulnerabilities in all the devices tested – vulnerabilities it claimed could allow "a malicious actor to intercept, manipulate, or block communications and in some cases to remotely take control of the physical device...If one of these affected devices can be compromised, the entire SATCOM infrastructure could be at risk."

A network security company like IO Active may have its own reasons for sounding the trumpet about future security risks. So we asked member executives how seriously they took the threat of hacking of the satellite network itself. "Well," said one, "nobody has demonstrated that it is *not* possible." In other words – it may not be a realistic threat today, but tomorrow is always another day.



**Robert Bell** is Executive Director of the World Teleport Association, which represents the world's most innovative teleport operators, carriers and technology providers in 20 nations. He can be reached at: <u>rbell@worldteleport.org</u> *Cybersecurity for Teleport and Satellite Operators* is available for download

from <u>www.worldteleport.org</u>. It is free to members of WTA and available for purchase by non-members.



**Satellite Executive Briefing** 

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## **Oil and Gas Connectivity:** A Landmark Event and \$40 ppb

#### by Martin Jarrold

he **GVF Oil and Gas Connectivity** US\$41(WTI) – US\$46(Brent) price 2015: Evolving the Big Data Digi- hydrocarbons exploration industal Oilfield brings the GVF-EMP Oil and try general slump conditions con-Gas Series to its landmark 25<sup>th</sup> event, tinue. In South East Asia – the and to the eighth annual meeting in the regional example most pertinent global Series to address the connec- to this GVF event - the oil rig tivity and communications networking utilization rate has dropped to just beregion of the global 'oil and gas patch'.

themes as open for discussion during the two days of meeting dialog, a dialog which will take place at the InterContinental Hotel in central Kuala Lumpur, 12-13 November, www.ukemp.co.uk/ current-events/ o-g-comms-kl-2015/.

Many of themes these

will relate to the effects of the current postponement or cancellation of ICT concerns that the area is becoming a oil price market slump - current at time infrastructure investments. of writing, that is, and we may see a different picture beginning to emerge in three months-time – and also to con- such topics as: tinuing geo-political concerns across the region (as well as across the wider • world), which may yet provide yet further sources of hydrocarbons market destabilization.

The crude markets (as at mid- • August 2015) have oil trading in the

- The Kuala Lumpur Meeting per barrel (ppb) range, and the

imperatives of the South East Asian low 52 per cent, compared to over 71 per cent one year ago. Across the global oil and gas patch there are As chairman of the event series I greater strains on over-stretched ex- • have for this year scheduled some 25 ploration budgets, leading to potential



shore Oil and Gas: How are the Supply and Demand Decisions Made?

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> Out of a Market Slump via Information and Communications Technologies:

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> Continuing geopolitical tensions in South East Asia center on the South China Sea. There are growing

flashpoint with potentially global consequences. As well as being a major shipping route, there are other regional economic interests in play. Disputes over the territory reflect competing claims to its potentially energy-rich waters, with sovereignty over countless islands and reefs are part of a range of claims and counter-claims between China and Taiwan, the Philippines, Ma-Satellite Service and Technology laysia, Brunei, and Vietnam.



In this context, the event will cover

Ups and Downs in the Oil and Gas

Markets: Projecting Future De-

mand for the Satellite Service Solu-

Offerings and Procurement in Off-

tion:

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#### **Big Oil, Bigger Data, Robust Communications**

Despite the negative impact of cur- Mobility rent market conditions and of ongoing geo-political factors, we are of course still in the era of "Big Oil". With "Big their upstream business processes with Oil", and as the Digital Oilfield of today increases in sophistication, we have "Big Data" - the specialism which focuses on solutions and services to workforce productivity. The Kuala Lumstore, manage, protect and analyze pur Meeting will investigate the impliinformation extracted from the large cations for satellite communications volume of data generated by the oil with particular reference to high industry, much of which is increasingly throughput satellites (HTS), latest de-

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sensors, and security applications in- and to the wealth of sophisticated apstallations.

Oil and gas companies are aligning mobile technology, applying mobile applications to aid communication and workflow and fostering enhanced

plications these technologies bring to the disposal of the teams of geologists, geophysicists, drilling engineers, and seismic data analysts. Massive amounts of disparate data in multiple formats (including GPS, acoustic, compass and other sensor data) are used for predictive analysis by widely spread and remotely located experts who can see data as it is collected in real time to determine the size and potential value of a payload before any actual drilling begins. This capability can significantly reduce the amount of time and other

the rapidly expanding satellite communications/Machine-2-Machine (M2M) interface – or, maybe, even "Bigger Data". This "Bigger Data" requires the most robust of communications links.

generated out of

The offshore oil and gas sector across the South East Asia region faces many chal-





#### resources wasted drilling sites on that don't have a strong yield potential.

#### High Throughput Satellites

Multiple spotbeams and frequency re-use techniques bring to the end user requirement multiple advantages, including lower space segment costs per megabyte, higher

lenges which arise from operations in some of the most dangerous, harsh, and remote environments on Earth. The industry's commercial and operational centers require a range of means to communicate with exploration and production (E&P) rigs and platforms, and to draw information from comapplications, mission-critical puter equipment, and other in-field infrastructure. Robust communication is an imperative, permitting key personnel to maintain all-round contact - field workers with senior operations management and expert decision makers in other locations, facilitating the relaying of decisions and instructions that are based upon data streams from such sources as drilling equipment, seismic

velopments in satellite Communications on the Move (COTM) technology, and satellite-terrestrial hybrid solutions.

#### Satellite-Terrestrial Hybrid **Communications**

The Kuala Lumpur Meeting 2015 will examine not only satellite-based communications, but integrated satellite-terrestrial hybrid communications solutions, to which the oil and gas industry turns to play a vital role in providing the essential connectivity and access to vital applications. Mission critical operational success in the upstream E&P environment is dependent on access to the most efficient ICTs,

throughput rates, and greatly improved capacity availability. HTS technology carries with it the potential to break many satellite communications enduser verticals markets wide open to greater deployment of satellite-based solutions, particularly for the oil and gas sector. Additionally, some HTS technology which uses medium earth orbiting (MEO) satellites instead of geostationary earth orbiting (GEO) spacecraft - i.e. the O3b constellation brings the advantage of lower transmission/reception round-trip latency, which can be of significance with certain types of oil and gas E&P applications. The satellite communications market will soon include even lower latency broadband access solutions in

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Broadcast Solutions Satellite Coverage <u>Exch</u>ange orbiting (LEO) satellites which, in the course of the roll-out of this newest technology platform, may yet have implications for Digital Oilfield communications.

the form of constellations of low earth "... The new cyber landscape threatens all secure critical information infrastructures, such as that on which the oil and gas industry relies. The evolution of cyber threats and exploitation of data vulnerability is escalating ... "

### gies

The accelerating growth of satellitebased traffic and of the demand for bandwidth and throughput capacity has also heightened the importance for oil and gas of other satellite technologies, particularly bandwidth, throughput and traffic optimization techniques, encompassing: Traffic Shaping; Traffic Prioritization; Optimizing Throughput via Physical Layer Enhancements, and Adaptive Coding and Modulation and, (ACM); WAN Optimization (Acceleration, Caching, Compression, and Pre-fetching).

#### M2M – Machine-2-Machine, IoT – Internet of Things

The interface and synergy of M2M communications and satellite communications will comprise part of the Kuala Lumpur Meeting subject-matter. It is the IoT which will be the ultimate realization of a future universal M2M environment which will far exceed the potential boundaries and limited scope of even the greatest reach of a legacy supervisory control and data acquisition (SCADA) systems environment. The IoT will bring ubiquitous computing, and an integrated digital and physical world. Improved sensor device capabilities will facilitate business logic at the edges of networks as decisionmaking is based on real-time readings from sensor networks. Satellite M2M is growing fast, and the aggregated target markets make its potential for the satellite industry very important.

#### The Cloud – Applications and **Connectivity Imperatives for the Digital Oilfield**

be discussed will include ICT aspects of: actors to steal and monetize corporate safety systems provision on oil and gas data or leverage it to assert power, installations at sea; the enhanced appli-track trends/behavior etc. or even cation of satellite-based security provi- cause physical disruption in operations, sions related to the use of "Cloud"- is a growing concern in the energy inbased data traffic networking; and, of dustry, in which critical infrastructures great significance to the growth of "Big and processes are managed remotely Oil" and "Big Data" in the region, the from central control rooms. impact of HTS on the communications solutions vital to hydrocarbons E&P, including, potentially, video streams themes and topics to be discussed by from unmanned aerial vehicles (UAVs) on security patrol around isolated offshore installations. The definition of the Digital Oilfield brings together Cloud server applications which facilitate the transfer of oil/gasfield IT infrastructure, and IT personnel expertise, away from multiple offshore, or other remote locations, to centrally located headquarters/regional offices in support of fully integrated operations which comprise "always-on", real-time, well-head/drilling measurements and data networking/sharing, along with video-based equipment and instrument monitoring, video-based remote surveillance for safety and security, and video conferencing. Additionally, it encompasses components of crew welfare/training, and also Bring Your Own Device (BYOD) environments, and it is also linked with the prioritization of mission-critical traffic flows over less critical traffic.

#### Cyber Security – The Networking and the SCADA Threat

The new cyber landscape threatens all secure critical information infrastructures, such as that on which the oil and gas industry relies. The evolution of cyber threats and exploitation of data vulnerability is escalating, and the proliferation of sophisticated ef-

...and Other Big Data Technolo- tions and connectivity imperatives to forts by malicious state and economic

Readers can find out more about the consulting The Kuala Lumpur Meeting webpage at www.uk-emp.co.uk/ current-events/o-g-comms-kl-2015/, or by contacting Martin Jarrold at martin.jarrold@gvf.org, or Paul Stahl at paul.stahl@uk-emp.co.uk. Registration information may be obtained by contacting Paul Stahl.

The GVF Kuala Lumpur event in 2015 is once again supported by the Asia Pacific Satellite Communications Council (APSCC), and at time of writing is sponsored by Maju Nusa, ScopeTel, Gilat, and Hughes.

For more information on the GVF Oil and Gas Connectivity – The Kuala Lumpur Meeting 2015: Evolving the Big Data Digital Oilfield go to: www.uk-emp.co.uk/ current-events/o-g-comms-kl-<u>2015/</u>,



Martin Jarrold is Director of International Programs of the GVF. He can be reached at matin.jarrold@gvf.org

The Kuala Lumpur list of applica-



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## Products and Services Market Place

A guide to key products and services to be showcased at IBC 2015 in Amsterdam, the Netherlands from September 11-15, 2015.

ABS Hall 2 booth # 2.A27 www.absatellite.com



ABS is one of the fastest growing global satellite operators in the world. ABS offers a complete range of tailored solutions including broadcasting, data and telecommunication services to

broadcasters, service providers, enterprises and government organizations.

ABS operates a fleet of satellites; ABS-2, ABS-3, ABS-4/ Mobisat-1, ABS-6, ABS-7 and the recently launched ABS-3A. The satellite fleet covers over 80% of the world's population across the Americas, Africa, Asia Pacific, Europe, the Middle East, CIS and Russia.

ABS-3A is currently in an extended orbit-raising phase to geostationary position at 3°W. It is equipped with 48 x 72 MHz C & Ku-band transponders and will offer expanded communications and broadcast capacity connecting the Americas, Europe, the Middle East, Africa, and the North Atlantic Ocean.

ABS-2A, the second of the pair of 702SP satellites procured from Boeing, is planned to launch in late 2015. ABS plans to add more satellites over the next 2-3 years to its growing fleet.

#### Advantech Wireless Hall 1 booth # 1.A74 www.advantechwireless.com

Advantech Wireless is the leading wireless broadband communica-Advantech solution SMARTER SOLUTIONS, tions GLOBAL REACH



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for Commercial, Critical Infrastructure & Government and Military clients. We design turnkey terrestrial and satellite communications solutions that maximize performance and minimize operational costs, all with uncompromising quality. With our customized approach, award-winning R&D and innovative engineering, we empower you to achieve excellence in communication, while you experience reduced CAPEX and OPEX overall.

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introduced by Advantech Wireless back in 2010. These GaN based units provide an impressive 60% increase in Linear Transmit Power, while reducing the weight and overall size versus the first generation GaN products. At the same time, the energy efficiency is increased even further, allowing large OPEX savings.

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Advantech Wireless was awarded the Vision Award for "Most Promising Company of the Year 2014." The Vision Award recognizes the company that has experienced substantial growth in the market while demonstrating longterm viability of their enterprise.

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



**Spacecom**, operator of the AMOS satellite constellation, consisting of **AMOS-2** and AMOS-3 co-located at 4°W, AMOS-5 at 17°E, 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. With the launch of AMOS-6 to 4°W in 2015, enhancing coverage over Europe and the Middle East with its new Pan-European beam, Spacecom will further strengthen its position as a global satellite operator.

Spacecom's AMOS-4 satellite provides a full range of services to Southeast Asia, Russia and China. AMOS-6, planned for launch in 2015, will provide steerable Ku-band across Europe and the ME and high-throughput Ka-band coverage in Africa and Europe. Ku-band and Ka-band on AMOS-4 is now available.

#### 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.

Arabsat also maintains strategic partnerships with most of the world's leading satellite companies and VAS integrators and recently acquired Hellas Sat, allowing customers to reach farther than ever and deliver content and state-of-the -art solutions.

#### ATCi Hall 1 booth # 1.A03 www.atci.com



ATCi is a custom communications solutions provider specializing in commercial satellite communications systems and services including: the Simulsat multibeam, parabolic antennas, complete uplink systems/services, tele-

ports, cable television headend and plant components, test equipment and input matrix switches, as well as fiber optics components for corporate, broadcast, cable television, government and education.

#### AVL Technologies Hall 5 booth # 5.A49 www.avltech.com



AvL Technologies' booth at

antenna for Military and SNG applications. This robust quad -band antenna features a lightweight, new design AvL three -piece carbon fiber reflector with notched corners enabling it to be transported by helicopter. The antenna stows to 62cm and is operated with AvL's new AAQ controller.

Our 1.0m (with cowling) Mobile VSAT antenna will also be displayed.

AvL will feature our new 1.6m vehicle-mount antenna for broadcast applications. This antenna operates in Ku- or Ka-band and stows to 46cm on a pallet.

In addition on display will be our lightweight, compact and robust Manual FlyAways - 60cm, 70cm and 2.4m, with our newest being the 70cm axi-symmetrical ultra-compact, (industry-leading coding, modulation, compression and

eight-segment carbon fiber reflector which assembles in five minutes. This antenna operates in Ku-, Ka- or X-band.

AvL antennas are the industry benchmark of excellence for SNG, mobile broadband Internet access, Disaster Relief, Oil & Gas Data Backhaul, and Defense & Homeland Security solutions.



#### C-COM Satellite Systems Inc. Hall 4 booth # 4.C53 www.c-comsat.com

C-COM Satellite Systems Inc. develops commercial grade mobile satellite-based technology for the delivery of twoway high-speed Internet, VoIP and Video services into vehicles in remote areas.

The iNetVu<sup>®</sup>VSAT's have been adapted to be airline checkable and easily transportable for crucial access to communications. C-COM's broadband satellite-based products and services deliver high-quality, cost-effective solutions for both fixed and mobile applications throughout the

world such as Broadcasting, SNG, Oil and Gas, Exploration, Military Communications, Disaster Management, Emergency Communications Backup, Cellular Backhaul and many others.

Come visit C-COM's booth at IBC featuring the iNetVu<sup>®</sup> FLY-981 and Ka-75V Driveaway and discover the iNetVu 981 Driveaway, FLY-75V and ACFLY-1200. Both the 75cm ka-band driveaway and flyaway antennas



C-COM 's Ka-75V antenna

are "Authorized for use on ViaSat Exede® Enterprise and on KA-SAT News Spotter News Gathering service by Eutelsat."

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



Comtech EF Data Corp. is global the 📕 🔤 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

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.

At IBC, Comtech EF Data will be showcasing its new Heights<sup>™</sup> Networking Platform which leverages our industry -leading horsepower, efficiency and intelligence to enable differentiation of your services today while preparing you to unleash the power of the new spacecraft designs of tomorrow.

#### 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 sat-

ellite 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 IBC, Comtech Xicom will be showcasing its new SuperPower TWTAs with radically improved efficiency that will help you achieve your savings goals. Comtech Xicom's

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Superpower TWTA

placement. Advanced space tube technology applied to amplifiers for fixed satellite communications uplinks changes the equation on power, efficiency and reliability. With the highest power and longest warranty ever offered in outdoor antenna-mount and indoor rackmount TWTAs, Comtech Xicom's SuperPower<sup>™</sup> 2 kW Ku-band and 1.5 kW DBS-band TWTAs are revolutionizing satcom uplinks and opening up new possibilities in ground stations around the world. These amplifiers dramatically reduce the space, weight, power consumption, thermal load, and cost of high power for uplinks.

#### Gazprom Space Systems Hall 4 booth # 4.B85 www.gazprom-spacesystems.ru

Gazprom Space Systems (formerly Gascom) is a private commercial, non-governmental satellite operator based in Russia. The main shareholder is Gazprom, one of the larg-

est energy companies in the world. Gazprom Space Systems' orbital fleet consists of four satellites under the Yamal brand. Gazprom Space



Systems' ground infrastructure consists of four teleports in the city of Moscow and in the surrounding Moscow region, which are connected to the main telecom backbones by means of fiber-optic lines. The company also has a wide network of earth stations across Russia.

In Russia Gazprom Space Systems is not only a satellite operator but also a service provider and system integrator. Within Russia, along with satellite capacity, it provides satellite services including satellite links, video distribution, Internet access and network development and management.

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



Globecast increases broadcaster's profitability by providing highly efficient media management, distribution, monetisation and contribution solutions. We enable our

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#### Hispasat Hall 1 booth #1.A50 www.hispasat.com



The HISPASAT Group

panies 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 Portugueselanguage content broadcaster and distributor, including over important direct-to-home television (DTH) and highdefinition television (HDTV) digital platforms. HISPASAT is one of the world's largest companies in terms of revenue in its sector, and the main communications bridge between Europe and the Americas.

#### Narda Safety Test Solutions Hall 8 booth # 8.E20 www.agfranz.com/narda-satellite/

**Narda Safety Test Solutions** designs and manufactures highly sensitive signal analyzers for RF interference detection and monitoring (rack-mountable and portable).

At the IBC we will be showcasing the **Narda Remote Spectrum Analyzer NRA-6000 RX**, together with the Narda RF safety equipment. The NRA RX is a 1RU rack mountable, high speed (12 GHz/sec), low-power fan-less testequipment with 10 MHz reference input that can be and has been eas-

ily integrated and remotely controlled in various network monitor-



ing systems. Up to 500 channels can be pre-programmed for fast carrier monitoring, with up to 600,000 samples per sweep. The NRA RX is extremely sensitive with a noise floor of -155 dBm to be able to detect low-level interferences.The wide bandwidth (9kHz-6GHz) of the NRA-6000 RX enables the operator to simultaneously monitor a variety of signals; the NRA-3000 RX model (9kHz-3GHz) is optimized for satellite signal interference monitoring and troubleshooting. The high-speed I/Q data streaming capability is ideally suited for signal identification and characterization.

The Narda RF signal analyzers are available in North America through A.G.Franz, LLC <u>www.agfranz.com/narda-satellite/</u>

#### ND SatCom Hall 4 booth # 4.A60 www.ndsatcom.com

**ND SatCom** will be highlighting its SKYWAN 5G at IBC. ND SatCom's SKYWAN **5G** will transform the way communication networks are created and behave by converging VSAT & comprehensive IT capabilities into ONE single hardware 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, like hub, remote or integrated in Manpaks or Fly-Aways, and allows stacking of units to further boost performance of the net-



work. Never before has a ONE rack unit VSAT hub been so powerful!

SKYWAN **5G** includes an MF-TDMA modem with integrated DVB-S2 receiver and is capable of achieving significant data rates. Designed as an all-in-ONE device with high network redundancy and a wide range of IP support, the

ONE device allows data to be transmitted in single-hop directly from their origin to their destination, thereby avoiding double hops and extra delays. Bandwidth is dynamically allocated as required, which brings substantial savings on satellite capacity cost.

No matter if a star, multistar, hybrid or full mesh network is needed, the unique hardware design of SKYWAN **5G** reliably fits all topologies within the VSAT world. Following the approach of a single hardware unit for all purposes, each SKYWAN **5G** has the full functionality on board. ONE small hardware for all network roles simplifies logistics and customs' handling and unprecedented scalability enables the gradual growth of the network.

#### Newtec Hall 1 booth # 1.A49 www.newtec.eu



Founded in 1985, **Newtec** is celebrating 30 years of connecting people this year. The global leader in satellite communications equipment and technologies is marking this milestone with 20% growth

and new market expansion, including cellular backhaul, multiservice and High Throughput Satellites (HTS).

Solutions for these, including the Newtec Dialog<sup>®</sup> multiservice platform, with new patented technology Mx-DMA<sup>™</sup> which combines SCPC and MF-TDMA qualities, will be demonstrated at the IBC 2015. Technology for established markets, like broadcast and VSAT, including the new DVB-S2X transmission standard as software-upgrade available will also be showcased.

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



**RF-Design** with headquarters in Lorsch/ Germany specializes in developing, manufacturing and marketing professional and high-quality RF distribution solutions for the international Satellite, Broadcast and Broadband communications industry. Our extensive product range includes LNB-supply/control sys-

tems, Switch/Routing Matrices, RF-over-Fiber solutions, Splitters/Combiners, Switches/Redundancy-Switches, Line-Amplifiers and Signal-Quality Analyzers (RF & DVB monitoring), especially designed for applications in Teleports, Satellite Earth-Stations as well as for Broadcast- and Broadband RF distribution infrastructures. Furthermore our company and team is well known for developing and providing custom-made products tailored to your individual needs and applications. All our products are manufactured, tested & approved in our own facilities in Lorsch/Germany and characterized by superior quality, reliability and excellent RF performance. At IBC



2015 we will

demonstrate our unique, innovative and clever "FlexLink-K7 -Pro" L-Band Switch Matrix system , the new "SQA series" Signal Quality Analyzer for RF and DVB monitoring and our new "FiberLink ODA" Outdoor RF-over-Fiber system. We look very much forward to welcoming you at our stand and to talking about your individual RF distribution requirements. Feel free to contact us for arranging a personal meeting during the IBC 2015 (Phone: +49 6251 80 384-22, E -mail: o.vogel@rf-design-online.de).

#### RSCC Hall 1 booth # 1.A58 www.rscc.ru



The Russian Satellite Communication Company (RSCC) is the national state satellite operator whose spacecraft provide

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.F47 www.satservicegmbh.de



tionssysteme is

pleased to present at IBC 2015 the sat-nms Signal Management Unit SMU with many new features.

The sat-nms SMU enables you to perform all kind of signal management in your satellite ground station and/or satellite head-end environment in a simple to use and very show. flexible unit. Due to the choice of different card modules you are able to build your own *sat-nms* SMU best matching

the requirements of your application. Each card module is

designed to fulfil a specific function and the combinadifferent tion of card modules gives you the possibility to solve your signal problems handling



like LNB DC insertion with current monitoring, L-Band level monitoring, adjustable gain, automatic signal backup switching, redundancy switching, transfer switching capacity, external alarm handling and many more. The sat-nms SMU includes hot pluggable power supplies and can be controlled over all popular M&C interfaces via web-browser, SNMP, HTTP GET functions and RS232 interface.

#### ScheduALL Hall 1 booth # 1.D30 www.scheduall.com



ScheduALL, the leading global provider of Enterprise Resource Management

(ERM) solutions for media, broadcast and transmission businesses since 1989, will showcase their award-winning selfprovisioning scheduling solution, ScheduALL Portal<sup>™</sup> at IBC. ScheduALL will also feature their revolutionary end-to-end provisioning solution, ScheduALL Connector<sup>™</sup> during the show.

Portal recently won the TV Technology's Best of Show award during NAB 2015. This unique product simplifies making complex bookings of Occasional Use transmission feeds in real-time, directly into a transmission provider's system. Utilizing a browser-based, user-friendly wizard for selling transmission feeds, Portal allows users to quickly make transmission bookings without requiring in-depth network expertise. Meanwhile, behind the scenes, Portal leverages all of the unrivalled power and complexity of ScheduALL's transmission scheduling and conflict resolution.

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

Walton De-Ice, the world's leading designer and manu-



facturer 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 the IBC

Satellite Executive Briefing

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### OPERATORS DO NOT WANT TO SEE BLOCK DIAGRAMS... ... BUT ENGINEERS DO !

Antenna satellite Eutelsat W1 10	orbit E -10.0 °W	TRA	STAR	OOL	IRD-1 frequency 11126.0 MHz	mode QPSK		lock	video audio	eb/no 3.60 dB	IRD-1
azimuth 179.62 * az dest 179.62 *	elevation 35.11 ° el dest 35.11 ° • • • • • • •	pol 4.56 ° pol dest 4.6 ° jog mode antenna u		STOP rx band 11GHz Antenna stop snr 194	rx pol H rx band symbol rate 4.340 Msps data rate 3.995 Mbps PRESET	requeste 11GHz fec 1/2 prog 1 received	audio-1 audio-2 sTEREO program	d prog 1011 prog 0 state	level 17 dBm level 17 dBm		
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## ND SatCom's SKYWAN 5G



ND SatCom's SKYWAN **5G** is transforming the way communication networks are created and behave by converging VSAT and comprehensive IT capabilities into a single hardware device. The SKYWAN **5G** is an MF-TDMA modem with integrated DVB-S2 receiver, allowing time critical data to be transmitted in single-hop directly from their origin to their destination site; avoiding double hops and extra delays. Bandwidth is dynamically allocated as required, which

brings substantial savings on satellite capacity cost since the overall network capacity can be reduced.

No matter if you request a star, multistar, hybrid or full mesh network, the unique hardware design of SKYWAN **5G** reliably fits all existing topologies within the VSAT world. Following the approach of a single hardware unit for allpurposes, each SKYWAN **5G** has the full functionality on board. Each unit can act either as a HUB or Master Station, therefore adding agility in terms of its network role. Geographical redundancy of the master station is already built-in. The device is so flexible that you can change your topology at a later point, use the unit for other networks or even split or pool networks together. Adding new sites, spare part handling, design of VSAT networks, ordering SKYWAN **5G** – all is straight forward and helps you make the ONE right choice.

ND SatCom will be exhibiting at the IBC 2015 in Amsterdam this month. Visit them at Hall 4, booth # 4.A60 or go to their website at <u>www.skywan5g.com</u> for more information.



## **RF-Design's FlexLink S7 L-Band Switch Matrix**

RF-Design has successfully launched their new FlexLink S7 L-Band Switch Matrix series. This new stand-alone and small sized matrix family features the unit variants FlexLink S7-8816 supporting 8:8, field expandable to 8:16 inputs/outputs via licensekey activation and the FlexLink S7-1616 available with 16:16 inputs/outputs.

RF-Design is known as a major supplier of high quality and reliable RF distribution solutions and has more than 260 switch matrices of their FlexLink series in operation with teleports, satellite earth-stations, broadcasters and cable/iptv headend facilities around the globe. They are very optimistic that they

will continue this success with the launch of their new FlexLink S7 series foreseeing a growing demand for smaller sized switch matrices especially from cable/iptv headend operations, broadcasters and DSNG's while of course their FlexLink S7 units are also a perfect fit for teleports and satellite earth-stations.

The FlexLink S7 units come in a space saving 1RU/19" rack-mount design, are available with 50/750hm connectors as well as can being equipped with optical inputs e.g. for integration into existing RF-over-Fiber infrastructures or for combining them with RF-Design's FiberLink RF-over-Fiber series. The FlexLink S7 units support some very advantageous features such as variable gain-adjustment, slope-equalization, RF power monitoring, switchable LNB-supply, 10MHz reference feet and 1:1 redundant hot-swappable dual power-supplies.

The FlexLink S7 units can be configured locally via their front-side LC-Display/keypads and remotely via their Ethernetinterface (http://WebGUI, SNMP).

RF-Design's Matrix series "FlexLink" incorporates their new stand-alone FlexLink S7 (8:8/8:16 / 16:16), the stand-alone FlexLink S2A (8:24) as well as their scalable/modular type system FlexLink-K7-Pro (available in sizes of 8:8 to up to 256:256).With their overall Matrix series "FlexLink" RF-Design is able to address the various requirements of customers that require reliable, flexible and high quality L-Band switching/routing solutions for their RF distribution architectures.

RF-Design will be exhibiting at IBC 2015, Hall 1, booth # 1.F45. To arrange a personal meeting during the IBC 2015 call Phone: +49 6251 80 384-22, or E-mail: <u>o.vogel@rf-design-online.de</u>.



## 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.

Cost-

efficiently

boosts



secure







Supports any topology

Makes anyone a hub



Smallest hub on the market performance

#### SKYWAN 5G - Mastermind of Satcom Networks



For detailed information use the QR code or visit our website: www.skywan5g.com

## ND SATCOM

## Gazprom Space Systems Director-General Dimitry Sevastiyanov

Russia-based satellite operator Gazprom Space Systems has been expanding into the international markets. Satellite Execuitve Briefing Editor-in-Chief Virgil Labrador spoke with Gazprom's Director-General Dmitry Sevastiyanov on their plans and what's in store for the company in the near future. Excerpts of the interview follows.

Can you give us a brief overview of where your company stands in the market today and what are you showcasing at the forthcoming IBC?

Gazprom Space Systems (GSS) is one of two Russian national satellite operators and the company is the 23<sup>rd</sup> in the Top Fixed Satellite Service Operators list of 2014. Today exists and develops on the attracted credit funds. Generally our credits are multicurrency and we certainly have to fulfill the repayment obligations. In this connection one of our main targets is to increase sales in particular on the international market. This will allow us to balance the foreign currency and ruble revenues from sales with the payments on obligations.

our satellite communications system includes four geostationary Yamal satellites, state-of-the-art telecommunication center,

ground infrastructure in the regions of Russia and satellite digital TV center that provides TV and radio broadcasting via Yamal satellites. About a

third of our satellite constellation capacity is concentrated in beams pointed



What markets will you be focusing in the nearterm and where do you see the most potential?

Well, our target markets are mainly defined by the service zone of our satellite constellation. The end of 2014 and the first part of 2015 were

**Dimitry Sevastiyanov** 

over territories outside Russia. The geography of our clients encompasses around 30 countries and services based on Yamal capacity are used in more than one hundred countries. We develop cooperation with foreign customers and partners, with owners of global and regional satellite constellations and promote Yamal capabilities at the largest international exhibitions and forums including the upcoming IBC 2015 show.

#### What are your targets for the rest of the year and beyond?

Under present circumstances of Russian ruble depreciation it is of the utmost importance to ensure financial stability of the company. Apart from our own funds, GSS rather eventful for our company. New satellite Yamal-401 was successfully launched into 90 degrees East position to replace there Yamal-300K, which in its turn was relocated to the Far East position (183<sup>0</sup>E). Thanks to which, we have spread our business on the part of the Western hemisphere.

This Yamal-300K journey to the East is a new stage in GSS international business development. I would like to mention that now Yamal-300K is the easternmost Russian telecommunications satellite in the geostationary orbit. And in our company we expect that it will be not only the most in terms of location, but also in terms of business success. There are all prerequisites for this. For instance, its wide contour beam covers Eastern territory of Russia, Western part of North America and North of the Pacific Ocean where



6

САЗПРОМ

YAMAL-401

YAMAL-402 YAMAL-202

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www.gazprom-spacesystems.ru

YAMAL-300K

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air and marine traffic is so busy. Such service zone makes the beam very attractive for aeronautics and maritime sectors. Considerable amount of this beam capacity is already being leased by one of the world biggest communication service providers in aeronautic industry, and we are receiving new and new requests from the other potential clients.

The expansion of our satellite constellation service zone enabled GSS to strike up new relationships. A wellknown and respected American company, U.S. Electrodynamics, Inc. (USEI), whose headquarters and teleport are located in Brewster, Washington, pointed on Yamal-300K one of its 9m antennas to uplink signals to commercial airservices to operators of pay TV, corporate sector, governmental entities and NGOs.

Additionally on the international market, year after year our veteran staff keeps on proper operation and reliable service provision. It is Yamal-202 well-known on the Middle East and Asia  $(49^{\circ}E)$ . An expert analysis of the satellite resources performed together with the satellite manufacturer showed that despite its age the satellite has significant equipment and functional reserve including amount of fuel. In this connection, I would like to say that the results of this analysis made us sure, that the satellite will be able to extend in-orbit operation up to June 2019. We feel trust of



craft. I hope this cooperation will develop and lead to a significant increase in the number of end customers using services based on our satellites.

Another Yamal-300K fixed beam dedicated to serve the Russian Far East arouses interest of the Russian mobile operators developing trunk infrastructure for their networks in the region.

And finally we are considering some options for the satellite steerable beam pointing. Depending on with what interested service provider or operator we come to an agreement, this beam can be pointed over the Southeast Asia, Australia, New Zealand or island states of the Pacific ocean.

At this point, I've been talking about the new developments in our satellite constellation and additional opportunities that these bring for the international market. But actually, we are not a new player on this market. I would like to remind your readers that about three years have passed since our Yamal-402 (55<sup>0</sup>E) started to operate in Europe, Africa and the Middle East. Even being in a highly competitive environment the satellite is enjoying great demand thanks to its attractive service zone and high power parameters. Its capacity is used to provide communications

our current customers and welcome new ones to join Yamal-202 community.

This year we begin new investment cycle that will result in Yamal-202 have to be replaced by a new Yamal-601 satellite in 2018; and totally at least five new satellites are planned to be launched by 2025.

## Finally, do you have anything else to add and what can we expect from Gazprom Space Systems in the coming months?

In 2014 GSS showed 24% revenue growth (in rubles). This year we intend to maintain the pace of growth in loading our new satellites.

Moreover apart from creating new own satellites GSS will continue to search new opportunities for cooperation with other satellite operators in order to jointly create and utilize satellite assets.

**Satellite Executive Briefing** 

## Most Innovative Technology for Carrier Monitoring VSAT Autocommissioning On Android & iPhone







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## **AT&T Closes DirecTV Acquisition**

#### The merger creates the largest Pay TV company in the world

closed on its US\$ 49 billion acquisition of DirecTV (NASDAQ: TV and mobile coverage," Stephenson added. "We're now a DTV) following the US' Federal Communications Commis- fundamentally different company with a diversified set of sion's approval of the transaction. The newly combined capabilities and businesses that set us apart from the comcompany will become the largest Pay TV provider in the petition." United States and the world.

The FCC's approval followed a green light earlier in the federal approval of the deal. week by the Department of Justice. The review process of the merger took over a year.

"Based on this review, the commission has determined that granting the application, subject to certain conditions, is in the public interest," according to the FCC statement.

Dallas, Tex., July 24, 2015--AT&T (NYSE: T) has officially holds, which is a perfect complement to our coast-to-coast

In a statement, AT&T outlined concessions made for

•Within four years, AT&T will offer its all-fiber Internet service to at least 12.5 million customer locations. And at least 25.7 million customer locations will have access to broadband speeds of 45 Mbps or higher.

"A s part of the merger, АТ&Т-DirecTV will be required to expand its deployment of highspeed, fiber optic broadband Internet



 Within its wireline footprint, the company will offer 1 Gbps service to any eligible school or library requesting Erate services

 Also within AT&T's 21-state wireline footprint, the company will offer discounted fixed broadband service low-income to households that qualify for the government's Supple-

access service to 12.5 million customer locations as well as to E-rate eligible schools and libraries," the statement adds. "In addition, AT&T-DirecTV is prohibited from using discriminatory practices to disadvantage online video distribution services and will submit its Internet interconnection agreements for Commission review. Finally, AT&T-DirecTV will offer broadband services to low-income consumers at Internet services. discounted rates."

US\$ 28.50 in cash, per DirecTV share.

tomers more choices for great video entertainment inte- traffic exchange. It must regularly report those metrics to grated with mobile and high-speed Internet service," Ste- the FCC. phenson said. "We'll now be able to meet consumers' future entertainment preferences, whether they want tradi- velop and implement a plan to ensure compliance of these tional TV service with premier programming, their favorite merger conditions. The company may also engage an indecontent on a mobile device, or video streamed over the Internet to any screen.

"This transaction allows us to significantly expand our FCC. high-speed Internet service to reach millions more house-

mental Nutrition Assistance Program, or food stamps.

•AT&T's retail terms and conditions for its fixed broadband services will not favor its own video programming services. AT&T can and will, however, continue to offer discounted integrated bundles of its video and high-speed

 AT&T must submit to the FCC new interconnection Under the terms of the merger, DirecTV shareholders agreements it enters into with peering networks and on-net received 1.892 shares of AT&T common stock, in addition to customers for the exchange of Internet traffic. The company will develop, in conjunction with an "independent expert," a "Combining DirecTV with AT&T is all about giving cus- methodology for measuring the performance of its Internet

> AT&T will appoint a company compliance officer to dependent, third-party compliance officer to evaluate the plan and its implementation, and submit periodic reports to the

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### **SpeedCast Acquires SAIT Communications**

SpeedCast International Limited an- vices. The Company is based in Cyprus nounced that it has signed a definitive with employees in Cyprus and Greece. agreement to acquire SAIT Communications, a fast-growing maritime com- and extends SpeedCast's maritime munications service provider in south- business due to its long term customer ern Europe. SAIT Communications is relationships with large Greek shipping one of the leading suppliers of L-band companies, a strong L-band expertise, satellite services in the southern

European maritime market, in particular Greece, which is one of the largest maritime markets in Europe, as well as Cyprus.

SAIT Communications has been

active in the maritime communications an innovative portfolio of value-added cluding the widest range of VSAT serbusiness for close to 10 years. The company prides itself as a leading provider of advanced communications and IT services to Greek ship owners wher- ued L-band growth and ripe for accelerever their vessels operate around the ated VSAT services growth, in particular strategic Greek market. The transacglobe. SAIT Communications boasts a in Greece and Cyprus, countries that tion is expected to close on July 31, marquee customer list, including most host many large ship owners and fleet 2015. of the top Greek shipping companies, managers. The combined entity will be and services about 2500 ships. It has one of the largest service providers to Cast's acquisition of Geolink Satellite experienced impressive growth rolling the maritime sector in the market to- Services earlier this year, a service proout Fleet Broadband, an Inmarsat ser- day, servicing over 5000 vessels with a vider active in the maritime sector, vice, to close to 1,500 vessels over the wide portfolio of communications and mostly in France. past few years, and has more recently IT services, and an impressive global

Sydney, Australia, July 28, 2015 – started providing VSAT broadband ser- support network.



services,. With this transaction, Speed-Cast acquires a strong foothold in Southern Europe, a region with contin-

"Our maritime business is a key growth engine for SpeedCast. With SAIT Communications complements this acquisition, we are expanding our presence in major and fast growing maritime markets in southern Europe. These low VSAT-penetrated markets are well positioned for acceler-

> ated growth," said Pierre-Jean Beylier, CEO of SpeedCast.

> Joining SpeedCast, SAIT Communications will now be able to offer its maritime customers a wider portfolio of products and services, in-

vices in the market, and to better support its customers globally. SAIT Communications will further expand Speed-Cast's global maritime network in the

This announcement follows Speed-~

## **Rockwell Collins Acquires International Communications Group**

Cedar Rapids, Iowa, August 6, 2015 -- Rockwell Collins has tems for Rockwell Collins. "When coupled with our broad acquired Newport News, Virginia-based International Com- array of network solutions, including our ARINC aviation munications Group (ICG), a leading provider of satellite- networks and other satellite communication services, it acbased global voice and data communication products and celerates our vision of being a leader in end-to-end informa-

services for the aviation industry.

The initial purchase price was US\$ 50 million and additional post -closing consideration of up to US\$ 14 million may be paid.

"This acquisition broadens our portfolio of information-enabled

terminals and smart routers to our existing flight deck and employees is a remarkable accomplishment by all of our cabin connectivity offerings," said Kent Statler, executive people." vice president and chief operating officer, Commercial Sys-

tion management solutions for airlines and business jet operators."

ICG's products and services will be integrated into Rockwell Collins' Commercial Systems portfolio.

ICG's CEO Scott Trainum noted, "Bringing ICG into the Rockwell Collins family is the culmination of 20 years of hard work by the dedicated team of professionals at ICG. To be recognized by a company that shares the same

avionics by adding ICG's latest generation of Iridium satcom commitment to innovation, quality, customer service and





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#### **Executive Moves**

#### Thaicom Rolls Out CEO Succession Plan

Nontaburi, Thailand, September 1, 2015--Thaicom has announced the appointment of Paiboon Panuwattanawong to take up the roles of Chief Executive Officer of Thaicom and the authorized director of Thaicom effective October 1, 2015. The previous CEO, Ms. Suphajee Suthumpun, will assume the role of Advisor to the Chief Executive Officer to support the new CEO during the leadership transition

period from October 1 to December 31, 2015.

During her four years at Thai c o m , Suphajee dedicated herself to creating



Panuwattanawong

sustainable growth and success for Thaicom and the Intouch Group. Her efforts and accomplishments have been widely recognized and honored by many reputable customers and Thai and international institutions alike. She now feels that it is the proper time to pass Thaicom into the hands of a new leader who will continue to drive Thaicom to new levels of success, according to a company statement.

Paiboon has been with Thaicom for earned a Master of Science in electrical 23 years, with the last six in the role of engineering: communication and elec-Chief Technical Officer.

Paiboon received his Bachelor of Engineering (Electronics) from Yale University and later, received a Master's of Engineering (Electronics) from Carnegie Mellon University in the US. He also attended the Directors Certification Program at Thai Institute of Directors Association in 2009.

#### WORK Microwave Appoints Waylon Sun as VP-Bus. Dev. and Sales for North America

Tucker, GA, Aug. 4, 2015—WORK Microwave, a manufacturer of advanced

satellite communications, announced that it has opened a new office in Tucker, Georgia, USA to broaden the company's market reach across the



Waylon Sun

Americas. **Waylon Sun** has been appointed as vice president, business development and sales, at this location.

"Opening up a new office location in the United States enables us to provide local product support to customers in North and South America in order to grow our core business, drive new growth, and become a prominent player in the American satcom market," said Dr. Günter Prokoph, managing director, WORK Microwave.

Prior to his position at WORK Microwave, Sun was the manager of Newtec's regional support center for the Americas, where he led the sales and technical support teams for satellite communication projects.

Sun also has experience working as nities." an engineer at Newtec and L-3 Communications Corp Spar Aerospace. He has a Master of Science in electrical engineering: communication and computer engineering from Gonzaga University. Sun also attended Beijing University of Aeronautics and Astronautics where he earned a Master of Science in electrical engineering: communication and electronic systems.

Sun will report directly to Dr. Andreas Lermann, CEO at WORK Microwave Inc.

#### John Branscum Named Comtech EF Data CEO

Melville, NY, July 20, 2015-- John Branscum, President of Comtech Xicom Technology, Inc., will succeed Robert McCollum, President of Comtech EF Data Corp., who will be retiring on July 31, 2015. Branscum, who has more than 30 years of industry experience, joined Comtech in 2008

Comtech Telecommunications Corp. announced the appointment of Branscum as part of organizational changes in connection with an ongoing assessment of its operations by its President and Chief Executive Officer, Dr. Stanton D. Sloane.

To improve company-wide operating efficiencies and offer more innovative and integrated solutions to our customers, Comtech will fully integrate the activities and business of its Germantown, Maryland-based subsidiary, Comtech Mobile Datacom Corporation, with its Tempe, Arizona-based subsidiary, Comtech EF Data Corp.

Branscum is well versed in its company-wide business. In his new position, Branscum will continue his oversight of Comtech Xicom Technology, Inc.

In announcing these changes, Dr. Sloane, President and Chief Executive Officer, stated, "I believe that these organizational changes provide an opportunity to improve operations in a way that will strengthen our competitive position as we pursue new U.S. government and international opportunities."

Dr. Sloane added, "I am very appreciative of Bob McCollum's contributions to Comtech. Over the course of his fifteen years with the Company, Bob has been instrumental in establishing Comtech as a leading provider of satellite earth station equipment. We wish him the best in his retirement."

#### New CMO for Imagine Communications

Dallas, Tex., July 22, 2015–Imagine Communications announced the promotion of Ramnik Kamo to the position of Chief Marketing Officer. In addition to overseeing Imagine Communications' overall marketing strategy, Kamo will be responsible for business development, partnerships and merger and acquisition activities.

With more than 20 years of experience in the technology industry, Kamo has compiled a track record of bringing to market products and services that

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enable customers to exploit the businesstransforming potential of new technoloand gies monetization models. Kamo has consider-



Ramnik Kamo

able experience in on-premise and cloud technology solutions and offers a CEO Barak Avitbul deep understanding of go-to-market stated: "We are models required to succeed in both domains.

Since joining Imagine Communications, Kamo has been instrumental in developing the company's New Media strategies, focusing on the branding and strategic positioning of Imagine Communications' Live/Linear to Overthe-Top (OTT) initiatives, advertising and campaign management solutions and CloudXtream<sup>™</sup> platform, which includes Cloud DVR (cDVR) and Dynamic Ad Insertion (DAI) solutions.

#### Eyal Copitt Joins **DiViNetworks as CCO**

Tel Aviv, Israel, July 22, 2015-**DiViNetworks**, a provider of network optimization solutions for the Internet and telecom markets, announced that Eyal Copitt has assumed the CCO (Chief Commercial Officer) position where he is responsible for operating the global sales, business development, marketing and channel development teams. He reports to CEO Barak Avitbul.

The company also expanded its sales team by appointing Guy Eran, VP Channels and Global Accounts; Udi Frohman, VP Sales Asia & Pacific; Sharon Ruso, Director, Pre-Sales; and Vadim Arman, VP Sales Russia. They join veteran Sales VPs, Daniel Najman for Latin America and Tsahie Lavi for Africa.

network optimization and traffic man- NetApp (NASDAQ:NTAP). He brings

agement solutions for ISPs and telecom with him over 25 years of worldwide Service (NaaS) platform, the company's patented compression technology solutions utilize a global network of PoPs (Points of Presence) at major international Internet exchange points to bring forth significant cost savings and trans-

form data links into smart networks.

**DiViNetworks** thrilled to welcome Eval Copitt as he takes a major role in the next stages of our corporate growth. He brings



an exciting record of successes across the globe with telecom, ISP, broadcast team is an and data center clients large and small. DiViNetworks is moving ahead with new super-charged solutions to meet the needs of our fast paced industry and is looking forward to reaching decision makers who understand the future."

On his appointment, Eyal Copitt commented, "DiViNetworks' technologies offer tremendous advantages to ISPs and telco operators seeking to develop additional revenue streams and improve services to their clients. The company is also introducing new services that will further enhance the capabilities of our customers' networks. With DiViNetworks' network optimization packages enabling service providers to do more with their infrastructure, I am looking forward to working closely with the team to take the company to its next level."

Prior to joining DiViNetworks, Copitt was SVP Sales Africa, Asia and Marketing at Spacecom, the global satellite provider. Beforehand, he served as VP Sales Africa at Gilat Satcom and DiViNetworks supplies a range of as the Africa District Manager at

carriers. Provided on a Network as a consulting and sales experience, some 20 of those years focused on emerging IT and Communications markets.

#### AsiaSat Forms Sales Solution Team Led by Alan Wong

Hong Kong, August 3, 2015- Satellite operator Asia Satellite Telecommunications Co. Ltd. (AsiaSat) has formed a Sales Solutions team has that will provide focused and solutions-driven support to the company's sales and business development activities. Led by Alan Wong, Manager, Sales Solutions, this team will have an increased focus of identifying and implementing the best solution for each customer's requirements.

AsiaSat said the sales solutions

enhancement of its sales development and support activiin ties order to improve the solutions it



Alan Wong

delivers to its clients.

"With rapidly-changing markets and requirements, this group, working together with our Sales and Engineering & Operations teams, is a key asset for better addressing customer needs and strengthening our partnerships with current and prospective clients," said Philip Balaam, Vice President, Sales and **Business Development.** 

"As part of our continuous improvement we are looking at offering a more effective and targeted sales approach and the Sales Solutions team will be an important pillar of that effort," Balaam added.



Russian Satellite Communications Company

#### **Satellite Solutions for Latin America**

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Express-AM8 (14W) is to be launched in 2015

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Market Briefs

Key industry trends and opportunities

## Stable Revenues Mark FSS Industry **Transition Phase**

France, September 2, 2015 - According to Euroconsult's newly released report, Satellite Communications & Broadcasting Markets Survey, Forecasts to 2024, the FSS industry posted an average annual growth rate of 4.3% over 2010-2013 with 2013 showing clear signs of slowdown at only +2%, the lowest growth rate since 2004. Further deceleration was witnessed in 2014, with sales remaining almost flat y-o-y at US\$ 12.3 billion.

Note however that at constant exchange rates, industry revenue would have grown by 1.9% driven by the significant strengthening of the U.S. dollar vs. most currencies.

The FSS industry is currently in a transition phase. The overall direction is that of higher cost effectiveness of satellite infrastructure through larger payloads, lower launch costs and other cost optimization options (such as electric propulsion) offered by the recent streams of innovation. However, the impact on pricing has started to be felt, especially in data-driven markets, where pressure from high-throughput satellites and terrestrial networks is the highest. This might temporarily lead to lower operating margins and be the time for the industry to adapt to a new environment. The increasing competitiveness of satellite infrastructure, with HTS benefiting from a much lower break-even point than that of regular payloads, should allow operators to maintain decent return on investment, despite lower pricing.

While the market structure of the FSS industry remains concentrated with the top four operators generating 63% of industry revenues, it has become increasingly fragmented at the bottom. "Nine new operators have emerged the third smallsat constellation an- ket conditions and extensive, insightful over 2010-2014; within the next four nounced since the beginning of 2015, analysis of market trends.

"... The FSS industry is currently in a transition phase. The overall direction is that of higher cost effectiveness of satellite infrastructure through larger payloads, lower launch costs and other cost optimization options (such as electric propulsion) offered by the recent streams of innovation ... "

market by launching their first satel- the success of these LEO constellations lite," said Pacome Revillon, CEO of and the disruptive impact they could Euroconsult and editor of the report. "While privately-owned satellite startups try to ensure financing and the realization of their business plans through aggressive prelaunch purchase policies, nationally-owned operators have more secure future domestic bandwidth provisions are expected to business and less pressure on financial performance, since they are largely subsidized by their government shareholders," he added.

somewhat in 2013, it has been very limited since then. Despite some players ready to opt for external growth, opportunities are rather scarce and potential targets often ask for prices perceived as too high. With acquisitions difficult, partnerships and the sharing of satellites has become an increasingly attractive alternative for operators seeking to expand into new markets with limited associated costs overcapacity in some regions combined and risks.

A new wave of major constellation announcements, with hundreds of satellites from new players in the sector, should lead to further pricing pressure. has recently increased interest in LEO constellations, both from the space community and investors. Examples include OneWeb planning to launch a LEO satellite constellation of 648 satellites; SpaceX announcing plans for a network of 4.000 satellites: and LeoSat.

years, ten operators should enter the planning for 80 to 120 satellites. While have on the industry are still hard to predict, the most recent successful innovations and already perceived impact on the FSS industry should not be overlooked, namely those of EO-HTS.

FSS industry revenues from regular grow at a CAGR of 1% over the next 10 years, reaching over US\$ 12.3 billion by 2024. This is a downward revision of our previous estimates, as we expect While M&A activity picked up lower regular capacity requirements in most markets (except Latin America, Sub-Saharan Africa and South Asia) and increasing downward pressure on capacity prices. The market value of HTS capacity is expected to increase from around \$900 million in 2014 to \$4 billion by 2024, a significant downward revision compared to our prior estimate of \$6.3 billion, with the main culprit being lower pricing. Significant with the willingness of most operators to develop new services and the potential emergence of LEO constellations

> Now in its 22nd edition, Satellite Communications & Broadcasting Markets Survey is the definitive business planning tool supporting investment decisions in the satellite industry. Released annually, it provides the most complete and accurate picture of mar-



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## **CommunicAsia 2015 Highlight Opportunities** and Challenges in the Asia-Pacific Region

nology (ICT) and broadcasting industry iser, Singapore Exhibition Services. together under one roof.

namic marketplace, and presents huge opportunities for Panasonic across all our B2B business segments from integrated solutions to audio visual products," said Hiro Sakamoto, Managing Director of Panasonic System Solutions Asia Pacific. "Our commitment to delivering total end-to-end solutions in the region is an integral part of our growth strategy. CommunicAsia2015 and BroadcastAsia2015 was an ideal platform for us to launch new products and solutions for the Asia Pacific markets as part of our commitment to strengthen our B2B business."

At CommunicAsia, Dell launched its new Internet of Things Gateway, while at BroadcastAsia, Samsung unveiled the world's first low temperature video wall, and Sony - their new HXR-NX100 terprises and those with broadcast exprofessional camcorder.

Handset makers Huawei, PHICOMM and RugGear also launched their flagships P8, P660 and GranTour Series -RG730 respectively at CommunicAsia.

"CommunicAsia, EnterpriseIT and BroadcastAsia are cornerstone events in the Asia Pacific ICT and broadcasting industries. With experts and decisionmakers from a wide range of fields, the events provide an important Asian platform for companies and industry leaders alike to announce new, best-ofbreed launches, and deliver key announcements that not only signal a pivotal shift in how enterprises are embracing technology in the way business is conducted, it also demonstrates clearly how technology has become indispensable in the new generation of

Bay Sands in Singapore has been better, quality events as countries and to deliver cross platform services that abuzz with activity as Communi- regions make further inroads in their are engaging to customers," said YuvacAsia 2015, EnterpriseIT 2015 and smart cities journey towards a hyper- rami T, Director, Media Development BroadcastAsia 2015 brought the mov- connected digital world," said Lindy Authority, a CommunicAsia2015 Sumers and shakers of the infocomm tech- Wee, Chief Executive of event organ- mit delegate.

"Asia Pacific is a fast-growing dy- control of where and when they want to access content, BroadcastAsia2015 responded by bringing together the latest in OTT and 4K technology, media asset management (MAM) and video analytics.

> More than 1,000 industry leaders and professionals gathered at CommunicAsia2015 Summit, BroacastAsia2015 International Conference and the Creative Content Production Conference to discuss latest ICT trends. fundamental shifts in broadcasting economics, and digital media challenges.

> "BroadcastAsia2015 International Conference was a good combination of both technical and commercial aspects of cloud and virtualisation, as it applies to all video applications. Attendees were a good balance between IT, enperience," said Ian Trow, BroadcastAsia2015 International Conference speaker and Senior Director of Emerging Technology and Strategy at Harmonic.

> "The social TV and second screen track was absolutely outstanding this year. 2014 and 2015 has seen some of the biggest changes in OTT, social media and the second screen and our panelists and speakers represented all different parts of the business. From gamification to analytics and video this year's BroadcastAsia was truly enlightening when it came to understand the future of TV," said BroadcastAsia2015 delegate and Senior Vice President of the Shorty Awards & Muck Rack, Natan Edelsburg.

"The session was especially enlightbusiness growth strategies. We con- ening in terms of service providers'

or four days in June, the Marina tinuously aspire to deliver great, if not business plans to leverage convergence

The CommunicAsia 2015 Summit With consumers increasingly taking had a good satellite track which examined "Asia's Satellite Industry-The Next Decade." Key panel discussions delved on topics such as "Making the Satellite Industry more Efficient: Examining the New Innovations," "Handling Competition and Challenges from all Fronts," Current State of High Throughput Satellites (HTS) in Asia," and New Developments in Antenna Technologies," among others.

> In the various panels in the satellite track, speakers took turns in extolling the opportunities that HTS will bring to Asi and how it can enable new applications such as broadband consumer access, in-flight connectivity, among others. The panels also delved on the challenges faced by satellite operators amid the threat from Over-the-Top (OTT) services which can erode some of the satellite bandwidth demand from broadcasters.

> The consensus among the panelists at the satellite summit was that the industry needs to continue to innovate and not just rest on its laurels. It also emphasize the need to listen to customers and try to meet their requirements.

> More than 48,000 attendees from 101 countries and regions, including visitors, exhibiting staff, conference speakers and delegates, and members of media, got to witness at CommunicAsia, EnterpriseIT and BroadcastAsia how technology could be harnessed to better connect cities, governments, enterprises and consumers.

> The event will return to Marina Bay Sands on May 31 - June 3, 2016. For more information go to: www.communicasia.com

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The premier international conference for military communications, celebrating its 34th anniversary this year, will be themed "Leveraging Technology – The Joint Imperative" and will continue its grand tradition of presenting the widest spectrum of command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) technologies and capabilities that address 21st century communications challenges related to national defense, homeland security, disaster response and interoperability.

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- Nearly 30,000 square feet of industry exhibits.
- More than 300 unclassified and restricted technical presentations, tutorials and panel discussions led by experts in defense communications.
- Continuing education credits will be available to all attendees.





## **CASBAA** Convention 2015 to Focus on **Changing Media Landscape**

#### **CASBAA Convention 2015** October 26-28, 2015, Hong Kong

and services are leading the charge as the broadcast and vices, new programme formats, the role of venture capital digital landscapes become increasingly intertwined.

With the theme 'Making Waves', the convention will high- racy, broadcast rights, and licensing issues. light how new business models are helping companies navigate these uncharted seas and take a look at the disruptors The impressive list of speakers who have signed up to date who are churning up the waters of business as usual.

his year's CASBAA Convention looks at the monumen- This year's convention has the underlying theme of tal sea change that is being experienced by the TV "disruption" running through all the sessions, which will industry, and will explore how technologies, content, include the latest developments in over-the-top (OTT) serin the TV industry and the latest advancements in technology, as well as the ever-critical matters of pi-

to share their views include: Li Ruigang, Chairman, China

One of the mustattend events on the Asia Pacific broadcast industry calendar, the annual CASBAA Convention is renowned for gathering а



Media Capital: Tom Mockridge CEO, Virgin Media; Dominic Proctor, Global President GroupM; Alon Shtruzman, CEO International, Keshet Media; David Shing, Digi-

moving to a new venue at the Intercontinental Hotel, participants won't fail to be impressed by the stunning views over Hong Kong harbour as well as the inspiring speaker and The CASBAA Convention also provides plenty of opportunity plenary sessions.

"Linear TV is still a major force in the Asia Pacific region, but working lounges for guests to relax, there are the popular there is no denying that the industry today is in a state of networking parties. flux," said Christopher Slaughter, CEO, CASBAA. "These are very exciting times. Never before has there been such a Supporters for the CASBAA Convention 2015 include: ABS, strong opportunity to provide and distribute content to the APT Satellite, France 24, InvestHK, ITV Choice, MEASAT, consumer when, and where, they want it.

"With this rapidly evolving landscape, we encourage our members to make waves of their own by exploring new For further information about the CASBAA Convention business models and strategies that will help provide dy- 2015, go to: www.casbaaconvention.com. namic content across a number of different screens."

heavyweight speaker line up from key organizations across tal Prophet, AOL; Jay Samit, CEO Seachange; Lauren the industry to discuss the pertinent issues facing the TV Zalaznick, founder of the LZ Sunday Paper; Sam Rogoway, business now and in years to come. With the convention CEO, Victorious; Partho Dasgupta, CEO BARC India; and Mark Howard, Chief Revenue Officer, Forbes Media.

> for members and delegates to meet and interact with industry colleagues. As well as the booth display area and net-

> PwC, RTL CBS Asia, Scripps, Networks Interactive, SES, Time Warner, True Visions and Turner.



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#### The Satellite Markets 25 Index<sup>™</sup>

Company Name	Symbol	Price (Sep 01)	% Change from Last Month	52-wk R	ange	% Change from Jan. 02, 2015
Satellite Operators						
Asia Satellite Telecommunications Holdings Limited Eutelsat Communications S.A. APT Satellite Holdings Ltd. Inmarsat Pic SES GLOBAL FDR	1135.HK ETL.PA 1045.HK ISAT.L SES.F	13.30 26.42 5.14 966.50 26.42	-56.32% -9.86% -28.11% 3.54% -13.01%	13.30 23.33 5.04 653.00 25.277	33.50 32.71 9.83 1041.24 34.90	-50.56% -1.42% -53.10% 22.34% -10.74%
Satellite and Component Manufacturers						
The Boeing Company COM DEV International Ltd. Macdonald Dettwiler & Associates Ltd. Lockheed Martin Corporation Orbital ATK, Inc.	BA CDV.TO MDA.TO LMT OA	127.44 4.78 76.70 197.62 73.84	-13.80% -17.01% -15.51% -0.79% 1.76%	115.14 3.45 70.55 166.28 56.06	158.83 622 101.42 213.34 140.61	-1.99% 18.61% -19.06% 2.00% 178.38%
Ground Equipment Manufacturers						
C-Com Satellite Systems Inc. Comtech Telecommunications Corp. Harris Corporation Honeywell International Inc. ViaSat Inc.	CMLV CMTL HRS HON VSAT	0.95 25.74 74.64 95.96 58.51	-11.21% -16.24% -7.58% -7.71% -1.50%	0.92 24.82 60.78 82.89 52.26	1.50 40.69 84.78 107.41 68.84	-31.16% -18.57% 4.16% -4.42% -5.98%
Satellite Service Providers						
Gilat Satellite Networks Ltd. Iridium Communications Inc. ORBCOMM, Inc. TeleCommunication Systems Inc. RRSat Global Communications Network Ltd	GILT IRDM ORBC TSYS RRST	4.12 6.98 5.89 3.36 7.23	-27.08% -18.27% -11.76% -18.64% 0.00%	4.11 6.32 5.27 2.72	7.07 11.36 7.62 4.24	-13.81% -27.89% -10.08% 7.69% 0.00%
Consumer Satellite Services						
DIRECTV DISH Network Corp. Globalstar Inc. Sirius XM Holdings Inc. SKY DEUTSCHLAND	DTV DISH GSAT SIRI SKYD.MU	93.55 59.24 1.59 3.76 6.76	0.81% -14.53% -25.40% -2.34% 0.67%	54.62 1.52 3.14 5.96	80.75 4.04 4.04 6.93	7.91% -18.12% -40.67% 7.89% 0.45%

INDEX	Index Value (Sep 01)	% Change from Last Month	% Change from Jan. 02, 2015
Satellite Markets 25 Index <sup>™</sup>	1,966.44	-3.13%	7.19%
S & P 500	1,913.85	<b>-9.21%</b>	-7.11%

The Satellite Markets 25 Index<sup>™</sup> is a composite of 25 publicly-traded satellite companies worldwide with five companies representing each major market segment of the industry: satellite operators; satellite and component manufacturers; ground equipment manufacturers; satellite service providers and consumer satellite services. The base data for the Satellite Markets Index<sup>™</sup> is January 2, 2008--the first day of operation for Satellite Market and Research. The Index equals 1,000. The Satellite Markets Index<sup>™</sup> provides a benchmark to gauge the overall health of the satellite industry.

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Over the Top (OTT) revenues in Western European countries will more than double by 2020.

#### Western Europe OTT TV Revenues



Source: Digital TV Research



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