Satellite Executive BRIEFING
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SATELLITE Markets & Research
Industry Trends, News Analysis, Market Intelligence and Opportunities

Opportunities in the African Market

by Virgil Labrador, Editor-in-Chief

Africa's pay-TV market has grown by over 15% year-on-year in the 12 months to the end of March 2015, with satellite platforms getting the most market share, according to Dataxis.

A total of 1.97 million subscribers were added to Africa's pay-TV platforms, jumping from 13.14 million in the first quarter (Q1) of 2014 to 15.12 million in Q1 2015. Direct-to-home (DTH) satellite TV platforms contributed 1.48 million new subscribers, followed by some 378,656 additional digital terrestrial television (DTT) users and 26,200 more IPTV customers.

The Pay-TV market market comprised 11.94 million DTH subscribers at the end of March 2015, compared with 10.45 million in the corresponding period a year earlier, with 2.18 million DTT customers – up from 1.8 million at the end of March 2014. The total number of IPTV subscribers in Africa had grown to 228,700 up from 202,500 in the same period, according to Dataxis.

Pan-African pay TV platforms are set to boom, according to a new report from Digital TV Research. According to the Eastern Europe Middle East & Africa Pay TV Operator Forecasts report, pay DTT platform GOtv will gain 5.84 million subs between 2014 and 2020 to reach 7.50 million – more than quadruple its 2014 total.

Rival StarTimes will experience similar growth to climb by 4.39 million. GOtv's sister operator and satellite TV platform DStv will gain 4.32 million subs and satellite TV platform Canal Plus 1.34 million. The Pan-Arab satellite TV services will also add subs, with beIN Sports up by 768,000 and OSN by 630,000.

Growing Demand for satellite services in Africa has resulted in fierce competition among satellite service providers.

Pay TV revenues in Sub-Saharan Africa will reach $6.22 billion in 2020, up from $3.54 billion in 2014 and $1.92 billion in 2010, according to a new report from Digital TV Research. Excluding South Africa, pay TV revenues will climb from $0.83 billion in 2010 to $1.73 billion in 2014 and onto $4.12 billion in 2020.

The fourth edition of the Digital TV Sub-Saharan Africa report forecasts that South Africa and Nigeria will contribute more than half of the region's pay

Continued on page 4

What's Inside

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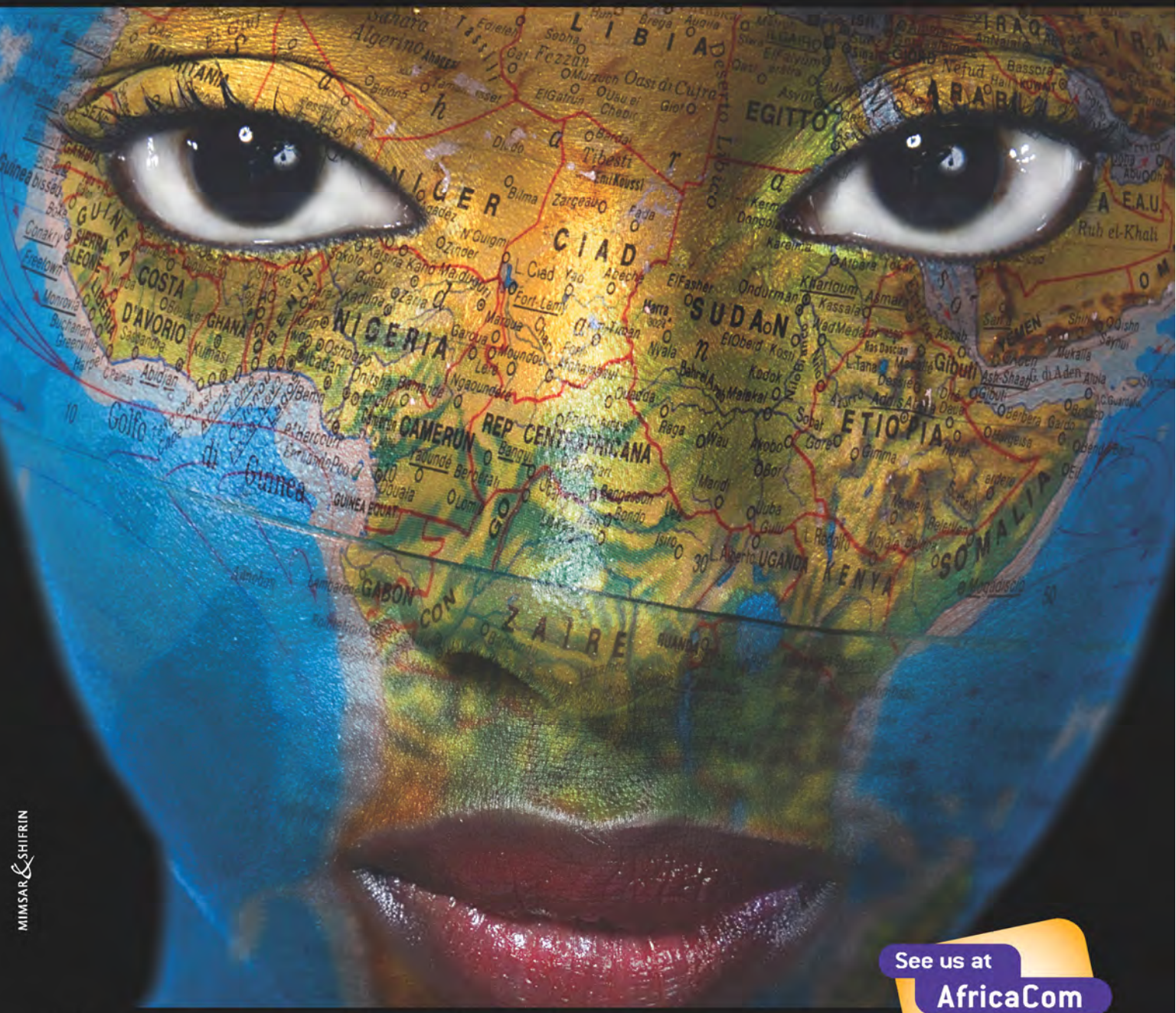

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HTS and LEO Constellations

During the month of September, between myself and our Associate Editor, Elisabeth Tweedie, we attended four different industry conference and trade shows in Europe and Asia. Normally that should account for one show a week, but three of those shows ie. Euroconsult's World Satellite Business Week in Paris, the IBC in Amsterdam and VSAT 2015 in London—all happened in the very same week. I attended the IBC and then the APSCC conference in South Korea the following week.

Having many trade shows is a sign of a healthy industry. Each of the ones we attend have different niches—but as Elisabeth Tweedie pointed out in here article reporting on the three conferences in Europe on page 6 of this issue, there are many common threads in the discussions in these shows. I was pleasantly surprised that some of the issues highlighted in the European shows were also a big topic in Asia. Among them: High Throughput Satellites, the planned LEO constellations, 4KTV uptake and Over-The-Top services. Actually, I was also in Brazil just before the IBC for the SET EXPO and most of the same themes were the highlights of the discussions there as well.

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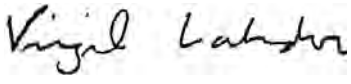

Virgil Labrador, **Editor-in-Chief**

WEB EXCLUSIVES: Access video interviews from IBC 2015

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Andrew Bond
Global Sales Director,
ETL Systems

Kirill Filippov
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African Pay-TV Market...From page 1

TV revenues by 2020 for the 34 countries covered. Second-placed Nigeria will more than double its revenues from $449 million in 2014 to $1,148 million in 2020.

Of the 12.92 million pay TV subscribers at end-2014, 9.65 million were pay satellite TV and 2.81 million pay DTT. The pay total will more than double to 27.95 million by 2020, with satellite TV contributing 16.21 million and pay DTT another 9.44 million.

Other Drivers of Satellite Growth

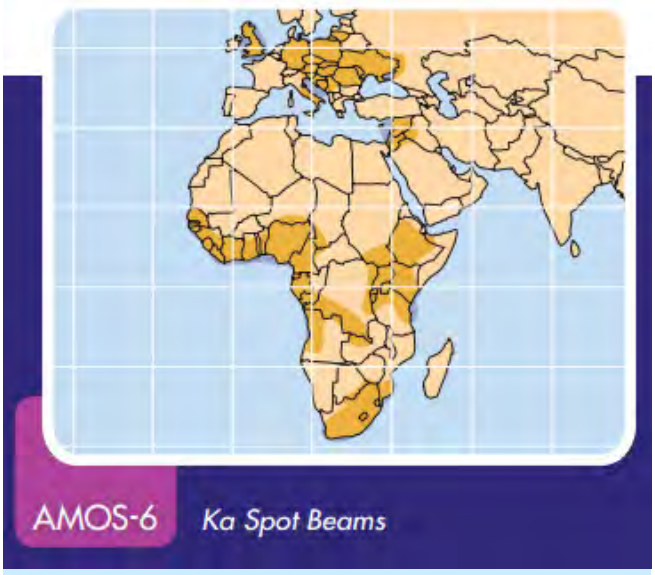
In addition to Pay-TV, there are other growth drivers for satellite connectivity. Euroconsult says a variety of segments, such as oil & gas, banking, mining, and government networks will require more connectivity as operations either diversify or expand geographically.

A number of new enterprise hot spot markets are evolving particularly in East and West Africa in addition to the historically strong VSAT markets like South Africa, Nigeria, Angola, Kenya and Tanzania. This should contribute to overall market growth across Sub-Saharan Africa

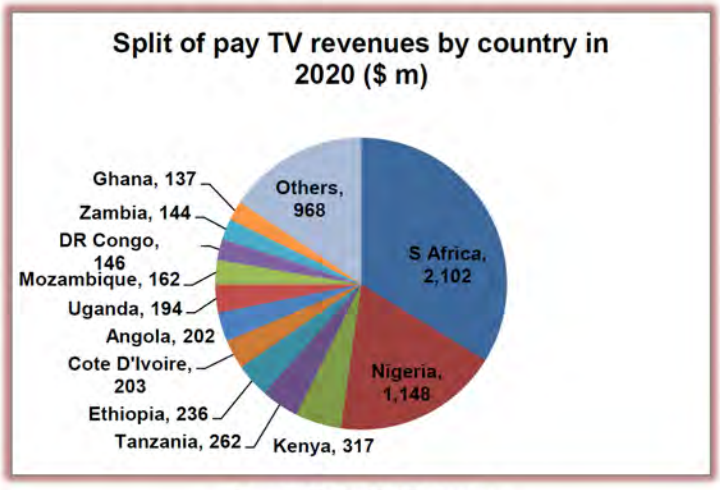
Broadband access for consumers and enterprises offers new opportunities on the back of new high-throughput satellite (HTS) capacities and services. Also, the usage of HTS capacity for trunking should increase for landlocked countries like DR Congo and South Sudan at least in the short to medium term as fiber availability remains limited and unreliable

Euroconsult, however, advises operators to create new differentiators will be key in a context of large capacity supply, which includes the development of video neighborhoods, selected service platforms and the co-development of projects with local service providers and end-users. For service and equipment providers, the rollout of more sophisticated and hybrid solutions offered through domestic hubs and a potential consolidation of service providers should contribute to market growth, says Euroconsult. The emergence of new free-to-air and pay-TV platforms should also shape the future African TV market.

Growing demand in Africa for satellite services has fostered fierce competition among satellite operators. Users of satellite services can have a panoply of choice in this buyer's market. Satellite service providers should clearly differentiate their unique value propositions in a competitive market.



Scheduled for launch in the first quarter of 2016 to the 4°W orbital position, Spacecom's AMOS-6 satellite includes 3 Ku-Band beams covering Middle East, Central East Europe (CEE) and Pan-Europe; and 36 HTS Ka-band spot beams over sub-Sahara Africa and Europe. The co-location of the AMOS satellites at the 4°W orbital location provides in-orbit satellite redundancy, enabling backup capabilities and high service reliability.



Source: Digital TV Research

Virgil Labrador is the Editor-in-Chief of ***Satellite Market and Research*** based in Los Angeles, California. He is the author of two books on the satellite industry and has been covering the industry for various publications since 1998. Before that he worked in various capacities in the industry, including a stint as marketing director for the Asia Broadcast Center, a full-service teleport based in Singapore. He can be reached at virgil@satellitemarkets.com

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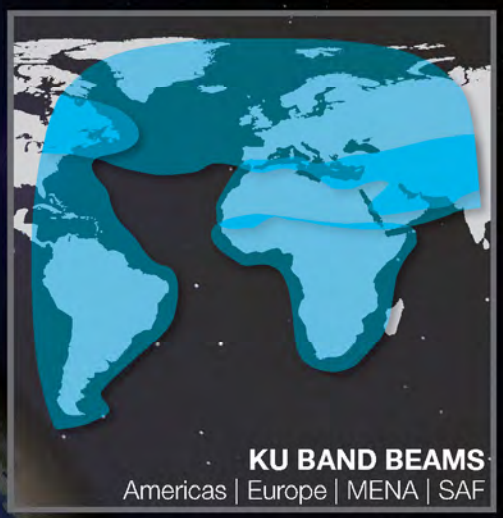

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Satellite rendition courtesy of the Boeing Company

Common Themes at Satellite Business Week, IBC and VSAT 2015

by Elisabeth Tweedie, Associate Editor

It's September, it must be Paris for Euroconsult's World Satellite Business Week, no it's Amsterdam for the IBC, no, wait – make that London for VSAT 2015! Once again three shows, all of which are important to the satellite industry manage to overlap. There were however common issues, which surfaced in all three conferences: namely linear TV, the necessity of focusing on customer requirements, mobility, and at the two satellite conferences: the proposed low earth orbit (LEO) constellations.

Euroconsult's World Satellite Business Week this year featured senior satellite executives mulling the next big thing for the satellite industry including the upcoming new LEO constellations, among others.

Contrary to many statements to the reverse, linear TV is not yet dead. Indeed, globally the number of linear TV channels is actually increasing, as is revenue in some markets. In the opening session of IBC in Amsterdam, David Butorac, CEO, OSN said that "broadcasting was enjoying rude health," and to prove it, he pointed out that OSN's revenue was up 24% last year. In the same session, Fran Unsworth, Director of the BBC World Service pointed out that there were now 68 TV channels in Afghanistan, whereas a year ago there were none. These specific regional examples, were confirmed on a larger scale by Euroconsult, at World Satellite Business Week (WSBW) in Paris, in the session "Trends and Prospects for the Satellite Market" where it was shown that there were 3,000 new satellite TV channels last year. The growth is, however expected to slow. In the next nine years, Euroconsult forecast that only an additional 9,800 channels will be added, bringing the global total to 48,500.

Remaining on the subject of broadcast television, many people living in North America and Western Europe, may be surprised to learn that standard definition (SD) is still the dominant format by far. Globally high definition (HD) accounts for only 20% of channels. Euroconsult presented figures showing that last year, two thirds of the channels added, were in SD. However HD channels continue to be rolled out with 14,500 new ones expected by 2024.

Ultra High Definition (UHD or 4K) is now in its commercial infancy. Euroconsult are predicting fewer than 200 channels by 2020. The first global UHD channel, Fashion

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One 4K was launched at the beginning of September. SES Platform Services (SES-PS), is providing a fully-managed 4K playout for the channel, along with ground segment and distribution services in North and South America. The channel was showcased at IBC.

However, all is not rosy in the TV channel marketplace as far as satellite is concerned. As Euroconsult rightly point out, many channels are currently being carried in both SD and HD. As HD becomes more dominant, the number of dual transmissions will start to decrease. At the same time MPEG-4 is taking over from MPEG-2 as the dominant compression standard. Being roughly twice as efficient as MPEG -2, this obviously results in less transponder space being needed. Currently around 50% of channels are using MPEG-4. The rise of UHD will not totally compensate for this, as High Efficiency Video Coding (HEVC), an alternative compression standard, is most likely to be used for UHD. HEVC is approximately twice as efficient as MPEG-4.

And then there is the rise of Over the Top (OTT), which in the long run will also impact the demand for satellite delivery of TV channels, as broadcasters and viewers alike, focus more on this method of delivering and viewing video content. The Ericsson Consumerlab, Annual TV and Media Report, published just before IBC, shows that 8/10 teenagers watch streamed on-demand TV at least once a day. In comparison 60-69 year olds watch linear TV at least once a day. However linear TV is still a robust business: 52% of respondents (22,500 people in 21 countries) have either kept their spending on linear TV the same or actually increased it in 2015. In 2014 the corresponding figure was 51%.

Being Responsive to Customer Needs

Another theme running through all three conferences was the importance of focusing on and being responsive to customer needs. As David Butorac, CEO of OSN said: "We used to buy from technology companies and adapt what we wanted to do, to what technology let us…..now we adapt what we do, to what customers want." The satellite manufacturers at WSBW concurred with this, emphasizing the importance of flexible payloads. John Celli, President, Space Systems Loral, talked about the need for a standard bus, with the flexibility being in the payload and ground systems, enabling delivery of a satellite in 12 months. Laurent Thomasson, Head of Telecom Marketing and R&D Coordination, Airbus Defence & Space, Airbus Defence & Space said that "A lot of effort is being made to understand customers and their business case, so that we can adapt what we propose to their business, rather than propose what we have."

SES-PS with its new concept "Liquid" is trying both to be responsive to customer needs while at the same time bowing to the restraints imposed by satellite technology. Liquid is a new concept, targeted at emerging markets with poor terrestrial service. Essentially it is a means of providing a limited Video-on-Demand service. A box in the home stores the first few minutes of a (limited selection) of movies. When the customer selects a title, it initially starts playing from the set-top box, while the remainder of the movie is downloaded. As far as the customer is concerned it is a seamless service, providing instant access to the movie. At different times of day different selections can be made available.

"…The stumbling block to adoption of an all IP system for video, is not technical, but human. To successfully make the transition, staff are needed who understand both IT and broadcast workflows. This transition is not good news for the satellite operators. …"

Continuing the theme of flexibility, Imagine Communications, in a presentation at IBC talked about the transition to IP for broadcast workflows, pointing out that for many broadcasters, 40% of their revenue was coming from sources that didn't exist five years ago. IP gives the broadcasters total flexibility to deliver to any device and to scale as needed. According to Imagine, a channel can be created and put on air in just a few minutes; however that flexibility comes at a price. It's not possible to just plug a laptop into a Serial Digital Interface (SDI) system. (SDI is the legacy system for transmitting video), but very easy to do so with an all IP system. This creates major cybersecurity risks. As a recent report from the World Teleport Authority shows, as yet, cybersecurity is not viewed as a major issue for the satellite industry by its customers. However it is something that the industry is very aware of. At WSBW, Evert Dudok, EVP, Head of CIS, Airbus Defence & Space mentioned that it had 600 people working on a cybersecurity system.

The stumbling block to adoption of an all IP system for video, is not technical, but human. To successfully make the transition, staff are needed who understand both IT and broadcast workflows. This transition is not good news for the satellite operators. One of the key drivers is the move to OTT services. Although, as noted above, linear TV is far from dead, broadcasters are being very cautious when it comes to renewing leases. At Euroconsult's World Satellite Business Week (WSBW), Bill Tillson, Executive Chairman, Encompass, reported that its OTT division will have a threefold increase in revenue this year, whereas for the broadcast division he said: "we originate 900 channels, we used to think of that as a stable business, we now regard it as a declining business." 70% of its transponder leases will expire between 2020-22, and it is only expecting around 50% to be renewed, and only for ten years. The spread of fiber is not helping. Encompass serves 16,000 cable headends, but due to fiber interconnection, can now get to 90% of them by delivering to just 350 headends and 100% of them by delivering to 1,500 headends.

HTS Systems

As would be expected, at WSBW, High Throughput Satellite (HTS) payloads were also a major topic of conversation. As we all know many operators have either launched or are about to launch satellites with HTS payloads. According to Euroconsult, 25 operators have invested US$15B in HTS. Excluding the potential new LEO constellations, Euroconsult is forecasting that 2Tbps of HTS capacity will be provided by nearly 80 satellites, 35 of which are still to be launched. However if Euroconsult are correct, this is not good news for the industry, nor for the operators concerned. It is forecasting that 65% of satellite capacity will come from HTS payloads by 2024, but only 25% of the revenue. Nevertheless it is forecasting a 22% CAGR for HTS capacity demand, but only a 1.7% CAGR for regular capacity demand. The drop in price was echoed by David Williams, CEO of Avanti, the operator of four Hylas HTS satellites, who said that prices had dropped 60-80% in the last few years. "Customers will buy on price, but they will walk on service." Viasat apparently are not suffering from a similar drop in price. Last year the company officially became a service provider, rather than a hardware supplier, with over half of its revenue coming from services – primarily the satellite broadband service it provides in the US.

The major satellite operators were all very bullish about the potential for all this extra capacity, pointing to both the growth in demand for video in all forms and the increasing importance of the mobility sector. Eutelsat, operator of KA-SAT, presented some interesting figures, showing that in all but urban markets, at $1,200 per new connection, provision of broadband via satellite was cost competitive against all other technologies except 4G. In very low density rural areas, satellite was cheaper than 4G.

Maritime and aeronautical are seen as the sweet spot for satellite and were discussed at VSAT 2015 in London, as well as at WSBW. At VSAT 2015 both Tom Hansen, head of sales for Airbus Defense and Space, Maritime Business Systems and Giancarlo Pensabene, Head of Business Development for Telespazio, referred to the importance of being part of the customers' business. Interestingly Giancarlo comes to the satellite industry from Proctor and Gamble and is focused on employing business to consumer (B2C) marketing strategies for the Oil and Gas sector.

Everyone was very optimistic about future growth for the aeronautical market, with Euroconsult forecasting around 5,500 commercial aircraft to be equipped with broadband for passengers by 2022. At IBC there was some discussion as to whether this was leading to a Bring Your Own Device (BYOD) model, thereby saving the cost and weight of seatback equipment for the airlines. No one technology was expected to dominate this market; rather it was expected to be a mixture of Ku and Ka-Band. Inmarsat is also planning to use its S-Band satellite to provide service on short haul European routes.

New LEO Constellations

No satellite conference this year, would be complete without a discussion of the new Low Earth Orbit (LEO) constellations. As would be expected opinion was sharply divided. Intelsat, having invested US$25M in OneWeb was naturally very enthusiastic talking about the synergies between OneWeb and Epic, mentioning that it would be providing combined terminals. Others were less enthusiastic with Edgar Milic, GM, Strategic Portfolio Management, SES, going as far as to say "I'm glad someone else is doing it first." At the Global Operators' CEO panel, everyone except Karim Michel Sabbagh, President and CEO, SES, was sporting black t-shirts emblazoned with the words: "GEO is cool." For SES, a major investor in O3b, MEOs are cool. Steve Collar, CEO of O3b reporting that it "was now the number one operator in the Pacific, having more customers under contract that the fiber companies." He also reported that many of its customers had already upgraded their service and it now had 23Gbps under contract.

Conclusion

In summary – the satellite industry is very much an industry in transition, and this was reflected in the conversations at all three conferences. Video has always been the key driver of the industry, and now OTT is threatening linear delivery. New players are coming into the market. Satellites are getting larger, Thales has put out a proposal for a 700Mbps satellite; and smaller, OneWeb will be 648 micro satellites and if SpaceX's system comes to fruition it will be 4,000 satellites. The cost per Mbps delivered is falling, customers are demanding greater flexibility and new mobile markets are opening up. What does this mean for the industry? Steve Spengler, CEO, Intelsat summed it up by forecasting that the industry outlook is "Sunny with short-term showers." The key message, however came from Karim, when he very succinctly said "the key is to unlearn the habits of the past."

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: elisabeth@satellitemarkets.com

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Back and Forth with Eutelsat CEO Michel de Rosen

by Lou Zacharilla

This interview with Michel de Rosen marks the first "Back & Forth" dedicated to the satellite industry's new global campaign, "Better Satellite World" www.bettersatelliteworld.com which, I am pleased to report has gone viral. Over 30 companies and fellow trade associations have endorsed it and are distributing its content to new market players, the media and those whose work and life is touched by the satellite.

Few people have a tighter macro-economic and social grasp of the significance of the satellite industry than Michel de Rosen. Eutelsat's charismatic CEO has spoken articulately and without the technical veneer about the difference satellites make and their importance to everyday life. is making a difference with its technology. I thought it would be a good to kick-off the "Better Satellite World' edition of this column by hearing his voice about this subject – and others that will impact the business of our business. Follows are excerpts of our back and forth discussion:

Michel de Rosen

Lou Zacharilla (LZ): *In January you gave a talk at the African Telecommunications Union which warned African governments of the consequences if C-band resources are reallocated to mobile operators. This was in advance of next November's WRC conference in Geneva. Was this a self-serving plea from our industry, or are there specific and obvious economic and social threats to African development if the ruling goes in favor of mobile operators?*

Michel de Rosen: It is important to be clear on the consequences of WRC-15. Once taken, the decisions in Geneva in November will have a permanent and irreversible impact in many regions of the world on sectors that include air security, disaster relief, civil protection, enterprise communications, Internet connectivity and TV broadcasting. These are not superficial services. They are so obviously crucial for safety, as well as for digital inclusion, economic and social development. What we have repeatedly explained to governments and regulators in the build-up to WRC-15 is that the IMT sector should first make use of the significant spectrum *that has already been made available to it*. In most of the world less than half of the spectrum already identified by the ITU for IMT has been licensed and only about 80% of licensed spectrum is actually used for mobile services.

LZ: *I do not think there is public awareness of that. Are you saying that the cellular industry's growth would not be inhibited by a decision in the satellite industry's favor?*

de Rosen: In other words, there is plenty of scope for IMT to grow before it erodes the spectrum already used by other sectors. Ironically, cellular network operators in many of the highest-growth markets *depend on satellites* to carry signals from rural areas to the telecommunications grid. You and I know that terres-

trial links alone can never handle the increasing demand for throughput.

LZ: *Yes. Backhaul and the growth of capacity in less-populated areas is impossible without the satellite industry's involvement. We probably do not tell that story well enough. However, I am struck by the irony that cellular companies will be negatively impacted by a decision in their favor.*

de Rosen: Yes. They could be affected by reallocation of spectrum or spectrum-sharing. It makes you wonder if the left hand of the IMT sector has been communicating with the right hand!

LZ: *Doesn't sound like it. Or at least they have not thought it through. Speaking of communication, SSPI has led a major awareness program to communicate the virtues and importance of our industry.*

de Rosen: The need for satellites has never been higher.

LZ: *If I say to you "satellites make a better world," what is the first thought that comes to mind?*

de Rosen: There are literally thousands of examples of how satellites make a better world: from supporting micro-tourism, to literacy-teaching TV programs for women deprived of education, to the coverage of live events which are of universal importance and bind us all together, such as the recent Papal visit to the Americas.

LZ: *Yes. These events are essential to the collective human experience. Which projects can Eutelsat claim in this regard?*

de Rosen: Eutelsat collaborated with NetHope to deliver broadband terminals to NGOs operating in West Africa during the Ebola crisis. Not only did an immediate connectivity help relief teams coordinate medical work in the most isolated parts of Sierra Leone, but the terminals were easily moved around as the virus spread. In today's context, in which multiple crises must be coordinated by NGOs throughout the world at any one time this is an important tech tool, isn't it?

LZ: *As you say, this is one example among many that occur daily. It is why SSPI and its UK chapter have decided to produce a "Better Satellite World" awards program in London (4 December). To recognize this fact. Getting back to your January speech in Abjuja, you were addressing the "Digital Divide" issue. Yet increasingly we see that the divide has deeper and more intractable roots. While satellites largely are an infrastructure provider, is there a more prominent role we can play to capture mind and market shares?*

de Rosen: My sense is that the space and satellite industry have returned to the limelight, driven by the spectacular success of missions like Rosetta and the encounter with Pluto. We have also seen the emergence of visionary individuals in our industry, and the increasing recognition by many sectors that space-based communication is a vital, long-term resource. It's clear that global Internet penetration and the volume of video content users receive and generate does risk creating a new generation of the digitally excluded. So how should we react? One route we strongly believe in is broad industry collaboration to ensure that satellites fully fit into a non-linear, IP-based environment. This has driven the creation of the Future Video Initiative that we announced this month with SES.

LZ: *I know that you want this to be an industry-wide effort. What I've always appreciated about you is that you think globally. You look at the business with a non-linear, somewhat poetic view. Is there something to having a view of the world that is not exclusively technical which could be imparted to the industry's rising leadership?*

de Rosen: I believe that a successful high-tech company is supported by strong technical backbone and commercial, strategic and financial vertebrae. Each has its own function. However they connect to make a coordinated system. To keep with this analogy, the more each vertebra comprises different skills, ages, genders and nationalities the stronger the entire body. This is what we have achieved at Eutelsat. I have the privilege to work with some of the best technical minds in any business. So my vision is to keep our attention focused on customer service and innovation, to remind the talented people at Eutelsat of the unique value of what we do, and to encourage them to always reach beyond their grasp. If a 'non-linear and poetic view' helps to convey these messages, all the better. Let's face it: 'Geo is Cool'!

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

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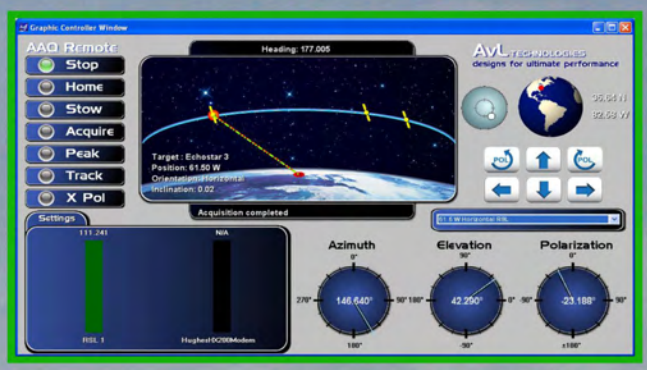

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Available as single package integrated BUCs or standalone power amplifier units with separate nanoBUC HUB, this new range of Ka-band Multiband GaN products can achieve output powers of up to 100W at any frequency in the Ka spectrum. All in the smallest form factor and with the highest efficiency on the market.

Products available include:

Ka multi band 16W and 25 W BuCs

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- 357 Series SSPA (16W and 25W)
- 360 Series BUC (15W and 25W)
- 322 Series BUC (40W and 80W)

What you'll get from the Diamond Series:

- 1dB extra in linear power
- Only product that offers up to 3GHz of bandwidth in a single unit.
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For more information go to: www.emsolutions.com.au

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Products and Services Market*Place*

A guide to key products and services to be showcased at MILCOM 2015 in Tampa, Florida from October 26-28, 2015.

Advantech Wireless
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Advantech Wireless has over 25 years of experience empowering military forces and government agencies, delivering cutting-edge innovations in communications that solve mission critical communications challenges.

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COMTECH EF Data
booth # 332
www.comtechefdata.com

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

COMTECH Xicom Technology
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www.xicomtech.com

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

At MILCOM , Comtech Xicom Technology representatives will be there for SATCOM uplink providers and developers to discuss and obtain technical information on the latest in high-power amplifier designs including the Award-Winning line of rugged antenna-mount and rack-mount SuperPower™ TWTAs that take established millimeter wave designs and scales them for use at Ku-band (http://xicomtech.com/index-superpower-twtas.aspx).

Comtech Xicom's new Superpower TWTA

Comtec Xicom will also be showcasing the new SuperCool™ liquid cooling system for complete thermal control of antenna-mount TWTAs and a wide selection of compact, lightweight GaAs and GaN-based Solid-State Power Amplifiers (SSPAs) and Block Upconverters (BUCs). Comtech Xicom's product range encompasses power levels from 8 W to 3 kW, with frequency coverage in sub-bands within the 2 GHz to 45.5 GHz spectrum.

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Bring on the New Constellations: HTS and a Broadband Satellite Revolution in LEO?

by Martin Jarrold

The **'GVF HTS 2015 London Roundtable – High Throughput Satellites: Game-Changer or New Game?'** will provide the latest satellite industry in-depth exploration of a range of issues pertaining to the massive growth opportunities in the communications market for satellite-based broadband solutions – solutions delivered from orbiting assets in GEO, MEO and LEO.

Focusing on those issues and opportunities arising from a host of new applications that are being delivered into new market sectors – including into the evolving communications on the move (COTM) ecosystem – which are being enabled through the deployment of more-highly bandwidth efficient networks that use the advanced in-orbit technologies of existing and planned HTS systems, together with more recently tabled projects for future constellations of hundreds (and in some cases thousands) of low-Earth orbiting global communications micro-satellites as announced by OneWeb/Qualcomm/ Virgin Group, Space X/Google, LeoSat/ Thales Alenia Space, etc., the event will examine the latest major plans and trends that suggest some questions that are as big as the numbers involved.

New LEO constellations featuring thousand of satellites are being planned by companies such as OneWeb which his backed by Qualcomm and The Virgin Group. (image: OneWeb)

As satellite communications continue to grab the headlines with HTS communications now delivering 30 -100 Gbps connectivity to millions of users at subscription rates that transform the broadband value proposition and the strategic connectivity plan, and as the "mega-LEOs" prepare for launches on a scale never before seen, HTS companies are already extending their services into nearly every operating environment, and are changing the dynamics of the value chain. On planes, trains and ships, and in cities, villages and living rooms, the full spectrum of enterprises – and now consumers – are taking advantage of applications that require new definitions of "access".

The Roundtable sessions will explore the satellite broadband market, present & future, from the viewpoint that as global data demand grows at C, Ku and Ka bands, HTS is providing the ability to significantly accelerate the use of satellite broadband, addressing user requirements for the multi-service networks of the Internet era (increasingly encompassing the accelerated-growth ecosystem of the Internet of Things), and the environment of applications and service in the Cloud, asking, "What does this opportunity really promise at the market level, for providers and users?"

Other sessions will offer a broad overview of exactly what high throughput satellite operators are already providing, or planning and preparing to provide, and will ask such questions as: "Are operator offerings essentially the same?" | "Is all high throughput alike?"

will also examine how an established value chain structure – which has evolved in the context of a traditional GEO satellite environment – might change in the context of new generations of high-capacity satellites where the operators may actually come to position their offerings to directly compete with their own VARs, potentially impacting the position of the latter in the market.

Answers to these questions draw upon the recent track record of a growing list of industry leaders, including Eutelsat and Avanti in Europe, Yahsat and Arabsat in Africa and the Middle East, IPStar in Asia, and Hughes and Viasat in the Americas. Added to their experience are the innovations of competitors such as the Inmarsat Global Xpress service, Intelsat's EPIC, and the O3b mid-earth orbit solution.

Most of the world's dozens of satellite operators have either ordered or plan to order high-capacity satellites and 14 million households and 50% of enterprise terminals are predicted to be using high-capacity platforms by 2020.

Building upon previous **GVF High Throughput Satellite Roundtables**, held both in London and Washington DC, this event will serve as a forum where these trends and these companies will be examined, revealing insights into how these exciting new chapters in satellite communications continue to rewrite the way that applications are delivered today, and will be delivered tomorrow.

At time of writing this column the **Roundtable** is supported by event sponsors **Inmarsat**, **SES**, **Hughes**, **SpeedCast**, and **Gilat Satellite Networks**.

Further information can be obtained by contacting me at martin.jarrold@gvf.org or Paul Stahl at paul.stahl@uk-emp.co.uk, or by visiting the Roundtable website at www.uk-emp.co.uk/current-events/hts-london-2015/.

"...Most of the world's satellite operators have either ordered or plan to order high-capacity satellites and 14 million households and 50% of enterprise terminals are predicted to be using high-capacity platforms by 2020..."

The **HTS London Roundtable 2015** will encompass the following thematic elements:

- **Setting the satellite broadband scene: Where does HTS, and the Mega-LEO "Wild Card" fit in the ecosystem?**
- **Today's HTS new service provision game-changing paradigm**
- **Is all High Throughput alike? Will it evolve under future Mega-LEO influence?**
- **Development of multi-band service strategies as part of the HTS play**
- **Deploying the HTS mobility application in the air, at sea, on land**
- **Satellite backhaul re-defined: Small Cells, LTE & everything in between**
- **HTS and the evolving broadcast paradigm**
- **Engineering the HTS solution... Engineering the new Mega-LEOs**
- **Infrastructure evolution: The planning, design, deployment & managing of HTS terminals/earth stations**
- **How are regional market variations being reflected in the offerings which comprise regional operator initiatives**
- **Where are hybrid technology solutions to be positioned?**
- **Terminal and antenna technology product quality and installation**
- **Deploying the HTS application & the VARs**
- **What do the users need from HTS? – The sector perspectives of the wireless operator, maritime & aeronautical, oil & gas, military, government, and consumer**
- **Who is the "New" customer? Or is it the same old client?**
- **Enterprise, consumer & everything in between: Satellite broadband redefined for market differentiation**
- **HTS-enabled terminals & the user expectation**
- **Cyber-Security & HTS: Network resilience & robustness re-defined?**

Scheduled for before the **GVF HTS London Roundtable 2015** will be **GVF Oil & Gas Connectivity 2015 – The Kuala Lumpur Meeting**. For further information on this event – the 25th in the Oil & Gas Connectivity Series – please visit www.uk-emp.co.uk/current-events/o-g-comms-kl-2015/.

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

CPI Acquires ASC Signal

Palo Alto, Calif., Sept. 17, 2015--Communications & Power Industries LLC (CPI) acquired ASC Signal Corporation, which designs and builds advanced satellite communications, radar and high-frequency antennas and controllers.

ASC Signal's high-performance antennas are used in commercial and government satellite communications, terrestrial communications, imagery and data transmission, and radar and intelligence applications.

Under the acquisition agreement, CPI acquired ASC Signal from Resilience Capital Partners.

CPI expects to realize approximately US$ 50 million in annual sales, as well as positive contributions to its earnings, in the first year following the acquisition.

ASC Signal, which has approximately 125 employees worldwide and facilities in Plano, Texas and Whitby, Ontario, Canada, will be operated as an independent division of CPI. It will retain its current leadership and personnel, including its sales force.

ASC Signal's product portfolio includes satcom antenna systems with UHF to V-band capabilities; radar antennas in S-band and L-band for air traffic control radar applications and in S-band and C-band for weather radar applications; and high-frequency and specialty antennas in a wide frequency range for a variety of applications. ASC Signal's antennas are typically between 2.4 meters and 14 meters in diameter.

"The addition of ASC Signal's products and technology broadens CPI's existing offerings for communications and radar customers to now include one of the industry's broadest portfolios of high-performance, large-aperture fixed and mobile antennas. ASC Signal has more than 40 years of experience serving a diverse, multinational customer base, resulting in strong, long-term customer relationships and antenna installations in more than 140 countries," said Joe Caldarelli, chief executive officer of CPI International, Inc., the parent company of CPI.

Keith Buckley, president and chief executive officer of ASC Signal Corporation, said, "ASC Signal is delighted to join CPI. In addition to aligning complementary product portfolios and customer bases, this acquisition will provide ASC Signal with access to CPI's well-established worldwide resources, enabling us to grow the business and better serve our existing customer base."

Philpott Ball & Werner, LLC acted as exclusive investment banker to ASC Signal.

Net Insight Closes Scheduall Acquisition

Stockholm, Sweden, October 2, 2015--Net Insight, a leading provider of live, interactive and on-demand media transport, announced its completion of the acquisition of US software company VizuAll Inc., trading under the name of ScheduALL. The acquisition will strengthen Net Insight's market position in media service and workflow orchestration.

The closing follows the announcement on September 2, 2015, that Net Insight was entering into an agreement to purchase ScheduALL. Net Insight has acquired 100% of the shares in ScheduALL for US$ 14 million on a cash and debt free basis.

The acquisition of ScheduALL is an important strategic initiative as it allows Net Insight to offer complete end-to-end orchestration to the market. In today's fast-paced and schedule driven broadcast world, on-demand and end-to-end service orchestration is becoming key to deliver efficient and cost-efficient solutions to TV production broadcasters and their customers.

ScheduALL, founded in 1989, is a provider of Enterprise Resources Management (ERM) software for media, broadcast and transmission businesses. ScheduALL has its head office in Hollywood, Florida, US and employs approximately 75 employees.

Ericsson Enters into Agreement to Purchase Envivio

Stockholm, Sweden, September 10, 2015--Ericsson announced its agreement to acquire Envivio (NASDAQ:ENVI), by means of a tender offer for a price of US$ 4.10 per share in cash, or approximately US$ 125 million in the aggregate. The acquisition will strengthen Ericsson as a global innovator in enabling customers to deploy new technologies and agile video processing to innovate new services that engage TV consumers every day.

The acquisition will strengthen Ericsson's video compression position, combining its leading position in broadcast and contribution with Envivio's leadership in multiscreen cable and telecom. Envivio's cloud-centric and software-based video capabilities will be a key addition to Ericsson's extensive portfolio of media enrichment, processing, publishing, delivery, and TV platforms, enabling TV experiences on any device.

Envivio is a leader in software-based video encoding with an installed base of over 400 TV service provider and content owner customers in all markets globally. Envivio generated revenues of USD 43 million during full year 2014 and is headquartered in San Francisco, CA. Envivio was founded in 2000 and has a staff of approximately 200 employees worldwide.

Tier one Envivio customers include Comcast, Cox Communications, Liberty Global, Sky, Telstra and Time Warner Cable. Envivio's advanced software solutions for pay TV and TV Anywhere applications perform software-based video encoding/transcoding, processing, packaging and ad insertion. Envivio's cloud-centric pure software video processing is available on Intel-based appliances or IT blade servers.

Per Borgklint, Senior Vice President and Head of Business Unit Support Solutions at Ericsson, says: "Our consumer research clearly shows that viewers are demanding TV on their terms on any device, and expecting experiences that continually evolve. We are committed to offering our customers a clear path towards fully agile cloud agnostic platforms that delight TV consumers. I look forward to welcoming the market leader in pure software-defined video encoding, processing, and packaging into Ericsson. The combination will strengthen our encoding position with both custom silicon and pure software encoding, delivering performance and flexibility."

Under the terms of the definitive agreement, Ericsson will commence a cash tender offer to purchase all of Envivio's outstanding shares, with a merger following the completion of the tender offer which would result in all shares not tendered in the tender offer being converted into the right to receive $4.10 per share. Certain of Envivio's major stockholders, collectively owning approximately 34 percent of Envivio's outstanding common stock, have entered into a tender and support agreement with Ericsson committing to tender all of their Envivio shares in the tender offer and to vote in favor of the merger.

The acquisition is expected to close in the fourth quarter, 2015, subject to customary closing conditions.

The board of directors of Envivio has unanimously agreed to recommend that Envivio's stockholders tender their shares to Ericsson in the tender offer.

Once acquired the business will be reported as part of Segment Support Solutions of Ericsson.

Signalhorn Names New President and CEO

Backnang, Germany, October 1, 2015 – Signalhorn announced the appointment of **Alexander Mueller-Gastell** as Signalhorn's President and Chief Operating Officer. Mueller-Gastell will be reporting to Robert Kubbernus, who will continue to fill the role of CEO and Chairman of Signalhorn.

Alexander Mueller-Gastell joined Signalhorn in May 2013 as Chief Financial Officer. This progression to President and Chief Operating Officer is on account of his quick understanding of the company and his passion for excellence within the organization, dedication to growth and his customer-first approach.

Mueller-Gastell

In his new role, Alexander Mueller-Gastell will direct and control Signalhorn's daily operational business and give strategic guidance and direction to ensure that the company achieves its objectives and goals.

MEASAT Appoints Desai as Sales Director-Africa

Kuala Lumpur, Malaysia, September 28, 2015 – MEASAT Satellite Systems Sdn. Bhd. announced the appointment of **Santosh Desai** as Sales Director – Africa. In his role, Desai will be responsible for opening new markets in Africa, developing sales channels, and managing customer accounts.

Prior to joining MEASAT, Desai was Head of Products for satellite communications, media & managed services for a global telecommunications company based in India.

Desai holds a Bachelor Degree in Electronics & Telecommunications Engineering from Pune University, India and also completed an Executive Program in International Business Management from Indian Institute of Management, India. Santosh has more than 14 years' experience covering international projects, network operations, products, and sales in satellite and media.

Santosh Desai

Inmarsat Names Sam Matar as Director-Airline Market

London, UK, September 24, 2015-- Inmarsat has announced the appointment of Sam Matar as Director of Airline Market Development, with responsibility for expanding the company's airline customer base and revenues in the North America market

Matar has 20 years of business development experience in the global aviation industry.

Sam Matar

He most recently served at leading avionics and aerospace product companies B/E Aerospace-LIS (formerly EMTEQ Wisconsin) and ECS (now Carlisle Interconnect Technologies), working with airlines, system integrators and OEMs on the key areas of satellite communications, inflight entertainment, connectivity and the passenger interiors cabin experience. Extremely valuable

Matar, who is fluent in English and French, holds a BBA degree from American University of Beirut and a MBA in Finance from the University of Wisconsin. He will be based in Chicago and report to Neal Meehan, Inmarsat Aviation's VP Business Development – Americas.

Melquist Joins Sage Communications

McLean, VA, September 22, 2015-- Catherine Melquist, a marketing executive with more than 20 years of experience in the satellite industry, has joined Sage Communications as senior vice president of its Satellite division.

In her new role, Melquist will replace Penelope Longbottom as head of the Longbottom Communications division that Sage acquired two years ago.

Catherine Mequist

Ms. Longbottom founded her eponymous company in 2000 and built it into the premier public relations and marketing agency serving the global satellite industry. She will be retiring effective October 31.

The Satellite division of Sage works with a number of leading clients in the satellite industry, including Intelsat, Intelsat General, Hughes, XTAR, ITC Global, OmniEarth, CMMB Vision, LeoSat and Space Partnership International.

"This is an exciting time in the satellite community and a tremendous opportunity to lead Sage's Satellite Division," said Melquist. "Penelope Longbottom has built a truly remarkable practice and team and I look forward to continuing the unequalled service and reputation she helped establish in the industry."

Melquist began her industry career at Comsat in 1994. Over the next two decades she held a number of increasingly senior positions in marketing and product management at Lockheed Martin Global Communications, Telenor Satellite Services, Vizada, Airbus, and MTN Government. She holds a bachelor's degree from the University of California at Santa Barbara and a master's in business administration from American University.

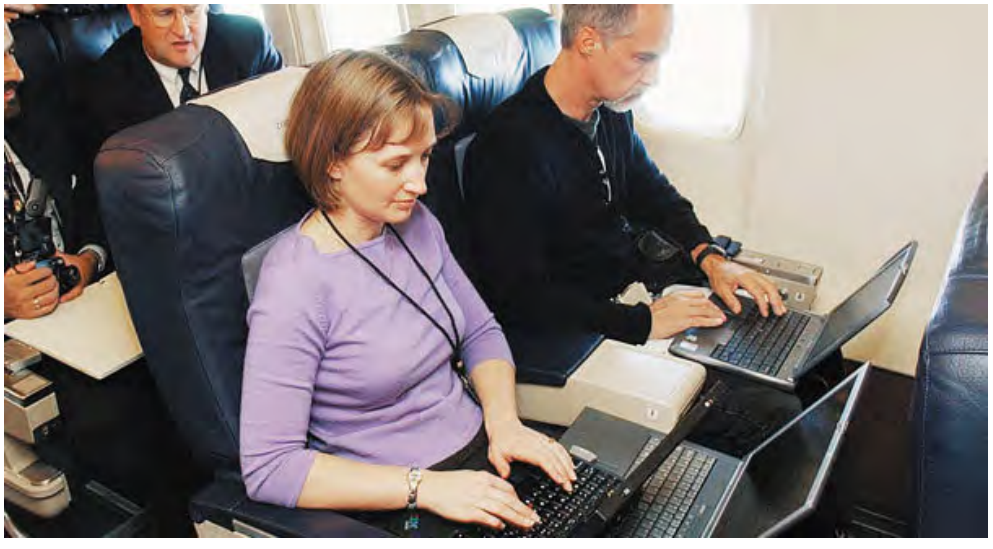
Survey Highlights Sky-High Demand for Inflight Broadband

"...83% of the passengers included in the survey cannot envisage a future without on-board connectivity, agreeing that all aircraft will offer in-flight Wi-Fi connectivity within the next five to 10 years..."

London, UK, October 1, 2015 – A new survey of more than 6,000 airline passengers reveals the very strong demand for in-flight broadband services that exists among Europe's aviation passengers. This demand is seen across all age groups and those travelling for either business or leisure.

The 2015 In-Flight Connectivity Survey was conducted by Inmarsat (LSE: ISAT.L), the leading provider of global mobile satellite communications services, and market research company GfK.

The survey also found that in-flight connectivity is likely to be a strong source of revenue for airlines, as well as a differentiator for carriers looking to stand out from the competition.



Highlights of the survey findings include:

- 80% of those surveyed would use in-flight Wi-Fi if given the opportunity/
- 67% of passenger users across all age groups would be willing to pay for the service, rising to 69% of 18-44 year olds.
- More than 4 out of 5 see a future where internet connectivity is available on all aircraft.
- 67% of passengers would feel more valued by an airline that offers in-flight connectivity, and 69% would choose a carrier which provides the service.

The survey was conducted during August and September 2015, with responses from more than 6,000 passengers who had taken a European flight in the past year and had carried at least one personal device (smartphone, tablet or laptop) with them onboard the aircraft.

Overwhelming Demand

The survey found that 80% of passengers would use broadband onboard if given the opportunity, driven by their growing reliance on personal device usage on the ground. More than 3 out of 5 passengers reported that they need in-flight connectivity.

While the survey revealed that business-related demand was high, business travellers confirmed that they connect their devices for leisure purposes as much as, or even more than, leisure travellers. This trend further underlines the extent to which staying connected has become a fundamental aspect of everyday life.

Web browsing and email usage continue to dominate in-flight demand across all age groups. 18-24 year olds were shown to be more likely to opt for games (43%) and video usage (37%); indicating a long-term trend towards more personalised in-flight entertainment delivered over Wi-Fi.

A Key Differentiator

The demand for in-flight connectivity was also shown to impact airline choice, and can be a differentiator for carriers which offer the service; making them a more attractive airline for pas-

sengers. 69% of those surveyed would choose to fly with an airline that provides on-board connectivity, while 67% would feel more valued by a carrier that makes the service available. This is especially the case with business travellers and other frequent flyers, whose choice of airline is more likely than average to be influenced by in-flight connectivity.

An Opportunity Airlines Cannot Afford to Miss

In addition to more satisfied passengers, investing in in-flight connectivity can also deliver additional returns. Among those survey respondents who indicated that they would connect their devices in-flight, some 67% would be willing to pay for the service. Within this group, some 63% of 45-64 year olds said they would be willing to pay; a figure that rises to 69% among 18-44 year olds. This result underlines the increasing reliance on connectivity and indicates that this level of demand is set to continue.

The Future of Flying is Connected

83% of the passengers included in the survey cannot envisage a future without on-board connectivity, agreeing that all aircraft will offer in-flight Wi-Fi connectivity within the next five to 10 years. The relatively short time frame and the significant proportion of passengers who see online access onboard as 'a given' reinforces that the industry is at a turning point in the adoption of universal in-flight connectivity.

Leo Mondale, President of Inmarsat Aviation, commented: "In a highly competitive environment, where airlines are vying to stand out from the crowd, onboard connectivity is a powerful differentiator. Connected passengers are happier passengers, who not only feel more valued by their airline, but would go as far as opting for a carrier that provides in-flight Wi-Fi over one which doesn't. Additionally, with a majority of passengers across all age groups willing to pay for onboard connectivity, this is an opportunity that the airline industry simply cannot afford to miss.

"Airlines invest millions in complex programmes such as cabin re-designs to maintain their competitive advantage, but there is one passenger demand they can meet today with a speedier return on investment: in-flight connectivity. This unstoppable wave is here to stay, and the overwhelming majority of survey respondents already cannot envisage a future without it. It is imperative that airlines look at how to respond to this demand today and look beyond a short-term answer, to a partner that can meet future demand. Inmarsat has the infrastructure, commitment and investment power to always deliver the best capacity – not only now, with our advanced Global Xpress and European Aviation Network solutions, but also in the future."

NSR Forecasts Military Satellite Market Growth

Cambridge, MA, September 21, 2015 – NSR's newly released Government and Military Satellite Communications, 12th Edition report forecasts demand from global government and military customers for satellite communications continues to grow – but challenges persist in terms of budgets, proprietary versus commercial offerings, and how new technologies fit into the Government and Military users' agenda. With more than 80 Gbps of HTS capacity demand, and more than $8 Billion in Retail Revenues by 2024, there continues to remain bright spots of activity in what looks to be an improving market in a disputed spending environment.

"2018 will be an inflection point for military mobility where a steady shift away from traditional Land-centric applications towards Maritime and Airborne applications will occur," states report co-author and Senior Analyst, Brad Grady, "That shift comes not only as battlefield strategies continue to become more mobile, flexible, and rapidly deployable – but, as the theatre of operations slowly shift to wider conflict zones, and oceanic environments."

Market Briefs

Key industry trends and opportunities

"For Unmanned platforms, high data rate applications like slow motion HD videos will drive demand in HTS terminals towards the latter part of the forecast. However, Ku-band terminals are expected to retain the major share of UAS in-service units until 2024," stated report co-author and NSR Analyst Prateep Basu. Combined with GEO-HTS and L-band offerings, UAS platforms will account for the majority of retail revenue gain for managed services – more than 30% of this $4 billion market over the next ten years.

Beyond mobility applications, Fixed VSAT markets have been particularly hard-hit, as terrestrial options even in remote or austere environments expand and forward deployed locations see consolidation. Here again, HTS and "military-friendly" frequencies such as FSS/GEO-HTS Ka-band or FSS X-band will be bright spots of growth. Likewise, narrowband land-mobile applications for troop and vehicle tracking, C2 applications, and otherwise connecting disadvantaged end-users will be the largest source of new In-service units over the next ten years – fueled by the steady refresh and replenishment of equipment coming back from deployment.

As the market transitions towards HTS and mobility, bulk leasing will continue to be hard-hit and decline over the next ten years – feeling the pressure from proprietary capacity, budget cuts, intensifying price competition and troop draw-downs. With emerging markets leaning more towards a managed service model, and increasingly strong talks in developed markets, the commercial satellite services value-chain will have a large role to play in the Government and Military Markets over the next ten years.

Government and Military Satellite Communications, 12th Edition, explores the market opportunities available to the satellite industry. With over a decade of insights and analysis, NSR's longest-running report on the government & military satellite communications market provides an in-depth view at the drivers, regional trends, and capacity demand through 2024. Incorporating everything from capacity demand via emerging Non-GEO HTS opportunities, to legacy MSS Narrowband offerings, the report provides an in-depth forecast of the future outlook for the government and military markets.

For additional information on this report, including a full table of contents, list of exhibits and executive summary, please visit www.nsr.com or call NSR at +1-617-674-7743.

UAV Market to Reach Nearly US$ 100 Billion

Unmanned Aerial Vehicles (UAVs) continue as the most dynamic growth sector of the world aerospace industry this decade, report Teal analysts in their latest market analysis. New unmanned combat aerial vehicle programs, commercial, and consumer spending all promise to drive more than a tripling of the market over the next decade.

Teal Group's 2015 market study estimates that UAV production will soar from current worldwide UAV production of $4 billion annually to US$ 14 billion, totaling US$ 93 billion in the next ten years. Military UAV research spending would add another US$ 30 billion over the decade.

"The market for UAVs looks very strong, increasingly driven by new technologies such as the next generation of unmanned combat systems, and the development of new markets such as civil and consumer drones," said Philip Finnegan, Teal Group's director of corporate analysis and an author of the study.

This year's study includes consumer UAVs for the first time because of their rapid growth and the blurring of the commercial and consumer markets. "Consumer UAVs are showing that they can do many of the easier commercial missions such as simple real estate photography," Finnegan said.

Civil UAV Market

"Our coverage of the civil UAV market continues to grow with each annual report, mirroring the increase in the civil market itself," said Finnegan. "Our 2015 UAV study calculates the UAV market at 72% military, 23% consumer, 5% civil cumulative for the decade." Of the three areas, civil UAVs grow most rapidly over the forecast period as airspace around the world is opened, but it grows from a very low base.

"The Teal Group study predicts that the US will account for 64% of total military worldwide RDT&E spending on UAV technology over the next decade, and about 38% of the military procurement," said Teal Group senior analyst Steve Zaloga, another author of the study. The larger, higher value systems procured by the United States help drive the relative strength of the US market over the decade.

The 12th edition of the sector study, World Unmanned Aerial Vehicle Systems, Market Profile and Forecast 2015, examines the worldwide requirements for UAVs, including UAV payloads and companies, and provides ten-year forecasts by country, region, and classes of UAVs.

Teal Group analysts already cover the UAV market in their World Missiles and UAV Briefing, which examines the UAV market on a program-by-program basis. Sensor payloads are also treated in Teal's Military Electronics Briefing. The sector study examines the UAV market from a complementary perspective, namely national requirements, and includes both a comprehensive analysis of UAV system payloads and key UAV manufacturers.

UAV Payloads

The 2015 study provides 10-year funding and production forecasts for a wide range of UAV payloads, including Electro-Optic/Infrared Sensors (EO/IR), Synthetic Aperture Radars (SARs), SIGINT and EW Systems, and C4I Systems, forecast to double in value from $3.1 billion in FY15 to $6.4 billion in FY24. EO/IR is still the default sensor for the vast majority of UAVs, but recent years have seen up-and-down

funding and considerable uncertainty, as legacy endurance UAV production has ended.

New sensor markets will see great increases as radio frequency (RF) systems supplant EO/IR capabilities, and next-generation UAVs at all scales require much more sophisticated - and expensive - sensors. "Rapidly increasing capabilities for RF sensors will be funded, as potential conflicts shift from clear-skies Central Asia to the more restrictive geographies of Eastern Europe and the Pacific," according to Dr. David Rockwell, author of the electronics portion of the new study. "And out-years UCAV and nano-UAV procurements will see much more expensive and capable sensors."

"UAVs will continue to provide the world's fastest-growing aerospace payload market, but not through continued growth of 'the usual suspects' from the past decade. Instead, new sensor programs for current and future air vehicles will result in more unexpected growth spurts and losses. We now forecast a number of speculative new programs in the out-years, including estimates of classified programs. Wise companies will plan today for growth tomorrow," according to Dr. Rockwell.

UAV Companies

The study also includes a UAV Manufacturers Market Overview that reflects the worldwide UAV market "again continuing as one of the prime areas of growth for defense and aerospace companies," said Finnegan. The new study reflects the rapid growth of interest in the UAV business by covering almost 50 U.S., European, South African and Israeli companies, and reveals the fundamental reshaping of the industrial environment as UAV technology proliferates worldwide.

As prime contractors and small companies compete in the dynamic UAV market, they are adopting widely different strategies. "Our overview tracks the widely varying approaches being taken by these key companies, ranging from outright acquisitions to teaming arrangements and internal development of new UAV systems," said Finnegan.

"UAVs are no longer of interest only to aerospace companies, but increasingly technology companies like Google, Facebook and Amazon see a need to be in the market," he said.

The Satellite Markets 25 Index™

Company Name	Symbol	Price (Oct 09)	% Change from Last Month	52-wk Range		% Change from Jan. 02, 2015
Satellite Operators						
Asia Satellite Telecommunications Holdings Limited	1135.HK	11.12	-16.39%	10.66	33.50	-58.66%
Eutelsat Communications S.A.	ETL.PA	30.10	13.93%	23.33	32.71	12.31%
APT Satellite Holdings Ltd.	1045.HK	6.89	34.05%	5.03	9.83	-37.14%
Inmarsat Plc	ISAT.L	937.50	-3.00%	653.00	1056.00	18.67%
SES GLOBAL FDR	SES.F	28.75	8.82%	25.277	34.90	-2.87%
Satellite and Component Manufacturers						
The Boeing Company	BA	139.70	9.62%	115.14	158.83	7.44%
COM DEV International Ltd.	CDV.TO	5.32	11.30%	3.45	6.22	32.01%
Macdonald Dettwiler & Associates Ltd.	MDA.TO	73.86	-3.70%	70.55	101.42	-22.06%
Lockheed Martin Corporation	LMT	213.26	7.91%	166.28	216.27	10.08%
Orbital ATK, Inc.	OA	78.78	6.69%	56.06	140.61	197.00%
Ground Equipment Manufacturers						
C-Com Satellite Systems Inc.	CMI.V	1.11	16.84%	0.92	1.50	-19.57%
Comtech Telecommunications Corp.	CMTL	23.34	-9.32%	20.30	40.69	-26.16%
Harris Corporation	HRS	75.73	1.46%	60.78	84.78	5.68%
Honeywell International Inc.	HON	101.16	5.42%	82.89	107.41	0.76%
ViaSat Inc.	VSAT	70.15	19.89%	52.26	71.38	12.73%
Satellite Service Providers						
Gilat Satellite Networks Ltd.	GILT	3.64	-11.65%	3.36	7.07	-23.85%
Iridium Communications Inc.	IRDM	6.83	-2.15%	5.85	11.36	-29.44%
ORBCOMM, Inc.	ORBC	6.55	11.21%	5.27	7.62	0.00%
TeleCommunication Systems Inc.	TSYS	3.65	8.63%	2.73	4.24	16.99%
RRSat Global Communications Network Ltd	RRST	7.23	0.00%	-	-	0.00%
Consumer Satellite Services						
DIRECTV	DTV	93.55	0.00%	-	-	7.91%
DISH Network Corp.	DISH	62.56	5.60%	54.62	80.75	-13.53%
Globalstar Inc.	GSAT	1.90	19.50%	1.45	3.58	-29.10%
Sirius XM Holdings Inc.	SIRI	3.85	2.39%	3.14	4.04	10.47%
SKY DEUTSCHLAND	SKYD.MU	6.7660	0.09%	5.96	6.93	0.53%

INDEX	Index Value (Oct 09)	% Change from Last Month	% Change from Jan. 02, 2015
Satellite Markets 25 Index™	1,993.30	1.37%	8.65%
S & P 500	2,014.89	5.28%	-2.20%

The Satellite Markets 25 Index™ 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™ is January 2, 2008--the first day of operation for Satellite Market and Research. The Index equals 1,000. The Satellite Markets Index™ provides a benchmark to gauge the overall health of the satellite industry.

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CASBAA Convention 2015
Making Waves in the Broadcast Industry

Intercontinental , Hong Kong, October 26-28, 2015

This year's CASBAA Convention looks at the monumental sea change that is being experienced by the TV industry, and will explore how technologies, content, and services are leading the charge as the broadcast and digital landscapes become increasingly intertwined.

With the theme 'Making Waves', the convention will highlight how new business models are helping companies navigate these uncharted seas and take a look at the disruptors who are churning up the waters of business as usual.

One of the must-attend events on the Asia Pacific broadcast industry calendar, the annual CASBAA Convention is renowned for gathering a heavyweight speaker line up from key organizations across the industry to discuss the pertinent issues facing the TV business now and in years to come. With the convention 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 plenary sessions.

"Linear TV is still a major force in the Asia Pacific region, but there is no denying that the industry today is in a state of flux," said Christopher Slaughter, CEO, CASBAA. "These are very exciting times. Never before has there been such a strong opportunity to provide and distribute content to the 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 business models and strategies that will help provide dynamic content across a number of different screens."

This year's convention has the underlying theme of "disruption" running through all the sessions, which will include the latest developments in over-the-top (OTT) services, new programme formats, the role of venture capital in the TV industry and the latest advancements in technology, as well as the ever-critical matters of piracy, broadcast rights, and licensing issues.

The impressive list of speakers who have signed up to date to share their views include: Li Ruigang, Chairman, China Media Capital; Tom Mockridge CEO, Virgin Media; Dominic Proctor, Global President GroupM; Alon Shtruzman, CEO International, Keshet Media; David Shing, Digital Prophet, AOL; Jay Samit, CEO Seachange; Lauren Zalaznick, founder of the LZ Sunday Paper; Sam Rogoway, CEO, Victorious; Partho Dasgupta, CEO BARC India; and Mark Howard, Chief Revenue Officer, Forbes Media.

The CASBAA Convention also provides plenty of opportunity for members and delegates to meet and interact with industry colleagues. As well as the booth display area and networking lounges for guests to relax, there are the popular networking parties.

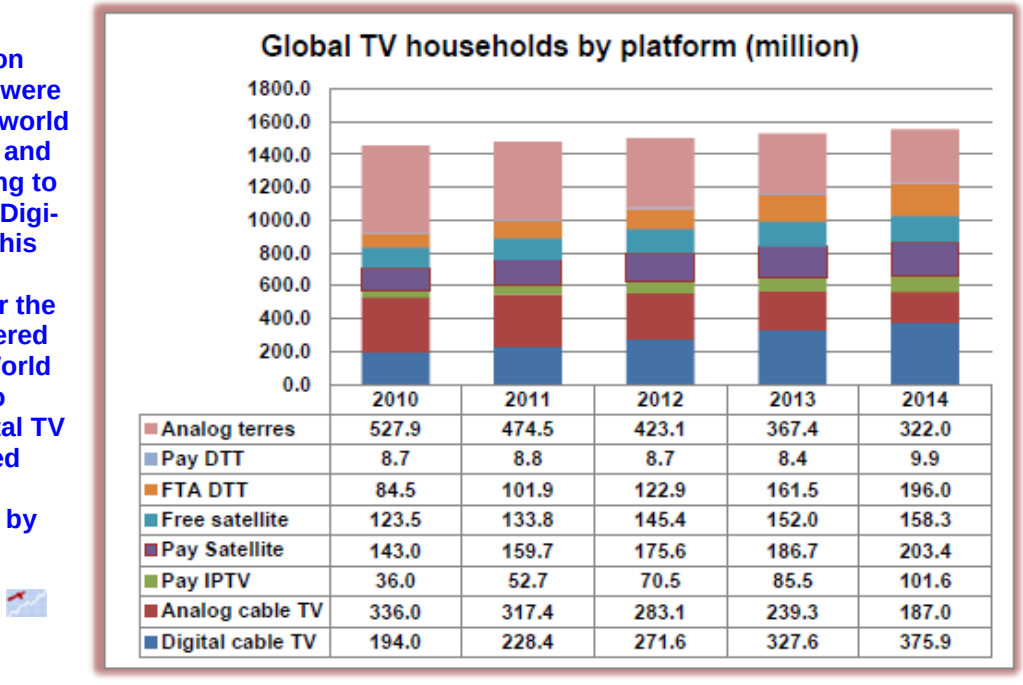
Supporters for the CASBAA Convention 2015 include: ABS, APT Satellite, France 24, InvestHK, ITV Choice, MEASAT, PwC, RTL CBS Asia, Scripps, Networks Interactive, SES, Time Warner, True Visions and Turner.

For further information about the CASBAA Convention 2015, please visit www.casbaaconvention.com.

Advertisers' Index

One Billion Digital TV Households

About 455 million digital homes were added around the world between end-2010 and end-2014, according to a new report from Digital TV Research. This took the digital TV household total for the 138 countries covered in the Digital TV World Databook report to 1,045 million. Digital TV penetration climbed from 40.5% at end-2010 to 67.2% by end-2014.



	2010	2011	2012	2013	2014
Analog terres	527.9	474.5	423.1	367.4	322.0
Pay DTT	8.7	8.8	8.7	8.4	9.9
FTA DTT	84.5	101.9	122.9	161.5	196.0
Free satellite	123.5	133.8	145.4	152.0	158.3
Pay Satellite	143.0	159.7	175.6	186.7	203.4
Pay IPTV	36.0	52.7	70.5	85.5	101.6
Analog cable TV	336.0	317.4	283.1	239.3	187.0
Digital cable TV	194.0	228.4	271.6	327.6	375.9

Source: Digital TV Research Ltd