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SATELLITE Markets & Research

Industry Trends, News Analysis, Market Intelligence and Opportunities

Update on the Latin American Satellite Market

by Bernardo Schneiderman

Latin America continues to be a hot market for satellite communications. There is a growing market for C-, Ku- and Ka-band services for Broadcast, Internet, Backhaul, Government, Mobile Communications and Oil & Gas applications, among others.

The Economic Commission for Latin America and the Caribbean (ECLAC) has revised downward its economic growth projection for the region in 2015, forecasting a 1.0% increase (Instead of 2.5%) in the regional Gross Domestic Product (GDP), the United Nations organization said last April 2015.

Demand for satellite services in Latin America is being driven by new applications in vertical markets such as oil and gas and maritime, as well as in traditional Pay TV and broadband access. (image: satellitedirect.tv)

This revision reflects a global environment characterized by less economic dynamism than what was expected at the end of 2014. With the exception of the United States, industrialized countries have revised their growth estimates downward, and emerging economies continue to decelerate. The region is expected to keep economic growth at around the same level as in 2014 (1.1% according to the ECLAC's annual report. In the sub regions, ECLAC forecasts growth of nearly zero for South America, while Central America and Mexico should reach 3.2% and the Caribbean 1.9%.

The countries that will lead the region's expansion during 2015 will be Panama, with a 6.0% increase in its GDP, Antigua and Barbuda (5.4%), and Bolivia, Nicaragua and the Dominican Republic (5.0%) Beside the economics reports the latest Anatel (Brazil's regulatory board) satellite orbit slot auction during May 2015 came out with strong results: Telesat, Hispasat and UAE-based satellite operator YahSat were the high bidders at the auction of satellite orbital slots. Brazil orbital slot auctions during the last two decades have historically been very positive. In 2014, Hispasat, SES and Eutelsat were the winner of the satellite orbit slots. Telesat, which lost a year ago won two licenses (one Ka-Band and the other multiband), both at 63 degrees west.

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From the Editor

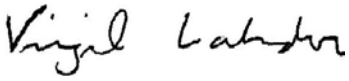
The Latin American Market

In this issue, we focus on the growing Latin American satellite market. Our cover story by Bernardo Schneiderman, who has worked in the region for many years with various satellite companies, provides a comprehensive overview of the opportunities and trends in the region.

I got to see first hand myself the general mood in the region during the Latin American Satellite Communication and Broadcasting Summit (LATSAT) organized by Euroconsult last May in Mexico City and I have to say, the optimism in the region is well deserved (see the conference report on page 36) . So much so that it has attracted new players such as ABS, which started in Hong Kong and Middle east operator Al Yah Sat.

The situation in Latin America reminds me of the situation in Africa a few years ago, where there was much optimism and many new players coming into the market. Like Africa, the Latin American market provides many opportunities, but poses myriad challenges as well. That's why it's important to be informed properly of the market situation and come up with realistic expectations.

To get a feel for the region, you can come see for yourself at the upcoming SET EXPO in Sao Paolo, Brazil from August 23-27. The SET EXPO is one of the premier broadcast events in the region. If you will be attending the SET EXPO, be sure to drop by the Satellite Markets booth #20c.



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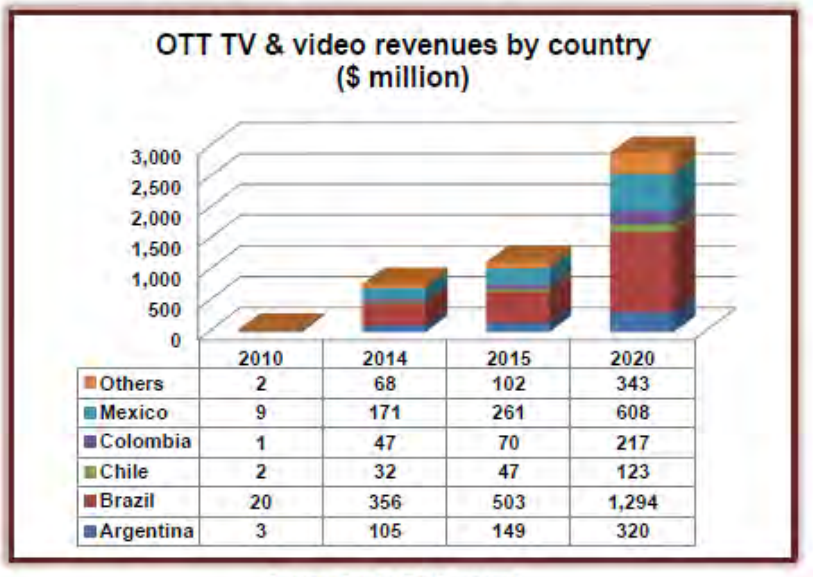
The Latin American Satellite Market ...From page 1

YahSat, which lost last year's auction, won Ka-band rights at 20 degrees west longitude to serve Africa and Latin America. Hispasat's Brazil-based subsidiary Hispamar, won rights for Ka-band transmissions at 74 degrees west longitude in Ku-band.

The Anatel auction resulted in 183.7 million Brazilian reals equivalent of US$63.6 million, which was nearly 70% more than the minimum bidding floor set for each slot this year. Telesat paid about 90 million reals for its two licenses. YahSat, (represented by subsidiary Star Satellite Communications) paid 44.1 million reals. Hispamar paid 50.3 million reals for its slot. All satellites licenses are for 15 years, renewable for a second 15-year period. Each company will have four years to build and start operating the satellite with the risk of forfeiting the auction payment if it decides not to proceed.



	2010	2014	2015	2020
Others	2	68	102	343
Mexico	9	171	261	608
Colombia	1	47	70	217
Chile	2	32	47	123
Brazil	20	356	503	1,294
Argentina	3	105	149	320

Source: Digital TV Research

OTT TV and video revenues in Latin America will reach US$ 2.91 billion in 2020; up from only US$ 37 million in 2010 and the US$ 1.13 billion expected in 2015, according to a new report from Digital TV Research.

According to Euroconsult's latest report issued April 2015 entitled Satellite Communications & Broadcasting in Latin America, the total satellite capacity usage increased at an 8% CAGR over 2009-2014, driven by growing requirements for satellite pay-TV (+1,600 channels), VSAT services (+50,000 VSATs), trunking and backhaul. Euroconsult projects total capacity leased to grow at a 10% CAGR over the next decade, translating to a total of over 330 Gbps of traffic flowing over satellite by 2024.

Anticipating strong growth in demand, operators have invested heavily in expansion satellites which will result in total regular capacity supply in Latin America to double by 2017 (from 2010 levels), while HTS capacity will increase eight-fold to over 370 Gbps by 2017.

"As supply additions are projected to outpace growth in demand, the average regular capacity fill rate should decrease from 80% in 2014 to 70% in 2017," said Nathan de Ruiter, Senior Consultant at Euroconsult and editor of the report. "The trend of falling fill rates is most profound in Ku-band, where utilization levels are dropping from 86% in 2010 to an expected 64% by 2017, causing serious concerns for oversupply." The risk of a temporary situation of oversupply is anticipated to place strong downward pressure on Ku -band capacity prices in the next three years.

Several fundamentals are supporting a strong increase in the future use of satellite communication services in Latin America:

The rising number of TV channels distributed over satellite with leading satellite pay-TV operators in the region diversifying into new geographic markets and the emergence of new platforms

Latin America should maintain its leading role in Universal Service Offerings (USO) programs that include satellite connectivity solutions for rural regions.

The availability of HTS capacity and roll-out of cost-effective services should drive consumer broadband in populated countries such as Brazil in addition of Oil & gas, mining and corporate networks segments.

Mobile penetration keeps increasing along with the expansion of 3G and potentially 4G/ LTE networks, which will create new market opportunities for cellular backhaul over satellite

Although demand is relatively equally distributed across the three sub-regions (Central America, Mexico, Caribbean; Brazil; Rest of South America), the two largest countries, Mexico and Brazil, are projected to represent more than half of total capacity demand by 2024. In the short to medium term, market growth will be hampered by the economic slowdown that should limit the progress of the middle class and may potentially cause instability or delays to government programs and funding. Furthermore, the analog switch-off process will somewhat temper the capacity additions from 2018 until 2022.

The major satellite operators that have established operations in Latin America include SES, Intelsat, Eultelsat, Telesat, Hispasat and Star One. The Andean Community is providing a slot to SES. Eutelsat has acquired Satmex of Mexico during 2014, renamed it Eutelsat Americas and is planning a

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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.

Bolivia contracted the manufacture of a satellite and launch service from China for a national telecommunications satellite program. Argentina just launched Arsat 1 last October 2014.

Hispasat, now more than ever, is determined to maintain its position in Latin America in the face of a recapitalized Satmex acquired by Eutelsat, was the first to introduce a large Ka-band offering into the region with Amazonas 3. Hughes and EchoStar have access to a Brazilian orbital slot but have not yet begun construction of a new satellite for the slot because of a lack of partners for a direct-to-home satellite television business.

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

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 Brazilian-focused 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 available to the quickly growing direct-to-home television community that is hosted at that orbital location, including Brazilian pay TV operator GVT (Now own by Telefonica). Over the longer-term, Hispasat has procured capacity on the Galaxy 11 follow-on satellite, Intelsat 34, which is expected to launch during the second half of 2015. Hispasat and Intelsat will cooperate 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 2014, 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 95^0W 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 from this region. But now with Intelsat 30 and the next three spacecraft coming online: Intelsat 31, Intelsat 34 and the first satellite in the Intelsat EPIC EpicNG system, Intelsat 29e, the company is looking to focus in high growth segments that include media, cellular backhaul and mobility applications.

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 expanding the line-up of HD channels at affordable prices," said Frost & Sullivan Information and Communication Technologies Industry Manager Renato Pasquini. "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 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, enabling a look and feel closer to Internet-delivered 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 quality of broadband offerings and attractiveness of content.

"In a bid to combat this, IPTV and a considerable number of cable TV providers 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."

As sophisticated delivery models gain 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.

"...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. .."

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.

Brazil, Mexico and Peru are set to see the greatest growth rates due to their relatively low rates of development. Argentina, Brazil, Mexico and Colombia will be the four largest pay-TV markets by number of subscribers, accounting 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 two groups with the greatest growth rate in the period. By the end of 2014, pay-TV revenues in the seven countries covered will reach $21.45 billion, 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 increased its user base by 1.2% in the quarter.

Brazil is the main country in Latin America with 19.4 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.

The report, "Evolution of HD Channel 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 available on pay-TV HD packages.

"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.

"...Anticipating strong growth in demand, operators have invested heavily in expansion satellites which will result in total regular capacity supply in Latin America to double by 2017 (from 2010 levels), while HTS capacity will increase eight-fold to over 370 Gbps by 2017..."

Brazil

The largest satellite market in Latin America is Brazil where local and international operators provide capacity for all key segments. Among the local 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 Strategic 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.

Another major satellite operator in Brazil is Hispamar, a subsidiary of Spain-based Hispasat Group, which plans to launch in two years, a satellite with capacity for Ku band and Ka band at 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 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 satellite, but will require a decrease in the number of active transponders.

According to a Hispasat executive, the choice of Oi buy satellite capacity of SES to expand its DTH service has not affected relations between the companies. Oi is a minority shareholder (19%) of Hispamar side of the Hispasat, and Amazonas 3 now uses the satellite on its pay TV service through Media Networks. Elena Pisonero, CEO of Hispasat explains that Oi is currently the largest customer of Hispasat in Brazil and the operator will defend this position.

According to data presented by the counselor at the Latin American Congress Satellite, Brazilian satellites in 2011 amounted to a total of 196 equivalent transponders 36 MHz C-band, 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 Ku-band and 805 Ka-band, plus other 1394 Ka-band transponders of the Geostationary Satellite Defense and Strategic Communications (SGDC)," says the counselor for Anatel.

The Anatel counselor also notes that 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.

Eutelsat do Brasil announced during 2Q14 that they have concluded a 15-year contract with Hughes Network Systems do Brasil (Hughes), an EchoStar company, for the entire Ka-band capacity connected to the Brazilian service area on the EUTELSAT 65^0 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 are being built on a 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 Eu-

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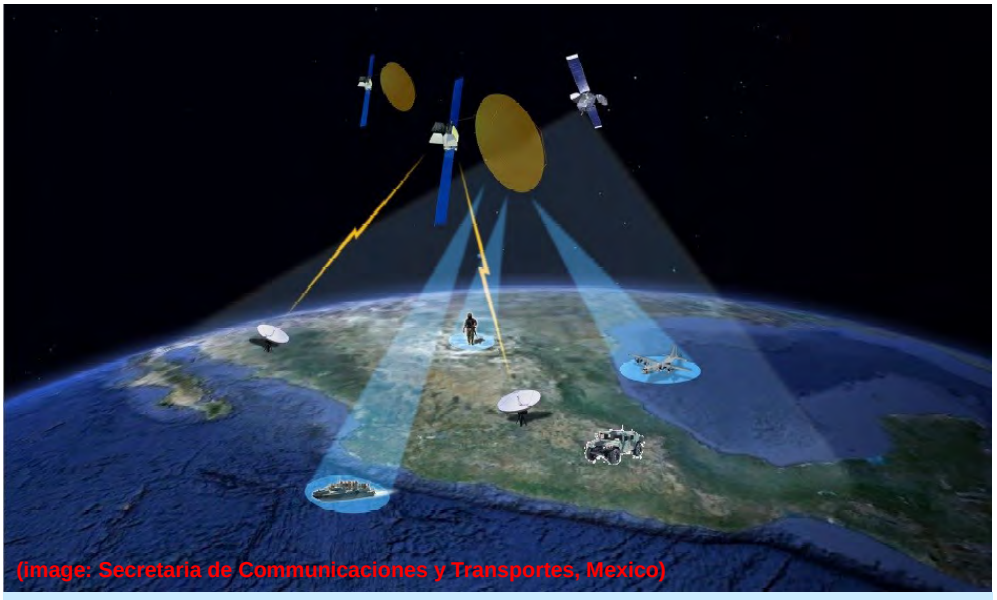
telsat pattern of a number reflecting its orbital position and a letter indicating its order of arrival at that position. This logic will enable Eutelsat America's community of users to identify where a satellite is located in geostationary orbit and its chronology at the orbital position where it is located (see table).

MEXSAT the Government satellite program will consist of three satellites, two ground sites, associated network operations systems and reference user terminals. MEXSAT will provide secure communications for Mexico's national security needs, as well as enhanced coverage for the country's civil telecommunications. Under the contract of US$ 1 Billion Boeing will deliver a complete turnkey satellite system comprised of Boeing 702HP geomobile satellites MEXSAT-1 and MEXSAT-2 and one extended C- and Ku-band satellite, MEXSAT-3, which will provide fixed satellite services from geosynchronous orbit is already in operations. Each Boeing 702HP satellite will supply 14 kilowatts of power through five-panel solar array wings that use high-efficiency, ultra triple-junction gallium arsenide solar cells. Both satellites will carry a 22-meter L-band reflector for mobile satellite services, complemented by a 2-meter Ku-band antenna.

Boeing also is developing two ground sites in Mexico with advanced beam-forming flexibility to direct mobile user spot beams to government agencies operating in Mexico and its patrimonial seas, including the Pacific Ocean and Gulf of Mexico.

MEXSAT 1 was lost in a failure of the third stage of the Proton-M launch vehicle during May 2015. The Ministry of Communications and Transport (SCT) reported that both the satellite and the launch process were insured by the British firm Marsh Ltd. The policy is full coverage and in dollars, for 100% of manufacturing costs (US$ 300 million) and the launch (US$ 90 million).

As for services, the government said the portfolio will not be affected, since the Morelos 3 is scheduled to be launched next October 22 by Lockheed Martin, from Cape Canaveral, Florida, United States. "The Morelos 3 will give us both the complete service required by the Government, the SCT and other user agencies such as emergency services and connectivity in areas of difficult access," said Gerardo Ruiz Esparza, head of the SCT in press conference after the failure of the Centenario satellite.



The three-satellite MEXSAT constellation suffered a setback with the failed launched of MEXSAT-1 last May. However, the Mexican government has downplayed the impact of the failed launched with the upcoming launch in October of Morelos 3.

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 Ku-band 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

but rather the beginning of a long story.

AR-SAT is a government-owned corporation which started operating in July 2006, AR-SAT has exclusive rights to 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.

Bolivia

Bolivia's first satellite was launched at the end of 2013. The satellite named Tupac Katari own by the Bolivian Government was launched on a Long March 3B rocket from the Xichang space center in southern China's Sichuan province. "Never again will we be incommunicado, as before when we were ... in the dark," said Bolivian President Evo Morales, who witnessed the launch at Xichang. Morales was the first foreign head of state to view a satellite launch from China.

The Tupac Katari satellite is based on the DFH-4 spacecraft bus developed by China Aerospace Science and Technology Corp. It is designed for a 15-year service life.

China and Bolivia signed an agreement for the construction and launch of Tupac Katari in December 2010. According to a press release issued by the office of President Morales, the project cost $302 million and was jointly financed by the Bolivian government and the China Development Bank.

ABE – Bolivian Space Agency is in charge of the Project and the target is to provide telecommunications services 3.3 million Bolivians living in rural areas without access. The satellite has 30 transponders, 4 just for television transmission (broadcast) and 26 for transmission and reception. ABE project was planned to eliminate the state of exclusion and disadvantage of Bolivians living in rural areas in relation to ICTs (Digital Divide), develop the country's infrastructure, and allow the benefits of ICT for the economy. Allow the improvement of the services provided by the state to the rural population (tele-education and tele-health).

With the Satellite the government is planning to establish a high-tech industry in the country, which will become a

new generator of quality jobs for qualified personnel and will contribute to the growth of complementary measures such as the development of software industry, the installation of telecommunications terminals, telemedicine and tele-education in rural areas.

Venezuela

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

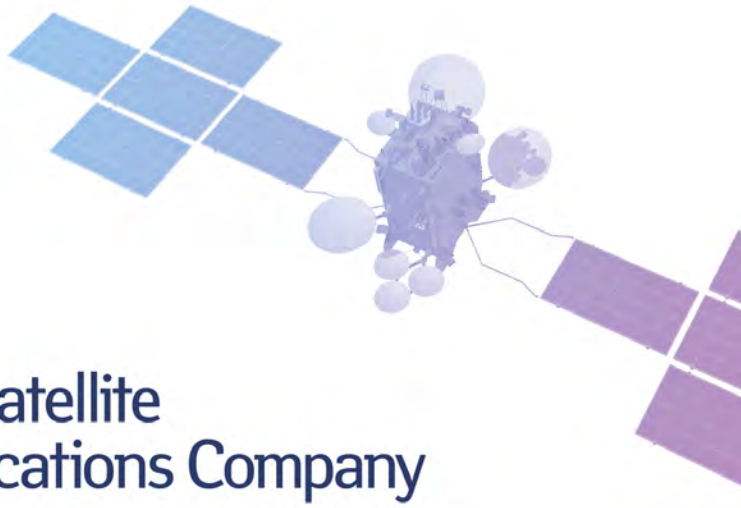
The satellite will be named after the independence hero *Antonio Jose de Sucre*, although neither the Venezuelans nor the Chinese offered any details of regarding the satellite's cost or specific timeframe for the project. The agreement, which was inked at the presence of Venezuelan President Nicolas Maduro, was signed between the Venezuelan government and CGWIC, China's sole commercial satellite launch service provider. In addition, China will expand satellite technology transfer to Venezuela, Chinese President Xi Jinping said during his visit to Venezuela in July 2014.

Conclusion

The continued 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 enter the market during the last Anatel satellite bid auction and it looking to expand in Latin America as well.

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



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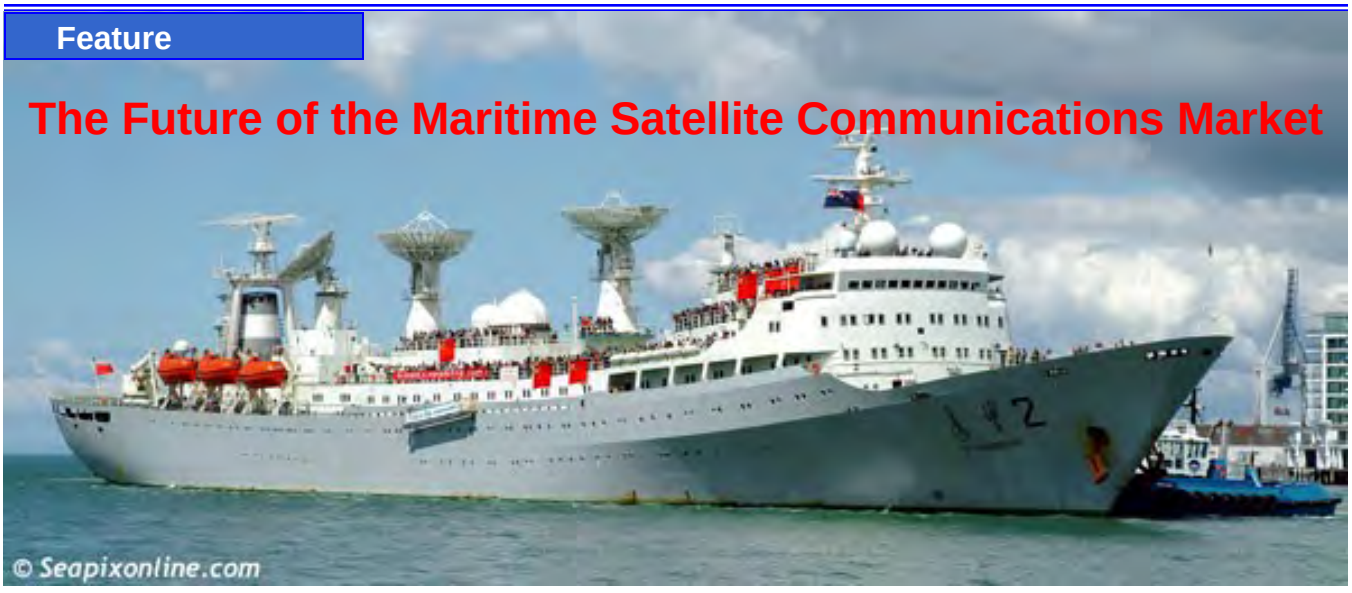
The Future of the Maritime Satellite Communications Market



by Tom Klompmaker and Hub Urlings

With a lot of recent attention on the technology behind High Throughput Satellite (HTS) systems as they were promoted by the satellite operators and the finance world, we thought it to be time to look at the other side of the spectrum: how is the situation for customers in the Maritime market? What is the current situation in the maritime communications market in this digital age, and what have maritime customers to deal with? For that, we have looked at the development in the different components which make up the end to end solutions in the maritime industry and the trends in maritime value chain over a period of time.

An All-IP Network at Sea

Like many other sectors, the maritime market is going through a major transformation due to IP-networking. Coming from VHF and analogue maritime satellite services in L-band, the Inmarsat FBB was the first technology providing Digital communications and meanwhile nearly all basic maritime satellite service are IP-based.

The impact of that can be seen in all its variety in the different maritime market segments. The merchant shipping sector will comprise about 50% of the 50,000 ocean going vessels in 2024, needs more bandwith but is already struggling with the high cost for satellite connectivity at sea, and also the high end segments including rigs, cruise lines, ferries, mega yachts and Off Shore (support) Vessels ask for ever more sophisticated IP-solutions to bring down their operational costs by optimizing their route, remotely monitor on-board applications, bring down the number of crew and make sure existing crew are happy.

Ship-to-shore traffic is mainly via standard office equipment and IP-wan/Internet. On-board machines, sensors and equipment are constantly monitored and communicate 24/7 via Machine to Machine (M2M) applications on shore.

Crewmembers expect to same internet connectivity at sea as they do on land, i.e. to be always online, and to stay in touch with their families and friends.

The result: a growing demand for speed and the need to manage the QOS and firewalling.

In the largest maritime sector, Merchant shipping, the margins are low which means costs must go down. Even the high end segments like super yachts do not want their bandwidth costs to grow exponentially along the growth of their bandwidth demand.

The maritime requirements for the future are clear: more IP-connectivity and bandwidth for lower costs.

So, what strategies are there for maritime customers to get more bandwidth for less money?

Strategies to Drive Down Costs

There are two main strategies that maritime customers can use to drive down communication costs.

The first one is is **bandwidth management.** When you want to heat your house more economically, you start with isolation, bandwidth management is the networking equivalent of that. Modern ships are floating Local Area Networks (LAN) and any corporate sysop can tell you that the external communications of a LAN needs to be managed. In particular, as it seems that the demand for bandwidth for business and for private use is growing exponentially. (thank you Youtube!).

There are several bandwidth control mechanisms to choose from, all typically coming from the standard IT domain. Clever windows updates for the onboard pc's and laptops, white and blacklisting of bandwidth hungry websites and preventing unwanted video streaming will help a lot to control bandwidth consumption. Another area for optimization is the constant data stream between ship and shore, for maintenance, operational programs, chart and weather updates, etc.

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challenge: how to efficiently heat it.

The second strategy to drive down costs is to make use of the different IP-networks at sea for your applications.

In order to optimize the bandwidth cost hybrid solutions on-board vessels are becoming more and more the norm, e.g. combining a Ku-band system on-board for the bulk IP-traffic and using L-band systems for GMDSS / emergency or M2M communications

Multi-network solutions carry any type of satellite network equipment in C, L, Ku, or Ka band as well as 4G and radio connections to meet their various communications requirements and legal stipulations:

- L-band is used more and more for narrow band applications like GMDSS, tracking and tracing, input for navigation systems, remote monitoring data for equipment and mission critical traffic. They are available on a global scale, very reliable but, also come with prohibitive high bandwidth cost for "trivial" bulk traffic.

The Polarstern research vessel

- Ku-band is used for the bulk internet traffic including "crew welfare applications" and business critical applications that require higher bandwidth like live streaming, video surveillance, video conferencing and even off shore rig mission critical applications (separate subnets).

- Ka-band will replace Ku-band as preferred network whenever available, due to their lower bandwidth cost, in particular in the regional ka-systems. This will enable improved "crew welfare" communications or broadband can be made available to passengers to stay in touch with their family at an affordable price. It will also allow for the further integration of entertainment, infotainment and non-mission critical applications like Wifi VOIP (mVOIP), VOD, on line gaming and even digital signage.

- 4G solutions will provide bandwidth in coastal waters and when moored and might propel the coastal, leasure and inland waterway vessel markets. A hybrid KA/4G solution looks most promising here.

The art of IP-at-Sea Networking: Where to Source your Bandwidth?

Although not comparable with the abundance of terrestrial IP networks, the oceans are not without communication networks. The current IP-at-sea network topology is a complex heterogeneous mix of networks that has grown from VHF radio communication, via analogue satellite services, now established using (in order of appearance) IP-services in C-band, L-band Ku-band, and Ka-band.

Each of these networks is serving its specific niche and application:

C-band requires huge antennas and is usually found on cruise ships, navy vessels and governmental research vessels.

The L-band satellite constellation of Inmarsat provides a global service (except for the poles) and is a de facto maritime standard also because of its GMDSS capabilities and the fact that the value chain includes equipment and system integration and is well developed.

That is different for the Maritime Ku-band systems, a sector that is still under development, with different antenna systems, a multitude of proprietary modem and transmission equipment used by service providers to provide their services. As Ku-band system can deliver much more bandwidth to vessels at a lower price we see currently a strong growth, a demand that will grow in the coming years, even though the choice for the proper Ku-band system is often a challenge for vessel owners due to all the different options.

Says Andreas Nil from MediaMobil (www.mediamobil.de) of Bremen, Germany: "The penetration of Ku-band in the merchant shipping market is only 15% there, and in other segments like the Oil and Gas industry we see a large demand for maritime Ku-band. Due to innovative platforms like iDirect, cloud based computing and an advanced beam switching mechanism we developed we can now offer a truly global Ku-band service to our customers at much lower prices then only a couple of years ago."

With the coming of the new generation HTS systems the

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maritime market is besides Ku-band also looking to KA-band to help them drive down their communications costs.

In several of the high end segments like the offshore and the super yacht segment we see that customers (subject to a good satellite coverage) are moving their non-critical traffic like crew calling and you tube requirements from Ku-band to Ka-band. The much larger bandwidth that is also offered for a substantial lower per MB cost, is ideal to cater for the bandwidth hungry laptops, tablets and smartphones of the crew and passengers.

Most HTS Ka- and Ku-band systems are mainly land oriented, aimed at the rural market and have limited coverage from a maritime perspective as they prefer to exclude the ocean regions. There is new potential however in the coaster, leisure and inland waterway market is still largely untapped Despite the land focus of most Ka-band satellite operators. Ka-band antenna manufacturers have discovered this market and have their Ka-antennas ready. Since the equipment and Ka-service interfaces are still non-standardised and homologation processes are costly and time consuming, the service provisioning is too underdeveloped to reach out to this market yet.

Says Jochen Grüner, from EPAK (www.epak.de), a German antenna manufacturer: "it is a real challenge to develop a comprehensive maritime service. We have developed the necessary maritime Ka-band antenna, officially approved by some satellite operators, but the interfacing with the satellite service ground segment is a tiresome process due to the lack of standardization, in particular as most of the ka-band satellite operators have a "land - background". However due to the potential of Ka-band, we are confident that this is only a phase we are going through at the moment and that maritime Ka-band systems will have a great future".

When we look at the global Ka-band networks we see Inmarsat, one of few players that is introducing a global Ka-band system, and SES that is working on an innovative MEO/GEO constellation to bring mobile IP-connectivity to the mobile markets as two of the main players. There is serious concern in the market however that these systems will be able to offer the substantial cuts in communications costs that a large number of prospective customers in the maritime industry is waiting for.

The Future of Maritime Communications

The maritime market is developing fast and its bandwidth demand is growing exponentially. In order to get their best bandwidth value for their money and to make the right choice of communication system vessel owners and fleet operators need to understand the actual and future communication needs of the onboard applications in combination with the geographical routes of the vessel.

As many other sectors the maritime market is going through a major transformation based on the ICT developments. Never in the past decades were vessel owners and fleet operators confronted with so much change in such a short time period, and the enormous variety of solutions offered, by all kind of different satellite suppliers. There is a serious risk of losing the overview and making wrong decisions. With EUsatcom we strive to educate both satellite professionals and their customers on the many choices they have and to support them with getting the best solution on board."

Due to the relatively high costs of satellite solutions, and the choice that has to be made from the multitude of solutions developed and commercialised on L-band, Ku-band and (soon) also on Ka-band, has far reaching consequences. All solutions will have advantages (usually in the form of Euros) or disadvantages (usually not clear from the beginning) for given types of applications.

Cost and usability are not the only components that have to be taken in mind here. Considerations might also include the legal and or regulatory situation along the shipping route, which varies from region to region and from country to country.

Only well informed professionals are able to distinguish the pro's and con's of the different solutions. One size does certainly not fit all, certainly when one needs to optimise its communication costs in low margin business sectors like in merchant shipping. No new HTS system can match that today.

So even with all that new HTS technology coming online the maritime market now and in the future has to rely on the human factor to make the best decisions and to integrate the multiple components to one working system. EUSATCOM members are specialists in optimising and selecting solutions, partnering with ship owners to find and implement the best “fit for needs” networks.

Ton Klompmaker (left) and **Hub Urlings** (right) are founding members of EUsatcom, the European Professional Satellite Association. EUsatcom aims to keep satellite professionals and corporations in Europe and their customers up to date with the latest developments in the satellite industry. It is also an ecosystem of satellite professionals and companies from all over the satellite value chain that work together to provide superior solutions to their customers.

Find out about EUsatcom’s event during IBC2015 at : eusatcom.net For more information on EUsatcom go to: EUsatcom.org o watch videos at: EUsatcom.tv

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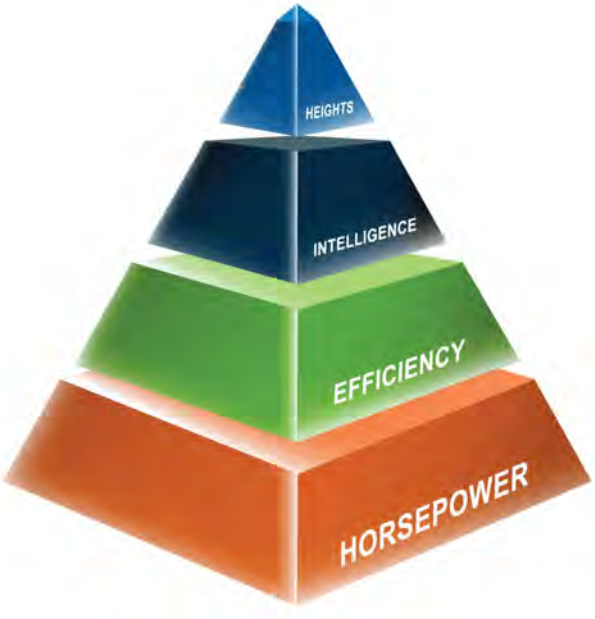

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Founded in 1985, **Newtec** is celebrating 30 years of connecting people this year. The global leader in satellite communications equipment and technologies is marking this milestone with 20% growth and new market expansion, including cellular backhaul, multiservice and High Throughput Satellites (HTS).

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

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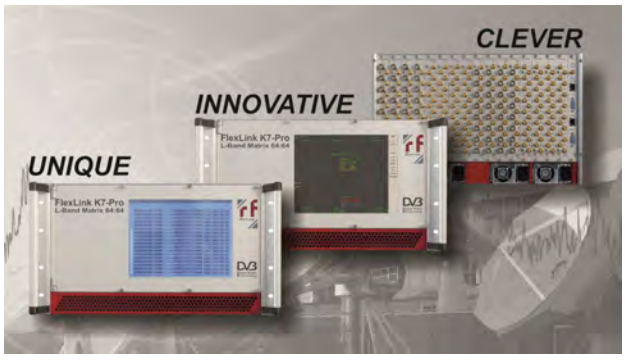

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Part 2: The Inflight Broadband Satellite Market

by Bernardo Schneiderman

Following the first part of the executive roundtable on the inflight broadband market last month (*Satellite Executive Briefing*, June 2015 issue) where we featured system integrators including Gogo, Global Entertainment, Panasonic, Thales and Viasat, this month we focus on the satellite operators' perspective.

Last month, the Global Connected Aircraft Conference was held in Washington, D.C. The conference featured the major players in the inflight market, including system integrators, satellite operators and avionics equipment manufacturers and representatives from major airlines. One of the key issues raised at the conference is that the market is hot not only in the US, but worldwide as well. Airline passengers are demanding inflight broadband access and the majority of airlines are evaluating which is the best solution to meet the growing demand. At the same time all the main satellite operators such as Intelsat, Inmarsat, SES, Eutelsat, Hispasat, Telesat among others, are dedicating satellite capacity to provide coverage in the main airline international routes.

The business model for airlines was another key topic during the conference. Examples include free internet services (e.g. Jet Blue in the USA and Nok Air in Thailand) while the majority of the domestic US and International airlines are charging the passenger per hour, per flight or monthly services. Whatever model the airlines choose to pursue, the reality is passengers are looking to be connected anywhere while they are travelling and the demand will grow exponentially.

To get the perspective of the satellite operators we invited several satellite companies to provide their views on this growing market. Participating in this roundtable discussion are **Stephen Angus**, Senior Director of Global Policy, Safety and Operational Services for **Inmarsat Aviation**, **James Collett**, Head of Mobility and Energy Services, **Intelsat** and **Steven Corda** Vice-President, Business Strategy and Planning of **SES**.

Excepts of the roundtable discussion follows:

Satellite Executive Briefing (SEB). How do you see the market for your product line and/or services focusing in the inflight broadband market this year and the next three years?

Stephen Angus, Inmarsat: We see a very exciting, active, competitive landscape with a number of inflight broadband providers offering connectivity as an add on to their core business. Connectivity is our core business. We have been providing cockpit communications for over 20 years. We're now taking the expertise we have in providing trusted safety communications and applying that to deliver a quality broadband service into the cabin.

With a range of partners, we can deliver what the airline needs and wants to ensure their passengers/customers are satisfied. Connectivity is now a hygiene factor and airlines will need to differentiate based on the quality of their service. Passengers expect a service at least as good as the broadband they get on the ground.

The challenge for the industry is to be able to invest and plan ahead to develop the infrastructure and technology now to deliver the meet demand in the future. Inmarsat is committed to doing this through a range of technology and infrastructure investments.

James Collett, Intelsat: According to NSR, the global aeronautical satcom market is forecast to grow from 47,500 units in 2014 to 95,500 in-service units and generate $3.2 Billion in retail revenues by the end of 2024. The in-flight connectivity market is expected to drive the largest share of revenues

with close to 1,800 units in-service, NSR forecasts in-flight entertainment/ connectivity for data/Wi-Fi to reach 21,000 units by the ends of 2024 (28% CAGR) with North American carriers leading the way.

At Intelsat alone, we estimate that current throughput on our global broadband aeronautical platform is 350 Mbps across all existing wide-beam platforms, with that number expected to 'take off' as our Intelsat Epic^{NG} satellites begin to launch in 2016. With clients such as Panasonic, Gogo and Global Eagle Entertainment, we provide services representing 50 percent of the contracted capacity for commercial aeronautical broadband.

"…There is an increasing demand for video streaming, text messaging, VoIP and even video conferencing (e.g., FaceTime). These services are causing a rapidly accelerating demand for increased capacity as passengers expect to see the same applications supported on a flight as the ones they use in their everyday lives at home and in the office…"

—Steven Corda Vice-President, Business Strategy and Planning, **SES**

Steve Corda, SES: The rate of adoption of IFC (in-flight connectivity) by airline passengers and their level of consumption per flight has been increasing. To meet this demand, the IFC service providers, whom are our customers, have continued to seek additional satellite capacity. Today, that capacity need is filled by existing wide beam Ku-band transponders. But, with the upcoming launch of three new Ku-band HTS satellites (SES-12, SES-14 and SES-15), we at SES will see satellite capacity demand migrate to a powerful mix of traditional beams and new HTS spot beams. These new HTS satellites will be able to provide the IFC market with high performance capabilities and will serve to drive down the cost per bit.

SEB: What applications will be driving demand for satellite services in the aviation sector?

Inmarsat: Passenger demand, operational efficiencies achieved through the real-time analysis of 'big data' being generated by modern aircraft; more efficient traffic management via shorter separation standards that can be achieved using Automatic Dependent Surveillance Contract (ADS-C) communications available through services such as Swiftbroadband; and of course initiatives to improve safety, such as ICAO's mandate for the implementation of global flight tracking of all aircraft.

Intelsat: According to recent research reports, the civil and government small -jet markets are expected to experience significant growth. EuroConsult reports that the number of business jets is expected to grow from 18,400 in 2013 to 26,200 in 2023, a market Intelsat and its global hybrid network is well suited to serve. EuroConsult also notes that 75% of civil small-jet passengers are high-level corporate executives who consider these aircraft "offices in the sky" with a need for broadband service that is as important in the air as it is in the workplace on the ground. Recently, Intelsat announced that it signed an agreement to co-design and produce an ultra-thin, active phased array, Ku-band satellite antenna solution with Phasor Inc. The innovative Ku-band antennas will be developed exclusively for Intelsat and optimized for the Intelsat Epic^{NG} high throughput satellite (HTS) platform, the first satellite of which is expected to launch in the first quarter of 2016. This marks the first cost effective fuselage-mount Ku-band antenna suitable for installation on civil and government small-jets, which represent an underserved segment of the fast-growing aviation broadband market.

In addition to business jets, NSR is forecasting that the narrow-body commercial aircraft addressable market will reach 26,688 aircraft in the next 10 years compared to 18,568 in 2014 (3.7% CAGR). This is an ideal growth opportunity for satellite-based in-flight connectivity.

SES: The basic desire and need for IP connectivity to support traditional applications (email, web browsing) while on a commercial flight has created the underlying demand. That said, there is an increasing demand for video streaming, text messaging, VoIP and even video conferencing (e.g., FaceTime). These services are causing a rapidly accelerating demand for increased capacity as passengers expect to see the same applications supported on a flight as the ones they use in their everyday lives at home and in the office. And, linear / live TV broadcast is also fueling the demand, especially in areas where existing DTH services are not available. For example, in the North Atlantic, where commercial direct-to-home video services are not deployed, our service provider customers are looking toward overlay wide beam coverage on top of the upcoming HITS coverage to support the demand for TV-like services.

SEB: How do you see the growth in Ka-Band capacity impacting the inflight broadband market?

Inmarsat: The launch of the global GX

"...HTS enables bandwidth to be delivered more cost-effectively, giving service providers access to additional bandwidth that they can flow down to their customers. Intelsat Epic^{NG} also is fully integrated with the existing Intelsat fleet, supporting global coverage from the start of its deployment. Having a global footprint, particularly in the fast growing aero sector, is critical to serving customer's needs..."

—**James Collett**, Head of Mobility and Energy Services, **Intelsat**

Aviation network will radically change the broadband landscape. For the first time airlines will be able to offer a true broadband experience in the air. GX is a single network that when launched will be the first to offer a true, broadband service to the aviation industry globally. It was designed and built to provide connectivity to people on the move, by a company that specializes in connectivity. We can ensure a consistent service, across all flight routes because we have invested in a two receiver handover system to ensure our services never drops out when the aircraft moves across satellite beams. (Other providers' terminals are single receivers meaning the connection with one satellite has to disconnect before it can connect to the next satellite causing the serviced to cut off.)

Intelsat: While growth in Ka-band capacity is expected, NSR is predicting significantly larger growth in Ku-band capacity. According to NSR, revenues from Ku-band and HTS connectivity will be approximately $1.2 B annually at the end of 2024, as compared to $60 million in 2014. Meanwhile, NSR expects Ka-band revenues to grow from a quarter million dollars in 2014 to $44.6 million in 2024. Additionally, NSR expects that HTS will command about 70% of capacity revenues in the commercial aeronautical satcom markets in ten years.

Whether you are operating in Ka-band or Ku-band, we expect this fast growing sector to become more competitive as new entrants try to capture growth. In order to maintain our leading market share, we are positioning to compete across the board and provide our customers with scalable infrastructure based on our Intelsat EpicNG open architecture platform; the ability to customize their service offering and ensure reliable quality of service; deliver more powerful and efficient use of the spectrum through our global wide beam and HTS spot beam coverage; ability to minimize their upfront capital investment and focus on revenue generation.

SES: SES expects to see growth in both Ka band and Ku band. In markets where existing or planned Ka band systems are available for fixed broadband services, adding in the capability of addressing the IFC market with Ka band as well makes a lot of sense. For airlines having aircraft that are equipped with Ku band terminals, it is usually more effective to leverage Ku band systems even if Ka band is available since a significant investment on the aircraft has already been made. This is one of the reasons why SES has developed Ku band HTS satellite systems. In areas where Ka band systems are not in place nor planned, Ku band capacity, whether wide beam or spot beam, is likely more economical. Ku band also provides the ability for an airline to have their aircraft migrate from region to region since Ku band capacity covers nearly the entire world.

SEB: Do you have any new product/ services that you are planning to introduce this year or during the next year to focus in this market?

Inmarsat : Apart from GX, we will also be launching the European Aviation Network service in 2017. The revolutionary combination of S-band satellite and a complementary ground network will provide the capacity required to service the high traffic routes across Europe very cost effectively.

We are also launching Swiftbroadband Safety, a new high speed, secure service for safety and operational communications.

Intelsat: We recently introduced IntelsatOne® Flex to the mobility market. IntelsatOne Flex is a customizable, managed mobility service that allows service providers to easily and cost effectively launch services across the maritime, aero and government verticals, as a complement to Intelsat's existing broadband services to the sector. IntelsatOne Flex provides mobility service providers a new service option via a flexible, shared broadband infrastructure with unmatched choice and control for true differentiation. Service providers can incorporate HTS into their infrastructure with MHz leases, and high traffic density areas will have access to multiple wide beams and Intelsat Epic^{NG}® spot beams. Ultimately, IntelsatOne Flex allows service providers to use the quality level of capacity they need where they need it, lowering total cost of ownership, and supporting growth and increased revenues.

SES: SES will be launching three new Ku band HTS satellites (SES-12, SES-14 and SES-15) in the coming years to meet the growing demand for IFC. The sys-

tems are designed to address the needs of the high-demand geographies of North America, Latin America and Asia.

SEB: What differentiates your products and services compared to others in the market?

Inmarsat: Inmarsat has the infrastructure, commitment and power to invest to be able to lead the market with the best broadband solutions now and in the future. Our technology roadmap will keep up with and lead/exceed customers' expectations. We will set the standard for broadband in the sky with a combination of satellite and completely air to ground networks.

As the owner and operator of a single network we have an advantage over our competitors because we have the flexibility to be most cost effective and to partner closely with each airline to develop a solution to best fit their needs. We also can provide a superior experience to passengers because our single network is backed up with a two receiver handover system to ensure we never cut off or drop out as aircraft move between beams. We are the leading provider of satellite comms to transoceanic aircraft now and lead the development of broadband solutions that will enhance safety and operational efficiency for airlines.

"...The launch of the global GX Aviation network will radically change the broadband landscape. For the first time airlines will be able to offer a true broadband experience in the air. GX is a single network that when launched will be the first to offer a true, broadband service to the aviation industry..."

-Stephen Angus
Senior Director Global Policy, **Inmarsat**

Intelsat: As previously discussed, Intelsat's introduction of IntelsatOne Flex provides mobility service providers a new service option via a flexible, shared broadband infrastructure with unmatched choice and control for true differentiation, ultimately enabling a lower total cost of ownership and increased growth and revenues. Additionally, Intelsat's HTS satellite, Intelsat Epic^{NG}, is designed to exceed the requirements of our customers, enabling throughput in the range of 25-60 Gbps per satellite about 10 times that of traditional satellites. HTS enables bandwidth to be delivered more cost-effectively, giving service providers access to additional bandwidth that they can flow down to their customers. Intelsat Epic^{NG} also is fully integrated with the existing Intelsat fleet, supporting global coverage from the start of its deployment. Having a global footprint, particularly in the fast growing aero sector, is critical to serving customer's needs.

Another clear difference is that we have deliberately chosen to lay down our high-throughput capacity in areas where the air traffic is most dense, as opposed to delivering uniform levels of service. Intelsat Epic^{NG} will blanket key airline routes, and we will add additional satellite platforms as needed, meaning we can assure that our partners will have the bandwidth available as demand grows.

Additionally, the Intelsat Epic^{NG} platform, with its open architecture, backwards compatible design, provides our customers a platform on which they can continue to innovate and differentiate themselves rather than being tied to a provider that makes service and hardware choices for them. We're providing the fabric that will allow our customers, the service providers, to continue to grow the number of aircraft fitted with Ku-band- solutions and provide the airlines with increased bandwidth per passenger.

SES: SES focuses on enabling IFC service providers to meet the needs of their customers, the airlines. We do that by assessing the airlines' traffic demands via an in-house analysis tool that we have integrated into our satellite design software. We can quickly and efficiently assess satellite designs, spot beam configurations and transponder bandwidth allocations to provide the highest performance at a very efficient price. We take into account airline load factors, passenger consumption behaviors, flight path and a myriad of other factors. We allow the IFC service providers to take an integral role in the satellite design process that we undertake in the procurement of upcoming satellites. This customer-centric approach has been a real differentiator for SES for years and certainly ensures that our satellites are built to meet the ever-changing needs of the inflight market.

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

The Satellite Industry's Youngest Future Leader

by Lou Zacharilla

The recently published Industry Workforce Study is the first of its kind for the leadership of the global satellite industry. However, it says nothing about this year's most important story, one kept under wraps until May: the use of child labor in Silicon Valley. After months of digging I have an exclusive interview that blows the lid on this amazing story. What's more amazing is that the talent of one person among the Ryn Weaver crowd is playing a key role in the promotion of the satellite industry! In this exclusive interview for *Satellite Executive Briefing*, I interview an 11-year old creative talent, known best as a member of the Anza Cupertino Aquatics swim team with close ties to Space Systems Loral who has made a huge contribution to the unity of the industry.

11-year old Hannah Smith, whose parents work at SS/L MDA, posing in front of the SSPI's *Better Satellite World* logo which incorporates her artistic design.

Since its debut at the SSPI Chairman's Reception in March, the industry's new global campaign, popularly called *Better Satellite World* www.bettersatelliteworld.com, has gone viral. It has been successful beyond even our expectations and is being endorsed by new companies every few days, most recently Artel and Arabsat. The campaign's short, poignant videos promote a side of the industry that has rarely been articulated. In *Better Satellite World*, the industry's excellence is revealed as a key engine of economic and social transformation. The campaign's offbeat stories, including those describing how the design of the ball used at the World Cup and the output and quality of wine owe a direct allegiance to satellites, are being repurposed by the media and used by industry companies – at no cost - in a variety of ways.

What distinguishes the campaign is its simple, childlike approach. When I designed the campaigned for the Society of Satellite Professionals International www.sspi.org, I wanted it to have a look and feel that had less to do with technology and engineering, and more to do with the poetry of human achievement. The team at SSPI decided to take a page from Steve Jobs. When asked in 1996 what Pixar would be about, he answered, "We are going to be about putting stories into the culture."

So are we. We needed a strong visual image to make it happen. It wasn't until I received my annual holiday calendar from Space Systems Loral that I found it. The iconic element of the new campaign says it all. The drawing emerged from the crayons of Hanna Smith, whose folks Beth and Ron, are employees at SSL and who brought Hannah to work during SSL's Bring Your Child to Work Day. Not only did they show her what they did to pay for the groceries, along with dozens of other SSL kids, she submitted her

drawings from that day for consideration for a new company calendar. Her drawing of children, dogs and cats enjoined around a satellite, in harmony, was chosen for one of the months of 2012 and then went global through our campaign. If you were there, you saw it premiere at the Gala Benefit in Washington and, later, on the back of mobile devices in the form of a digiclean. It is worn on the lapels of CEOs, and SSPI chapters' leaders. Most important it appears regularly in the media and in press releases and on websites of endorsing industry companies.

When SSPI launched a new Silicon Valley chapter in May in Menlo Park, we asked Hannah to come by the offices of Hogan Lovells, the event's host, as a guest of honor. SSPI chairman Chris Stott gave her an award, I gave her a lapel button with her artwork on it and a crowd of 80 "new satellite" folks cheered her on. Today she is the child labor we claim as our artist in residence.

Here, for the first time, the industry's newest future leader speaks out:

Lou Zacharilla (LZ): You are the artist whose work appears in the new global Better Satellite World campaign from SSPI. Tells us about yourself and why you chose that subject.

Hannah: I like swimming. I'm on two swim teams. One is our Cabana team – the Almaden Dolphins, and the other is team called DACA. I used to only like breaststroke, but now I like to swim them all. My favorite subjects are Geography, History and Art. I also like basketball. I love American Girl dolls. I have seven dolls and hope to get more. I decided to draw people holding hands around the world in my satellite picture because satellites connect people all around the world. Some of the people in my picture are supposed to be my family.

LZ: When people say "satellites make a better world," what thought comes into your head?

Hannah: Connecting people all around the world. Everybody uses satellites, even if they don't know it.

LZ: For sure. You were with SSPI in May to help us start our new Silicon Valley chapter You met a lot of cool people. Do you think you might want to become an entrepreneur in the satellite industry someday, or maybe work at a company like SSL?

Hannah: Yes. I would like that. Satellites are Cool! It is fun having both my parents working for SSL.

LZ: What advice would you give to kids thinking about becoming famous artists like you?

Hannah: To never give up and keep trying. There are no mistakes in art.

LZ: Now that satellites are helping us discover billions of new stars and planets, do you think there are other people out there somewhere?

Lou Zacharilla with Hannah Smith showing the certificate of appreciation awarded to her by the SSPI.

Hannah: Yeah, I do. It would be weird if we were the only people.

LZ: It would be kind of weird. We hope most of them are cool like you! Thanks for your contribution to the future of satellites, Hannah.

Hannah: You're welcome!

For more information on how you or your company can endorse the Better Satellite World campaign at no cost, contact me at LZacharilla@sspi.org or call +1 212-249-0624

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

SpeedCast Acquires NewSat's Teleport Business

New South Wales, Australia, July 10, 2015 –SpeedCast International Limited announced that it has acquired the assets of the teleport and satellite services business of NewSat from its receivers. The assets include the land & buildings at NewSat's teleport facilities in Adelaide and Perth and the associated plant & equipment, as well as most of the customer and supplier contracts.

SpeedCast is also retaining 20 key employees, in the operations and engineering department and in sales, including in the US.

NewSat's customer base is composed of a strong reseller network, blue chip enterprise customers and government customers. These customers are being provided satellite services out of two teleport facilities in Adelaide and Perth.

"We continue to execute on our strategy of growing the business through strong organic growth in the end markets we operate in, and through acquiring value enhancing assets in key locations and/or industries where we see long-term sustainable growth," said Pierre-Jean Beylier, CEO of SpeedCast.

"Our well established Australian network, augmented by NewSat's infrastructure assets and customer base, will enable us to expand our presence in the market, in particular with Government and Perth-based customers to which we can sell additional services globally, as well as enhance the level of local support previously available to our customers," Beylier added.

NewSat Ltd. filed for bankruptcy protection on April 16 in the U.S. state of Delaware Bankruptcy Court.

SpeedCast has been acquiring several companies in the last couple of years including Satcomms Australia, Hermes Datacom, Oceanic Broadband, Geolink Satellite Services, among others.

Planet Labs Agrees to Purchase BlackBridge Geospacial Companies

San Francisco, Calif., July 15, 2015--Planet Labs has entered into a definitive agreement to purchase the BlackBridge geospatial companies, including the RapidEye suite of core offerings.

Planet and BlackBridge have great mission alignment and have complementary capabilities. With BlackBridge, Planet Labs now has access to an extensive network of over 100 distribution channels and customers globally; and RapidEye's comprehensive archive of six years of global imagery – 6 billion square kilometers at 5-meter resolution – allowing Planet Labs to bring one of the largest commercial satellite imagery datasets to the web, according to a company statement.

Planet's goal is to provide universal access to information about our changing planet through a platform that includes the daily imaging data from Planet's fleet of satellites, along with data from various other sources.

Ryan Johnson, BlackBridge CEO says: "The combination of BlackBridge's downstream knowledge and global reach, with Planet Labs' strategy for agile aerospace, will create a long-term competitive advantage for the combined company. The ability to lead the industry and adapt quickly to changing needs will be the key to continued success."

Under Planet, Blackbridge will continue to operate the RapidEye fleet of satellites. This gives users in agriculture, energy & infrastructure, consumer mapping, government, business intelligence, environmental & social impact the information they need to be successful.

The transaction is subject to customary closing conditions and is expected to close during the third quarter of 2015.

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

Be a part of MILCOM 2015:

- Largest gathering of the leading minds of government, military, industry and academia in an interactive forum to explore and define the benefits that joint-level collaboration brings to current and future communication challenges.
- Ideal Tampa location (MacDill Air Force Base military community, U.S. Special Operations Command (SOCOM), U.S. Central Command (CENTCOM) and the 6th Air Mobility Wing).
- Nearly 30,000 square feet of industry exhibits.
- More than 300 unclassified and restricted technical presentations, tutorials and panel discussions led by experts in defense communications.
- Continuing education credits will be available to all attendees.

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Comtech EF Data Appoints Marcos Jannuzzi as VP-Sales, Latin America

Tempe. Ariz., July 8, 2015--**Comtech EF Data** announced the appointment of **Marcos Jannuzzi** to Vice President Sales, Latin America..In this role, Jannuzzi will direct sales and business development operations for Latin America. He will develop and implement the region's sales strategy, oversee the region's channel and distribution programs, build customer relationships to expand the company's customer base and meet its revenue goals, and direct the Latin American pre-sales team

Marcos Jannuzzi

A seasoned satellite and telecommunications professional, Jannuzzi's extensive career includes senior sales, technical and operations positions with Oi Telecom, Telefonica Group, Telmex Brazil, and Embratel Group. Also a former member of the Comtech EF Data team, Jannuzzi previously held the position of Sales Director, Brazil.

"We are honored to welcome Marcos back to our team," commented Bob Hansen, Senior Vice President and Chief Commercial Officer. "His in depth understanding of satellite and telecommunications operators' challenges and requirements combined with his knowledge of the Latin American market will undoubtedly prove very beneficial as we navigate expansion opportunities in the region."

Jannuzzi holds postgraduate degrees in Computer Systems Analysis from Pontifícia Universidade Católica Rio de Janeiro, in Business Economics from Faculdades Integradas Cândido Mendes and an MBA in Marketing from IBMEC Business School Rio de Janeiro. He also holds a BS in Telecommunications Engineering from Pontifícia Universidade Católica Rio de Janeiro.

Johann-Dietrich Wörner is New ESA Director General

Paris, France, July 1, 2015--Johann-Dietrich Wörner has assumed the postion of Director-General of the **European Space Agency (ESA)** effective today. He is based at ESA Headquarters in Paris, France.

"I am in the favourable position to nurture the seeds of Jean-Jacques Dordain's work," said Mr Wörner during a recent media briefing at the Paris Air Show, expressing his thanks to the parting Director General.

Wörner called for the continuation of ESA's ongoing programs, projects and missions in cooperation with Member States, as well as preparing for ESA's future, among the many important tasks he has to fulfill.

Referring to this future as 'Space 4.0', Mr Woerner considers that ESA has already started to enter this new phase, in which space has become a day-to-day business and in which interaction with society, the commercialiization of space, resulting new roles for industry and a fostered, cooperative relation with the European Commission all play important roles.

The ESA Council unanimously appointed Mr Woerner on 18 December 2014 for a period of four years. Previously, he was Chairman of the Executive Board of the German Aerospace Center (DLR), from March 2007 to June 2015. Originally from Kassel, Germany, Mr Woerner is married and has three children.

He succeeds Jean-Jacques Dordain, whose term of office ended on 30 June. Dordain is ESA's longest-serving Director General, who led the Agency from July 2003 to June 2015.

Wörner studied civil engineering at the Technische Universität Berlin and the Technische Hochschule Darmstadt, from where he graduated in 1985. In 1982, as part of his studies, he spent two years in Japan, investigating earthquake safety.

Wörner

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 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.

RigNet CFO to Step Down

Houston, Tex., July 2, 2015--**RigNet,** Inc. (NASDAQ:RNET), al provider of digital technology solutions to the oil and gas industry, announced today that **Marty Jimmerson** has informed the Company of his intention to step down as Chief Financial Officer (CFO) by the end of the year. Jimmerson has indicated that he will remain to assist in the search for a new CFO and to assure an orderly transition.

"I have tremendously enjoyed my over eight years as CFO at RigNet, from its private company days through its successful transition to a public company," said Marty Jimmerson, RigNet's senior vice president and CFO. "The skills and experience I have gained are invaluable. With RigNet now successfully transitioned, the timing is now

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right for me to pursue other opportunities," he added.

"Marty has been a key contributor to RigNet's success over the past several years, having helped guide the Company through an IPO, two acquisitions and the launch of a new ERP system. Through his efforts, he will leave the Company on excellent financial footing. I will miss working closely with him and wish him every possible success in his next endeavors," said Mark Slaughter, RigNet's CEO and president.

RigNet has hired Heidrick & Struggles to lead the CFO search, which will consider both external and internal candidates.

Intelsat Names Karen Schmidt as VP of Marketing

McLean, Virginia, June 1, 2015-- Satellite operator **Intelsat S.A** announced that **Karen Schmidt,** a veteran marketing executive with more than 25 years' experience, has been named as the company's Vice President of Marketing, effective immediately.

Karen Schmidt

Schmidt will lead Intelsat's product and marketing efforts for Intelsat's portfolio of connectivity services for media, broadband, mobility and government customers. Functions reporting to Ms. Schmidt will include Product Management, Product Marketing and Marketing Communications. She will be based in McLean, VA and report to Kurt Riegelman, Senior Vice President, Sales and Marketing.

Schmidt was most recently the Vice President of Business Marketing at Comcast Business, a division of Comcast, and a key member of the team that grew the division from inception in 2007 to 2014 revenues of $4 billion. Prior to joining Comcast Business, Ms. Schmidt held executive product and marketing roles at Network Solutions, Concert Communications and MCI Communications.

Encompass Media Appoints Jonathan Goldstein as SVP-North America Sales

Atlanta, Ga., June 16, 2015– Encompass Digital Media announced the appointment of **Jonathan Goldstein** as its Senior Vice President, North America Sales and Client Services. In this role, Goldstein will lead Encompass' sales efforts in North America while simultaneously focusing on the expansion of strategic relationships with current and future clients.

Jonathan Goldstein

"This is an exciting time to join Encompass as the company grows its leadership position in channel playout and expands its portfolio of digital services for OTT and file-based playout to meet the rapidly evolving needs of broadcasters," states Jonathan Goldstein. I'm proud to join a team that shares my passion for innovation and for delivering world-class service and reliability."

Goldstein joins Encompass with 25 years of media and technology experience. Prior toEncompass, he was President – Americas at Snell, a leading provider of video processing hardware and software to television broadcasters. Before Goldstein's tenure at Snell, he served as a management consultant in the media and entertainment practice of Booz Allen & Hamilton. Earlier, he worked in corporate operations at The Walt Disney Company and was a member of the opening team of Disneyland Paris. He began his career in technology consulting at Accenture.

Goldstein earned his MBA and Bachelor of Science degrees at The Wharton School of the University of Pennsylvania.

AsiaSat Reorganizes Sales and Marketing Structure

Hong Kong, June 17, 2015 – Asia Satellite Telecommunications Co. Ltd. (AsiaSat) announced a new organizational structure for its sales and marketing team. Under the new organisational structure, both sales and business development teams will be headed by **Philip Balaam**. Under his expanded role as Vice President, Sales and Business Development, Phil will assume new responsibilities in driving sales activities in all Asian markets while continuing to oversee the company's business development initiatives.

Sabrina Cubbon has been named Vice President, Marketing and Global Accounts. In her new capacity, Sabrina will focus on key global strategic accounts while continuing to lead the marketing, communications and corporate affairs functions of the company.

Commenting on the new organisational structure, William Wade, President and Chief Executive Officer of AsiaSat, said, "2015 is expected to be a challenging year for the satellite sector. I have confidence that our rebranding earlier this year has re-energized our brand presence and as equally important our entire team. "

"With this new structure, we will better utilize our resources and more clearly focus our efforts in the market. By moving ourselves closer to our customers and partners, we are able to better understand and serve their needs," Wade added.

IBC 2015

September 10-15, 2015
Amsterdam, The Netherlands

Recognized as the leading global event for the electronic media and entertainment industry, IBC will again be taking place in Amsterdam in September this year. Bigger and better than ever, with new innovations and initiatives, IBC unites the technologies and business models that power the creation, management and multiplatform delivery of all forms of electronic media content.

Over 55,000 attendees from more than 170 countries come to IBC to experience all that it has to offer in this rapidly changing multiplatform and multiscreen world. Visitors are inspired by the world-leading forum of the IBC Conference and motivated by the experience of meeting over 1,700 key international suppliers that comprise the IBC Exhibition. IBC provides an unrivalled environment for attendees to connect across countries, technologies and industry sector and for 2015, the newly constructed Amtrium will be a stunning addition to the 14 Halls of exhibits.

Always looking to the future, IBC will also be introducing the IBC Launch Pad. Located near Hall 14, it is reserved for first-time IBC exhibitors who will be shining a spotlight on the mega-trend toward IP based infrastructure and software tools which are transforming the industry.

Taking the visitor experience to a new level, IBC2015 will be deploying Touch & Connect technology: a valuable networking tool which will be free to all visitors, enabling them to instantly acquire and exchange contact information and exclusive content. A simple seamless user experience, Touch & Connect will enable visitors and exhibitors alike to be part of an immersive online community all year round.

Free-to-attend feature areas and events are a unique character of IBC and this year they are better than ever. Complementing the Conference and Exhibition they reflect the constant evolution of the industry and are designed to encompass the latest changes and trends facing the industry they include: Industry Insights conference sessions; the Future Zone; and the IBC Awards Ceremony.

Also this year we have extended the IBC Big Screen to incorporate a full programme made up of exhibitor demonstrations, free to attend conference sessions and exclusive film screenings to explore the very latest developments in digital cinema. The IBC Big Screen Experience will take place in the RAI's auditorium, which will be equipped with the very latest cutting-edge cinema technology including Christie 6P 2D and 3D laser projection and Dolby Atmos immersive audio.

The IBC Conference is a world-leading forum for debate and knowledge exchange, uniting a mix of visionary keynotes, panel discussions and master classes with the most influential thought leaders, opinion formers and cutting edge organisations shaping the industry's future. With the rapid convergence of Broadcast, IT and Telecoms, this year's Conference will concentrate on 'The Future of Media in an Age of Disruption', examining how the industry can seize the new opportunities being created by the explosive growth in the consumption of TV and video content on IP-connected smartphones, tablets and laptops.

Attracting top-level executives, technical experts and visionaries from over 170 countries, with business interests spanning the full spectrum of content creation, management and delivery, as well as emerging markets and key industry disruptors, the Conference ensures exclusive access to valuable insights and contacts.

For more information go to: **www.ibc.org**

Worldwide Pay TV Penetration to Reach 50% in the Next Two Years

Singapore, June 19, 2015--The worldwide pay-TV market surpassed more than 900 million subscribers in 1Q 2015, representing 48% penetration—the market is likely to grow steadily over the next 5 years, mainly boosted by emerging markets. "According to ABI Research's recent pay-TV market data, half of the world's households will have access to pay-TV service by 2017, representing 1 billion subscribers," comments Jake Saunders, VP and Practice Director of Core Forecasting.

As pay-TV service providers experience increasing competition from alternative platforms such as OTT, ARPU continues to decline across the various platforms in many markets. Many of the operators have added OTT, multiscreen services, and on demand services in order to compete with OTT service providers. These services have contributed additional revenue to pay-TV operators as well as maintaining customer loyalty.

Competition is higher in more mature markets such as North America and Western Europe where pay-TV penetration is as high as 60% to 80% of households. A slower growth rate is expected to occur in such markets in the years to come. As broadband infrastructure development speeds up in Asia-Pacific, OTT players are starting to target the APAC market. Netflix announced its launch in Australia and New Zealand in March 2015, and possibly in Japan by the end of 2015. Singapore telco, Singtel is developing an OTT platform, HOOQ, to provide services in the Philippines and other markets in Asia-Pacific. The entrant of OTT services is likely to create higher competition in Asian-Pacific pay-TV market, although it could take a while to gain penetration in the region.

"Worldwide pay-TV market is expected to reach 1.1 billion subscribers, generating US$307.5 billion in service revenue by 2020. The Asia-Pacific pay-TV market is likely to grow faster than most other regions in the years to come. ABI Research forecasts that pay-TV market in Asia-Pacific is expected to grow at a CAGR of 5%, generating US$79.4 billion in 2020," says Khin Sandi Lynn, industry analyst.

ABI Research's new market data products *Pay TV ARPU and Revenues*Pay TV Subscribers are updated quarterly and profile global pay-TV subscription information. Detailed market trends and market forecast information for key regions and countries around the world are provided where available. The study is a part of the company's Pay TV Market Research.

OTT Poised for Takeoff in Latin America

London, UK, June 22, 2015--OTT TV and video revenues in Latin America [for 13 countries] will reach US$ 2.91 billion in 2020; up from only US$ 37 million in 2010 and the US$ 1.13 billion expected in 2015, according to a new report from Digital TV Research. From the US$ 2,126 million in revenues to be added between 2014 and 2020, Brazil will contribute US$ 938 million and Mexico US$ 437 million.

Simon Murray, Principal Analyst at Digital TV Research, said: "SVOD will remain the region's largest OTT revenue source; contributing $1,745 million by 2020 – up from next to nothing in 2010. Pan-regional services such as Netflix, Clarovideo and Movistar are making an impact and are adding a competitive edge to the SVOD sector."

The Americas OTT TV & Video Forecasts report estimates 24.05 million SVOD (subscription video on demand) homes by 2020, up from 10,000 in 2010 and an expected 9.84 million by end-2015. From the 17.38 million SVOD home additions between 2014 and 2020, Brazil will supply 7.24 million and Mexico 3.32 million. Colombia will overtake Argentina to take third place in 2016. By 2020, 15.9% of the region's TV households will subscribe to a SVOD package, up from only 4.8% by end-2014. Puerto Rico (22.5%) and Chile (20.0%) will have the highest penetration by 2020.

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IBC works by the industry for the industry and has introduced IBC Content Everywhere, a series of events takes place throughout the year across the globe. Powered and created by IBC it spans Europe and MENA. These unique events will cover rich media production, devices, apps, digital marketing, social media, content personalisation, big data, cloud services, second screens, investment and much much more.

IBC2015	**Amsterdam**	**10 - 15 September 2015**
IBC Content Everywhere Europe	**Amsterdam**	**11 - 15 September 2015**
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LATSAT 2015 Highlight Opportunities, Increased Competition

by Virgil Labrador, Editor-in-Chief

The second annual Latin American Satellite Communication and Broadcasting Summit (LATSAT) organized by Euroconsult in Mexico City, like the Latin American satellite market, continues to grow into one of the premier industry events in the region. Held at the Sheraton Maria Isabel Hotel from May 20-21, 2015, over 200 executives from all over the Americas attended the event.

As in the first event held last year, LATSAT was supported by the Secretaría de Comunicaciones y Transportes (SCT), Mexico's Ministry of Communication and Transport. The event was also supported by almost al the major satellite operators and service providers in the region including, Eutelsat, Intelsat, SES, Hispasat , ABS among others.

The timing of the event may not be propitious for the Mexican Ministry of Communications, as the event was held a week after the failed launch of their MEXSAT-1 satellite. However, the Mexican government represented by the keynote speaker Monica Aspe, undersecretary of the SCT downplayed the impact of the failed launch of the satellite as provisions were made for the services on the failed satellite to be taken up by the upcoming Morelos-3 satellite, to be launched in October 2015. It also helps that MEXSAT-1 was fully insured for both the manufacturing and launch costs. So, despite the setback, the mood during the conference was generally upbeat, buoyed by the promising growth and the new opportunities in the Latin American satellite market.

One of the highlights of the conference was the keynote speech on the second day by Mexican-American astronaut, Jose M. Hernandez, who flew on several Space Shuttle missions. In his brief presentation, Hernandez provided an overview of the future of satellite technology, where he envisioned satellites to continue to innovate and become "smaller, faster, more capable and cheaper."

Speakers in various sessions highlighted the growing demand in Latin America for satellite services fueled by the need for broadband access, e-government applications and vertical markets such as oil and gas, maritime and aeronautical services. The growing market has also increased competition among satellite operators and service providers with many new players coming into the market.

Representatives of leading satellite operators present their views on the Latin American market in the panel moderated by Pacome Revillon, CEO of Euroconsult (on extreme left). Panelist include from the left of Revillon: Ignacio Gonzalez-Nunez, VP-Business Development, Eutelsat Americas; Carmen Gonzalez-Sanfeliu, Regional VP-Latin America and Caribbean, Intelsat; Julio Villafane, VP-Sales, Latin America, SES; Igancio Sanchis, Chief Commercial Officer of Hispasat; and Fabio Alencar, Business Development Director of Star One.

View videos of interviews with key satellite executives at LATSAT 2015
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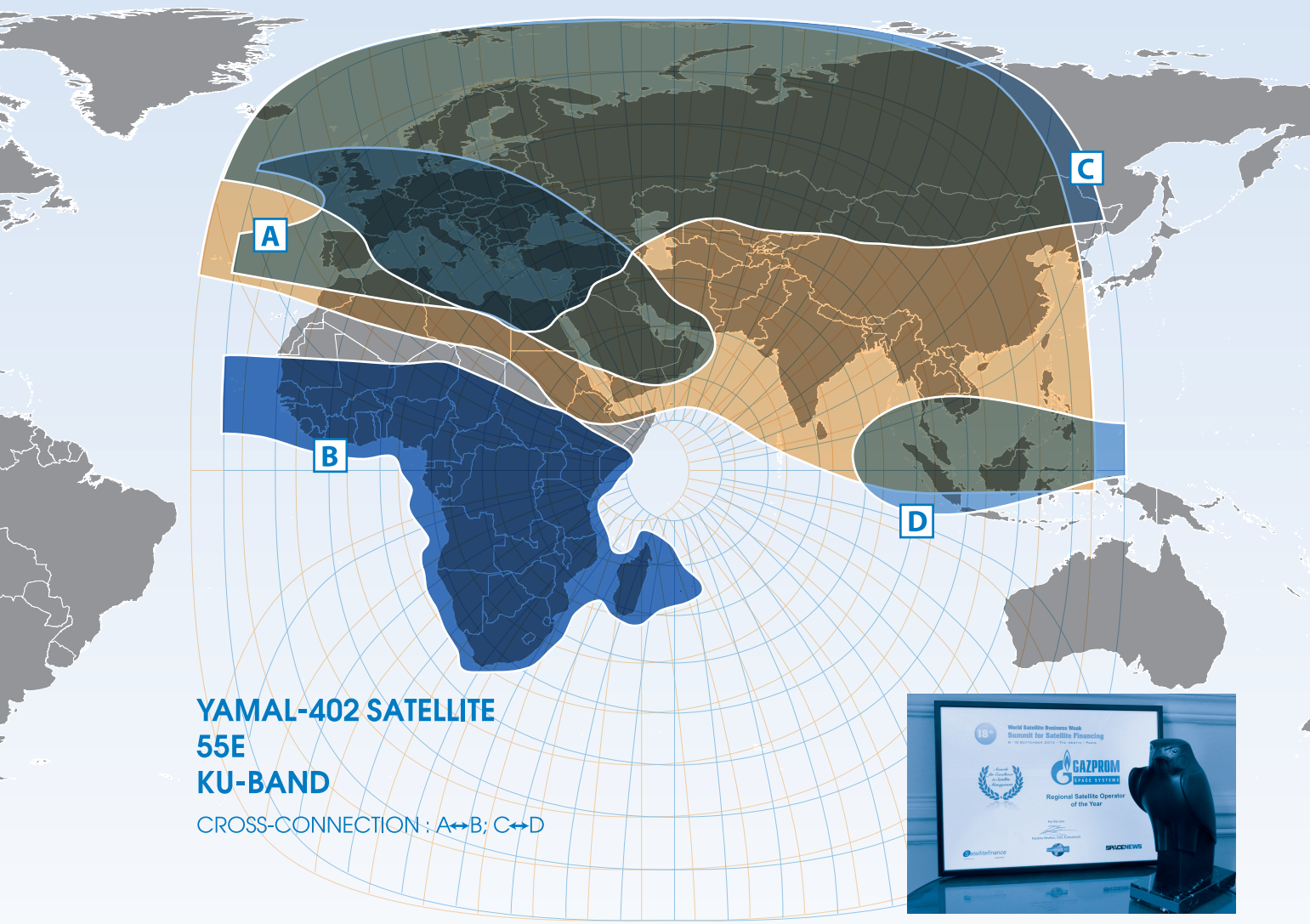

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Company Name	Symbol	Price (Jul 14)	% Change from Last Month	52-wk Range		% Change from Jan. 02, 2015
Satellite Operators						
Asia Satellite Telecommunications Holdings Limited	1135.HK	30.45	11.33%	25.60	33.50	13.20%
Eutelsat Communications S.A.	ETL.PA	29.31	-5.48%	23.33	32.71	9.37%
APT Satellite Holdings Ltd.	1045.HK	7.15	-27.04%	5.42	9.83	-34.76%
Inmarsat Plc	ISAT.L	933.50	-5.99%	653.00	1041.24	18.16%
SES GLOBAL FDR	SES.F	30.37	-7.10%	25.405	34.90	2.60%
Satellite and Component Manufacturers						
The Boeing Company	BA	147.84	5.21%	116.32	158.83	13.70%
COM DEV International Ltd.	CDV.TO	5.76	18.76%	3.45	6.09	42.93%
Macdonald Dettwiler & Associates Ltd.	MDA.TO	90.78	-8.28%	78.23	101.42	-4.20%
Lockheed Martin Corporation	LMT	199.19	5.84%	160.56	207.06	2.81%
Orbital ATK, Inc.	OA	72.56	-5.15%	60.23	140.61	173.55%
Ground Equipment Manufacturers						
C-Com Satellite Systems Inc.	CMI.V	1.07	1.90%	1.01	1.55	-22.46%
Comtech Telecommunications Corp.	CMTL	30.73	2.30%	26.30	40.69	-2.78%
Harris Corporation	HRS	80.765	1.95%	60.78	82.79	12.71%
Honeywell International Inc.	HON	103.98	-0.21%	82.89	107.10	3.57%
ViaSat Inc.	VSAT	59.40	-5.70%	51.50	68.84	-4.55%
Satellite Service Providers						
Gilat Satellite Networks Ltd.	GILT	5.65	-0.70%	4.42	7.07	18.20%
Iridium Communications Inc.	IRDM	8.54	-16.93%	7.85	11.36	-11.78%
ORBCOMM, Inc.	ORBC	6.6750	-2.41%	5.40	7.62	1.91%
TeleCommunication Systems Inc.	TSYS	4.13	29.47%	2.72	4.16	32.37%
RRSat Global Communications Network Ltd	RRST	7.23	0.00%	6.06	9.60	0.00%
Consumer Satellite Services						
DIRECTV	DTV	92.80	1.93%	82.04	95.51	7.05%
DISH Network Corp.	DISH	69.31	-2.09%	56.17	80.75	-4.20%
Globalstar Inc.	GSAT	2.1315	-19.57%	1.56	4.30	-20.47%
Sirius XM Holdings Inc.	SIRI	3.85	-0.26%	3.14	4.04	10.47%
SKY DEUTSCHLAND	SKYD.MU	6.7150	-0.52%	5.96	6.93	-0.22%

INDEX	Index Value (Jul 14)	% Change from Last Month	% Change from Jan. 02, 2015
Satellite Markets 25 Index™	2,029.89	-2.82%	10.65%
S & P 500	2,107.89	0.02%	2.31%

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

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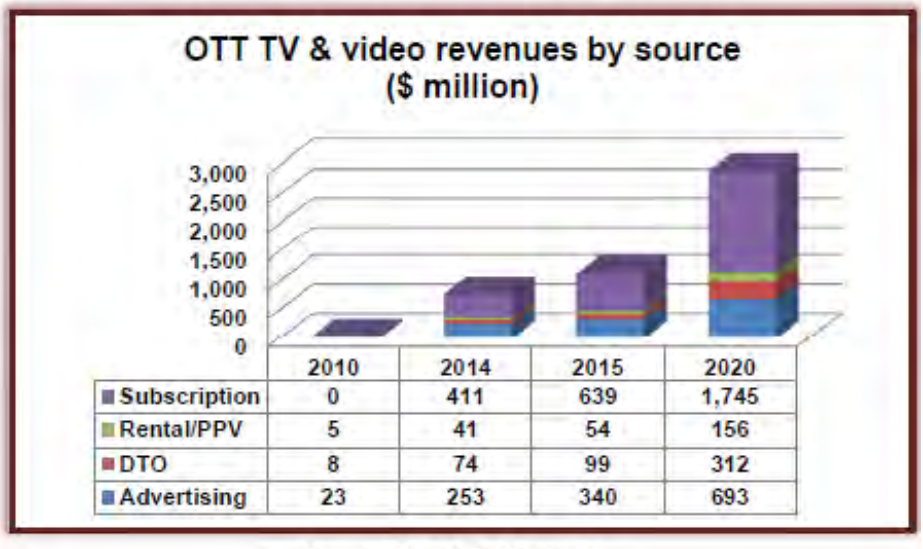
Latin America OTT TV Revenues



	2010	2014	2015	2020
Subscription	0	411	639	1,745
Rental/PPV	5	41	54	156
DTO	8	74	99	312
Advertising	23	253	340	693

Source: Digital TV Research

The Americas OTT TV & Video Forecasts report by Digital TV Research estimates 24.05 million SVOD (subscription video on demand) homes by 2020, up from 10,000 in 2010 and an expected 9.84 million by end-2015. From the 17.38 million SVOD home additions between 2014 and 2020, Brazil will supply 7.24 million and Mexico 3.32 million. Colombia will overtake Argentina to take third place in 2016.

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