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Industry Trends, News Analysis, Market Intelligence and Opportunities

Trends in the Middle East/North Africa Satellite Market

by Elisabeth Tweedie, Associate Editor

According to Euroconsult there are 18 Fixed Services Satellite (FSS) operators serving the Middle East and North Africa (MENA), making it the second most competitive market in the world. However no matter who you talk to it seems to be almost unanimous that the market for satellite services will continue to grow with video being the main driver. Eutelsat alone is carrying over 700 channels serving the region with another 867 being carried by Arabsat, Nilesat, Noorsat and Yahlive according to reports from Arab Advisors released towards the end of last year.

Historically the majority of channels in the region are Free-to-Air (FTA) and this continues to be the case with only 151 of the 867 channels carried by the regional operators being Pay TV. According to the latest Arab Media Outlook released last year only 8% of the population subscribe to Pay TV services. However according to Digital TV Research this is set to change: a recent report indicates that Pay TV revenues in the MENA region will reach US$ 5.6 Billion by 2020 – a growth of more than 83% from the 2010 revenues. Furthermore satellite TV will account for more than two-thirds of this and of course it must not be forgotten that in most cases satellite is also involved somewhere along the contribution- distribution chain in the other third that goes to cable, digital terrestrial and IPTV.

MyHD a new service launched last summer is trying a new approach to Pay TV. Dubbed "low pay TV" this service provides a mixture of FTA channels in High Definition (HD) as well as exclusive Pay TV channels. Subscription fees are less than one tenth of other Pay TV networks in the region.

Currently the majority of channels in the region are still transmitted in Standard Definition (SD) but this is changing. Ali Ahmed Al-Kuwari, Es'hailsat CEO says "Over the next few years the main growth driver in

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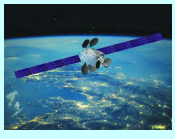

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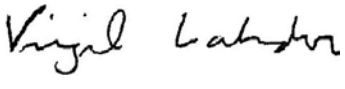
Focus on the Middle East

For the second year in a row, a satellite company from the Middle East won the "Most Promising Company of the Year " Vision Awards given at the SATCON show in New York in November. In 2012, the honor went to Israel-based Spacecom and last year the award was given to Saudi Arabia-based Arabsat. Arabsat followed-up that "Most Promising Company of the Year Award" at SATCON in New York with the announcement this month of the "Satellite Executive of the Year" award given at the Satellite 2014 in Washington, D.C. going to Arabsat's CEO Khaled Balkheyour. Balkheyour is only the second Executive of the Year recipient from Asia in the 30-year history of the award, after ABS' CEO Tom Choi won it last year.

The accolades given the Middle Eastern satellite companies are indicative of the emerging prospects in that region. The Middle East is one of the most promising markets for satellite services today. Pay TV revenues in the Middle East will grow by more than 83% between 2010 and 2020 to US$ 5.60 billion, according to a new report from Digital TV Research. Satellite TV will continue to dominate pay TV revenues, taking two-thirds of the 2020 total (similar to the 2013 proportion). Satellite TV revenues will reach US$ 3.74 billion in 2020, up by US$ 1 billion on 2013 and nearly double the 2010 total. Pay-TV subscriptions across the Middle East and Africa reached 18.9 million at the end of September 2013, rising 23.5% from the 15.3 million recorded in the corresponding quarter of 2012, according to Dataxis.

This year's Cabsat 2014 to be held in Dubai, UAE from March 11-13 will be the 20th anniversary edition of the largest broadcast and satellite show in the Middle East/ North Africa (MENA) region. Over 12,000 trade visitors from 115 countries are expected to attend and 900 companies will be exhibiting in what organizers are hoping to be the biggest Cabsat ever.

The organizers of Cabsat are so confident the attraction of the growing Middle East market will bring in a record number of participants this year that it scheduled their event on the *exact same days* as the Satellite 2014 Conference and Exhibition in Washington, D.C. Satellite Markets and Research will be Cabsat and Satellite and we will be reporting how the concurrent scheduling works out for both shows.



Editor-in-Chief

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EDITORIAL

Virgil Labrador
Editor-in-Chief
virgil@satellitemarkets.com

Elisabeth Tweedie
Associate Editor
elisabeth@satellitemarkets.com

Contributing Editors:

North America: Robert Bell, Bruce Elbert, Dan Freyer, Lou Zacharilla

Latin America: B. H. Schneiderman

Europe: Martin Jarrold, *London*
Jan Grøndrup-Vivanco, *Paris*
Roxana Dunnette, *Geneva*

Asia-Pacific: Tom van der Heyden, *Hong Kong*, **Chris Frith,** *Singapore*, **Riaz Lamak,** *India*

Intern: Niko Rodriguez

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1418 South Azusa Ave. # 4174
West Covina CA 91791 USA
Phone: +1-626-931-6395
Fax +1-425-969-2654
E-mail: info@satellitemarkets.com

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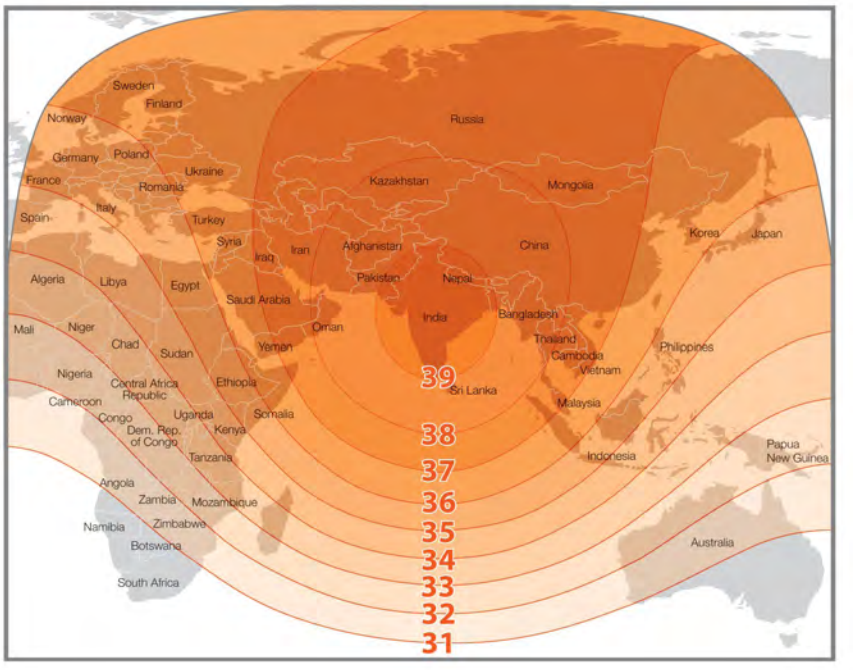
The Middle East /North Africa Market ...From page 1

the Middle-East should continue to be TV broadcasting. Today the majority of TV channels are broadcast in Standard Definition, or SD. Progressively broadcasters are making the transition to High Definition – HDTV – but that can't be achieved overnight. Until all or at least a large majority of viewers have an HDTV television set and an HDTV set top box the broadcasters need to transmit their channels in both SD and HD formats, which leads to an increase in demand for satellite bandwidth." Khalid Balkheyour CEO of Arabsat sees DTH services continuing to be the main driver "with the networks expanding their lineups with HD channels". The move to HD is not only good news for the operators its also good news for players in other parts of the value chain, set-top box manufacturers and antenna manufacturers for example.



ABS-2, just launched last month, is a highly sophisticated multi-mission satellite, equipped with a communication payload of 32 C, 51 Ku and 6 Ka-band transponders (a total of 89 active transponders) across 10 different beams ABS-2 covers Eastern and Central Europe, Africa, the Middle East, Asia Pacific, Russia and the CIS countries and has an operational life for at least 15 years. (coverage map courtesy of ABS)

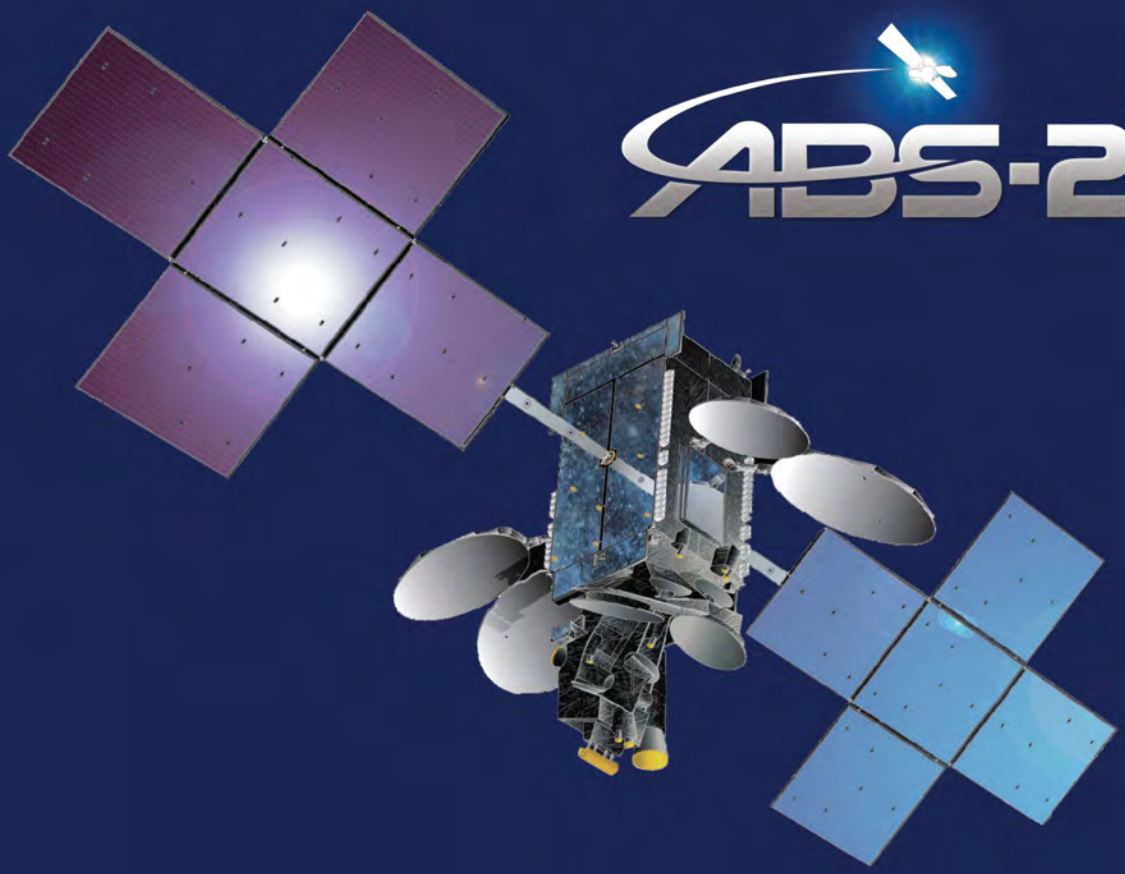
Martyn Hopkins, Product Director at SIS Live a company offering Satellite News Gathering (SNG), Outside Broadcast and Systems Integration services as well as a range of specialized antennas, says that "with broadcasters launching more HD channels and utilizing the higher bandwidth available in Ka-Band, the need to upgrade existing antenna systems will be a significant driver for growth.

The unique characteristic of the Middle East Direct-to-Home satellite services market as mentioned earlier, is the proliferation of Free-to-Air channels, who rely mainly on advertising revenues to survive. This business model is seen by some analyst as unsustainable in the long-run but other analysts argue that this system has been going on for some time no in the Middle East and has proven to be viable so far.

Important though video is, it isn't the only market for satellite services in the Middle East, Khalid sees "major growth opportunities in the telecom sector utilizing Ka-Band for broadband initiatives and government services". At IBC last year Ferdinand Kaiser Chief Commercial Officer SES, talking about the Middle East said that SES was seeing " A surge in demand for mobile backhaul, broadband initiatives and intra-region VSAT networks, as governments aim to fulfill universal service obligations" as well as demand for HD.

Hussein Oteifa, Senior Regional Director at SES sees oil and gas, representing a strong market segment for satellite in the region. He was quoted at the end of last year as saying "The trend towards enterprise resource planning on board rigs to support high data quality for long-term asset management and maintenance is also a key factor driving the demand for satcoms in this segment." Steve Collar, CEO of O3b also sees "strong demand from the Oil & Gas sector" however he feels that "their tolerance for delay and latency is reducing. Applications such as Enterprise Resource Planning (ERP)…simply don't function with a round trip latency of 600ms, typical of geostationary satellites". Since O3b is barely in service yet, it remains to be seen if he is correct.

Both Khalid and Steve see additional opportunities in the region arising from the Arab Spring and general political instability in the region. Although both have weakened overall growth in the short term as they both point out these have also created opportunities, as new infrastructure is needed.



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Es'hailsat like O3b is a new entrant into the Middle Eastern Market Place. The first satellite went into service on December 18th last year and the RFP for Es'hailsat 2 will be released shortly. Current plans call for six satellites in total. The venture aims to "provide independent high quality services to broadcasters and other stakeholders in Qatar, in the MENA region and beyond" according to al-Kuwari. The satellites are also part of Qatar's long-term vision to transition to a more balanced economy from one based almost solely on hydrocarbon. O3b's second set of four satellites which will double the capacity are due to be launched in May of this year. Steve is "excited about the capability that we will bring and the solutions that we can offer the MENA region" adding that O3b is already seeing "fantastic" results from customers.

ABS-2 was successfully launched at the beginning of February and will provide Ka and Ku services to the Middle East and Africa. Later this year Eutelsat will launch Eutelsat 3-B which will have C, Ku and Ka-Bands and cover the Middle East and Africa. In 2015 Eutelsat 8 will be launched into 8° W joining Eutelsat 7 to provide DTH service to the region. Also scheduled for 2015 launches are SES-9, Badr-7 from Arabsat and Jabiru-1, a Ka-Band satellite from NewSat. Arabsat are working on a 6th generation program which includes four new satellites. The RFPs are due to be issued in the next few weeks.

Opinion is divided as to whether all these launches will lead to over capacity. Es'hailsat remains optimistic, Khalid is more cautious "the biggest challenge is the growing number

Satellite Industry Gets 'Gold" for Olympic Coverage from SIA

From live satellite television broadcasts to environmental monitoring, the satellite industry played a huge role during recent XXII Winter Olympic Games held in Sochi, Russia. More than 11,000 media representatives and 90 broadcasters from 123 countries covered the 18 different sports and 98 Olympic events. Commercial communications satellites carried television and media coverage from the Games to a global audience of 3 billion people, according to the Satellite Industry Association (SIA).

Commercial satellite operators SES, Intelsat, Eutelsat, and Telesat, among others, provided satellite connectivity to broadcasters and news organizations so they may transmit live video content of the events as they happen to locations around the world. NBC Olympics, the U.S. rights holder for Olympic programming, relied on SES satellite capacity during its 1,500 hours of live coverage of the 2014 Olympic Winter Games. TV channels and service providers have also booked almost 5000 hours of satellite transmissions from Eutelsat Communications to bring around-the-clock coverage to viewers throughout Europe.

Communications satellites have been transmitting coverage of the Olympic Games since 1964, when the very first commercial geostationary satellite, Syncom 3, beamed the world's first live color television broadcast of the Tokyo Olympic Games Opening Ceremonies back to the U.S. Every Olympiad since has relied on communications satellites to broadcast the Olympics to an audience that now totals billions of viewers around the world.

Satellite technology played a vital role in bringing images like this of the spectacular opening ceremonies of the Winter Olympics in Sochi to over 3 Billion people worldwide.

Satellites orbiting the earth will provide additional coordination, logistics and security support for the Sochi Winter Games, beyond carrying media coverage of the events. Past Games organizers, broadcasters, security personnel and emergency first responders, have relied on satellite telephones and satellite data terminals provided by companies such as Iridium and Inmarsat for telephone and broadband connectivity throughout the Olympic site.

Satellite imagery of the Winter Games venue provided Olympic organizers with high-resolution photography in and around Sochi to enhance security, forecast weather conditions and track the environmental impact before, during and after the Olympics. U.S. satellite remote sensing company, DigitalGlobe, captured high resolution imagery of the Olympic venues from space daily throughout the Games, and provided its collected imagery to customers for security planning, logistics, risk assessment, and monitoring of staging areas, as well as emergency response and disaster recovery.

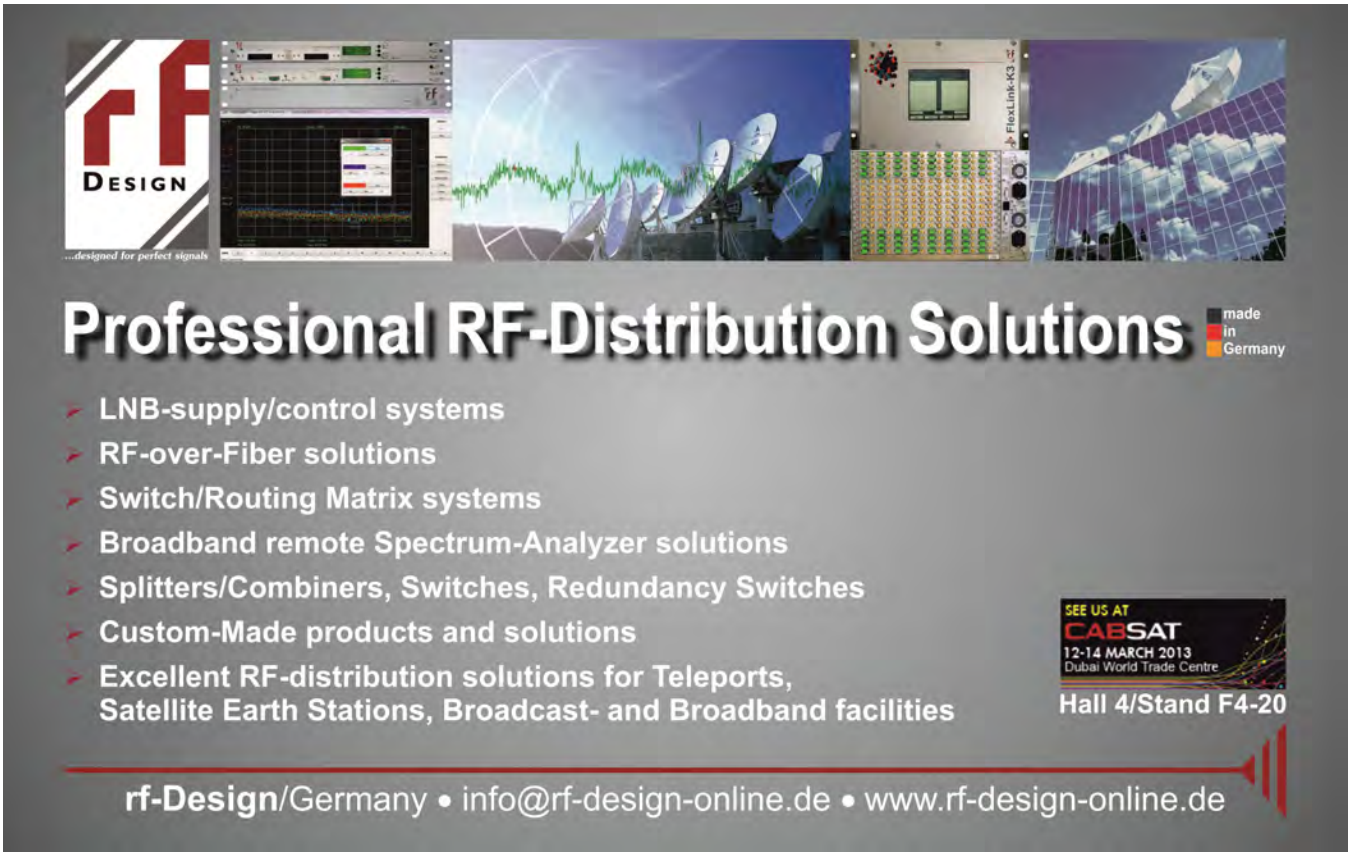
In addition, Russian imagery satellites have been taking pictures of the Olympic development sites and surrounding areas for two years ahead of the 2014 Winter Games to help reduce the impact on natural habitats during construction of the various venues.

of Ka/HTS satellites for telecom services over the coming five years. We can see so many projects based on expectations and statistics that may not realize. Also we see some pressure on the African C-Band market due to the entrance of some new satellite operators who are dumping the prices and creating price wars." In Ka-Band Jabiru is reportedly already selling below market rates in an (apparently successful) attempt to pre-sell capacity.

Obviously with so many players in a region there is fierce competition…but there is also cooperation and partnerships are becoming more common. Es'hailsat-1 is jointly owned with Eutelsat and Arabsat and Es'hailsat have a cooperation agreement for Es'hailsat-2 which allows Es'hailsat to use 500MHz of Arabsat's spectrum. This will strengthen the TV hotspot at 26° already occupied by Arabsat's Badr satellites and Es'hailsat-1. Arabsat is also a partner in My-HD. Jabiru-1 will be using an orbital slot belonging to Measat and there is cross purchasing agreement between the two companies. Measat also leased an orbital slot to Azercosmos-1 and purchased capacity on the satellite to serve Africa. Eutelsat has a strategic partnership with Afghanistan to provide communications to the country, the Middle East and parts of Asia by moving an existing satellite, which will now be known as Afghansat 1 to 48°E. The satellite is scheduled to commence operations in February and will provide broadcast, cellular backhaul and IP connectivity. Eutelsat and the Afghan Ministry for Information, Communications and Technology have also agreed to explore further means for long-term cooperation. SIS Live has aggressive growth plans for the region and intends to work with local partners to achieve this.

With so many satellites and operators vying for a piece of this market partnerships and cooperation may be the only successful way forward. Khalid sums it up when he says "the old supplier / customer model is no longer valid if you are after a sustainable economical value. I have always emphasized the importance of partnerships". With four new satellites on the books it will be interesting to see who Arabsat partners with next.

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



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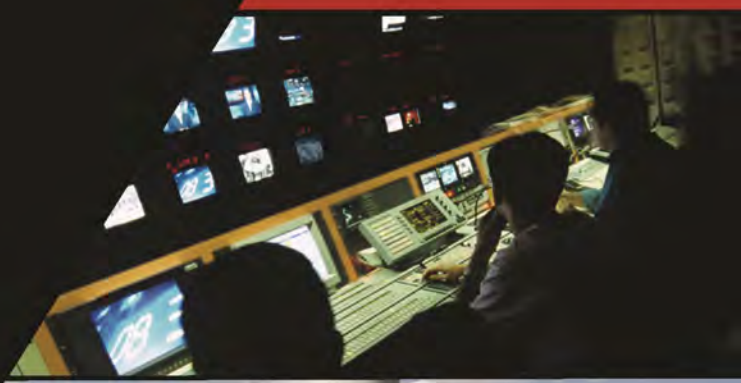

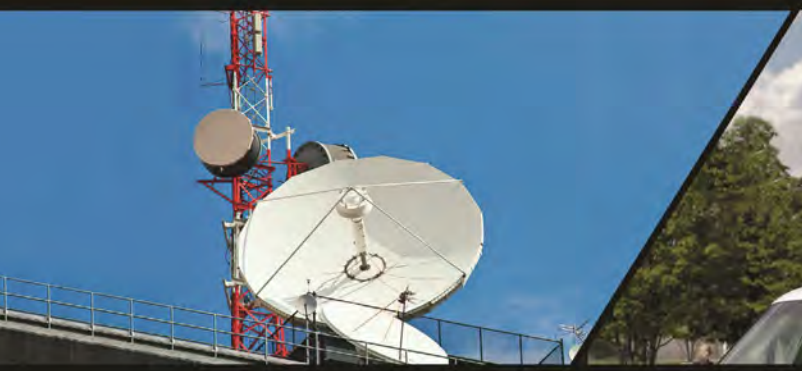

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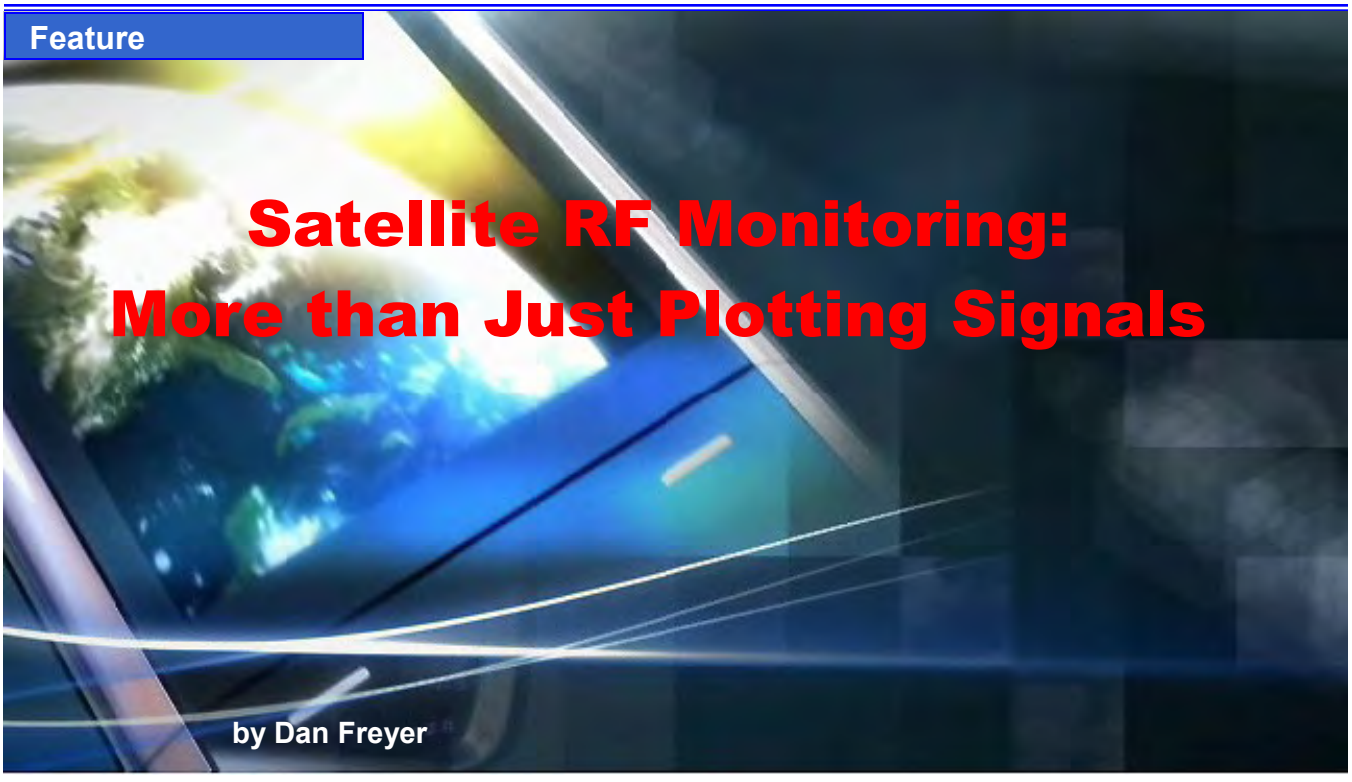

Satellite RF Monitoring: More than Just Plotting Signals

by Dan Freyer

Years ago, spectrum analysis equipment from vendors like Hewlett Packard costing up to tens of thousands of dollars each sat in earth stations and satellite control centers. There, operators and engineers tweaked knobs and pushed buttons to print thermal paper snapshots of the signals in order to check signal parameters, seek uplink authorizations, or try to get interfering neighboring or cross-pol carriers to turn down. Today's RF carrier monitoring equipment employs powerful processing systems, with sweep times as fast as 200 x per second, real-time viewing, and the ability to record years of 24x7 activity and data for analysis. Handheld devices, and smart phone apps help installers set up VSAT transmit sites in rapid time. And that's a good thing, because radio frequency interference (RFI) continues to be a vexing issue for satellite operators and users.

Riding Industry Growth

With broadband two-way terminals available for under US$ 1,000 and as many as 100,000 new VSATs entering uplink service each year, plus no shortage of transportable, mobility and on-the-pause uplinks adding video and data signals around the world, the tasks of satellite carrier monitoring continues to expand. The Satellite Industry Association data estimated that over 6,000 HDTV channels alone were distributed via satellite in 2013, all of which need to be watched 24/7/365.

One source estimated the breakout of demand for carrier monitoring products coming from satellite operators at over 50%, with teleports accounting for roughly 22%, while broadcasters and others yield another 25%. The market landscape includes spectrum analysis hardware manufacturers, such as Agilent, Tektronix, Anritsu, as well as monitoring software solutions and providers such as Skylink Technology, Crystal Solutions, INTEGRASYS S.A., SAT Corporation, Glowlink, and Intorel (Luxembourg), among others (see list of companies on page 15).

The Spectrum of User Types

"Carrier Monitoring is a very specific market, where the typical customers are satellite operators, teleports, governments and the broadcast industry," says Alvaro Sanchez, sales manager for INTEGRASYS S.A., (www.integrasys-sa.com) privately owned software development, engineering and integration company that provides satellite monitoring products.

"The market is determined by applications where high reliability is an issue, and any drop-outs of signals are costly to the operator," says Andrea F. Franz, PhD, Partner in A.G.Franz, LLC, Plainsboro, the N.J, USA-based consulting firm that distributes products in North America for Narda Test Solutions, the German subsidiary of L-3 Communications. "Any U.S. teleport could benefit from a high-quality monitoring device, such as the Narda Remote Spectrum Analyzer products, as well as SNG and VSAT sites."

"Satellite operators are getting extremely price-sensitive, while content providers are more willing to invest in high quality equipment," according to Franz. Among the suppliers of spectrum monitoring systems primarily targeting satellite users rather than operators is Crystal Solutions (www.crystalcc.com), whose products are used by major U.S. broadcast networks. Roger Franklin, President & CEO of the Duluth, Georgia, USA based company, estimates that the number of satellite transponders allocated to video offers a proxy for the potential number of carriers that need to be monitored in markets segments it tar-

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gets with solutions. But he concedes that the potential applications for carrier monitoring is much larger. "We also have customers that use the core software to monitor narrowband audio or data carriers. They can look at a few kHz of spectrum to see if there's power within a certain frequency and power level range. The military uses a lot of those types of carriers, so for example, we have on a customer monitoring over 200 carriers for the US Navy."

Multi-Tasking Analizers

"Customers want to be able to monitor multiple transponders simultaneously, and to have the spectrum analyzers integrated into either an existing monitoring system or be offered a monitoring software package from providers such as Crystal Solutions, or Skylink Technology," according to Franz. She likes the Narda Remote Analyzer (NRA) line because they can be very easily integrated, and A.G. Franz has several partners who have integrated it into their commercial monitoring software.

"…The market is determined by applications where high reliability is an issue, and any drop-outs of signals are costly to the operator…"

-Dr. Andrea F. Franz
A.G.Franz, LLC

"Spectrum analyzers normally tune to a fixed bandwidth, normally between 1 MHz to 100 MHz and stay locked on that. "We provide a very cost effective means to monitor multiple carriers across multiple bandwidth segments using a very small number of spectrum analyzers, so customers can monitor up to 10 different carriers with a single analyzer," says Franklin.

VSAT and Data

VSAT and data carrier monitoring is a unique segment. With VSAT signals coming up and down quickly, it is technically challenging for some systems to monitor them. But suppliers see healthy demand from VSAT users on the commissioning side. VSAT installs present many challenges such as installer coordination with a NOC while without cell phone service, limited time available, interference, and language differences in multi-national networks. "The trend is either to go to low-cost, quick-check monitoring equipment for line-up with satellites, or to have very sophisticated monitoring equipment. The Narda Remote Analyzer is right in between, quite sophisticated without the typical price-tag," says Franz, who notes that the NRA now offers real-time stream / spectrum analysis using more than 600,000 samples.

Attention: Video Uplinkers

FCC Mandated Carrier ID Coming to a Trade Show Near You: Cabsat and Satellite 2014

Throughout 2014, the Satellite Interference Reduction Group (IRG), an industry organization, will be hosting a series of Carrier ID (CID) tours.

The tours kicks off at Cabsat 2014 in Dubai and at SATELLITE 2014 in Washington, D.C. from March 10-13, where participants will have the chance to meet companies involved in transmission, detection, and resolution areas, and the chance to learn more about the solutions and processes for reducing satellite interference. The tours will help demonstrate the CID process, walking participants through the three main stages: Transmission, Detection and Resolution. Participants will meet the companies involved in all three areas, as well as learning more about the solutions and processes for reducing satellite interference.

The tour will end looking at how issues can be resolved thanks to CID. This part is handled by the satellite operator, using the CID Database provided by the Space Data Association, which is currently being created by AGI. Satellite operators in the tour include ArabSat, Eutelsat, Inmarsat, Intelsat, SatMex and SES.

IRG will also be supporting the GVF Interference Prevention Summit at CabSat and co-hosting an Interference Prevention Summit with GVF at Satellite 2014. For further information or to register, email angie.mar@gvf.org

"We are seeing new customer demand from satellite service providers looking for new systems that can help with VSAT deployment. From our experience, the fastest growing application is solutions for VSAT line ups. Specifically, VSAT auto-commissioning products is the most dynamic segment," says Sanchez.

As a result, INTEGRASYS has invested in several years of development in order to create a very effective auto-commissioning system that allows VSAT installers to commission remotes rapidly, while minimum Cross Pol and Adjacent Satellite Interference, according to the company. A smart phone app receives line-up information from a Carrier Monitoring system, says Sanchez. VSAT hardware and software provider iDirect the VSAT is commercializing the INTEGRASYS system for its platforms. There is a need for realtime monitoring systems. "Obviously, speed is highly important to users, who require a fast response with professional systems. Another trend is com-

Making Products that are Easy-to-Use, Faster, More Reliable and Cost-Efficient

INTEGRASYS (www.integrasys-sa.com) focuses on distinguishing its products by their ease-of-use, intuitive user interfaces, and speed of measurement. Capable of taking 200 measurements per second, INTEGRASYS is up to 10 times faster than competing products, according to the company. "The company is focused efforts on making a system that is much faster, much easy to use, much more reliable, and cost efficient than other option in the market," says Sanchez.

INTEGRASYS' Satmotion line up system

ControlSat allows for measurement of virtually an unlimited number transponders, simultaneously. It generates alarms or warnings if parameters such as frequency, power, bandwidth, or C/N are out of limits. In addition to real-time signal measurement and monitoring of all parameters, it can record over a year of measurements, and generate reports with the measured information for reproduction and analysis. Ideal for reporting on service issues, interferences, and any type of variation on the signal caused by any phenomenon, its optional add-ons include Carrier Under Carrier Interference, Interference Regeneration and SNG or VSAT Remote Line-Up systems, Link Budget Calculation and Network Management.

VectorSat is the company's Carrier Under Carrier Interference and "hidden" interference Detection System, which allows operators detect, analyze, and zoom in on the interference "hiding" in a transponder. In order to perform measurement, **VectorSat** demodulates the signal and abstract traces with an extreme accuracy. It enables recording and later playback for post signal analysis, as well as a new capability to regenerate the interference signal for external analysis with **ControlSat**, either in real time or non real time.

Satmotion is INTEGRASYS' line up system for auto commissioning at VSAT installations or broadcasters lineups rapidly. It significantly reduces installation costs by minimizing work time and the potential for interference penalties with a fully controlled and secure method that is available on a laptop or tablet, requires no cell connection, and support multiple simultaneous users.

CalSat, "the fastest calibration method for Carrier Monitoring," lets an operator calibrate 200 frequency points in just two seconds, offering users big advantages in cost, speed, and extreme accuracy in calibrating measurements.

GeoBeam allows an operator to analyze Link Budget Calculations in order to select a given bandwidth, power, and transponder resource, based on the beam, location and satellites, and provides a complete calculation report. The product's easy interface simplifies complex Link budget calculations to the maximum extent. GeoBeam also includes a tool for beam design based on the ITU standards.

bining monitoring and Link budget calculation software," says Sanchez, "because it allows you to check that the calculated values are transmitted correctly at the desired transponders."

HTS and Ka-Band VSATs

One monitoring technical challenge from the growth of HTS Ka-Band systems is they can have very wide transponders, with beams, for instance from 500-1500 MHz, compared to traditional 36-72 MHz C/Ku-band systems. According to Agilent's Richard Overdorf, "More work is going into Ka band," because bandwidths are expanding in some systems. The combination of wider bandwidths and higher frequencies makes testing more difficult."

With the growth in Ku and Ka-Band services, power control becomes extremely important for weather considerations. With the use of uplink

Companies cited in this article exhibiting at Satellite 2014:

Agilent Technologies, Inc. Booth # 3034
www.agilent.com/find/satellites

Anritsu Company Booth # 2091
www.anritsu.com

Crystal Solutions Booth # 8064
www.crystalcc.com

Glowlink CommunicationsTechnology, Inc. Booth # 4055
www.glowlink.com

Integrasys, S.A. Booth # 9127
www.integrasys-sa.com

Narda Test Solutions @ the A.G. Franz booth # 5120
www.narda-sts.de

Siemens Convergence Creators Booth # 6114
www.siemens.com/siecams

Additional companies involved with carrier and satellite monitoring systems include: **Amphinicy Technologies** (www.amphinicy.com) Applied Instruments, Inc., dBM Corp. and SAT Corporation.

power control (UPLC) systems, comes the need also for a monitoring system to validate that the uplink power control was properly managed. Recorded monitoring data can be correlated with weather data to determine the cause of real outages that may have been the cause of weather events.

"In our view, instead of using spectrum analyzers, the VSAT hubs are going to need to get more intelligent," says Crystal's Franklin, "so that they can look at typical transmission levels for individual remote sites, and correlate that data with weather patterns, so the hub can tell if the performance of a particular remote has degraded over time."

Weather Outage Impact Prevention

Today, weather event-driven diversity switch decisions can be made last-minute at a facility, based on weather readings. Some facilities may have a harder time switching to backup links on five minutes warning, for instance. The ability to look at historical spectrum monitoring data and correlate it with other data may become increasingly important as the industry evolves. "There will be a day fairly soon when customers will want to correlate atmospheric interference being detected in nearby weather, so that diversity system switches can be made *before* an outage. If the data is available historically so that you can plan how much time you have to go off the air, it could prove very helpful. I think that will be a future requirement we'll see out of our customers," says Crystal Solutions' Franklin.

Interference Detection

Perhaps the hottest area in monitoring is interference detection and reduction. When you pay tens or hundreds of thousands of dollars a month for satellite transponder capacity, making sure you can run services interference-free is critical. As a buyer, if you do not monitor your own bandwidth, you are relying on a satellite operator's busy team to perceive interference for you. However well intentioned they are, they may not have all the insights into your network which you have that are needed to anticipate and address problems.

Narda Test Solution's Interference and Direction Analyzer

Unintentional or deliberate RF interference, illegal transmitters or interference between permitted radio signals can be difficult to detect if it only occurs sporadically or is hidden under conventional signals. Narda Safety Test Solutions has equipped the new IDA 2 with I/Q analysis functions in order to also detect and locate such signals. (photo courtesy of Narda Test Solutions)

"We are frequently also asked for the capability to be able to identify signals in order to identify the interference," says Franz, and to better address these needs A.G. Franz LLC has partnered with COMINT Consulting who are experts in the field of demodulation, decoding and parsing of RF signals. Richard Overdorf, application engineer, Microwave & Communications Division, Agilent Technologies, Inc., shares a similar view. "We see increased needs for troubleshooting and identifying interference in the environment," said Overdorf.

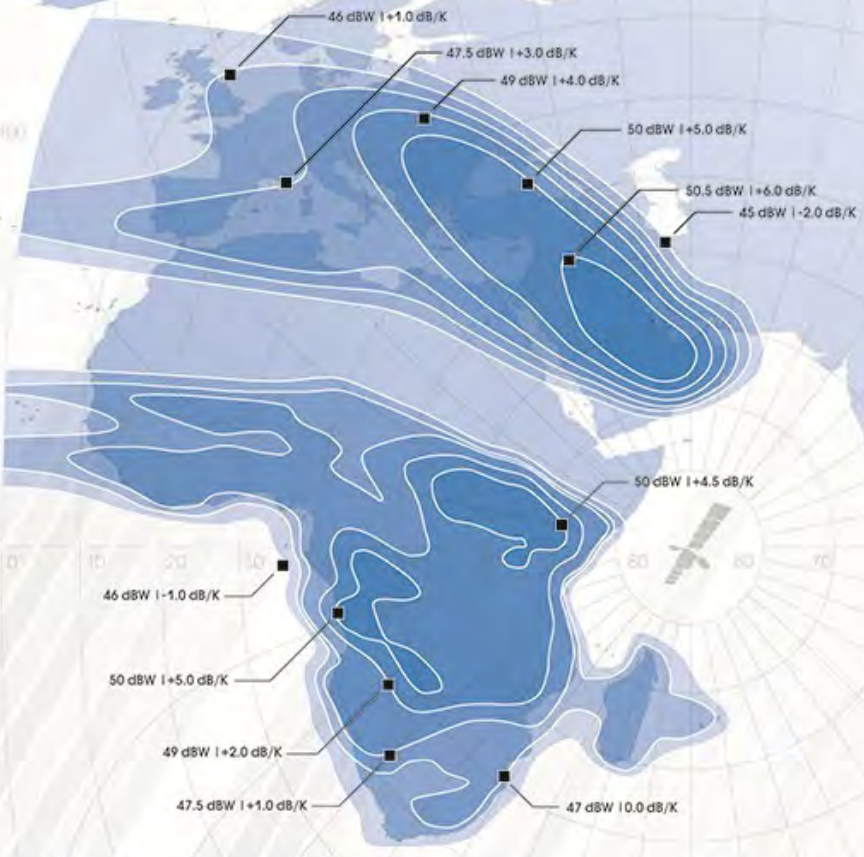
"Satellite users definitely want to have their own evidence of outside interference and these systems provide that evidence. Everybody wants to see the history," adds Franklin.

As digital signal processing (DSP) and storage performance has increased in power, extensive stream recording has become more cost-effective than ever. "Customers asked us to record the information so they can send it to operators of satellites to diagnose problems, and get problems resolved. Our systems provide information so operators can get information to their management chains. So our system provides information they can do something with or to see if was beyond their control," said Franklin.

Carrier ID for Video

In the USA, starting June 2015, video uplinkers will need to have the correct Carrier ID (CID) in video carriers, ac-

YAMAL-402
SATELLITE



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
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cording to FCC rules. The market is just implementing modulators with the new standard, which was only approved in late 2013. SNG trucks will have to comply as well. Video monitoring systems will need to detect and validate the CID data.

The new rules are the culmination of efforts by the Satellite Interference Reduction Group (IRG), which has been spearheading interference reduction efforts for the industry. Roger Franklin serves as Chairman of the IRG's Carrier ID (SCPC) working group, which is focused on introducing Carrier ID technology by fostering industry support and involvement from equipment manufacturers to build the spec into their gear, and on convincing broadcasters to upgrade to CID-compliant gear in their facilities "Having a way to detect and verify and validate carrier IDs is going to be important now that the FCC has mandated it, and Crystal is working on systems to make that possible in the US." INTEGRASYS is also involved. "We are developing Carrier ID analysis and working with the IRG on this goal too," says Sanchez.

Latest and Greatest

Joining many in the industry who head to Washington, DC from March 10-13 for SATELLITE 2014, technology suppliers involved in the development of Carrier ID solutions will be demonstrating its application **(See sidebar "Attention Uplinkers"),** as over a dozen companies involved in pushing forward the critical art and science of satellite RF signal monitoring showcase their latest product enhancements.

Perhaps less frequently promoted than other ground system elements, monitoring systems nevertheless remain an essential ingredient to the continued vibrancy and success of the satellite communications industry, and continue to push performance to meet customer demands.

Dan Freyer, President of ***AdWavez Marketing*** (www.AdWavez.com), a marcoms agency uniquely focused on serving the satellite industry. He has over 20 years of experience in the satellite industry helping leading satellite manufacturers, satellite operators, service providers and technology suppliers grow new customer segments. He can be reached at dan@adwavez.com.

'Go Big or Go Home'

by Robert Bell

If you ask me, the current entrepreneurial rah-rah business culture is for the birds.

If I never read about another billion-dollar company that has never produced anything but losses, or another admonition to "go big or go home," I will be a happier man.

Isn't there more to life – more even to a definition of business success – than driving for growth at all costs? Certainly there is.

But this year's SATELLITE show is a good opportunity to celebrate something that the satellite-centric communications business doesn't do very often, frankly, which is to grow fast. This has traditionally been more of a steady-as-she-goes business, which private equity likes to invest in because of its juicy backlog and steady cash flow. If you want fast growth, you look to WhatsApp, with its 450 million subscribers after only five years in business.

But if this business is going to fulfill its potential, it needs to have high-growth companies. That's what makes a vibrant business ecosystem. We need to offer young companies the opportunity to build attractive businesses that much larger, fast-growth competitors will want to buy, as Facebook splurged on WhatsApp.

Fortunately, a few operators of ground-based businesses have found ways to grow significantly in relatively short periods of time by raising funds for ambitious development, acquiring businesses and building a global footprint. On March 10, the World Teleport Association will bring some of them together for a member workshop titled "Go Big or Go Home: Big Companies, Small Companies and the Race for Scale."

We will hear from John Stone, partner in Near Earth, about the current state of play in mergers and acquisitions in the hybrid satellite/terrestrial B2B communications business.

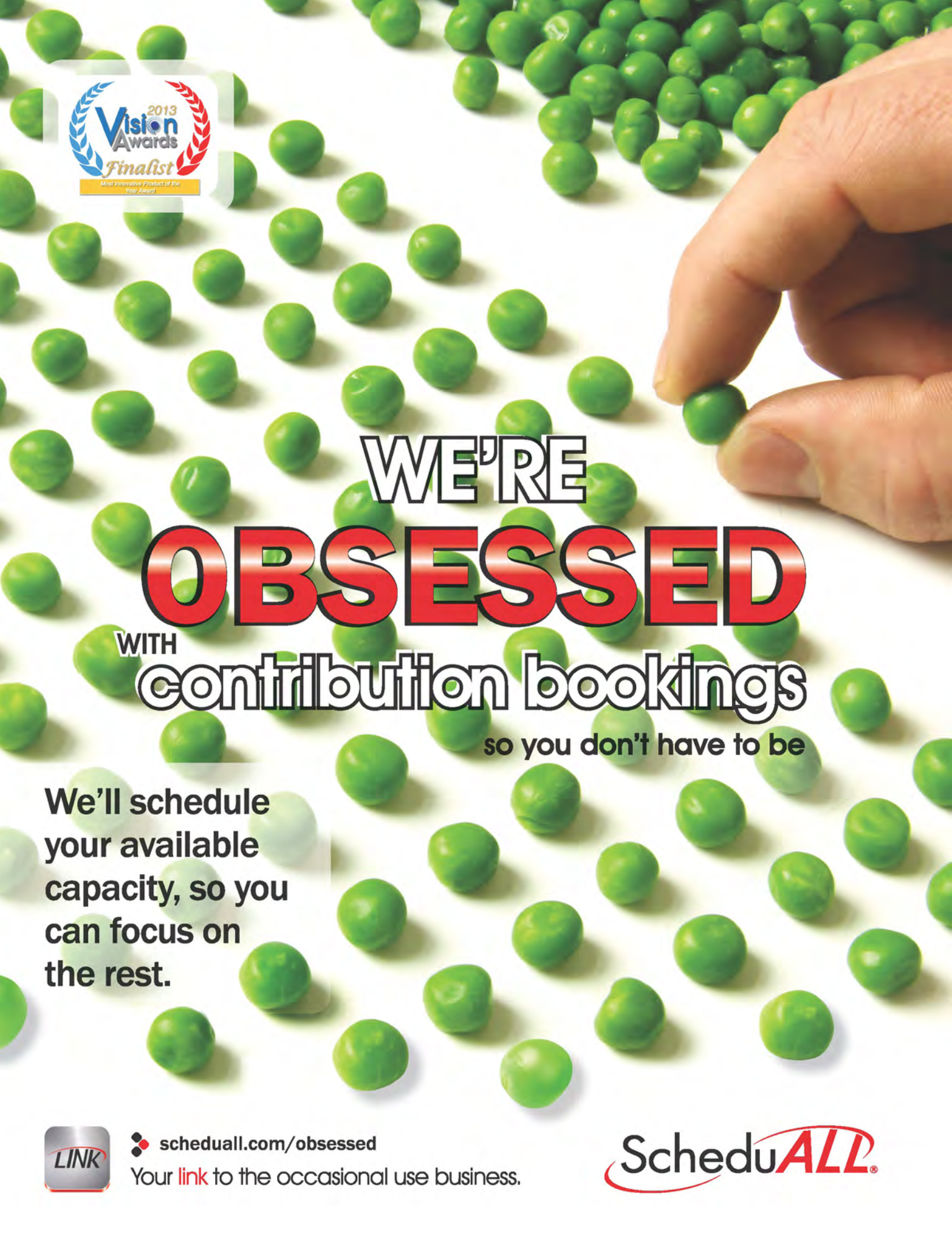
"...if this business is going to fulfill its potential, it needs to have high-growth companies. That's what makes a vibrant business ecosystem..."

A panel of CEOs from once-small companies like Encompass Digital Media and Arqiva Broadcast & Media will grapple with the fact that growth through acquisition has a very mixed record in the teleport sector, with some spectacular failures in the Nineties and early 2000s, but a different story apparently playing out today. What are the differences between then and now? What does it take to go big, and does it produce the kind of returns that can continue to fuel growth?

But the floor is not given over just to the big companies in the business. Because strong technology markets provide opportunities for company founders to cash out of their companies, we will talk to teleport entrepreneurs about the options and opportunities for acquiring or being acquired, and the rewards and pitfalls of the acquisition story.

It will be a one-of-a-kind event in our business: the untold stories of how fast-growth companies succeed in an industry where organic growth has been the norm. I'll be writing more about what we learn in future issues.

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

by J. Armand Musey

Intelsat went public in April 2013, partially based on the expectation on page 2 of their F-1 IPO fling that after several years of slow growth Intelsat was "well positioned to experience growth in free cash flow in the near future." One of the four factors that would drive this growth was "Our [Intelsat's] US$ 3.7 billion fleet investment program that began in 2008 was substantially complete by the end of 2012, enhancing our future revenue potential." Since it's IPO, management of this heavily leveraged company has deftly exploited the strong bond markets to lower debt service and further reduce operating expenses. It would appear Intelsat is delivering on its promise to pay-down debt and increase the value of its equity. Intelsat's Q4 results, while in-line with guidance, put the final nail in the coffin of any hope that its pre IPO expectations of near-term free cash flow growth will materialize.

"...Since its IPO, management of this heavily leveraged company has deftly exploited the strong bond markets to lower debt service and further reduce operating expenses. It would appear Intelsat is delivering on its promise to pay-down debt and increase the value of its equity..."

Investors have been skeptical of Intelsat – its stock is up only 7.27% from its April 2013 IPO, compared to 34.65% for the NASDAQ and 19.11% for the S&P500. Intelsat's Q4 results not only dashed hope for near-term growth, but they unveiled new concerns about revenue and backlog decline. This makes the company long-term success increasingly dependent on the success of the upcoming Epic satellites to offset the declines and allow them to service their debt over the long run.

Intelsat's revenue was slightly down year over year– US$ 2,604 million vs. US$ 2,610 million for 2012. Granted that US sequestration process has taken its toll, as has pricing pressure in Africa. Guidance for 2014 was even lower – US$ 2,450 to US$ 2,500 million. At the midpoint, that is an additional 5.7% decline in revenue. According to its IPO prospectus, Intelsat typically has 82% of its revenue in backlog at the start of the year, so it only needs to sell 18% to make its year. To have a nearly 6% decline in revenue when 82% of revenue is in backlog, suggests a much larger projected decline in sales activity during 2014 – perhaps as much as 30%. Obviously, if sales productivity falls 30% revenue will eventually fall 30% as the company works through its backlog. Moreover, management made it clear that it lacked growth potential with it current satellite fleet – the same fleet that less than a year ago was touted as an engine of growth! Instead, investors will need to wait until 2016 for the new Epic satellites for any hope of growth. The question is whether the company can wait that long and what happens if the promised growth from Epic does not materialize.

A 30% revenue decline would be problematic for Intelsat given its debt load. At US$ 2,604 million in revenue Intelsat generated US$ 2,032 million in EBITDA. Assuming a similar 78% EBITDA margin, at the midpoint of revenue guidance, that will be US$ 1,915 in EBITDA in 2014. According to management, the company has approximately US$ 950 million in debt service, US$ 525 million in capex and about US$ 75 to $100 million in other expenses. This leaves approximately US$ 450 million in cash flow for debt service and other expenses for 2013 and US$ 339 for 2014. This is consistent with management guidance that the company intends to pay down about US$ 400 million of its US$ 15.3 billion in debt during 2014, but some of that will come through reductions in its current US$ 250 million cash balance.

Intelsat's cash flow seems comfortable on the surface, but we note that it has over 50 satellites. Assuming a 15-year average life, they need to launch approximately three satellites a year to replace each of these revenue-generating assets. This costs far more than US$ 525 million, most likely around US$ 900 million (Note: depreciation was $736 million in 2013, but satellite costs have increased, moreover capex guidance over the next three years is considerably higher, ranging form US$ 575M to US$ 850M per year), putting Intelsat dangerously close to cash flow break-even. Moreover, we understand that Intelsat does not carry in-orbit insurance for it satellites. Industry history suggests geostationary satellites fail at a rate of approximately 1% a year. Intelsat generates, on average, about $60 million in revenue a year from these satellites that require approximately three to four years to build and launch. Thus one or two satellite failures could cause problems for Intelsat's ability to service its debt. Additionally, as the Epic satellites launch, Intelsat will begin recognizing its prepaid deferred revenue, which currently stands at US$ 888 million, but based on management guidance is likely to total between

US$ 1.0 and US$ 1.1 billion by the end of 2015. This revenue, which management suggests is amortized over the life of the satellite, or about US$ 70 million per year, will not generate any additional cash, lowering its cash EBITDA by that amount absent an increase in revenue. Moreover, those customers who prepaid year in advance, likely received large volumes of capacity at deep discounts. This could, "flood the market" to an extent and make it difficult for Intelsat to sell at full price. As a result of these risks, Intelsat is heavily dependent on its bet that the Epic system will allow them to lower their long-term capex and increase their revenue.

The first of the Intelsat high throughput EPIC satellites, Intelsat 29e, will be launched in 2015. Four other new satellites, all using the Boeing 702MP satellite bus, will be launched on average once per year starting in 2016 and will be replacing existing spacecraft in Intelsat's 50-satellite fleet.(image courtesy of Boeing)

Intelsat's problems are compounded by declining backlog. Yearend backlog is down from US$ 10.7 billion at the end of 2012 to US$ 10.1 billion at the end of 2013. Backlog has been trending down quarter over quarter during the past four quarters. The curious issue is that the company was able to come very close to 2012 revenue despite the backlog decline. This suggests the company was able to get to its 2013 revenue via sales contracts of shorter duration. In fact, the decline in backlog suggest the total value of sales made in 2013 was US$ 600 million lower than their 2013 revenue, a decline of about 25%. However, management was clear that it was the short-term government business that took the greatest hit in 2013. So why did backlog decline? We can only surmise that the company signed a disproportionate amount of shorter-term network services business as opposed to longer-term media contracts with large media organizations. Network business is generally less attractive due to both its shorter duration and the fact that network service customers are typically smaller and are higher credit risks. This may also explain the spike in bad credit, from US$ 8 million US$ 30 million. The additional problem with declining backlog is that it lowers the revenue visibility of the company. It's this visibility, along with strong credit markets, that have allowed Intelsat to borrow at attractive rates. A continued backing decline threatens its ability to borrow at low rates as debt becomes due over the next several years.

Competition is also increasing. O3B recently launched service, and other high throughput satellite (HTS) will be following closely in 2014 and 2015. These HTS satellites have several times the capacity of current satellite. They will likely drive pricing down for point-to-point network applications that constitute approximately 60% of Intelsat's revenue. But Intelsat will likely benefit from increased revenue on its next generation Epic satellites that should offset this loss and may even increase Intelsat's revenue. However, new entrants, including ABS and NewSat are also launching HTS satellites. They are new operators, and unlike Intelsat, can reduce pricing without risking revenue on their legacy lower through-put satellites. At the same time, the march of fiber deployment is continuing in Africa. Demand and margin erosion is likely to continue and even accelerate. The net impact of the above issues is that changes in market dynamics have largely offset Intelsat's progress on cost-cutting and debt refinancing.

It's still not out of the woods yet.

J. Armand Musey is the president and founder of Summit Ridge Group LLC (www.summitridgegroup.com). Armand specializes in the satellite, media and telecommunications industries. He has a unique blend of 16 years of equity research, investment banking and consulting experience. He can be reached at: amusey@summitridgegroup.com

Canada Unveils New Space Policy

A new plan outlines five key principles that will guide Canada's space program's priorities

Ottawa, Canada, Feb. 7, 2014--Canadian Industry Minister James Moore unveiled a new plan to develop the country's space industry, in a bid to safeguard Canada's "sovereignty, security and prosperity." Moore said Canada's Space Policy Framework will serve as a guideline for the country's strategic space activities, and ensure the commercial competitiveness of the Canadian space industry in the future.

The framework noted that "space has become a new frontier not only for science but for commerce," as global satellite industry revenues has exceeded CDN$ 190 billion (approximately US$ 172 billion) annually.

Every G20 nation now has its own satellite system in space, and the emerging economies have made substantial investments in their national space programs," according to the new framework , adding that this will bring greater competition for the Canadian space industry as it courts new markets and customers.

"Canada's space industry asked for a change, and we recognize the essential role that our space industry plays in keeping Canada's economy on the right track and in maintaining our position as a global leader in space," said Moore.

The plan identifies five key principles that will guide the Canadian space program's priorities in the future:

1. Protecting Canadian sovereignty and security as part of the government's "Canada First" policy;

2. Using space to strengthen the economy through a strong and competitive Canadian space industry;

3. Working with global partners to continue Canadian participation in major space projects such as the ISS;

4. Promoting Canadian innovation through our proven leadership in developing technologies such as robotics (Canadarm2) and optics (James Webb Telescope); and

5. Inspiring the next generation to continue building the Canadian legacy in space through involvement in the space program, industry and related fields.

"A long-term strategic plan for Canada's space program is critical for our industry. In order to effectively invest in innovation, technology and product development, we rely heavily on knowing what the government's priorities for the space program are," said Jim Quick, President and CEO of the Aerospace Industries Association of Canada (AIAC). "We are very pleased that the government has released the Space Policy Framework, and we applaud Minister Moore and his colleagues for recognizing the importance of Canadian innovation and industry as we continue to build on our nation's proud heritage in space," he added.

Canada-based satellite operator Telesat welcomed the new framework. "Telesat applauds the Government of Canada and Minister Moore for undertaking an inclusive, transparent and pragmatic review of Canada's space policy," said Dan Goldberg, Telesat's President and CEO. "The new Space Policy Framework properly takes into account the world class capabilities of the Canadian space industry and the important role it plays in job creation, economic growth and the enhancement of Canada's sovereignty and security. By relying on the private sector to the maximum extent possible to provide the space-related services and equipment that it needs, the Government will not only advance these important objectives, it will save money for Canadian taxpayers," he added.

"...The new Space Policy Framework properly takes into account the world class capabilities of the Canadian space industry and the important role it plays in job creation, economic growth and the enhancement of Canada's sovereignty and security..."

—Dan Goldberg, CEO, Telesat

According to Canadian Space Agency, the country's space sector generated total revenues of CDN 3.327 billion (US$ 3 billion) in 2012, and have increased by CDN$ 533 million (US$ 483 million) over the last five years.

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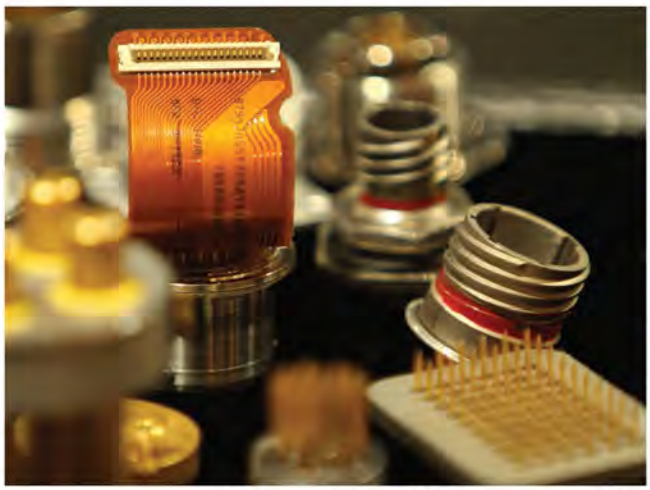

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KEY TOPICS INCLUDE HOSTED PAYLOADS, SMALLSATS AND ALL-ELECTRIC SATELLITES.

Hear expert insights from:

Col. Scott Beidleman, Director, Development Planning, **SMC/US Air Force**

Rich Pang, Senior Director, Hosted Payloads, **SES Government Solutions**

Andrew Santangelo, Small Sat Technical Committee Chair, **AIAA**

Skot Butler, Vice President, Satellite Networks & Space Services, **Intelsat**

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Products and Services Market*Place*

A guide to key products and services to be showcased at CABSAT 2014 in Dubai, UAE and SATELLITE 2014 in Washington, D.C. from March 11-13, 2014.

ABS
@ CABSAT Hall 1 F1-20
www.absatellite.net

At Cabsat and Satellite 2014, **ABS** will be showcasing its newly launched satellite ABS-2. ABS-2 is a commercial communication satellite built by Space Systems/Loral (SSL). Weighing more than 6,000 Kilograms, the satellite uses two 5-panel solar arrays to deliver more than 15kW of power.

ABS-2 is a highly sophisticated multi-mission satellite, equipped with a communication payload of 32 C, 51 Ku and 6 Ka-band transponders (a total of 89 active transponders) across 10 different beams

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ABS-2 covers Eastern and Central Europe, Africa, the Middle East, Asia Pacific, Russia and the CIS countries and has an operational life for at least 15 years.

Advantech Wireless
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www.advantechwireless.com

Advantech Wireless designs, manufactures and deploys networking for broadband connectivity, broadcast solutions, video contribution and distribution, mobile 2G, 3G, LTE backhaul and DTH & DTT video distribution, using satellite and terrestrial wireless communications. Our products include Next Generation VSAT Hubs and Terminals, World-leading GaN technology SSPAs, BUCs, Frequency Converters, High Speed Satellite Modems, Fixed and Deployable Antennas, Antenna Controllers, Terrestrial Microwave Radios, Routers and Ruggedized Products.

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ARABSAT
@ CABSAT Hall 1 D1-10
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Founded in 1976, Arabsat has been serving the growing needs of the Arab world for over 30 years. Now one of the world's top satellite operators and by far the leading satellite services provider in the Arab world, it carries over **450 TV channels**, **160 radio stations**, **4 Pay-TV networks** and wide variety of **HD channels** reaching tens of millions of homes in more than 80 countries across the Middle East, Africa and Europe—including an audience of over **170 million** viewers in the Middle East and North Africa (MENA) region alone tuned into Arabsat's video "hotspot" at 26° East.

Operating a growing fleet of owned satellites at the **20° East**, **26° East**, **30.5° East** and **39° East** positions of the geostationary orbit, ARABSAT is the only satellite operator in the MENA region offering the full spectrum of Broadcast, Telecommunications and Broadband services. This capacity will continue to expand with the launching of new satellites, making the ARABSAT satellites' fleet the youngest in the region.

ATCi
@SATELLITE booth no. 9007
www.atci.com

ATCi is a custom communications solutions provider specializing in commercial satellite communications systems and services including: the Simulsat multibeam, parabolic antennas, complete uplink systems/services, tele-

ports, cable television headend and plant components, test equipment and input matrix switches, as well as fiber optics components for corporate, broadcast, cable television, government and education.

AVL Technologies
@SATELLITE booth no. 8037
www.avltech.com

AvL Technologies' booth at SATELLITE 2014 will showcase our newest 2.4m Vehicle-Mount antenna for Military and SNG applications. This robust antenna features an AvL-unique three-piece carbon fiber reflector with motorized folding hinged "wings" (for automatic, compact stow width on mid-sized trucks), a high-stiffness azimuth bearing, our proprietary zero-backlash AvL Cable Drive, and a wide boom to allow for larger HPA envelopes. An optional "saddlebag" mounting option is also available for larger HPAs. The antenna stows to a remarkable 24" (61cm).

AvL will also show our newest 60cm and 1.2m Manual FlyAway antennas. These antennas are lightweight, compact, portable and robust with carbon fiber reflectors. Packed in rugged, lightweight cases, the 60cm antenna packs into a backpack that can be carried onto a commercial flight, and the 1.2m antenna is compact enough to check as air baggage.

Also on display will be AvL's new 1.0m Ka-band broadband antenna with a cowling. AvL's Ka-band broadband antenna family is noted for its versatile configurations, high reliability and cost-effective "go-to" solutions for mobile accessibility with High Throughput Satellites. AvL antennas are the industry benchmark of excellence for mobile broadband Internet access, SNG, Disaster Relief, Oil & Gas Data Backhaul, and Defense & Homeland Security solutions.

AVL's new 2.4 vehicle-mounted antenna

C-COM Satellite Systems Inc.
@SATELLITE booth no. 6041
www.c-comsat.com

C-COM Satellite Systems Inc. is a leader in the development and deployment of commercial grade mobile satellite-based technology for the delivery of two-way high-speed Internet, VoIP and Video services into vehicles. C-COM has developed a unique proprietary Mobile auto-deploying (iNetVu®) antenna that allows the delivery of high-speed satellite based Internet services into vehicles while stationary virtually anywhere where one can drive. The iNetVu® Mobile antennas have also been adapted to be airline checkable and easily transportable. The company's satellite-based products and services deliver high-quality, cost-effective solutions for both fixed and mobile applications throughout the world.

Comtech Xicom Technology
@CABSAT Hall 2 G2-31
@SATELLITE booth no. 7009
www.xicomtech.com

Comtech Xicom Technology provides a broad product line of KPAs, TWTAs, SSPAs and BUCs for worldwide satellite uplink covering C-, X-, Ku-, DBS-, Ka-, Q-band, Tri- and Multi-band with power levels from 8 to 3,550 watts and available in rack-mount and antenna-mount ODU packages. Xicom is showcasing a number of products including many of the new "Green Powered By Xicom Technology" designed amplifiers focusing on user cost savings including lower power consumption, reduced fuel and charging requirements.

Xicom representatives will be available for SATCOM providers and developers to discuss and obtain technical information on these and many additional amplifier products at the Comtech Xicom Technology at Cabsat and Satellite 2014.

Cobham SATCOM Land
@SATELLITE booth no. 7025
www.cobham.com/satcom

At Satellite 2014, **Cobham SATCOM Land** will be showcasing its new EXPLORER Mobile Net provides an ultra-portable solution for instantly deploying a cellular coverage area of up to seven kilometers for mobile phones and smart devices within minutes. Available in GSM, 3G or LTE, this tactical single-case cellular network solution allows people to stay in touch under the most challenging and demanding conditions by

Cobham's EXPLORER Mobile Net

providing instant local communications without backhaul, as well as enabling global interoperable voice, video and data communications when paired with one of Cobham's EXPLORER BGAN or VSAT satellite terminals. No other solution on the market offers the same range, size and functionality in such a cost-effective manner.

EM Solutions
@SATELLITE booth no. 6126
www.emsolutions.com.au

EM Solutions is recogniszd for manufacturing technologically superior microwave modules and systems for next generation broadband satcom and terrestrial communications at frequencies from L-band to Ka-band (1 to 40 GHz) and beyond (now building radios in E-band 71 to 86GHz). It strives to offer differentiated microwave products that embed its unique IP, and are available on demand.

EM Solutions Satcom on the Move Ka-Band system

Since 1998, the company has produced integrated RF modules used in low noise receivers and solid state high power transmitters for defence and commercial customers around the world. These sophisticated components form the core subsystems used primarily in microwave terrestrial and satellite links, or in other applications such as radar, radio-astronomy, and remote sensing.

EM Solutions customer base includes many of the world's largest systems integrators and telecommunications companies. The company offers system-level design checking and validation, and an RF performance guarantee. It is a Defence accredited supplier and is ISO-9001 certified.

Its most sophisticated and world-leading systems, such as its Ka-band satellite on the move terminal, Ku-band E1000 microwave radio link, are testament to the company's expertise in developing complex systems that also integrate multi-frequency antenna feeds, digital signal processing, filtering and demodulation, and firmware and mechanical control subsystems.

Gazprom Space Systems
@CABSAT Hall 1 E1-40
www.gazprom-spacesystems.ru

Gazprom Space Systems (formerly Gascom) is a private commercial, non-governmental satellite operator based in Russia. The main shareholder is Gazprom, one of the largest energy companies in the world. Gazprom Space Systems' orbital fleet consists of four satellites under the Yamal brand. Gazprom Space Systems' ground infrastructure consists of four teleports in the city of Moscow and in the surrounding Moscow region, which are connected to the main telecom backbones by means of fiber-optic lines. The company also has a wide network of earth stations across Russia.

In Russia Gazprom Space Systems is not only a satellite operator but also a service provider and system integrator. Within Russia, along with satellite capacity, it provides satellite services including satellite links, video distribution, Internet access and network development and management.

GlobeCast
@Cabsat Hall 2 E2-20
www.globecast.com

Globecast's end-to-end managed services for complete OTT content delivery will be on show at CABSAT. From content preparation to delivery, Globecast offers end-to-end solutions for OTT, including monetization tools, to help broadcasters make the most of their content. The company's service proposition removes the technical complexities associated with providing content to multiple platforms, in multiple formats, across multiple territories with associated rights issues from the broadcaster. Through a managed solution, broadcasters can deliver OTT services to market rapidly without having to make a capital outlay for hardware and software, keeping operating expenses under control and predictable.

GlobeCast is also providing a comprehensive demonstration of its highly evolved playout solutions for the fragmented modern world. Whereas it used to be broadcasters delivering content in the form of a linear channel to a single - or perhaps a small multiple - of handover points for onwards distribution to consumers, now that can be hundreds of handover points and a mixture of linear feeds and non-linear packages for catch-up and on demand. Globecast technical centers in London, Singapore and Miami offer a wide range of tailored broadcast management services - such as the graphical integration and regionalization of content – which broadcasters can take advantage of wherever they are in the world.

GlobecommSystems
@CABSAT Hall 2 A2-32
@SATELLITE booth no. 5061
www.globecomm.com

At Cabsat and Satellite, **Globecomm** will be highlighting

its Access Connectivity Services. When you are looking for connectivity, you need global reach, high quality and the ability to delivery data, video and voice anywhere under almost any conditions. To meet that need, Globecomm Global Network which consist of satellite and fiber connectivity, offers a wide range of services for voice, data, Internet and video that leverage our global transmission capacity and our network of data center, content management and switching facilities. Globecomm's Access services include:

Access Plus, a suite of transmission and network services for secure IP connectivity, VOIP and data communications worldwide

Access Maritime which offers ship owners, ship managers, officers and crew a single, powerful, cost-effective platform for communications worldwide.

Access Video, a complete video transmission solution supporting live broadcast-quality video contribution and distribution as well as file distribution and videoconferencing.

Hispasat/ Hispamar Satélites
@Cabsat Hall 4 E4-31
@Satellite booth no. 6083
www.hispasat.es

Covering all of the Americas, **Hispamar Satélites** – a **Hispasat Group** company – offers an extensive range of satellite communication services through the Amazonas 1 and Amazonas 2 satellites: IP, Broadcast, Corporate, Telecom, Government, Distance Learning, Telemedicine and Digital Signage.

Amazonas 1 and Amazonas 2 are two of the biggest and most powerful satellites serving the American Continent and operate collocated at 61º W offering both C- and Ku-band capacity, with immediate availability of high quality Ku -band capacity for North America. Its latest addition to its fleet is the Amazonas-3 satellite which includes nine Ka-Band spot beams—the first Ka-Band capacity made available for the Latin American market.

INTEGRASYS S.A.
@SATELLITE booth no. 9127
www.integrasys-sa.com

INTEGRASYS offers a wide range of **Satellite Carrier Monitoring and Interferences Detection Systems** operating in L, C, X, Ku and Ka frequency bands. INTEGRASYS was founded by HP spectrum analyzers experts on 1990, since then we have been established in Europe; now days we are also established in US covering worldwide Satellite Markets.

ControlSat is the Fastest Carrier Monitoring on the market, able to analysis with extreme accuracy 200 measurements in just one second; Recording, Alarms, Reporting and Unlimited Carrier measurement are included.

Satmotion Pocket is the Best VSAT LineUp and Auto-Commissioning System; it becomes an essential tool for big VSAT deployments providing an important cost reduction. Satmotion Pocket allows the installer to be independent minimizing Crosspol (XPOL) and Adjacent Satellite Interference (ASI) in real time and fully controlled; not coordination with NOC or HUB is required. Satmotion is also available a SNG version for Broadcasters LineUps.

VectorSat: Carrier Under Carrier Interference Detection and I/Q Demodulation. It allows the operator to Zoom and Analyzes in detail the Interference, Recording, Reporting and Reproducing this Interference, best system for reporting Jamming or unintentional interferences.

GeoBeam: Satellite Link Budget Analysis and Beam Design taking in to account the ITU standards, high resolution maps and very easy interface; it reports a complete and simple PDF file with all calculations.

Narda Test Solutions
@SATELLITE, go to A.G.Franz, LLC booth # 5120
www.agfranz.com/narda-satellite/

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

At the Satellite Show Narda's North American distributor A.G. Franz, LLC will be showcasing the **Narda Remote**

Narda Remote Spectrum Analyzer NRA 6000

Spectrum Analyzer NRA 6000. The NRA is a 1RU rack mountable, high speed, low-power fan-less test-equipment that can be easily integrated and remotely controlled in various monitoring systems. The wide bandwidth (9kHz-6 GHz) of the NRA-6000 enables the operator to simultaneously monitor a variety of signals with up to 600,000 samples per sweep.

The NRA-3000 variant is optimized for satellite signal interference monitoring and troubleshooting. The optional high-speed I/Q data streaming capability is ideally suited for signal identification and characterization

Newtec
@CABSAT Hall 1 B1-21
@SATELLITE booth no. 3019
www.newtec.eu

Newtec will be launching at CABSAT and SATELLITE is new Dialog® platform. Dialog® is a new scalable, flexible and bandwidth efficient multiservice platform allowing operators to build and adapt their infrastructure easily as their business and the satellite market grows and changes. Newtec Dialog gives operators the power to offer a variety of service on a single platform while assuring the most optimal modulation and bandwidth allocation. In addition to supporting SCPC or MF-TDMA, it now includes a third revolutionary patented return link technology called Mx-DMA™. Together with the new HighResCoding™, it combines the best of both worlds and enables services to run more efficiently than ever before over satellite.

The Newtec Dialog® platform consists of hub(s) and terminals. The Newtec Dialog Hubs are modular and scalable and can be configured in different sizes to fit the needs of customers. This picture shows the HUB6501 1IF and the HUB6504 4IF Hub Modules.

Peak Communications
@CABSAT Hall 2 G2-34
@Satellite Booth no. 9027 and A.G. Franz LLC booth #5120
www.peakcom.co.uk

Peak Communications manufactures professional RF equipment for Satellite earth stations: Block, fixed and agile (synthesized) frequency converters, test-loop translators, beacon receivers, automatic uplink power control units, line amplifiers, modular gain control units, splitters & combiners, DC & 10MHz drivers for BUC/BDC/LNB units, 10MHz reference generation & distribution, distribution switching and noise sources.

Peak Blockconverter DBUH200 platform

Many of the products are available in **multi-channel configurations**, allowing the simultaneous conversion or signal conditioning of the same frequency range.

The equipment is provided in **three physical configurations**: remote, weatherproof units for a compact outdoor solution; ½ rack, modular, hot-swappable units to offer the ultimate in maintainability; fixed dual, triple or quad-bands/ranges in 1RU chassis for a compact indoor solution.

At the Satellite Show Peak will be showcasing the **modular, hot-swappable Blockconverter DBUH200 platform**. The compact 1RU rack-mounted unit is designed to accept any combination of available converter modules (C-, X-, Ku-, DBS- and Ka-Band) and offers a full 1+1 redundant system. It can also be configured to provide separate BUC/BDC channels.

RF-Design
@CABSAT Hall 4 F4-20
www.rf-design-online.de

RF-Design with headquarters in Germany is successfully developing, manufacturing and marketing professional RF-distribution solutions for the international satellite, broadcast and broadband industries.

Our product portfolio includes LNB-supply/control solution, Splitters/Combiners, Switches/Redundancy Switches, L-Band Switch/RoutingMatrix solutions, RF Line-Amplifiers, RF-over-Fiber solutions, Remote broadband Spectrum-Analyzers while ou rcompany and team is also well recognized for providing custom-made RF-distribution solutions for your individualapplications. All our products are manufactured, tested & approved in our own facilities in Bensheim/Germany andcharacterized by superior quality, reliability and excellent performance while they are in operation with majorTeleports, Satellite Earth-Stations as well as Broadcasting and Broadband facilities worldwide.

FlexLink K4 Switch Matrix

At Cabsat 2014 we will demonstrate some of our new product such as the ”FlexLink K4 Switch-Matrix”, “SA3BBroadband Remote Spectrum-Analyzers Series”, “FiberLink RF-over Fiber Solutions” and “RLA Line-AmplifierSeries”. We look very much forward to welcoming you at our stand and to talking about your RF-distribution needs.

ScheduALL
@CABSAT Hall 7 H7-21
www.scheduall.com

Since 1989, **ScheduALL** has been providing ERM solutions to the largest broadcast and transmission businesses in more than 50 countries across the globe.

At CABSAT 2014, ScheduALL will demonstrate its advanced enterprise-wide connectivity and interoperability solutions. **ScheduALL Connector™** gives broadcasters the ability to intelligently employ or share resource inventories inside their enterprises and across trading partners in the most profitable way.

The **ScheduALL Chorus™** interoperability platform provides two-way interfaces to third-party systems for external equipment control and transmission status updates. The software is mission critical for transmission facilities, managing video router assignments and satellite uplink scheduling, automatically passing the information to downstream systems to facilitate on-air coverage for each feed during live events.

To schedule a demonstration and learn how ScheduALL's industry-changing smart technology can meet the unique challenges of your organization, please call +44 (0) 20 7636 0707 or email events@scheduall.com.

San Francisco International Gateway
@SATELLITE booth no. 6127
www.sfig-teleport.com

San Francisco Interantional Gateway (SFIG) is a full-service teleport located at Richmond, California, directly across the San Francisco Bay from the Golden Gate Bridge and about 20 minutes from downtown San Francisco.

The facility is a complex composed of modular buildings and technical equipment shelters adjacent to satellite earth station antennas on a 2 acre parcel of land. The SFIG technical facility consists of 19 satellite earth station antennas, of various sizes from 13.0 meters to 2.4 meters in diameter to serve both C and Ku band satellites.

THAICOM
@CABSAT Hall 1 A1-30
www.thaicom.net

AFRICOM by **Thaicom** provides broadcasters and telecom operators in Africa with a full range of end-to-end satellite communication services via the Africom -1 satellite. AFRICOM by Thaicom is fully owned by THAICOM Public Company Limited—one of Asia's leading satellite operators.

Work Microwave
@CABSAT Hall 2 C2-30
@SATELLITE booth no. 6101
www.work-microwave.de

WORK Microwave's extensive range of satellite communications technologies are designed to optimize bandwidth, improve signal quality, and reduce operating expenses. Key product highlights include:

DVB-S2 Broadcast Modulator

Powered by a combination of video and IP technologies, WORK Microwave's DVB-S2 Broadcast Modulator provides operators with the ideal solution for IP network links and TV contribution. Innovative features include DVB-S2 multistream, TSoIP, and wideband (up to 80Mbaud), and carrier ID support. In addition, the DVB-S2 Broadcast Modulator platform supports next-generation DVB-S2 extensions, providing operators with a future-proof solution.

DVB-S2 IP-Modem SK-IP

WORK Microwave's DVB-S2 IP-Modem SK-IP harnesses XipLink traffic shaping and WORK Microwave OptiACM functionalities to optimize throughput and increase network bandwidth for service providers, corporate networks, and telcos.

Walton De-Ice
@SATELLITE booth no. 7051
www.de-ice.com

Walton De-Ice designs and manufactures the broadest line of equipment available for preventing the accumulation of snow and/or ice on satellite earth station antennas.

Walton De-ice offers several options for heating including, gas heaters with their economical operation advantages or the low maintenance Stainless Steel Electric Heaters.

Xiplink Inc.
@Satellite Booth no. 7126
www.xiplink.com

XipLink is the technology leader in wireless link optimization using the SCPS acceleration standard, providing dramatic bandwidth savings and improved customer experience. At Satellite 2014, XipLink will showcase its XipOS 4.1 adding internet video control and web object prioritization to our XHO system and Link Balancing with Bonding to XA Appliances.

SatService Gesellschaft für Kommunikationssysteme mbH

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- No expensive development system

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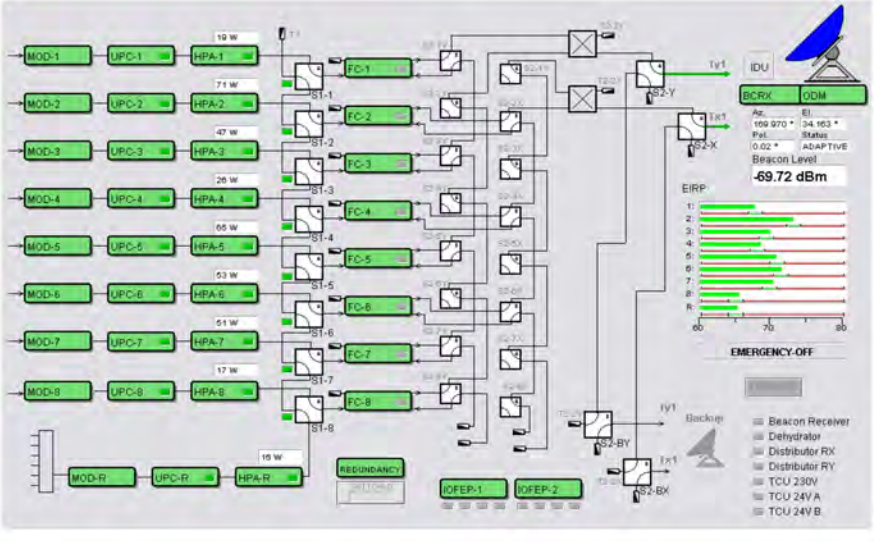
*The **sat-nms** IO-FEP Front End Processor:*



Contact: Germany, 78256 Steisslingen, Hardstrasse 9
phone +49 7738 9700 3
fax +49 7738 9700 5
info@satservicegmbh.de
www.satnms.com
www.satservicegmbh.de

Wegener Acquired by Novra Technologies

Atlanta, GA, February 5, 2014--Wegener announced that it will be acquired by Novra Technologies in an all stock transaction. This transaction is subject to Novra's due diligence, the approval of Wegener Corporation shareholders, and other terms and conditions. Wegener Corporation previously announced that the Board of Directors had unanimously approved a Term Sheet for the acquisition. Novra Technologies, Inc. will also acquire privately held Westport Research Associates, Inc. of Raytown, MO.

"This acquisition represents an exciting improvement for Wegener Corporation and its customers. There are product synergies with very little overlap that strengthen and broaden the offerings of the combined companies," stated Troy Woodbury, President and CEO of Wegener Corporation. "Being part of the combined companies will improve Wegener Corporation's financial stability while strengthening the company's management in all aspects of its operations including sales and marketing, engineering, and production.

"Joining this new organization represents the end of a difficult financial period for Wegener Corporation and will renew the confidence of our customers, shareholders, employees, and our creditors," continued Woodbury. "We are working on major projects in Latin America and we believe real progress will be made in the domestic digital signage market during fiscal 2014. Strong improvements have been made in channel partners and digital signage product capability. We are encouraged by the opportunities in the future."

These acquisition is expected to be completed in the first or second quarter of 2014.

Novra Technologies offers premium products and solutions to the datacasting and digital signage markets. Novra specializes in the transmission and reception of IP traffic over satellite, cable and terrestrial communication links. Products offered include broadband receivers for DVB-S, DVB-S2, DVB-C, and ATSC systems. Novra's IPE encapsulator products can be used in both DVB and ATSC MPEG2 systems for datacasting as well as broadband access applications. The NovraLink digital signage solution integrates Novra's technologies into a comprehensive multimedia management and distribution system.

Ericsson Purchases Azuki Systems

Stockholm, Sweden, February 6, 2014- Ericsson announced it has entered into an agreement to acquire Massachusetts-based Azuki Systems, Inc., a provider of TV Anywhere delivery platforms for service providers, content owners and broadcasters.

Azuki Systems extends Ericsson's TV and media portfolio which includes the recent addition of Mediaroom from Microsoft. Through the acquisition, Ericsson will accelerate the availability of new and compelling viewing experiences across a variety of devices and screens. In addition, Ericsson will gain additional key functionality related to the deployment of TV Anywhere services, including adaptive bit rate and content protection technologies. In addition, the acquisition brings a team of highly skilled software engineers from Azuki Systems, according to the company.

Per Borgklint, Senior Vice President and Head of Business Unit Support Solutions at Ericsson said, "We are executing on our TV & Media strategy and Azuki adds key technologies and capabilities to extend our market leadership position. Traditional TV is shifting rapidly towards TV Anywhere. Azuki Systems further positions Ericsson to help customers deliver on the Networked Society's global demand for customized and personalized media experiences that include content on any screen, any time across any network."

Cheng Wu, CEO and co-founder of Azuki Systems, said: "Service providers, content owners and broadcasters face a range of challenges as they race to make content available on any device. Through worldwide deployments of our proven next generation video delivery solution, we have helped accelerate deployment and monetization of TV Anywhere services. Continuing this work as part of Ericsson will ensure that customers globally will have the most advanced support as they aim to deliver the best services for their subscribers."

Azuki Systems was founded in 2008 and is based in Acton, MA. The company has 49 employees.

The acquisition is expected to close before the end of the month, subject to customary closing conditions. Azuki Systems will be incorporated into Business Unit Support Solutions.

Arqiva Acquires Capablue

London, UK, February 6, 2014-- Arqiva announced the acquisiton of Capablue, the Connected TV, video-on-demand and content solution provider. The two companies already have a relationship, having partnered on solutions including the development of pay capabilities for the Arqiva Connect TV platform.

CapaBlue will be joining Arqiva's Digital Platforms division, whee the company hopes it will strengthen Arqiva's growing investment in IP and connected TV capabilities. Arqiva's heritage in terrestrial and satellite television distribution, together with the expertise and experience of Capablue in internet-enabled TV solutions and VOD, will position Arqiva uniquely to offer services across multiple channels, platforms and technologies, according to a company statement.

Commenting on the acquisition, Charles Constable, MD for Digital Platforms at Arqiva said, "With the rapid expansion of high-speed broadband connections and the growth in ownership of internet-enabled televisions and other devices, Arqiva needed to broaden its offering. We have had a strong relationship with Capablue for many years making them the logical choice to expand our capabilities, accelerate our growth and extend our customer proposition in this exciting new area."

Calendar of Events

March 11-13, 2014, **CABSAT 2014**, Dubai World Trade Centre, Dubai, UAE. Contact: cabsat@dwtc.com, phone +971 4 308 6077/6282, web: www.cabsat.com/

March 11-13, 2014, **SATELLITE 2014**, Washington, D.C., Contact: phone +1-301-254-2100, inquiry@satellite2014.com web: www.satellite2014.com

April 1-3, 2014, **Space Tech Expo**, Long Beach, Calif. Phone: US & Canada toll free +1 877 842 6289, Europe: +44 1306 871331, info@spacetechexpo.com web: www.spacetechexpo.com

April 5-14, 2014 (Conferences) April 7-10, 2014 (Exhibits), **NAB 2014**, Las Vegas Convention Center, Las Vegas, Nevada, USA, info@nab.org web:www.nabshow.com

June 2-4 2014, **Global Space Applications Conference (GLAC)** 2014: UNESCO HQ, Paris, France. Phone: +33 (0)1 45 67 68 46 Glac2014@iafastro.org Web: www.glac2014.org

June 17-20, 2014, **CommunicAsia2014**, Marina Bay Sands, Singapore. CommunicAsia@sesallworld.com, Tel: +65 6233 6638, Web: www.CommunicAsia.com

June 17-20, 2014, **BroadcastAsia2014** Marina Bay Sands, Singapore. BroadcastAsia@sesallworld.com, Tel: +65 6233 6638, Web: www.broadcast-asia.com

ITS Electronics Inc., Appoints DiCarlo as SVP, Bus Dev.

Vaughan, Ontario, Canada, February 1, 2014 –ITS Electronics Inc. appointed **Edward DiCarlo** as Senior Vice President, Business Development. In this role, he will oversee sales, business development and marketing worldwide.

Edward DiCarlo

DiCarlo is an experienced senior level sales and marketing executive with more than 25 years experience in the satellite and telecommunications industry, having held a wide range of senior sales and marketing positions in the telecommunications industry. Mr. DiCarlo served in various senior level positions at Tele-Communication Systems (TCS), Hughes, Loral, and CBS including: Vice President Emerging Markets, Vice President General Manager Marketing & Product Management, Vice President General Manager for Latin America and Managing Director Europe.

DiCarlo has an engineering degree from Capitol College and an MBA from the University of Baltimore. He has also participated in the Executive Education program at the Wharton School, University of Pennsylvania. DiCarlo will be based in the Washington D.C. area.

Arqiva Appoints New MD for Satellite

London, UK, February 25, 2014--Satellite service provider **Arqiva** announced the appointment of **David Crawford** as Managing Director, Sateliite. Crawford takes over from from Barrie Woolston who has been the interim managing director for the past six months and will remain Commercial Director for Satellite.

David Crawford

Crawford will be responsible for the day-to-day management and strategic direction of Arqiva's satellite business, which includes sales and operations for a range of international broadcasters and the Occasional Use content distribution from major international sports, entertainment and news events.

Crawford joins Arqiva with international leadership experience from a number of businesses including Capita, Cable & Wireless, Energis and Jardine Matheson. Part of his early career was also spent in consulting with Bain & Co. Crawford will start on March 3, 2014.

Intelsat Appoints Patrick French Head of Bus. Dev. For Asia-Pacific

Singapore, February 26, 2014--**Intelsat S.A.** has appointed 25-year satellite industry veteran **Patrick French** as Head as of Business Development in the Asia Pacific region. In his new role, French will be responsible for helping to develop and implement In-

Globecomm Founder and CEO Hershberg to Retire

Hauppauge, NY, February 7, 2014-**Globecomm Systems** announced the retirement of founder and Chief Executive Officer **David Hershberg.** Keith A. Hall, President and Chief Operating Officer and 17 year veteran of the company has been appointed CEO, effective immediately. Hershberg will serve as a consultant to the Board of Directors of the Company for special projects.

Anup Bagaria, Director of Globecomm and Co-Managing Partner of Wasserstein & Co. said, "We would like to thank Dave for his exceptional leadership and dedication to Globecomm over the past 19 years. As a result of his significant contributions, the company that Dave built from the ground up has grown into a leader in the design, integration and management of communication solutions. We thank Dave for his steadfast commitment to Globecomm and wish him all the best in his retirement."

Hall, 44, has over 20 years of experience in the satellite communications, telecommunication network and internet fields. During his time at Globecomm, Hall served in a variety of roles in both the infrastructure and service operations sectors, and recently helped lead the planning and execution of the company's corporate growth strategies and strategic business development. Previously, as Senior Vice President and General Manager of Globecomm's service sector, Hall helped drive growth and profitability in the sector through the expansion of its managed service products. Hall is a graduate of Auburn University with a B.S. in electrical engineering and received an MBA from Dowling College of New York.

Commenting on the announcement, Hershberg said, "I am extremely proud of Globecomm's progress and accomplishments since 1994, and I am honored to have had the opportunity to lead such an exceptional group of people. Globecomm is in a strong position today, and I'm confident that under Keith's watch, the company has excellent prospects for the future."

Last November 2013, Hershberg was awarded the "Visionary Satellite Executive of the Year" award by Satellite Markets and Research at the SATCON show in New York.

telsat's strategy for the region. He will be based in Singapore and report directly to Dee Schwalb, Intelsat's Vice President, Business Development & Satellite Related Services.

Patrick French

Prior to joining Intelsat, French served as Senior Analyst & Head, Singapore Representative Office, for Northern Sky Research (NSR) LLC. He joined NSR in September 2003 and during his tenure, he expanded NSR's coverage of the satellite industry into areas such commercial satellite supply and demand modeling, video distribution and contribution, and DTH. He also spearheaded NSR's assessment of emerging High Throughput Satellite (HTS).

French holds a Bachelors of Science in Aerospace Engineering from Boston University and attended the 1999 ISU Summer Session in Nakhon Ratchasima, Thailand. He is fluent in French.

In addition to Terry Bleakly, Intelsat's Regional Vice President, Asia Pacific Sales, French will be available to provide expert commentary and market analysis on key issues impacting the satellite industry in the Asia Pacific region.

Sea Launch Announces Departure of President

Bern, Switzerland, February 24, 2014– Launch service provider **Sea Launch AG** announced the resignation of its President, **Kjell Karlsen** effective February 28, 2014, to pursue other opportunities outside space industry. After his departure, the company's senior executive team will carry out Karlsen's former duties and responsibilities, according to Sea Launch.

Karlsen has been with Sea Launch since 1999, serving as the President since 2008 and member of its Board of Directors since 2010. Karlsen said on his departure, "I am appreciative of the opportunities that I have been given while at Sea Launch and will forever be grateful for my time here. Through the growing participation of RSC Energia, I believe the evolution of the company going forward will allow it to continue to innovate and create value for world's satellite operator community. I am very proud to have been able to represent Sea Launch for the past 14 years and I am looking forward to working in a new industry with a new set of challenges and opportunities."

Inmarsat Appoints New CFO

London, UK, February 21, 2014-- **Inmarsat** announced that **Tony Bates** will join the company on June 2 as an executive director and its Chief Financial Officer.

Tony Bates

Bates is an experienced senior finance and business professional. He has been the Group CFO of hibu (previously Yell Group Plc) since November 2010. He played a leading role in the multi billion pound refinancing of the Group's capital structure and in the delivery of a much lower cost operating model. Prior to hibu, he was Chief Operating Officer of Colt Group S.A., the pan-European business telecoms operator, where he was responsible for the Finance function from 2003 to 2009. His previous senior management experience was mainly with EMI Group plc, latterly as Group Finance Director.

Bates took a First Class BSc in Management Sciences at the University of Manchester Institute of Science and Technology. He is a Fellow of the Institute of Chartered Accountants in England and Wales.

Board Changes at International Datacasting

Ottawa, Canada, February 3, 2014-- **International Datacasting Corporation** announced today that **Del Lippert** has resigned as a director of IDC and Chairman of the Company's Board of Directors for medical reasons, effective immediately. In addition, **Georges Ata** has resigned as a director of IDC in order to focus on his role as CEO of Intelcan, also effective immediately.

IDC's Board of Directors now consists of four directors, of which Graham McBride, Peter Strom and Chris Van Staveren are independent directors, and Doug Lowther, IDC's President and Chief Executive Officer, is a non-independent director.

Mr. Lippert and Mr. Ata have served on the Board since June 2012. Mr. Lippert also took on the role of interim CEO from November 2012 until being replaced by the current CEO, Doug Lowther, in May 2013. IDC would like to thank Del and Georges for their service to the Company.

IDC's Board has appointed **Chris Van Staveren** to serve as the Company's new Chairman, effective February 1, 2014. Mr. Van Staveren was elected to IDC's Board in July 2013 and currently serves on its Audit Committee and HR and Compensation Committee. Prior to joining the IDC Board, Mr. Van Staveren worked for many years at KPMG as a strategy consultant and has been involved in several entrepreneurial ventures. "I am very pleased to hand over the reins to Chris. Chris has been very

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Best customer support in the industry.

active with the Board and management in crafting the go forward strategy and will serve IDC well," commented Del Lippert.

IDC's Corporate Governance and Nominating Committee has the responsibility to monitor and improve Board effectiveness and to propose candidates for election to the Board. As required by its charter, the Committee has initiated a process of feedback and performance review of the current Board. The results will be an important input towards identifying candidates for election at the Company's Annual General Meeting, expected to be held in July 2014. While that process is still underway, it is expected that at least one new strategic Board member with relevant industry expertise will be nominated. Doug Lowther and Peter Strom, the Chairman of the Corporate Governance and Nominating Committee, are working closely to identify candidates for this position, according to IDC.

Tom Canavan Named President of Media Links

Bloomfield, CT, February 18, 2014--**Media Links Inc**., a wholly owned subsidiary of Japan-based Media Global Links, a broadcast and network transport over IP solutions provider, today announced the appointment of **Tom Canavan** as President of its US subsidiary. Canavan replaces John Dale who has been promoted into a global Product Management leadership role.

Canavan joins Media Links Inc. with over 25 years of recognized experience and accomplished business leadership in the media and technology industries. Amongst his notable accomplishments is the management and successful execution of well over US$1 Billion of global technology projects for many of the world's largest broadcasters, MSOs, cable companies and telecoms. Tom brings a wealth of cross-functional and diversified management skills to the Media Links Inc. team, focusing on growth and driven with a passion for excellence in customer service.

Tom Canavan

Most recently, Canavan served as Senior Vice President, Strategic Development & Services for Signiant, a leading provider of advanced file movement software for secure digital media exchange. During his tenure at Signiant, Tom was responsible for multiple customer facing roles including executive relationships; leadership of the professional services organization; and development of strategic relationships within the media & entertainment industry.

Previously, Canavan served as Executive Vice President, Systems & Technology Services for Ascent Media Group, where under his leadership he led and grew the professional services business (originally A.F. Associates) into a US$150 million diversified global organization. Mr. Canavan also served on the senior management team responsible for building Ascent Media into one of the world's largest suppliers of creative and technical services for media.

Canavan is a graduate of the University of Notre Dame and an active member of the Society of Motion Picture & Television Engineers (SMPTE) and Sports Video Group (SVG).

Avi Cohen, CEO of RRsat, named 2014 Teleport Executive of the Year

New York City, February 4, 2014 – The World Teleport Association announced that **Avi Cohen**, CEO of **RRsat**, has been named as its 2014 Teleport Executive of the Year. Mr. Cohen will be honored during WTA's Teleport Awards for Excellence luncheon on March 11 during SATELLITE 2014. The Teleport Executive of the Year award is presented to an individual for demonstrated entrepreneurship, leadership and innovation in the development or operation of a teleport-based business.

Cohen was named the CEO of RRsat in July 2012. His challenge was to take RRsat – already a global player – to the next level of business success and value creation. Over the last 12 months, Cohen has led RRsat in its "Glocal" strategy – become a global leader with local footprints in key markets around the world. Part of this strategy included two acquisitions: SM2 Sports & Media Solutions and JCA TV. RRsat also consolidated two sites at Israeli HQ into a new state of the art Broadcast Center in Emek Haela. On the financial end, Mr. Cohen as led RRsat to all-time record results: expectation of full-year growth for 2013 revenues in the range of 6% to 10% year-over-year growth from 2012.

"Only a handful of teleport operating companies have grown to significant size," said WTA executive director Robert Bell. "It is a highly competitive, capital-intensive business that is also built on personal relationships and service excellence. That is a high bar for any company to pass, and we salute Mr. Cohen for continuing the work of his predecessor, another Teleport Executive of the Year, and taking RRsat to the next level," he added.

During the 2014 Teleport Awards for Excellence luncheon ceremony, sponsored by SES, WTA will also honor its Independent Teleport of the Year and Teleport Technology of the Year. The luncheon begins at noon on the 11th of March and is free to WTA members who register. Attendance is also available on a paid basis to non-members. Registration is available online at www.worldteleport.org.

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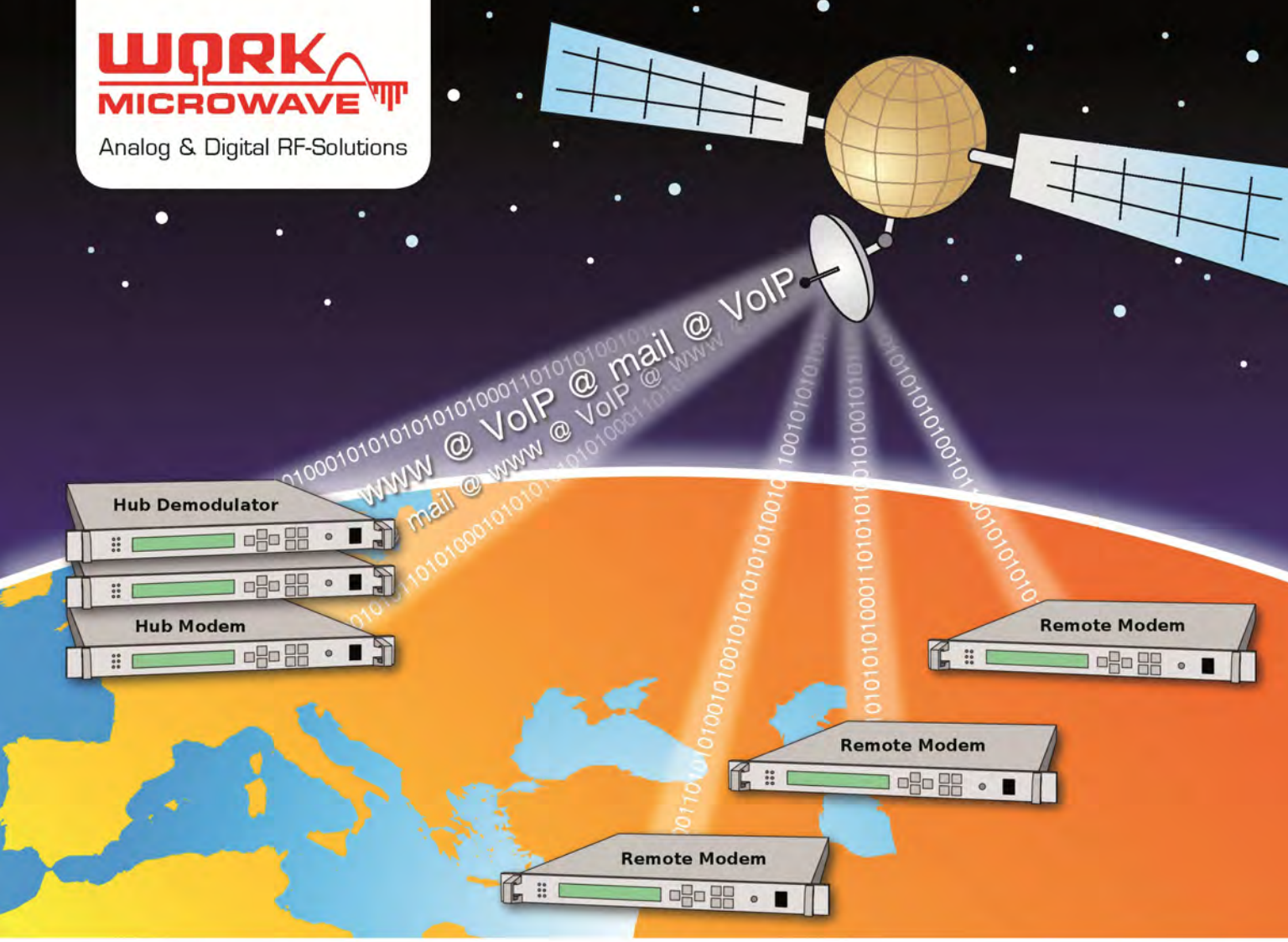

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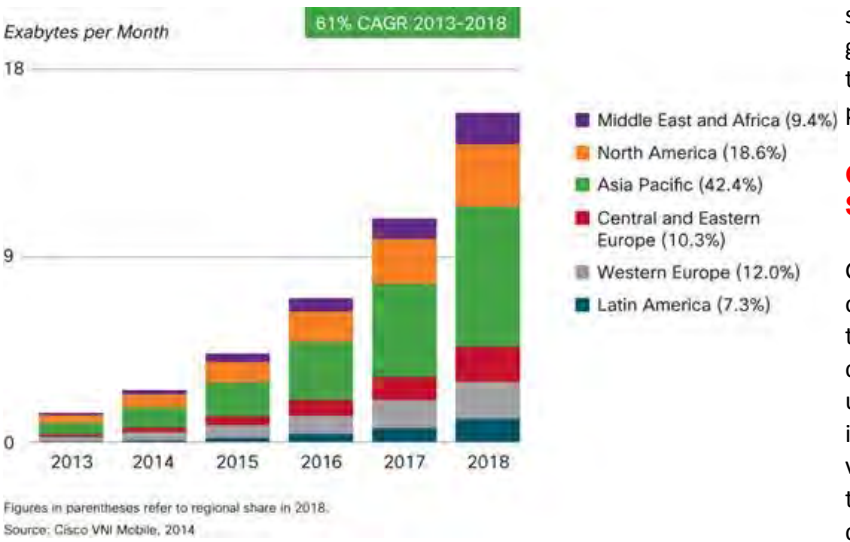
Worldwide Mobile Data Traffic to Increase 11-fold by 2018

San Jose, Calif., Feb 5, 2014 -- According to the Cisco Visual Networking Index Global Mobile Data Traffic Forecast for 2013 to 2018, worldwide mobile data traffic will increase nearly 11-fold over the next four years and reach an annual run rate of 190 exabytes by 2018. The projected increase in mobile traffic is partly due to continued strong growth in the number of mobile Internet connections, such as personal devices and machine-to-machine (M2M) connections, which will exceed 10 billion by 2018 and be 1.4 times greater than the world's population (the United Nations estimates 7.6 billion people by 2018).

An exabyte is a unit of information or computer storage equal to one quintillion bytes or one billion gigabytes.

The Cisco VNI Global Mobile Data Traffic Forecast's annual run rate of 190 exabytes of mobile data traffic for 2018 is equivalent to:

- 190 times more than all Internet Protocol (IP) traffic, fixed and mobile, generated in 2000; or
- 42 trillion images (e.g., multimedia message service or Instagram)
- 15 daily images per person on earth for a year; or
- 4 trillion video clips (e.g., YouTube) -- more than one daily video clip per person on earth for a year.



Figures in parentheses refer to regional share in 2018.
Source: Cisco VNI Mobile, 2014

The incremental amount of traffic being added to the mobile Internet just between 2017 and 2018 is 5.1 exabytes per month, which is more than three times the estimated size of the entire mobile Internet in 2013 (1.5 exabytes per month).

Key Global Mobile Data Traffic Drivers From 2013 to 2018, Cisco anticipates that global mobile traffic growth will outpace global fixed traffic growth by a factor of three. The following trends are driving mobile data traffic growth:

- More mobile users: By 2018, there will be 4.9 billion mobile users, up from 4.1 billion in 2013.
- More mobile connections: By 2018, there will be more than 10 billion mobile-ready devices/connections -- including eight billion personal mobile devices and two billion M2M connections, up from seven billion total mobile-ready devices and M2M connections in 2013.
- Faster mobile speeds: Average global mobile network speeds will nearly double from 1.4 Mbps in 2013 to 2.5 Mbps by 2018.
- More mobile video: By 2018, mobile video will represent 69 percent of global mobile data traffic, up from 53 percent in 2013.

Global Shift to Smarter Devices

Globally, 54 percent of mobile connections will be "smart" connections by 2018, up from 21 percent in 2013. Smart devices and connections have advanced computing/multimedia capabilities and a minimum of 3G connectivity.

Smartphones, laptops, and tablets will drive about 94 percent of global mobile data traffic by 2018. M2M traffic will represent five percent of 2018 global mobile data traffic while basic handsets will account for 1 percent of global mobile data traffic by 2018. Other portables will account for 0.1 percent.

Mobile cloud traffic will grow 12-fold from 2013 to 2018, a64 percent compound annual growth rate (CAGR).

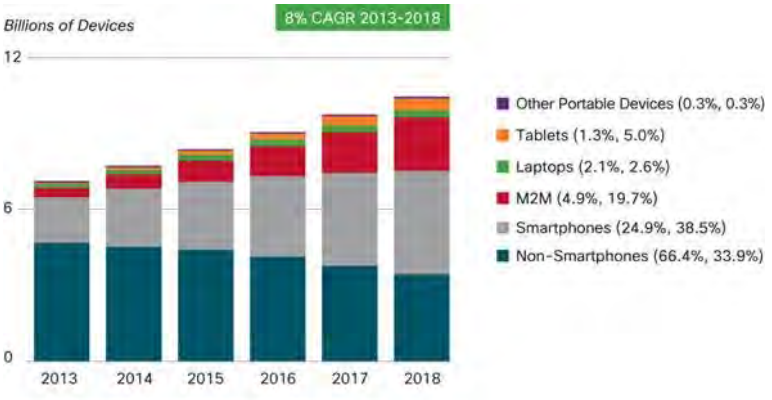
Impact of Machine-to-Machine Connections (and Wearable Devices)

M2M refers to applications that enable wireless and wired systems to communicate with similar devices to support

global positioning satellite (GPS) navigation systems, asset tracking, utility meters, security and surveillance video. A new "wearable devices" sub-segment has been added to the M2M connections category to help project the growth trajectory of the Internet of Everything (IoE). Wearable devices include things that are worn by people such as smart watches, smart glasses, health and fitness trackers, wearable scanners with capability to connect and communicate to the network either directly via embedded cellular connectivity or through another device such as a smartphone via Wi-Fi and Bluetooth.

In 2013, M2M connections represented nearly five percent of mobile-connected devices in use and generated more than one percent of total mobile data traffic.

By 2018, M2M connections will represent nearly 20 percent of mobile-connected devices in use and generate almost six percent of total mobile data traffic.



Figures in parentheses refer to device or connections share in 2013, 2018
Source: Cisco VNI Mobile, 2014

In 2013, there were 21.7 million global wearable devices. By 2018, there will be 176.9 million global wearable devices or a 52 percent CAGR.

4G Mobile Adoption and Traffic Growth

Many global service providers are deploying 4G technologies to address consumer and business users' strong demand for wireless services and content. In many emerging markets, service providers are creating new mobile infrastructures with 4G solutions. In some mature markets, service providers are supplementing or replacing legacy 2G or 3G solutions with 4G technologies.

- By 2018, 4G connections will support 15 percent of all connections, up from 2.9 percent in 2013.
- By 2018, 4G connections will support 51 percent, or 8 exabytes per month, of total mobile data traffic, up from 30 percent, or 448 petabytes per month, in 2013.
- 4G traffic will grow 18-fold from 2013 to 2018, a 78 percent CAGR.

Wi-Fi Offload Traffic Surpasses Cellular Traffic

"Offload" refers to traffic from dual mode devices and supports cell and Wi-Fi connectivity, excluding laptops) over Wi -Fi and small cell networks. Offloading occurs at the user or device level when one switches from a cell connection to Wi -Fi and small cell access. The Cisco VNI Global Mobile Data Traffic Forecast (2013-2018) mobile offload projections include traffic from public hotspots and residential Wi-Fi networks.

More mobile data traffic will be offloaded onto Wi-Fi from mobile-connected devices (17.3 exabytes per month) than will remain on mobile networks by 2018 (15.9 exabytes per month).

By 2018, 52 percent of global mobile traffic will be offloaded onto Wi-Fi/small cell networks, up from 45 percent in 2013.

Global Mobile Application Analysis: Video Remains on Top

Mobile video traffic will increase 14-fold from 2013 to 2018 and will have the highest growth rate of any mobile application category.

- By 2018, mobile video will be 69 percent of global mobile traffic, up from 53 percent in 2013. -- By 2018, web and other data applications will be 17 percent of global mobile traffic, down from 28 percent in 2013.
- By 2018, streaming audio will be 11 percent of global mobile traffic, down from 14 percent in 2013.
- By 2018, file sharing will be three percent of global mobile traffic, down from four percent in 2013.

Cisco Mobile VNI Forecast Methodology

The Cisco VNI Global Mobile Data Traffic Forecast (2013-2018) relies upon independent analyst forecasts and real-world mobile data usage studies. Upon this foundation are layered Cisco's own estimates for mobile application adoption, minutes of use, and transmission speeds. Key enablers such as mobile broadband speed and device computing power are also factored into Cisco mobile VNI projections and findings.

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Global Maritime Satellite Market to Double in the Next Decade

Paris, France, February 20, 2014- Euroconsult forecasted that satellite capacity revenue in the global maritime market will nearly double over the next decade, with a compound annual growth rate of 7%. According to the firm's recently-published research report on *Maritime Telecom Solutions by Satellite*, growth is expected to be driven mainly by increasing data consumption across all major maritime segments and the adoption of new generation broadband satellite services.

"Onboard bandwidth requirements keep growing which is driving the maritime market in a direction quite beneficial to satellite communications," said Wei Li, Senior Consultant at Euroconsult and Editor-in-Chief of the research report. "We have observed growth in both ARPU and installations. Over the next year, a number of High Throughput Satellite (HTS) systems will become available in the maritime market, aimed at delivering three times more capacity by the end of 2014 and six times more capacity by the end of 2016. This additional capacity will drastically change the relationship between supply and demand in the market, and enable a range of new applications for the maritime community."

Euroconsult confirmed the number of terminals used for global maritime satellite communications grew at around 4% in 2013, while revenues at the satellite operator level increased by over 10%. The total size of the market reached about 348,000 active terminals in 2013 that generated more than $760 million in revenues at the satellite operator level. Established MSS services and the fast developing VSAT business contributed to the overall growth of the maritime satellite communications market.

Competition between players is intensifying on the eve of the HTS era. All major players are devoted to locking in a maximum number of vessels. The market is, however, expected to diversify in terms of end-user requirements. Rather than technologies or frequencies, the success of satellite communications players will largely depend on understanding their customers' needs, the scale and efficiency of distribution channels, as well as the cost/quality effectiveness of their offers.

Now in its third edition, *Maritime Telecom Solutions by Satellite* provides an in-depth view of the sector dynamics, analysis and forecasts for the maritime satcom market. Eight comprehensive sections provide a detailed analysis of trends and prospects within the major addressable maritime market segments, including merchant shipping, fishing, passenger ships, leisure vessels, offshore, and government. The report includes maritime infrastructure revenues by technology, MSS terminals by application and VSAT terminals by frequency band & segment, (MSS & VSAT).

Connected TV Forecasts

London, UK, February 10, 2014--The number of TV sets connected to the Internet will reach 759 million by 2018 for 40 countries covered in the Connected TV Forecasts report, up from 115 million at end-2010 and the 307 million expected at end-2013. This translates to 26.8% of global TV sets by 2018, up from only 5.1% at end-2010 and 12.4% by end-2013, according to a new report entitled "Connected TV Foreceast" from reportbuyer.com.

Connected TV is becoming more international. The US will still command a third of connected TV sets by end-2013, but this proportion will fall to 23.5% by 2018.China will climb from 6.6% of the 2013 total to 16.4% by 2018.

Connected TV is undergoing the largest upheaval in its short history. The introduction of affordable devices such as Google's Chromecast and Sky's Now TV are shaking up the market, with connected TV set manufacturers already reducing their prices as a reaction to this increased rivalry. The introduction of three next-generation games consoles adds further competition.

Chromecast and similar products are likely to have a considerable impact. The global total of connected TV sets via streaming/retail settop boxes will reach 126 million in 2018, up from only 4 million in 2010. The 34 million expected by end-2013 is double the 2012 total.

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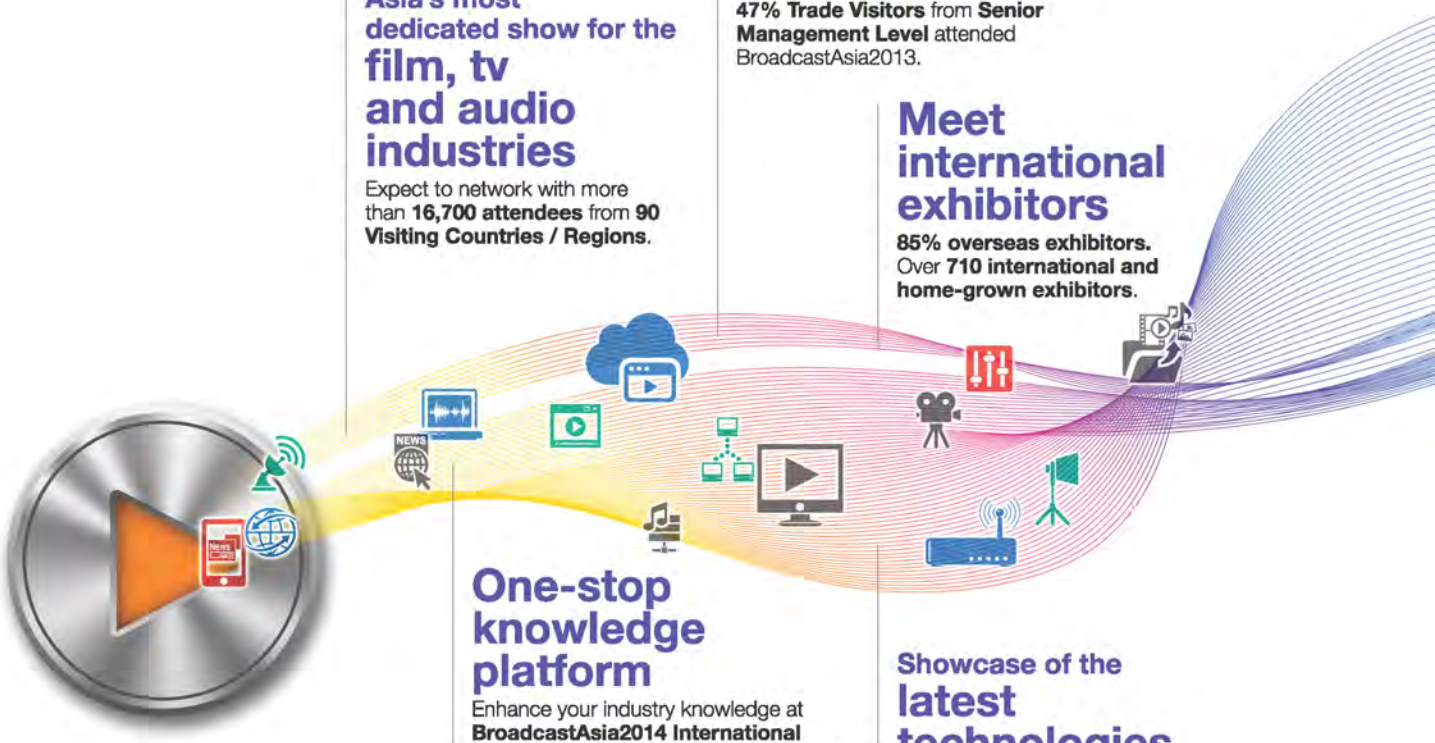

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Indian Set-Top Box Market to Grow Nearly 30% by 2015

Mumbai, India, 24th February 2014 - The introduction of High Definition (HD) channels and Smart TVs has led to an increase in digital TV viewing which in turn will drive the growth of the Set top box (STB) market in India. One of the hallmark product categories in the consumer electronics segment, the STB market in India is poised for unprecedented growth.

The Cable Television Networks (CTN) Amendment Bill 2011 mandates digitization of TV broadcasts pan India by 2014. This bill has provided the necessary thrust for driving growth of the STB market, both cable and satellite. The STB market recorded a total market (TM, which represents consumption) of 18.4 M units, of which satellite STB accounted for 10.4 M units in 2012. A Frost & Sullivan study estimates that the total market (TM, total consumption) for STB was 23.52 M units in 2013 and is expected to reach volumes of 39.4 M units by 2015 representing a healthy CAGR of 29.3 percent.

According to Niju V, Director, Automation & Electronics Practices, Frost & Sullivan: "Cumulative demand of over 100 million STBs between 2013 and 2015 highlights the immense potential this market has. This huge domestic demand indicates the need for increased indigenous manufacturing as currently the local production caters to only 30 percent of the demand." Niju V adds: "Efforts underway by empowered committees such as the Core Advisory Group for R&D in Electronics Hardware, CAREL to define specifications for indigenous STB and STB System-on-chip (SoC) are expected to culminate in made in India/ made for India STBs in the near future."

Jabil, Dixon, Quad, Nainko, and Kortek electronics are some of the EMS companies manufacturing STBs in India, though they predominantly cater to the exports market. Amongst indigenous manufacturers, Videocon and myBox are the noteworthy names.

Meeting the demand for STBs through domestic production is not possible immediately. However, digitization has opened up immense opportunities for domestic manufacturing to pick up. Local production of STBs is projected to rise in the future as the Indian Government pushes consumers to switch over to digital TV before December 2014 as part of its cable TV digitization policy. In addition, increase in local manufacturing of STBs is expected to ease supply chain challenges and lower the costs incurred by service providers currently. The DTH industry and cable operators are plagued by huge operational challenges. This is due to the multiple taxes such as service tax, entertainment tax, license fee, and VAT that the industry is compelled to part with. In contrast, suppliers in countries like China and Korea witness enormous support from financial institutions like EXIM banks, which offer long-term credit over three to five years, at extremely low interest rates. A similar support system is needed to promote indigenous manufacturers in India. Currently, no such financing is available in the country, as this is not treated as a capital goods industry.

STB is a product that requires very close cooperation between the operator and the STB manufacturer and hence requires a high level of customer support as well. Also, at the national level, there are organizations like the Bureau of Indian Standards (BIS), which are extremely important for implementing standardizations. This will not allow cheap, low quality STBs coming into India unlike the Free Trade Agreement (FTA) with Thailand that brought in cheap and low standard STBs to the country.

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The Satellite Interference Summit @CABSAT 2014

by Martin Jarrold

This month's column provides updated information about the **GVF MENASAT @ CABSAT 2014– Satellite Interference Summit**, which will take place at the **Dubai International Conference & Exhibition Centre (DICEC)**, in Meeting Room **Al-Ain F (above Halls 1 and 2)**, on 12th and 13th March.

"…the GVF has over several years, taken a strong leadership position both in developing its own initiatives and programs to tackle interference, and also by working in partnership with a wide range of other interested groups and organizations…"

As noted in earlier columns, the **Summit** program at CABSAT 2014 is embedded in the overall event as part of the **CABSAT Academy**. In 2014 the **Summit** brings its important value-added content in the form of reflecting and reporting on an important developing private and public sector collaboration to tackle satellite interference issues. GVF has, of course, over several years, taken a strong leadership position both in developing its own initiatives and programs to tackle interference, and also by working in partnership with a wide range of other interested groups and organizations.

The collaboration has included satellite operators, the satellite service solutions provider community, manufacturers of satellite equipment, national broadcasters, and the international broadcasting community as a whole, together with national, regional, and other global organizations, such as the **World Broadcasting Unions-International Satellite Operators Group (WBU-ISOG)**, the **satellite Interference Reduction Group (sIRG)**, the **Space Data Association (SDA)**, and the **International Telecommunication Union (ITU)**. The **Summit** program will feature contributors from these various organizations. Additionally, most recently, in MENA, GVF has collaborated with the **Arab States Broadcasting Union (ASBU)** to develop an **Action Plan** to address the problem of interference, whether unintended or intentional. More on this appears below.

As described in my previous column, the **GVF MENASAT @ CABSAT 2014 Satellite Interference Summit** falls into two parts: Part 1 of the Summit will focus on **"Proactivity"**, and look at Challenges & Preventative Measures, and Part 2 will focus on **"Reactivity"**, and examine Challenges & Mitigation Approaches. The program will include speakers from **GVF member organizations**, plus the **ITU**, **ASBU**, **sIRG**, **Arab Advisors Group**, and others.

On 12th March we will begin with an Opening Keynote from **Jorge Ciccorossi, Senior Engineer, Space Services Department, International Telecommunication Union**, who will address **'ITU Proactivity and Reactivity to Ensure Interference-Free Satellite Services'**. The keynote will begin by offering an overview of the ITU and international radio communications regulatory framework, and a statistical breakdown of the instances of harmful interference received by the Radiocommunications Bureau of the Union. Jorge Ciccorossi will continue by profiling the ITU's role and actions in preventing interference to satellite systems, from planning, to study groups, other preparatory work and the World Radiocommunications Conference (WRC). The presentation will continue with an examination of the use of Radiomonitoring and the ITU International Monitoring System (IMS), how to report an event of harmful interference to the ITU, introduce the New ITU Recommendations on Access Procedures to access FSS GSO Occasional Use in C and Ku bands, and the current status of development of the New ITU Recommendation on Carrier ID, as well as other related projects under study at the ITU.

An **Arab Advisors Group** keynote will follow the ITU opening. **Jawad Abbassi**, **Founder & General Manager** of Arab Advisors will provide an overview of Arab telecom markets around the region, delving into competitive analysis and adoption levels on a country-by country level, examine telecom and media convergence across the region, analyze broadcasting trends in regional free-to-air satellite and satellite Pay TV in the Arab World, and the emergence of HD broadcasting in the region.

As at the date of writing this column the draft Summit program will continue with the following contributors (details of the final timings of the sessions will be found by **clicking on the 'Conferences' tab at** www.cabsat.com):

12th March 2014 | 13:00 to 17:50 | Al-Ain F Meeting Room

The Satellite Interference Summit – Part 1: Challenges & Preventative

Measures

Summit Welcome & Opening Remarks

Martin Jarrold, Chief, International Program Development, GVF

International Telecommunication Union Opening Keynote

ITU Proactivity and Reactivity to Ensure Interference-Free Satellite Services

Jorge Ciccorossi, Senior Engineer, Space Services Department, International Telecommunication Union

Arab Advisors Group Keynote

MENA's Satellite Broadcast & Telecoms: An Overview of Today's Market Environment

Jawad Abbassi, Founder & General Manager, Arab Advisors Group

Improper Installations and Training & Certification

Yasser Hassan, Director, Transmission Operations, Arabsat

Thomas Lohrey, Head of Systems Integration, Eutelsat

Mazen Nassar, Chief Executive Officer, MenaNets; Master Trainer, MENA, GVF Training

Wireless Interference and Spectrum Security Initiative

Kumar Singarajah, Director, Regulatory Affairs & Business Development, Avanti Communications

Other Speakers tbc

Sub-Standard Equipment and Product Quality Assurance

Thomas Lohrey, Head of Systems Integration, Eutelsat

Other Speakers tbc

Information Sharing and Geolocation & Space Data

Karl Reddy, General Manager, Customer Service Operations, SES

Other Speakers tbc

To begin Day Two (13th March) of the Summit, **Laith Hamad**, Policy Analyst at the Abu Dhabi office of **Access Partnership**, will offer a presentation which will profile the regulatory environment for VSATs/ESVs/AES/etc, and will go on to analyze the MENA region's growth in interference complaints in recent years, some of the ways the international community may address interference matters, together with recommendations on avoiding interference.

Also, as noted above, the second day of the program will feature discussion of the **ASBU Satellite Interference Action Plan** which was formulated in Tunis on 6th & 7th October 2013. The **Action Plan**, in summary, features the following elements which will come under further discussion and development for implementation during the **GVF MENASAT @ CABSAT 2014 Satellite Interference Summit**. The full **Action Plan** is too lengthy to represent here in full, and any interested parties are invited to register their intention (by contacting me at martin.jarrold@gvf.org) to attend the **Summit** in Dubai on 12th and 13th March.

Awareness – ASBU and operators in the MENA and other regions to establish a public awareness campaign, through different Mass Media, that intentional interference will not prevent the Media message to be delivered, as the broadcasters affected will move and find other alternatives (use of another satellite or other frequencies or even other means of Media). Broadcasters in the Region should as well use their access to media to publicize the impact of satellite interference on broadcasting.

Training – ASBU and operators in the MENA region and other regions to establish short and medium training Plans for all broadcasters to ensure the best practice in operation and maintenance of the satellite uplinks systems with the objective of reducing significantly the number of interference incidents. Training to be delivered using ASBU, GVF and other recognized training plans and including the SNG module developed jointly with RFI-EUI, as well as specialized training for satellite Operations/NOC etc.

Earth Station Approvals – ASBU and operators in this region and other regions to request that SNG terminal equipment be tested and approved for use in coordination with GVF's Quality Products Framework, which has been endorsed by RFI-EUI and the World Broadcasting Unions-International Satellite Operations Group (WBU-ISOG) in order to reduce interference caused by faulty satellite newsgathering equipment.

Carrier ID – ASBU and operators to request members and all users in the MENA region to implement carrier ID in line with WBU-ISOG resolutions and to record the progress of this change. All Broadcasting Unions and members to engage with national regulators to make CID a requirement.

Regulatory and Political Actions – ASBU, WBU, satellite operators and all concerned parties recognize the actions of ITU, Radio Regulations Board and TSB, in order to tackle the issue of intentional interference. Their continued support is requested to develop these initiatives. ASBU and WBU will also consider whether it is appropriate for action to be taken by other competent UN bodies such as UNIDIR (United Nations Institute for Disarmament Research) and others.

Further information about the GVF MENASAT @ CABSAT 2014 Satellite Interference Summit can be found by clicking on the 'Conferences' tab at www.cabsat.com. Register your intention to participate in the Summit by contacting me at:

martin.jarrold@gvf.org

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

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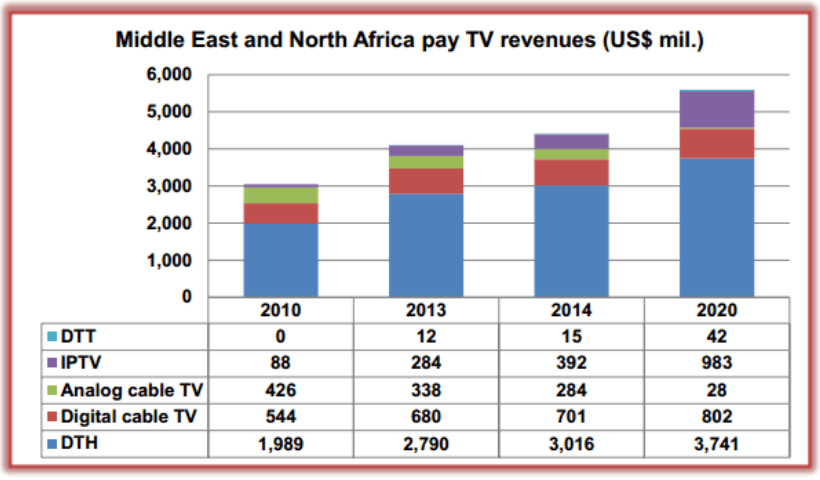
Vital Statistics

Middle East/ North Africa Pay-TV Revenues



	2010	2013	2014	2020
DTT	0	12	15	42
IPTV	88	284	392	983
Analog cable TV	426	338	284	28
Digital cable TV	544	680	701	802
DTH	1,989	2,790	3,016	3,741

Source: Digital TV Research Ltd

Pay TV revenues in the Middle East and North Africa will grow by more than 83% between 2010 and 2020 to US$ 5.60 billion, according to a new report from Digital TV Research.

The Satellite Markets 25 Index™

Company Name	Symbol	Price (Mar. 01)	% Change from Last Month	52-wk Range			% change from 52-wk High
Satellite Operators							
Asia Satellite Telecommunications	1135.HK	33.80	12.67%	26.85	35.00	↓	3.43%
Eutelsat Communications S.A.	ETL.PA	23.64	5.02%	20.41	28.15	↓	16.04%
APT Satellite Holdings Ltd.	1045.HK	10.08	2.96%	4.40	10.76	↓	6.32%
Inmarsat Plc	ISAT.L	694.50	-0.86%	80.01	784.00	↓	11.42%
SES GLOBAL FDR	SES.F	25.15	5.31%	20.81	25.41	↓	1.02%
Satellite and Component Manufacturers							
The Boeing Company	BA	128.92	2.92%	76.17	144.57	↓	10.83%
COM DEV International Ltd.	CDV.TO	3.96	-3.18%	3.32	4.40	↓	10.00%
Lockheed Martin Corporation	LMT	162.30	7.55%	86.51	168.41	↓	3.63%
Loral Space & Communications, Inc.	LORL	79.02	6.28%	57.44	82.13	↓	3.79%
Orbital Sciences Corp.	ORB	28.42	16.24%	14.34	28.98	↓	1.93%
Ground Equipment Manufacturers							
C-Com Satellite Systems Inc.	CMI.V	1.85	10.78%	0.71	2.37	↓	21.94%
Comtech Telecommunications Corp.	CMTL	32.01	5.23%	22.65	33.65	↓	4.87%
Harris Corporation	HRS	73.82	6.46%	41.08	74.23	↓	0.55%
Honeywell International Inc.	HON	94.44	3.52%	68.90	95.21	↓	0.81%
ViaSat Inc.	VSAT	66.71	12.10%	45.18	73.43	↓	9.15%
Satellite Service Providers							
Gilat Satellite Networks Ltd.	GILT	5.26	12.88%	4.09	6.11	↓	13.91%
Globecomm Systems Inc.	GCOM	14.10	0.00%	10.49	14.91	↓	5.43%
International Datacasting Corporation	IDC.TO	0.0950	-20.83%	0.07	0.24	↓	60.42%
ORBCOMM, Inc.	ORBC	7.81	13.19%	3.40	8.21	↓	4.87%
RRSat Global Communications Network Ltd	RRST	9.02	3.37%	6.97	9.39	↓	3.94%
Consumer Satellite Services							
British Sky Broadcasting Group plc	BSYBY	63.39	9.01%	46.45	63.79	↓	0.63%
DIRECTV	DTV	77.60	11.77%	48.42	78.05	↓	0.58%
Dish Network Corp.	DISH	58.84	4.36%	33.79	59.95	↓	1.85%
Globalstar Inc.	GSAT	2.2700	11.82%	0.26	2.51	↓	9.56%
Sirius XM Holdings Inc.	SIRI	3.6100	0.84%	2.95	4.18	↓	13.64%

INDEX	Index Value (Mar. 01)	% Change from Last Month	% Change Jan. 03, 2014
Satellite Markets 25 Index™	1,700.62	3.57%	-0.60%
S & P 500	1,859.45	4.31%	1.54%

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

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