

Satellite Executive BRIEFING

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Industry Trends, News Analysis, Market Intelligence and Opportunities

The Business of Content Management and Distribution

by Daniel Freyer

Running a media client's channel playout, or network origination typically provides a strategic leg up to providing their satellite distribution. Media service companies on the global scene say their business today is increasingly about how to orchestrate content preparation and workflows, rather than just playout and delivery.

The nature of broadcast distribution demand continues to change rapidly in many regions amid the backdrop of new delivery screens, OTT and online. According to Euroconsult's most recent report (December 2014), *Satellite Pay-TV: Key Economics & Prospects*, the global satellite Pay TV industry has

observed strong growth in the past five years despite an increasingly competitive TV landscape where IPTV, DTT and connected entertainment services have rapidly expanded their reach. Emerging markets now account for 60% of global Pay TV subscribers, as well as nearly 100% of subscription growth, according to the report.

Globecast, Arqiva Satellite & Media, Encompass Digital Media, and RR Media are some of the major

providers of media services via satellite. According to the World Teleport Association (WTA) they were all ranked among the top 10 largest independent (non-satellite operator) teleport operators of 2014. As broadcast executives and technologists from around the world prepare to head to the NAB 2015 trade show in Las Vegas this month, *Satellite Executive Briefing* spoke with leading providers of satellite-based media distribution services about the latest developments in their markets around the world.

At NAB 2015, Globecast will promote its newly announced media management capabilities, and its ability to offer a one-stop shop for media

management, playout, satellite and Over-the-Top (OTT) distribution. Globecast, which is the largest among its peers, with services on 27 satellites, 96 transponders, 55 DTH platforms, 17 teleports and four origination facilities, has been launching what it calls Media Centers around the world. Its aim: to move beyond the company's traditional position as the largest independent teleport operator and satellite services provider, to becoming an integrated,

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The business of broadcast distribution is changing rapidly in many regions amid the backdrop of new delivery platforms.

(photo: Globecast's new Media Factory in LA)

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New Entrants



At the Satellite show held in Washington D.C. last month, one of the key topics of discussion was the announcement of new Low Earth Orbit (LEO) satellite constellations by various companies backed by media moguls like Virgin's Richard Branson. Our Associate Editor, Elisabeth Tweedie writes a good overview of who's who in the various competing LEO systems in her article on page 30 of this issue.

Just little over a month after the high profile announcements, the industry is already shaken up by the LEO ventures. The various players in the new LEO systems will introduce over 4,000 new satellites in the next few years, if all goes to plan. So, naturally, satellite manufacturers and launch service providers are keen to get their business. The entry of highly successful entrepreneurs in the satellite industry provides a welcome boost.

There is one caveat. There have been several global LEO constellations planned in the latest 90s that ended up in bankruptcies or necessitated the refocusing of their business models such as Iridium and Globalstar. Much has changed in the last 20 years, but the regulatory, financial and technical challenges of building a LEO constellation remain daunting. However, if anyone can make a go of LEO systems, this new crop of billionaire entrepreneurs should fit the bill.

Virgil Labrador, Editor-in-Chief

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Head of Global Engineering,
ABS-CBN

Andrey Kirillovich
Director of Integration and Projects
RSCC

Grant Whipple
Director of Sales,
Winegard



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*
Jan Grøndrup-Vivanco, *Paris*
Roxana Dunnette, *Geneva*

Asia-Pacific: Tom van der Heyden,
Manila, Chris Frith, *Australia*,
Riaz Lamak, *India*

Intern: Niko Rodriguez

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e-mail to:

sales@satellitemarkets.com

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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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The Business of Content Management and Distribution ...From page 1

global media solutions provider.

In March 2015, Globecast announced the completion of a new Media Factory facility at its Los Angeles teleport, as well as a new Media Hub in Miami. The new facilities, along with the already established Media Factories in Singapore, London and its Media Centre in Paris, form a global, interconnected network that can deliver media services in all locations.

Eddie Ferraro, Globecast's Managing Director in the U.S., says the company is "Offering broadcasters and content providers a converged workflow to prepare, deliver and playout content to any kind of distribution platform. We see this as key to our strategy moving forwards. The new facility, which has been upgraded to include Globecast's Media Factory for content logistics and converged workflow, brings broadcast and OTT solutions together under one roof, handling both linear broadcast and on-demand services."

First announced last September 2014, The Media Factory goes beyond traditional media management, logistics and playout. Globecast has a partnership with BBC Worldwide to provide services including content prep, playout and distribution for up to 30 channels globally.

The Globecast service expansion news follows CEO Olivier Barberot's February 2015 announcement that the company had completed a re-organization in order to operate on a more unified manner across its territories around the world. The company operates facilities in Europe, the Americas, the Middle East, Asia, Africa and Australia. In the past a larger degree of country-specific autonomy was practiced in some of its regions.

Investing in UHD and 4K

Media service providers are investing in



Last September 2014, teleport operator RRsat rebranded their company as "RR Media" to reflect the company's updated vision to provide a truly global ecosystem of digital media services.
(image: RR Media)

new media management systems to support multi-screen web-resolution formats, but there is also growing demand for next-gen, Ultra High Definition (UHD / 4K) support, and satellite distribution providers are positioning to address it.

A research report released in the fourth quarter of 2014 from Parks Associates projected that more than 46 million households worldwide will subscribe to a 4K UHD pay-TV service by 2018. The higher bandwidth linear signals could boost demand for satellite capacity as well. In the US, DirecTV has launched 4K VOD services, and will begin linear satellite feeds in Q2. Tata Sky is introducing 4K DTH broadcasting in India. SES is promoting test UHD signals, and Eutelsat launched a promo signal with ST Teleport of Singapore over Asia.

Citing a market projection from IHS Screen Digest Insight which projects that by 2020, 100 million households worldwide will have UHD capable screens, RR Media (formerly RRsat) expects to tap more customers' needs to prepare and distribute 4K content. RR Media has already begun distributing channels in 4K such as France TV and the Explorer Network via its "smart global network" over satellite and fiber. These channels feed direct-to-home

platforms across Europe to millions of viewers.

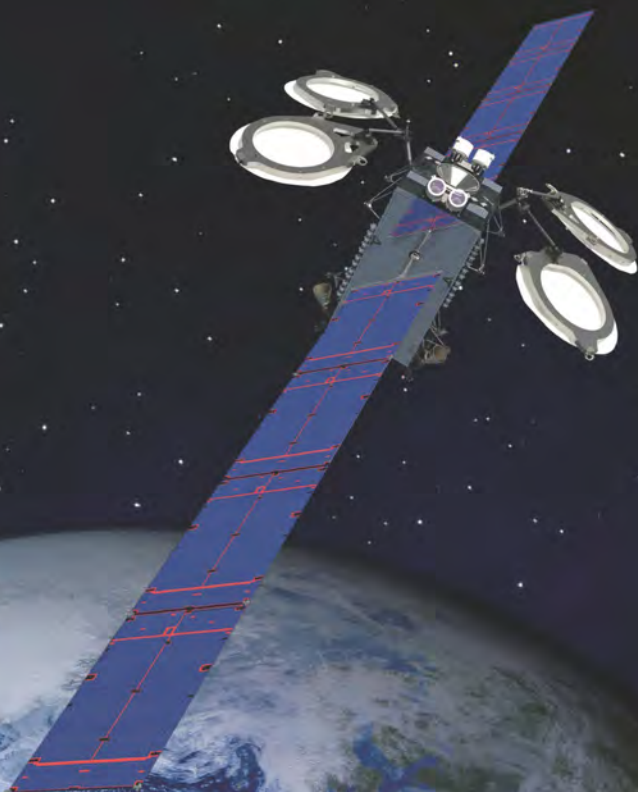
At NAB 2015, the company is announcing the expansion of its 4K capabilities across the entire content lifecycle, from creation through to consumption. This includes the preparation and creation of content and delivery. To help rights holders monetize content, RR Media has installed new state-of-the-art content management facilities in the US and UK to complement its center in the Middle East.

Last September 2014 at the IBC in Amsterdam, RRsat announced its corporate rebrand to the new RR Media, signaling the company's updated vision to provide a truly global ecosystem of digital media services and expand down the food chain beyond its traditional satellite distribution, teleport and playout services. The NASDAQ-traded RRsat's ticker symbol has also changed to "RRM." The company reported 2014 revenues of US\$ 131.2 million, up 7.7% vs. 2013, with a gross margin of 24%. The core business of content management and distribution reached 25% in Q4 of 2014.

Chasing bigger global customers, including global media conglomerates, the company began expanding its U.S assets with the acquisition of its Haw-

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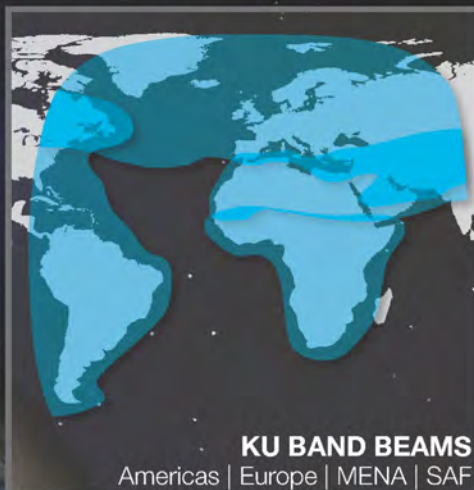
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ley Teleport from Skynet in 2008.

In addition to putting a new face on the company name with its re-branding activities, RR Media has recently put a new face on its North American leadership, tapping industry veteran Douglas (Doug) Parrish as its new President for the Americas. Earlier in his career at Ascent Media Group, Parrish was involved in some of the pre-Encompass Digital Media building of that company's predecessor. Given his prior experience including EVP and CTO of the Walt Disney Internet Group, Parrish is also charged as RR Media's Head of Global Online Business Unit, a critical focus area for future growth.

"Acquisition and distribution pipelines are changing," says Parrish. "Some would say satellite is dead and fiber will dominate, but I don't think it will happen as quickly as some people think. I think there is a fusion of those kinds of services with new media stuff. We increasingly are taking traditionally delivered satellite feeds and transforming them into delivery for online. We see the technical infrastructure fundamentally changing as it relates to networking."

UK-headquartered Arqiva provides media management and international broadcast distribution for over 500 services worldwide over satellite and terrestrial IP, including Europe, Asia, and the Americas. According to David Crawford, Managing Director of Satellite and Media at Arqiva, "Demand for full time linear contribution is being challenged by non-satellite technologies." He believes this will continue to occur as the price points drop and service levels improve around fiber and IP connectivity. "However, we see demand remaining stable for occasional use satellite contribution as there is ongoing need to deliver high levels of service and availability for live sport to reach regional and global audiences," says Crawford.

"We see an increasing demand from

"...Acquisition and distribution pipelines are changing. Some would say satellite is dead and fiber will dominate, but I don't think it will happen as quickly as some people think. I think there is a fusion of those kinds of services with new media stuff. We increasingly are taking traditionally delivered satellite feeds and transforming them into delivery for online. We see the technical infrastructure fundamentally changing as it relates to networking..."

-Douglas Parrish, President, Americas, RR Media



existing customers for Arqiva to provide OTT (over the top) and VOD (video on demand) applications as they seek to exploit broadband delivery of channels: this in turn requires the ability to provide full media management services which we have been offering customers for more than a decade." With its wide range of services that enable customers to publish content once and then distribute anywhere, anytime, Crawford says Arqiva is well positioned to win deals for managing media for both linear and non-linear consumption, and increasingly international distribution of content via its satellite and fiber platforms.

Encompass operates media management and playout facilities in Atlanta, Los Angeles and the New York metro area (Stamford, CT), in addition to Buenos Aires, London and Singapore, and is the largest independent provider in North America. Encompass' CTO Alan Young offers a similar view of the challenges today in playout services, which are often strategic components to winning satellite distribution contracts. "Providers are feeling the pressure from customers to go online, not just for the linear channels, but also to make discrete or on-demand content that goes into making the linear channel available as well for online con-

sumption. How to manage those requirement most efficiently is the biggest challenge in relation to the market," says Young.

In the past, and in a tape-based world, it made sense for Control Room suites, Master Control Rooms (MCRs), post-production, libraries, and uplink facilities to be under the same roof. "Now, with IP network switching routing capability, and now that IP bandwidth is so cheap, you can have big equipment centers either collocated inside of generalized cloud environments, or at a CDN facility," according to RR Media's Parrish. Media businesses can move their MCR into production areas, instead of putting production areas under the same roof with the MCR.

"The big opportunity from the major media customers, who are in multiple facilities around the world based on tape, is they would like to be able to control more of their production services in a consistent way around the world," says Parrish. "If I have teleports in key places, collocation facilities built in with a variety of co-location companies, plus content localization centers, you could, for example, as a programmer like Disney, run a global channel from LA, even though some content localization, people and con-

tent may reside in Ukraine, for instance. But the technical operation is being handled consistently around the world."

"We are moving into more playout, and just announced we have lit up a remote MCR (Master Control Room) in Metro New York and London that control infrastructure in Israel and US teleports," says RR Media's Parrish. Last week, RR Media revealed that it was running dozens of channels from the two additional MCR facilities, which bring it closer to key target markets, as the company seeks to expand what it says is a "virtualized infrastructure" that delivers global, scalable media solutions accessible from anywhere in the world.

North American Distribution

The playout market in North America that RR Media is expanding into is dominated by Encompass Digital Media, whose strength in playout services has helped to anchor its share of the satellite distribution market. North American satellite distribution market dynamics are changing too.

According to Encompass' CTO Alan Young, "The evolving needs of its North American customers who use satellite today are driving Encompass to build a hybrid network, with regionalized feeds, and mezzanine feeds. The only way in my opinion to do that is to build a hybrid terrestrial fiber - satellite network under a single unified management."

The ever-increasing price depression in North America, and unwillingness of customers to sign long term satellite capacity agreements, are part of the challenge, he says. "Customers want the flexibility to be able to go terrestrially if and when they deem it possible and economically viable. Today satellite is just one way of delivering. Now, managing which content is distributed through which method, at what time, and in what format, is getting increas-

"...Providers are feeling the pressure from customers to go online, not just for the linear channels, but also to make discrete or on-demand content that goes into making the linear channel available as well for online consumption. How to manage those requirement most efficiently is the biggest challenge in relation to the market..."

-Alan Young, CTO, Encompass Digital Media



ingly complicated."

Cable satellite programmers who are looking to be able to customize or regionalize their services are asking for new features, such as the ability to generate a feed that has different adverts, depending on what media it is going to, or even different content. "That's relatively straightforward in an online environment, but not so with satellite multipoint, because all sites receive the same feed," according to Young, "but more complex to manage in a hybrid environment."

One trend in the US cable market is that some programmers are requesting higher quality satellite distribution to cable head ends so that the cable operator can apply greater compression to the signal than in the past. Instead of sending a 5-10 Mbps HD signal using MPEG4/H.264 compression over satellite, which Young says is typical distribution quality today, some customers are asking for Mezzanine Quality (20-40 Mbps with MPEG4/H.264).

"We've been asked how to deliver mezzanine quality, and regional feeds to the cable systems, and that's driven us to a more hybrid approach, using both satellite and terrestrial delivery. We might deliver (mezzanine-compressed) terrestrial feeds to perhaps 20% of the market, and satellite acts as backup to those systems, while satellite-based distribution quality is

the primary and only path to the lower 80% of the market. It is becoming satellite and terrestrial (distribution) and the key to providing this service is unified network management," Young argues.

Positioning to manage hybrid distribution, Encompass Digital Media can leverage its experience as both one of the largest uplink providers of video channels for cable, and satellite and in managing and authorizing over 130,000 Integrated Receiver Decoders (IRDs) for client networks around the world.

Last week, in the run-up to NAB, Encompass announced its new broadcast-focused mux service to Intelsat's Galaxy-19. The linear distribution service targets the over-the-air digital sub-channels (DTV) market, and Encompass said it would add a second transponder.

"We have seen a steady increase in our digital sub-channels business over the last year," said Vince Matherne, Chief Product Officer for Encompass. Encompass has worked closely with network distributors to develop technology that fits the unique requirements for this type of broadcaster, to integrate mux support for advanced secondary event triggers and reduced throughput to enhance the primary distribution of off-air stations. These kinds of features can enable more efficient local advertising insertion so pro-

grammers and station generate more ad revenue.

Geographic Trends in a Global Marketplace

Although growth in many mature markets for linear channels is soft as new consumer delivery devices and viewing habits disturb traditional broadcast models, there is still plenty of room for market growth in traditional linear services in niche and emerging markets.

Addressing this dynamic by expanding our fibre and IP-based solutions to complement the global trend for channel localization,” says Crawford.

According to Crawford, within the UK market, the company is currently focusing on supporting the growth of HD services of its customer base by helping them make the transition from SD to HD. One driver of growth has been new sports services for UK. Demand for HD continues to grow steadily, but demand for UHD is mainly concept stage only.

(WTA) has consistently ranked STN in its Annual “Fastest Growing Teleports” where it placed in the Top 10 globally in the latest survey done in 2014. Founded in 2004, the privately owned company has rapidly grown to one of the world’s largest broadcast playout and uplink facilities of its kind. STN transmits over 500 channels for its clients, with platforms on 17 satellites, with extensive coverage in Europe, the MENA region, Asia, Africa, Australia, North America and South America. It also manages a fiber network with 17 POP to connect clients from major



STN's Europe based state-of-the-art teleport, in Slovenia. (photo courtesy of STN)

Arqiva's David Crawford sees market dynamics varying significantly by region. “In the UK, we are still witnessing healthy growth of our UK DTH satellite-based business and have recently added satellite capacity,” says Crawford. “This reflects on-going demand from a wide range of broadcasters to be part of the Sky and Freesat platforms either in SD and/or HD and to work with an organization that can provide consistently excellent service and rapid turn-around times.

“In Continental Europe, we have seen a softening of demand for traditional linear contribution services via satellite as our broadcast customers face consistent cost challenges. We are ad-

“We have the scale and financial backing to invest in future opportunities, new technologies and new operating approaches,” argues Arqiva's Crawford. Similar statements are echoed by Encompass Digital Media and Globecast executives.

From Eastern Europe to the Middle East, Africa and Beyond

While global scale brings distinct advantages, nevertheless, exciting profit margins are not easy to come by, and the market is by no means the exclusive domain of these big global players. A case in point is Satellite Telecommunications Network or STN, of Dob, Slovenia. The World Teleport Association

global and Eastern Europe metros.

As a relatively smaller player compared to Globecast, Encompass and Arqiva, STN strives to turn and adjust to the market very quickly. The company has been quite a success story. “Everyone else is looking at add-on services from IPTV and OTT,” says Mitja Lovsin, Director Marketing & Sales for STN, “but traditional services for satellite distribution are still growing in some parts of the world. Because we are in less developed markets, we haven't seen a change or downturn in services. We are constantly looking at huge demand and huge growth in this area. We grew 15% vs. the previous year, and expect 15% from 2015. We think the



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trend will be the same the next few years.” According to Euroconsult’s December 2014 report, emerging markets should account for nearly 100% of growth in global Pay TV subscriptions, revenues and number of TV channels by 2023.

Middle East Media Growth, Capacity Challenges

One area where STN has found success is the Middle East, especially in distribution worldwide for regional broadcasters. “We have become a very strong player in the Middle East, and 30% of our revenue comes from there,” says Lovsin. A key market challenge, he says, is “Channels are growing, but there is no good capacity available on the popular satellite orbital position, such as Badr, Nilesat, and Es’hailSat. These three main players control probably 90% of the Middle East channel distribution market. Because they are virtually sold out, “Demand is much bigger than the available satellite capacity.”

The tight capacity market creates an incentive for better space segment efficiency. Because of the lack of space on the most demanded orbital locations in the Middle East, programmers are pushing hardware vendors to advance H.265 and higher modulation in order to create more capacity, according to Lovsin. “The only way to get new space immediately on these spots is better channel bit rates, for example if 3-4 Mbps can be reduced to 1.5 Mbps for a new channel.” He believes there is huge pressure from the market on Cisco, Harmonics and Ericson to develop H.265 in the Middle East. “There are more and more HD channels in the Middle East, Asia Africa and now you can really see them picking up. I think 4K will pick up too, although it’s way to expensive now.”

Huge Demand for Africa, and Asian Investments

Africa is another big growth driver for

“...Success will go to those who can best deliver the right technology solutions, whether as a service provider facing the challenge of continuing to more efficiently deliver and grow linear channel services in emerging economies...”

STN. “Two years ago Africa started to pick up and we started lots of distribution on the most popular satellites over Africa. Since there is no or little cable, or fiber, most customers are looking for traditional satellite DTH television,” says STN’s Lovsin. “For French-speaking and sub-Saharan Africa, there is huge demand, and only a few big players, who are constantly adding to new services, so we launched 150 new channels last year and expect 100 or so more channels into the market.”

An interesting dynamic in African media is the impact of Asian investments. “We are doing a lot of services for Chinese customers,” he says, “and they are really taking over the telecoms market, not only broadcasting, but there is a huge investment from China going into Africa,” added Lovsin.

Entertaining Asia

The Asia-Pacific continues to be a source of media services customer growth for providers, as HD penetration grows, and 4K services start to get introduced.

In January, Encompass reported that it had hit the milestone of transmitting 16 full-time C-band carriers to 16 transponders over 6 satellites from its Singapore facility, via Intelsat, MEASAT-3a, and AsiaSat, making it one of the largest teleports in Asia. Last May, the company launched a new monitoring and playout facility with linear and OTT delivery options there, with a US\$ 7 million investment, including advanced M&C functions.

Also growing in Asia, Globecast signed a deal on MEASAT-3 to distribution HGTV in HD. Globecast provides playout, content preparation, and post services to Scripps Networks’ regional channels (HGTV, Asian Food Chain, Food Network, and Travel Channel) across the Asia Pacific. Notably, with the addition of HGTV, MEASAT’s 91.5°E video neighborhood has grown to 57 HD channels distributed, making it Asia’s strongest C-band HD platform, according to the satellite’s owner MEAST of Malaysia.

Satellite Media Professionals Must-See TV

The NAB Show is the world’s largest annual conference and expo for professionals who create, manage and distribute entertainment across all platforms. 98,000 attendees will travel from 159 countries to the NAB Show, to be held from April 11-16 in Las Vegas. It continues to be a key gathering for satellite industry video professionals to meet, learn, share, and interact, so they can continue keep their customers on-satellite, and on-air.

Success will go to those who can best deliver the right technology solutions, whether as a service provider facing the challenge of continuing to more efficiently deliver and grow linear channel services in emerging economies, or in facing the challenge of helping clients tackle OTT and TV Everywhere. It requires the right hardware, software, capital, and most importantly, talented people.




Daniel Freyer is the President of **AdWavez Marketing LLC** (www.ADWEAVEZ.com), a marketing agency serving the satellite industry. Since 1990, he has worked with leading spacecraft and ground equipment manufacturers, satellite operators, services providers, broadcasters, associations and trade events to grow their businesses and brands. He can be reached at dan@adwavez.com



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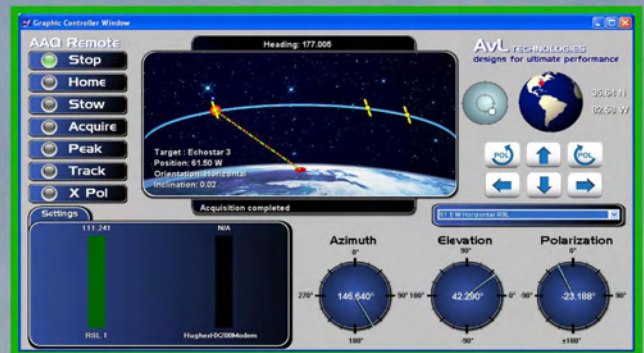
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Update on 4K TV

by Elisabeth Tweedie, Associate Editor

For the consumer electronics manufacturers the outlook for 4K or Ultra High Definition (UHD) is rosy. Worldwide shipments of UHD TV sets grew by 633% in 2014 with 12.1 million units being shipped. According to Strategy Analytics, this figure will continue to grow with 27.5 million shipments predicted for this year and over 100 million units shipping annually by 2018. Digitimes Research concurs with these figures, predicting shipments of 68.2 million or 26.6% of all TVs in 2017. Consumers apparently do not need 4K content in order to persuade them to buy 4K sets. In the US, this year's Super Bowl helped drive a boost in sales of the TV sets, even though the Super Bowl was not being shown in 4K.

If consumer devices were the only relevant part of the equation

it would be relatively safe to assume that 4K is a done deal, well on its way to mass-market penetration. However having the equipment to view 4K content is not the same as regularly being able to do so. Before 4K becomes mainstream there need to be many other changes in the ecosystem.

There needs to be a good supply of content. As Phil Goswitz, SVP Space and Communications /Technology Development, DirecTV, said so eloquently at Satellite 2015, three types of channel would drive the demand for 4K TV: "sports, sports and sports." This may well be true, but the key word here is "channel." The world cup only happens every four years. To fill a channel regular sporting events need to be shot and transmitted in 4K. That means equipping the majority of outside broadcast units or venues with 4K cameras and associated equipment and training the staff

to use it. Shooting in 4K requires new cameras, more cameras and a different technique when compared to HD. Cameras don't come cheap.

Important as sports are as a key driver, there is a need for other content as well. However this piece of the equation may be starting to fall in place, at least as far as the major US studios are concerned. Most, if not all, of the studios are producing content in 4K and down-converting for transmission, as a means of future-proofing their library.

Most importantly, there needs to be a means of getting that content to those 4K TVs. That means upgrading the studio playout equipment, storage equipment and providing a fatter "pipe" to the home. Using High Efficiency Video Coding (HEVC or H.265) the latest compression standard, a 4K program can be transmitted through a 20Mbps pipe. Remember, that for

broadcast content, this has to be a consistent 20Mbps and you start to see where problems may arise. Very few households have a guaranteed internet speed. Even households who have a fast connection, will see this dip during peak hours, and of course with multiple users in a household, that 4K movie that Mom and Dad are watching, may be competing with the online game being played by one teenager and the totally different movie being watched by another.

According to the latest State of the Internet report from Akamai, only 19% of unique IP addresses in the US have an internet connection above 15Mbps, bearing in mind that this figure also includes businesses, we can safely surmise that the vast majority of US households will not be able to view 4K over their existing "pipe." This issue is not confined to the US; of the 54 countries included in the report, nine



The availability of content is crucial for 4K TV to take off. Sports programming will be a key demand driver for 4K. (Image: Sony)

have between 20-29% of IP addresses connecting at above 15mbps and even South Korea only has 66% of unique IP addresses connecting at above 15Mbps. For the majority of the remaining countries we are looking at figures well below 5%.

All this is taking place against a backdrop of changing viewing habits. In the UK for example revenues from online streaming were £28 million in 2010; last year they reached £437 million and according to Mintel will be over £1B by 2019. In the US according to the CEA 63% of viewers now watch streaming video as well as, or instead of, a traditional service. Amongst 18-34 year olds this figure rises to 80%. The channel providers are still struggling to find the best way to preserve their income in the light of this change. Some like the BBC and ITV in the UK, make some of their content available on-demand, online for a limited time. In the case of ITV, viewers have the option of paying for this content in order to view it without advertisements. Others, like HBO in the US are trying a stand-alone subscription service. This service is due to be launched in April at a cost of US\$14.99 a month. On-demand programming can be viewed on iPhones, iPads, iPod Touches and Apple TVs.

New cameras, new studio processing, playout and storage equipment, upgraded infrastructure, what do all these have in common? They cost money; a lot of money. And therein lies the major problem. Upgrading from SD to HD required significant capital outlay, so it's not surprising that the key players are reluctant to undertake another round of major investment, so soon after the last one. An advertiser won't pay one dime more for an advertisement in 4K, than they will for an advertisement in standard definition (SD) or High Definition (HD). A viewer may well be willing to pay extra for sports or movies in 4K, but given the lack of 4K channels, at the moment this is on a per-event or Video on Demand (VoD) basis. It will take an awful lot of VoD to recoup the necessary investment in the infrastructure. So we have the classic chicken and egg situation. Without the guarantee of increased revenues, there isn't much incentive to upgrade the infrastructure to provide multiple 4K channels. Without those channels it may take a long time to reach the critical mass needed to justify the investment.

DirectTV is taking the leap of faith and have announced that it will have two satellites providing 4K programming. One was launched last year and the other is scheduled for later this year. At present this service has severe limitations. Viewers have to have a Samsung DirectTV ready 4K TV and a Genie HD-DVR connected to a non-4K TV in a different room. It is planned to add other manufacturers of 4K TV sets later this year. If you have the necessary hardware,



While the jury is still out on 4K TV, lurking in the wings is 8K TV highly touted by Japan's NHK.

each week, you will be able to view two movies – of DirectTV's choosing – instantly. This is achieved by these movies being downloaded in advance to the DVR. If you want to view any of the other movies (the website is cagey about how many there may be, saying it "varies from week to week") you have to plan ahead. It takes about twice the playing time of the movie to download it. So sports may be the "killer app" as Phil Goswitz said, but until the infrastructure changes it won't be possible to view in real time.

Dish is taking a more agnostic approach and will be launching the "4K Joey" later this year. This set-top box will connect with the 4K TVs in a home.

It must also be remembered that whilst HD may be the norm in the US, that is not the case worldwide. At the Symposium for Market Forecasts, held in Paris last September, Euroconsult indicated that there are currently fewer than 10,000 HD satellite channels world wide, compared to approximately 30,000 SD channels. If service providers decide to leapfrog and bypass HD in favor of 4K this could be a good thing for 4K, however if a service provider hasn't been able to justify the investment in HD, it may take a lot to persuade them to make the necessary investment for 4K.

Waiting may prove to be a good thing. In spite of all the hype and sales of TV sets, there are many issues yet to be resolved before there is even a common definition of UHD. Last July the European Broadcasting Union (EBU) set out its position on UHDTV. Included in the statements were mention of the fact that the current TV sets only provided higher resolution, i.e. more pixels. The UHDTV standard also includes higher frame rates, greater dynamic range, better color and immersive audio. The EBU is concerned that the current approach of the consumer electronics industry may



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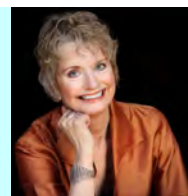
confuse the consumer and lead to dissatisfaction with 4K. To that end it is lobbying for DVB Phase 2 which would include the other elements.

The UHD Alliance was formed at the beginning of this year. Members include: Samsung, Netflix, Disney, Warner Bros., DirecTV, Dolby Vision, Technicolor and Panasonic. One of the objectives of this group is to decide precisely what is UHD. Like the EBU it thinks it should encompass more than just four times the number of pixels than HD. So they too are likely to push for the other elements being included in the definition – and of course the content! The interesting thing is that high dynamic range and increased color gamut can also be applied to HD, significantly improving that viewing experience.

And then, lurking in the wings is 8K. Japan's NHK is forging 4K and moving directly to 8K (also known as Super-Hi Vision). Michele Beck, VP North American Sales, Telesat cautioned during a panel at Satellite 2015 in Washington that "We're seeing a bit of caution in the market: broadcasters in Canada made huge investments in launching HD, and taking the next step will also be a major investment. They are deciding whether to start in 4K or to leapfrog directly to 8K, and wait a few extra years." Peter Ostapiuk,

VP Media Product Management, Intelsat, echoed Michele's sentiment, saying that he was seeing a "tempering down of enthusiasm for 4K."

So will 4K go the way of 3D and disappear from home and personal screens? I think the jury is still out, but there seem to be many good reasons for continued caution. However one thing seems to be clear, whether it's 4K or 8K without the significant ground infrastructure that cable and fiber have, satellite is better placed to deliver the service. 



Elisabeth Tweedie has over 20 years experience at the cutting edge of new communication and entertainment technologies. She is the founder and President of Definitive Direction a consultancy that focuses on researching and evaluating the long term potential for new ventures, initiating their development and identifying and developing appropriate alliances. During her 10 years at Hughes Electronics she worked on every acquisition and new business that the company considered during her time there. www.definitivedirection.com She can be reached at: etweedie@definitivedirection.com



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Essential Marketing Strategy for the Tech Industry

by Sarah Lum

Ours is a competitive and fast-moving industry, full of companies trying to make a name for themselves and stake their claim as the market leader. While the “**what**” (a compelling product or service) is of course critical to success, don’t underestimate the importance of **how** you present your offering and communicate it in the marketplace.

Here are a few things to keep in mind as you look at how to optimize your tech marketing strategy.

Focus on a specific and memorable message

It is tempting to want to talk about how your product or company is “end-to-end”, “flexible” and “innovative.” While that may be accurate, and important, these words are ubiquitous in our industry, to the point where these descriptors frankly don’t mean much anymore. Make sure that when you’re creating your messaging, you’re really making it clear what differentiates your solution and why the customer should care.

I’m also a big believer in repetition. Pick a topic you want to own, create a concise and compelling value proposition, and then stick with it. Hammer that message again and again. How do you know when you’ve hammered enough? When people immediately associate you with your message/topic of choice (by then you may be thoroughly sick of it, but remember that people outside of the organization are interacting with your messaging far less often than you are).

Be strategic

For those of you with a limited budget and resources (including people and

“...Developing a personal connection with your customers is a great way to take marketing from generic to really effective...”

time), it’s important to focus. There are lots of tools in the marketing toolbox, but if you try to do everything and spread your activities broadly, but don’t go deep (see above regarding hammering the message), your marketing programs may fall flat.

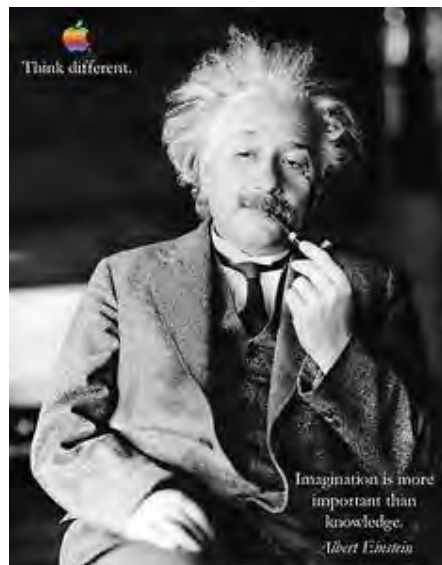
Also, don’t just throw something out there hoping it will stick. Think about what your top-level goals are, and create a focused strategy, with clear priorities and a plan to reach those objectives. It takes time to build brand recognition, but it is well worth the effort.

Make it personal

Developing a personal connection with your customers is a great way to take marketing from generic to really effective. Creating relationships, building trust and providing value are important in the sales and marketing world, whether you’re closing a deal or explaining to a journalist why your new product is a game changer.

Keep in mind that you have multiple audiences—potential customers, existing customers, press/analysts, investors, employees, and competitors to name a few—and the messages you want to deliver to each group may be quite different.

Our world has become increasingly multifaceted, and Twit-



ter, LinkedIn and other social media tools are a great way to enable conversations and help people remember your brand. Start talking, and interact with your target audiences. It is important to monitor and control the conversation when it comes to social media, but don’t ignore these channels.

In your other communications vehicles, find a way to stand out from the crowd. Sometimes that’s a punchy tagline, or a dramatic visual image for an ad. Don’t be afraid to think different. After all, it worked for Apple, and it can work for you.



Sarah Lum is the founder and president of **Bondi Blue** (www.bondi.blue), a marketing communications and PR firm. Her experience includes nearly 15 years in high tech marketing, with more than a decade in the video space. She holds an MBA from the Haas School of Business, UC Berkeley. Sarah can be reached at sarah@bondi.blue

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Satellites and the Sun

by Lou Zacharilla

It is easy to forget that on the day the Soviet Union collapsed, the price of oil was approximately US\$19 per gallon. Vladimir Putin and Steven Harper have both had restless nights thinking about the impact of America's rapid run toward energy independence. At the same time, in Asia, the 2011 Fukushima nuclear reactor disaster in Japan and the persistent health crisis and climate deterioration precipitated by an over-reliance on fossil-fuels, especially in China, remind all of us again that the costs of energy sourcing, production and distribution are central to the absolute "cost of living" at the macro-economic level, and to our own personal economic destiny. What is the future for energy sourcing and what role do satellites have to play – if any?

The Society of Satellite Professionals International (www.sspi.org) launched its *Better Satellite World* campaign in Washington, DC last month. With this in mind I thought it was a good time to take an offer to moderate a panel at the Satellite Conference with the exotic title, "Energy Harvesting in Space: Sci-Fi or Reality?"

The panel was among those presented at the first Innovation Forum. Colonel (Ret.) Patrick Rayermann, of Airbus Defense and Space's DS SatCom Government group; Dr. Paul Jaffe, a director at the U.S. Naval Research Laboratory and SSPI Hall of Fame recipient, industry executive and entrepreneur Edward Horowitz, Director of U.S. Space, participated on my pane. It was surprisingly well-received and so I decided to circle back to revisit the topic. All agreed to participate. Excerpts of our back and forth follows:

Lou Zacharilla (LZ): According to Professor Don Flournoy, editor of the *Journal of Online Space Communication*, the idea that the sun's rays can be collected in space and beamed to earth from a space-based platform for electrical power here on Earth has been around longer than the idea of communication satellites. We have a vibrant commercial satellite industry. However, despite energy crises, nuclear reactor mishaps and decades of modest successes moving to various new energy sources –we still have not found a formula for providing most of the people on the planet with safe, low-cost, abundant energy. Can it be that hard? Where are we today regarding space solar power?

Rayermann: It is unlikely that we will have a system that provides sufficient energy practically and affordably to power activities of 50,000 to 100,000 people at a time by 2080. Having said, that we have completed much of the basic research necessary to validate that space-based solar power is possible and not just theoretical. Much of the research and early development has been performed on a smaller scale to validate the physics and proposed engineering approaches. Airbus DS Space Systems (formerly Astrium) has conducted a number of these validation experiments.

Jaffe: Two countries, Japan and China, each have major, concerted solar research campaigns. They are moving ahead. Of course, there are many unanswered questions.

LZ: Wouldn't you expect that at this stage there would be unanswered questions? Our question at the Innovation Forum was to determine whether this was Sci-Fi or reality. We determined that it was a reality. Pat was more skeptical in his analysis than Jeff or Ed when I asked him to look at this for its commercial potential. Yet he acknowledged that it is feasible, and each of you sounded like you believed, at some point, that it was going to happen. My guess is that government will be a first-mover.

Jaffe: The U.S. Naval Research Laboratory has done technical analyses and performed ground-breaking technology prototyping and testing for space solar power. Today there are a number of commercial sector players, such as Solaren and Planetary Power, who intend to develop solar space power. This is not sci-fi. The nature and advances of wireless power transmission may allow energy to be sent nearly everywhere, absent of an electrical grid.

LZ: That would be transformative, especially if we could get that energy to communities whose only real problem is lack of power. There are a lot of them. We also concluded in Washington that early adoption will be driven by need. The military seems to be first among theoretical early adopters, for obvious reasons. Will this drive investors to opportunities, Ed?

Horowitz: Right now this is all an aspiration and a BHAG (big hairy audacious goal). We do not have a story to tell to anyone for investing money in this endeavor. I believe that this will be done from an investment perspective in stages. You will first see tangible strategic or commercial benefits and then we will establish a revenue profile. Storage and logistics will be key in the early phase.

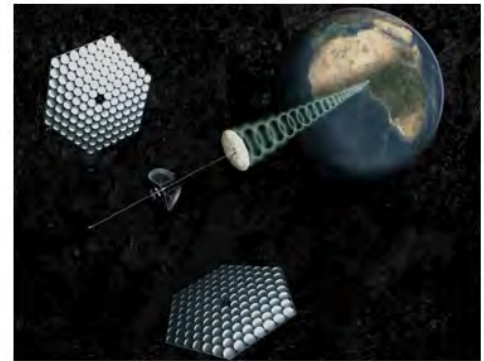
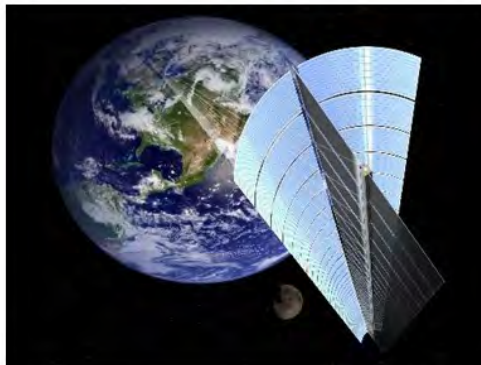
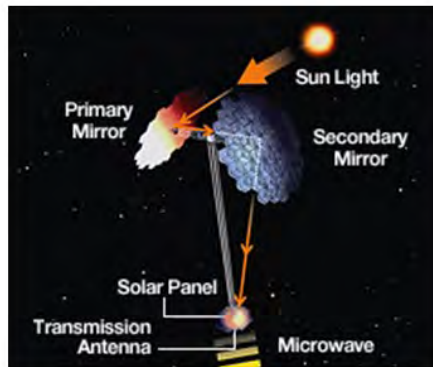
Rayermann: As will the ability to increase the mass of launch capability and the use of small satellites. Three candidates come to mind as first customers. One is a cluster of islands that are not on a major shipping or trade lane, and whose energy costs are high. The second is an international first responder whose mission is to provide restoration of power and infrastructure after a disaster. The third is the military, especially if laser-based transmission is implemented in such a way as to minimize the need to have large numbers of people conveying fuel or guarding vulnerable repair lines.

LZ: *What I am hearing is that we can imagine scenarios to rationalize further development and that the quest to develop this technology will come in slow, but deliberate stages.*

Horowitz: It will produce a range of innovations, such as satellite repair in-space. It will be in these evolving steps to do energy harvesting in space where our industry will benefit. We will transform logistics, design the specs for new components and then companies that have not even been born yet will flourish to meet the needs of this new energy source.

Rayermann: *Logistics* is a broad term here. I include launch vehicles that deliver more payload for less cost, construc

Various Space Solar Power Conceptual Designs



Modular Symmetrical Concentrator, circa 2007



EADS Astrium laser concept, circa 2011

Source: NASA's Naval Research Laboratory

tion and assembly of large structures, design of these structures, robotics to assemble them and repair systems that take into account inevitable debris issues.

Jaffe: The next step would be to commit to a development program for component technologies, as Japan has already done. This would help clarify the feasibility of space solar power. I see a government investment being similar to the spaceborne atomic clock technology, which was critical to the development of GPS. (Also developed at National Research Labs!)

LZ: *A good plug for a good organization and a good way to end. Thanks. It will be interesting to watch this evolve.*



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

Comtech Xicom's New SuperPower™ TWTAs

Comtech Xicom Technology, Inc. is one of the world's leading satellite communications uplink power amplifier supplier, offering the broadest product line in the industry.

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Products

Comtech Xicom provides rugged, highly efficient and reliable amplifier products for commercial and military broadcast and broadband applications around the world including: Traveling Wave Tube Amplifiers (TWTAs); Klystron Power Amplifiers (KPA's); Solid-State Power Amplifiers (SSPAs) and Block Upconverters (BUCs).

This product range encompasses power levels from 8W to 3kW, with coverage across the 2 GHz to 45.5 GHz frequency spectrum.

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Xicom High Power Amplifiers (HPAs) are used in critical communications links on the ground, in the air and on the sea. They support fixed traditional and direct-to-home broadcast, mobile satellite news gathering (SNG), trans-

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brings proven space designs down to the ground and takes established millimeter wave designs and scales them for use at Ku-band frequencies. The result is not only the highest power helix TWT ever offered for these commercial satcom uplink bands, but also an extremely efficient, compact and reliable amplifier that can dramatically lower capital and operations expense.



Comtech Xicom's new SuperPower™ TWTA.

The SuperPower TWTAs at both frequency bands are available as rugged outdoor antenna-mount units that can withstand -40 to +60 °C operating temperatures or as indoor rack-mount configurations that incorporate Xicom's TouchScreen front panels for ease of use and access. Either way, the operator saves space, prime power consumption, and money by incorporating the new technology.

plifiers for fixed satellite communications uplinks changes the equation on power, efficiency and reliability.

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The SuperPower TWTAs join Comtech Xicom Technology's industry-leading high efficiency TWTA product line. The XTD-2000KHE Ku-band TWTA provides the user with 750W of linear power in a compact, rugged package weighing only 92 lbs. and drawing less than 3200 watts of prime power.

The XTD-1500DBSHE DBS-band TWTA provides the user with 560 watts of linear power for DTH applications in the same rugged 92 lb. package and draws only 2500 watts of prime power. Both units are small enough to be mounted in the antenna hub and are designed to operate over -40 to +60C. They have built-in predistortion linearizers, output protection circuitry, SNMP-based Ethernet monitor and control interfaces, and built-in redundancy switch control capability. Op-

tions are also offered for extended frequency bands, internal upconversion from L-band, and liquid-cooling for low acoustic noise. Companion redundancy and phase combining systems are also available.

In addition to the new SuperPower TWT technology, these TWTAs also incorporate Xicom's Life Xtension with Constant Current control mechanism for extending the useful life of the TWTA dramatically with very low risk while providing the operations team with valuable and accurate predictive information on end-of-life for long-term replacement planning. This feature not only saves on reduced capital expenditures from extension of TWTA use, but also reduced the uncertainty of replacement timing, allowing capital to be allocated more efficiently by op-

erators.

"It's exciting to see our commitment to this challenging development and this incredible product line come to fruition," said John Branscum, President of Comtech Xicom Technology.

"We could not be more pleased with initial customer reactions. Interest in the SuperPower products is the highest we've seen on any new development, because it really does change the business case for SATCOM uplinks. Xicom has a long history of pushing the limits of HPA technology, and we plan to continue that legacy of innovation in ad-



Comtech Xicom's rack-mount SuperPower™ TWTA using indoor rack-mount configurations that incorporate Xicom's TouchScreen front panels for ease of use and access.

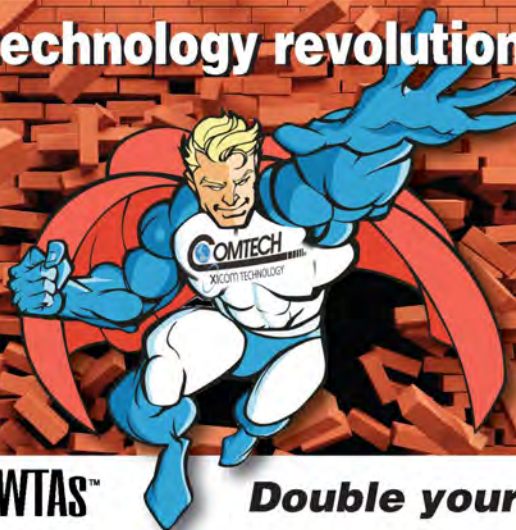
vancing SATCOM HPA technology to solve our customers' hardest problems," added Branscum.



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rently proposed FCC rule for Ka-band apertures. Additionally we will have our 60cm, 85cm and 2.4m manual fly-away antennas.

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**Comtech Xicom's new
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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.

Crystal
Booth SU 5024
www.crystalcc.com

 Founded in 1986, **Crystal** designs and delivers network monitoring and management solutions that improve operational efficiency, analyze errors, and enhance system resiliency, particularly for businesses that deal with complex and dispersed distribution pathways. Every day, program and advertising content worth billions of dollars flows through equipment managed by Crystal for leading media, enterprise, and satellite customers -- including Fox, CNN, Disney, and Intelsat. Crystal, a privately held company, is headquartered in Greater Atlanta, GA.

Globecast
Executive Suite S215LMR
www.globecast.com

 **Globecast** is a leading-edge content contribution, media management and distribution company. It brings together bespoke management and monetisation solutions and the most extensive connectivity mix, ensuring that broadcasters and media companies can maximise the value of their content.

In addition to the most complete range of coverage solutions using satellite capacity, global fibre backbone and over-the-top delivery on CDN networks, the company's content preparation expertise ensure its clients' media is correctly formatted, packaged and delivered to any platform and location. Globecast provides an efficient and modular one-stop "shop" offering, allowing content providers of all shapes and sizes to benefit from economies of scale as well as pay as you "go" or "grow" models.

With a global presence and highly skilled multicultural teams, Globecast engages with content providers to create simple and flexible solutions that fit their specific requirements and help them to expand and grow audiences in new territories. The company operates from facilities in Europe, the Americas, the Middle East, Asia, Africa and Australia, and is trusted by the world's leading content providers.

At NAB 2015 Globecast is introducing a range of US market developments to the company's media management capabilities. These follow on from the recent completion of a brand new Media Factory facility at Culver City, CA as well as a new Media Hub in Miami. This significant investment strengthens the company's presence, providing leading-edge media management and playout services using best-in-

-class technologies. The new facilities in LA and Miami, along with the already established Media Factories in Singapore, London as well as the Media Centre in Paris, form a global, interconnected network that can deliver media services in all locations.

Hispasat/ Hispamar Satélites
Booth SU 10417
www.hispasat.es

 The **HISPASAT Group** is composed of companies with a foothold in Spain as well as in Latin America, where its Brazilian affiliate HISPAMAR, sells its services.

The Group is a leading Spanish- and Portuguese-language content broadcaster and distributor, including over important direct-to-home television (DTH) and high-definition television (HDTV) digital platforms. HISPASAT is one of the world's largest companies in terms of revenue in its sector, and the main communications bridge between Europe and the Americas.

Narda Test Solutions
@AG Franz Booth SU 10221
www.agfranz.com/narda-satellite/

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

At the NAB we will be showcasing the new **Narda Remote Spectrum Analyzer**

NRA-6000

RX.

The NRA RX is a 1RU rack mountable, high speed (12 GHz/sec), low-

power fan-less test-equipment with 10 MHz reference input that can be and has been easily integrated and remotely controlled in various network monitoring 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



**Narda Remote Spectrum Analyzer
NRA-6000 RX**

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 www.agfranz.com/narda-satellite/

Newtec
booth SU 2424
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® multiservice platform, with new patented technology Mx-DMA™ which combines SCPC and MF-TDMA qualities, will be demonstrated at the NAB 2015. Technology for established markets, like broadcast and VSAT, including the new DVB-S2X

transmission standard as software-upgrade available will also be showcased.

RSCC
booth SU 11321
www.rsc.ru



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

coverage. RSCC belongs to the ten largest world satellite operators and owns five teleports and its own optical fiber infrastructure.

The company possesses the largest satellite constellation in Russia located in the geostationary orbital arc from 14 West to 140 East and cover the whole territory of Russia, the CIS, Europe, the Middle East, Africa, the Asia Pacific region, North and South America, and Australia. RSCC offers a full range of telecommunications services such as TV and radio broadcasting, data transmission, telephony, multimedia and others using its own terrestrial engineering facilities and

satellite constellation.

ScheduALL
Booth SU 3821
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 revolutionary self-serve end-to-end provisioning scheduling solutions, ScheduALL Portal™ and ScheduALL Connector™ at the 2015 NAB Show.

Portal 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 unrivaled power and complexity of ScheduALL's transmission scheduling and conflict resolution.

Connector takes advantage of ScheduALL's large global community of transmission inventory consumers and providers across more than 50 countries that use the ScheduALL system to manage their feeds. Connector provides a direct link between OU providers and their customers, uniting ScheduALL systems across global trading partners.

Walton De-Ice
Outdoor Exhibits booth OE 812
www.de-ice.com



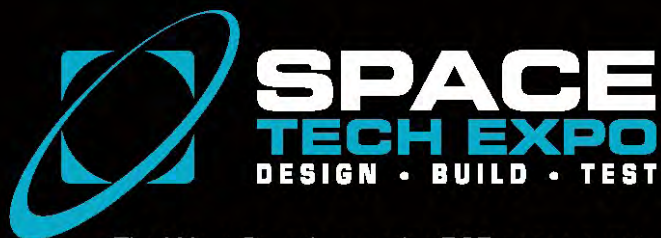
Walton De-Ice, the world's leading designer and manufacturer of satellite earth station antenna (ESA) weather protection solutions, Walton will showcase its latest Ka-Band satellite ESA weather protection solutions, **Ice**

Quake, **Rain Quake**, and **Snow Shield** during NAB 2015.

Walton De-Ice's Snow Shield antenna cover uses architectural fabric that is virtually invisible to RF for antennas from 0.6 to 6.3 meters in size. Snow Shield covers can be passive, or actively heated using electric or gas heaters.

Walton De-Ice's Ice Quake enhances the performance of the Snow Shield antenna cover by vibrating the fabric cover, preventing snow and ice accumulation that degrade signals. Ice Quake enables huge, up to 100x, energy savings versus competing anti-ice systems.





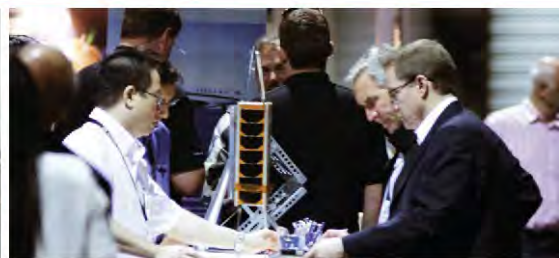
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- Developing next generation aerospace electrical systems
- Advanced spacecraft battery systems
- Reducing launch costs and improving existing capabilities
- Improving design quality management

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Tuesday May 19, 2015

2.40 – 3.00 Have you weaponized your satellite?
Jeff McTaggart, Electrical Engineer, General Dynamics C4 Systems

GENERAL DYNAMICS
Mission Systems

3.20 – 3.40 Small Spacecraft Access to LEO: Constraints and Proposed Orbital Manoeuvring Vehicle (OMV) Solution. Eric Anderson, MOOG

MOOG

3.40 – 4.00 Market Evolution and Commercialization of Nanosatellites
Marco Villa PhD, President and COO, Tyvak Nano-Satellite System

tyvak
NANOSATellite SYSTEMS

4.00 – 4.20 Compactization For Small Sats
Michael Carey, CEO, AAC Microtec

AAC Microtec

Thursday May 21, 2015

11.30 – 11.50 Survey of Verification and Validation Techniques for Small-Satellite Software Development
Stephen Jacklin, Aerospace Engineer, NASA Ames



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New LEO Constellations

by Elisabeth Tweedie, Associate Editor

The race is on. In the last few months there have been numerous filings with the ITU for low earth orbit (LEO) constellations. There have also been announcements of three new LEO constellations, to deliver traditional voice, data and broadband services. It is inconceivable that all of these will succeed. At this stage it is too early, even to be sure that one of them will turn into a profitable business.

At the helm of two of these ventures are two gentlemen that have already had a profound impact on the space business: Greg Wyler, the founder of O3b and Elon Musk the founder of SpaceX. Both of these ventures garnered a lot of skepticism and even scorn when they were first announced. Several years later they are both acknowledged as having changed the rules of the game. Vern Fotheringham, the newly appointed CEO of Leosat, the third venture, was also trying to change the rules. He was previously Chairman and CEO of Kymeta, a company that invented a revolutionary flat panel antenna. However since this is not yet in commercial production, it is too soon to put Vern in the same league as Greg and Elon.

OneWeb is the company founded by Greg, it has an undisclosed amount of backing from the Virgin Group and Qualcomm. Total system cost is currently estimated to be US\$1.5-2 Billion. Provided it is in service by 2019, it has rights to the Ku-Band frequencies previously owned by Skybridge. The planned constellation will be 648 micro satellites. The stated objective is to “enable affordable internet access for everyone.” Data speeds are expected to be below 50Mbps. The current plan calls for OneWeb to work with mobile carriers worldwide to provide connectivity in areas where their networks

don’t reach. At a presentation during Satellite 2015, a demonstration was given of a remarkably quick installation of an antenna and integrated solar panel. This antenna is designed for rural locations; cell phones in range will connect to it when there is no cell signal. A vehicle mounted flat antenna for first responders was also shown. With this

on the roof, the vehicle could be driven into a disaster area and have immediate connectivity. Virgin Galactic will launch the satellites and Qualcomm will provide communications expertise and doubtless components. According to Greg, the design of both the satellites and system architecture is well developed. It is intended that the production line manufacture of the satellites will take place in a facility jointly owned by OneWeb and the manufacturer.

At the time of writing the SpaceX LEO system doesn’t have a name. The planned constellation of around 4,000 satellites will be built at the newly created SpaceX Seattle. The first launches are planned for 2020, but the first constellation will not have all the capabilities of the “full version”. According to Elon Musk, “the goal is to have the majority of long-distance Internet traffic go over this network and about 10% of local consumer and business traffic.” If anyone other than Elon Musk had said this, no one would take it seriously, but given his track record with SpaceX and Tesla, one can’t dismiss his plans quite so easily.

In January of this year, Google invested around US\$900 million in SpaceX. The accompanying press release said: “This funding will be used to support continued innovation in the areas of space



O3B Networks co-founder Greg Wyler's latest venture is a 648-satellite LEO constellation called OneWeb backed by the Virgin Group and Qualcomm.

transport, reusability, and *satellite manufacturing.*” At this point it is unclear what proportion of the satellite venture (which is expected to cost US\$10-15 Billion) Google will own, but given the company’s interest in extending Internet access for all, it has to be assumed that this venture was primarily responsible for the investment. Google also has its own project, which many say is aptly named: Project Loon. Loon is a series of high altitude balloons that work with cellular companies to provide connections in areas where none currently exist: to provide internet access for the two-thirds of the world that are not connected. To date the system has been trialed in New Zealand, California and Brazil. In 2014 Google also purchased Titan Aerospace, a manufacturer of drones.


The third of these ventures, Leosat is purely a commercial project, with no ambitions to serve the unserved. It is also a smaller constellation of 80 to 120 small satellites. The company was founded in 2013 and has been working on design, spectrum and payload for well over a year. The company’s vision is to deliver cost-effective, extremely high-speed, low-latency, highly-secured data network service offerings to address the unmet needs of business and government markets, including energy, mobility and maritime. The Ka-Band constellation is estimated to cost

US\$2.5-3 Billion.

To put it mildly, all of these ventures have serious challenges ahead of them. Getting frequencies from the ITU is hard enough in cases like these, but getting landing rights in all the countries that these ventures intend to cover is even harder, and will take years to accomplish. Added onto that, are the complexities of the systems themselves. Since the satellites are in constant motion relative to the earth, tracking antennas that can cope with a

handover every few minutes are needed. More satellites equates to more gateways, which in turn equates to greater complexity. These satellites will use inter-satellite links, these too are complex and also take time, thus decreasing the often quoted latency advantage of LEO satellites.

What these ventures will likely do, at least in the short term, is shake-up an industry that is already transitioning. Software defined satellites are becoming more common and there is already

talk of “off-the-shelf” geostationary satellites that could be purposed when an order is placed, thus significantly reducing the time between order and launch. If the traditional manufacturers learn some new techniques or approaches from talking to or working with these new entrants, some of the advantages that are being touted for LEOs including rapid adaptability to new technology and cost effectiveness, could be eliminated or minimized. 

CMMB Mobile and DTH Multimedia Service Making Good Progress

For a company that only came into the public eye last September, CMMB Vision is making good progress. Last December it announced that it had entered into an agreement for the purchase of a 5% stake in Soaring Idea Holdings, with an option for an additional 46%. Assuming regulatory approval is granted, Soaring will have a 51% stake in Dish-HD Asia. This agreement therefore, will give CMMB Vision access to content, expertise and a satellite services platform, so that ultimately –if everything else falls into place – CMMB Vision will offer both a mobile and DTH multimedia service platform. The service will be launched in China, but will later be expanded to the rest of Asia. The company has plans to expand outside of Asia when the planned second satellite is launched.


In January of this year, at PTC in Honolulu, CMMB vision made two more announcements. Firstly that it had entered into a joint venture with Global Broadcasting Media Group (GMG). GMG is a subsidiary of China Radio International, one of three state-level and national media broadcasters in China. The JV will develop and operate a satellite-based platform in China to provide mobile multimedia video, voice and data as well as other new generation digital media and information services. Under this agreement, GMG will provide all satellite-related licensing approvals, proper supervision over content authorization and control over broadcast operations. CMMB Vision will supply the satellite-related resources and assets.

The second announcement was that Boeing had been selected to build the first new satellite for the venture. New York Broadband LLC will own the satellite, which will be named NYBBSat-1, and CMMB Vision will lease the entire capacity. This will be an L-Band satellite to be launched in

mid-2017.

NYBBSat-1 will replace AsiaStar, which is currently “holding” the slot. The second satellite, which is also likely to be an L-Band satellite, will probably be built by the Chinese, for political reasons.

CMMB Vision has obviously made good progress in the last four months, but there are still many crucial elements that need to fall into place before all its plans come to fruition. Not least of these is the finance, which still has to be secured, although Charles Wong, Chairman and CEO says that the company is being approached by private equity organizations. The other major hurdle is of course regulatory approval, something that GMG is now responsible for. The technology is another issue. Work is currently taking place to upgrade the CMMB standard to make it more cross-platform operable. The core technology has been developed and Wong anticipates that it will take another six to eight months to develop the second generation which will include interfaces for satellite and the 3G and LTE cellular systems. Appropriate antenna technology is also needed to get all multimedia services into a handset at an affordable cost, bearing in mind that the first target market is China.

Long term plans include expansion into other parts of the world and additional satellites with Ku and Ka-Band to deliver “multiple services”. An ambitious venture, still with many challenges ahead. **(Elisabeth Tweedie)** 



Panasonic Acquires ITC Global

Washington, D.C. March 16, 2015—Panasonic Corporation and ITC Global announced that they have entered into a definitive agreement for Panasonic to acquire ITC Global, a provider of satellite communication services for the energy, mining, and maritime markets.

Founded in 2001 with regional headquarters in Houston, Texas; Sion, Switzerland; and Perth, Australia, ITC Global serves customers at more than 1,200 remote sites across 70 countries and all the world's oceans.

Panasonic, through its subsidiary Panasonic Avionics Corporation, is a leading provider of inflight communications and entertainment systems to the aviation market. By combining complementary strengths, ITC Global and Panasonic Avionics will become a new leader in global satellite services poised to support long term customer requirements as demand for bandwidth and efficient, reliable communications solu-

tions continues to grow across the energy, mining, maritime and aviation markets, according to a company statement.



Panasonic Avionics' satellite network already covers 99% of all airline flight hours and 98% of all maritime traffic routes, and the organization is in the process of adding High Throughput Satellite capacity that will wrap around the globe.

Upon the closing of the acquisition, ITC Global will become "ITC Global, A Panasonic Company" and will operate as an independent unit of Panasonic Avionics. ITC Global will continue to execute its current strategic plan under the leadership of Joe Spytek, ITC Global's founder and Chief Executive Officer,

who will report to Paul Margis, President and Chief Executive Officer of Panasonic Avionics.

ITC Global's management team will remain in place and will continue to focus on its customers in the energy, mining, and maritime markets, while Panasonic Avionics will remain dedicated to its customers in the aviation market.

Boston-based private equity firm, Riverside Partners, has owned ITC Global since 2011. The transaction is expected to close after customary conditions have been met and regulatory approvals have been obtained.

Centerview Partners acted as Panasonic's exclusive financial advisor. Weil, Gotshal & Manges LLP and Thompson Hine LLP acted as Panasonic's legal advisors on the transaction. Choate, Hall & Stewart acted as ITC Global's lead legal advisor.



Telstra Purchases Globecast Australia

Sydney, Australia, March 18, 2015—Telstra has agreed to acquire Globecast Australia. Telstra Group Managing Director Global Sales, Martijn Blanken, said the acquisition would deliver on its Global Enterprise and Services business' (GES) strategy of developing deeper capabilities in media services for our customers in the broadcasting industry. “

“Globecast Australia has a distinctive reputation for the delivery of media services, primarily over satellite platforms. Its strong linkages between its domestic networking capabilities and international points of media connectivity fit with our strategy of providing global media networking capabilities,” said Blanken.

Globecast Australia also provides Direct to Home satellite transmission and IPTV managed services, IP streaming and encoding, Global Satellite Monitoring and Disaster Recov-

ery. It has also developed live point-of-view miniature camera technology for use at sporting events through its Globecam business.

Globecast Australia's CEO Simon Farnsworth said the combination of Globecast Australia and Telstra is logical for both companies. “We're excited by the opportunity for Globecast Australia to grow as part of Telstra. Globecast Australia remains focused on continuing our strong customer relationships and the provision of technical and operational excellence. The engagement that our customers and suppliers have enjoyed with Globecast Australia will continue,” said Farnsworth.

The acquisition is subject to regulatory review prior to completion.



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Intelsat's Kurt Riegelman and Michael DeMarco Promoted to New Positions

Washington, D.C., April 1, 2015--**Intelsat** announced the promotion of two executives to the company's executive leadership team. **Kurt Riegelman**, 51, has been named Senior Vice President, Sales and Marketing while **Michael J. DeMarco**, 44, has been named Senior Vice President, Operation. The moves come as Stephen Spengler officially assumes the role of Chief Executive Officer on April 1 from Intelsat's now executive chairman, Dave McGlade.

Riegelman will assume leadership of Intelsat's product management and marketing functions in addition to the company's global sales initiatives. Riegelman previously served as Senior Vice President, Global Sales. Riegelman joined Intelsat in 1998 as Vice President, North America Sales responsible for many of Intelsat's largest customer contracts within the media sector. In 2006, he assumed sales leadership for the Americas region and, in 2008, Riegelman increased his responsibility to cover all sales globally for Intelsat.

In the newly created role, DeMarco, will lead Intelsat's network engineering, network operations and information system teams, including the company's eight global teleport operations, effective immediately. He will be responsible for Intelsat's information system strategy and for the delivery of the company's end-to-end service portfolio, including the integration of the Intelsat EpicNG® platform, the first satellite of which is expected to launch in early 2016. He previously served as Intelsat's Senior Vice President, Mar-

keting and Solutions Development in which he led the company's product management, marketing, customer solutions engineering and asset management functions.

In addition to DeMarco and Riegelman, Michelle Bryan, Executive Vice President, General Counsel and Chief Administrative Officer; Thierry Guillemain, Executive Vice President and Chief Technology Officer; and Michael McDonnell, Executive Vice President and Chief Financial Officer, will continue to report to Stephen Spengler and serve on the company's executive leadership team.



Kurt Riegelman

Newtec Appoints New VP of Market Development

Sint-Niklaas, Belgium, March 17, 2015--**Newtec** has appointed **Kevin McCarthy**, a veteran of the maritime satellite communications industry, to the position of VP of Market Development.

The addition of McCarthy to the Newtec management team is part of the company's strategic initiative its capabilities in various mobility verticals, including maritime, oil & gas, and aviation.

Prior to joining Newtec, McCarthy spent 15 years at MTN Satellite Communications, a leading provider of satellite communications to the cruise, oil and gas, super yacht, aviation and military markets. While there, he held various roles, including Senior VP of Network Engineering and, most recently, Chief Operations Officer. McCarthy began his career at Norwegian Cruise Line as a network engineer.



Kevin McCarthy

McCarthy will be based in Florida, U.S. and report to Thomas Van Den Driessche. He joins the around 300 team members Newtec employs worldwide.

Fotheringham Appointed CEO of Leosat LLC

Arlington, Virginia – March 4, 2015 **Leosat, LLC**, a company developing a low earth orbit (LEO) satellite constellation to provide worldwide coverage, announced the appointment of **Vern Fotheringham** as Chief Executive Officer and outlined the company's vision publicly for the first time since beginning its development in 2013.



Fotheringham

Founded by former Schlumberger executives Cliff Anders and Phil Marlar, Leosat has been developing its network architecture, spectrum planning, and satellite payload since 2013. This work has been done in conjunction with several leading global aerospace engineering contractors and satellite equipment manufacturers and has created a solid foundation upon which to build the company's global operations and market reach. The company's vision is to deliver cost-effective, extremely high-speed, low-latency, highly secured data network service offerings to address the unmet needs of business and government markets.

Fotheringham, who most recently was Chairman and CEO of Kymeta Corporation, has more than 30 years of experience in the broadband wireless and satellite communications industry. He has created and built numerous successful ventures and contributed to many large-scale projects for major service providers, system vendors and software solution suppliers. He has also been a public policy and regulatory advocate for new telecommunications service rules and standards, and an

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Globecast Appoints Rick Horrow as Industry Advisor

New York City, March 9, 2015-- Globecast has appointed sports business expert **Rick Horrow** as a key industry advisor on a consultancy basis.

Horrow and his team will work with Globecast executive staff to identify unique content solutions, development and distribution opportunities, top business targets, and key media, technology, sports, and entertainment industry events, as well as facilitate overall strategic growth in the North American market and elsewhere.

Horrow is a noted sports business analyst, hosting a show on Universal Sports Network entitled "Beyond the Medals: The Business of Sport." He also

analyses sports industry news for Bloomberg, and CNBC, hosts weekly television segments on Comcast Sportsnet and a weekly show for Yahoo Sports Radio. Horrow has advised clients including all

of the major sports leagues, dozens of individual teams, and numerous Fortune 500 companies.

He holds a law degree from Harvard Law School. Horrow's company, Horrow Sports Ventures, has orchestrated more than US\$13 Billion worth of development deals involving sports teams, as well as performing arts groups and other urban infrastructure projects.



Rick Horrow

VISLINK Appoints New GM for Middle East and Africa

Hemel Hempstead, UK, March 2, 2015-- VISLINK, a technology provider specializing in the collection, management and delivery of high quality video and associated data, today announced the addition of **John Aslett** to its Dubai office as General Manager. John will be responsible for the day-to-day operations of the office, heading up a team which is focused on sales into the Middle East and Africa.

Aslett has a strong background in broadcast and IT, bringing to VISLINK 18 years of sales and senior management experience in the Middle East, including most recently as Managing Director at Media Group International, the largest broadcast system integrator in the region. He has also held positions at Avid Technology, Orbit Communications Company and Grass Valley.



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SET EXPO 2015: Gateway to the Latin American Broadcast Market

Sao Paulo, Brazil

Conference: August 23-27, 2015

Exhibition: August 25-27, 2015



The Brazilian Society of Television Engineering (SET) will hold from August 23 to 27, in São Paulo, Brazil, the SET EXPO, the biggest and one of the most important events on the business and technologies for broadcast and new media in Latin America. SET EXPO will host the 26th SET Annual Congress, conferences and international trade show featuring equipment manufacturers, technology and service providers for broadcast, telecommunications and converging media markets.

The Trade Show and Congress will occupy a total area of 17,000 square meters in the Blue Exhibition Hall of the Convention and Exposition Centers of Center Norte in São Paulo. In 2014, over 300 exhibitors participated in the exhibition, with a large presence from companies from Europe, North America and Asia.

A key feature of the SET EXPO is its partnership with the U.S.-based National Association of Broadcasters (NAB), which organizes the annual NAB show in Las Vegas. The NAB Show holds several conference sessions, host an exhibit booth and provide logistical support to the SET EXPO. NAB President and CEO Gordon Smith provided the keynote address at the 2013 SET EXPO. The Commercial Sector of the U.S. Consulate in São Paulo has been working closely with both organizations as part of its efforts to encourage U.S. – Brazilian business.

"We are pleased to expand our relationship with SET and to collaborate on SET EXPO, an event we see as NAB Show's counterpart in Latin America," said NAB Executive Vice

President, Conventions and Business Operations, Chris Brown. "Both organizations are committed to promoting innovation and education in the broadcast and media industries throughout the Americas."

"We are proud of our partnership with NAB, taking to the next level our partnership of 25 years, during which time

SET's breakfast sessions at NAB Show expanded consistently and became a traditional meeting point for Brazilian delegates," said SET President Olimpio J. Franco.

"SET and NAB agreed to this joint effort to contribute content and programming and to market the exhibition areas at our respective annual conferences. This partnership will solidify the SET

show's dominance as the largest conference and exhibition for the industry in Latin America," said SET Marketing Director Claudio Younis.

The partnership with SET EXPO is part of the "NAB Show Collaborative," an initiative focused on leading the global media and entertainment industry through partnerships with international organizations and events, offering best-in-class education, open dialogue and showcased technologies to inspire growth and innovation to all segments of the industry, from content creation to consumption.

For more information on SET EXPO go to:

www.setexpo.com.br



The SET EXPO held annually in Sao Paulo, Brazil featured over 300 exhibition booths and over 10,000 attendees.



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Cord Cutters Reach 7% of US Households

Dallas, Tex., March 17, 2015--Parks Associates announced the release of industry reports providing strategic recommendations for service providers, app developers, and platform developers as consumers turn increasingly to OTT and non-linear content options. The report *Under Attack: Assessing New Threats to Pay TV* notes that while consumers watch over 30 hours of video per week on average, the number of households planning to cancel their pay-TV service (potential cord-cutters) has also increased, reaching 7% of U.S. broadband households with pay-TV service.

"The pay-TV industry is experiencing a slow crisis in terms of paying customers," said Brett Sappington, Director of Research, Parks Associates. "Content is key to attracting and retaining consumers, and consumers are now looking beyond pay TV for that content. The new deal between Apple and HBO to stream the HBO Now streaming service to Apple devices is just the latest example. At the same time, companies like Google and Amazon are getting into the content creation business, providing a new competitive threat to the traditional ecosystem."

"Consumers have extensive content choices, including live TV, VOD, and OTT streaming, and they are using multiple interfaces to access desired content," said Barbara Kraus, Director of Research, Parks Associates. "For consumers, the lines are blurring between CE makers, operators, and content providers, so they will make their decisions, first and foremost, based on who has the desired content and secondly on who provides the easiest method to find and consume that content," she added.

Parks Associates reports analyze the extent of these new challenges and provide strategic recommendations for companies to adapt to the new video services ecosystem.

Under Attack: Assessing New Threats to Pay TV examines the current state of pay TV, the economic landscape for video services, and the leading threats to pay-TV providers.

"...The pay-TV industry is experiencing a slow crisis in terms of paying customers. Content is key to attracting and retaining consumers, and consumers are now looking beyond pay TV for that content.."

The report assesses the future for pay-TV services and provides a forecast for pay-TV subscribers through 2018.

Recent industry research reports include:

Under Attack: Assessing New Threats to Pay TV examines the current state of pay TV, the economic landscape for video services, and the leading threats to pay-TV providers. The report assesses the future for pay-TV services and provides a forecast for pay-TV subscribers through 2018.

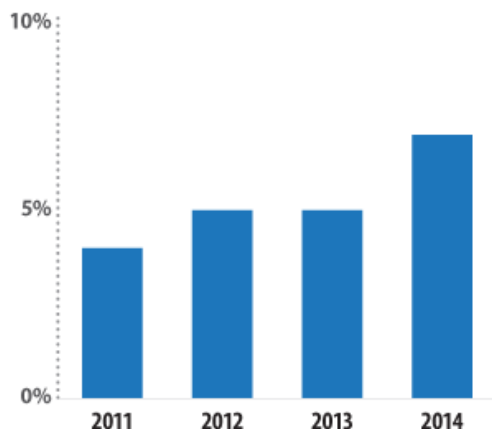
In-app Payments: Consumer and Developer Perspectives examines consumer and developer perspectives and analyzes the pros and cons for different payment options for digital in-app purchases. The report also projects in-app purchase volume and transaction value for the U.S. market.

Modern Broadband: Maximizing Retention and Revenues examines the approaches to subscriber retention and acquisition and the tools and strategies used across markets today to compete successfully. The report also provides a forecast for broadband subscribers worldwide through 2019.

Winning the Consumer: Profiting from Superior User Interfaces details the user experience provided by connected device manufacturers for streaming content. The report also examines pay-TV operator interfaces, personalized user interfaces, unified interfaces, and content discovery.

Parks Associates will present new market and consumer research at **CONNECTIONS™: The Premier Connected Home Conference**, taking place May 19-21 in San Francisco, CA.

Households Very Likely to Cancel Pay-TV Service in Next 12 Months
U.S. Broadband Households with Pay-TV Services



© Parks Associates



50% of U.S. Households will own a 4K TV by 2020

Boston, Mass., March 4, 2015--The US will emerge as the leading market for 4K or Ultra HD TVs in terms of household penetration by 2020 followed by the leading Western European markets, Australia, South Korea and China.

According to Strategy Analytics' Connected Home Devices (CHD) report "Ultra High Definition TV Displays: Global Market Forecast," demand for UHD TVs is soaring worldwide as entry level price points drop well below US\$ 1000, model availability expands and consumers seek out the next best technology as they upgrade their ageing flat panel TVs. Other key findings from the report include:

- Shipments of 4K/Ultra HD TVs grew 633% in 2014 to reach 12.1 million units with Asia Pacific accounting for 75% followed by North America (12%) and Western Europe (11%).
- Global shipments of Ultra HD TVs will more than double in 2015 to 27.5 million units and more than 100 million will be shipping annually by 2018.
- 60% of all Ultra HD TVs shipped globally in 2014 were 50-inch or larger in size, while a quarter of all 50-inch and larger TVs that shipped were Ultra HD.
- Sub 50-inch Ultra HD TVs will become more widely available in 2015 and the sub 50-inch category will account for the majority of Ultra HD TV shipments globally by the end of 2016.
- Wide color gamut technology and high dynamic range support will be

Just as HD TV is starting to dominate the US market with 80% of households having HD TVs today, 4K TV will slowly gain market share in the next few years reaching 50% of households by 2020

built into premium Ultra HD TV displays in 2015 creating a more discernable price tier structure in the market.

David Watkins, Service Director, Connected Home Devices said "Ultra HD will become the standard resolution for virtually all large screen TVs within 3 to 4 years' time and we will see it penetrate further into smaller screen sizes as manufacturing efficiencies improve."

He added, "As we saw with the transition from SD to HD, it is the TV manufacturers who are leading the Ultra HD charge although significant steps are being made on the delivery infrastructure and content production parts of the value chain. As the inevitable price competition eats into the ability of the TV vendors to make any meaningful profit from selling Ultra HD TVs, many brands are adding support for wider color gamuts and high dynamic range in order to differentiate their models and charge a premium over 'standard' Ultra HD models."

Meanwhile, new consumer research from Leichtman Research Group, Inc. (LRG) found that 81% of households in the United States have at least one high definition television (HDTV) set, and about 52% of all households have multiple HDTVs. Five years ago, 46% of US households had at least one HDTV, and 17% of households had more than one HDTV. About 75% of TV sets used in HD households are HDTVs. Including non-HDTV households, 65% of all tele-

vision sets used in US households are HDTVs -- up from 24% in 2009, and 3% in 2004.

These findings are based on a survey of 1,231 households throughout the United States, and are part of a new LRG study, HDTV XII. Other findings include:

- 89% of HDTV households, and 91% of multi-HDTV households, subscribe to a pay-TV service -- compared to 67% of non-HDTV households.
- 41% of adults have heard of 4K Ultra HDTV -- up from 30% last year.
- 26% of those who have seen a 4K HDTV are interested getting one -- compared to 6% of those who have not seen a 4K TV.
- 52% of those who purchased a TV set in the past year have a Smart TV, and 38% have an Internet-connected Smart TV.
- About 11% of all TVs used in US households are connected Smart TVs.

"While HDTV now seems commonplace in the US, much of the growth of HD has come in recent years. Over the past five years, more than one-third of all US households got their first HDTV, and HDTV's share of TV sets used in US households grew from about 24% to 65%," said Bruce Leichtman, president and principal analyst for Leichtman Research Group, Inc.





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Pay TV Revenues Growing in Asia-Pacific and Eastern Europe

London, UK, April 1, 2015--Pay TV revenues in the Asia Pacific region (22 countries) will grow by US\$ 10 billion between 2014 and 2020, according to Digital TV Research. The Digital TV Asia Pacific Forecasts report estimates that pay TV revenues will reach US\$ 41.52 billion by 2020.

Cable TV will remain the highest pay TV earner, with revenues at \$23 billion by 2020. Digital cable TV revenues will grow by 63% between 2014 and 2020 to US\$ 22.54 billion, with analog cable TV falling from US\$ 6.20 billion to US\$ 0.56 billion.

Simon Murray, Principal Analyst at Digital TV Research, said: "The number of homes paying for IPTV will overtake pay satellite TV subscribers in Asia by 2018. IPTV revenues will climb to US\$ 7.13 billion by 2020, up from US\$ 4.43 billion in 2014. However, pay satellite TV revenues will remain higher than IPTV. India will generate US\$ 4.15 billion of the region's US\$ 11.06 billion satellite TV revenues in 2020," Murray added.

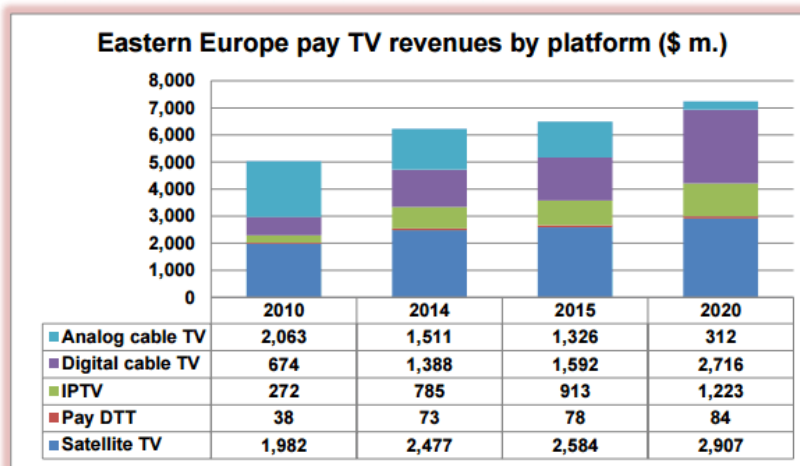
Pay TV penetration in Asia will rise from 59.0% of TV households in 2014 to 68.4% in 2020, adding 142 million subs to take the total to 642 million. Even more impressive is that digital pay TV penetration will climb from 20.9% in 2010 to 44.2% in 2014 on to 67.0% in 2020. Digital pay TV subscribers will quadruple from 163 million in 2010 to 628 million by 2020. China will provide

323 million pay TV households by 2020, with India supplying a further 179 million.

China overtook Japan to become the most lucrative pay TV market in 2012. India will take second place from 2020. Together China, India and Japan will account for two-thirds of the region's US\$ 42 billion pay TV revenues by 2020.

(US\$ 5,029 million), according to Digital TV Research. However, the fifth edition of the Digital TV Eastern Europe Forecasts report states that increase will only be 17% between 2014 and 2020 – although this is still an increase of US\$ 1 billion.

Digital pay TV revenues in Eastern Europe will increase by US\$ 4 billion between 2010 and 2020 to US\$ 7 billion. They will increase by 47% (or \$2.2 billion) between 2014 and 2020. Digital cable revenues will more than double between 2014 and 2020, with IPTV up by 56% and pay DTT up by 53%. However, satellite TV revenues (the main earner) will only grow by 17% over the same period.



Source: Digital TV Research Ltd

Pay TV revenues will more than double in seven countries (Bangladesh, India, Indonesia, Laos, Myanmar, Nepal and Pakistan) between 2014 and 2020. However, revenues will fall (due to greater competition - including OTT – and subscribers converting to bundles) during this period in Australia, Hong Kong, New Zealand, Singapore and Taiwan, with low growth expected in South Korea.

Meanwhile, despite the incessant gloomy economic and political news from the region, pay TV revenues in Eastern Europe will be 45% higher in 2020 (US\$ 7,269 million) than in 2010

The number of digital pay TV subscribers in Eastern Europe will increase from 25.8 million (20.7% of TV households) in 2010 to 51.0 million (40.0%) in 2014 and onto 76.7 million (59.4%) by 2020.

Simon Murray, Principal Analyst at Digital TV Research, said: "Pay TV analysis in Eastern Europe has long been distorted by the legacy of analog cable. Many homes traditionally received a limited number of channels for a very small fee over analog networks. These subscribers are rapidly converting – mostly to digital cable but also to IPTV, satellite TV and DTT."



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Low Oil Prices and Compromised Exploration Budgets: A Dynamic Connectivity Solutions Agenda

by Martin Jarrold

Oil is in the news..., as usual! A low and volatile price per barrel, increasing geo-political tensions, greater strain on already over-stretched exploration budgets, environmental permit delays, potential postponement or cancellation of information and communications technology (ICT) infrastructure investments... many inter-connected reasons.

What effect will the oil glut and falling prices have on current exploration and future exploration/development plans? The oil industry was already cutting back on exploration budgets before the current price trend set-in, saying that there were not enough profitable prospects available even at US\$100 per barrel. What happens in exploration and development budgets with oil prices around, say, a US\$50 average? Without exploration there can be no new production; and without new production, oil supply falls, obviously!

Exploration and development are being cut substantially. Existing oil production worldwide has been declining by around 4 to 5 percent per year, and the industry has been confronted with the task keeping production growth just barely positive – almost impossible if oil prices remain low. Low oil prices will make it even harder to secure future oil supplies. With supplies shrinking, as demand for oil recovers (as it inevitably will), we will be witness to another cyclical price spike that might severely and negatively impact the global economy.

However, Brazil, for example, has denied that the current slump in the oil price threatens its potential to fully yield on its pre-salt reserves. Petrobras officials are on record saying that they can still make a profit from its ultra-deep wells even if oil dropped to around US\$45 a barrel, which has recently occurred, though, at time of writing, the price had actually rallied to above US\$50.

It is this context which provides the background to the 23rd event in the **GVF-EMP Oil & Gas Communications** series,

and the fifth such gathering for the Brazilian oil & gas patch, which opens on 7th April 2015 at the Windsor Copacabana Hotel, Rio de Janeiro.

In association with sponsors Winegard, SES, Hughes, and Gilat Satellite Networks, **GVF Oil & Gas Communications –**

The Rio Meeting 2015: Big Oil, Big Data – The Deep Water Ocean Expanse (www.uk-emp.co.uk/current-events/o-g-comms-rio-2015/), has attracted the

speaking participation of many major satellite communications solution industry organizations, the representatives of which will additionally have the opportunity to engage in dialog with oil and gas industry solutions users including: **Advantech Wireless; Arycom Communica-**

tions; Baker Hughes; Eutelsat do Brasil; Gilat Satellite Networks; GlobalSat Group; Harris CapRock Communications; Hispamar; Hughes Telecomunicações do Brasil; Intelsat Brasil; Newtec America do Sul; RigNet; SES; Setex; Schlumberger Brasil; Telematics Business Consultants; Telesat Brasil; Tesacom; Trekking Solutions; UNISAT Engenharia de Telecomunicações; Westpro; Winegard.

Cristovam Nascimento, CEO of **UNISAT Engenharia de Telecomunicações** (Supporting Organization for the event) and the GVF Correspondent for Brazil, will as usual co-chair the two-day event with me.

Full program details for **GVF Oil & Gas Communications – The Rio Meeting 2015: Big Oil, Big Data – The Deep Water Ocean Expanse** are continually updated through the event website. Readers can find out more by contacting me at martin.jarrold@gvf.org. Free-of-charge delegate places are still available at time of writing.



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

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The Satellite Markets 25 Index™

Company Name	Symbol	Price (Apr 02)	% Change from Last Month	52-wk Range			% change from 52-wk High
Satellite Operators							
Asia Satellite Telecommunications	1135.HK	27.75	-2.63%	25.60	34.50	↓	19.57%
Eutelsat Communications S.A.	ETL.PA	30.83	0.62%	23.33	31.89	↓	3.31%
APT Satellite Holdings Ltd.	1045.HK	9.18	-4.57%	8.10	13.50	↓	32.00%
Inmarsat Plc	ISAT.L	937.50	6.53%	653.00	960.00	↓	2.34%
SES GLOBAL FDR	SES.F	33.24	7.75%	25.021	34.40	↓	3.37%
Satellite and Component Manufacturers							
The Boeing Company	BA	149.28	-2.94%	116.32	158.83	↓	6.01%
COM DEV International Ltd.	CDV.TO	4.76	15.82%	3.45	4.79	↓	0.63%
Lockheed Martin Corporation	LMT	198.72	-2.12%	153.54	207.06	↓	4.03%
Loral Space & Communications, Inc.	LORL	68.47	-3.89%	64.23	81.53	↓	16.02%
Orbital ATK, Inc.	OA	75.93	11.69%	60.23	158.13	↓	51.98%
Ground Equipment Manufacturers							
C-Com Satellite Systems Inc.	CMLV	1.14	0.88%	1.01	1.67	↓	31.74%
Comtech Telecommunications Corp.	CMTL	30.22	-14.83%	26.30	40.69	↓	25.73%
Harris Corporation	HRS	78.70	-0.09%	60.78	79.52	↓	1.03%
Honeywell International Inc.	HON	103.51	-1.02%	82.89	106.15	↓	2.49%
ViaSat Inc.	VSAT	59.99	-8.13%	51.50	70.79	↓	15.26%
Satellite Service Providers							
Gilat Satellite Networks Ltd.	GILT	6.4850	32.89%	4.42	6.50	↓	0.23%
Globecom Systems Inc.	GCOM	14.10	0.00%	-	-		-
International Datacasting Corporation	IDC.TO	0.06	33.33%	0.03	0.14	↓	57.14%
ORBCOMM, Inc.	ORBC	5.88	-0.51%	5.40	7.10	↓	17.18%
RRSat Global Communications Network Ltd	RRST	7.2330	0.00%	-	-		-
Consumer Satellite Services							
British Sky Broadcasting Group plc	BSYBY	55.74	0.00%	-	-		-
DIRECTV	DTV	86.37	-2.88%	73.54	89.46	↓	3.45%
Dish Network Corp.	DISH	70.96	-6.21%	55.45	80.75	↓	12.12%
Globalstar Inc.	GSAT	3.30	30.43%	1.56	4.53	↓	27.15%
Sirius XM Holdings Inc.	SIRI	3.91	-1.26%	2.98	4.04	↓	3.09%

INDEX	Index Value (Apr 02)	% Change from Last Month	% Change Jan. 02, 2015
Satellite Markets 25 Index™	2,063.26	1.94%	12.46%
S & P 500	2,066.96	-2.38%	0.33%

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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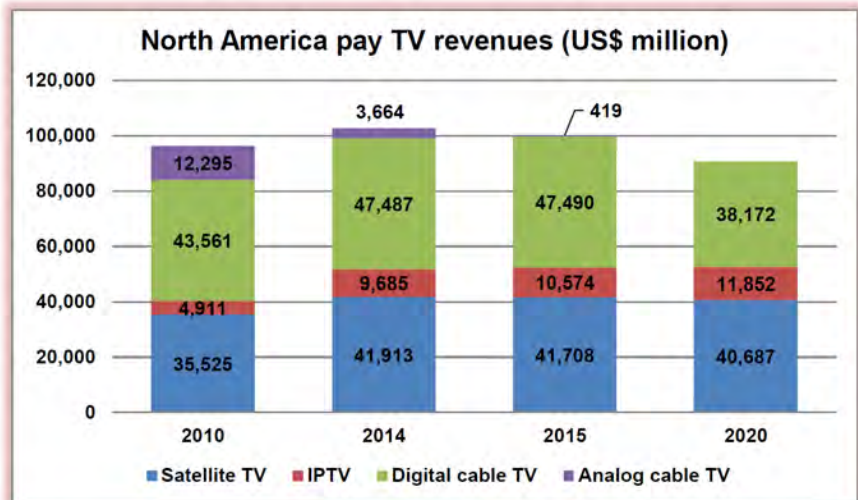
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GLIC 2015 16 www.glic2015.org	W.B. Walton Enterprises 49 www.de-ice.com



Vital Statistics

Pay TV revenues [subscriptions and on-demand] in North America peaked in 2013 at US\$ 102.86 billion, according to a new report from Digital TV Research. The latest edition of the Digital TV North America report forecasts that revenues will fall by 11.7% or US\$12.04 billion between 2014 and 2020 to US\$ 90.71 billion in 2020.



Source: Digital TV Research



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