Satellite Executive BRIEFING

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SATELLITE Markets & Research

Industry Trends, News Analysis, Market Intelligence and Opportunities

The Year that was 2013: The View from Europe and Asia

2013 was a landmark year for the satellite industry. Satellite Direct-to-Home (DTH) services have been holding their own despite the threat from Over-the_Top and other new technologies. In the U.S. satellite TV is actually gaining subscribers while cable is suffering from the phenomenon of "cord-cutting." In Asia, DTH is just booming and in Europe , broadband is taking off after reaching a milestone of full broadband coverage.

Europe Gets Universal Broadband

by Elisabeth Tweedie, Editor-EMEA

It's official – Europe now has 100% broadband coverage! Of course those of us in the satellite industry have known that ever since the launch of Eutelsat's Ka-Sat and Avanti's Hylas satellites, but in October, Neelie Kroes, Vice-President of the European Commission publically acknowledged that fact: "Thanks to the extra coverage from satellite broadband, with representation in every EU country, we have achieved our 2013 target of broadband for all. That's great result for Europe."

In honor of the occasion a new website was launched (http://broadbandforall.eu/) that allows people to click on their country and see a list of satellite broadband providers with click throughs to the appropriate website. User testimonials are displayed: such as "The speeds are consistently fast and the quality is excellent. We now have a broadband solution that more than meets the needs of our farm and is perfect for rural farmers across the UK." And "I was pleasantly surprised by its stability, as well as its performance in all kinds of Internet services, from the simple ones, like reading an e-mail,

Continued on page 4

DTH Services Boost Asia-Pacific Market

by Peter Galace, Editor-Asia-Pacific

If upcoming satellite launches were a good indicator, then the Asian satellite industry remains vibrant and robust.

Just launched this month is SES-8, which will be co-located with NSS-6, to provide growth capacity over Asia-Pacific. The satellite's high performance beams will support rapidly growing markets in South Asia and Indo-China, as well as provide expansion capacity for DTH, VSAT and government applications.

Also this month , Thaicom 6 will also be lofted at 78.5 degrees East primarily to serve the growing demand of Thailand's broadcasters. To be launched at Cape Canaveral, Florida on SpaceX Technologies' Falcon 9 vehicle, Thaicom 6's Ku-band payload will be comprised of eight active transponders providing services to Thailand, Laos, Cambodia, and Myanmar. The C-band payload will feature 12 active C-band transponders providing services via a regional beam to Southeast Asia, and six active C-band transponders providing services via a ...

Continued on page 8

What's Inside

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Advantech Wireless is your source for advanced, affordable, reliable solutions for all your RF, Satellite and Wireless Communications needs. We design, manufacture and deploy networking solutions for broadband connectivity, broadcast solutions and backhaul requirements using satellite and terrestrial wireless communications.

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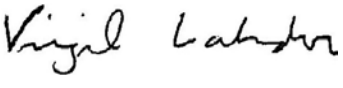
Portends of Things to Come

This year is ending with some major developments that could profoundly impact the satellite industry. On December 3, upstart launch service provider Spacex successfully launched the SES-8 satellite, it's first commercial geostationary launch (see article on page 28).

Spacex has been shaking up the competitive satellite launch industry by offering lower cost launches than their competitors. "Our prices are the most competitive of any in the world," said Spacex Chief Designer and CEO Elon Musk. "We will force other rocket companies to either develop new technology that's a lot better or they have to exit the launch market," he added.

This launch also marks the second of three certification flights needed to certify the Falcon 9 to fly missions for the U.S. Air Force under the Evolved Expendable Launch Vehicle (EELV) program. When Falcon 9 is certified, SpaceX will be eligible to compete for all National Security Space (NSS) missions.

Spacex is schedule to launched another commercial satellite later this month, Thaicom-6, and if it's successful, it will solidify its position in the satellite launch business.



Editor-in-Chief

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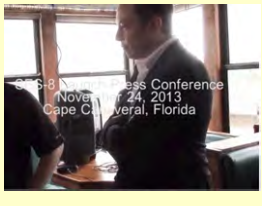
Access video and audio podcasts from SATCON 2013, MILCOM 2013 and the SES-8 Launch

www.satellitemarkets.com/marketcast



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Europe Broadband ...From page 1

to the more demanding ones, like downloading files and video streaming" from a home user in Greece. Finally! The word is getting out!

Getting to this level of recognition has not been easy and the European Satellite Operators Association (ESOA) has been very active in promoting awareness organizing an annual European Satellite Day and lobbying the European Parliament. In January European operators asked the European Commission to correct a "bias" in broadband investment that favored terrestrial solutions even when these were less economical than satellite. Romain Bausch, outgoing CEO of SES suggested that funds used to reduce the digital divide be used to promote satellite broadband. Some would say that he has been successful. It has been suggested that by creating the new website promoting satellite broadband that the EC is effectively saying that it will not be offering additional funds for fiber and exchange upgrades in rural areas; that however remains to be seen.

On the supply side although Ka-Sat was launched at the end of 2010 take-up has been much slower than anticipated. At the end of September it had just 108,000 active terminals. Eutelsat are attributing this in part to the appropriate dealer network not being fully in place when the satellite was launched. In October it announced that there were now 4,000 trained and certified installers with another 1,000 due to be added by the end of 2014. It is to be hoped that other efforts including increasing and simplifying the consumer offering pay off quickly, otherwise at less than 30 terminals per installer it will have been a very expensive training program, but as we all know, that is the basic nature of the satellite business - high upfront investment.

Tooway customers now have a choice of only two offerings: 20Mbps down and 6Mbps up or 2Mbps down and 1Mbps up although different data caps (including unlimited overnight) are offered. Avanti have taken a different strategy and now offer a Pay as You Go service with no contract, but they too report that take-up has been slower than expected. Maximum speed offered by Avanti is 10Mbps down and 2.5Mbps up. Although it doesn't have a dedicated Ka-Band satellite SES has a Ka-Band payload on Astra 2E and 2F covering France, the Netherlands, Belgium, Switzerland, Austria, the Czech Republic, Slovenia, Croatia and parts of neighboring countries. It is offering a triple-play service with Internet, Voice Over IP and digital TV and radio being provided from the same dish. Maximum speeds are 10Mbps down and 384kbps up. Unlike Eutelsat it is promoting self-installation using the SES broadband point and play tool.

At the end of September Eutelsat had just 108,000 active terminals for its Tooway broadband service. Eutelsat is attributing this in part to the appropriate dealer network not being fully in place when the satellite was launched.
(image courtesy of Eutelsat)

In spite of this somewhat shaky start to consumer satellite broadband in Europe, other operators have not been put off. In Russia both RSCC and Gazprom have Ka-Band satellites on order. RSCC is currently leasing capacity on Ka-Sat and in September said that it had signed up 3,000 subscribers in a year. Gazprom is predicting 300,000 subscribers by 2017. In 2014 Telenor will launch Thor 7 which has a 9Gbps Ka-Band payload, but like Global Express from Inmarsat this is primarily targeted at Maritime, Energy and Government users. The first Global Express satellite is due to launch at the end of this year.

With such significant investment in Ka-Band and High Throughput Satellites it is not surprising that there is so much interest in them in Europe but it must not be forgotten that at present these represent only a tiny percentage of operator revenues. The bulk of satellite operator revenue comes from video in one form or another. As has been well documented by me and several others in this magazine there are many changes occurring in this sector. The challenge to traditional linear viewing from Over The Top (OTT) and On-Demand, accompanied by the multiplicity of devices that are now used to view content being the most imminent. Obviously this is something which is being watched by all satellite operators who are keen to preserve and even increase their relevance in the coming years.

A recent response to these changes has been the development of a Smart LNB (Low Noise Block Downconverter) by Eutelsat. This new product was showcased at IBC this year and won the EUsatcom Award for Innovation. This device is designed to end the dependency on terrestrial networks for interactive services allowing broadcasters to bolt interactive Value Added Services onto their broadcast platforms. A new generation of electronic feed is connected to an antenna with an embedded transmitter for interactive applications such as HbbTV (Hybrid Broadcast Broadband TV), pay-per-view, voting, social networking etc. Content can be viewed on multiple devices – tablets, smartphones etc. as well as the TV set. The Smart LNB provides a narrowband return link in Ka-Band and a C-Band version is planned. It also paves the way for Machine-to-Machine and home automation applications. The first prototypes have been tested and a commercial launch is planned for next year.

YAMAL-402
SATELLITE

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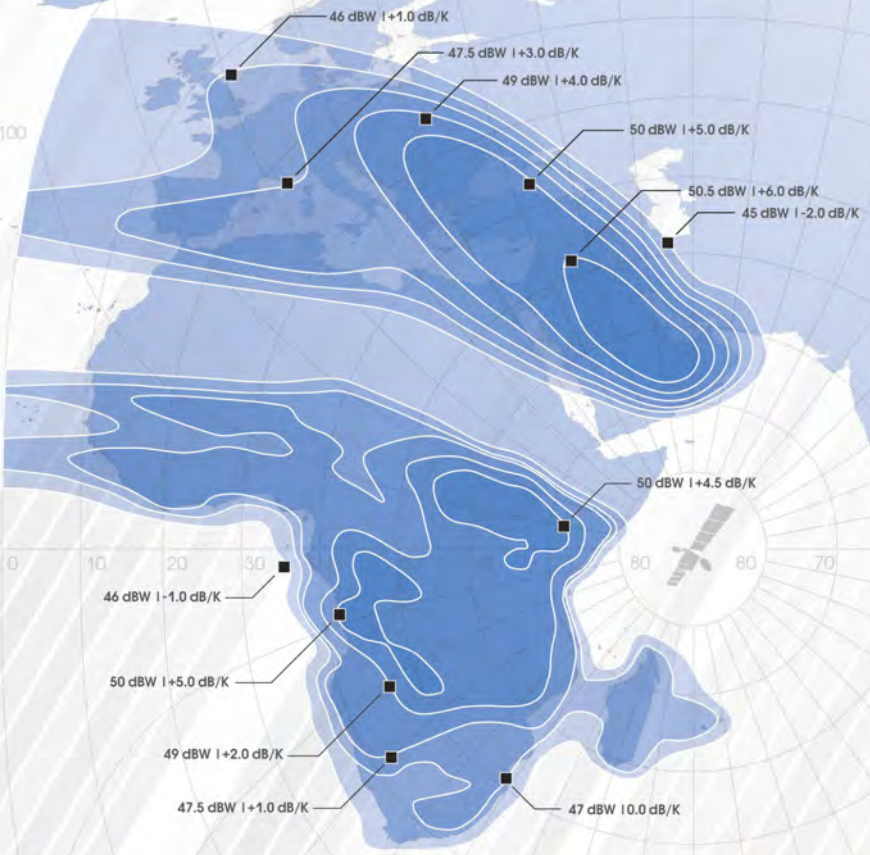


Russian satellite operator Gazprom Space Systems presents the new Yamal-402 satellite opportunities to the International Market.

Yamal-402 satellite, built by Thales Alenia Space (France), was launched in December 2012. It has 46 Ku-band transponders (66 equivalent transponders 36 MHz each). Together with Russian and Northern beams the satellite includes:

- **European Beam** with four transponders 54 MHz each covering the territory of Western and Central Europe, the Middle East and Northern Africa;
- **Southern Beam** with 8 transponders 54 MHz each covering Africa to the South of Sahara;

  Southern and European beams are cross-strapped.
- **Steerable Beam** with up to three transponders 72 MHz each to be pointed over African or Asian continent upon the customer request.

  Steerable Beam and Northern Beam are cross-connected.

OPPORTUNITIES
FOR INTERNATIONAL MARKET

GAZPROM
SPACE SYSTEMS

SES has a somewhat different approach focusing on delivering multiple channels to different devices. Also at IBC it demonstrated a pre-production eight channel IP-LNB. This device converts the satellite signal into an IP signal at the antenna before distributing it to multiple devices via Ethernet, WiFi or Power Line Communications (PLC). Eight channels can be delivered simultaneously. Like the Smart LNB a commercial launch is planned for IP-LNB in 2014.

Interference is becoming a significant problem in the industry, not, as many people think due to intentional jamming but more usually due to human error compounded by the current high fill rates and reduced orbital spacing.

The Satellite Interference Reduction Group (iRG) has already succeeded in getting Carrier ID (CID) integrated into transmission parameters for Satellite News Gathering (SNG) transmissions and new DVB broadcasts for all Eutelsat customers. In November of this year the Global VSAT Forum (GVF) and the Radio Frequency Interference - End Users Initiative (RFI-EUI) announced the launch of a joint initiative to implement interference prevention measures more deeply throughout the sector. At around the same time the World Broadcasting Unions – International Satellite Operations Group (WBU-ISOG) issued resolutions supporting the requirement that by January 1st 2015 all new model modulators and codecs with integrated modulators for video uplinking should contain a CID setting the wheels in motion for a wide-scale global rollout of CID. Martin Coleman, Executive Director sIRG said "I am particularly pleased to see that all the efforts of everyone involved are finally paying off."

In October of this year the Arab States Broadcasting Union (ASBU) agreed an action plan to raise public awareness of the issue. The plan, which was also endorsed by the WBU-ISOG includes guidelines around:

"...With such significant investment in Ka-Band and High Throughput Satellites it is not surprising that there is so much interest in them in Europe but it must not be forgotten that at present these represent only a tiny percentage of operator revenues..."

- Training – working to establish short and medium term training plans for all broadcasters, aimed at ensuring best practice in operation and maintenance of satellite uplink systems, thereby greatly reducing errors.
- Earth station approvals – ensuring SNG terminal equipment is tested and approved for use, reducing the risk of equipment failure.
- CID – members and users in the region to implement CID in line with the WBU-ISOG resolutions, enabling fast resolution when interference occurs.
- Regulatory and political actions – continuing to work with the regulatory bodies, such as the ITU to develop these initiatives.

The IRG has also been looking at intentional or harmful interference and has taken an in-depth look at Geolocation and its role in locating the source by working with both world broadcasters, GVF and the ITU. A key goal for IRG is to improve and standardise Geolocation procedures, data gathering and reporting, for all types of geo-located interference in order to spot the patterns that will improve predictive techniques and enable faster resolution of problems when they occur.

For most Europeans this year is set to include three notable launches. The successful launch of the first four O3b satellites (O3b is headquartered in Jersey); SES-8, the first commercial geostationary launch by SpaceX (at the time of writing this launch had been delayed) and Inmarsat's first Global Express launch.

However with a name like Tweedie I cannot finish an article on developments in Europe without mentioning that the first Scottish built satellite is now on its way to Baikonur for launch early next year. UKube-1 is a nano satellite built by Clyde Space for the UK Space Agency and will carry several payloads including: C3D, a small imager designed to investigate radiation damage in space, TopCat to examine weather conditions and FunCube a transmitter and materials science experiment which will allow school children to be involved in the mission. That should be a great start to the New Year for the Scots!

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

DTH Services Boost Asia-Pacific...From page 1

south Africa beam to southern Africa and Madagascar.

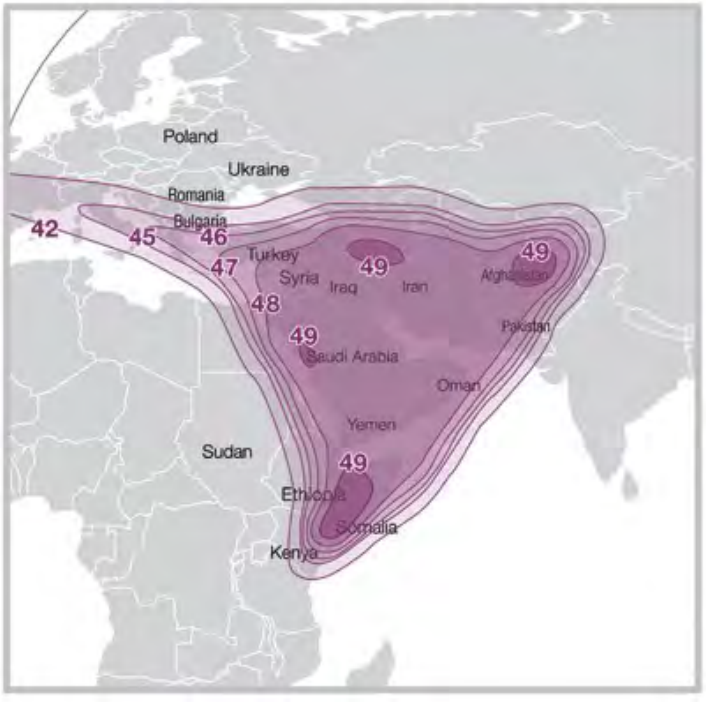
Also scheduled for launch in the first quarter of 2014 is ABS-2 satellite, manufactured by Space Systems/Loral owned by Asia Broadcast Satellite (ABS) Co. The satellite will be launched at 75 degrees East and will replace ABS-1 satellite, operating there. Exceeding ABS-1 in its technical parameters, ABS-2 will provide communication service in Russia, South-East Asia, Middle East and Africa. Russian beam of the satellite will cover the most part of the territory of Russia, CIS and Baltic countries. ABS-2 will offer a wide range of services, including DTH, cable TV distribution, multimedia applications, as well as data networks and telecommunications services.

Singapore's SingTel has signed a transponder purchase agreement with ABS allowing SingTel to own multiple C-band transponders on the ABS-2 satellite at a cost of approximately Singapore $80 million over the next two years. SingTel will market these transponders to corporate customers under the brand ST-3/ABS-2. Capacity used by KT Telecom will be refer to the satellite as Koreasat 8.

Hong Kong-based Asia Satellite Telecommunications Company Limited (AsiaSat) is also launching AsiaSat 8 in first half of 2014. The satellite, based on Space Systems/Loral 1300 satellite platform, will serve Asia, the Middle East, and Australasia. It will have 24 Ku-band transponders and a Ka-band beam. The high-power transponders will enable the use of small antennas on the ground. AsiaSat 8's high-powered Ku-band coverage will be serving China, India, the Middle East and South East Asia.

AsiaSat 8 will be co-located with AsiaSat 3S/AsiaSat 7 at 105.5 degrees East, a slot where AsiaSat has established networks providing service to the Asia-Pacific region since 1990. AsiaSat 8 will be launched by the SpaceX Falcon 9 rocket from Cape Canaveral in Florida.

India will also launch its own indigenously developed satellite, the GSAT-14, as part of the country's GSAT series of satellites to provide digital audio, data and video broadcasting. A launch date of 15 December 2013 has been announced. Constructed by the India Space Research Organisation (ISRO), GSAT 14 will carry six Ku-band and six Extended C-band transponders to provide coverage of the whole of India. The satellite is expected to provide enhanced broadcasting services over the GSAT-3 satellite. GSAT-14 also carries two Ka-band beacons, which will be used to conduct research into how weather affects Ka-band satellite communications.



Asia Broadcast Satellite's ABS-2 satellite, scheduled for launch in the 1st quarter of 2014 will have up to six Ka-Band transponders for commercial and military applications for the Middle East and North African makets. (image courtesy of ABS).

This is an important launch for India as it marks the second flight of the Indian-built cryogenic upper stage. The first launch of India's cryogenic upper stage failed in a 2010 flight.

DTH-a Key Growth Driver

The upcoming satellite launches are, no doubt, all driven by regional satellite players' strong DTH advances and new markets opening up. William Wade, CEO of AsiaSat, said in a recent forum South East Asia continues to have huge potential markets to address, with significant level of growth coming from DTH applications. Nile Suwansiri of Thaicom said the increase in DTH subscribers and the number of HD being brought to the market is causing increased demand for bandwidth in Thailand.

This is also the reason why Asia Broadcast Satellite continues to invest aggressively in new satellites because they see that DTH is the key behind the company's ability to generate significant revenues. ABS has current backlog of US$ 900 million and in 2014, it will go beyond US$ 1 billion, according to ABS CEO Tom Choi.

Global growth consulting company Frost & Sullivan says the Asia Pacific region offers the strongest growth potential and opportunities in the next five years DTH service providers. It says DTH video is the flagship service to establish a foothold in previously underserved emerging markets. And by achieving economies of scale and providing quality local content, adds Frost & Sullivan, service providers can capture a huge and profitable consumer base.

Over the past five years, the DTH customer base in the region has indeed grown rapidly; from 12 million subscribers in 2006 to 49 million in 2011. At the end of 2013, DTH subscribers in Asia is estimated to reach 85 million. In India alone, there are now six DTH operators with an estimated 54.52 million subscribers at the end of first quarter 2013.

The State Administration of Radio, Film, and Television (SARFT), the regulatory body that administers and supervises China's television, radio, and film industries, has reported that as of May 2013, China's DTH subscriber number has reached 9 million, although still a relatively small number for the country's 1.36 billion population. But with DTH project officials striving to get financial support from central and local governments, another 24 million subscribers in central and western areas, covering more than 20 provinces, could add up to China's total DTH subscribers by the end of next year.

However, China still maintains a regulatory environment that is skewed in favor of Chinese operators, making the Chinese market challenging to navigate for internationally-based market players.

In the meantime, pay TV revenues in Asia Pacific will be $12 billion higher in 2018 ($43.9 billion total) than in 2012, according to a new report from Digital TV Research. Digital TV Asia Pacific report estimates that pay TV revenues (subscriptions and on-demand) will grow by $2.1 billion in 2013 to $33.9 billion.

The Asia Pacific region is undergoing a rapid digital TV conversion that will see penetration increase from 16% in 2008 to 44% in 2012 and on to 90% in 2018 – or up by 440 million homes between 2012 and 2018. By end-2013, digital penetration will reach 53%, or 420 million homes (up by 78 million on the end-2012 figure).

Despite the rapid conversion, digital TV will still have plenty of room for growth for some time to come. Only six of the 15 countries forecast in this report will have fully converted to digital by 2018. By then, Indonesia and the Philippines will have digital penetration of only 42% and 34% respectively. Indonesia will still have 29 million analog homes and India 31 million.

Frost & Sullivan says the Asia Pacific region offers the strongest growth potential and opportunities in the next five years DTH service providers. It says DTH video is the flagship service to establish a foothold in previously underserved emerging markets.

DTT Growth

Digital terrestrial TV is also attracting growing interest among industry players in Asia. In Asia, interest in DTT is just starting to ramp up, although Japan and South Korea are the only two key markets in Asia to have completed the analogue switch-off process.

Japan became the first Asian nation to switchover to digital TV broadcast on the July 24, 2011 after launching digital broadcasting in 2003. DTT broadcasts have come to cover nearly 100 percent of households in a rather short time, but the penetration of DTT receivers was very slow in the beginning. The Japan Earthquake of March 11, 2011 added a last hazard to the total switchover, and in the most affected three prefectures, the switchover was postponed. In the other areas of the country switchover has been accomplished as scheduled without any major trouble.

Philippines has already decided to adopt the Japanese model of digital TV. Philippine President Benigno Aquino III has said one of the reasons why it adopted the Japanese standard is due its ability to continue broadcasting during emergencies. As early as January of this year, the country's regulatory authority, the National Telecommunications Commission, approved the adoption of Integrated Service Digital Broadcasting Terrestrial (ISDB-T) standard for their DTT services. The NTC has already ascertained the compatibility of the ISDB-T system with mobile devices since there are approximately 98 million mobile phone subscribers in the Philippines.

At the CASBAA Convention 2013 in Hong Kong last October, John Tsang Chun-wah, Financial Secretary of the Hong Kong Special Administrative Region remarked that the two new free-to-air television licenses awarded in October "will change the landscape of terrestrial TV broadcasting industry in Hong Kong and will bring more choices for consumers."

Tsang said that the penetration of digital terrestrial TV is growing at a satisfactory rate "with more than 80% of our households already enjoying the greater program variety and better picture quality of DTT." Hong Kong's high mobile penetration, at over 230%, is also presenting new opportunities for mobile data services development, with the government assisting by auctioning off new spectrums.

Thailand is following a slightly different route in building its DTT market. Natee Sukonrat, Vice Chairman, National Broadcasting and Telecommunications Commission, said the Thai government would auction off the rights to broadcast DTT channels to the highest bidders, and use the proceeds to subsidize digital receivers for consumers. Dr. Natee also said that years of lax regulation has made the Commission's job difficult, with the existence of many illegal operators. He admitted that NBTC will have to cooperate with the government and industry as they look to close cable operations that carry pirated or unlicensed content or violate intellectual property.

Thailand is switching to digital TV and is aiming 95% digital TV coverage in four years. The plans state that digital network providers must increase their coverage to 50% of the country's 22 million households in the first year and then increase it to 80% in the second year, 90% in the third year and come up to 95% by the fourth. Currently NBTC is auctioning 24 licenses for commercial digital terrestrial TV, with the auction itself likely to take place at the end of this year.

Digital TV Asia Pacific predicts that of the 440 million digital homes to be added between 2012 and 2018, 128 million will come from DTT.

Of the 440 million digital homes to be added between 2012 and 2018, 128 million will come from DTT. However, the number of analog terrestrial homes will fall by 204 million. Digital cable will contribute a further 187 million additional homes, with analog cable losing 141 million. Pay DTH will supply an extra 35 million and pay IPTV 71 million more. Pay IPTV subscribers will overtake pay DTH ones in 2016.
Pay TV penetration will rise from 56% in 2012 to 67% in 2018, adding 154 million subs to take the total to 587 million. China will provide 313 million pay TV households by 2018, with India supplying a further 158 million. However, pay TV penetration will be higher in South Korea (95%) and Hong Kong (96%).

Conclusion

With the rapid DTH subscriber growth in China and India and the whole of Asia, fueled by the hunger for even more SD, HD and 3D channels, no doubt, Asia will continue to be a lucrative region for FSS. In fact, Asia-Pacific and Africa demand will significantly outstrip supply causing these markets to become much more attractive in coming years, according to the *Worldwide Satellite 2013 Market Tracker*. The report says C and Ku revenue will increase by one-third through over the next five years, which augurs well for the growth of the Asian satellite industry.

Peter I. Galace is editor for Asia Pacific of *Satellite Markets and Research*. He writes extensively on telecommunications and satellite developments in Asia for numerous publications and research firms. He can be reached at peter@satellitemarkets.com

"Not Because it's Easy…"

by Lou Zacharilla

As 2013 headed toward exile in disposable orbit, where it will reach the vague relevance of memory, people gathered in Dallas, Texas on 22 November on a chilly, bright day to recollect what Lyndon B. Johnson called "The foulest deed of our time." A significant number of people around the world recognized the day as the 50th anniversary of the murder of young American President, John F. Kennedy. In the five turbulent, uncertain decades that have come since, the day has become a demarcation. Some claim it as the moment of "lost innocence." Others, in Kennedyesque fashion, refer back to the achievements and inspiration of the era, most notably JFK's call to mobilize humanity's great ingenuity for the purposes of finding peace and probing new frontiers. I am in this camp.

If any industry heeded the call to seek the New Frontier of which Kennedy spoke, it is the satellite industry. I imagine that a *Back & Forth* interview with JFK, who would be 96 years old today (imagine *that*!) would reveal an old man pleased by the accomplishments of a "Satellite Nation" he helped shape. President Kennedy would be delighted to learn that rockets (which the young Senator Kennedy once claimed were "a waste of money") were now so technically perfected that the satellites they send loft make modern life not only convenient, but possible.

One company that John Kennedy might have liked for its boldness launched its first four satellites in June this year. An Arianespace Soyuz vehicle roared skyward on June 25, 2013 carrying the first four satellites in O3b's constellation from French Guiana and changed the game for billions of people. O3b will launch four more satellites in 2014.
(images courtesy of O3b)

If he were commenting on the year 2013, the author of *Profiles in Courage* might be bummed to see how poetically unimaginative the industry has become. In July, Europe's largest-ever telecommunications satellite was launched by Arianespace. The French company, whose youthful President, Clayton Mowry, was named the satellite industry's Mentor of the Year, has shown the right stuff with 57 consecutive, successful launches. That is a big, big deal. However Kennedy the writer would have noted that the name of the rocket, Alphasat/I-4AF4, which carried an L-band geo-mobile communications relay system and provides voice and data transmission to Europe and Africa, would generate more interest if it were named, say, Camelot, Gaga or even Highball, which was a name nearly given to America's first satellite in 1958.

The man who imagined the Peace Corps would be pleased to know that a young satellite engineer from Albany, New York, who had worked on a program after the Cuban Missile Crisis, that became the "Hot Line" between Moscow and Washington, had gone on to start successful companies, create hundreds of jobs and use satellites to connect remote villages in Afghanistan and Africa. Having helped to ensure in his salad days that Russia and America would be able to call each other quickly if another horrid political crisis arose, the ever-youthful engineer, David Hershberg sold his company, Globecomm, in 2013 for US$340 million in 2013. It was one of the year's major industry transactions. Kennedy would have appreciated Hershberg's talent and also his sense of humor.

Another company Kennedy might have liked for its boldness launched its first four satellites in June. "We believe in a world where affordable, high speed connectivity is always within reach," said Steve Collar, CEO of O3b Networks. An Arianespace Soyuz vehicle roared skyward on June 25, 2013 from French Guiana and changed the game for billions of people. O3b will launch four more satellites in 2014. As a result, an ISP in Latin America, a telecommunications company in Malaysia, a global resource extraction company in Russia or a cruise ship at sea has available more bandwidth, with four times lower latency and lower costs, than before. But the real *story* is the poetry as yet unwritten about this venture. *The other three billion* that the company will reach, and for whom it is named, are part of Kennedy's "earth that we all share."

That shared planet is going to starve. In 2013 a group of scientists reported that climate change posed a risk to food supplies. The scientists estimated that global output may drop 2% over each future decade as demand rises. The world's population is projected to grow to 9.6 billion in 2050

from 7.2 billion today. There is little doubt that satellites, linked to agriculture, research, investment and logistics management will have a key role in determining whether the scientists' warning is heeded or becomes a terrible reality. If we solve that one, the earth we share looks a hell of lot better for those to come.

Clearly Kennedy would tell our industry to get on that job and to work harder at telling our story. We agree Mr. President. In 2013 the Society of Satellite Professionals International decided to give poetic vigor to the satellite option. It moved forward with the first stage of a global alliance with other industry associations to set a big goal: to refresh the image of satellite. Developing an idea that Robert Bell and I have had for nearly two years, we will first make a contribution in the run-up to the WARC 2015 negotiations regarding spectrum allocations.

Long-term, we will change how we, as a global industry, view ourselves and collectively determine how to communicate our vitality, economic and social significance to those who can benefit from it and drive business our way. But we will not go it alone. Our alliance partners at the Space Industry Association, the Global VSAT Forum and ESOA will ensure that we get it done as one industry.

It will not be easy, but as John F. Kennedy said when announcing that he had an idea to go to the Moon, "We choose to do this not because it easy - but rather *because* it is hard."

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

Enterprise-Class HTS Services to Account for Over 180 Gbps of Capacity Demand & US$2.0 Bil. in Revenues by 2022

by Martin Jarrold

The subjects of the **oil & gas vertical market** and that of **High Throughput Satellites** are rarely outside the scope of anyone connected with the development and delivery of satellite-based communications solutions these days. Indeed, as you read this column – during, the first week of December – one of the latest of the **GVF-EMP Conference Partnership** events covering the first of these subjects has already been successfully concluded, and another, covering the later subject, will be very nearly, or even actually, underway.

Now featuring in the archives of the Partnership are a series of downloadable presentations which were delivered during the **GVF Oil & Gas Communications South East Asia 2013 Conference**, held in Kuala Lumpur in mid-November, an event which has been widely praised as one of the most successful in the seven-year history of the GVF's Oil & Gas Communications Series. These presentations covered a range of key satellite/oil & gas themes.

The majority of the above presentations are now entirely in the public domain, thereby giving both the wider satellite industry, and satellite communications solutions end-users, who could not attend the event, an opportunity to benefit from access to the speakers' insights. To download these slide sets in PDF format, please go to: www.uk-emp.co.uk/emp-home/current-events/o-gcomms-sea-2013-program/

The same access to presentations is accorded following all GVF-EMP events, although the next event in the Partnership's portfolio uses a somewhat different model. The clue to this model is in the name of the event, **High Throughput Satellites 2013: The Game-Changer in Action – The London Roundtable**. This Roundtable event, like its predecessors held in Washington DC in May 2013, and in London in December 2012, is panel discussion focused. Whilst panelists will be afforded the option to present opening introductory remarks that may be supported by a limited number of slides, the entire thrust of the two-day event (5th & 6th December) is dialogue, discussion, and debate.

High Throughput Satellites (HTS) such as Avanti Communications' Hylas-2 satellite above are helping meet the growing capacity demands of enterprises and consumers.
(image courtesy of Avanti Communications)

An impressive line-up of speakers has been assembled for this Roundtable. The Roundtable Chairing/Moderating team will comprise **David Hartshorn**, Secretary General, GVF; **Chris Baugh**, President, NSR; **Martin Jarrold**, Chief, International Program Development, GVF; **Stéphane Chenard**, Advisor, International Programs, GVF & Senior Consultant, Euroconsult; and, **Elisabeth Tweedie**, Founder & Chief Executive, Definitive Direction & Associate Editor, Satellite Executive Briefing.

Day One, 5th December, will begin with an Opening Keynote from Chris Baugh, President of NSR who will present his analysis in **Defining the Satellite Broadband Market Eco-System: Present & Future Trends in HTS**, exploring the satellite broadband eco-system, its present manifestation, and its future reach.

A **Satellite Operator Roundtable** will follow, featuring **Jean-Philippe Gillet**, Vice President, Sales, Europe & Middle East, Intelsat; **Rash Jhanjee**, Director of Enterprise, Inmarsat Global Xpress; **David Bestwick**, Technical Director, Avanti Communications; **David Burr**, Director, Product Development, O3b Networks; and, **Julian Crudge**, Managing Director, Telenor (UK) Ltd. This session will provide a comprehensive, wide-reaching overview of exactly what it is that high-throughput satellite operators are already providing, or planning and preparing to provide using C, Ku and Ka band solutions.

An **Engineering Roundtable** will take as its starting point that new satellite communications technologies and solutions bring new engineering challenges, and new development opportunities, in both space segment and a range of ground segment environments. From the in-orbit angle, it is important to examine the current – and future – engineering of the high-throughput payload in terms of maximizing the potential of multi-spotbeam and frequency reuse

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architectures. From the ground angle this session will look at infrastructure evolution and the planning, design, deployment & managing of HTS terminals/earth stations, including antenna technology product quality and installation, HTS-enabled terminals and user expectations, understanding rain fade issues, and device portability. Featured session panelists here are: **Tim Marshall**, Director of Product Development, Kymeta; **Hagay Katz**, Assistant Vice President, Head of VSATs Line of Business, Gilat Satellite Networks; **Denis Sutherland**, Senior Systems Engineering Manager, iDirect; **David Bookham**, Managing Director, Brightday Engineering; **John Landovsksis**, Vice President of VSAT Systems, Advantech Wireless; and, **Martin Coleman**, Executive Director, IRG and RF Systems Specialist, Crystal Solutions.

Contributing to the **User Verticals Roundtable** will be **Drew Klein**, Director of Business Development, C-COM Satellite Systems; **Brian Everard**, Director, Everard Solutions; **Bill Green**, Global Account Director, Hermes Datacomms; **Brent Horwitz**, Senior Vice President & Managing Director, MTN; **Martyn Hopkins**, Product Sales Director, SIS Live; **Roger Adamson**, Chief Executive Officer, Futurenautics; Chairman, International Maritime Sales & Marketing Association; and, **Greg Oliveau**, International Market Development, Gogo. This session asks: Who are the customers for HTS? What do they want from HTS? And how is HTS positioned to provide what they want? These are questions encompassing the needs of broadcast video & satellite news gathering (SNG), aeronautical, maritime, oil & gas, and non-governmental organizations (NGOs) requiring information and critical communications solutions for humanitarian assistance and disaster recovery situations.

Day One concludes with a **Regulatory, Licensing & Financing Roundtable**, which as well as examining the regulatory and licensing eco-system for high throughput satellite services and technologies, the panelists will look into due diligence around the investment in new satellites. HTS satellites are more technically complex than traditional satellites, the commercial case is significantly more challenging and the ramp-up periods have been quite long to date. Does this make the financial community reluctant to invest, and do HTS proponents need to find a way to make the risk profile look more attractive? The panelists will be **Ann Vandenbroucke**, Director International Regulatory & Policy Issues, Inmarsat; **Kumar Singarajah**, Director, Regulatory Affairs & Business Development, Avanti Communications; **Andrew J McSpadden**, Managing Director, Trinity Advisers Limited; and, **John Worthy**, Partner, Field Fisher Waterhouse LLP.

Day Two will begin with a **Joint Opening Keynote, The European Market & Technology Roadmap for HTS & its Applications** given by **Michéle Le Saux**, Directorate Telecommunication & Integrated Application, TIA-TTG, European Space Agency; and, **Rune Sandbakken**, Head, Satellite Communications, Norwegian Space Centre. The Keynote will offer an overview of ESA programs and projects related to the market for HTS-based applications and the leading technologies behind them, together with an overview of current public-private sector industry collaborations in Norway.

Over 100 satellite executives attended the GVF Ka Roundtable Assembly in London last year and a robust attendance is expected again this year for its HTS roundtable (photo courtesy of the GVF)

The **OEM Roundtable** which follows will investigate the latest initiatives and developments from leading manufacturers of the terminal and antenna technologies that comprise the foundation of networks that facilitate access to in-orbit HTS assets. Topics to be included in the dialogue are: Equipment Design & Technical Innovation; Equipment Manufacture & Economies of Scale; and, HTS-enabled Terminals & New User Expectations. The contributors will be **Thomas Kerr**, Program Manager, Aeronautical, Kymeta; **Fred Morris**, Vice President, Global Sales Engineering, Comtech EF Data; **Hagay Katz**, Assistant Vice President, Head of VSATs Line of Business, Gilat Satellite Networks; and, **Thomas Van den**

Driessche, Chief Commercial Officer, Newtec.

To examine **Fixed & Mobile Networking Applications & VARs** we will have a Roundtable session which will look at the range of the HTS application, and its deployment, and the role of the Value Added Reseller in the equipment and service supply chain. From an emphasis on the varying requirements of mobile environments on land and at sea, to aspects of the latest advanced broadcast environment, and to rural telecommunications, the provision of HTS-based applications brings a wealth of opportunity for innovative supply to meet emerging demand. The panelists, **Danielle Edwards**, Maritime Product Manager, Mobility, Intelsat; **Michael Pollack**, Vice President, UltiSat; and, **Jack Buechler**, Executive Advisor on International Programs, GVF, will investigate.

Concluding the program for **High Throughput Satellites 2013: The Game-Changer in Action – The London Roundtable,** we will feature the **Ground Infrastructure Roundtable**. **Tony Sewell**, User Terminal Partner Manager, Inmarsat Global Xpress; **Drew Klein**, Director of Business Development, C-COM Satellite Systems; **Chris Insall**, Manager, Commercial Programs, Cobham SATCOM; **Dave Nicoll**, Business Manager, Sematron; and, **Dr David Geen**, Vice President, Tactical Ground Systems, SkyWare Technologies, will take as the principal focus of this session the evolutionary dynamics of an industry which manufactures, integrates, and deploys the products comprising the "Ground Segment", and most particularly the antenna component. Included in the discussion will be the topics of: Antenna Technologies; Application/Market Specific Antenna Design; Antenna Installer Training; Type Approvals & Product Quality Assurance; and, Device Portability in the COTM/COTP space.

Clearly, these two-days of dialogue, discussion, and debate will attract a lot of attention, and provide not only an opportunity to have key questions answered, but an opportunity to identify new questions not as yet formulated.

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

Latency and the Mobile Market

by Virgil Labrador, Editor-in-Chief

The successful launch of the first four satellites in the all-Ka-Band O3b constellation means the company is achieving its mission of delivering a new fiber quality, global middle mile provider for telecommunications operators, internet service providers, enterprise and government customers in emerging markets. The O3b system combines the global reach of satellite with the speed of a fiber-optic network, providing billions of consumers and businesses in nearly 180 countries with low-cost, high-speed, low latency internet and mobile connectivity.

Since the launch of its first four satellites, O3b has successfully conducted rigorous tests and trials together with its partners and customers, bringing them closer to the full commercial launch of their service in 2014.

O3b conducted trials in November with one of its customers in the Pacific islands, Telecom Cook Islands. According to Jules Maher, CEO of Telecom Cook Islands, the results of the tests were: *"FAST! Ultra fast internet service arrived in the Cook Island on November 20 - thanks to O3b. We experienced almost instantaneous downloads, smooth YouTube clips, live sport, streaming movies, clear and crisp video calling and fast browsing for the first time ever. We were honestly blown away by the speed. Our CTO made some enquiries with the undersea cable company serving New Zealand about their latency between there and Hawaii."*

Antennas installed by O3b at the Telecom Cook Islands facility. (photo courtesy of O3b)

"The latency differs depending on which of the two possible routes traffic can take on their network, but our CTO was astounded to learn that O3b's latency between the Cook Islands and Hawaii matched that of the first alternative cable route and came in closely to that of the fastest one. So he justifiably exclaimed 'We've got cable!'. O3b's claim that they deliver "fiber from the sky" has been proved correct for us here in the Cook Islands – thousands of kilometers away from the nearest large land mass or undersea cable. We are absolutely delighted with the service," added Maher.

O3b's low latency service is also having an impact in the mobile backhaul market. The development of low latency on backhaul is essential to ensure a superior user experience. Latency is the duration of time for information to transit from one network to another. This information transfer is one of the critical issues that negatively affect Quality of Experience (QoE) - having a significant effect on video, voice and data services, according to a report by telecom consulting company Sofrecom.

"Improved QoE is placing operators at a competitive advantage in modernizing mobile networks, particularly in rural areas," said the report.

The Mobile industry is changing rapidly, as it evolves from 2G to 3G, on to LTE/4G networks. This evolution is driven by the need to provide better performance in three main areas:

- Provide subscribers with higher data rates;
- Reduce the latency of the mobile network; and
- Support a wider variety of end user applications;

Several successful tests of the O3b network this year have demonstrated substantial improvements in QoE for its telecom clients. In late September this year, Huawei, a leading global information and communications technology solutions provider announced test results that enable for the first time in the world, full 3G voice, data and video over satellite. The test of O3b's system was conducted in the Huawei Interoperability Lab in Shanghai, China.

Huawei views the deployment of satellite-based rural broadband as a critical resource for operators, governments and enterprises in remote locations or areas lacking terrestrial infrastructure. It is also of great value to provide such services for people and operations in rigorous environments

such as marine ships, offshore drilling platforms, and cities in disasters. The increasing usage and rapidly changing standards can quickly impact an operator's profitability and industry operation efficiency.

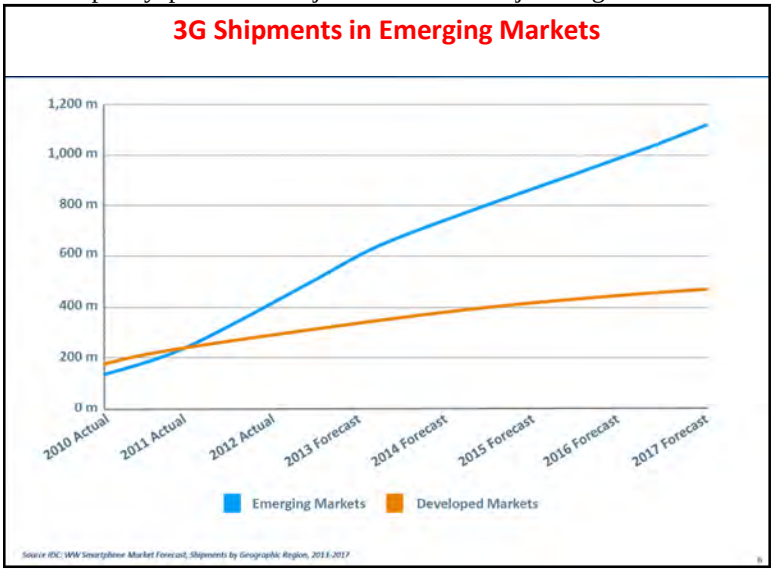
O3b delivers Medium Earth Orbit (MEO) satellite services with capacities up to 1.2Gbps and latency of less than 150 milliseconds per round trip, four times less than traditional geostationary-earth orbit (GEO) satellite services.

On the left is Jules Maher, CEO of Telecom Cook Islands with O3b CEO Steve Collar at the Thales manufacturing facility where the first four O3b satellite were built.

(images courtesy of O3b)

Huawei and O3b Networks are working together to provide an innovative service as a suitable alternative to fiber and that significantly enhances user experience with seamless voice, video and data communications.

Maju Nusa, a Malaysian service provider, chose Huawei and O3b respectively as the 2G/3G systems supplier and backhaul capacity provider. Maju Nusa has a major long term 2G/3G deal awarded under the auspices of the Malaysian Ministry of Communications to provide services to rural communities in Malaysia.



"Winning Solution Partner Certification from Huawei is an excellent endorsement of our network and further underlines the quality of our offer ahead of our commercial launch in 2014," said Steve Collar, CEO of O3b Networks. "Huawei testing and passing O3b's network proves that O3b is almost equivalent to fiber for rural 3G/4G and enterprise communications deployment. By comparison, the latency of geostationary satellites means that there is a noticeable delay in voice conversations and many mobile data applications either perform slowly or not at all," added Collar.

Increasing sales of 3G smart phones, USB modems, tablets and PCs with built in wireless radios is pushing data traffic on mobile networks to record levels. While email, social networks and Internet browsing are very popular among nomadic users, the deployment of mobile broadband services has the biggest impact on network traffic. In rural areas, mobile networks are often the only way to support applications historically delivered over copper based networks. Video streaming is a major contributor to the boost in traffic, with the success of Internet services such as YouTube and DailyMotion. The latest Cisco Visual Networking Index forecasts unprecedented global mobility demand.

Latency is definitely a major issue among consumers of mobile services. Many studies have proven that mobile users are turned off by voice delay and slow loading websites. Studies have also shown that there is a direct correlation between slow response times and revenues in the internet and telecom business.

As consumers of mobile services become increasingly sophisticated and demanding, quality of experience will become an important indicator of network performance, concluded the Sofrecom report. "Latency is the critical factor in improving QoE across all services, including traditional voice services and the latest data services i.e. interactive cloud-based applications and movie downloads", said the report.

A variety of tests were conducted on the O3b network, including: measurably improved voice quality using the ITU model; response times of interactive applications have been dramatically improved; and file download times are reduced by over 60% compared to GEO.

O3b will launch four more satellites in 2014 to add to its global constellation. With encouraging results from the first four satellites launched, O3b is delivering on its promise of fiber-speed, low latency connectivity with the global reach of satellites.

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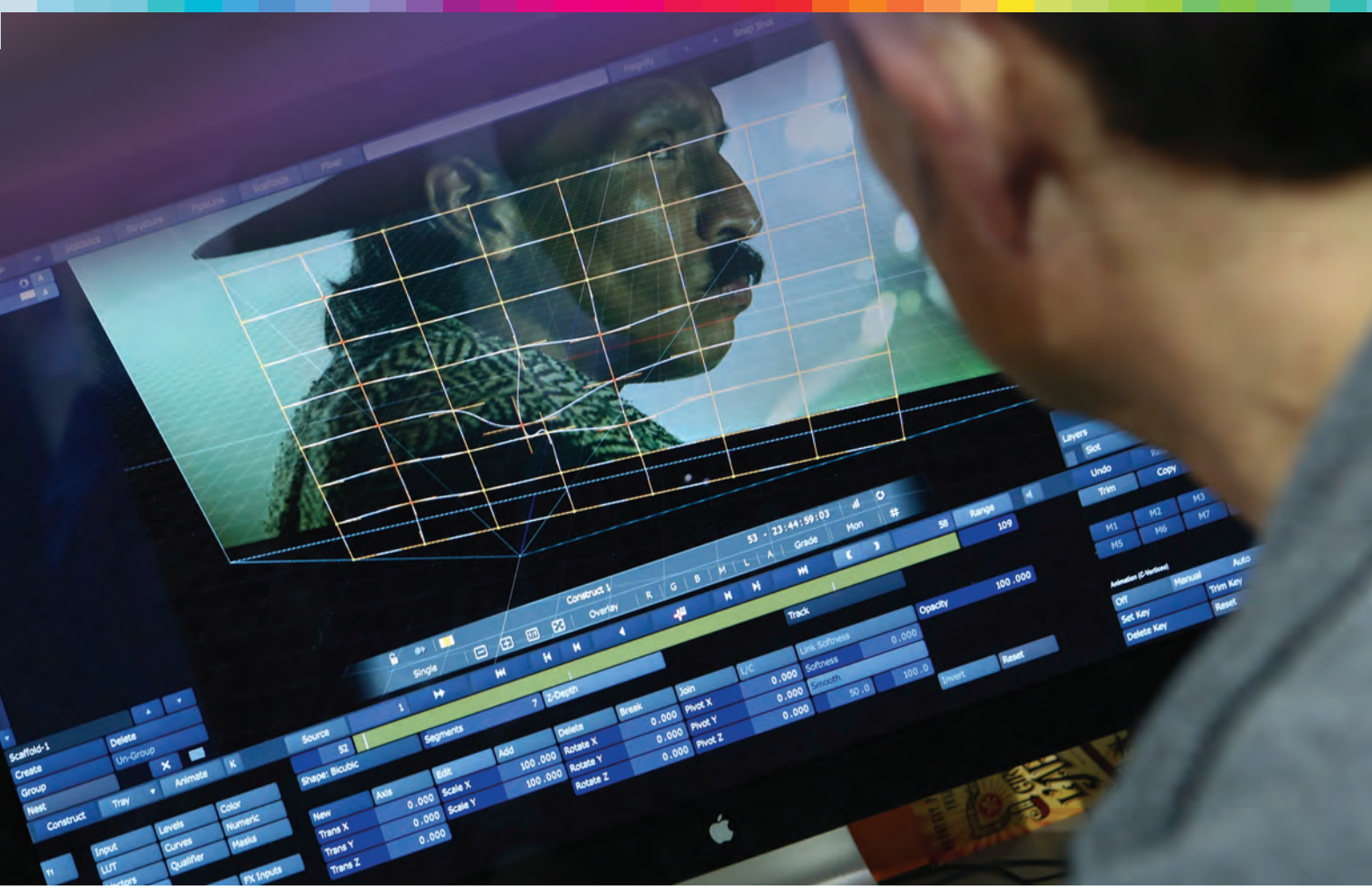

Gilat Closes Sales of Its Spacenet Subsidiary

Petah Tikva, Israel, December 3, 2013--Gilat Satellite Networks Ltd. today announced that it has completed the sale of its Spacenet Inc. subsidiary to Tulsa, Oklahoma-based SageNet. The aggregate consideration for the sale is approximately US$ 16 million, subject to certain post-closing adjustments and expenses.

The transaction, which was closed under the same terms signed in August, is expected to result in a capital loss of US$ 1 million to US$ 3 million, which includes banker's fees, legal fees and other transaction related expenses.

As a result of the closing, Gilat is adjusting its targets for 2013 to reflect the exclusion of Spacenet operating results. Revenue for 2013 is expected to be approximately US$ 230 million as compared to US$ 310 million and EBITDA margin is expected to be approximately 7% as compared to 6%.

"We are very pleased to announce the closing of the sale of Spacenet to SageNet," said Erez Antebi, CEO of Gilat Satellite Networks. "We believe this is an important step that will strengthen Gilat's strategic focus as a satellite communications technology company."

"Spacenet has been a part of Gilat for fifteen years, and we are grateful to all the Spacenet employees for their dedication and service," added Antebi. "Spacenet will continue to be a strategic partner and customer of Gilat and we will continue to work with Spacenet to help grow their satellite based services. We are optimistic that this transaction will help Spacenet grow faster and stronger in the Managed Network Service marketplace in North America."

Vivendi to spin off SFR

Paris, France, December 2, 2013 -- Vivendi, the French media and telecommunications group, has confirmed its plan to split in two by spinning off its SFR telecommunications company and list it separately on the stock market.

"This plan could take the form of a distribution of SFR shares to Vivendi shareholders on the day of the transaction," the company said. It added that its supervisory board had approved the spin off, first floated in September.

SFR (acronym of Société française de radiotéléphone) provides mobile phone, landline, Internet, IP television and mobile internet to consumers and businesses. SFR is fully owned by French conglomerate Vivendi. Its SFR mobile phone network infrastructure was built by Vodafone, who previously had a 44 percent share in SFR until April 2011 when it sold the entire share back to Vivendi.

As of 2012, SFT had 21 million customers and provided 5 million households with high-speed internet access. SFR is the first operator to launch 4G in France, for both businesses and the general public. Since November 1, SFR's 4G service served 415 towns. SFR is following through with its ambitious deployment program to cover 40 percent of the population by the end of 2013, which means SFR's 4G will be available in 1,200 towns.

Vivendi, which owns Universal Music Group, the Canal Plus pay-TV network and GVT, a Brazilian telco, also confirmed that Vincent Bolloré would become its chairman following the split.

French media reports that Bolloré, who heads his own Bolloré industrial group, is Vivendi's biggest shareholder with a 5 percent stake, and will replace Jean-Rene Fourtou, the 74-year-old chairman.

AST Acquires Wright Satellite Connections

Wellington, New Zealand, November 27, 2013--AST announced the acquisition of a majority stake in Wright Satellite Connections, (WSC) based in Wellington, New Zealand, increasing the previous shareholding from 49% to 75%.

WSC provides mobile satellite communication solutions to defense, maritime, civil defense and other organizations for their use around the world, and their strength lies in providing end to end solutions covering, hardware, airtime connections, training, peripherals such as encryption, and after sales care.

With offices already located in Australia, Singapore and Indonesia, this acquisition reinforces AST's Pacific footprint, expanding their global reach and ability to service this vast region. The integration is part of AST's long term strategy, reinforcing its leading role in the global MSS industry, according to the company.

"I am delighted to welcome Wright Satellite Connections to the AST Group of companies", said Gregory Darling, Managing Director & Chairman of AST.

"We believe that we are well positioned to serve the existing channel, adding comprehensive best-in-class solutions and value throughout our wide-ranging portfolio of products and services, and also to combine our strengths to grow new business in the area," he added.

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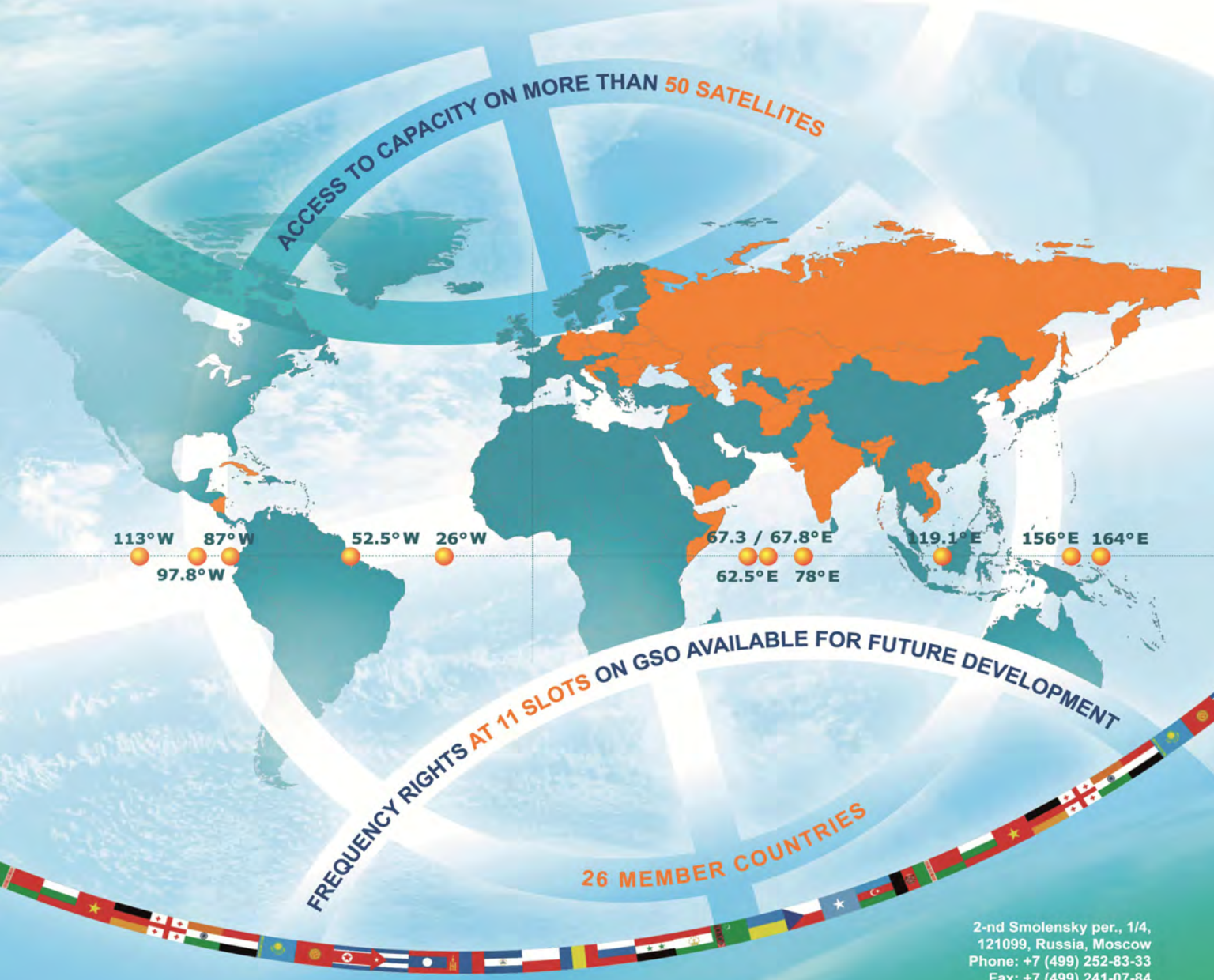

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The Satellite Industry Rallies to Aid Philippine Storm Relief Efforts

by Peter Galace

Following the disastrous Typhoon Haiyan last month that swept through six central Philippine islands and claimed thousands of casualties destroying up to 80% of structures in its path, satellite companies worldwide have rallied together to help the Philippines re-establish its vital communication links and support relief efforts.

As the scale of the impact of super typhoon became apparent, the world's satellite operators rushed to offer bandwidth as well as equipment to support the humanitarian response efforts in the Philippines.

Luxembourg-based SES has dispatched three Rapid Deployment Kits from emergency.lu to provide vital connectivity for the ongoing humanitarian operations. The emergency.lu terminals use dedicated SES satellite capacity to re-establish vital communications links in order to improve the effectiveness of rapid response efforts.

Emergency.lu is a rapid communications solution for global disaster relief and humanitarian missions. It was developed and being implemented as a public-private partnership by the Ministry of Foreign Affairs of Luxembourg in collaboration with a consortium of Luxembourg companies and organizations: SES TechCom, Hitec, and Luxembourg Air Rescue. It is designed to help the humanitarian and civil protection community in the field to establish (and re-establish) telecommunication services and support effective communication and coordination of first responders. Emergency.lu can be deployed anywhere in the world within hours of a natural catastrophe or man-made crisis.

The emergency.lu solution consists of satellite infrastructure and capacity, communication and coordination services, and satellite ground terminals as well as transportation of equipment to disaster areas all over the world.

The United Natrion's Emergency Telecommunications Cluster (ETC), which works to provide communications services for all humanitarian workers, helped re-establish connectivity in Tacloban City, the Philippines using equipment and bandwidth donated by satellite companies.

On November 15, Spacecom, Israel's satellite operator, also announced that the AMOS-4 communications satellite has been called into service for the Philippine disaster recovery effort. Israel's Homefront Command and Medical Corps who have set up a field medical hospital unit are utilizing the satellite for all their data and communications needs: telephony, messaging, video and internet.

Israel's Homefront Command and Medical Corps have also set up a field medical hospital unit are utilizing the satellite for all their data and communications needs: telephony, messaging, video and internet.

Amos-4 has Ku-band and high power Ka-band transponders, which provides extensive traditional and next-generation broadcast, emerging interactive, mobile and broadband reach for satellite services, including Direct-To-Home (DTH), video distribution, VSAT (Very Small Aperture Terminal) communications and broadband Internet.

Thaicom Plc of Thailand has also installed satellite-based communication facilities using its iPSTAR or Thaicom 4 satellite for Typhoon Haiyan-hit areas in Philippines.

Thaicom CEO Suphajee Suthumpun told Thailand's daily *The Nation* that Thaicom has cooperated with the Philippine government agencies to send equipment and technicians to provide satellite communications in areas the communication system was damaged by the storm.

Suphajee said the equipment provided Internet connection and voice call services via Thaicom 4 or iPSTAR in Tacloban and other cities.

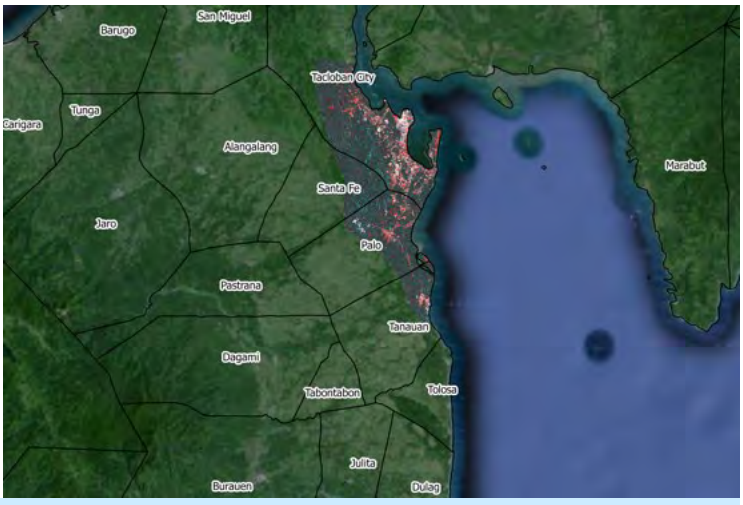
Thaicom said it has been working with the National Disaster Risk Management Coordinating Council (NDRMCC) and the Department of Social Welfare and Development (DSWD) in installing the equipment.

Inmarsat plc, the British satellite telecommunications company, announced third week of November that Inmarsat-sponsored organization Télécoms Sans Frontières (TSF) is continuing its critical battle to provide emergency phone and broadband services in the worst hit regions of the Philippines following the recent typhoon. Directly supporting the Philippines' Government, the United Nations and other aid agencies, TSF is deploying Inmarsat's mobile satellite services to connect medics and emergency first responders as millions of Filipinos struggle to access medical help, food, water and shelter.

Inmarsat said that since the disaster struck, the company has prioritized satellite traffic to and from the Philippines. Based at the company's Network Operations Centre in London, teams of satellite network controllers and Inmarsat engineers have been working 24-hours a day with TSF's French-based HQ and its teams on-the-ground in the Philippines to restore communications. TSF have confirmed that the Philippines' Minister and Deputy Minister for Home Affairs and National Security have been personally provided with Inmarsat IsatPhones to improve communications with their government colleagues located across the country and beyond.

TSF is now directly helping the Philippines Department of Health to restore broadband internet access to the General Hospital in Tacloban, the Philippine city devastated by the typhoon. The broadband satellite service will enable hospital staff to collaborate with medical teams on a national scale and provide well-coordinated health support to the thousands of victims seriously injured in the recent disaster.

With the support of Inmarsat, TSF is also assisting two United Nations agencies — OCHA (Office for the Coordination of Humanitarian Affairs) and UNDAC (United Nations Disaster Assessment and Coordination) — by providing satellite-based broadband internet connections to their teams on the ground. TSF teams, supported by the technical resources of Inmarsat, have been deployed to the islands of Busuanga and Panai to provide technical and material support to the UN.



Map based on Synthetic Aperture Radar (SAR) images processed by sarmap showing the damage to Tacloban City in red. SAR data provided by by InfoTerra from the TerraSAR-X satellites.

The NEC Group has also announced that it would donate funds totaling 5 million Japanese yen to help relief and recovery efforts in regions of the Philippines. The company said additional fund-raising activities will also take place among NEC Group employees.

They also expressed their sincere condolences for those personally impacted by the typhoon and hope for the fast recovery of the people and areas affected by the disaster.

During the SATCON Convention and Expo at New York City from November 12-13, a big forum on the "Evolving Role of Satellite Communications in Disaster Response" tackled a survivor-centric responses to disasters. The consensus of both U.S. and international disaster and emergency response organizations is to now shift to a more survivor-centric view, seeking to support communities with information and engage with them.

Coming just a few days after Super Typhoon Haiyan hit, the forum devoted a large part of their discussions on the massive destruction in the Philippines, which rallied satellite companies worldwide to help the Philippines in relief and recovery efforts with satellite communications.

Moderator of the forum Steve Birnbaum, chair of the Humanitarian Assistance and Disaster Response Programs of the Global VSAT Forum, said this was the first time that the initial request from a national government after a disaster to the humanitarian community was for telecommunications aid, which strongly demonstrates the increasingly critical role that access to information and communications technology by the affected population and not only the official responders.

He added that government can play a significant role in this, by sharing information about its own communications deployments, the status of commercial infrastructure, and helping as needed as an information clearinghouse to share status reports of communications systems deployed by humanitarian responders.

Since the typhoon hit, Birnbaum had been intently coordinate the installation of satellite equipment and provisioning of satellite communications for several sectors for the disaster recovery efforts in southern Philippines.

First Successful Commercial GTO Launch by Falcon 9 Rocket is a Game Changer

by Virgil Labrador

Space Exploration Technologies (SpaceX) successfully completed its first geostationary transfer mission, delivering the SES-8 satellite to its targeted 295 x 80,000 km orbit at 5:41 pm local time on December 3 from Cape Canaveral, Florida. After two previous attempts that were marred by technical glitches, Falcon 9 executed a picture-perfect flight, meeting 100% of mission objectives.

Falcon 9 lifted off from the Kennedy Space Center's Space Launch Complex 40 (SLC-40). Approximately 185 seconds into flight, Falcon 9's second stage's single Merlin vacuum engine ignited to begin a five minute, 20 second burn that delivered the SES-8 satellite into its parking orbit. Eighteen minutes after injection into the parking orbit, the second stage engine relit for just over one minute to carry the SES-8 satellite to its final geostationary transfer orbit. The restart of the Falcon 9 second stage is a requirement for all geostationary transfer missions.

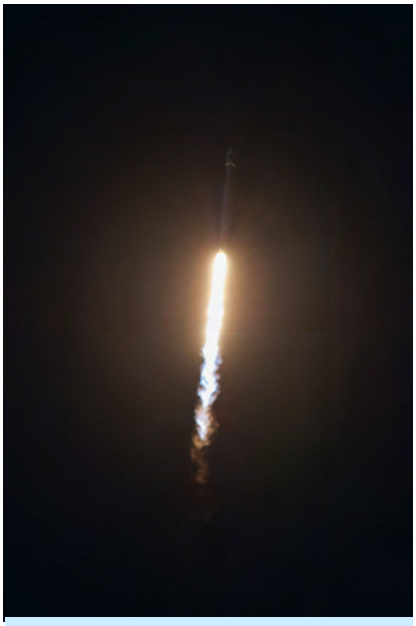
The mission marked SpaceX's first commercial launch from its central Florida launch pad and the first commercial flight from the Cape Canaveral Air Force Station in over five years. SpaceX has nearly 50 launches on manifest, of which over 60% are for commercial customers. Martin Halliwell, Chief Technology Officer of SES said that SES has options for three more launches with Spacex. Halliwell said that SES paid about 50% less for the launch to Spacex than what it would have cost if they used other competitive launch service providers.

This launch also marks the second of three certification flights needed to certify the Falcon 9 to fly missions for the U.S. Air Force under the Evolved Expendable Launch Vehicle (EELV) program. When Falcon 9 is certified, SpaceX will be eligible to compete for all National Security Space (NSS) missions.

Spacex had two previous launch attempts on November 25 and on Thanksgiving Day, November 28. Both missions were scrubbed due to various technical reasons. The launch attempt on Thanksgiving day was aborted at the last second of the countdown. Spacex said the mission was aborted after ignition of the rocket engines due to "slower than expected thrust ramp." Spacex then had to thoroughly check the rocket engines, which delayed the launch for another few days until the successful launch on December 3.

Spacex has been shaking up the competitive satellite launch industry by offering lower cost launches than their competitors. "Our prices are the most competitive of any in the world," said Spacex Chief Designer and CEO Elon Musk. "We will force other rocket companies to either develop new technology that's a lot better or they have to exit the launch market," he added.

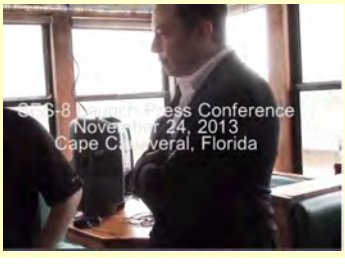
The SES-8 satellite is an Orbital Sciences GEOStar-2 spacecraft that will provide Ku-band coverage of the South Asia and Southeast Asia regions mainly for Direct-to-Home (DTH) broadcast services. DTH services are in such big demand in those regions that a "substantial" portion of the 33 Ku-Band transponders of the satellite have been presold before launch according to Deepak Mathur, Senior Vice-President for Asia-Pacific and the Middle East of SES.



Third time's the charm for Spacex's Falcon 9 rocket which successfully launched the SES-8 satellite into geostationary orbit on December 3, 2013. (image: Spacex)

"This Falcon 9 launch of an SES satellite is a historic event, not just for SES but for the satellite industry," said Elias Zaccack, Senior Vice-Pesident for the Americas of SES. "Falcon 9 is a small step towards what the industry needs to do in order to survive the next decade and beyond. We need to bring the cost per megabit down to consumers and by lowering the cost of satellite launches, Spacex is helping us achieve that," he added.

View videos of the Pre-Launch Briefing with Spacex' CEO Elon Musk and interviews with SES executives at:
www.satellitemarkets.com/ses8launch



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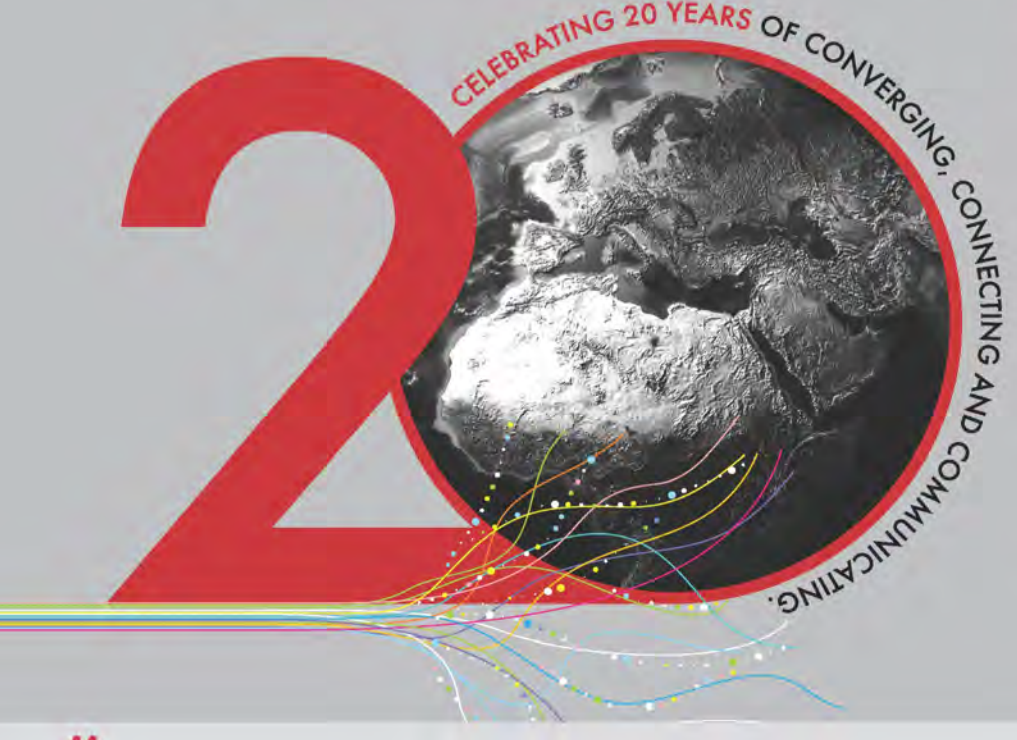

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Globecast Australia Has New Management Team

Sydney, Australia, December 2, 2013 – Globecast Australia has announced a new management team to best effect a structure for continued efficiency and innovation.

Greg Littrich

Reporting to the Chief Executive Officer, Simon Farnsworth, the following positions will comprise the senior tier of the business.

Christine Holman has been appointed as the Chief Financial Officer & Commercial Director. Christine brings a strong commercial acumen to the business, as well as a deep understanding of finance.

Greg Littrich has been appointed to the newly created position of Director of Field Operations responsible for Satellite News Gathering and Globecam.

Paul Suters continues as the Director of Engineering and Operations and assumes responsibility for the company's IT function.

Peter Smart will continue as an advisor to the Chief Executive Officer.

John Graham has been appointed as Commercial Manager, based in Melbourne, and responsible for driving sales growth, domestically and globally for Globecast Australia's Globecam brand. John commenced with Globecast Australia last November 27, 2013.

As a result of this restructure, the role of Business Development Director has been made redundant, and as such Peter Doueihi has left the company.

Chief Executive Officer Simon Farnsworth said the new management structure recognizes the talents of a very strong team allowing Globecast Australia to be at the forefront of broadcast technical innovation, delivery and efficiency.

FIC Asia Announces Appointments for APAC & Middle East

Hong Kong, December 2, 2013 — Fox International Channels (FIC) Asia has appointed Helena Choe as Vice President of Syndication, effective November 18, while Rahul Sood was also named Vice President of Affiliate Sales and Commercial, effective December 9.

Rahul Sood

Both executives will cover Asia Pacific and the Middle East and are expected to strengthen FIC's Affiliate Partnerships and Syndication division, further expanding FIC's presence in the television and content industry across the region.

Choe will work with channel and business development teams, as well as country managers to establish region-wide syndication policies and drive the distribution of FIC Asia's sports, factual and entertainment content rights to multiple platforms. With its launch of Fox Sports in Asia at the beginning of this year, FIC is committed to growing the presence of high quality sports content across the region and helping to make it accessible to sports fans everywhere.

Choe joins FIC from sports rights marketing agency Sportfive International, where she held the position of Managing Director of the Hong Kong office, leading activities for Sportfive's TV rights in Hong Kong, Japan and Korea, and digital rights across Asia Pacific. She was also previously Vice President of Digital Media, Asia Pacific at IMG Media.

Sood will operate out of Singapore as Vice President of Affiliate Sales and Commercial. He will be responsible for FIC's sales and channel development of new markets across the region, with emphasis on newly emerging markets. Rahul will also be developing FIC's sales strategy for commercial establishments such as hotels and other out-of-home opportunities.

Sood will also focus on the international distribution beyond APAC and the Middle East of FIC's suite of Chinese channels, which includes SCM, the network's powerhouse Chinese movies channel. This emphasis underscores FIC's commitment to the ambitious goal of promoting Chinese-language content beyond Asia and taking the SCM brand global.

Sood brings over 17 years of leadership experience in various roles in Asia's TV industry. Prior to joining FIC, he spent 10 years as the Head of Affiliate Sales and Network Distribution at NDTV, one of India's leading news networks. Prior to that he held the role of Executive Director of Affiliate Sales for South Asia at Turner Broadcasting and was part of the initial core team who established the New Delhi office.

Choe and Sood will report to Alex Lambeek, Executive Vice President of Affiliate Partnerships and Syndication for Asia Pacific and the Middle East at FIC.

FIC has also named Francis Chang as its Senior Vice President Legal & Business Affairs and General Counsel for Asia Pacific and the Middle East. Francis joins the company today and serves as the chief legal advisor for Asia's leading pay-TV network across the region.

As General Counsel, Francis is the most senior legal executive in the region and is responsible for all of FIC's business and legal affairs.

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Teal Group Identifies 3,164 Space Payloads Proposed For Launch To 2013 With an Estimated Value of More Than US $235 Billion

New York City, November 25, 2013 — Coinciding with the SATCON Satellite Communications Conference & Expo held here November 13-14 at the Javits Convention Center, Teal Group space analysts have identified 3,164 space payloads proposed to be built and launched to earth or deep space orbits between 2013 and 2032. They estimate the value of these satellites and other space payloads at more than US$ 235 billion.

Teal analysts identify and quantify 276 proposed launches in 2013 (minus the 150 launched through November 20, 2013), 481 in 2014, 481 in 2015, 329 in 2016, 173 in 2017, 102 in 2019, 111 in 2020, 98 in 2021 and 103 in 2022.

"Most spacecraft that have been announced are proposed to be built and launched within the next 3 -4 years," said Teal Group senior space analyst Marco Cáceres. "That's why the numbers are so high over the next four years. We simply know more for the near-term than the out-years: 81 in 2023, 82 in 2024, 99 in 2025, 89 in 2026, 75 in 2027, 83 in 2028, 86 in 2029, 104 in 2030, 79 in 2031, and 85 in 2032."

Proposed Spacecraft by Type

In their latest updating by spacecraft type, Teal analysts noted that more than one-third of spacecraft are commercial and nearly one-third are civil. About one-third are military and university and other.

"Most of the commercial spacecraft are for communications, imaging or navigation," said Cáceres. "Civil and military are a wider mix — scientific, communications, imaging, navigation, early-warning, exploration, technology, crew transport and cargo resupply."

Of proposed spacecraft by mass, two-thirds of the spacecraft weigh under 1,500 kg.

"Most under 1,500 kg are LEO mobile commercial comsats, MEO commercial and military navsats, and university techsats," said Cáceres. "Most between 1,500 – 6,500 kg are GEO commercial comsats and MEO military navsats. Most over 6,500 kg are LEO military spysats and LEO civil capsules."

Proposed Spacecraft by Orbit

Of proposed spacecraft by orbit, more than two-thirds of the spacecraft are destined for low earth orbits (LEO), with 17% for geostationary orbits (GEO).

"Most of the LEOs are commercial mobile comsats and a variety of military, civil and university satellites," said Cáceres. "Most of the GEOs are commercial comsats. MEOs are navigation, deep space are civil, and most elliptical are scientific."

Proposed Spacecraft by Customer Region

Of proposed spacecraft by customer region, three-quarters of the spacecraft are proposed by government agencies, companies, universities and organizations in the US, Russia and Europe.

"No surprise that US, Russia and Europe continue to dominate, given their large national space programs and base of spacecraft manufacturers and commercial operators," said Cáceres.

"But the fastest growing region is Asia and the Pacific Rim, notably China and India, fueled by ambitious national space programs and huge demand for commercial satellite services," Cáceres added.At least one-third of the spacecraft are proposed by the US and Russian governments, Teal Group analysts reported, including 18% by MoD/Rosaviaskosmos (Russia), 17% by DoD/NASA (USA), 6% by CNSA/CMA/Army (China), 5% by Iridium (USA), 5% by ESA (Europe), and 49% by other.

"The numbers for the US government are inflated by dozens of Microsats, Nanosats and Picosats, as well as GPS III navsats and NRO spysats," said Cáceres.

WTA Publishes Top Operator Rankings for 2013

New York, NY, December 5, 2013– The World Teleport Association (WTA) published its annual rankings for the Top Teleport Operators of 2013. The annual rankings of companies by revenue and revenue growth are compiled by surveying teleport operators around the world as well as referencing the published results of publicly-held companies.

According to WTA Executive Director Robert Bell, "The past year marked a notable improvement in the financial results of the Top Operators. Last year, 21 percent of our sample reported year-over-year revenue declines. That percentage fell to 12 percent for the most recent year, while 88 percent posted revenue gains."

Rankings were reported in three categories: the Independent Top Twenty, the Global Top Twenty, and what the association calls the "Fast Twenty."

The Independent Top Twenty

The Independent Top Twenty ranks teleport operators based on revenue from all sources. The list focuses on the independent operators at the core of the business, excluding companies whose primary business is ownership and operation of a satellite fleet or terrestrial network. In order from largest to smallest, the Independent Top Twenty of 2013 are:

1. Harris CapRock (USA)
2. GlobeCast (France)
3. TeleCommunications Systems Inc. (Govt Services revenue) (USA)
4. Arqiva Broadcast & Media (UK)
5. Encompass Digital Media (USA)
6. Emerging Markets Communications (USA)
7. Globecomm (USA)
8. RRsat Global Communications (Israel)
9. Spacenet (USA)
10. du (Emirates Integrated Telecom) (UAE)
11. Signalhorn Trusted Networks (Germany)
12. Essel Shyam Communication (India)
13. NewSat (Australia)
14. SatLink Communications (Israel)
15. CETel (Germany)
16. Axesat (Colombia)
17. CET Teleport (Germany)
18. Jordan Media City (Jordan)
19. NewCom International (USA)
20. STN (Slovenia)

The Global Top Twenty

The Global Top Twenty ranks companies based on revenues from all customized communications sources and includes operators of teleports, satellite fleets and business-to-business fiber networks. In order from largest to smallest, the Global Top Twenty of 2013 are:

1. Intelsat S.A. (Luxembourg)
2. SES (Luxembourg)
3. Gazprom Space Systems (Russia)
4. Eutelsat (France)
5. Telesat (Canada)
6. Harris CapRock (USA)
7. GlobeCast (France)
8. EchoStar Satellite Services (USA)
9. Arabsat (Saudi Arabia)
10. TeleCommunications Systems Inc. (Government Services revenue) (USA)
11. Arqiva Broadcast & Media (UK)
12. Hispasat (Spain)
13. Encompass Digital Media (USA)
14. AsiaSat (China)
15. Thaicom Public Company Ltd (Thailand)
16. Emerging Markets Communications (USA)
17. SingTel Satellite (Singapore)
18. Telenor Satellite Broadcasting (Norway)
19. Globecomm (Services revenue) (USA)
20. RRsat Global Communications (Israel)

The "Fast Twenty"

The Fast Twenty ranks all teleport-operating companies based on year-over-year revenue growth in their most recent fiscal years. Emerging Markets Communications was the fastest of the fast with 76% growth. Ranked by revenue growth, the Fast Twenty of 2013 are:

1. Emerging Markets Communications (USA)
2. Elara Comunicaciones SA (Mexico)
3. TeleCommunications Systems Inc. (Government Services revenue) (USA)
4. STN (Slovenia)
5. Axesat (Colombia)
6. Spacenet (USA)
7. Essel Shyam Communication (India)
8. Cobbett Hill Earth Station (UK)
9. CET Teleport (Germany)
10. Arabsat (Saudi Arabia)
11. du (Emirates Integrated Telecom) (UAE)
12. AsiaSat (China)
13. Encompass Digital Media (USA)
14. Gazprom Space Systems (Russia)
15. Hawaii Pacific Teleport (USA)
16. Thaicom (Thailand)
17. Signalhorn Trusted Networks (Germany)
18. Harris CapRock (USA)
19. Hispasat (Spain)
20. SES (Luxembourg)

SATCON 2013 Highlight the Vitality of the Global Satellite Industry

by Peter Galace

The SATCON 2013 Conference and Exhibition held in New York City from November 12-13 continues served to highlight the vitality, relevance, and importance of the global satellite industry, which has shown strength despite economic doldrums during the past five years.

"Hosted Payloads Span New Paradigms on Affordability," was the first order of the session day to tackle inexpensive approach for the government to get a ride to orbit. This phenomenon has now caught the attention of the industry as the U.S. government is looking at potential hosted payload solutions to support virtually all of its missions, from overhead persistent infrared for the nation's early missile warnings to communications and weather missions. This has resulted in new and interesting business models as innovative companies attempting to deliver high value missions at affordable prices are now being considered. Public private partnerships, joint investments, service models and deferred payments have become the mechanisms that could, in the future, be used throughout the industry.

David Anhalt, vice president of Iridium Communications, discussed the company's first turnkey hosted payload solution, Iridium PRIME, to host third-party payloads on stand-alone satellites leveraging the global connectivity afforded by the Iridium NEXT satellite network. He said Iridium PRIME's integrated service reduces the complexity, delays and costs typically associated with building, launching and operating a satellite mission.

Charles L. Beames, Principal Director of Space and Intelligence, Office of the Undersecretary of Defense for Acquisition, Technology & Logistics spoke on the near-, mid- and long-term benefits of hosted payloads, stating the near-term benefit. Beames talked about military missions that are well suited for hosted payloads, specifically weather.

One of the more interesting presentations of the day was the innovative steered flat panel satellite terminal technology of Kymeta. Nathan Kundtz, Executive Vice President & Chief Technology Officer, said Kymeta's technology solutions for portable, mobile and fixed applications are on the track and they are hopeful to take the first products to markets in early 2015.

The secret of Kymeta's technology is the application of a technology known as metamaterials developed through research at the Duke University laboratory in 2000. Kymeta is commercializing the technology into satellite antennas, opening doors to new markets for the in a new era of mobility. Kymeta has proven that the new technology could provide new communications solutions previously impossible with traditional satellite antennas, to deliver connectivity around the planet, with users ranging from militaries to humanitarian groups, from maritime shipping lines to airlines and many more.

But the most well-attended session of the day was the "Disaster Response: The Evolving Role of Satellite Communications in Survivor-Centric Responses," which was held at a time when the whole world was viewing on worldwide TV the devastation brought about by the super typhoon Haiyan in the Philippines.

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During the presentations, speakers from the international disaster and emergency response organizations spoke of the need to shift to a more survivor-centric view, and to support communities with information and engage with them. Innovations, such as high throughput satellites and meta-material antennas, were presented as the latest innovations in satellite disaster relief operations.

Christian Clark, UN Office for the Co-ordination of Humanitarian Affairs, and Keith Robertory, Manager of Disaster Technology of the American Red Cross, suggested the need to provide WiFi and Internet services and communication devices to disaster victims to ease their isolation and suffering. They reminded satellite people to always provide communication services to different sectors, such as those providing water and food.

Dwight Hunsicker, VP of Globecomm, said terrestrial and submarine fiber optic cables are okay and cheaper but for a disaster-prone country like the Philippines, satellites are perfect substitute for disaster recovery efforts. He added that during disasters, the problem of communications is not always technical, but those in the field should know how to use the equipment.

"Keynote: Leadership Dialogue: Present Priorities, Future Visions," opened the second day session of Satcon. Susan Irwin, President of Euroconsult USA and Satcon conference chair, moderated a dialogue between leaders of today's satellite business and the winners of Society of Satellite Professional's 2013 Promise Awards. The dialogue explored the trends shaping satellite technology, markets and business models in comings decades, from HTS to launch vehicles, ubiquitous communications to in-orbit industries.

In the session on "Emerging Markets: Satellites Fill the Gaps," David Bair, CEO of Eutelsat; Ruben Levcovitz, Business Director of North America, Central America and Carribean of Hispamar Satellites and Mohamed Youssif, CEO of ABS Satellite, discussed how they are using satellites to distribute DTH, backhauls for cellular networks, and provide telecom services to underserved populations in emerging regions around the world.

Youssif said there is a sharp demand for satellites in the Asia-Pacific region used for DTH services while Levcovitz explained the growing need for transponders in Mexico and other Central American countries for promoting education in far-flung regions.

Other notable sessions include "Industry Innovations to Complement MilSatCom," where under the 2010 National Space Policy, the U.S. now encourages the development of international space capabilities across the Federal Government, including the US Department of Defense. In the session on "Maritime Communications: Opportunities and Threats," discussions turned to Ku and Ka-band mobile VSAT services, which are now becoming key focus for MSS operators and providers alike.

Satellite Industry Leaders Honored by SSPI, Vision Awards

What more to open the even this year's 2013 Satcon gathering of important names in the industry from America and from around the world than the Society of Satellite Professionals International (SSPI) Future Leaders Dinner held at The Penn Club in Manhattan on November 12, 2013.

SSPI's Promise and Mentor Award have honored, since 2006, men and women under 35 with the talent and motivation to advance into leadership positions in the satellite industry, as well as one executive recognized for mentorship of the next generation.

Sunali Chokshi, Section Supervisor of Space Systems/Loral, won the 2013 award for helping SS/L do more for its customer by leading an initiative to increase the test capacity of the SSL Nearfield Range (NFR). Her project team identified areas of improvement, secured funding, and worked through suppliers, facilities maintenance, and other organizations within SS/L to complete these improvements. The outcome of the project improved both test capacity and measurement quality, permanently expanding SS/L's production capacity at a time when manufacturers are being challenged to reduce the cost and time required to design and build a satellite.

Emma Hinds, Technology Analyst of The Tauri Group, was cited for improving the US government's understanding of the complex space business. As a serious space and satellite policy maven, with stints at the Space Policy Institute, Office of Management & Budget, NASA, Booz Allen Hamilton, and The Tauri Group, she supported the Office of the Chief Technologist at NASA, the FAA's Office of Commercial Space Transportation, and the Satellite Industry Association (SIA) by providing research, strategic planning, technology roadmaps and recommendations that helped shaped US government technology policies, regulations and investments. In 2013, she was the research lead for SIA's State of the Satellite Industry report, a project she helped her company win from a competitor, and helped SIA validate 16 years of data to produce and lead briefings for a report widely referenced by business and government leaders.

Sarah Warren Rose, Lead Engineer, Mechtronics/Guidance Navigation, and Control, Interorbital Systems, was cited for delivering leading-edge innovation in access to orbit. A mechanical engineer by training, Sara holds numerous patents in the field of Rotary Engine development. Her work for InterOrbital Systems – a company founded in 1996 to create a unique modular orbital launch system – has focused on IT

and robots. She has developed a new generation of "genetically evolving algorithms" to provide guidance and control for InterOrbital's new sounding rockets and orbital launch system, which are undergoing flight testing on a custom quad-copter that she built from scratch. She is also a well-regarded academic researcher who teaches course at UCLA in mechanical engineering and robotics.

SPPI awarded the coveted 2013 Mentor of the Year to Clayton Mowry, President, Arianespace, Inc., for "making mentorship a priority in successful leadership." In a career bridging government, the nonprofit sector and the launch business, Mowry was cited for developing a reputation as a trusted and capable leader as well as an approachable and supportive mentor for the next generation. In previous positions and his current one, SSPI said Mowry had made it a personal priority to hire and mentor interns from a wide variety of backgrounds. His participation in their careers has not ended with their internships, and many executives working today in the industry cite his personal attention, advice and willingness to make introductions as contributors to their own success.

Visionary Executive of the Year 2013 awardee David Hershberg, CEO of Globecomm Systems (center) with members of the Board of Judges Robert Bell, Executive Director, SSPI (left) and Bruce Elbert, President of Application Technology Strategy.

Mowry was also cited for mentoring young professionals in the industry who have no affiliation with Arianespace through one-on-one informal mentorship and through active participation and leadership in such organizations as SSPI, SIA, the Space Generation Advisory Council, the Washington Space Business Roundtable and the Future Space Leaders Foundation, which he founded.

At an awards ceremony capping the first day of the SATCON Conference and Exhibition in New York City, the Second Annual Vision Awards presented by Satellte Markets and Research and Application Strategy LLC announced the winners in three categories.

David Hershberg, Founder and CEO of Globecomm Systems, won the Visionary Executive of the Year; Advantech Wireless' SapphireBluTMseries High Power Amplifiers won the Innovative Product of the Year and satellite operator Arabsat won the Most Promising Company of the Year.

Hershberg won the Vision Award for demonstrating a keen sense of mission and for his forward-looking vision of where his company and the industry is heading. Arabsat was cited for experiencing growth in the markets they serve and demonstrated long-term viability of their enterprise. Advantech Wireless' SapphireBluTMseries High Power Amplifiers won the award for making substantial improvement in power amplifiers during the year.

The Board of Judges of the Vision Awards include: Virgil Labrador, Editor-in-Chief of Satellite Market and Research; Bruce Elbert, President of Application Technology Strategy LLC; Elisabeth Tweedie, founder and President of Definitive Direction; Robert Bell, Executive Director of the World Teleport Association and the Society of Satellite Professionals International; Jan Grøndrup-Vivanco, Director in Emerald Advisors, and; Tom van der Heyden, Director and CEO of EurAsian Technology,.

Among the finalists honored during the ceremony included **Robert Kubbernus**, CEO of **Signalhorn Trusted Networks** and **Jorge Villarreal**, CEO of **Elara Communications** for the Visionary Executive of the Year; **Newtec's HUB6000** and **ScheduAll's S5 Transmission Management System** for the Innovative Product of the Year; and **Iridium** and **NewSat** for the Most Promising Company of the Year.

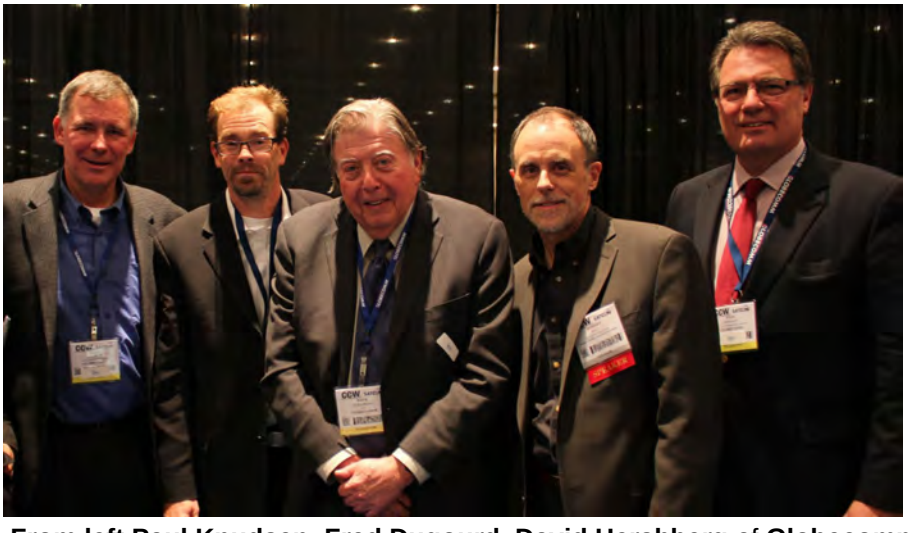
View videos of interviews with key executives at SATCON and the Vision Awards ceremonies:
www.satellitemarkets.com/satcon2013

Who's Who at the 2013 Vision Awards Reception

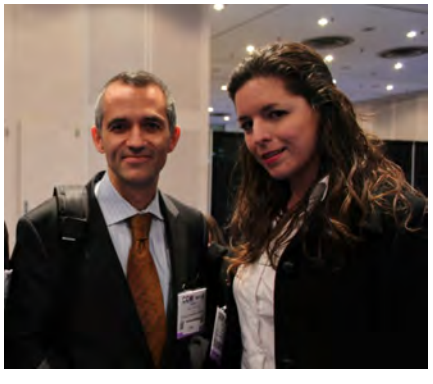
Jacob Javits Convention Center, New York City, November 13, 2013

Dr. Gerhard Franz, **AG Franz & Associates** and **Stefan Jucken**, **Viasat**.

Satellite Markets and Research Editor-in-Chief **Virgil Labrador** with from left, **Krystal Dredge**, **Mary Lynne Woro** and **Vicki Stanford** of **AVL Technologies**.



From left Paul Knudsen, Fred Dugourd, David Hershberg of **Globecomm, Robell Bell of SSPI and Paul Johnson of Globecomm.**



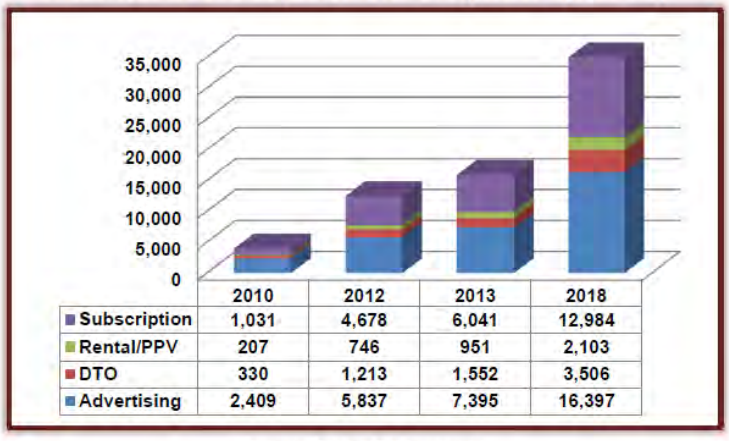
Jorge Villarreal and **Joanna Estrada, Elara Communications**

View a video of the 2013 Vision Awards ceremonies:
www.satellitemarkets.com/satcon2013

Vital Statistics

Online Video to Generate US$ 35 Bil. by 2018

Global online TV and video revenues by source ($ million)



	2010	2012	2013	2018
Subscription	1,031	4,678	6,041	12,984
Rental/PPV	207	746	951	2,103
DTO	330	1,213	1,552	3,506
Advertising	2,409	5,837	7,395	16,397

Source: Digital TV Research

Global online TV and video revenues (over fixed broadband networks) will reach US$ 34.99 billion in 2018, a massive increase from the $3.98 billion recorded in 2010 and the US$ 15.94 billion expected in 2013, according to the Online TV and Video Forecasts report from Digital TV Research. By 2018, 520 million homes in 40 countries will watch online television and video (both paid-for and ad-supported), up from 182 million in 2010.

Advertisers' Index

The Satellite Markets 25 Index™

Company Name	Symbol	Price (Dec. 02)	% Change from Last Month	52-wk Range			% change from 52-wk High
Satellite Operators							
Asia Satellite Telecommunications	1135.HK	30.30	0.83%	26.85	31.20	↓	2.88%
Eutelsat Communications S.A.	ETL.PA	21.41	-8.97%	20.41	28.15	↓	23.96%
APT Satellite Holdings Ltd.	1045.HK	9.39	11.79%	1.90	9.90	↓	5.15%
Inmarsat Plc	ISAT.L	668.50	-7.73%	80.01	749.00	↓	10.75%
SES GLOBAL FDR	SES.F	21.815	1.04%	20.81	25.00	↓	12.74%
Satellite and Component Manufacturers							
The Boeing Company	BA	134.16	0.85%	72.68	142.00	↓	5.52%
COM DEV International Ltd.	CDV.TO	4.18	0.48%	2.84	4.40	↓	5.00%
Lockheed Martin Corporation	LMT	139.699997	3.83%	85.88	144.43	↓	3.27%
Loral Space & Communications, Inc.	LORL	78.07	8.13%	51.91	82.95	↓	5.88%
Orbital Sciences Corp.	ORB	23.20	-1.19%	12.70	24.16	↓	3.97%
Ground Equipment Manufacturers							
C-Com Satellite Systems Inc.	CMI.V	1.70	-8.60%	0.64	2.37	↓	28.27%
Comtech Telecommunications Corp.	CMTL	31.54	4.58%	22.33	32.41	↓	2.68%
Harris Corporation	HRS	64.04	3.76%	41.08	65.87	↓	2.78%
Honeywell International Inc.	HON	88.14	1.42%	60.24	89.52	↓	1.54%
ViaSat Inc.	VSAT	59.17	-9.90%	36.97	73.43	↓	19.42%
Satellite Service Providers							
Gilat Satellite Networks Ltd.	GILT	4.39	-14.59%	4.35	6.20	↓	29.19%
Globecomm Systems Inc.	GCOM	14.10	0.28%	10.49	14.91	↓	5.43%
International Datacasting Corporation	IDC.TO	0.17	-5.56%	0.17	0.25	↓	32.00%
ORBCOMM, Inc.	ORBC	6.14	1.32%	3.06	6.63	↓	7.39%
RRSat Global Communications Network Ltd	RRST	7.5111	-3.70%	6.15	9.35	↓	19.67%
Consumer Satellite Services							
British Sky Broadcasting Group plc	BSYBY	52.88	-12.60%	46.45	62.02	↓	14.74%
DIRECTV	DTV	66.94	5.14%	47.71	67.85	↓	1.34%
Dish Network Corp.	DISH	53.84	11.01%	33.79	54.39	↓	1.01%
Globalstar Inc.	GSAT	1.74	24.29%	0.25	1.84	↓	5.43%
SIRIUS XM Holdings Inc.	SIRI	3.77	-0.53%	2.68	4.18	↓	9.81%

INDEX	Index Value (Dec. 02)	% Change from Last Month	% Change Jan. 03, 2013
Satellite Markets 25 Index™	1,586.80	-2.82%	24.42%
S & P 500	1,800.90	2.23%	23.40%

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.