

Industry Trends, News Analysis, Market Intelligence and Opportunities

### **Trends to Watch 2015**

### by Virgil Labrador, Editor-in-Chief

6.74% in 2014, which is consistent with the average Video Household Forecasts report. China alone will growth rates of the industry as whole in the last few add 140 million, taking its 2020 total to 206 million years as tracked by the Satellite Industry Associa- - or more than the whole of Europe. China

tion. In this issue, we look back at the key events in 2014 and how they will shape the trends to watch in 2015 and beyond.

### **OTT:** Promise or a Threat?

At the CASBAA convention in Hong Kong in October last year, satellite operators were very concerned with device shifting by audiences in Asia. It is no secret that broadcasters and Over-the-Top services will reach est revenue segment for satel- globally by 2020. lite operators. The over-the-top

(OTT) Pay-TV market, which bypasses the traditional set-top-box usually provided by cable and The successful demonstration of 4K TV during the satellite subscribers, will be growing exponentially from US\$ 5.8 billion in 2014 to just over US\$ 10 has helped hasten its adoption by consumers. 4K billion in 2018 according to research firm Infonetics. TV sets are expected to ship 11.6 million units in The number of households watching online TV and video (over fixed broadband networks and across counting for over 70% of worldwide demand. 51 countries) will reach 706.53 million in 2020, up Western Europe and North America, share of 4K from 196.90 million in 2010 and the 374.43 million

expected in 2014, according to a new report from Digital TV Research. The Asia-Pacific region will 014 was another eventful year for the global gain 231 million more OTT TV homes between 2013 satellite industry. The Satellite Markets and and 2020 - or 61% of the global additions over the Research 25 Index<sup>©</sup>(see page 36) grew by same period, according to the Global Online TV &



cable programmers are the larg- more than half of all TV households

will overtake the US in 2014 to take top slot.

OTT is a double-edge sword for the satellite industry. It can take away market share from their broadcast clients, or it can present new opportunities for distribution. This calls for innovative solutions which will use IP over satellite technologies to take up some of the bandwidth required by OTT providers.

#### 4KTV is the Next Wave

FIFA Football World Cup held in Brazil last summer 2014, up nearly 700% year on year, with China ac-In

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What's Inside

### **SCPC or TDMA?**

Wrong Question...instead, consider how:

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Satellite Executive Briefing



# SCPC or TDMA? Wrong Question...

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### Year 8



f you look at our masthead in the cover page it identifies this issue as Vol. 8, no. 1. The "8" represents the eight year of publication of Satellite Markets and Research in 2015. When we started this business in the middle of the 2007 stock market crash and subsequent global recession, I wouldn't have imagined the scope and breadth of what we have achieved today. The

satellite industry has more than doubled in size and the Satellite Markets 25<sup>©</sup> Index (see page 36) has appreciated 83% in that span.

Satellite Markets and Research is truly global in scope with a major presence at all the key satellite industry shows in every continent. Our presence is not just limited to having booths or publication bins, but to partnering with organizers to chair sessions or provide key presentations at industry conferences worldwide. We also have an Annual Awards ceremony, the Vision Awards at SATCON in New York, now going on its fourth year.

We have also continued to expand our portfolio of publications, both print and online and have constantly improved its features. Our occasional MarketBriefs reports has been very well received and we will be producing more of these in 2015. The video section of our site, brought to you by Globecast, is also very popular. Watch out in 2015 for various enhancements we will be implementing for our website <u>www.satellitemarkets.com</u>, the monthly print and online Satellite Executive Briefing magazine and the MarketBrief reports.

We owe our modest success to you our readers and subscribers and of course our valued advertisers and sponsors. We hope we can count on your continued patronage and for our part we will strive to continually provide you with vital coverage of the key trends and developments in the global satellite industry.



### **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, Hong Kong, Chris Frith, Singapore, Riaz Lamak, India

Intern: Niko Rodriguez

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For Advertising enquiries send an e-mail to:

sales@satellitemarkets.com

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#### Trends to Watch 2015 ... From page 1

8% respectively, with demand expected to grow at 72% CAGR until 2018.

Since it was first announced, 4K Ultra High Definition Television (4K UHDTV) has been met with both excitement and skepticism within and outside of the

made a firm decision to launch a 4K UHDTV service and next four years). The main driver cited by media companies addition to many companies' bottom line. was the ability to provide the competitive differentiation necessary to attract new subscribers to their linear broad- Update on Other Trends cast and cable television channels.

#### Watch the Aeronautical Space

Entertainment and Connectivity, the global in-flight connectivity market is expected to grow over the next 10 years, with over 12,900 commercial and 24,000 business aircraft aviation has done when it first took off over a hundred providing in-flight connectivity to passengers by 2023. Along years ago. with the growth in installation, both the take-up rate and ARPU are expected to improve. As a consequence, total revenue from passenger connectivity services is expected to Virgin Atlantic, however, remains committed to launching grow from US\$ 440 million in 2013 to US\$ 2.1 billion by their commercial space venture soon. 2023.

The disappearance of Malaysian Airlines flight 370 in March 2014 brought to the fore the need for a global satellitebased tracking system for commercial airlines. We saw the pivotal role of Inmarsat satellites in detecting the last signals from the wayward aircraft, but obviously much more is needed to keep the airways safe. Look to the worldwide airline community to push for adoption of more sophisticated global aircraft tracking technology.

#### M2M and IoT: Opportunity for Satellite

The Internet of Things (IoT) involves all devices including household appliances and other everyday tools being connected to the internet. Cisco estimates that there will be over 50 Billion (that's Billion with a B) devices connected to the internet by 2020. The global IoT and Machine to Machine (M2M) communications market is estimated to grow from US\$ 255.87 billion in 2014 to US\$ 947.29 billion in 2019, at a Compound Annual Growth Rate (CAGR) of 29.9% during the forecast period of 2014-2019 according to Research and Markets.

Satellite service providers are already trying to gain inroads

demand in 2014 will represent 10% and "... There will be many challenges facing the satellite industry in the coming years. However, if the industry will continue to be resilient and innovative as it has done many times in the past, it should find itself in good stead .... "

media industry. According to new research from satellite in the IoT and M2M markets. The more successful ones operator Intelsat, 4K UHDTV will be main stream within 10 have been in the M2M market for applications in the oil and years. Intelsat's survey respondents stated that they have gas, mining , maritime and other vertical markets. Given the large market for IoT and M2M, even if the satellite industry have a specific timeframe for its roll out (23% within the only gets a fraction of the market, it will be a substantial

Last January we identified key trends to watch which mostly came to fruition (see January 2014 issue of the Satellite Executive Briefing). But some have been delayed and still According to Euroconsult'sreport, Prospects for In-Flight worth watching. One of them is the launch of the commercial space tourism industry as it might lead to new opportunities in expanding the space industry, much as commercial This has been delayed considerably as a result of the crash of Virgin Atlantic's SpaceShip Two craft killing its co-pilot and seriously injuring the pilot in October 2014.

> Meanwhile, the new Space Race continues to intensify in 2014. In September 2014, India on its first try, successfully orbited its Mangalayaan spacecraft to Mars. China continues to achieve key milestones in 2014 with the successful launch of its first moon orbiting mission in October.

> There will be many challenges facing the satellite industry in the coming years. However, if the industry will continue to be resilient and innovative as it has done many times in the past, it should find itself in good stead amid the constantly changing multiplatform media environment. ~



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

marketing director for the Asia Broadcast Center, a fullservice teleport based in Singapore. He can be reached at virgil@satellitemarkets.com

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## The Latin American Satellite Market

#### by Bernardo Schneiderman

atin America continues to be a satellite hot market for satellite commu- launch nications. There is a growing mar- from China for a ket for C-, Ku- and Ka-band services for national Broadcast, Internet, Backhaul, Government, Mobile Communications and Oil satellite & Gas applications, among others.

The Latin America Gross Domestic Arsat 1 on Oc-Product (GDP) as a whole, is forecast to tober 16, 2014. grow by only 2.5% in 2014, well behind the projected world average of 3.6%. Hispasat, 2015 is expected to be a more favorable year economically for the region. The region's best performers in 2014/2015 include Panama, Peru, Bolivia, Paraguay, and Colombia, where GDP growth is expected to top 4.5%. Panama outshines every other country in the region, with 7.2% growth forecast for 2014 and 6.9% for 2015.

At the Latin America Satellite panel at the Satellite conference in Washington, D.C. last March 2014, satellite operators and services providers were in agreement that regional government demand for broadband connectivity should help prevent the market from an oversupply situation that would cause transponder lease prices to crash.

The major satellite operators that have established operations in Latin America include SES, Intelsat, Telesat, Hispasat and Star One. The Andean Community is providing a slot to SES. Eutelsat has acquired Satmex of Mexico, renamed it Eutelsat Americas and is planning a rapid expansion of capacity in the region. Additionally Brazil now with Visiona (joint venture Telebras and Embraer) is building a new satellite for the Government and Defense that include X- and Ka-band payloads.

and service telecommunications program. Argentina launched just

now more than ever, is determined to maintain its position in Latin America in the

face of a recapitalized Satmex acquired to-home television community that is by Eutelsat, was the first to introduce a hosted at that orbital location, includlarge Ka-band offering into the region ing Brazilian pay TV operator GVT. Over with Amazonas 3. Hughes and EchoStar the longer-term, Hispasat has prohave access to a Brazilian orbital slot cured capacity on the Galaxy 11 followbut have not yet begun construction of a new satellite for the slot because of a pected to launch during the second half lack of partners for a direct-to-home of 2015. Hispasat and Intelsat will cosatellite television business.

Another key development in the Latin American market was the announcement in the middle of 2014 by Hispasat and Intelsat of a cooperation agreement which will allow both companies to enhance their position in Latin America.

Hispasat and Intelsat have agreed to share the future use of the Brazilianfocused Ku-band capacity on Intelsat 34, which is scheduled to be launched in the second half of 2015, providing continuity of service and growth at the 55.5 degrees west orbital location. Since June 2014 Hispasat's Amazonas 1 satellite has been co-located with Intelsat's Galaxy 11 satellite, increasing resiliency and expanding resources from this region. But now with Intelsat available to the quickly growing direct- 30 and the next three spacecraft com-



on satellite, Intelsat 34, which is exoperate at 55.5 degrees west, continuing to build the momentum at this important Latin American video neighborhood. "Our collaboration with Hispasat, which we initiated earlier this year, has been instrumental to building the momentum for media applications at this orbital location," said Intelsat President and CCO Stephen Spengler. "Their presence at this orbital location through Amazonas 1 today and on Intelsat 34 in the future, has enhanced both of our positions in the region."

In October 2014, Intelsat launched its Intelsat 30 satellite at the 95<sup>°</sup>W aimed at expanding services in Latin America where the company already dedicates a quarter of its fleet. In 2013, 16 percent of the company's revenues came

Bolivia contracted the manufacture of a

ing online: Intelsat 31, Intelsat 34 and panding the first satellite in the Intelsat EPIC the line-EpicNG system, Intelsat 29e, the com- up of HD pany is looking to to focus in high growth segments that include media, at cellular backhaul and mobility applica- fordable tions.

Governments in Mexico, Brazil and Argentina are implementing new satellite systems, mainly for government and defense and for programs bridging the digital divide . Venezuela and Bolivia has its own government telecommunications satellite. Colombia and the Andean group of nations are in various stages of development of their own systems.

### The Pay TV Market

One of the key drivers for demand for satellite services in Latin America is the growing Pay TV market. The Latin American pay TV services market is expected to continue its growth trajectory due to the rise in postpaid subscriptions for direct-to-home (DTH) TV. The demand for value-added services such as high-definition (HD) and video on demand (VOD) is further spurring market development. Innovative commercialization models including prepaid plans and multiple-play bundles add to market revenues.

New analysis from Frost & Sullivan, Latin America Pay TV Services Market, finds that the market earned revenues of \$20.43 billion in 2013 and estimates this to reach \$30.91 billion in 2019. The number of subscribers in the region will touch 86.1 million by 2019 from 55.9 million in 2013, hitting a household penetration rate of 57.9 percent. The study covers cable TV, DTH, multichannel multipoint distribution service and Internet protocol TV (IPTV).

"As customers increasingly expect higher video quality and content diversity, Latin American operators are ex-

channels afprices," s a i d Frost & Sullivan Information and Communication Technologies Industry Manager Renato



The 2014 FIFA World Cup held in Brazil saw the first demonstratins of Ultra HD transmission of a major global sporting event, helping to fuel the growth of broadcast services in Latin America. Pasquini. (image courtesy of Broadcom) "While

some companies have already packed their portfolios with HD channels, others are speeding up the transition from standard-definition to HD to boost incremental revenues per user."

Operators are looking to combine voice, data, video and mobile services in bundles to lower service costs for their customers. However, the heavy As sophisticated delivery models gain taxes levied on pay TV services, especially in Brazil, and the low returns on network deployments in remote areas and small cities challenge operators' ability to offer convergent services.

The next era of pay TV will, therefore, coincide with the introduction of new network architectures that place content close to the user. As a result, VOD is likely to become one of the main modalities for consuming video, enadelivered services than traditional content delivery. Hence, the over-the-top (OTT) segment, though currently not a threat, may eat into the market share of pay TV services depending on the Brazil, Mexico and Peru are set to see quality of broadband offerings and at- the greatest growth rates due to their tractiveness of content.

"In a bid to combat this, IPTV and a will be the four largest pay-TV markets considerable number of cable TV pro- by number of subscribers, accounting

viders will include VOD services on their set-top box by 2019," noted Pasquini. "The ensuing competition among cable TV, DTH and IPTV operators, especially in Brazil, Chile, Colombia and Mexico will improve the availability and quality of services, add value to service offerings, and enhance price points."

ground, broadening the geographic footprint of pay TV services will take the Latin American market to the next level of competitiveness.

With Latin America's pay-TV sector rapidly growing in both large and small countries of the region, the subscriber base of the seven largest markets will near 90 million over the next four years.

bling a look and feel closer to Internet- According to Dataxis' latest report, by 2018 pay-TV penetration in the region will be almost 60%, 4.6 times more than eight years ago.

> relatively low rates of development. Argentina, Brazil, Mexico and Colombia

for 85.1% of total subscribers in the region in 2018.

Dataxis forecasts that more than nine out of ten pay-TV subscribers will be paying for a digital service by 2018, with direct-to-home (DTH) claiming 58.4% of total pay-TV subscribers. Digital cable will rank second with almost 30% of the total, while IPTV will account for just over 6%.

Dataxis research also shows that during the past five years a high concentration of business was registered by the ten largest pay-TV groups in the region, with America Movil and DirecTV being The report, "Evolution of HD Channel

the two groups with the greatest growth rate in the period.

By the end of 2014, pay-TV revenues in the seven countries covered will \$21.45 billion. reach while by 2018 revenues are expected to top \$25.1 billion.

The latest Dataxis research shows that Latin America reached the 66.08 million Pay TV subscribers by the end of the third quarter of 2014. Thus, the region in-1.2% in the quarter. in Latin America with 19.4 (image courtesy of Hispamar) million Pay TV subs and

Mexico is placed second by exceeding the 16 million. The seven most important markets of the region (the two previously mentioned plus Argentina, Colombia, Peru, Chile and Venezuela) represent more than 87% of the total number of subscribers.

The leading access technology in Latin America is Satellite TV with 32.6 million customers, while Cable TV is close with 31.6 million. Meanwhile, IPTV users already add up to 895,000, since its base increased by 9.2% during the third quarter.

### HD TV

The number of HD channels in Latin America has seen constant growth over the past three years boosting the total number of HD subscribers across the region to 12.1 million as of Q2 2013. A new report published by Dataxis reveals that the seven largest markets in the region - Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela - together counted 11.06 million HD subscribers as of Q2 2013, representing 91.6% of the region's total.

"Evolution of HD Channel Offerings in Latin America" also shows there were 60 pay-TV operators with an HD offer as of October, 2013, led by Brazil (with 15 HD operators); Argentina (with 12), Mexico (10), Chile (10), Venezuela (5), Colombia (4) and Peru (4).

Dataxis reports that Mexico has the highest average of available HD channels, followed by Brazil, Colombia, Argentina, Peru, Chile and Venezuela. Brazilian media group, TV Globo, produces the highest number of HD channels, followed by Time Warner, News Corp and DirecTV.



The Amazonas 5 satellite to be build by SSL is planned creased its user base by for a 2016 launch. The satellite will be providing services primarily for satellite TV platforms, a growing Brazil is the main country segment in Latin America.

Offerings in Latin America", shows that Brazil accounted for 60.2% of total HD customers, followed by Mexico, Argentina, Chile, Colombia, Peru and Venezuela.

Furthermore, research by Dataxis identifies 164 HD channels with programming actively reaching viewers, as of October 2013. Of the total, 124 channels were distributed exclusively via pay-TV networks, while the remaining 40 were domestic FTA HD channels also Another major satellite operator in available on pay-TV HD packages.

### Brazil

The largest satellite market in Latin America is Brazil where local and international operators provide capacity for all key seg-Among the local ments. domestic license operators include Star One, Telesat do Brasil, Hispamar (a subsidiary of Hispasat) Eutelsat and forthcoming is Visiona entering the market in 2016.

During a Satellite conference in Brazil last September Mr. Eduardo Bonini CEO of Visiona informed that the first Geostationary Satellite Defense and Stra-

tegic Communications (SGDC) should be launched by Visiona, a joint venture between Embraer and Telebras, in 2016. Bonini, said that they have already started planning the launch of the second satellite, initially planned for 2019 "The second SGDC, in my view, should already begin to be planned and launched before 2019, because that is already showing first saturated capacity and will be released in 2016, "he said.

Brazil is Hispamar which plans to



Argentina's ARSAT-1 satellite being prepared for shipment to the Kourou Launch site. The satellite was build by an Argentinan company InVap and launched by Arianespace in October 2014.

launch in two years, a satellite with pay TV service through Media Netcapacity for Ku band and Ka band at works. Elena Pisonero, CEO of Hispasat 61° West orbital position. This orbital slot was chosen by the company to operate in the Ku-band BSS after winning the auction conducted by the Brazilian regulatory agency Anatel in According to data presented by the July 2014. The satellite will be called Amazonas 5, which will complement the existing coverage of its Amazonas 3 satellite.

Hispamar also plans shortly to begin operating in Brazil another large satellite located in the 30° West orbital slot, and will expand Ku-band coverage. The satellite operator suffered a setback last July, with the information that the newly launched Amazon 4A (located at 61° West) will likely have affected his capacity as a result of an electrical fault, which will not affect the life of The Anatel counselor also notes that the satellite, but will require a decrease in the number of active transponders.

According to a Hispasat executive, the choice of OI by a satellite of SES to expand its DTH service has not affected relations between the companies. Oi is a minority shareholder (19%) of His-

explains that Oi is currently the largest customer of Hispasat in Brazil and the operator will defend this position.

counselor at the Latin American Congress Satellite, Brazilian satellites in 2011 amounted to a total of 196 equivalent transponders 36 MHz Cband, Ku-band 180 Ku-band and 200 Ka-band. "After the bids for 2011 and 2014, we will be in operation in 2019, 254 transponders in C-band, 354 Kuband and 805 Ka-band, plus other 1394 Ka-band transponders of the Geostationary Satellite Defense and Strategic Communications (SGDC)," says the counselor for Anatel.

many operators have chosen to put more than one satellite at the same orbital position way to expand their coverage using a satellite rights already acquired and this may further increase the availability of satellite transponders in Brazilian market positions.

pamar side of the Hispasat, and Ama- Eutelsat do Brasil announced during zonas 3 now uses the satellite on its 2Q14 that they have concluded a 15-

wear contract with Hughes Network Systems do Brasil (Hughes), an EchoStar company, for the entire Kaband capacity connected to the Brazilian service area on the EUTELSAT  $65^\circ$ West.

### Mexico

Mexico has two domestic satellite operators: Eutelsat Americas (former Satmex) and Mexsat (Part of the Government Program for Defense Security and Digital Divide program)

Last January 2014 Eutelsat Communications announced closure of the transaction to acquire 100% of the share capital of Satélites Mexicanos, S.A. de C.V. (Satmex) having obtained all required government and regulatory approvals. The acquisition was closed with the value US\$ 831 million and included Satmex three satellites at contiguous positions, 113° West (Satmex 6), 114.9° West (Satmex 5) and 116.8° West (Satmex 8) that cover 90% of the population of the Americas.

Additionally SATMEX 7 and SATMEX 9 being built on a are Boeing 702SP satellite bus, and the contract for launch will be on SpaceX Falcon 9 launch vehicle for paired launches with ABS 3A and ABS 2A in 2014 and 2015 respectively.

As a result of the acquisition, Satmex has been renamed Eutelsat Americas. Eutelsat Americas is aligning the names of current and future satellites to reflect Eutelsat's strategy of operating under a single brand. From May 2014, each satellite will follow the Eutelsat pattern of a number reflecting its orbital position and a letter indicating its order of arrival at that position. This logic will enable Eutelsat America's community of users to identify where a satellite is located in geostationary orbit and its chronology at the orbital position where it is located (see table).

### **Rebranding of SATMEX Satellites**

Former Name	New Name
Satmex 5	EUTELSAT 115 West A
Satmex 6	EUTELSAT 113 West A
Satmex 8	EUTELSAT 117 West A
Satmex 7 (future satellite)	EUTELSAT 115 West B
Satmex 9 (future satellite)	EUTELSAT 117 West B
Argentina	

In October 2014, Argentina launched its domestic satellite Arsat 1 at the Kourou Space Cetner in French Guyana. The 6,576-pound Arsat 1 satellite launched is the first large communications satellite built in Argentina.

"After seven years working on the project over many hours of arduous teamwork, the first Argentine telecommunications satellite is in space," said Matias Bianchi, head of Arsat, Argentina's national telecom company and operator of Arsat 1.

Reportedly costing about US\$ 250 million, the Arsat 1 satellite carries 24 Kuband transponders to relay television broadcasts, data, voice links and Internet access across Argentina, Chile, Paraguay, Uruguay and parts of Brazil and Bolivia, according to Arsat.

Argentina set up the Arsat company in 2006 to fulfill rights to orbital slots assigned by the International Telecommunication Union. Without new spacecraft to use orbital positions allocated by the ITU, Argentina was at risk of forfeiting rights to operate its own communications satellites.

Set to last 15 years, the spacecraft was built in Patagonia by INVAP, an Argentine high-tech contractor. INVAP is working on two more Arsat satellites, with the next one set for launch in 2015. "Arsat 1 is a legacy for us and for future generations in Argentina," Bianchi said. "It's not the end of a project any details of rebut rather the garding the satellite's cost or specific long story.

which operating sive rights to 2014. operate and

commercialize geostationary orbital position 81 degree West in Ku-band (North & South America) and C band (Hemispheric coverage). AR-SAT holds rights over the engineering and development of national satellites to be manufactured within the scope of the Communications' Argentine Geostationary Satellite Project, as started back in December 2007 upon the signature of a contract with an argentine corporation named INVAP. The national government transferred NAHUELSAT operational assets to AR-SAT. ARSAT 1 satellite development, production and integration was done in Argentina. AR-SAT has scheduled the launch of at least three geostationary satellites in geostationary positions 81 and 72 West starting with the ARSAT 1 launch in 2014. AR-SAT will upgrade and expand Benavidez Satellite Control Station.

### Venezuela

Venezuela has just signed an agreement in October 2014 with China Great Wall Industry Corporation ICG-WIC) to build and deliver into orbit the country's third satellite, all with the help of Chinese technology.

The satellite will be named after the independence hero Antonio Jose de Sucre, although neither the Venezuelans nor the Chinese offered



beginning of a timeframe for the project. The agreement, which was inked at the presence of Venezuelan President Nicolas AR-SAT is a gov- Maduro, was signed between the ernment-owned Venezuelan government and CGWIC, corporation China's sole commercial satellite launch started service provider. In addition, China will in expand satellite technology transfer to July 2006, AR- Venezuela, Chinese President Xi Jinping SAT has exclu- said during his visit to Venezuela in July

### Conclusion

The continue growth in demand for satellite services in the Latin American market has fueled intensifying competition among the satellite operators in the region. The operators that have already a presence in the region are embarking on expanding their fleet in the next few years. While individual countries are embarking on national satellite programs.

Meanwhile, other satellite operators are eyeing to expand in the region. O3b Networks successfully launched in the December 2014, four satellites to complete its 12 all-Ka-Band satellite systems which will have extensive coverage in Latin America. ABS, the Hong Kong-based operator recently hired Dolores Martos, former Director of Sales of SES, as its new Managing Director for the Americas. Middle Eastern satellite operator Yahsat has been attending conferences in the region and it looking to expand in Latin America as well.

It will be interesting to see how this dynamic market shakes up. ~

B. H. Schneiderman is the Principal of Telematics Business Consultants. He can be reached at: info@tbc-telematics.com

## **Building a Teleport from the Ground Up**

by Virgil Labrador, Editor-in-Chief



ot very many people can locate Slovenia in a map. A picture postcard of a country in the heart of Europe bordering Austria, Hungary and Croatia, Slovenia was formerly part of Yugoslavia. Today Slovenia is an independent country of two million people and one of the newest members of the European Union. It is also the hub of one of the fastest growing teleports in the world, Satellite Telecommunications Network or STN.

In late September this year, I had a chance to visit STN's state of the art facility in the small town of Dob, about 30 kilometers from the Slovenian capital city of Ljubljana. There I met with their Founder and CEO Andrej Lovsin and their Sales and Marketing Director Mitja Lovsin, who happens to be Andrei's son. STN is a family-owned company founded 10 years ago in 2004. Another of Andrej's sons Tomaz Lovsin is the Managing Director of the company. Andrej built the company from scratch drawing on his extensive experience in other industries such as construction, documentary film production and broadcasting.

As a senior executive in a large construction company that did projects worldwide, Andrej was always fascinated by TV channel. He eventually realized that distributing prosatellite technology. He made it a point in his travels to visit broadcast and uplink facilities which made him aspire to go he started STN in 2004 from a small 50 sq. meter office in into the broadcast business. He started making documen- downtown Ljubljana the beginnings of what would be a taries, which won many awards and eventually ran his own thriving global teleport business.



Slovenia in dark green and the European Union countries in light green. From their location in this central European country, STN is able to serve satellites in the arc from 75°E to 50°W.

gramming would be a better business than making them, so

### **Company Spotlight**



STN grew exponentially in its first four years, outgrowing the leased facilities they had in Ljubljana. So they scouted for potential sites in the suburbs of the capital city and settle in their new teleport built in a 5,000 sq. meter land in Dob, which they purchased in 2008.

On the fifth anniversary of their founding in 2009, STN launched their new facility in Dob, which enable them to take in additional projects thereby increasing the number of clients. Also in 2009, STN acquired an Outside Broadcast (OB) company called DVB pro. All this during a time when

the global economy was reeling from one of the worse reces- "...STN differentiates itself strengths and capabilities that individually ... " will serve them in good stead in the future," said Andrej Lovsin.

STN continued to grow through

its brief 10-year history. In the first few years it was grow- ing ing an average of 25-30 percent per year and more recently turn-around it averaged between 15-20 percent. The World Teleport and Association (WTA) has consistently ranked STN in its Annual "Fastest Growing Teleports" where it placed in the Top 10 jects," globally in the latest survey done in 2014.

sions in recent history. "If you from our competitors by prowant to grow a business, the viding a first class service and best time is during a recession, also by our highly flexible because the company that can approach that enables us to survive a recession will develop treat each and every customer

### -Mitja Lovsin Sales and Marketing Director

channel timedependent prosaid Lovsin, Mitja STN's Sales and

### "... The most important resource of a teleport is not its equipment but its people ... "

### -Andrej Lovsin STN Founder and CEO

Andrej foresees that the company will continue to grow in the next few years. predicting that it could double its size from what it is now.

The company continues to grow and expand as does the services they provide their clients. "The most important resource of a teleport is not its equipment but its people," said Andrej. "You have to realize that Slovenia is a small country and we are not like other cities where we can draw from a very large pool of engineers and technicians. So we as a company have to develop our employees internally by providing them with a good working environment and the necessary training and support they need to be successful," he added. Indeed personnel turnover in the company is less than the industry average and most of his employees are committed to the company and are being groomed for leading positions in engineering, R&D and sales, according to Andrej.

STN achieved phenomenal growth against a backdrop of increased competition from other teleports in Europe and beyond. "STN differentiates itself from our competitors providing a first class service but also by our highly flexible approach that enables it to treat each and every customer individually. To keep ahead of the expanding market STN equips itself with the latest technology and spare capacity on a rolling basis in order to handle the demand for increas-



Marketing Director. Unique for a mid-size teleport, STN provides services globally from as far as Latin America to Africa and Asia. Serving a diversified market is one of STN's competitive advantage said Mitja.

STN teleport in Dob currently has 21 transmission and 65 receive antennas. It also has over 5,400 full-equipped rack units. They have also invested in new Ka-band equipment to enable them to serve this growing market segment.

The facility has a capacity for 900 channels and are expanding their facilities in the coming years which will provide the ability to broadcast an additional 400 to 500 TV channels. Due to the long-term focus of the management team and their drive for further company growth, with additional land acquired, the foundation has now been set that will allow STN to bring into play capacity for more than 20 new antennas, which range in size from six to 15 meters according to Mitja.

STN has the latest generation of multiplexers to enable distribution via satellite, Direct-to-Home (DTH) and contribution networks. These robust devices are particularly suited for mission-critical applications . Combined with powerful stream processing with statistical multiplexing and complete 1:1 redundancy, this forms the heart of STN's MPEG-2 and MPEG-4 AVC SD and HD-based broadcast system.



STN currently distributes over 450 channels worldwide, with a capacity to expand further to 900 channels.

For IP trunking and backhaul services or for point-to-point backbone networks, STN has direct fiber access to two Tier 1 international internet service providers each with multiple 1Gbps or 10 Gbps connectivity options.

"STN is focused on the future and is technically prepared for the demands of the new digital multimedia distribution platforms," said Mitja,



STN has over 5400 fully equipped rack units providing the latest technology to its growing clientele.

~

# In-Flight Broadband Connectivity

### by Bruce Elbert

The in-flight broadband connectivity market is literally taking off. According to Euroconsult's "Prospects for In-Flight Entertainment and Connectivity," the global in-flight connectivity market is expected to grow over the next 10 years, with over 12,000 commercial and 16,000 business airplanes to provide inflight connectivity to passengers by 2022. With a take-up rate of less than 5%, in-flight connectivity services generated less than \$300 million in revenue from airline passengers last year. The market is expected to grow to \$1.3 billion by 2022.

To explain the basic technologies involved in the in-flight aeronautical market. Bruce Elbert provides a brief overview.

explain how satellite broadband service is delivered to commercial aircraft and how good connectivity is achieved using modern aeronautical satellite antennas.

Aeronautical broadband service was first demonstrated in the mid-1990s by A service provider needs a means to Principal among the current group of NASA through the Advanced Technology Communications Satellite (ACTS),

launched in 1993. NASA investigated a number of antenna designs for the aircraft, including mechanically steered flat plate arrays as well as electrically steered

phased arrays. Thus, aeronautical broadband communications using а geostationsatellite ary has been with for 20 us years, at least principle. in Boeing drew tablish Con-

he purpose of this article is to wireless networks on the ground. One mary Internet Service Provider. The of the largest airline connectivity operators, Gogo, happens to use groundbased "air-to-ground" (ATG) wireless access points to serve the North American market. They as well as others use satellite links when ATG is unavailable.

> connect passengers on the plane who want service, and WiFi has been estab-

> > ferred.

aeronautical broadband operator manages the service on a virtual basis from their own network operations center. What makes aeronautical broadband unique is that passengers can be literally anywhere in the air over the globe.

aeronautical broadband providers are Gogo, Panasonic. ViaSat, and Row44. lished as pre- Antennas to support their respective The services can be obtained from TECOM, aircraft acts ThinKom, ViaSat, Cobham, Boeing and as a wireless others. All of the current services use access point mechanically-steered antennas al-

> though fixed array antennas are suitable as well. For example. ThinKom, based in Torrance, CA, adapted their Variable Inclination Continuous Transverse Stub (VICTS) array from its original application for receiving satellite TV personal vehicles. on The AT&T CruiseCast<sup>SM</sup> service was offered by AT&T in 2009 using VICTS (to be described

on this to es- A radome covering the satellite antenna on a commercial aircraft.

later in this article.

band service follows from the way

neXion by Boeing<sup>™</sup> (CBB), discussed and server to the local users, and this is later in the article), to maintain alignthen transferred by ATG or via satellite ment with a geostationary satellite as to one or more base stations on the the vehicle is driven in different direc-Fundamentally, aeronautical broad- ground. A wide area network is em- tions and orientations. The VICTS array ployed to direct the service to the is 100 percent mechanical and uses a broadband is provided over cellular or global Internet, typically through a pri- stack less than 11.5 centimeters high of

two circular metal-coated plastic plates which rotate both to vary the elevation angle and to point to the correct azimuth. Polarization angle, which is a required adjustment to the incoming wave, is matched via additional corotating plates. The Gogo 2Ku service • currently under development employs a coordinated pair of VICTs arrays to provide for separate receive and transmit, as shown below. What is of particular impor-

paths.

nect with the geostationary satellites being used as relays to trans-

and maintain the radio signal on feet where rain attenuation ceases to the satellite being employed at the be a factor. The aeronautical user anmoment; performance characteris- tenna device must have a small size to tics should be matched to flight allow placement on top of the airplane and to withstand the environment, including what might happen while Gateway earth stations that con- airborne. Aircraft antennas must be designed and produced that have a low profile to reduce drag and protect from fer data to the Internet. These bird impact, and be rugged to withmust be located close to points of stand the environment experienced on

tance is the low Figure 1. In-flight Network Configuration profile and large radiating aperture area provided bv this approach. This and other approaches are discussed in detail below.

### **Aeronautical Broadband** Requirements

А successful aeronautical broadband service provider requires consistent satellite coverage because of the lack

of base stations in remote or undeveloped areas (especially over the oceans). Obtaining satellite coverage consists of three parts (see Figure 1):

- Geostationary satellites that have "footprint" beams that cover the required flight paths to act as relays between aircraft and the ground. Ku and Ka bands are preferred for greatest satellite bandwidth and power, and the ability to use small diameter antennas on the aircraft.
- The proper transmit/receive antenna device on the top surface of the aircraft with the ability to point



the surface of airplane. the The connection to the ground and ultimately the Internet is via strategicallylocated gateway earth stations (3) using the familiar large dish antennas that point to the respective satellites.

The aeronautical broadband pioneers who first attempted this service may be distin-

availability.

most consistent service at data rates ranging from 1 Mbps to 1 Gbps, representing the only practical means of providing high throughput relays now and in the coming decade. The technique to verify the adequacy of communication is called the "link budget", which refers to a tabulation of the radio frequency gains and losses on the terminal-to-satellite path. This process is well understood and gives high confidence in the quality of service to the airplane and ultimately to the passenger. Most of the flight is above 16,000 hand, Boeing proved that the service

access and be engineered for high guished by the "arrows in their backs". This is certainly the case with CBB, which was announced in 2000 and Geostationary satellites provide the went into trial service with its debut aboard Lufthansa Flight 452 between Munich and Los Angeles on May 17, 2004. However, on August 17, 2006, The Boeing Company announced that the company had decided to exit the high-speed broadband communications connectivity markets and would work with its customers to facilitate an orderly phase out of the ConneXion by Boeing service. According to the Boeing website, this was because the market for this service had not materialized as had been expected. On the other

was feasible and of interest to passengers and airlines; and their phased ar- • ray antenna (shown below) had the performance needed for this application.

Gogo, on the other hand, has rolled past the problems experienced in CBB by using ATG links in the US, and developed its international satellite presence with its proven service parameters and passenger knowledge. Other operators including Panasonic, Row44 and ViaSat have exclusively employed satellites.

The most appropriate success factors for satellite connectivity, also called figures of merit (FOM), include the following:

between satellite coverage footprints (or spot beams, if employed) and into regions with ATG access eration. as well.

As a first principle, aircraft antenna performance is tied to the elevation angle to the direction of the satellite. An antenna requires that it has sufficient effective area. The common dish type of antenna (typically a parabolic reflector) has a feed located at the focus. When aligned and pointed, it collects as much signal power as dictated by its physical area; due to the principle of reciprocity, it performs similarly in

but VICTS achieves this same result Make the service seamless to pro- with concentric rotating slotted discs. vide continuity as aircraft move By replacing a complex set of electronic circuits with plates that rotate, VICTS simplifies aircraft installation and op-

> There are literally dozens of tracking antenna systems being offered for use on aircraft. Most have fundamental limitations, such as providing receiveonly performance or operating in spectrum such as L band which is not suitable for broadband.

Emerging Technologies for Aeronautical Antennas

There are a few technologies currently in R&D that could provide useful fea-



### The 2Ku aeronautical antenna by ThinKom.

- (upload for data and files).
- Engineer the access system on board the airplane, especially the antenna that acquires and tracks the satellites used as relays.
- Select satellites with optimum coverage of flight paths as far north as needed with a minimum of time spent where service is either marginal or non-existent; and operatequator as appropriate.

board equipment from established antenna realignment as the aircraft clude flat or conformal phased arrays manufacturers; this will provide turns and banks will maintain the link. the highest throughput speed for A variant of the mechanically-pointed Internet traffic in the forward di- dish is the flat plate (also called a plarection (download for content and nar array) which has a similar surface streaming) and return direction area to the dish but eliminates the feed needed to connect transmit and receive.

The alternative type of design is fixed with respect to the aircraft body and points to the satellite by way of a phased array of individual elements. While each element produces a broad beam across the sky, the appropriate combination of elements delivers a narrow beam like that of the mechanical dish. The phased array from Boeing ing at lower latitudes near the (and others to be discussed) employs individual amplified antenna elements, aircraft.

Employ the best in breed of on- the transmit direction as well. Thus, tures in the coming years. These inbased on metamaterials by Kymeta, and on IF combining. Beam redirection is achieved in metamaterials through the use of a standard printed circuit board composed of several thousand sub-wavelength resonators that can be individually tuned. The plan from Kymeta is to provide a very low profile device that can be placed either on the top or potentially in pairs on the opposite sides of the aircraft. The other new approach uses miniature amplifier elements along with frequency converters; the phasing aspects are done at lower frequencies. Like the metameterial approach, IF combining can be produced in a thin package and could allow placement on top or the sides of an

### Conclusion

Aeronautical broadband is moving ahead and can rely on a solid technical foundation. This consists of high-• performance Ku and Ka band geostationary satellites that serve many markets and are particularly attractive for this application.

My preferred antenna design provides the following:

- Highest gain/efficiency over current state-of-the-art antennas.
- Reduced skew angle adjacent satellite interference (ASI) experienced during the flight.
- Compatible with existing Ku band satellites as well as the new generation of High Throughput Satellites now being launched.

- Economical, rugged design.
- Low profile for least fuel/range/ payload penalty.
- Few moving parts = higher reliability = least maintenance/repair expenses over life of product.

Inherently superior performance in terms of satellite transmission and data throughput means that it does not need to be replaced to evolve with continuous performance improvements in the future.

The next three to five years are crucial to bringing this to fruition and service providers like Gogo, ViaSat and Panasonic are applying technology and making partnership relationships. Inmarsat, Intelsat and other satellite operators are also making large investments in new space relay platforms so that aeronautical broadband can move ahead to improve the passenger experience.



**Bruce Elbert** has over 30 years of experience in satellite communications and is the President of Application Technology Strategy, L.L.C., which assists satellite operators, network providers and users in the public and private sectors. He is an author and educator in these fields, having produced seven books and conducted technical and business training around the world. During 25 years with Hughes Elec-

**Ground Segment Design** 

tronics, he directed major technical projects and led business activities in the U.S. and overseas. web : <u>www.applicationstrategy.com/</u> email: <u>bruce@applicationstrategy.com</u>

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## **Do We Really Have to Live in Such Interesting Times?**

### by Robert Bell

supposed to be a positive force – and it is certainly the stuff ity. There was no obvious pattern of spending based on of which business success is made - but it is never comfortable and is sometimes the route to business failure instead.

The World Teleport Association recently published its annual ranking of teleport operators, based on their reported There was a correlation, however, between the percentage revenues and revenue growth. Where revenue growth is concerned, the past two years have clearly been challenging. Sixty-three percent of respondents to the 2014 survey Companies spending 40% or more of revenues on satellite reported year-over-year revenue growth, while 37% saw flat capacity were three times more likely to report revenue or declining revenues. This compares with the average of declines than those spending less than 40% of their revethe prior three years, in which 82% of respondents reported revenue growth and 18% reported flat or declining reve- teleport operator's revenues came from resale of satellite nues.

hether we are talking about politics, the econ- nues. Average spending across the operators equaled 41% omy or ways of life, the year just past was one of of revenues, and nine out of ten respondents reported disruption. In our new economy, disruption is spending less than 60% of revenues on satellite capaccompany size or market niche: the leading service providers to the media & entertainment market spent anywhere from 15% to more than 50% of sales on satellite capacity. .

> of revenue devoted to satellite capacity and the likelihood that the company grew revenues over the past two years. nues on satellite capacity. Put another way, the more of a capacity - and the less from providing added-value services



The biggest declines were reported by companies with significant exposure to US government and military spending, which has sharply pulled back its spending as it winds down deployments to Afghanistan and Iraq. Companies in other sectors are showing single and double-digit growth year over year.

### **Business Model Challenges**

Another factor appeared to be the business model. The Top Operators survey also asked independent operators about teleport operators for media & entertainment have begun their spending on satellite capacity as a percentage of reve- predicting that small teleport operators are either going to

- the more vulnerable it was to disruption.

### Creating Customers

The teleport sector is grappling with a core issue: the customers of today and tomorrow are going to buy services smarter and more competitively than ever before. Broadcasters are using less satellite capacity every year and demanding more from it. They are turning to every other technology except satellite to get content to the broadcast center and distribute it to viewers. Leaders of the biggest be bought or driven out of business. Maybe they will, but nectivity to rural villages and schools through the Mexico maybe not.

For teleports are ultimately in the business of creating customers. That means innovating in services and technology solutions to meet needs that are just emerging. One wellknown teleport operator in the US started out as a systems integrator, moved into delivering Internet via satellite to Successful teleports, of whatever size, work year in and year developing nations and built a global satellite and fiber network business serving media, government and business customers. But their business today is increasingly dominated by sectors they would never have imagined a decade ago: machine-to-machine applications, maritime VSAT and shipboard WiFi networks, the hosting of 3G and 4G wireless networks, and video-based corporate education and training via broadband, enterprise networks and – yes – satellite.

The fastest growing company on our Fast 20 list this year is a Mexican teleport operator, Elara Comunicaciones, that won a major government contract to deploy Internet con-

The Independent Top Twenty

The Independent Top Twenty ranks teleport operators based on revenue from all sources. The list focuses on the independent operators at the core of the business, excluding companies whose primary business is ownership and operation of a satellite fleet or terrestrial network. In order from largest to smallest, the Independent Top Twenty of 2014 are:

- 1. Harris CapRock (USA)
- 2. GlobeCast (France)
- 3. Argiva Broadcast & Media (UK)
- 4. Encompass Digital Media (USA)
- 5. Telespazio S.p.A. (Italy)
- 6. TeleCommunication Systems, Inc. (Gov't Division) (USA)
- 7. Globecomm (USA)
- 8. Emerging Markets Communications (USA)
- 9. RR Media (Israel)
- 10. Spacenet (USA)
- 11. du (Emirates Integrated Telecom) (UAE)
- 12. Essel Shyam Communication (India)
- 13. Signalhorn Trusted Networks (Germany)
- 14. Axesat (Colombia)
- 15. SatLink Communications (Israel)
- 16. Jordan Media City (Jordan)
- 17. NewSat (Australia)
- 18. Infrasat (Angola)
- 19. Onlime Business Communications (Germany)
- 20. Elara Comunicaciones SA (Mexico)

Conectado program (www.mexicoconectado.gob.mx). The program involves tens of thousands of sites. So while some companies are reeling from the pullback of government spending, others are finding exciting niches meeting vital needs.

out to raise the value of the services they provide to their particular vertical markets. In both interesting times and boring ones, that unrelenting focus is what determines the winners.



Robert Bell is Executive Director of the World Teleport Association, which represents the world's most innovative teleport operators, carriers and technology providers in 20 nations. He can be reached at: rbell@worldteleport.org

### The Global Top Twenty

The Global Top Twenty ranks companies based on revenues from all customized communications sources and includes operators of teleports and satellite fleets. In order from largest to smallest, the Global Top Twenty of 2014 are:

- 1. Intelsat S.A. (Luxembourg)
- 2. SES (Luxembourg)
- 3. Eutelsat (France)
- 4. Telesat (Canada)
- 5. Harris CapRock (USA)
- 6. EchoStar Satellite Services (USA)
- 7. **SingTel Satellite** (Singapore)
- 8. GlobeCast (France)
- 9. Argiva Broadcast & Media (UK)
- 10. Encompass Digital Media (USA)
- 11. Optus (Australia)
- 12. Hispasat (Spain)
- 13. Telespazio S.p.A. (Italy)
- 14. Thaicom Public Company Ltd (Thailand)
- 15. AsiaSat (China)
- 16. TeleCommunication Systems, Inc. (Gov't Division) (USA)
- 17. Globecomm (USA)
- 18. Emerging Markets Communications (USA)
- 19. Telenor Satellite Broadcasting (Norway)
- 20. RR Media (Israel)

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## The King is Dead, **A New Era in Satellite Broadcasting**

### by Simon Pryor and Hub Urlings **EUsatcom Association**

world. But boy, Yet satellite broadcasting market studies are predicting over 5% annual transmission business, which remains satellites biggest market, and how will HTS impact it?

### cast Transmission

ample, while broadcasters continue to tially mitigated by adoption of HEVC. cos as fiber and HFC networks are

here was a time when satellite more cost-effective. This is just what transponder ruled the broadcast transmission HTS can bring to the market, compared bandwidth times have to a standard FSS bent-pipe, coupled usage changed; with video everywhere, the with micro-VSATs and the latest gen- economics, buzz these days is OTT, 3G/4G mobile eration antenna technology. The high especially in newsgathering, catch-up TV, contribu- power of spot beams allow for single developing tion and streaming over Internet, suitcase/man-pack solutions, including and broadcast over LTE, cable cutting, etc. flat panels, in Ku, Ka and C-band too, unconnected not just in L-band.

growth through 2023. So what are the In premium sports and events contribu- time, in connected developed regions, future prospects for the broadcast tion, SNG vans and flyaways are still pure linear TV is no longer enough. used, though often as a backup to fi- We're living in a hybrid IP world of ber, except where the inherent multi- catch-up TV, VoD, pause live, streamcast nature of FSS satellite is key for ing, OTT, second screens and smart 'multilateral feeds'. Sending in the connected TVs, requiring bidirectional The Changing Face of Broad- highest quality (read 4K UHDTV as well broadband IP channels in addition to a as full HD) and multiple camera angles linear broadcast transmission. This enis driving massively increased band- ables additional commercial threats to In newsgathering contribution, for ex- width requirements, even when par- satellite from converged ISPs and Tel-

and poorly regions'. At the same





use their existing capability, when evaluating new solutions they are looking for smaller, lighter & cheaper options than traditional SNG vans. At the breaking news location today, fast newsgatherers are using any available connectivity to sending content through 3G/4G backpacks or WiFi via their smartphones and laptops. For satellite to stay relevant to this market, flyaways need to be small, light and

will increasingly compete against HTS wideband transponders using the latest **How** S2X.

Where satellite has always been king is The current generation of HTS (e.g. in 'distribution multicasting' - both sat- Eutelsat NewsSpotter/KA-SAT, Avanti ellite TV to consumers (DTH) and pri- Hylas, ViaSat Exede, Yahsat YahClick) mary distribution to DTT towers and can be characterized as being closed Ka cable head-ends. DTH is still driving -band spot beam IP networks, where all

Bonding of terrestrial IP and fiber links rolled out and enhanced.

#### Different HTS efficiency/throughput gains of DVB- Architectures Fit in Ku, C and Ka-bands

### Feature

IP traffic routes through one of the QoS especially system gateways to the end destina- in link fade tions. The high power of spot beams conditions and consequent reduction in antenna (like rain and sizes and power allow for small terminal size which, when combined with economic service costs, are great for While primarsending files and non real-time critical live contributions.

Global roaming in Ka-band will be avail- applications, able when Inmarsat soon launches the GlobalXpress (GX) service. Of course, as demonstrated by their existing BGAN service use by newsgatherers, breaking news is global, so there are key differentiators for this market, as well as rather maritime and others.

While QoS, terminal size, cost and geographical coverage is key for newsgathering, there is also the issue of delay; for example, in live news with talkback where the reporter and anchor interact. In this scenario a maximum of Video, Video Everywhere 750ms total end-to-end delay is the benchmark, otherwise it gets painful to There has also been huge reduction in cameras everywhere, their outputs watch and viewers switch channels. The above HTS architectures (IP routed through gateways) are not really suit-

dust storms).

ilv intended for IP trunking and backhaul O3B goes one step further in reducing delay using a by MEO orbit than



GEO, despite the challenges of the satellite moving relative to the ground. In other markets it's the same story. Elon Musk is now financing Greg Wylers WorldVu 640 constellation of cheap satellites for global IP broadband.

multi-camera production and post- needing to be seen - the list goes on system costs, as they too become and on. 'software defined' running on com-

Government video surveillance of borders and UAVs is one obvious example. In renewable energy generation, that wind turbine on top of a hill has IP cameras for remote monitoring, solar arrays in the desert, offshore oil and gas platforms, CCTV, video conferencing;

able here as the delay can be multiple puters. This combined with lower cost So even while the percentage of the



#### seconds.

Intelsat EPIC takes a different approach: onboard digital switching in Ku, C and Ka-band allows a single hop endto-end between beams in an open DVB or IP transmission, allowing reuse of existing equipment and topologies, and minimizing delay. The availability of Ku and C-bands will also provide higher tent has to be moved, using satellite Most of the contribution and distribu-

viable to cover lower division and junior football, less popular sports, local village events and such; whether from а smartphone, camcorder, camera mounted in a drone, helmet or wherever. Many soccer clubs have their own TV channels now, not just Barcelona Conclusion and Manchester United! All this con-

transmission has made it economically broadcast video over satellite market may decrease, the total video traffic over satellite continues to grow. So good news for the satellite operators, although not necessarily for the rest of the value chain!

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D

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### Feature

tion market segments of satellite broadcasting are under threat from increased competition from alternative broadcast transmission are undergoing fundamental disruption.

The response from the satellite industry of innovative HTS architectures and market response to some of these too, albeit for alternative markets and at lower margins.

seriously impact the existing business web: www.cabsat.com/ of satellite broadcasting - and there but it will certainly be different. As always, 'the only constant is



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

The EUsatcom conference @ **IBC2014 and subsequent online** conferences provides in depth coverage of HTS video applications and markets, giving insights from industry experts for the benefit of EUsatcom members: http://eusatcom.org/

### **Calendar of Events**

IP connectivity. Additionally, the very January 18-21, 2015, PTC 15: Network Planet, Honolulu, Hawaii, Contact: phone nature of TV itself and the business of +1-808-941-3789, info@ptc.org web: www.ptc.org/ptc15/

> January 20-22 2015, IBC Content Everywhere MENA, Madinat Jumeirah, Dubai, UAE, Contact: phone +44 (0)20 7832 4100 e-mail: info@ibc.org, web: www.ibcCE.org/MENA

next-gen antenna technologies, com- February 19-20, 2015, GVF Connectivity 2015, London, UK, Phone: +44 7802 612 bined with improved FSS/DBS/MSS 924, martin.jarrold@gvf.org & paul.stahl@uk-emp.co.uk Web: www.ukofferings, will provide a compelling emp.co.uk/current-events/connectivity-2015/

threats. As video traffic increases, the February 10-12, 2015, WEST 2015, San Diego Convention Center, San Diego, total sent over satellite will increase Calif., USA, contact Paul doCarmo, phone +1-703-631-6130 events@afcea.org web: www.afcea.org/events/West/

March 10-12, 2015, CABSAT 2015, Dubai World Trade Centre, Dubai, All these disruptive technologies will UAE. Contact: cabsat@dwtc.com, phone +971 4 308 6230,

will be market winners and losers. The April 7-8, 2015, GVF Oil and Gas Communications Brazil 2015, Rio de Janeiro, future can be very rosy for the ones Brazil, Phone: +44 7802 612 924, martin.jarrold@gyf.org & paul.stahl@ukwho make the rights decisions today; emp.co.uk Web: www.uk-emp.co.uk/current-events/o-g-comms-rio-2015/

> Conferences: April 11-16, 2015; Exhibits: April 13-16, 2015, NAB 2015, Las Vegas Convention Center, Las Vegas, Nevada, USA, Contact: info@nab.org web:www.nabshow.com

May 12-13, 2015, GVF Oil and Gas Communications Europe 2015, Aberdeen, Scotland, UK, Phone: +44 7802 612 924, martin.jarrold@gvf.org & paul.stahl@uk -emp.co.uk Web: www.uk-emp.co.uk/current-events/o-g-comms-aberdeen-2015/

May 19-21, 2015, Space Tech Expo and Conference 2015, Long Beach Convention & Entertainment Center, Long Beach, California, USA . Contact: +1 855 436 8683, Email: info@spacetechexpo.com, Web: www.spacetechexpo.com

June 2-5, 2015, CommunicAsia2015, Basement 2, Level 1 and Level 3, Marina Bay Sands, Singapore. Contact: Evelyn Tan, Phone: +65 62336638, E-mail: evelyn.tan@sesallworld.com, Web: www.CommunicAsia.com

June 2 – 5, BroadcastAsia2015, Level 4 & 5, Marina Bay Sands, Singapore, Contact: Email: broadcastasia@sesallworld.com Web: www.Broadcast-Asia.com

June 17-18, 2015, GVF HTS-The DC Roundtable, Washington, D.C., USA Phone: +44 7802 612 924, martin.jarrold@gvf.org & paul.stahl@uk-emp.co.uk Web: www.uk-emp.co.uk/current-events/



events and associated activities!) as can be seen in detail at based infrastructures by telecoms service providers. www.gvf.org/index.php/news/events-calendar.html? view=eventslist.

Producing/chairing/moderating, or some combination thereof, at some of these events has become a regular part of my GVF role. Examples of some of the events in the first half of 2015 are (those in bold italics are produced by the with tablets and smartphones with increasing volumes of GVF-EMP Conference Partnership):

- GVF Connectivity 2015, London February 19-20 GVF Satellite Summit Hub @CABSAT 2015, Dubai-March 10-12
- March 16-19
- GVF Oil & Gas Communications Brazil 2015, Rio de on a plane, or taking a trip across the sea. Janeiro – April 7-8
- erdeen May 12-13
- GVF HTS The DC Roundtable 2015, Washington DC – June 17-18

because it is only two months away, partly because population of the program with speakers is now underway, and partly because it is an event with an usually broad focus, way beyond satellite communications alone - it's called enhancing and nomadic communications technology of all, "Connectivity".

Being connected to the Internet, whenever you want, wher- 'Connectivity 2015: Air, Sea, Surface & Rail: Evolving the ever you are, wherever you're going to, and however you're getting there, with broadband data speeds, has become a technological developments, and market trends that feature universal mantra in the service delivery goals and user ex- on the path to a universal connectivity ecosystem, with parpectations of today's digital telecommunications market- ticular, though not exclusive, reference to the latest devel-

he 2015 GVF conferences, exhibitions, workshops, place. In the metropolitan workplace and in the urban or summits, etc., calendar is now well and clearly suburban home, the multiple-tens of Mbps service has bemapped-out (though, naturally, with room for more come commonplace with the deployment of fixed fiber-

But, increasingly, for an ever-growing proportion of an evermore demanding user base, this is not enough, particularly as the user-to-device/terminal relationship continues its migration away from interfacing with desktop/laptop PCs with local hard drive data storage and towards interfacing data storage in the Cloud. This is a migration which places an overwhelming emphasis on the opportunity for Internet connectivity and access to multimedia services which meet the seemingly insatiable demand for increasingly videobased enterprise and social media applications, whilst the GVF Track @ Satellite 2015, Washington DC - user is entirely mobile, whether pounding the urban street, taking a country stroll, driving a vehicle, riding a train, flying

GVF Oil & Gas Communications Europe 2015, Ab- This seamless connectivity expectation, and the objective of universalizing a seamless connectivity experience which goes way beyond the practical and commerciallysustainable geographical boundaries of today's 3G and 4G wireless networks, whether over public or private networks, Here I just want to focus on the first of these events, partly is something that, at the practical deployment level, can only be achieved with a combination of different wireless telecommunications/broadband access technologies - a combination that will increasingly engage the most mobilitysatellite.

"New" New Verticals' will examine some of the key issues,

### Market Intelligence

opments in the satellite communications marketplace which are focused around the launch of more-and-more Fleets of high throughput satellite payloads into orbit. These payloads have already changed the paradigm of satellite communications capabilities in the realms of the satellite-only connectivity solution, but are also bringing a vastly enhanced dynamic to the wider realms of the satellite + terrestrial hybrid solution - solutions used in the corporate, enterprise, government, military, consumer, and other, sectors.

### **Future of Mobile Backhaul**

One key theme of the conference will center on the future of mobile backhaul. Satellite networking has always been an imperative for extending the typical service area of terrestrial cellular wireless systems, and connectivity for 2G/GSM voice and SMS applications, in many parts of the world, has been built on the foundation of backhaul over satellite.

Now with those parts of the world migrating to 3G - and looking forward to 4G, and then 5G - we should ask, "What does 4G now, and 5G in the future, hold in store for mobile backhaul?"

### **Next Generation Backhaul Solutions**

Mobile network operators (MNOs) want new, innovative backhaul architectures that are robust and flexible enough to accommodate shifting traffic loads on cell sites without massive bandwidth over-provisioning.

Importantly, MNOs are looking at the segmenting of macro-cells into smaller (femto-, pico-) cells, a trend presenting new challenges for the satellite backhaul vendor whose next-generation backhaul solutions must be more robust as well as high-speed.

Train Networks, Aircraft and Cruise Liners

Another key theme of "Connectivity" will examine the technologies used to bring earth on mobile plat-



stations Mobile connectivity will continue to be a key applicavehicles/ tion for satellites. (image courtesy of C-COM Systems)

forms (ESVs/ESOMPs) - whether they be rail, in-flight, or at sea – and the associated practicalities of driving Rol from solution deployments across train networks, fleets of aircraft, and cruise The hospitality industry is a major liners.

### Vehicle Telematics...and **Beyond**

Road vehicles, most particularly the modern car (but not excluding the passenger bus/coach, freight truck, etc.) increasingly feature telematics and related applications to monitor vehicle performance, satnav, provide alarms, GPS trackers and immobilizers, speed limiters, parking aids, as well as communications and infotainment with incar Wi-Fi. The role of satcoms in this field will be examined.

### Mining & Remote Resource Extraction

Remote connectivity to support mission-critical applications in the mining of essential resources is now as much of a key industry requirement as it has long been in the oil & gas sector. Mining, for raw materials to support manufacture and advanced industrial processes, is an inherently remote operation and the need for satellite and satellite-terrestrial hybrid connectivity solutions is a vital element to the growth and cost-effectiveness of the industry.

### **Hospitality & Unlimited Mobility Connectivity**

growth area and communications solution users want unlimited connectivity, all the time and anywhere and everywhere they go. Whether on a jungle or mountain-top adventure, in a remote safari encampment, an isolated luxury hotel or leisure facility, or on the deck of a super yacht, connectivity with family, friends, to the news agenda, and to the financial markets is a commoditized expectation that is just as much a travelers expectation as food and drink.

### What will the Satellite - Cloud Interface look like?

'The Marriage of Mobility & Web 2.0' will be a further theme to be examined in the context of asking "What will the Satellite-Cloud Interface look like?" The Cloud brings together different technologies - broadband networks, virtualization, Web 2.0 interactivity, time sharing, and browser interfaces - each of them significant advances in their own right, but all the more powerful in combination, and thus the Cloud is now fundamentally changing the way organizations use IT.

The communications networks underpinning today's distributed computing are not only fast, and not only getting



The oil and gas industry will be a key vertical market for satellites.

faster, but the rate at which they are getting faster is itself speeding-up, creating opportunities for Cloud implementation to bring higher organizational performance, greater flexibility, and savings on costs.

### Satellite and Terrestrial Wireless Technologies

So, what are the strengths and weaknesses inherent in current and developing satellite technologies as far as providing access to The Cloud is con- It is the IoT/IoE which will create a dycerned? In posing this question, the conference objective is not to engage in a satellite-versus-terrestrial argument - particularly given the longestablished trend of hybridized communications networks comprising satellite and terrestrial wireless technologies, as noted above. Rather the objective is to identify exactly where the unique nature of satellite communications can contribute to the greater functionality, and reliability, and ubiquity, and connectivity to the Cloud, not only for the high-density metropolis of the globe's most developed markets, but also for the remote communities of

the world's emerging and developing Comms on the Move/ economies and societies.

### Machine-2-Machine (M2M)

Machine-to-Machine (M2M) communications is another key connectivity focus, and the interface and synergy of M2M communications and satellite communications will comprise part of the conference dialogue. Naturally, this dialogue must begin with at least a nod to immediate future-history, noting the longer-term significance of transitioning to Internet Protocol version 6 Network Cyber Security (IPv6).

With the ever-increasing number of devices being connected to the Internet, and the consequent need for more IP addresses than the current IPv4 protocol is able to accommodate, the use of a 128-bit IP address permits more than 7.9×1028 times as many addresses as IPv4. It is IPv6 which will bring on the full potential of the Internet of Things (IoT)/Internet of Everything (IoE), and it is the IoT/IoE which will be the ultimate realization of a future universal M2M environment which will far exceed the potential boundaries and limited scope of even the greatest reach of the present day M2M environment.

### Integrating the Digital World

namic network of billions of wireless identifiable 'things' communicating with one another, bringing ubiquitous computing, and integrating the digital world and the physical world. More concretely, improved sensor device capabilities will facilitate business logic at the edges of networks as decisionmaking is based on real-time readings from sensors that are used to monitor pretty much anything and everything. Globally, satellite M2M is growing fast, and the aggregated target markets make its potential for the satellite industry very important.

### **Comms on the Pause**

The conference program will also touch on such connectivity issues as: Merging Broadband Satellite & Wireless into a Unified Value Chain; Satellite Broadband, Wireless & the Digital Citizen; Digital Citizen to Retail Consumer & m-Payer; BYOD - Connectivity Across the Employment-Leisure Divide; Civil, Commercial and Military Comms-on-the-Move/Comms-on-the-Pause.

Cyber Security is already high on the contemporary ICT agenda, so too in the satcoms world. Network resilience and robustness in the increasingly interconnected digital world will become even more of an imperative as the increasingly important Cloud-based networks of applications, data, and services become an increasingly attractive target for the financially and politically motivated hacker/terrorist. The GVF has had, since the beginning of 2015, its own Cyber Security Task Force, headed by Rakesh Bharania, Network Consulting Engineer, Tactical Operations at Cisco Systems.

For more information on all GVF-EMP conference programs please contact the Series organizers: Either me at martin.jarrold@gvf.org, or Paul Stahl at paul.stahl@uk-emp.co.uk. Additionally, you may consult all the GVF-EMP events websites at www.ukemp.co.uk.



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

### **Mergers and Acquisitions**

### Com Dev to Acquire MESL Microwave

ber 12, 2014--Com Dev International Growth Strategy, and the leadership of added. has signed an agreement to acquire the UK Space Agency and Innovate UK Michael Pley, CEO of Com Dev Interna-100 percent of MESL Microwave for have shown us that the UK is serious tional Ltd., commented on the transac-£12.8 million.

in

Scot-

Headquartered

land, MESL Micro-

wave Ltd. plays a

significant role in the global micro-

and manufacturing

radar, communica-

tions, defence and

components

aerospace

Edinburgh,

wave

Cambridge, Ontario, Canada, Decem- for the UK's Space Innovation and ported around the world," Spurrett about exploiting the potential of the tion: "We are now moving to a new space industry for the long term. The phase in UK operations. We have seen



wave Ltd. also provides Com Dev with technology thanks to the incentives nanced by a combination of cash on greater access to the aerospace market that are available, and the UK's increas- hand and additional borrowings under with microwave component products ing commitment to the European Space Com Dev'spreviously expanded credit that are complementary to the com- Agency and other international part- facility. pany's product offering in the space nerships." market.

indus-

International Systems, said "Cross- the products designed and manufac- and EPS in fiscal 2015. party support from within government tured in its UK operations being ex-

tries. The acquisition of MESL Micro- UK is a great place to develop new projected full year EBITDA is being fi-

growth in revenue in our Aylesbury facility over recent years and are anticipating further substantial growth in this supportive environment. We are now well-placed with a foothold close to the space hub in Harwell, England, and with this transaction now in the Scottish space cluster as well. We are here to build upon what we started almost 30 years ago."

The purchase price, which represents an EBITDA multiple of 8.5x

### The company expects the transaction, "Com Dev has been in the UK for sev- which is scheduled to close December Rob Spurrett, President of Com Dev eral decades, with over 80 percent of 31, 2014, will be accretive to EBITDA

### **RigNet Acquires Munaicom**

of managed remote communications censed telecommunications provider in the Central Asian region," he added. solutions, telecoms systems integration Kazakhstan. services and collaborative applications

to the oil and gas industry, announced that it has acquired Timas Munaicom TOO ("Munaicom"), an oilfield communications company based in Almaty, Kazakhstan.

#### This acquisition positions RigNet

provide remote to tions services in Kazakhstan, and serves before as a result of this acquisition," services in November 2011. as a beachhead for further expansion in said Hector Maytorena, RigNet's group Central Asia. Under the terms of the vice president, Eastern Hemisphere. deal, RigNet acquires 49 percent of the "RigNet now has the ability to serve



communica- "RigNet's reach is greater than ever vider's license for the provision of VSAT

Houston, Tex., December 29, 2014-- shares in Munaicom. Following the customers within Kazakhstan, with RigNet, Inc. (Nasdag:RNET), a provider acquisition, Munaicom remains a li- plans to expand more broadly within

> Initially, the company will continue to operate in Kazakhstan under the name Munaicom. Both companies expect business operations to continue as usual.

> > Established in 2011, Munaicom acquired its valid pro-

\*

### Johann-Dietrich Wörner Appointed Director of the ESA

France. December 18. 2014--The Council of the European Space the United Kingdom, of whom 18 are Agency (ESA) announced the appointment of Johann-Dietrich Wörner as the next Director General of ESA, for a pe-

riod of four years starting on 1 July 2015. He will succeed Jean-Jacques



Dordain, Wörner whose'

of office ends on June term 30,2015. Woerner is currently Chair- GVF Appoints New Members man of the Executive Board of DLR, the of their Board of Directors German Aerospace Center.

Wörner has been Chairman of the DLR GVF has appointed five members to since March 2007. Wörner studied civil its engineering at the Technische Univer- Board are Yasir Hassan of the Arab Berlin sität and the Technische Hochschule Darmstadt, from tion (ARABSAT) and Michael DeMarco where he graduated in 1985. In 1982, as part of his studies, he spent two years in Japan, investigating earthquake safety.

Until 1990 Wörner worked for the consulting civil engineers König und Heunisch. In 1990 he returned to Darmstadt University, where he was appointed to a professorship in Civil Engineering and took over as Head of the Testing and Research Institute. Before being elected President of the Technische Universität Darmstadt in 1995, he held the position of Dean of Secretary General of GVF. the Civil Engineering Faculty.

ESA is an intergovernmental organisation, created in 1975, with the mission to shape the development of Europe's space capability and ensure that investment in space delivers benefits to the citizens of Europe and the world.ESA has 20 Member States: Austria, Belgium, the Czech Republic, Denmark.

Finland, France, Germany, Greece, Ire- agenda. land. Italy. Luxembourg. the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland and Member States of the EU. Two other Member States of the EU, Hungary and Estonia, are likely soon to become new ESA Member States.

ESA has Cooperation Agreements with six other Member States of the EU. Canada takes part in some ESA programmes under a Cooperation Agreement. ESA is also working with the EU on implementing the Galileo and Copernicus programs.

London, UK, December 16, 2014--The become Board of Directors. Joining the Satellite Communications Organiza- as of Intelsat; re-elected to the Board are Arunas Slekys of Hughes Network Systems, Jonas Eneberg of Inmarsat, and Nancy Eskenazi of SES. The five elected Directors join two seated Board Members: Simon Gray of Eutelsat and Timothy Shroyer of General Dynamics' SATCOM Technologies.

"As the satellite communications industry addresses major challenges and opportunities, the need for a strong, well-credentialed GVF Board has never been greater," said David Hartshorn,

the Annual General Meeting on 3 December in London at the Strand Palace Hotel, in conjunction with the GVF High Throughput Satellite Roundtable. Delegates participated in two days of openforum discussion on new trends, opportunities and challenges that are key Washington, D.C., December 9, 2014priorities on the Board of Directors' The Satellite Industry Association (SIA)

### Intelsat Promotes Spengler to **Deputy Chief Executive Officer**

Washington, D.C. December 11, 2014--Intelsat S.A. announced today that current Intelsat President and Chief Commercial Officer Stephen Spengler has been promoted to Deputy Chief Executive Officer, effective immediately.

Under the company's succession plan, Intelsat Chairman and Chief Executive Officer David McGlade will transition to the position of Executive Chairman,

effective April 1, 2015, at which time Mr. Spengler will Chief Executive Officer. McGlade will have served the companv's Chief Offi-Executive cer for 10 years.



Stephen Spengler

#### Spengler has

been with Intelsat in various executive positions since 2003, including serving as Executive Vice President, Sales, Marketing and Strategy. Spengler has nearly 30 years' experience in the satellite and telecommunications industry. During his tenure at the company, Spengler led the development of Intelsat's global mobility network. He has also overseen the development of the company's next generation satellite platform, Intelsat EpicNG®, of which The GVF Board elections were held at the first satellite is expected to launch in late 2015.

### **Tom Stroup Appointed President of the SIA**

### **Executive Moves**

announced that SIA's Board of Direc- Flavien Bachabi as the Managing Direc- Sdn. Bhd. Announced tors has appointed **Tom Stroup** to the tor of Africa. Bachabi will be responsiposition of President, effective Decem- ble for leading ber 15, 2014. Stroup's appointment the sales and follows an extensive search to replace business operathe former President, Patricia Cooper, tions who departed SIA earlier this year for African private industry.

As President of SIA, Stroup becomes the trade association's lead advocate for regulatory and policy issues of critical importance to



**Tom Stroup** 

SIA's membership, including spectrum and licensing issues, defense and public safety matters, and export control and international trade issues. He also takes over the day-to-day management and operations of SIA, including member communications, staff leadership and organization of SIA sponsored events.

Stroup joins SIA from Shared Spectrum Company (SSC), a leading developer of spectrum intelligence technologies, where he served as CEO. For more than a decade, he served as the President of the Personal Communications Industry Association (PCIA). Previous to his position at SSC, he founded and ran several companies in the technology industry, including Columbia Spectrum Management, P-Com Network Services, CSM Wireless, and SquareLoop.

in Public Administration from the University of North Dakota. He is also a from the University of Benin, as well as graduate of Georgetown University Law Center where he served as Editor munications Engineering from the Polyof the Georgetown Law Journal.

### ABS Names Flavien Bachabi Managing Director-Africa

for the continent.



Tom Choi, Chief Executive Officer of ABS said, "We are try. excited to have Flavien on board at tribute to our expansion for this grow- extensive experience in these areas. ing continent."

Prior to joining ABS, Bachabi was the Vice President of Business Operations and Intergovernmental Initiatives and held various management roles at Intelsat, including Regional Vice President for Africa. He has also spent 15 years in senior positions with Benin Telecommunications and served on international councils and committees including the International Telecommunications Union (ITU), the African Telecommunications Union (ATU) and the Regional African Satellite Communications Organization (RASCOM). He is also a sitting board member of the Advisory Board of the Smart Sustainable Development Model (SSDM) of ITU.

Stroup holds a BS, summa cum laude, Bachabi holds a Bachelor of Science degree in Mathematics and Physics a Master of Science degree of Telecomtechnic Institute St. Petersburg.

### **MEASAT Rehires Jarod Lopez** as VP-Broadcast

the re-appointment of Lopez Jarod as Vice President-Broadcast. In this role, Jarod will be responsible for overseeing the sales and marketing efforts of MEASAT in

the broadcast indus-



Jarod Lopez

ABS, heading up our African opera- His focus will be on growing MEASAT's tions. As the regional Head of Sales, he C-band broadcast business and mainwill be responsible for managing and taining MEASAT's leadership in HD developing new business for the mar- video distribution in the Asian reket. Flavien has over 30 years of ex- gion. Lopez is re-joining MEASAT after perience in the satellite and telecom- a brief sabbatical. He originally joined munication industry and has extensive MEASAT in 2006 and has worked in the knowledge of the Africa market. His Sales & Marketing and Engineering & expertise and leadership skills will con- Operations departments, developing

> Lopez holds a B. Eng. degree from University of Northumbria, Newcastle, UK.

### **Tedial Appoints New Head of Global Operations & Support**

Malaga, Spain December 8, 2014-Tedial, an independent MAM technology solutions specialist, has appointed Terry Spittle as its new Director of Global Operations and Support. Spittle will have oversight of Tedial's Implementation Engineering, Installation and Service and Support teams.

Spittle will be responsible for defining and developing enhanced internal process infrastructure, enabling the company to support its growing worldwide customer base and partner network. Spittle will also provide a senior level liaison point for clients and project partners.

Spittle joins Tedial from WHATcast.com, where he held the position of Digital Media and Service Consultant. He has also worked for industry heavyweights such as Harmonic, Omneon and Sony Broadcast Europe.

Washington DC, December 9, 2014 – Kuala Lumpur, Malaysia, December ABS announced the appointment of 4, 2014-MEASAT Satellite Systems

# Market Briefs

### 4KTV to Grow at 72 CAGR Through 2018

pected to ship 11.6 million units in 2014, up nearly 700% search Analyst at Futuresource Consulting. "An indication year on year, with China accounting for over 70% of world- that 4K is quickly becoming mainstream was the availability wide demand. In Western Europe and North America, share of many sets at discounted prices during last month's Black of 4K demand in 2014 will represent 10% and 8% respec- Friday." tively, with demand expected to grow at 72% CAGR until 2018.

.Dunstable, UK, December 19, 2014--4K TV sets are ex- senting 38% of the total TV market, says David Tett, Re-

Sales of 4K TVs are expected to be concentrated on the larger screen sizes, generally 50"+, but screens below 40" will

become more widely available with 4K in the coming years.

Native 4K content remains scarce and many consumers are

The worldwide television market is forecast to grow to 234 million units in 2014, representing a 3% growth from 2013,

according to the latest research from Futuresource Consulting. However, 2014 is projected to see a 4% fall in trade value to \$97 billion, reflecting a decline in average retail prices from US\$ 652 to US\$ 608.



currently buying sets on the basis that they can upscale HD content and will be future-proof, in preparation for when native 4K content is more widely available.

Futuresource anticipates that 2014 will see sales of smart TVs account for over half of the market for the first time, rising to 82% of sales by 2018, as smart

"The anticipated boost from the World Cup in the first half of the

Europe is forecast to exceed 57 million units in 2014, with Western Europe enjoying 2% year-on-year growth, while Eastern Europe remains flat," says Jack Wetherill, Senior Market Analyst at Futuresource Consulting.

"The North American market is anticipated to be stable at roring have substantial consumer appeal at point of sale as 40 million units in 2014, with Latin America on track to achieve 17% growth this year to 32 million units. Most countries in this region have yet to complete their analogue switch offs.

This region is forecast to grow at 4% CAGR until 2018, when it will exceed 100 million units. This market has yet to reach rently. The USA leads the way followed closely by the Asia saturation and the digital switchover in some countries is still to be completed. It is anticipated that the worldwide TV market will grow at 3% CAAGR until 2018, when shipments will exceed 260 million units."

"4K adoption is forecast to grow quickly from 2015 onwards able to perceive the improvement that they had hoped for with over 100 million shipments projected in 2018, repre-versus 1080p."

year has been followed by a better than expected Q3. features remain an important factor to many consumers.

"Although the industry spotlight is focused upon UHD and curved screens, smart TV continues to permeate the market as a value added feature, and UI refinements like voice and gesture recognition, tile-driven navigation and device mirpart of a premium set proposition," says Wetherill.

"The migration to larger screens is expected to continue," says Tett, "partly aided by 4K, as the benefits of the higher resolution are easier to see in the larger screen sizes. 50"+ "Asia Pacific is forecast to see 88 million shipments in 2014. sets (both HD and 4K) are forecast to account for almost 25% of the market in 2018, in comparison with 18% curpacific region.

> "There is some concern among the content community that owners of such sets will be disappointed when they do eventually receive a regular native 4K source, perhaps un-



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### 3 Billion People Now Online



Over three billion people are now online and information and communication technology (ICT) growth remains buoyant in just about every country worldwide, according to ITU's flagship annual *Measuring the Information Society Report*. Latest data show that Internet use continues to grow steadily, at 6.6% globally in 2014 (3.3% in developed countries, 8.7% in the developing world). The number of Internet users in developing countries has doubled in five years (2009-2014), with two thirds of all people online now living in the developing world. Of the 4.3 billion people not yet using the Internet, 90% live in developing countries. In the world's 42 Least Connected Countries (LCCs), which are home to 2.5 billion people, access to ICTs remains largely out of reach, particularly for these countries' large rural populations.

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

Company Name	Symbol	Price (Jan 02)	% Change from Last Month	52-wk Range		% change from 52-wk High
Satellite Operators Asia Satellite Telecommunications Eutelsat Communications S.A. APT Satellite Holdings Ltd. Inmarsat Pic SES GLOBAL FDR	1135.HK ETL.PA 1045.HK ISAT.L SES.F	26.90 26.80 10.96 790.00 29.60	-0.74% 1.38% -11.33% 0.32% -0.18%	25.60         35.00           21.50         27.34           8.10         13.50           653.00         828.50           22.85         30.675	****	23.14% 1.98% 18.81% 4.65% 3.50%
Satellite and Component Manufacturers The Boeing Company COM DEV International Ltd. Lockheed Martin Corporation Loral Space & Communications, Inc. Orbital Sciences Corp.	BA CDV.TO LMT LORL ORB	130.03 4.03 193.74 77.91 26.525	-1.78% 7.47% 1.38% -0.93% 0.86%	116.32         144.57           3.42         4.36           144.69         198.72           64.23         82.13           22.00         34.16	* * * *	10.12% 7.57% 2.78% 4.96% 22.39%
Ground Equipment Manufacturers C-COM Satellite Systems Inc. Comtech Telecommunications Corp. Harris Corporation Honeywell International Inc. ViaSat Inc.	CMLV CMTL HRS HON VSAT	1.38 31.61 71.66 100.395 62.23	18.97% -20.62% -0.08% 3.07% -5.24%	1.01         1.89           29.27         40.69           60.78         79.32           82.89         102.39           51.50         74.78	* * * *	26.46% 22.27% 9.78% 2.29% 17.02%
Satellite Service Providers Gilat Satellite Networks Ltd. Globecomm Systems Inc. International Datacasting Corporation ORBCOMM, Inc. RRSat Global Communications Network Ltd	GILT GCOM IDC.TO ORBC RRST	4.78 14.10 0.0750 6.55 7.23	-0.62% 0.00% 25.00% 8.44% -10.07%	4.50 5.71 0.04 0.15 5.40 8.21 6.06 9.60	+	16.29% - 50.00% 20.10% 24.69%
Consumer Satellite Services British Sky Broadcasting Group plc DIRECTV Dish Network Corp. Globalstar Inc. Sirius XM Holdings Inc.	BSYBY DTV DISH GSAT SIRI	52.88 86.69 72.35 2.68 3.485	-5.13% -1.19% -6.21% -2.90% -3.46%	67.80 89.46 53.72 79.57 1.56 4.53 2.98 3.89	* * *	3.15% 9.35% 40.62% 10.80%

INDEX	Index Value Jan. 2, 2015	% Change from Last Month	% Change Jan. 02, 2014
Satellite Markets 25 Index <sup>™</sup>	1,834.59	-0.89%	6.74%
S & P 500	2,060.26	0.33%	11.11%

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

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