

Industry Trends, News Analysis, Market Intelligence and Opportunities

um for delivering Ultra High Definition (UHD) or 4K

services, which are just starting to appear as con-

Right now, the OTT services and Netflix and Am-

Challenges in the European Satellite Market

by Elisabeth Tweedie

urope, like the most of the rest of the world, sumer offerings. is facing challenges to its traditional broad-• casting industry. Whilst the living room and azon Prime in particular, seem to be in the lead linear viewing are still important, so too is OTT and when it comes to 4K content. Both started producmobile viewing. 4K is advancing. According to Digi- ing in 4K in 2014. At the end of last year Netflix had tal TV Research, satellite is also facing challenges, over 300 hours of 4K programming and was starting with more homes in Western Europe, paying for to produce in High Dynamic Range (HDR) as well. telco television than for satellite television. In the HDR is part of Phase Two for 4K and effectively

18 countries surveyed for the report, there were 25.54 million homes with paid IPTV services, compared to 24.6M paying for satellite TV. Digital TV Research is forecasting that by 2021 there will be 32.53 million IPTV homes and the number of satellite homes will fall further to 24.31 million. This decline in satellite homes is attributed to converting satellite sub-



some operators, particular- Satellite TV is also facing challenges in Western ly those in Spain and Italy Europe with more homes paying for telco television than for satellite television.

scribers to bundled broadband services. However, the optimum viewing distance is only 1.5x the homes in Western Europe with free-to-air (FTA) close to the TV. satellite TV, so it's way too soon to write off satellite. And of course most of those IP services, like 4K. Apart from sports, content is sparse, as broadcable TV are fed by satellite. SES alone has 156 mil- casters, wait to see the likely demand and to make lion satellite households in Europe, when those sure that there are enough 4K TV sets in the home, indirect users are taken into account. Furthermore, to justify the investment. The price of 4K sets is not most sources agree that satellite is the best medi-

it must be remembered that there are 25.85 million screen height. Most people simply do not sit that

OTT providers aside, content is a major issue for Continued on page 4

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The European Market

he European satellite market is one of the most mature markets in the world. It is home to three of the so-called big four satellite operators, namely Intelsat, SES and Eutelsat. Growth has been relatively flat and there are many challenges for satellite operators and service providers in the region.

Our Associate Editor, who is originally from Europe and spends most of her time in the region, gives an update on the European market and the challenges it is facing from OTT providers and other pressures. Europe, like most of the rest of the world, is facing challenges to its traditional broadcasting industry. While the living room and linear viewing are still important, so too is OTT and mobile viewing. 4K is advancing. According to Digital TV Research, satellite is facing challenges, with more homes in Western Europe, paying for telco television than for satellite television. In the 18 countries surveyed for the report, there were 25.54 million homes with paid IPTV services, compared to 24.6 million paying for satellite TV.

Following our series of country profiles (last month we featured Japan) this month we feature the South Korean market—a booming market which is becoming a major player in the telecommunications, satellite and space industries not just in the region but potentially globally.

During the months of May and June, we at Satellite Markets attended major shows in Latin America and Asia such at LATSAT in Mexico City, APSAT in Indonesia and CommunicAsia in Singapore. Watch out for reporting on these important shows in the next issue.

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The European Satellite Market...From page 1

likely to be a problem, as they have now virtually reached price parity with HD sets. IHS forecast that by 2019, 25% of homes in Europe will have a 4K TV.

Before taking the leap into 4K content production, last year the BBC conducted what it says is the largest ever survey of UK viewing habits, focusing on screen sizes and viewing distance. Based on current screen sizes, it says only 10% of the UK population would benefit from UHD, but based on the size of screen that viewers say they 2025. According to Ofcom, 30 of these 1,500 customers and distribute more want, that number rises to 22.9%. will be serving the UK. However only 18.9% of respondents had a TV that was more than five years ute the Pearl TV 24 hour UHD fashion to purchase bandwidth from any proold, and the normal replacement cycle channel in Europe, announced in Feb- vider. The new organization structure for TVs is nine years, so it may be a ruary of this year that it had purchased will encompass three companies. The while before that larger set gets pur- one of its competitors, RR Media. Ac- Media Group, which will be the merged chased.

Delivery of a 4K signal to the home for an OTT provider requires a dedicated 25Mbps connection, although this may be reduced to 15Mbps when high efficiency video coding (HEVC) is used. By dedicated, I mean that no one else in the house is using the Internet anything else for that would encroach on that 25Mbps. in developed countries just don't have

"...Most Internet connections in Germany are not suitable for live 4K streaming, and this is a major problem ... "

-Michael Sichler, CEO of Pearl TV

single user, but SD requires just 3Mbps. with over 1,000 customers. RR Media of homes for the same cost as deliver- mand a very high level of service. ing to one home. NSR is predicting

So to deliver in 4K their costs are likely customers tend to be smaller, second to increase by a multiple of 5-8x. Enter tier organizations, whereas SPS works satellite that can deliver to thousands with top tier organizations who de-

Once the deal is concluded the over 1,000 4K satellite channels by merged company will have more than than 1,000 channels globally. Inter-SES Platform Services, who distrib- estingly, the new company will be free cording to Wilfried Urner, Chairman of RR Media and SPS; Avi Cohen, present-



Many homes, even Satellite companies in Europe are betting on Ultra HD or 4K TV to remain competitive with OTT services.

that connection. According to Michael the new merged entities, "SPS and RR- suggests the Innovation and New "Most Internet connections in Germany very good together."

Sichler, CEO of Pearl TV in Germany, Media were too small separately, but Platforms Group, will focus on new are not suitable for live 4K streaming, culture of the two companies is very video trends, to identify where SES can and this is a major problem." This is different, Urner commented that from fit into the ecosystem. In June SPS will also the reason that Pearl TV chose to the very first meeting things had gone be launching a pan-European platform launch Europe's first FTA 4K channel on well. RR Media were "very open and for the Asian community in Europe, satellite. For the OTT provider, it is not good listeners." The two companies providing two Chinese, one Indonesian simply a matter of the bandwidth not are strong in different areas. SPS is and one Vietnamese channel via satelbeing available; it is also a matter of strong in Europe and has started lite and OTT. cost. OTT providers pay around 3 cents providing services in Africa and Asia, to deliver one hour of SD video to a and RR Media has a global footprint, joined forces with Eutelsat to create

ly CEO of RR Media, will be CEO of that company, HD+ Group and an Innovation and New Platforms Group. Wifried Urner will be CEO of these two and Chairman of all three.

HD+ with 2M subscribers is the largest satellite platform in Germany and it is planned to "white label" the service so that it can be offered to other clients. As the name

Although the technology and products, and evolving

SES, SPS' parent company has



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ance is focused on developing next including tablets and smart phones. than Eutelsat, whose shares tumbled generation video technologies, stand- SAT>IP is apparently difficult to install, 30% in May when it gave a profits ards and formats for the reception of but Urner commented that everyone warning in its third quarter earnings satellite services on any device, using converged broadband-broadcast technologies. The initial scope of work will focus on promoting integrated hybrid broadcast-broadband solutions to increase the reach of HD and UHD services. Shortly after that was announced last year, Eutelsat announced that it was joining the SAT>IP alliance, of which SES along with Hispasat and many leading electronics companies, was already a member. This alliance aims to accelerate the adoption of the

the Future Video Initiative. This alli- received on any IP device in the home, one can be more acutely aware of that would get rid of it.

who had SAT>IP loved it, and no one conference call. SES was also impacted as its shares fell 8%. One can't help thinking that maybe just for now; SES

There are a lot of challenges ahead would prefer not to be associated with for broadcasting and for satellite. No Eutelsat.



Elisabeth Tweedie is the Associate Editor of the Satellite Executive Briefing. She has over 20 years experience at the cutting edge of new communication and entertainment technologies. She 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

SAT>IP standard, which converts satel- developing appropriate alliances. During her 10 years at Hughes Eleclite signals to IP using a small server tronics she worked on every acquisition and new business that the compaconnected to the home router. This ny considered during her time there. www.definitivedirection.com She can means that satellite programs can be be reached at: etweedie@definitivedirection.com



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The South Korean Satellite Market

by Virgil Labrador, Editor-in-Chief and Peter Galace, Associate Editor

infrastructure in the world today. With a population of 50.4 main players in the country's satellite communication indusmillion, South Korea is a global leader in broadband pene- try. The formerly state-owned parent company, Korea Teletration, at 97 percent, and a world leader in average peak com Corp., dominates the local landline and broadband Inconnection speed, at 20.5 megabits per second, according ternet markets, serving about 90 percent of the country's to report published by Akamai Technologies in Q3 2015.

The Korean market also has one of the highest users. smartphone penetration worldwide, which is projected to reach 84.3 percent this year. Its booming mobile market is at 113° East, Koreasat 6 at 116° East, and Koreasat 8 at 75° rapidly taking up LTE and innovatively exploring the options East. Before the end of 2016, Space X is scheduled to launch for value-added services. 4G LTE now represents the majori- KT Sat's Koreasat 5A designed and built by Thales Alenia

acked by strong support from the government, ubiquitous LTE coverage, Korea's satellite industry is grow-South Korea has one of the world's most advanced ing strong. KT Sat, a subsidiary of Korea Telecom Corp., one telecommunications and Information Technology of South Korea's leading telecoms company, is one of the fixed-line subscribers and 45 percent of high-speed Internet

KT Sat currently operates three satellites — Koreasat 5

ty of mobile connections after it was introduced in 2011. South Korea continues to set the standard for LTE availability, providing 4G coverage 99% of the time, currently the best in the world, according to OpenSignal.com,

the website that tracks LTE performance worldwide.

Almost two years after South Korea "GiGAtopia" make both networks through class,



unveiled KT Skylife, is the sole digital satellite broadcaster in Korea. The company to started 4K-UHD test with Electronics and Telecommunications Research its Institute (ETRI) using Korea's COMS satellite in 2014 and developed an 'allwired and wireless HD' system and provided 141 HD channels and HD receivers to all its 4.3 giga- million subscribers for free.

has launched commercial Giga Internet supporting speeds launch of two satellites, KT Sat is set to introduce expanded of 1Gbps and 500Mbps. In June last year, Korea Telecom Corp. launched the world's fastest commercialized mobile data service, based on its GiGA LTE technology. By combining traditional LTE coverage with localized WiFi networks, the service is able to provide consumers with data speeds Ultra-HD, Maritime-VSAT (MVSAT) and hybrid satelliteup to an incredible 1.17Gbps.

LTE, HD Fuel Satellite Growth

Thanks to the country's strong ICT infrastructure and

investment of KRW4.5 trillion (US\$3.9 billion), South Korea band, mobility and teleport services. With the upcoming satellite services such as global coverage and satellite broadcast and satellite mobile phones, nurturing its desire to eventually become a global satellite player.

> During the past three years, KT Sat invested heavily in cellular technology to generate new business. Its broadcasting business is soaring as it provides more than 200 digital channels aired to over 6 million households nationwide. This year, demand for 4K-ultra high definition (UHD) ser-

In first quarter of 2017, KT Sat is scheduled to launch another TASdesigned Koreasat-7, which will be placed at 113° East. Both satellites will provide Internet access, multimedia, broadcasting and fixed communications services to South Korea, Philippines, Indonesia and India. Koreasat 7 will be carried into the orbit by Ariane 5, a heavy-lift rocket typically used for GTO missions.

With its three satellites, KT Sat offers a slew of satellite services such as transponder leasing, broadcasting, broadvices is expected to soar as Netflix enters the South Korean pected to rise even more with an increase in coverage as market.

lease agreement for direct-to-home (DTH) services with Mongolian satellite TV operator DDISH TV. DDISH TV will value to broadcasting services. start using KT Sat's Koreasat-5A satellites from 2017. Expectations are the company will offer more than 90 high- MBCo, launched its HanByul satellite in 2004, and started definition channels. DDISH TV is Mongolia's largest satellite its multi-channel pay broadcasting in May 2005. But despite broadcasting company, with some 320,000 subscribers its diverse content, TU Media, a subsidiary of another telco, since it started the business in 2008.

Last year, the company also clinched a three-year transponder contract with Pakistan-based satellite business Paksat. But KT Sat said the latest deal is meaningful, because the contract will not expire until the end of the satellites' 17-year lifespan.

Among the latest satellite innovation applications developed by KT Sat is its 'fisheries monitoring system' which tracks the location of deep-sea vessels in real-time through the satellite equipment connected to each ship and immediately sends an alarm when it detects ships fishing in illegal fishing areas.

KT Sat also recently launched 'satellite LTE' that enables the use of satellite network through regular cell phones on ing to HD by utilizing the nation's extensive high-speed LTE deep-sea vessels. Satellite LTE is used by converting signals sent from satellite antenna to LTE/3G and connecting them to micro base stations (Femtocell) without wireless net- video, with so-called Smart DMB services offering video-onwork. Satellite LTE can be accessed from the existing cell phone and rate system without an additional device, and is events. thus actively used on fishery inspection boats and submarine cable maintenance ships.

digital satellite broadcaster in Korea. The company started 4K-UHD test with Electronics and Telecommunications Research Institute (ETRI) using Korea's COMS satellite in 2014 and developed an 'all-HD' system and provided 141 HD launched in Aug 2013 for the high quality video service. channels and HD receivers to all its 4.3 million subscribers for free. Finally in June last year, it commenced commercial operations featuring 3 UHD channel using 18 transponders of Koreasat-6. The company expects UHDTV volume to grow rapidly to reach 26% of Korea's TV market in 2017.

UHD test environment via COMS. 8K test broadcast in 2018 is being planned in time for the PyeongChang, Korea XXIII Olympic Winter Games in 2018.

Leader in DMB Market

As the first country to commercially launch mobile TV in 2005, South Korea appears to be the most successful Digital Mobile Broadcasting (DMB) market in the world. More than 62 million DMB enabled devices have been sold, of which the most popular are mobile phones. The number is ex-

the service cover over 80% of the country. Hundreds of In March this year, KT Sat signed a four transponder DMB devices are available as usage of mobile TV increases. Interactive services are also growing in popularity adding

> Satellite-DMB, a joint service of SK Telecom with Japan's SK Telecom, failed in attracting subscription goals. Ultimately, SK terminated its service in August 2012 with a huge financial loss.

> Terrestrial-DMB service was also launched in December 2005 starting in Seoul and the metropolitan areas, which took off remarkably well because of its free services available via most mobile phones, though it also found floundered financially.

> But the DMB service had since evolved in the smartphone era and today, tens of millions of smartphone users access to mobile television through DMB. The free mobile TV service has become a standard feature among newer cell phones on the Korean market. DMB is also jumpand WiFi networks.

> Tablet PC users can now watch the higher-resolution demand programming from popular dramas to live sporting

An interactive mobile TV service, or Smart DMB, launched in May 2011 with six terrestrial-DMB operators (T Another KT Telecom subsidiary, KT Skylife, is the sole -DMB). With Smart DMB, mobile TV viewers are able to search the internet, receive EPG information updates, and even enjoy 'TV Screen Capture and Share Service' through SNS while watching television. Moreover, hybrid DMB was

Another SK Telecom subsidiary, SK Telink, started a satellite communication service for ships and aircrafts called "SK Smart Sat." The service is a communications satellite service using satellites of providers such as Inmarsat and Intelsat to offer phone, fax and high-quality data networks KT Skylife and ETRI collaboration in R&D is moving to 8K to ships and aircrafts where satellite communication is needed.

> Service users can check emails, read new articles, SNS, and also enjoy additional services such as anti-virus, marine meteorological information and real-time monitoring of fleet operation while afloat using the 4th generation Inmarsat, FleetBroadband.

> This service also supports VSAT which allows unlimited access to high-speed high-quality data networks. Customers can choose from pre-set data limits to unlimited access at flat-rate. This Service can be connected to various additional services such as VoIP, teleconference, Vessel CCTV



Service to Land and remote education for sailors.

It also provides ECDIS (Electronic Chart Display and Information System). This can be tied in with the monthly communications satellite flat-rate plan, lightening the initial implementation cost for ship companies.

SK Telink continues to introduce highly specialized solutions in conjunction with communications satellites through services such as implementation of wireless internet nethardware for improved fuel economy and on-ship ICT Vessel Information System.

SK Telecom said it had 18.98 million LTE subscribers, climbing 13.4% vs. the year-ago period as of the end of 2015. LTE subscribers accounted for 66.3% of the telco's overall mobile base at the end of the quarter, climbing 7.1 percentage points year-on-year.

SK Telecom, established in 1984, one of largest telecommunications company in Korea with more than 28 million mobile subscribers, accounting for over 50% of the market. SK Telecom is known as the world's first company to commercialize CDMA, CDMA 2000 1x, CDMA EV-DO and HSDPA networks, and launched the nation's first LTE service in July resulting in a market volume of US\$386.3 in 2020. User pen-2011. SK Telecom also became the world's first mobile carrier to commercialize 150Mbps LTE-Advanced in June 2013 2020. Analysts say SVoD average revenue per user (ARPU) and 225Mbps LTE-Advanced in June 2014 through Carrier currently amounts to US\$ 66.60. Aggregation. Today, it is also moving towards the nextgeneration mobile network system, or 5G, after it launch internet is giving rise to Internet Protocol TV (IPTV) services, commercial service of 300Mbps tri-band LTE-A CA.

TV/Broadcasting

Asia estimated at 96% with full digitization of TV services erage growth of 150,000 per month.

completed in 2013. In 2014, South Korea had about 14.8 million cable TV subscribers and about 4.2 million DTH subscribers.

But pay TV subscription, over the past two years, is observed to be suffering from an exodus as online streaming grows in popularity. With the growing popularity of DMB or mobile TV, pay TV subscription is waning.

While Digital TV research forecasts that Asia's top 68 pay work while afloat (data allocation and control function by -TV operators will see subscriptions increase to 535 million sailors), Ship Performance Monitoring System based on by 2020, an increase of 74% from 376 million in 2014, South Korea is bucking from the Asian trend. Digital TV Research has said South Korea's pay TV operators are expected to experience subscriber decreases between 2014 and 2020.

> The decrease of pay TV subscribers may be explained by an increase in subscription-based Video-on-Demand (SVoD) services, where content providers offer unlimited access to their content libraries for a monthly subscription-fee or where movies and TV series can be streamed to various supported connected devices.

> In South Korea revenue in the SVoD segment is projected to rise to US\$ 212.6 million in 2016, which is expected to show an annual growth rate (CAGR 2016-2020) of 16.11% etration is at 7.30% in 2016 and is expected to hit 10.53% in

> Korea's high broadband penetration and "giga" speed which was launched in 2008. IPTV services had 12.49 million subscribers as of November 2015, up 16.8% from 10.69 million a year before.

The Ministry of Science estimates that IPTV customers South Korea has one of the highest TV penetration in surpassed the 13 million level in March 2016, given the avproviders followed by SK Broadband and LG Uplus.

Korea's Space Program

South Korea has an emergent space industry that could be competing with other advanced countries in the coming years. The country's space agency, the Korea Aerospace Research Institute (KARI), has so far developed the Korea Space Launch Vehicle-1 (KSLV-1), also called Naro, designed to launch Earth-orbiting satellites. Using Russian Angara boosters developed by GKPNTS Khrunichev, KARI had been able to develop a rocket technology in three phases and has brought South Korea into the exclusive club of space nations.

The KSLV-1 is 33 meters (108 feet) tall and 3.9 meters (12.8 feet) in diameter. It has two stages: a liquid-fueled first stage developed by Russia and a solid-fueled second stage developed by KARI. The KSLV-1 is designed to lift up to 100 kg (220 pounds) to low Earth orbit. After two launch failures, KSLV successfully launched the Science and Technology Satellite-2C on January 30, 2013. The satellite was placed in a roughly 300-by-1,500-km (200-by-900-mile) orbit.

KARI recently disclosed that it has successfully built the engine test systems, assembled the 7-ton class liquid engine, and completed the ignition/combustion testing, which are the main goals of Phase I of the KSLV-II Development Project. It said it is currently in the Phase II of the project.

The goals this year include securing its launch capability and autonomously implement space development. In the future, it aims to launch a lunar exploration program.

In addition to its launch vehicles, KARI has so far manufactured and operated a series of Remote Sensing and Earth Observation satellites known as KOMPSAT or Korea Multi-Purpose Satellite, in partnership with EADS Astrium. South Korea started the KOMPSAT program in 1995 to nurture its national Earth-imaging industry and supply services for remote-sensing applications. It has since launched KOMPSAT-1, KOMPSAT-2 (Arirang-2), KOMPSAT-3 (Arirang-3) and KOMPSAT-5 (Arirang-5).

KOMPSAT-5 was launched on August 22, 2013 to complete unique constellation of two VHR (Very High Resolution) EO satellites and a VHR SAR satellite. KOMPSAT-5, equipped with a synthetic aperture radar (SAR) payload, provides three operation modes: High Resolution Mode, Standard Mode and Wide Swath Mode.

KARI also operates COMS (Cheollian-1, GEO-KOMPSAT-1), a 2,460-kilogram satellite billed as the world's first geostationary ocean monitoring spacecraft designed to measure weather and environment changes. The satellite was launched in 2010 and was built by the ETRI and the Korea Ocean Research and Development Institute, with support

KT Corp. remains the largest of the country's three IPTV from the French government. COMPS is a multifunctional satellite capable of carrying out communications, marine ocean monitoring and weather observation functions. It provides satellite communication services and observes the weather and marine ocean environments around the Korean Peninsula 24 hours a day.

> With the launch of COMS, Korea became the seventh country after the US, Europe, Japan, China, India and Russia to develop its own weather satellite. Consequently, more accurate weather services can now be provided on its own without having to depend on other countries for weather data.

> COMS is also the world's first ocean observing geostationary orbit satellite, which is presently monitoring the marine environment around the Korean Peninsula in real time. As the tenth country in the world to develop a Kaband communications payload, Korea laid has acquired the foundation for a next-generation satellite information and communications system that can provide satellite communications, broadcasting, geographic information and traffic information services.

> KARI is also developing the Compact Advanced Satellite planned to expand the domestic industrial base, foster the satellite industry and to promote the export of satellites. The goal is to develop 12 500-kg class low Earth orbit medium-sized satellites for use in precision earth observation, etc.

> South Korea is indeed developing into a major player in the telecommunications, space and satellite industries. Watch this space for further developments!



Virgil Labrador is the Editor-in-Chief of Satellite Market and Research based in Los Angeles, California. He is the author of two books on the satellite industry and has been covering the industry for various publications since 1998. Before that he worked in various capacities in the industry, including a stint as marketing director

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A Back and Forth with SSPI's New Chairman Bryan McGuirk

by Lou Zacharilla

s is our custom, we try to do a back and forth with each new chairman of the Society of Satellite Professionals International www.sspi.org. The role of chairman of SSPI is important for the entire industry since SSPI is the voice of the satellite community and hosts one of its premier events, the annual Hall of Fame Benefit Dinner (formerly "The Gala") in Washington, DC. (OK, sometimes the event is in Maryland too!)

Bryan McGuirk was elected by the SSPI board as its chairman in March, where he succeeds Chris Stott of ManSat. Bryan is the Chief Operating Officer for ViviSat, where he leads the commercialization of its satellite life extension services program. He is an industry veteran and has been part of senior management at marquee brand companies, including SES, where he was President of the Media and Enterprise division of SES Americom. Bryan also served as President of Programming and Advertising for the interactive TV companies Wink and Open TV. He also worked stints at NBC and Turner Broadcastingl.

He steps into the SSPI role during a time when the Society has expanded its effort to help industry CEOs and managers attract new talent to the industry. In 2015 it published the industry's first Workforce Study and continues to give scholarships to student groups to stimulate interest in the industry. In 2015



Bryan McGuirk

SSPI launched a popular and increasingly viral promotional campaign for the industry, called Better Satellite World. It recently expanded its franchise to include new chapters and events, including the Better Satellite World Awards dinner in London.

Excerpts of the back and forth follows:

Lou Zacharilla (LZ): What are your primary goals for SSPI during your tenure as chairman?

I want SSPI to continue to help our industry attract and retain the next generation of satellite industry leaders through scholarships, sponsorships to industry events and the public celebration of early-career achievements. We also need to continue to connect our industry through SSPI's vast chapter activities and to build membership through new chapters, like our new Silicon Valley and India chapters. We also need to add visibility to the celebration of the luminaries of our industry who changed the world through our Satellite Hall of Fame and HOF Benefit dinner.

LZ: What is the most significant change that will occur over the next 2 years and how will it impact satellite industry professionals?

It is a subtle but real demographic shift in the C-Suite. The coming of age of this generation of satellite CEOs will bring changes. Many of the largest SSPI member companies have recently replaced long-tenured CEOs. The new generation of leaders – some of whom are not from the traditional side of the business – are bringing a fresh approach to expanding our industry. And their focus is different, which will have an impact on performance. I am very optimistic that these new leaders will have a profound impact on us and it will be fun to watch from the Society's perspective.

LZ: SSPI has been opening new chapters in Silicon Valley and India. What is the overall strategy for locating chap-

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Russian Satellite Communications Company

Best Regional Operator of the Year

ters in 2017?

We had a fantastic response from the new Silicon Valley Chapter last year. The support from the fast growing New Space and space-related VC communities has been welcomed and it has moved with amazing speed. I have to thank the great organizational leadership from Hogan Lovells in helping us make that chapter a reality. Our India Chapter recently received government approval and while it will be a different proposition, we are excited to help bring together a fast-growing satellite community in New Delhi. Ultimately, our chapters will be doing exchanges and joint ventures as well, which is something we are very excited about.

LZ: The industry's "Better Satellite World" www.bettersatelliteworld.com campaign was designed by SSPI and now has the support of the industry's media (like Satellite Executive Briefing) and other important trade groups, including ESA and GVF. As the campaign enters its second year, what is your view of its strategic importance to the industry?

The Better Satellite World Campaign is our way of helping our industry connect and to tell our success through stories – dozens of them – and with a unified voice. It is a different narrative. one that, as you said, "offers the world a look at the poetry" of our business and what we do each day to help businesses flourish and to enable a more human society. We are so grateful for the support of leading companies and publications in our industry. We hope that more and more companies come forward both with their stories and their financial support.

LZ: Last year the SSPI "Gala" was rebranded as the "Hall of Fame Benefit Dinner." What was the reason for that?

"...I want SSPI to continue to help our industry attract and retain the next generation of satellite industry leaders through scholarships, sponsorships to industry events and the public celebration of early-career achievements ... "

The SSPI has celebrated its history and recognized luminary leaders in our industry for over 20 years and inducted them into its Hall of Fame. We did this at the Gala event each year, but the two were never strategically connected, which tended to minimize the contributions of these giants. Opportunities for mentorship were also being missed. While our Gala had affectionately been referred to as the "satellite prom" - and once was black tie only we noticed that this was not as rele-

vant anymore. We felt that by making the careers and contributions of key people more central we could actually also raise more awareness and

money. Equally important we wanted people to remember that SSPI is a nonprofit and depends on corporate support to run its chapters, campaigns and to give out scholarships. So inserting the word "Benefit" sends a message that cannot be missed.



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



Wireless and Satellite Industries to **Explore Backhaul Synergies**

by Martin Jarold

n my previous column I referenced satellite industry. the expansion of the GVF-EMP ferences - focused on the application erage "in build", and due to be by 2020. The backhaul optimization of satellite communications technolo- launched, in the coming years than on technologies used to reduce bandwidth gies to a brave new world of ever ex- all the satellite communication pay- which have been introduced cannot panding vertical market opportunities - loads ever launched combined. The solve all backhaul challenges, especially to include a topical remit beyond oil wireless industry is seeing data usage as the roll-out of LTE continues. As a and gas connectivity, maritime, HTS, by business and consumers doubling result there is a need for cost-effective and "Connectivity" to encompass Cellu- regularly, posing network stretch and mobile backhaul over satellite for globlar Backhaul: Smartphones & Tablets technology challenges across the spec- al 3G/4G expansion to relieve congesto the Satellite Network & the World trum. With the growth of M2M, the tion.

in June 2016, and AeroConnect

2016: The In-Flight **Online Revolution** in November 2016 the latter of which I had explored in some detail last month.

In focusing on Cellular Backhaul the June event will highlight the application of satellite technology to the environment of

carrier network enablement The conference is sponsored by network core. Hughes, iDirect, and Intelsat, with pan-

particularly as markets move to 4G/LTE The satellite industry is at a crucial networks which are forecast to need to events partnership's series of con- stage of evolution, with more data cov- support 1,000 times more data traffic



for exponential expansion in the internetsmartphones and tablets. In co- of-things, and 5G in coming years, David Howgill said, "The convergence ordination with the GSM Association these challenges may make 4G LTE of data networks to support critical (GSMA), the one-day, roundtable-style seem like a simple dial up deployment business requirements, personal and event on 21st June at London's Strand of the past. Satellite has excellent syn- consumer needs, fast-growing machine Palace Hotel will explore the current ergies with terrestrial, technologies, -to-machine and burgeoning IoT marinteraction between the satellite and including mobile wireless. Backhaul for kets means that traditional telecommuwireless industries, the current and mobile networks is critical to ensure nications infrastructures can only profuture growth of data traffic from mo- speed and capacity as it relates to the vide a part of the solution to escalating bile devices, and how that will impact transport of data (and, of course, voice) demand. The conference panelists will both cellular and satellite networks. from distributed network sites to the dig into the detail of how the satellite

els featuring recognized operators and lenges in the mobile services market is seemingly never ending growth of mothought leaders in the wireless and achieving scalable, flexible backhaul, bile data."

Cellular **Backhaul: Smartphones & Tablets** - To the Satellite Network & the World will be chaired by David Howgill, GVF's Chairman of Cellular Backhaul Initiatives, and President of Huckworthy - a Washington DC-based provider of hybrid tactical satellite and wireless networks - and moderated by Lluc Palerm of Northern Sky Research (NSR).

Speaking to me about the program, industry can fill the gaps and provide One of the most significant chal- scalable platforms tailored to the



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11





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Lluc Palerm added to this in com- satellite will drop by a factor of six. menting that, "Simply providing bandwidth and connectivity is no longer lenging for mobile operators. With a enough. One of the key value proposi- GEO satellite link latency potentially using Smart Mobile Devices: The contions for satellites is the ability to share resulting in a round-trip delay of 500 to ference will explore how the two induscapacity among multiple sites, which perfectly matches with the bursty traffic patterns of 3G and 4G. With the continued rise of media traffic, this pattern will only accelerate, which is utilization and poor performance. La- known, or expected, in the years leading driver for innovation in the mobile ecosystem."

problems, risks and opportunities that helps as a way of reducing latency, as current leading thoughts, plans and this continued growth offers to both does TCP acceleration/ backhaul opti- technology developments for a world the satellite industry, to the wireless mization, reducing satellite bandwidth that will shape, and be shaped by, the carriers, and to the businesses that will needs, enhancing mobile users' experi- evolution of communications using rely on these future networks, ranging ence and network performance, in- smart mobile devices. from the Fortune 500 to government creasing network throughput and imand the military, and from planes, trains and automobiles to schools, restaurants and businesses all around the data-hungry world.

high throughput satellites (HTS) capaci- tions, resulting in service disruption. ty price points expanding the addressa- The solution is a secondary communible 3G/4G LTE market for satellite cation path added at base stations so backhaul, enabling a significant rise in that voice and signaling can be routed capacity demand. The NSR report, over high availability terrestrial or C-/ 'Wireless Backhaul via Satellite', 10th Ku-band routes, while the packet ser-Edition, shows that satellite capacity vice runs over HTS, maintaining the use demand is forecast to grow at CAGR of the existing infrastructure and en-38.5% over the next ten years, entering suring voice and signaling stays on low the terabit era by 2025. This sets the latency and highly available communistage for an engaging and fruitful con- cation paths but provides an alternaference for both the wireless and satel- tive backhaul approach for service prolite industries.

Other elements of the conference munication paths. dialog will include:

must deliver their services at the lowest possible total cost of ownership. (MNOs) want innovative backhaul arlite backhaul was an expensive option, on mobile network sites without masbut with HTS this is no longer the case sive bandwidth over-provisioning. Im-- even in areas supported by terrestrial portantly, MNOs are looking at the access. Within the next few years, it is segmenting of macro-cells into smaller predicted that the cost of Mbps over (femto-, pico-) cells, a trend presenting

Mitigating Latency: Latency is chal-600 milliseconds. This affects the re- tries may better mutually benefit from sponse time of 3G/4G/LTE data applica- collaboration and cooperation, both tions when sent over satellite, resulting today and in the future. Whilst there is in wasted satellite capacity, link under- no one fixed technological winner tency is a matter of physical law, but ahead, invited panelists, moderators the application side can help mitigate and attendees will have the opportuni-The program panels will explore the the effects of latency. Caching also ty provided by this event to share in proving network response times and reliability.

Link Availability: Some HTS systems are susceptible to rain attenua-The latest NSR research points to tion/fade during bad weather condividers, therefore, eliminating the need to upgrade expensive terrestrial com-

new challenges for the satellite backhaul vendor

The Evolution of Communications

Complimentary conference registration is open to GVF Members and qualified registrants from the telecommunications and government sectors. Space is limited and registration is open on a first-come first-served basis. Registration and full program details are available at www.uk-emp.co.uk/currentevents/cellular-backhaul-2016/, or by contacting EMP (paul.stahl@ukemp.co.uk) or me at GVF. For more information on all GVF-EMP events, please contact me at martin.jarrold@gvf.org. Alternatively, please consult www.uk-emp.co.uk/ current-events/.

Next Generation Satellite Backhaul Reducing Cost: Mobile operators for Emerging LTE and Small Cell De**ployments:** Mobile network operators The cost of backhaul is one of the most chitectures that are robust and flexible important factors. Traditionally, satel- to accommodate shifting traffic loads



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

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Products and Services Market Place

A guide to key products and services to be showcased at CommunicAsia 2016 at the Marina Bay Sands Convention Center, Singapore from May 31-June 3, 2016.

ABS Level 1 booth # 1R3-01 www.absatellite.com



ABS operates a global fleet of 6 satellites including ABS-3A at 3°West the latest addition to the satellite fleet. Its extensive teleport network provides comprehensive coverage to 80% of the world's

population across 5 continents. ABS has strategic alliances and partnerships with state of the art communication hubs, to deliver the best possible satellite solutions.

ABS has enhanced its fleet by procuring two new satellites, ABS-2A with powerful coverage over the Middle-East, Africa, Asia and Russia scheduled to launch in 2016 and ABS -8 for future deployment.

Headquarters in Bermuda, ABS has offices in the United States, United Arab Emirates, South Africa, Germany, Philippines, Indonesia and Hong Kong. ABS is majority owned by the Permira funds which are advised by European Private Equity firm Permira.

Advantech Wireless Level 1 booth # 1J2-01 www.advantechwireless.com

Advantech Wireless supports the critical need for High

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Throughput Satellite communications in

a rapidly expanding digital environment. Our proven lowcost and highly reliable system solutions are meeting the ever-increasing need for high-bandwidth communications essential to military and government requirements, cellular network providers, broadcasters, robust corporate networks, and security. We integrate award-winning research and development engineering into our designs. The result: custom solutions with lowest overall capital and operating costs, together with an unparalleled

commitment to lead the industry in materials, design and reliability.

The company products include award-winning Second Generation GaN based SSPAs/BUCs, Next Generation VSAT Hubs and Terminals with A-SAT-II Optimization, Microwave Radi-



os, Fixed and Mobile Antennas, Antenna Controllers, Frequency Converters, Routers, Satellite Modems and Ruggedized Products.

AvL Technologies Level 1 booth # 1N1-01 www.avltech.com



AvL Technologies' booth at CommunicAsia 2016 will edge antennas. On display

in our booth will be an 85cm O3b MEO tracking Ka-Band antenna. This antenna offers the power of O3b's high throughput, low latency connectivity in a compact, easily

transportable and rapidly deployable design. The tactical terminals operate in tandem pairs (same size) with make-before-break communications and can be set-up and onthe-air within two hours.

We will also display our new



85cm auto-deploy flyaway system. This highly-integrated satellite communication system features a missionconfigurable weatherproof electronics enclosure and represents the latest power efficient technology in a lightweight, airline checkable, 2-case solution. The antenna operates with the AvL AAQ auto-acquisition antenna controller module.

Also in our booth will be a new 1.2m SNG Dual-Band Ku + Surfbeam/Ka Vehicle-Mount antenna with a motorized selectable dual-feed system.

In addition on display will be our lightweight, compact and robust Manual FlyAways – the 70cm axi-symmetrical ultra-compact, eight-segment carbon fiber reflector which assembles in five minutes and the 2.4m nine-segment carbon fiber reflector which assembles in fifteen minutes. These antennas operate in Ku-, Ka- or X-band.

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

C-COM Satellite Systems Inc. Level 1 booth # 1Q4-12 www.c-comsat.com



C-COM Satellite Systems Inc. is a leader in the design, development and manufacture of commercial grade mobile SOTP antennas. iNetVu[®] systems are available in Vehicle Mount, Flyaway, Airline Checkable and Fixed Motorized platforms. More than

7000 C-COM antennas have been deployed in 103 countries around the world in a variety of vertical markets including Emergency Response, Oil & Gas, SNG/Broadcasting and many more.

Under development now, is a new generation of Ka and Ku-band

SOTM (Satcom-On-The-Move) antennas. Be sure to stop by C-COM's booth 1Q4-12 (USA Pavilion)



at CommunicAsia and catch a glimpse of the NEW Ka-band inMotion terminal.

Also on display will be the 981 Drive-Away Antenna, a 98 cm Ku-band auto-acquire satellite antenna system which can be mounted on the roof of a vehicle for

Broadband Internet Access over any configured satellite. The system works seamlessly with the iNetVu® 7024C Controller providing fast satellite acquisition within minutes, anytime anywhere and is field upgradable to Ka-band.

COMTECH EF Data Level 1 booth # 1T2-07 www.comtechefdata.com

Comtech EF Data Corp. is the global leader in satellite



bandwidth efficiency and link optimization. Our

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

COMTECH Xicom Technology Level 1 booth # 1T2-07 www.xicomtech.com

Comtech Xicom Technology provides a broad product line



of KPAs, TWTAs, SSPAs and BUCs for worldwide satellite uplink covering C-, X-, Ku-, DBS-, Ka-, Qband, Tri- and Multi-

band with power levels from 8 to 3,550 watts and available in rack-mount and antenna-mount ODU packages.

At CommunicAsia, Comtech Xicom Technology will be showcasing its SuperCool[™] family of amplifiers which has

many practical advantages over traditional aircooled amplifiers including: ambient noise reduction, ease of service and maintenance, higher reliability, reduced heat load



in hubs, flexible and compact installation and gain stability over ambient temperature.

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

Comtech Xicom engineers are available to help customers understand and specify liquid cooling systems that are right for them.

Gazprom Space Systems Level 1 booth # 1U2-01 www.gazprom-spacesystems.ru



Gazprom Space Systems (formerly Gascom) is a private commercial, non-governmental satellite opera-PACE SYSTEMS tor based in Russia. GSS was established in 1992. Its shareholders

are Gazprom - the world biggest gas company, Rocket-Space Corporation Energia - the leading Russian space enterprise, and Gaszprombank - the largest Russian non-state bank and Gazprom's authorized bank.

The company operates the Yamal Satellite Communication System, providing the users with:

satellite capacity worldwide;

•satellite services in Russia ("point-to-point" links, TV distribution, VSAT networks, broadband, mobile backhaul, trunking etc.).

Today the Yamal Satellite Communications System consists of four Satellites (Yamal-202 at 49E, Yamal-300K at 183E, Yama-401 at 90E and Yamal-402 at 55E), state-of-theart telecommunication center and VSAT networks in the regions of Russia. Total Yamal satellite constellation capacity amounts to 248 equivalent transponders of 36MHz and about a third of it is concentrated in beams pointed over territories outside Russia.

The geography of GSS clients encompasses around 30 countries and services based on Yamal capacity are used in more than one hundred countries. Although on the international market GSS provides pure capacity, the company has a number of partner teleport companies in the Europe, Middle East, Far East, Asia, Africa and America which provide value added services.

The next step of the company constellation enhancement will be Yamal-601 satellite dedicated to replace Yamal -202 satellite operating at 49E. In total at least five new satellites are planned to be launched by 2025.

INTEGRASYS Level 1 booth # 1Y1-09 www.integrasys-space.com



INTEGRASYS is the technology leader in signal monitoring software systems for satellite, ns market.

broadband and telecommunications market.

Our software products are the state-of-the-art in Control Systems in terms of speed, flexibility, efficiency and scalability and introduces a new concept in signal monitoring communications

At CommunicAsia 2016, Integrasys will be showcasing its Satmotion Pocket is the most innovative technology worldwide for VSAT commissioning and maintenance, minimizing OPEX time and interferences. Satmotion Pocket is the winner of the "Most Innovative Technology of the Year" Award 2014.

ND Satcom Level 1 booth # 1U2-03 www.ndsatcom.com

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

The new SKYWAN 5G unlocks new business opportunities for service providers. Total cost of ownership is significantly reduced thanks to the



fact that only one type of device is needed for all roles in the network. Each SKYWAN 5G has the full functionality on board and specific features are unlocked by a license key. One small hardware for all network roles simplifies logistics and unprecedented scalability enables the growth of your network in a very cost efficient manner. This saves costs in terms of logistics, certifications, network configuration and maintenance. Measuring in at only 1 RU the SKYWAN 5G is the smallest hub device on the market.

SKYWAN 5G enables star, mesh, multi-star or hybrid topologies with Communications-on-the-move (COTM) support. Each unit can act either as a hub or master station, therefore adding agility in terms of its network role. Geographical redundancy of the master station is already builtin. The device is so flexible that the customer can change the topology at a later point, use the unit for

Newtec Level 1 booth # 1P2-01 www.newtec.eu

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



Newtec MDM5000 Satellite Modem

With forward symbol rates from 1 to 133 Mbaud and coding up to 256APSK, the MDM5000 will boost efficiency and performance on legacy satellites while fully unleashing the potential of next-generation High Throughput Satellites (HTS). As the latest addition to the Newtec Dialog[®] multi-service platform, the MDM5000 is designed to handle a wide range of IP services, including: Internet and Intranet access, Voice over IP (VoIP), mobile backhauling and trunking, along with video contribution and multicasting.

RF-Design Level 1 booth # 1L2-10 www.rf-design-online.de



RF-Design is specialized in developing, manufacturing and marketing high quality RF distribution solutions for theinternational Satellite-, Broadcast- and Broadband communications market. Our product range includes Switch/Routing Matrices, RF-over-Fiber solutions, Splitters/ Combiners, Switches/Redundancy

Switches, Line Amplifiers, RF/DVB Signal Quality Analyzers and LNB-supply/control systems...perfectly suited for applications in Teleports, Satellite Earth-Stations as well as Broadcast- and Broadband RF distribution infrastructures. We also have strong capabilities

to design and to manufacture custom-made RF distribution solutions for your individual needs. All our products are developed, manufactured, tested and approved in our



own facilities in Lorsch/Germany and characterized by high quality, reliability and superior RF performance.

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

RSCC Level 1 booth # 1V1-07 www.rscc.ru



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

ten largest world satellite operators and owns five teleports and its own optical fiber infrastructure.

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

Terrasat Communications, Inc. Level 1 booth # 1Q2-12 www.terrasatinc.com



Terrasat began in October, 1994, specializing in engineering design and manufacturing of advanced radiofrequency products for satellite and terrestrial microwave

communications systems. Today, the company is focused on innovative RF solutions for satellite communications. The ground-breaking IBUC – Intelligent Block Up converter – brings full-featured, carrier-grade performance to commercial and military satellite communications terminals.

The company's new manufacturing facility on the southern edge of Silicon Valley has nearby access to an abun-

dance of high technology supporting infrastructure and a highly skilled labor force.

UHP Networks Level 1 booth # 1R1-01 www.uhp.net



UHP Networks, formerly known as Romantis Inc, is a leading manufactur-UHP. er of high-performance VSAT network equipment. Our solutions are field proven with over 170 networks and

11,000 remote terminals installed, many operating in most demanding applications with Tier 1 enterprise, broadcast and government customers. The company has its headquarters in Montreal, Canada, with manufacturing operations in Germany and sales and support offices worldwide. Our technology is based on the Universal Hardware Platform (UHP). Owing to its unique real-time operating system, one UHP module can combine industry- highest processing power (450 Mbps of aggregate IP traffic, 250,000 packets per second, up to 5 demodulators) with super-compact size, less than 1 lbs weight, 9W power consumption. The UHP module can work as a remote terminal or as a building block of a hub with up 250 TDMA inroutes, supporting up to 500,000 remotes. With its very advanced TDMA protocol (96% efficiency), sophisticated QoS and 65 Msps, best in class modulation and coding, up to 32APSK with 5% roll off, the UHP technology is the optimum choice for next generation HTS satellite networks.

Work Microwave Level 1 booth # 1V2-07 www.work-microwave.com



At CommunicAsia 2016, WORK Microwave will showcase the latest MICROWAVE The advancements to its analog and digital satcom solutions, including a

new all-IP DVB-S2X product line. Using WORK Microwave's solutions, satellite operators can dramatically increase flexibility, bandwidth, and margins while reducing their operational costs.WORK Microwave devices have been deployed by operators worldwide to support a range of applications within the satellite broadcast and satellite communications markets, including SNG/contribution, direct-to-home, IP networking, teleport management, governmental and more. WORK Microwave's Satellite Technologies division develops and manufactures high-performance, advanced satellite communications equipment for telecommunications companies, broadcasters, integrators, and government organizations that are operating satellite earth stations, satellite newsgathering vehicles, fly-aways, and other mobile or portable satellite communication solutions.

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Booth 1N1-01

GEE to Acquire EMC

ment Inc. (GEE) (NASDAQ:ENT) today announced that it has tively represent a multi-billion dollar market opportunity signed a definitive agreement to acquire Emerging Markets with most growing at an annual rate of approximately 15%. Communications (EMC) a communications services provider Moving into a highly complementary, adjacent market like to maritime and other mobility markets. The combined maritime leverages our existing infrastructure and suppliers company will become a leading provider of global satellite- to achieve improved efficiencies and cost savings, and probased communications and media content serving the rap- vides valuable cross-selling opportunities for our content, idly growing avia-

tion and maritime markets and select land-based Global Eagle Entertainment markets.

Under agreement, GEE

will pay US\$ 550 million for EMC. EMC shareholders will expand our margins, and improve our returns in the years receive US\$30 million in cash and 6.6 million shares of GEE ahead." stock at closing and another US\$ 25 million in 2017, which may be paid in cash or stock at GEE's election. As a result of growing and innovative provider of global mobility connecthis transaction, ABRY Partners ("ABRY"), an experienced tivity and content services," said Avellan. "When the transcommunications-focused private equity investment firm and the majority owner of EMC, will acquire an equity position in GEE as well as the right to nominate a member to world. Our combined scale, product breadth, and superior GEE's Board of Directors. Dave Davis, Chief Executive technology will enable us to deliver solutions that are un-Officer of GEE, will be CEO of the combined company and Abel Avellan, Founder and Chief Executive Officer of the expectation for access to a superiorInternet connection EMC, is expected to serve as GEE's President and Chief and engaging on-board content is constantly increasing and Strategy Officer.

"This is a transformative acquisition for GEE that signifi- portfolio of products and services." cantly expands our addressable market and accelerates our

Los Angeles, Calif., May 9, 2016--Global Eagle Entertain- growth opportunities," said Davis. "EMC's verticals collec-



digital media and operations solutions products. We believe the synergies available through this combination position us well to grow market share,

"We are excited to join forces with GEE to create a fastaction closes, GEE will have a broad, diversified revenue base consisting of more than 400 customers around the paralleled in the market today. Whether by sea, air or land, will continue to drive strong demand for our expanded

SES Takes Controlling Stake in O3B

Betzdorf, Luxembourg, May 2, 2016 structure investments. --SES S.A. (NYSE Euronext Paris and Luxembourg Stock Exchange: SESG)

O3b Networks (O3b) to 50.5% and, in doing so, will take a controlling share in the company. The transaction is subject to regulatory approvals which are expected to be completed during H2 2016.

SÉS will pay US\$ 20

million to increase its fully diluted ownership of O3b from 49.1% to 50.5%, bringing its aggregate equity invest-ment in O3b to date to US\$ 323 million (EUR 257 million). On completion, SES will consolidate O3b's net debt, which is currently US\$ 1.2 billion. The transaction is expected to generate returns exceeding SES's hurdle rates for infra-

and CEO, commented: "The move to has agreed to increase its interest in take control of O3b is a game-changing



acquisition and a major step in the exe- USD 36 million per satellite at steadycution of SES's differentiated strategy and complements SES's growth strate-

O3b delivers a unique capability and solution, which is already in operation, for Enterprise, Mobility and Government particularly for applications in this transaction. clients, where low latency is an increasingly

essential feature. The combined GEO/ Karim Michel Sabbagh, President MEO satellite network and capabilities give SES a truly compelling and differentiated service offering within the in-

dustry, strengthening SES's unique positioning across the data-centric markets.

The consolidation of O3b - the fastest growing satellite network significantly enhances SES's long-term growth profile with the constellation expected to generate annualised revenues of between USD 32 million and

state. Looking forward, both SES and O3b will benefit from the strong synergies and strategic fit across both businesses," added Sabbagh.

Milbank, Tweed, Hadley & McCloy LLP provided advisory services to SES



Is Comtech In Your Toolbox?

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

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Inmarsat Appoints New Nonexecutive Director

London, UK, May 19, 2016--Inmarsat (LSE:ISAT.L), a provider of global mobile satellite communications services, today announced that Pip McCrostie,

Global Vice Chair of Transaction Advisory Services (TAS), one of EY's four global businesses. will join the Board of Inmarsat



on September 1, 2016 as a nonexecutive director and a member of the company's audit committee. Pip retires from EY on 30 June 2016.

A member of the EY Global Executive, the organisation's highest management body, Pip brings many years of experience in corporate finance and tax. In her eight year leadership of TAS, the business has been transformed and moved from third position in the global market to number one.

Pip McCrostie is a member of the Peterson Institute for International Economics board of directors and chair of its audit committee. She is a regular contributor on business issues to CNBC, Forbes.com, WSJ, Bloomberg and Reuters.

O3b Networks Appoint Jack Deasy as VP, Government Solutions

St Helier, Jersey,. May 19 2016-- O3b Networks announces the appointment of Jack Deasy to lead O3b's US and International Government sales and business development efforts.

Deasy joined O3b Networks in 2013 to develop partnerships and solutions to meet the satellite broadband requirements of governments, intergovernmental and nongovernmental organizations. He led some of the first successful government sales engagements for O3b in these key markets.

Previously, Deasy led business development activities for public safety/ disaster response and aeronautical and UAV programs at Inmarsat, and worked Houston, Tex., June 1, 2016--RigNet, at the FCC as both an International Bureau Manager and Latin American Telecommunications Specialist.

O3b provides unique satellite enabled services that bring fiber performance and satellite reach to connect high speed broadband to remote and inaccessible areas of the planet. The executive innovative satellite and network operator was named 2016 Satellite Operator and presiof the Year by Via Satellite and recently dent. began installing some of the first services for international aid agencies and most re-US Government clients across Africa cently and the Middle East.

Philippe Lin Appointed CEO of **Eutelsat China Office**

Communications (NYSE Euronext Paris: ETL) announces that Philippe Lin has 2015. been

appointed CEO of the Group's China office.

Lin will leverage his extensive commercial and institutional experience to



steer the development of Eutelsat's activities in China. He joins Eutelsat from Airbus China after 15 years as Vice-President and Chief Representative. Prior to Airbus he held executive appointments at Total, both in Beijing and in Paris. He began his career in China working amongst others for China's Council for Promotion of International Trade.

Lin is a French national, a graduate of the University of International Business and Economics in Beijing, France's Ecole Nationale d'Administration (ENA) and Canada's Ecole Nationale d'Administration Publique.

Steven E. Pickett Named CEO at RigNet

Inc. (NASDAQ:RNET), a leading global provider of digital technology solutions, announced today that Steven E. Pickett has been named chief executive officer and president. He will be based in Houston and succeeds Marty Jimmerson, who has served as interim chief

officer

Pickett served as chief ex-

ecutive



Steven E. Pickett

officer and president of 21st Century Towers, and previously, he served as Singapore, May 30, 2016 - Eutelsat chief executive officer of WesTower 2013 Communications from to Prior to WesTower, Pickett served as chief executive officer and president of Telmar Network Technology from 2008 to 2013. Pickett has served on the board of QuEST Forum since 2010, where he currently serves as chair emeritus. With strong industry background and demonstrated experience in leading significant international companies, Pickett brings a wealth of experience to RigNet. Pickett said, "I am very excited to join the RigNet team. RigNet has established itself as a best in class managed-services provider and I see many opportunities for us to build on that success going forward."

> "We are excited to have Steve join the RigNet team and have confidence in his ability to propel RigNet forward as we expand service offerings and step into new markets," said Chairman James Browning. "Steve's prior experience and leadership skills position him very well to lead the company with fresh perspective. We look forward to introducing him to our employees, customers, suppliers and investors in the near future."

> SpencerStuart assisted RigNet with the CEO search.

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Broadband Maritime Markets Driving 8% Revenue Growth

Markets, 4th Edition, finds that maritime markets continue mixed opportunity for Service Providers, but can they capto demand more from their connectivity – with a steady ture revenue from the 'app as a service', or from the sole move towards a 'connected vessel' across all major seg- provision of capacity? Still largely unanswered, one aspect ments. Although some contraction has occurred in key mar- is known - the demand for broadband connectivity is only kets, lower satellite capacity pricing is opening the tap for increasing." broadband VSAT adoption. With retail revenue growth annearing 30%, the trend is clear – we are well into a trend of increasingly higher connectivity for maritime customers.

"The demand for data continues to grow, as more capacity is launched by satellite operators to cover maritime markets," states Brad Grady, Senior Analyst with pricing is definitely a boost to end-user appetite for connec-NSR. "With more supply pushing bandwidth costs lower, end-users are responding by ramping up their demand for VSAT connectivity across all segments – merchant, passenger, offshore (oil & gas), and fishing. As Mbps prices lower, vessel connectivity revenue is on the rise, providing growth opportunities for service providers."

Cambridge, Mass., June 8, 2016-NSR's Maritime Satcom adds, "New and emerging application ecosystems provide a

Today, maritime satellite connectivity is quickly moving nually exceeding 8% from 2015 – 2025 and HTS-options from a 'nice to have' to the 'must-have' item in nearly all major maritime verticals - everything from merchant maritime to fishing vessels are demanding more data across all of their operations. With over 240 transponders of FSS capacity and 46 Gbps of HTS demand by 2025, lower capacity tivitv.

> There is not a 'one-size-fits-all' solution for maritime connectivity, and as satellite operators continue to look for ways to improve margins, service providers consolidate and increase their purchasing power, end-users will continue to benefit from this increasingly competitive marketplace.

Dallas Kasaboski, Analyst at NSR and report co-author

4K Set-Top Box Market to Quadruple

7 million in 2016, and then grow by 46% annually through 2021. However, the overall set-top box market is on the in scale due to recent mergers and acdecline, expected to drop by about nine percent in 2016 to less than \$16 billion in revenue, with both Pay TV and free-to-air boxes losing value.

"Digital transitions are taking longer than initially planned and the market is experiencing significant downward pressure on set-top box pricing," says nues, including EchoStar and Humax. Sam Rosen, Managing Director and Vice President at ABI Research. the U.S. as the largest set-top box mar- platforms, augmented by set-top boxes "Hardware revenues will fall, but value ket by units in 2010, remains in the with some storage and advanced IP through software and services remains lead. India beat out the U.S. just last services, are becoming important for an opportunity. Providers should be year as a failed digital cable transition select telco operators who are backing

Oyster Bay, NY, May 18, 2016--ABI challenges, in addition to testing and top box shipments. Given market cir-Research forecasts the 4K set-top box integration, to help the overall market cumstances, ABI Research predicts Inmarket will quadruple from less than flourish as well as focusing on 4K and dia will continue to grow its set-top box two million units in 2015 to more than HDR color set-top boxes will in the shipments and likely surpass China as years ahead."

> Set-top box providers are increasing quisitions, including market leader Arris taking over Pace and Technicolor acquiring Cisco's set-top box unit. Addibillion in revenues, leaped ahead of a year with drops of 25 to 40% in reve- important to note that satellite broad-

Regionally, China, which overtook TV looking to take on logistics and lifecycle spurred a large amount of satellite set- away from licensing content."

shipment leader in 2018 or 2019.

"Significant market consolidation already occurred," concludes Rosen. "Operators worldwide are now carefully considering new opportunities to deliver video services, specifically tionally, Huawei, at just more than \$1 through the use of streaming media adapters and adaptive bitrate, better number of vendors that faced a difficult known as ABR, IP-based protocols. It is cast remains a significant factor in Pay distribution while terrestrial



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Market*Briefs*

Key industry trends and opportunities

Internet of Things to Overtake Mobile Phones by 2018

Ericsson (NASDAQ: ERIC) Mobility Report, published today, operators to monitor. reveals that the Internet of Things (IoT) is set to overtake mobile phones as the largest category of connected device with commercial LTE networks supporting downlink peak by 2018. Between 2015 and 2021, the number of IoT connected devices is expected to grow 23 percent annually, of which cellular IoT is forecast to have the highest growth as Japan, US, South Korea and China, but rapidly spreading rate. Of the 28 billion total devices that will be connected by to other regions. Mobile users will enjoy extremely fast time 2021, close to 16 billion will be IoT devices.

tions - the number of IoT devices in this market is projected to grow 400 percent by 2021. This will principally be driven by regulatory requirements, for example for intelligent utili- include:

Stockholm, Sweden, June 1, 2016--The latest edition of the bined), makes them the most important group for cellular

In 2016, a long anticipated milestone is being passed data speeds of 1 Gbps. Devices that support 1 Gbps are expected in the second half of 2016, initially in markets such to content thanks to this enhanced technology, which will Western Europe will lead the way in adding IoT connec- enable up to two thirds faster download speeds compared with the fastest technology available today.

Further highlights from the Ericsson Mobility Report

ty meters, and a growing demand for connected cars including the EU e-call directive to be implemented in 2018. Rima



Α global growth stomobile ry: broadband subscriptions will grow fourfold in the Middle East and Africa between 2015 and 2021; mobile data traffic in India will

innovative applications emerge. From 2020, commercial deployment of 5G networks will provide additional capabilities that are critical for IoT, such as network slicing and the data traffic grew 60 percent between Q1 2015 and Q1 2016, capacity to connect exponentially more devices than is possible today."

Smartphone subscriptions continue to increase and are forecast to surpass those for basic phones in Q3 this year. By 2021, smartphone subscriptions will almost double from 3.4 billion to 6.3 billion. Also revealed in the report, there **2016**: there were 150 million new subscriptions during the are now 5 billion mobile subscribers - unique users - in the world today, which is testament to the phenomenal growth of mobile technology in a relatively short period of time.

Detailed in the report is a dramatic shift in teen viewing commercially available in 2016. habits: use of cellular data for smartphone video grew 127 percent in just 15 months (2014-15). Over a period of four countries planning early 5G deployment: 5G is expected to years (2011-15) there has been a 50 percent drop in the start more quickly than anticipated, and spectrum harmonitime teens spend watching TV/video on a TV screen, and in contrast an 85 percent increase in those viewing TV/video This is in addition to the current process for WRC-19, which on a smartphone. This, and the fact that the upcoming gen- focuses on spectrum for commercial 5G deployments beeration of mobile users are the heaviest consumers of data for smartphone video streaming (Wi-Fi and cellular com-

Qureshi, Senior Vice President & Chief Strategy Officer, Er- grow fifteen times by 2021; and despite being the most maicsson, says: "IoT is now accelerating as device costs fall and ture market, US mobile traffic will grow 50 percent in 2016 alone.

> Data traffic continues unabated growth: global mobile due to rising numbers of smartphone subscriptions and increasing data consumption per subscriber. By the end of 2021, around 90 percent of mobile data traffic will be from smartphones.

> LTE subscriptions grew at a high rate during Q1 quarter - driven by demand for improved user experience and faster networks - reaching a total of 1.2 billion worldwide. LTE peak data speeds of 1 Gbps are anticipated to be

> Additional spectrum harmonization needed between zation is needed between countries planning early roll-outs. yond 2020.



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Satellite Made Easy with Smarter Tools

by Alvaro Sanchez

2020.

Very Small Aperture ing able benefit from this extra capacity power adjustment terminals. that HTS generates and maximize the

lite broadband is starting to be a key alternative to fiber and other type of terrestrial connectivity by simplifying the access and providing a greater value proposition thanks to smarter tools which allow installing and maintaining VSAT network much easier than ever before, even simpler than terrestrial infrastructure

Complex Networks

VSAT systems by its nature are often in remote environments, where is very hard to get on site to start the service, this bring a key difficulty because sometimes an installer is reguired to travel to the site during three days, install the dish and commission it; in order to do so they are required to call to the Network Operation Centre (NOC) or Hub support, however without any cellular connectivity is almost impossible the commissioning task.

Regularly there are terminals which are not installed correctly, providing a poor performance to the end customer, but more importantly degrading the

igh Throughput Satellites (HTS) This effect is maximized in HTS scenario will provide a result in a rough area of 1 iare changing the satellite busi- where margins are smaller and the or 2 square miles; then it should be ness model by multiplying the VSATs are forced to work to the maxi- looked for the candidate in helicopter. capacity up to 100 times the FSS capac- mum performance, therefore the en- Once this is done a technician should ity; therefore broadband satellite ter- tire beam performance or even the revisit the installation. This long prominals would be growing at least in entire network can get degraded by the cess causes significant expenses to the similar order of magnitude to cover the effect of a single remote. In this new satellite operator in interference reveconnectivity demand worldwide for High Throughput Satellite era, VSAT nue loose, geolocation system CAPEX networks will be huge, if one single and service provider in travel and in-Terminal VSAT is mispointed or saturated; it can stallation expenses and service revenue (VSAT) manufacturers are making those have an impact on the entire service loses. terminals all the more efficient for be-performance, especially on adaptive

service performance. Moreover, satel- unmanned to operate for years, and eration, either due to human error

Of course, the complexity of VSAT networks is not limited to installation. Once the VSAT is installed, it is left It is easy for errors to occur during op-

from onsite personnel,

or other factors outside

of the operator's con-

trol, such as atmos-

An added complication

is that many VSAT networks are also mobile

where the unit is con-

stantly on the move. In

those cases, it can have

perfectly

well

pheric conditions.



even when they are not operating cor- but then every time it moves, you risk rectly, often those people on site won't all those same misalign problems again. be trained in operating satellite equip- Often the personnel accompanying the ment. Therefore an installer has to unit won't be highly trained in satellite come back on site to revisit the installa- communications, but even when they tion; in some cases even a helicopter is are, it means a constant job of realignrequired.

In case the VSAT was not installed working at its optimum. correctly, a long process should be done by the satellite operator notifying the service provider that there are some VSATs in its network which are interfering other services or even other satellites, and the satellite operator will need to geolocate the interference with an expensive geolocation system during days and only possible if there is a "friendly" adjacent satellite which would like to share the satellite epheoverall service by creating interference. merides information. This geolocation

installed and pointed, ing to ensure the equipment is always

been

Smarter Tools

Today when those networks are deployed, service providers can ensure these effects will not be experience by counting with smarter tools which allow them to prevent and mitigate these service degradations and interference.

"At Integrasys, we believe that Preventing is the Key": if a VSAT is installed accurately, by analysing its transmission, we ensure that for a long period of time this site will be performing opti- work performance enhancement and mally. By performing the Peak & Pol in reduction of maintenance time, effort, transmission the installer is capable of and interference by automating the minimizing the squint error and maxim- checks and corrections from the NOC. izes the availability; even for higher Alusat is deployed at the Hub site and frequencies such as Ka, and heavy rainy automatically checks the uplink and days.

erating within its ideal power thresh- configuration and performance inforolds, one of the key VSAT issue hap- mation. pens when the remote is in a wrong power level. The installer should be Satmotion Pocket and coexists sharing capable of determining the BUC satura- the same hardware, allowing the hub tion point and optimal power in clean operator to evaluate the overall netskies. This automated process is done work performances with a single click, by using an extremely user friendly just in case anything has happened to interface designed for installers, crew change the status following accurate members or even end customers, for installation using Satmotion Pocket being fully controlled.

Automated tools such as Satmotion Pocket which help them with coarse Satellite Made Easy pointing, fine pointing, Cross Pol or ASI nulling, compression point and commissioning are ideal for installing quick- getting all the more prevalent and all er and accurate almost forever.

network continues to operate accurately and without degrading performance Management Systems (NMS) assume that satellite terminals are reachable and therefore aim to optimise network performance or detect terminal malfunctions based on satellite IP feedback. However, errors at the premises, such as antenna de-pointing or signal level variations, usually result in the Youtube which explains that today with VSAT connectivity break.

Today it is much efficient with easier solution. smarter tools such as Alusat by allowing to calibrate the network and maintain in optimal performance fully automated. Service providers can check within seconds each remote reception which have been and transmission RF quality, without benefiting the need to send an installer to per- this smart tools form lineup checks. Therefore Alusat already with great provides the network overall view of success in their every key RF parameter to ensure the projects such as maximum accuracy and optimal perfor- ViaDireta with a mance, taking in to account the satel- iDirect Evolution lite beam footprints. It can even recov- network er VSAT out of service.

The result of Alusat, is overall netdownlink health of the VSAT population Moreover, a VSAT needs to be op- at radio level. It also collects relevant

> Alusat is an evolution of our existing remote commissioning.

In a world where VSAT networks are The VSAT industry now needs to get than ever to make it easier for the end with innovative tools.

> The more automated the processes and easier for the end customer can be, making life better for the entire industry and more profitable for those service providers who benefit from these automations.

"Satellite made Easy" video available in vice, Telefonica Peru. smarter tools satellite could be a much Pegaso Banda Ancha with 5062 VSAT

Smart Providers

There are many service providers throughput platform."

from 1200 VSAT de-



Alvaro Sanchez is Sales & Marketing Director at Integrasys. Alvaro is responsible for Satellite Carrier Monitoring at Integrasys, providing most innovative solution to satellite operators and service providers. Alvaro prior to join Integrasys was signal analysis expert at CERN European Organization for Nu-

with clear Research. He can be reached at: alvaro.sanchez@integrasys-sa.com



Pegaso Banda Ancha, Toluca, Mexico

ployment in Amazonia, Brazil, on a very extreme conditions, installers must travel in canoes in the river and install the VSAT over the river at the same time that they manage to not fall from the more complex, it is more important the canoe; without knowing which type of animals are under the Amazonas smarter after installation to ensure the customer and all industry in general river brown waters. Another example is Telefonica Peru, being the first service provider within Telefonica group acor creating interference. Most Network and error detection, the more efficient quiring Satmotion Pocket: "By using Satmotion Pocket and iDirect hubs we have ensured the maximum deployment quality in our VSAT projects for commercial and governmental applications"; said Martin Cabellos Gomez, At Integrasys we have released Senior Product Manager, Satellite Ser-

Also another great example is deployment for bridging the Digital Divide in rural areas in Mexico, which is part of the Mexico Conectado initiative with the Hughes JUPITER™ System high

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Vita Statistics

Asia-Pacific OTT TV and Video Revenues



Source: Digital TV Research

OTT TV and video revenues for 17 countries in the Asia Pacific region will reach US\$ 18,396 million in 2021; up from US\$ 707 million in 2010 and US\$ 5,741 million in 2015. The Asia Pacific OTT TV & Video Forecasts report estimates that China will overtake Japan in 2016 to become market leader.

Satellite Executive Briefing

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