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SATELLITE Markets & Research
Industry Trends, News Analysis, Market Intelligence and Opportunities

Asia-Pacific Satellite Market Lead in Most Indicators

by Virgil Labrador, Editor-in-Chief

Asia-based satellite companies have been making waves at the major satellite trade shows, which is a testament to their growing influence in the global marketplace. At Satellite 2014, for the second straight year, the Satellite Executive of the Year Award was given to an industry executive based in Asia—Arabsat CEO Khalid Balkheyour. Previously, at the SATCON Conference and Exhibition in New York City, Saudi Arabia-based satellite operator, Arabsat won the "Most Promising Company of the Year" presented by the annual Vision Awards. This is the second year in a row that the most promising company award was given to an Asia-based company having been previously won by Israel-based satellite operator Spacecom the year before.

Asian satellite operators are bullish on the prospects of analog to digital conversion, Ultra HD and other market segments driving demand for satellite services. (photo: LG)

Arabsat has been growing consistently year on year and it's now ranked seventh in terms of revenue among satellite operators. The company also plays an active role at the ITU and other industry organizations for spectrum optimization and distribution, to combat jamming, and find solutions to problems such as satellite interference. It first promoted the first Free-to-Air HD channels in the Middle East region and was the first operator to introduce Ka-Band services in the region. In February 2013, Arabsat acquired Greek satellite operator Hellas-Sat extending its reach into European and African markets.

In 2013, for the first time since its inception in 1988, the prestigious Satellite Executive of the Year award, was presented to an Asian-American CEO of a Asia-based company — Tom Choi of Hong Kong-based ABS. Choi was credited with building ABS into a "regional powerhouse", providing services across Africa, Central and Eastern Europe and, of course, Asia.

ABS is preparing for a major business expansion with the launch of ABS-2A & ABS-3A in 2014/2015 and further satellites to be added to the fleet in the following two years. ABS launched its sixth satellite, ABS-2 in February 2014.

It's not just industry awards, that Asia-based satellite companies are reaping. The Asia-Pacific market leads in indicators in key market segments such as Direct-to-Home, Pay TV and broadband.

The Asia-Pacific market is now the fastest growing region in the world for satellite services.

Continued on page 4

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From the Editor

'Emerging' Markets

At some point, we should stop using the term 'emerging' for certain markets once they have achieved a certain level of development and have sustained it for some time. I think we all can agree that the Asia-Pacific and Latin American regions, or at least most parts of those regions, have outlived their "emerging" markets moniker.

I was just at VSAT Latin America in Sao Paolo, Brazil last month and the mood was most definitely bullish. Demand is far outstripping supply of satellite transponders in Latin America and operators are scrambling to get key orbital positions at premium prices and launch satellites to meet growing demand.

This month I will be attending the Latin American Satellite Summit organized by Euroconsult in Mexico City as well as CommunicAsia in Singapore. We will be reporting on these key events in our next issue. Meanwhile, to give you an idea of the prospects in the Asia-Pacific market, our cover story this month provides some vital inputs from recent research.

Visit us at CommunicAsia at Level 1, booth # 1W-02. I will also be moderating two sessions at the CommunicAsia Satellite Summit. One on VSAT Mobility and another on the Changing Business of Teleports—a subject very close to my heart since I started in the industry working at a teleport in Singapore. Things have definitely changed in the teleport business since.

We look forward to seeing you in Singapore.

Virgil Labrador

Editor-in-Chief

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Asia-Pacific Market ...From page 1

Direct-to-Home Market

The Asia-Pacific direct-to-home (DTH) television industry is driving the largest growth market for satellite capacity in the world, according to a report from Global Industry Analysts.

The growing popularity of satellite TV, particularly in developing countries, is the primary growth driver for transponder capacity in the region – along with the introduction of high definition (HD) television – according to the report. The emergence of 3D channels with an average 40-50% higher capacity requirement compared with an HDTV channel and broadband Internet services are also boosting demand.

"Growth in the Asia-Pacific region is supported by strong economic growth, growing popularity of DTH television, high definition TV conversion and intercontinental video transmissions," said Global Industry Analysts on the publication of its "*Satellite Transponders: A Global Strategic Business Report*."

The Middle East is forecast to emerge as the fastest growing market led by increasing transponder capacity requirements for effective communication in the military sector. The region is forecast to grow at a compounded annual rate of 4.3% over the analysis period, says Global Industry Analysts.

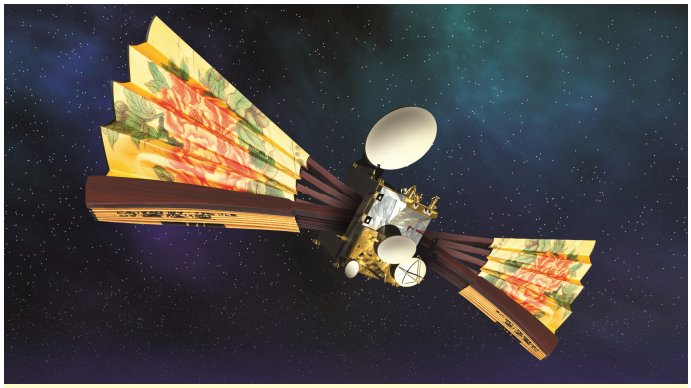
"Broadcast dominates the global market for satellite transponders. Launch of several new channels worldwide is resulting in growing requirement for more available capacity thereby presenting higher demand prospects for satellite transponders," the report added.

Analog to Digital Conversion

The Asia Pacific region is undergoing a rapid digital TV conversion that will see penetration increase from 28.9% of TV households in 2010 to 51.7% in 2013 then 61.2% by end-2014 and on to 97.5% in 2020 – or up by 501 million homes between 2013 and 2020, according to a report from Digital TV Research.

The *Digital TV Asia Pacific Forecasts* report reveals that China will provide 225 million of the extra digital TV homes, with India adding a further 118 million. However, 159.6 million homes in the region will not own a TV set by 2020, although this is down from 195.9 million in 2013 and 221.8 million in 2010.

China and India have a massive influence, with a combined 663 million TV households (or 70% of the region's total) by 2020. China has as many TV households as Europe and North America combined. Simon Murray, author of the report, said: "Despite the rapid conversion, digital TV will still have plenty of room for growth for some time to come. Only 12 of the 22 countries forecast in this report will have fully converted to digital by 2020."



Spacecom's AMOS-4 satellite, launched last year provides a full range of services to Southeast Asia, Russia and China. (image courtesy of Spacecom)

Of the 501 million digital homes to be added between 2013 and 2020, 172 million will come from DTT. However, the number of analog terrestrial homes will fall by 220 million. Digital cable will contribute a further 200 million additional homes, with analog cable losing 155 million. Pay satellite TV will supply an extra 47 million, with FTA satellite TV adding 14 million. Pay IPTV will record 69 million more subs.

Pay TV penetration will rise from 58.5% in 2013 to 68.0% in 2020, adding 164 million subs to take the total to 648 million. Even more impressive is that digital pay TV penetration will climb from 20.9% in 2010 on to 66.5% in 2020. Digital pay TV subscribers will quadruple from 163 million in 2010 to 636 million by 2020. Pay TV revenues in Asia Pacific will be $46 billion in 2020; nearly double the 2010 figure. Digital pay TV revenues will triple from $15 billion in 2010 to $46 billion in 2020.

Murray added: "China overtook Japan to become the most lucrative pay TV market in 2011. India will take second place from 2019. Together China, India and Japan will account for two-thirds of the region's $46 billion pay TV revenues by 2020."

Pay TV revenues will more than double in 10 countries namely: Bangladesh, India, Indonesia, Laos, Myanmar, Nepal, Pakistan, the Philippines, Thailand and Vietnam) between 2013 and 2020. However, revenues will fall in Hong Kong, and will increase by less than 10% in New Zealand, Singapore and South Korea.

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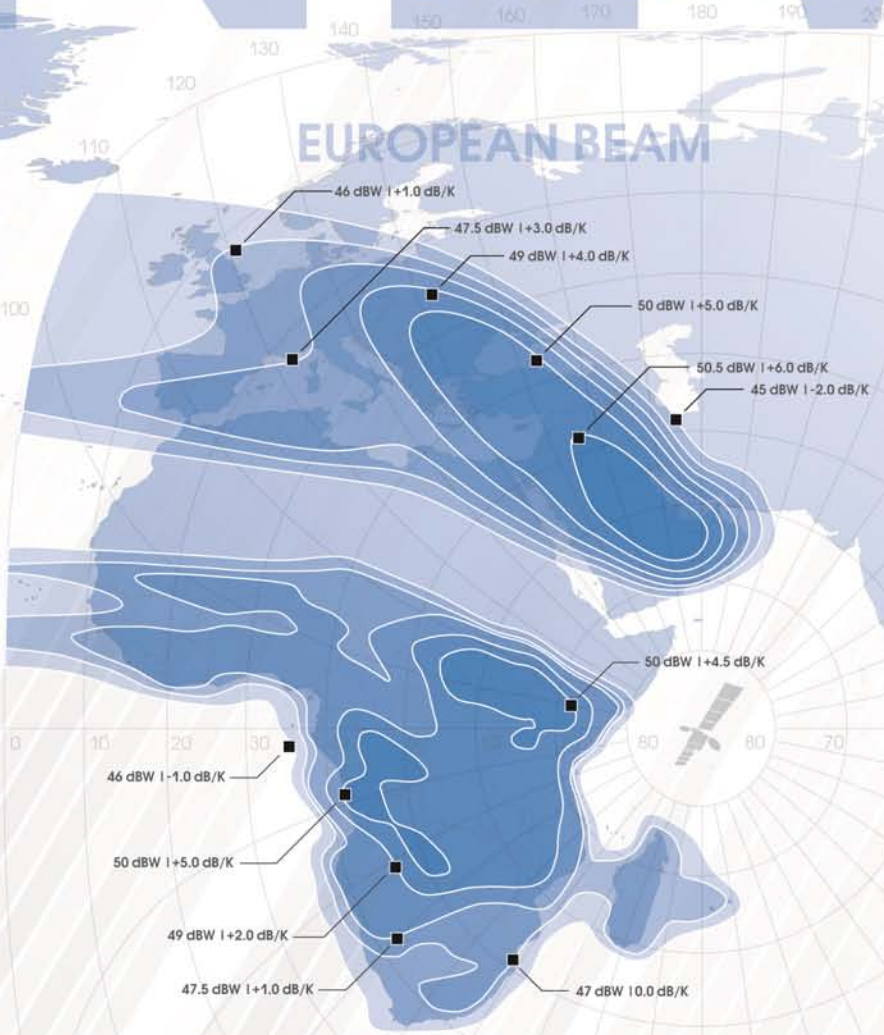

Russian satellite operator Gazprom Space Systems presents the new Yamal-402 satellite opportunities to the International Market.

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

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

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

  Steerable Beam and Northern Beam are cross-connected.

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On Demand TV

Based on forecasts for 97 countries, on-demand TV revenues from movies and TV programs (and excluding revenues from other sources such as sports and adult and also excluding SVOD packages and online TV & video (OTT)) will reach US$ 6.0 billion in 2018, up by 44% from US$ 4.2 billion in 2012, with most of the growth coming from Asia, according to Digital TV Research.

On-demand TV generated just 2.3% of the US$ 184 billion total pay TV revenues in 2012. However, the on-demand proportion will grow to 2.9% of the US$ 203 billion total in 2018. Growth in on-demand TV revenues in some mature markets will not be enough to compensate for falling subscription revenues.

The US accounted for 37% of global on-demand TV revenues in 2012, but this proportion will fall to 30% by 2018 – despite its revenues climbing by 16%. "On-demand TV is growing fast outside the US. For instance, China will more than double its revenues between 2012 and 2018. Indian revenues will almost triple over the same period," said Simon Murray.

On-demand TV revenues in the Asia Pacific region will more than double between 2012 and 2018 to US $1.457 Billion. Asia Pacific's proportion of on-demand TV revenues will grow from 16% in 2012 to 24% in 2018.

Multiscreen TV Everywhere

As of January 2014, SNL Kagan's survey of key Pay TV providers in the Asia-Pacific region indicates 18 operators from 12 markets had launched multiscreen TV Everywhere services, with India's Dish TV India Ltd. and Tata Sky Ltd. and the Philippines' Cignal Digital TV being the new entrants since June 2013. Among them, all operators have leveraged smartphone apps for TV Everywhere video distribution, an increase from 80% in 2013, while 94% have launched video apps on tablets, rising from 87% in 2013. By contrast, TV Everywhere adoption rates for smart TVs, game consoles and PC/Mac computers have all slightly declined.

MPA now expects a 9% compound annual growth rate (CAGR) for pay-TV growth in the region, with pay-TV penetration to increase to 60% by 2018 from a 52% market share in 2013.

The growth of wireless broadband use in China, India and Indonesia is driving an increased consumption of video content however, while the Asia Pacific is expected to witness a significant rise in fixed broadband subscribers – particularly in China, India, Thailand, Philippines and Australia – to reach 400 million by 2018, from 310 million in 2013.

"...The days when the Asia-Pacific region was referred to as a market with great "potential" has now passed. The AsiaPacific region is the fastest growing region for satellite services and by all indicators will continue to do so for the foreseeable future..."

India has more than 60 million active paying digital TV subscribers, with 37 million of these direct to home (DTH) satellite customers and 23 million to cable TV providers, he added.

New subscriptions slowed in South East Asia from 3.7 million in 2012 to 1.9 million in 2013, although MPA expects net additions to accelerate again in the region to up to 2.5 million a year driven mainly by Indonesia, Malaysia and the Philippines. The Thai market is expected to suffer from disruption, and pay-TV growth in Vietnam and Singapore are expected to be minimal.

IPTV services in China added 5.6 million subscribers in 2013, driven by improved content and increasing broadband reach. This, and the growth of over the top (OTT) video services from operators such as Wasu, LeTV, XiaoMi and BesTV, has had a detrimental effect on the growth of cable TV subscriptions in the country, according to MPA.

"Looking at the macro landscape, you can see pay-TV penetration marginally improve in China over the next five years and this will deliver real pay models, driven largely by IPTV. It might improve further as operators become challenged by the new regulatory policy that establishes a set-top box internet-TV model," said Couto.

Conclusion

The days when the Asia-Pacific region was referred to as a market with great "potential" has now passed. The Asia-Pacific region is *the* fastest growing region for satellite services and by all indicators will continue to do so for the foreseeable future.

Virgil Labrador is the Editor-in-Chief of ***Satellite Market and Research*** based in Los Angeles, California. He is the author of two books on the satellite industry and has been covering the industry for various publications since 1998. Before that he worked in various capacities in the industry, including a stint as marketing director for the Asia Broadcast Center, a full-service teleport based in Singapore. He can be reached at virgil@satellitemarkets.com

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The Satellite Ground Communication Segment

by Bruce Elbert

The satellite ground communication segment has been undergoing many changes in the last few years. To shed light on the latest technical developments in this important segment of the satellite industry, we provide excerpts from the forthcoming updated and revised edition of book, *The Satellite Ground Communication Segment and Earth Station Handbook*, Second Edition, by renowned industry consultant Bruce Elbert. Follows are excerpts from the first chapter of the book:

Ground segments of satellite communication systems employ a variety of terminal designs and network configurations in order to provide and manage services delivered to end users. The terminals in these networks range from the large earth stations used as gateways in a telephone network to very small aperture terminals (VSATs) that deliver data communication applications to homes and remote business locations. "Small aperture" in this context refers to a reflector diameter in the range of 60 cm to 2.8 m. We must also include low-cost end user communication devices like desktop and handheld mobile telephones and direct broadcast satellite (DBS) home receivers. This broad range of ground systems and devices employs many of the same hardware and software technologies found in other modern telecommunications and broadcasting networks that are the core of terrestrial wireless and Internet services.

Space and Ground Segments

As illustrated in Figure 1.1, the ground segment is that half of a satellite communication system which, quite naturally, resides on the ground. The space segment, consisting of orbiting communication satellites and a satellite control system used to operate and maintain the satellites, is that vital component which relays information between and among the various types of earth stations that make up the ground segment. In a previous work (Elbert, *Introduction to Satellite Communications*, 3rd ed. 2008), we discuss in detail the design, operation, and management of the space segment, considering the technologies and physical principles that are key to its success. In essence, the implementation of the space segment of geostationary earth orbit (GEO) satellites represents many hundreds of millions of dollars; a global non-geostationary (non-GEO) satellite system could increase this level to billions due to the greater satellite quantity. Operators of GEO space segments include Intelsat, Société Européene des Satéllites (SES), Telesat, EUTELSAT, Sky Perfect JSAT, and others. Companies such as Iridium, Globalstar LLC, O3b, and OrbComm operate non-GEO satellite constellations and systems. The ground antenna at the top left of the telemetry, tracking, and control earth station facility—along with the satellite control center—permits control of the space segment. We will not discuss the space segment in detail in this book, but we will at times need to consider the capabilities and constraints that it imposes as we work to provide the service element of the overall system.

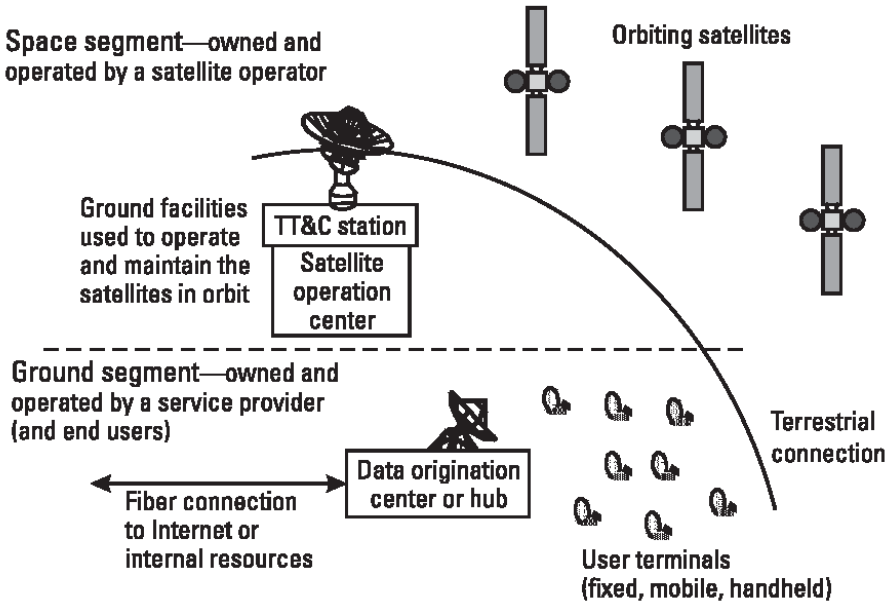

Figure 1.1 Definition of the space segment and the ground segment

We use the term earth station to include classic fixed earth station facilities as well as mobile aeronautical,

maritime, and handheld devices. In some cases, earth stations are individually owned and managed (e.g., the teleport operated as a business), to offer specific services to end users. Many readers already own their own user terminals, which are technically small self-contained earth stations. But these terminals cannot operate without the ground segment of the network operator. The hub at the center is a large earth station facility indica-tive of the resource needed by the network operator to fulfill its communications and management roles. Examples of the latter include DIRECTV, British Sky Broadcasting (BSB), and ViaSat. Many varieties of user-operated terminals deliver the final service to network end points.

The long history of ground segment and earth station development and application dates back to the early 1900s, to the very beginnings of radio communications. Gugliemo Marconi successfully conducted the first transatlantic message transmission in 1901. The transmitters of the day produced a radio signal of around 1 MHz generated from a continuous spark. Radio waves from this frequency and up to about 30 MHz can travel long distances on the ground, since they can be reflected by the ionosphere (instead of an orbiting platform). Later, commercial ships were equipped with these radios so that land-based stations could handle messages sent with the international Morse code. The 1997 movie Titanic dramatized how these simple mobile radio stations were the lifelines of communication afforded the greatest ships at sea.

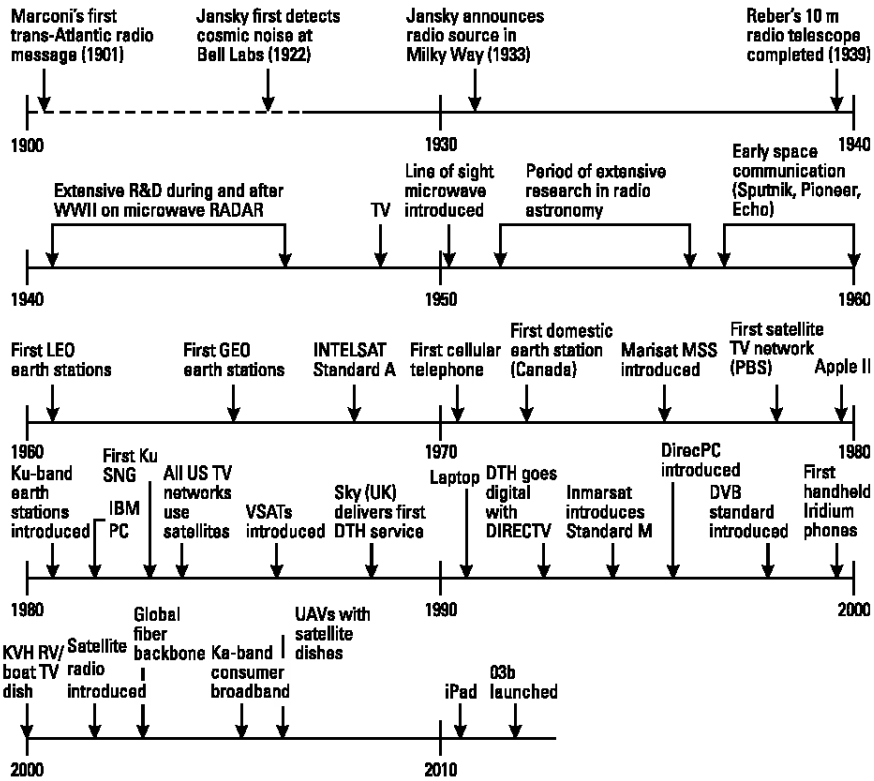

Figure 1.2 Overall timeline of ground segment and earth station development

An overall timeline for the evolution of modern ground segments and earth stations is presented in Figure 1.2. It is impossible to present here every significant class of facility and application, since to do so would require an area the size of a movie screen. However, we aim to show each major introduction of ground-based radio technology that contributed to how we use communication satellites in orbit.

Introduction of Consumer Terminals and Applications

Ground segments that serve individual consumers came into their own during the 1990s. Although many U.S. consumers were enjoying direct reception of cable and TV networks using backyard dishes (typically 2m to 4m in diameter), an explosion of demand for home satellite TV did not really start until DIREC-TV was introduced. The space segment for this pioneering system consisted of rather standard Ku-band Broadcasting Satellite Service (BSS) satellites operating in the assigned slot at 101 degrees west longitude (the Astra Fixed Satellite Service, FSS, and BSS satellites had already gained eminence at 19.2 degrees west longitude, based on analog transmission). DTH receivers were installed in American homes by millions of families who either did not have access to cable TV or were unhappy with what the local cable company had to offer.

Complementing the user terminals was the world's large uplinking center for DIRECTV, constructed in Castle Rock, Colorado. This center was the first to employ MPEG-based video compression and had the unique capability to originate 200 simultaneous channels of programming. The proprietary DIRECTV Satellite System (DSS) demonstrated the technical and operational viability of this type of implementation (as with many U.S. innovations, this proprietary standard has been supplanted in later DTH systems by the European Digital Video Broadcast [DVB] series of open standards). By 2000, approximately 7 million individual subscribers were employing DSS receivers and subscribed to

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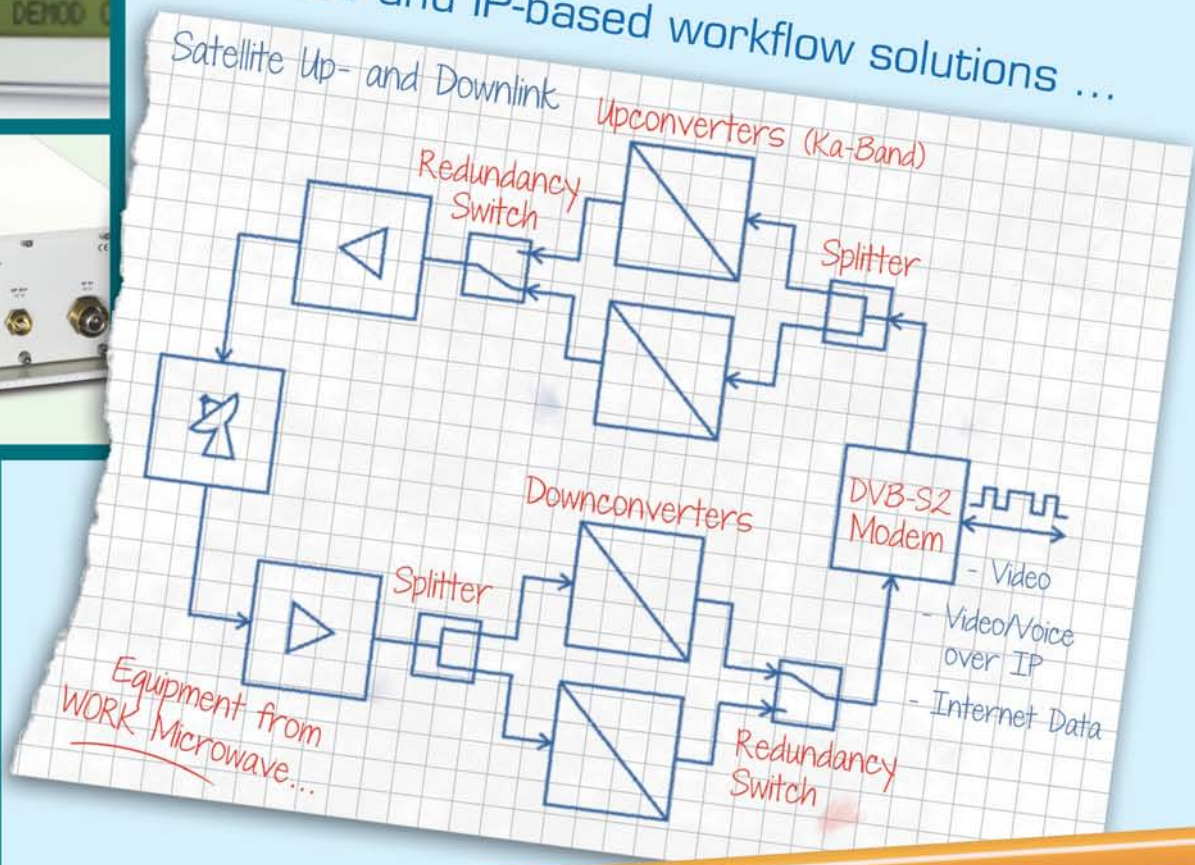

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An example of a compact MSS terminal is Nera's WorldPro 1000 which is used with the Inmarsat BGAN system. (photo: Nera)

the service (making DIRECTV the United States' largest "cable" TV operator). Echostar, a competitor of DIRECTV, introduced its innovative DISH Network and brought the total U.S. DTH subscriber count to over 30 million, the largest for any country in the world. France, Germany, the United Kingdom, Sweden, Thailand, Malaysia, Japan, Mexico, Brazil, and Argentina are among the nations in which consumers have access to a high degree of choice in TV entertainment. As we write this, Indian DTH subscriber growth is over *one million* per month!

Many of these ground segments use the DVB standard, which contains MPEG-2 and most of MPRG-4 video compression and multiplexing, digital audio, encryption and conditional access, and online program guides. DVB provides many standard features that permit set-top boxes to be supplied from multiple vendors, but aspects of the conditional access system are very much closed. In the Middle East and in North Africa, for example, literally all TV is delivered through the DTH medium. This is a boon not just for the operators but for manufacturers of home receiving antennas and set-top boxes, digital video compression and storage equipment, uplink earth stations, and providers of the programming itself (as well as advertisers) who gain a direct connection to viewers.

Returning to the Mobile Satellite Service (MSS) area, Inmarsat did a good job of bringing satellite communication to the personal level. First with the Inmarsat M and then the M4 (Figure 1.10), it was demonstrated that one could have reliable communication from a highly portable piece of equipment. Likewise, domestic MSS operators Optus Communications (Australia) and American Mobile Satellite Corporation (AMSC) adopted similar ground segment equipment, including Improved Multi-band Excitation (IMBE) voice compression technology from Digital Voice Systems Inc. (DVSI). While these terminals were not of the handheld variety, they nevertheless demonstrated that individual calls could be placed and subscribers could be serviced conveniently and relatively inexpensively (e.g., as compared with the best alternative in a remote place, on a ship, or wherever).

The explosive use of the Internet during the 1990s had an impact on satellite communication ground segments. Major corporations that found it an effective way to extend their information technology (IT) systems across a broader business and geographic base adopted TCP/IP and the rest of the Inter-net suite of protocols. Companies like HNS, Gilat, and ViaSat enhanced their VSAT offerings by better supporting TCP/IP. Oddly, much misinformation was propagated during the 1990s that TCP/IP was incompatible with GEO satellite links due to the combination of propagating delay and noise-induced errors. The leading suppliers of VSAT terminals and the associated hub stations devised effective solutions through protocol "spoofing" (a technique also used by Cisco to improve performance) to allow satellite networks to challenge terrestrial solutions.

The year 1999 was a watershed for satellite communications because of the commercial introduction of satellite handheld phones through the Iridium and Globalstar systems. The first Iridium handheld telephone, illustrated in Figure 1.11, is not small enough to put in a shirt pocket or small purse, but its communication capability was innovative. The ground segment itself provides the landing point for terrestrial phone calls and allows this operator to manage the system. Thuraya of the UAE introduced its first satellite phone in 2003 and has produced the first "cradle" for the iPhone 4.

A great deal of excitement exists about advanced satellite systems that offer interactive broadband services to homes and business. Unlike DBS and VSATs, the coming generation of Ka-band broadband systems intends to compete with the fiber optic and cable

An example of Communication on the Move terminals is ND SatCom's Ka2Go satellite terminal which can be mounted on a vehicle. (photo: ND SatCom)

networks in the provision of high-speed Internet and multimedia services. ViaSat took the lead in 2011 with the introduction of a new satellite and network architecture based on the SurfBeam II.

Satellite CoTM

Another type of earth station takes the form of specialized terminals that deliver broadband two-way service to vehicles on the move. These could be SUVs, trucks, and military land vehicles, as well as various types of manned and unmanned aircraft. While costing substantially more than the SurfBeam II device in Figure 1.11, the COTM terminal provides what terrestrial networks cannot—two–way, high-speed data service in less-traveled areas and beyond the reach of the cellular and wireless services, particularly 4G Long Term Evolution (LTE) broadband. The Ka-band satellites launched after 2000 deliver the raw bandwidth, but the COTM systems are what render it useful to civilian and military operators. As of 2014, the predominant COTM installation is in various aircraft and by vehicles used for emergency communications and by the news media.

The Future of Earth Stations

In looking to the future, we can count on satellites getting bigger and these terminals getting smaller. This promotes expansion of the ground segments in general and the applications they deliver. We see greater diversity of terminal types and applications, with the satellites offering bandwidth on attractive terms as compared to past decades. Innovation will lie with specialized companies in this industry who understand what it takes to produce and operate satellite communications earth stations and terminal equipment.

Next issue: Earth Station Design Philosophy

The second edition of the *The Satellite Ground Communication Segment and Earth Station Handbook* will be published July 1st, 2014 and is available for pre-order at www.artechhouse.com or at www.amazon.com.

Bruce Elbert has over 30 years of experience in satellite communications and is the President of Application Technology Strategy, L.L.C., which assists satellite operators, network providers and users in the public and private sectors. He is an author and educator in these fields, having produced seven books and conducted technical and business training around the world. During 25 years with Hughes Electronics, he directed major technical projects and led business activities in the U.S. and overseas. web : www.applicationstrategy.com/ email: bruce@applicationstrategy.com

How to Save Costs in VSAT Installations

by Virgil Labrador, Editor-in-Chief

Installing and commissioning VSATs entail substantial time and costs, One company came up with an innovative solution

Traditionally, installing and commissioning a VSAT is a very time consuming, labor–intensive and costly process for a satellite service provider. Thus the industry has been looking for a more efficient solution as the demand for high speed data connections is growing worldwide. High Throughput Satellites (HTS) have increased the capacity and efficiency of satellite data connections providing a vital impetus for the VSAT market. This growth also brings added complexity as large HTS networks are deployed as quickly as possible.

Streamlining the Remote Commissioning of VSATs

Today, a more accurate solution is available that streamlines the remote commissioning. This new solution is called Satmotion Pocket; developed by Integrasys and used by many of its clients with different platforms including iDirect. iDirect is the world's largest VSAT systems manufacturer by enterprise TDMA hardware sales as recently published by market analyst COMSYS.

Satmotion Pocket simplifies the commissioning process by using highly intuitive software on a smartphone, tablet or laptop.
(image: Integrasys)

iDirect has worked together with Integrasys to define and customize Satmotion Pocket for iDirect´s customer needs, creating the "iDirect Remote Commissioning Solution" which allows satellite service providers to deploy large networks while saving time and resources.

Satmotion Pocket simplifies the commissioning process by using highly intuitive software on a smartphone, tablet or laptop, allowing the VSAT operator to autonomously check the transmit power, BUC compression point, and minimize cross-pole and adjacent satellite interferences. This unique solution allows remote commissioning in the field without the need to call the network operations center (NOC) or hub operator or for any cellular data connection.

At the Satellite 2013 show in Washington DC, Integrasys demonstrated Satmotion Pocket's capabilities with iDirect remotes. iDirect started working with Integrasys on the iDirect remote commissioning solution to further develop Satmotion Pocket features and to support new remotes and releases such as the iDX 3.2 software release.

The iDirect Remote Commissioning solution launched in early 2014 and was showcased at the Satellite 2014 and CABSAT shows. The solution will also be featured at the upcoming CommunicAsia 2014 exhibition in Singapore this month.

Asia is one of the key markets where VSAT communications are focused and large deployments are needed. Being a price sensitive market, achieving cost-effective deployments is a must. In response to this specific requirement, Integrasys has developed the support for a low cost spectrum analyzer which allows Asian customers to benefit from this new technology, reducing the overall investment and maximizing the return.

Satmotion System

The Satmotion system is a software-based tool that allows VSAT installers to autonomously observe and measure their uplink test signal—normally a clean carrier—in the field with no need to coordinate with NOC personnel. Uplink signal measurements are taken at the NOC site with a commodity spectrum analyzer and a controlling software server. The installer gets measurements from the outbound of the target satellite through the same VSAT that is commissioned.

The received information is displayed on a software client using a computer device of the installer's choice, such as a laptop, tablet or smartphone. High-rate traces of different flavors of the uplinked signal as received at the NOC (nominal, cross-pole, adjacent satellite interference) are sent back to the installer to fine point the antenna/feed

orientation to be completed. Additionally, the transmit power setting can be programmed without a NOC's support, thereby achieving the VSAT optimal performance.

This system is based on a Carrier Monitoring System, which allows the reception of the hub´s spectrum analyzer measurements in the field without a cell phone connection, just with a satellite link. This capability allows for a full auto-commissioning process without calling the NOC for support; all the measurements and preventions of any interference are automatically controlled by the hub operations.

Satellite network operators struggle to serve the increasing bandwidth demand with VSAT installers carrying professional instrumentation equipment to the customer sites, while supported by staff at the NOC. In these situations, the alignment of a small dish with the satellite, usually in challenging locations and in adverse weather conditions, can be a time-consuming and costly process.

The Satmotion system automates control center support and allows the satellite connection to be established with a smartphone application or computer software at the customer's site. This auto-commissioning system is reliable, easy-to-use and opens the door for accurate installation by the end customer.

With this unique system, the VSAT installer has a ground reference for the initial antenna pointing, maps of the location with target elevation and azimuth information, and a line to the satellite. When the antenna is pointed correctly, the modem provides the Signal to Noise (SNR) value and reading from the downstream carrier, ensuring the installer has pointed the antenna to the correct satellite.

The application displays the measurements performed at the hub to enable the installer to transmit a clean carrier (CW), measuring the power and interference generated by the VSAT in real time. In order to minimize the Cross-Pol and Adjacent Satellite Interference, the installer rotates the orthomode and moves the antenna. When these interferences are minimized, the application measures the BUC compression point with a push of a button. As a final step, all installations have a log file containing all of the recorded values during the process for power, XPOL, ASI, and much more.

Among the benefits of the system include the following:

- *No more calls to the NOC*
- *No more Cross Pol (XPOL) interference*
- *Minimizing Adjacent Satellite Interference (ASI)*

Integrasys' Sales Manager Alvaro Sanchez demonstrating the Satmotion's auto-commissioning system on a smartphone. (image: Integrasys)

- *Reduces human factor errors*
- *Most accurate measurements available in the field*
- *No more telephone connections required*
- *No need for an expensive Spectrum Analyzer in the field*
- *Allows for simultaneous installers in different locations*
- *Maximum CW carrier power, automatic BUC compression point calculation*
- *Frequency fixed by the hub*
- *App control*
- *Optimal performance*

Conclusion

Auto-commissioning systems significantly reduce the installation costs. Integrasys completed a study which explains how—for 5,000 VSAT deployments during one year—Satmotion Pocket reduced the cost by US$ 3.5 million in developed countries and US$ 4.6 million in developing countries, based on a PricewaterhouseCoopers (PWC) study for the European Space Agency (ESA). These savings define this system as an economical remote commissioning method.

View a demo of the iDirect Remote Commissioning solution at CommunicAsia in Singapore at the iDirect booth # 1P3-01

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SpaceX Files Suit Against U.S. Air Force

by Elisabeth Tweedie, Associate Editor

The fracas between SpaceX and the United States Air Force (USAF) has taken an unexpected turn with the recent entry of the Russians into the ongoing debate. In April SpaceX filed a claim against the USAF over its contracting procedures. The main thrust of this claim is that the contract awarded to United Launch Alliance (ULA) for 36 Evolved Expendable Launch Vehicle (EELV) launches over the next few years was a sole source contract and therefore not open to other companies to compete. Elon Musk, founder and Chief Designer of SpaceX, feels that "national security launches should be competitive and not sole sourced."

A secondary point in the claim, is that ULA's use of RD-180 engines in the Atlas V rockets that will be used for some of the launches, violate current US sanctions on Russian officials including Deputy Prime Mnister Dmitry Rogozin. Rogozin is responsible for Russia's defense and space industry. RD-180 engines are built by a Russian company - NPO Energomash. A temporary injunction was issued on April 30 prohibiting ULA from using the engines; however this was lifted on May 8 when the US State, Treasury and Commerce Departments stated that no decision had been made that indicated that NPO Energomash was a Rogozin controlled enterprise. On May 13 Rogozin tweeted "Russia is ready to continue deliveries of RD-180 engines to the US only under the guarantee that they won't be used in the interests of the Pentagon. It seems difficult to argue that NPO Energomash is not controlled by Rogozin after that statement, albeit it was not an official announcement, however as yet the injunction has not been reissued.

ULA's response to the injunction was to state that it would cause "irreparable harm" as the Atlas V rockets are included in two upcoming competitive launch proposals for NASA's Commercial Crew Program. SpaceX is another contender for those launches.

Back to the main argument. ULA is currently the only company certified by the USAF to deliver EELV missions. SpaceX is seeking a similar certification and has supplied the USAF with the data from three successful launches as a necessary requirement to get that certification. SpaceX believes that once that data was handed over it was eligible to compete. The USAF believes that the data needs to be certified before that can occur. At the time of writing the first launch has been certified and work continues on the other two. According to Lieutenant General Charles R. Davis, the military deputy in the office of the assistant secretary of the Air Force for acquisition, SpaceX is expected to earn certification in March 2015. "It is our belief and our goal that we will get SpaceX certified, or somebody, to the point that they can put all Air Force satellites in orbit by about 2018, including heavy and high-risk payloads." Davis has also been quoted as saying that the Air Force has asked the agency that manages US spy satellites if it can delay the award of a launch contract by several months into 2015 so SpaceX might have enough time to get certified for that task. The USAF is allegedly spending US$ 60 million and deploying over 100 staff in order to do this. Which I guess goes to show that you need to pick carefully who you sue, as I can't see many commercial companies spending this amount of money and going to this effort, to help a company that is in the process of suing them!

ULA's Atlas V launcher. SpaceX filed a suit in Federal Claims Court against the US Air Force over its contracting procedures for the Evolved Expendable Launch Vehicle program which gave ULA a contract for 36 launches. (photo: ULA)

SpaceX and ULA testified before the Senate Appropriations Committee in March and the arguments put forward by Musk then, basically form the basis for the lawsuit. These are, that the Falcon 9, SpaceX's launch vehicle, costs approximately a quarter of the price of a ULA launch "to put this into perspective, had SpaceX received the award for the 36 core EELV block buy contract, we would have saved the taxpayer US$ 11.6 Billion." And, "if our vehicle is good

enough for NASA….there is no reasonable reason we can't launch a GPS satellite." Musk also pointed out that SpaceX is already the largest rocket engine manufacturer and the fastest growing launch services company in the world, adding that the launch vehicles and spacecraft are made in America. Michael Gass, President and CEO of ULA, was quick to point out his company's success rate "ULA and the government team have consistently delivered 100% mission success over 68 launches since the inception of the program." In response to the potential injunction against using Russian engines Gass pointed out that "we have over two years of safety stock inventory in the US." adding "We also have another product (Delta IV) that is fully compliant and ready to support any of the missions."

Musk is not alone in questioning the sole sourcing. In April seven US Senators wrote to Defense Secretary Chuck Hagel asking him to expand competition for USAF launch contracts. It was originally intended that a further 14 EELV launches be open to competition between now and 2017, but this has now been reduced to seven.

The stakes are high in the launch business, and for a total newcomer – the company was only founded in 2002 - SpaceX has a very impressive track record. Falcon 9 has been launched nine times, these launches include three supply trips to the International Space Station (ISS) for NASA, and two launches to a Geo Transfer Orbit (GTO) of commercial satellites. The current manifest stretches through 2018. On May 29 the company will unveil Dragon 2 – the manned version of the Dragon capsule, designed to ferry astronauts to the ISS. This record has garnered it a lot of support. Everyone I spoke to at the Space Symposium (held in Colorado earlier this month), including former astronauts and retired senior military were in favor of the company and felt that the launch industry benefitted from its existence. However as noted above, ULA has considerably more successful launches under its belt and the USAF is not likely to want to risk a repeat of the late 1990s when there were six launch failures in less than a year. Apart from the obvious setback for national security and intelligence, the satellites lost cost a reputed US$ 5 Billion, so it is understandable that the Air Force will not be cutting any corners in the current certification process.

"…National security launches should be competitive and not sole sourced…"

—Elon Musk, Chief Designer of SpaceX

Interestingly, the case itself may fail on a technicality. The contract was awarded last December and SpaceX did not file its claim until the end of April, outside of the 90 day window allowed for this. Regardless, it would appear that the USAF is doing what it can to help SpaceX, and presumably Orbital, the other competitor, get onto the bidding list.

U.S. Eases Export Controls on Satellites

With the best intentions, in 1998, Congress put everything space related on the Munitions List. The policy has since had dire consequences on the U.S. space industry. It has taken 15 years to get the controls right. Last month, the U.S. published new regulations easing export controls on satellites and other space technologies. The regulatory changes will impact the overwhelming majority of satellite related items are moving off the Munitions List to more flexible licensing as commercial items under Department of Commerce jurisdiction.

Congress created strict restrictions on the export of U.S. satellites in 1998, after China acquired sensitive space launch technology from U.S. defense companies.

But in the 15 years that followed, U.S. companies said that the broad restrictions swept in common commercial technologies that posed no security risk, putting U.S. exporters at a competitive disadvantage.

The latest change to U.S. export controls is part of the administration's ongoing export control reform initiative, which is completely overhauling the rules for international trade in high-technology and defense related goods and services.

Of the 80,000 licenses for export of Munitions List items issued each year by the Department of State, half are expected to move to Department of Commerce jurisdiction. The shift in space will be particularly dramatic, however. Going forward, it will be much easier for U.S. manufacturers to compete in the international market for space.

The Satellite Industry Association (SIA) applauded the publication of new regulations that reform the export controls for satellites and related items. The U.S. Departments of State and Commerce each published rules that will transfer commercial communications satellites and some remote sensing satellites, along with tens of thousands of associated parts, components, and ground terminals from the more restrictive U.S. Munitions List to the Commerce Control List.

The easing of export controls on satellites will make it easier for U.S. manufacturers to compete in the international space market. (photo: Boeing)

This action marks the end of a 15-year period during which all U.S. satellite exports were licensed as munitions, creating unnecessary constraints on U.S. satellite competitiveness internationally.

The Administration issued final rules less than 18 months after the U.S. Congress passed legislation permitting satellite export control reform, with bipartisan and bicameral support. The new regulations will take effect in six months' time, to allow U.S. manufacturers, their international suppliers and customers, and government agencies to update their internal licensing and compliance systems.

The Aerospace Industries Association said that the previous restrictions had cost U.S. manufacturers US$ 21 billion in satellite revenue from 1999 to 2009 and cost about 9,000 direct jobs annually.

"SIA congratulates the U.S. government on this truly comprehensive overhaul to the U.S. satellite export control system," said Patricia Cooper, President of the Satellite Industry Association. "With a more modern regulatory environment for exports in place, we look forward to unleashing the full force of American ingenuity and innovation at work in the international market," Cooper added.

"Welook forward to a careful review of the new regulations and active engagement throughout the implementation period," said Cooper.

The new regulations will take effect in six months' time, which will allow U.S. manufacturers and suppliers to update their internal licensing and compliance systems, and get to know their new licensing authorities within the Commerce Department.


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Challenges in the Artic Oil and Gas Satellite Market

NSR's newly released Energy Markets via Satellite, 4th Edition finds a challenging market for Arctic-based Oil & Gas satellite connectivity services. Even as more attention continues to move towards the Arctic – for both the transportation of petroleum via tankers through the Northern Sea Route or Exploration & Production activities from O&G players – the market does not provide a green light for widespread satellite communication solutions as found in other areas such as the North Sea, Gulf of Mexico, or the shale-plays in the lower 48 states.

"While O&G majors invest in the mineral and development rights throughout the Arctic, and dedicate capital and resources to the region – the limited timeframe for activities, extremely harsh operating conditions, and ongoing environmental concerns pose significant barriers to the overall O&G industry in the Arctic," states report author and NSR Senior Analyst Brad Grady. "These issues all trickle-down into the planning cycles for satellite operators and communications service providers who continue to look at the Arctic as a potential – but cannot yet see a green light for widespread investments of coverage and capacity."

Although providing double-digit growth opportunities for those systems that have coverage, and providing a 3x increase in the number of In-service units providing MSS-based communications solutions, by 2023 the total Arctic market opportunity is projected to be approximately 100 In-service MSS units. Compare that to the next smallest region – the Indian Ocean at 5,000 In-service Units – and the Arctic remains an interesting proposition, but not enough to sustain widespread dedicated focus.

While Oil & Gas development will occur in the Arctic, technically recoverable resources still exist in areas with longer operating windows, better known environmental management practices, and greater access to logistical support such as satellite communications. As NSR's Energy Markets via Satellite, 4th Edition explores – an on-going maturation in the North Sea and Gulf of Mexico shifting activity into Latin America and Asia-Pacific will be larger growth drivers for energy market communications providers than a shift into the Arctic. In a global market of almost 170,000 In-service units just in the Oil & Gas sector alone, the Arctic is and remains an extremely small niche opportunity for satellite communications.

Antennas and Terminals: What's Up?

by Lou Zacharilla

The launch of ViaSat-1 in October 2011 continues to have impact throughout the industry. It triggered a wave of innovation of products and business models throughout the chain of the satellite business. It is no coincidence that when Mark Dankberg was planning the satellite's launch, he frequently referred to Clayton Christensen's best-seller, The Innovator's Dilemma. Christensen (like Dankberg) accepted the premise that good companies could do everything "right," but still lose and have their lunch eaten before Noon. The book launched the concept of "disruptive innovation" which, like ViaSat-1, has become an accepted standard.

By February 2012, 24 satellites with some type of Ka-band payload had been launched, while Inmarsat, Hughes and Avanti soon after joined "The Space Race for Human Progress." This has coincided with a rise in VSAT sales and applications, an uptick in demand for data services within verticals such as the maritime sector, along with new applications and network extensions for media, enterprise and government. There is now a simple acknowledgement that high-throughput satellites are the game-changer that Dankberg and others (including SSPI) believed they would be. As a result of the business out there, there is a new mandate for innovation and service.

I thought it was time to poke around to get a snapshot view of how HTS and other developments over the past three years have changed a key sector of the satellite industry, antennas. So I invited Tony Wilkey, Vice President, AvL Technologies; Keith Buckley, CEO of ASC Signal (formerly Andrew Corporation) and Paul Scardino, Vice President, Globecomm, to talk about what they see today, nearly three years after ViaSat-1.

Lou Anthony Zacharilla (LAZ) *: There's been a lot going on since that ViaSat-1 launch. What are the big trends that you see in the area of antennas and transportable technology today?*

Keith Buckley: If you look at it from a macro market level, what I find is that the market is looking for products with the capability to meet more than one mission and to do it without adding complexity. So for us, the trend prompted an engineering adjustment which led to us designing multi-band and dual-band systems within a single aperture size. We now have a 4.9 meter dish, for example, which does UHF through Ka-band.

Paul Scardino: Certainly the multi-band provisioning is a trend that was stimulated by the ViaSat-1 reality. Another area that resonates for us is SWaP. It is interrelated to multi-band, when you think about it. Customers, particularly in the government space, want small, lightweight systems with reduced power consumption. The auto acquire functionality is being replaced with manual point systems with simple acquisition applications on smart phones. Customers are willing to forego this feature to improve SWaP. Transportable multi-band systems are also available. As both Keith and Tony know well, leveraging a single antenna mount and reflector to satisfy multiple frequency bands reduces overall CAPEX and enables flexibility with space segment and geographic deployments.

LAZ: You are all going in that direction. Tony, your boss, Jim Oliver, founded TWO antenna companies. He said back in 2012 that the introduction of Ka-band to commercial users reminded him of the introduction of Ku-band to C-band users. You have both said that the "ultimate antenna" would operate in all frequencies and work in any network with the elements being agnostic.

Tony Wilkey: I believe Jim said that two years ago. Yes. That's what everyone really wants. The rapid advancement of high-throughput Ka-technology and the demand for highly integrated functionality between the antenna and the NOC is where we see the train heading. At AvL we've been investing in both antenna and controller technology that support both of these trends.

LAZ: *Like ASC I believe you manufacture in-house and are always pushing the envelope.*

Wilkey: Our reflectors are manufactured in-house using carbon-fiber materials and techniques. We recently introduced an AAQ auto-acquisition controller, which we believe is the most advanced and flexible embedded controller in the industry. This is important because another trend we see is the demand for incredibly fast and reliable acquisition over satellite networks to incorporate those advanced modems and stringent NOC management requirements for maximum throughput.

LAZ: *It sounds like you all agree that we are still in a new phase where disintermediation can occur quickly. Is the controller a big part of the innovation in the antenna sector?*

Buckley: Yes. To Tony's point, we also have a next generation controller on the market which you will be hearing more about shortly. If I can add one other thing, there is a trend that I would define as "fragmentation."

LAZ: *Market fragmentation?*

Buckley: Not precisely. But more of a technological fragmentation in terms of the degree of customization being asked for by the market. There isn't much that comes across our desk that doesn't have something unique, new, or atypical to it. We see more customization than ever before, as well as more demand (and competition) from quarters and organizations previously not seen in the market.

LAZ: *Does that mean there is more business out there? ASC has been on a roll lately.*

Buckley: Well, we are getting more business. If the numbers we look at are right, there sure isn't less out there. My point is that a growing diversity of needs will require all of us to continue to innovate, despite a fixed-cost structure for a lot of our production. Having said that, we are also getting bigger orders in "traditional" deals as well from all around the world.

LAZ: *Growth and fragmentation tells me that the "innovators' dilemma" continues.*

Scardino: As an engineer I think that is right and it does require some serious problem-solving capacity at a strategic level, Lou. To add to what has been said, you can see how this creates a challenge to forecasting. According to Compass and others who watch it, the VSAT market reported year-over-year growth. But it's hard to say if it will continue to grow at the pace it has. It stands to reason that as remote locations continue to choose VSAT technology for connectivity needs, the bandwidth consumption will continue to grow. What makes it a challenge is that what is sold as a suitable amount of bandwidth on the first day gets bogged down quickly after 90 days go by! This is because usage tendencies change. So you have a couple different scenarios; either it is the dedicated network case where in a reasonably short period of time everyone sharing the bandwidth in a private network needs more, or you have the shared network scenario where traffic is bursty, and the issues are compounded due to the fact that you have multiple networks competing for the same bandwidth.

LAZ: *So how do you attack that? You have just described an unyielding market trend driven by what I call the "Broadband Economy." Consumption rates will rise as we become more indebted to living our lives and running our economies and governments online and on small screens.*

Continued on page 47

Products and Services Market*Place*

A guide to key products and services to be showcased at CommunicAsia 2014, Marina Bay Sands Convention Center, Singapore from June 17-20, 2014.

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

At CommunicAsia 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

ABS-2 brings unparalleled coverage and expansion capacity at ABS' prime location of 75 degrees East. ABS-2 offers a range of services including direct-to-home and cable television distribution, VSAT services, data networks, and telecommunications services for commercial and government customers as well as military applications.

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
Level 1 booth # 1U1-07
www.advantechwireless.com

At CommunicAsia 2014, **Advantech Wireless** will present details of its powerful and award winning – Teleport Technology of the year – Broadcast Solution: GaN SSPAs & Multicarrier modulator MSBM-500. At the Advantech Wireless booth no. 1U1-07, visitors will find Advantech Wireless' leading-technologies, delivering best performance to achieve best ROI in the market.

600W Ku-Band Gan Sapphire Blu

Advantech Wireless' Sapphire-Blu™ Series of UltraLinear™ GaN based High Power Amplifiers and BUCs are the ultimate solution for DTH TV. The new multicarrier broadcast modulator MSBM-500 from Advantech Wireless offers the perfect digital broadcast match for the GaN SSPA technology. One multi-carrier modulator, IP input, up to 16 carriers output, and one high linearity GaN SSPA/SSPB offers the most efficient and powerful solution for broadcast uplinks.

A-SAT™ is beyond dual mode DVB-RCS/TDMA-SCPC, it monitors channel utilization and switches the satellite access method and MODCOD seamlessly for the return channel to dynamically maximize the space segment utilization efficiency. Additionally, by having TDMA and true SCPC technologies in a single platform, the switch between traffic patterns is efficiently supported and all risks of equipment obsolescence are mitigated.

To set up a meeting with one of Advantech Wireless' experts please visit: www.advantechwireless.com/meeting-request

Amos Spacecom
Level 1 booth # 1V3-01
www.amos-spacecom.com

Spacecom, operator of the AMOS satellite constellation, consisting of **AMOS-2 and AMOS-3** co-located at 4°W, **AMOS-5** at 17°E, and **AMOS-4** at 65°E. The AMOS satellites provide high-quality broadcast and communications services in Europe, Africa, Russia, Asia, the Middle East, & North America. With the launch of AMOS-6 to 4°W in 2015, enhancing coverage over Europe and the Middle East with its new Pan-European beam, Spacecom will further strengthen its position as a global satellite operator.

Spacecom's AMOS-4 satellite provides a full range of services to Southeast Asia, Russia and China. AMOS-6, planned for launch in 2015, will provide steerable Ku-band across Europe and the ME and high-throughput Ka-band coverage in Africa and Europe. Ku-band and Ka-band on AMOS-4 is now available.

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

AvL Technologies' booth at CommunicAsia 2014 will showcase our newest 1.2m Ku-band Vehicle-Mount antenna for SNG applications. This robust antenna features an AvL carbon fiber reflector, a high-stiffness azimuth bearing, and our proprietary zero-backlash AvL Cable Drive. The antenna stows to 16.8" (42.7 cm).

AvL will also show its newest 60cm Manual FlyAway an-

tenna. This versatile antenna is lightweight, compact, portable and robust with a segmented carbon fiber reflector. Packed in a rugged nylon case, the antenna is compact enough to pack into a backpack and carry onto a commercial flight.

AVL's new 1.2m Ku-band vehicle-mount antenna

Also on display will be AvL's new 1.0m Mobile VSAT FlyAway antenna. This antenna packs into two cases, operates in Ku- or Ka-band, and is also available with an 85cm or 1.2m reflector.

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.

C-COM Satellite Systems Inc.
Level 1 booth # 1Q4-12
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.

Cobham SATCOM Land
Level 1 booth # 1N2-07
www.cobham.com/satcom

Cobham SATCOM is an official launch partner for Inmarsat Global Xpress® (GX), and several EXPLORER products are being developed specifically for operation on the GX network. Products include the EXPLORER 3075GX, which is a 0.75m Electronic Assisted Manual Point Fly-Away terminal; the EXPLORER 5075GX 0.75m Auto-Acquire Fly-Away terminal; and the EXPLORER 7100GX 1.0m Auto-Acquire Drive-Away terminal.

Cobham's EXPLORER 5075GX

Regardless of the application, Cobham's suite of GX EXPLORER terminals provide the reliability and functionality required to effectively connect users to the GX network for mobile and vehicular use across diverse sectors including Government, Emergency Response, Law Enforcement, Media Broadcasting, Transportation, Enterprise, Energy and Mining.

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

Comtech Xicom Technology provides a broad product line of KPAs, TWTAs, SSPAs and BUCs for worldwide satellite uplink covering C, X, Ku, DBS, Ka, 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 Booth # 1T2-07, during CommunicAsia2014.

Gazprom Space Systems
Level 1 booth # 1Y-07
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
Level 3 Hospitality Suite Begonia 3110
www.globecast.com

Globecast is a leading-edge content processing and distribution company. Globecast uses the best of satellite, Content Distribution Networks, dedicated fiber and public Internet to make sure that broadcasters' and media companies' content is where it should be when it should be, correctly packaged and formatted. Globecast provides tailored solutions for content providers of all shapes and sizes, creating the technical foundations that power monetization. The company provides multiplatform, multi-device services using its years of experience and business acumen to create the perfect packages for its customers.

Globecomm Systems
Level 1 booth # 1N1-07
www.globecomm.com

At CommunicAsia, **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.

ND SatCom
Level 1 booth # 1T4-07
www.ndsatcom.com

With three decades of experience, **ND SatCom** has become the premier supplier of innovative satcom systems to support customers with critical operations anywhere in the world.

At CommunicAsia, ND SatCom will be highlighting its new SKYWAN 5G product. The SKYWAN modem family is a reliable, flexible and versatile satellite communication platform for customer centric networks. It is a bi-directional MF-TDMA plus DVB system that supports voice, video and data applications in the most bandwidth efficient manner.

The new SKYWAN **5G** unlocks new business opportunities for service providers. Total cost of ownership is significantly reduced thanks to the fact that only one type of device is needed for all roles in the network. This saves costs in terms of logistics, certifications, network configuration and maintenance. SKYWAN 5G enables star, mesh, multi-star or hybrid topologies with Communications-on-the-move (COTM) support. Each unit can act either as a hub or master station, therefore adding agility in terms of its network role.

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

Newtec will be showcasing at CommunicAsia its 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 band-

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.

width 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.

RF-Design
Level1 booth # 1K3-03 (@ the German Pavillion)
www.rf-design-online.de

RF-Design with headquarters in Lorsch, Germany is successfully developing, manufacturing and marketing professional and high-quality RF-distribution solutions for the international Satellite, Broadcast and Broadband communications industry. Our product portfolio includes **LNB-supply/control solution, Splitters/Combiners, Switches, Redundancy Switches, L-Band Switch/Routing Matrix systems, RF Line-Amplifiers, RF-over-Fiber solutions** and **Broadband Remote Spectrum-Analyzers.** Furthermore our company and team is well recognized for developing and providing custom-made products and solutions tailored to your individual needs and applications. All our products are manufactured, tested & approved in our own facilities in Lorsch/Germany and characterized by superior quality, reliability and excellent performance while they are in operation with major Teleports, Satellite Earth-Stations as well as Broadcasting and Broadband facilities around the globe.

RF-Design´s new "FlexLink K4 Switch-Matrix" and "RLA270L 1:1 redundant Line-Amplifier"

At CommunicAsia 2014 RF-Design will showcase our new products such as the **"FlexLink K4 Switch-Matrix", "RLA270L Line-Amplifier", "SA3B Broadband Remote Spectrum-Analyzer"** and **"FiberLink RF-over Fiber Solutions"**. We look very much forward to welcoming you at our stand and to talking about your individual RF-distribution needs.

ScheduALL
Level 1 booth # 1R3-09
www.scheduall.com

ScheduALL, which for twenty-five years has remained at the forefront of resource management software for the media and broadcast industries, will showcase its connectivity platform, ScheduALL Connector™ at CommunicAsia 2014. ScheduALL Connector™ enables global trading and selling across the broadcast and transmission industries, and boosts resource and inventory sharing within enterprises.

The company will also highlight their new self-provisioning booking portal. Utilizing a web-based interface, the booking portal allows customers to book transmission feeds in real-time through a provider's ScheduALL system.

To schedule a demonstration and learn how ScheduALL's industry-changing smart technology can meet the unique challenges of your organization, contact events@scheduall.com

THAICOM
Level 1 booth # 1P2-07
www.thaicom.net

THAICOM is one of Asia Pacific's leading satellite operators, providing end-to-end broadcast and media, as well as broadband and data services to DTH operators, TV broadcasters, ISPs and telcos across the region. THAICOM's satellites include Thaicom 4 (IPSTAR), Thaicom 5, and Thaicom 6, with Thaicom 7 being scheduled for launch by mid-2014.

Work Microwave
Level 1 booth # 1V2-07
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.

EXPLORER PRODUCTS

Global, Mobile Satellite Communication Solutions

COBHAM

The most important thing we build is trust

Cobham SATCOM offers the most comprehensive range of land-mobile satellite communication terminals in the market covering both BGAN and VSAT.

The EXPLORER range of terminals fulfills critical communications needs and reduce system configuration requirements for end users through highly reliable and easy-to-use solutions.

The EXPLORER 5075GX will provide Inmarsat's upcoming Global Xpress® superfast Ka-band service, delivering download speeds of up to 50 Mbps and 5 Mbps over the uplink. The EXPLORER 710 is the first BGAN terminal to deliver Inmarsat's High Data Rate on-demand streaming IP service.

Visit the Cobham SATCOM booth at CommunicAsia.

EXPLORER 5075GX

Ultra High-Speed VSAT Terminal

- Lightweight 0.75m Auto-Deploy Fly-Away VSAT with a four-piece carbon fiber reflector
- Configured for seamless global operation on the new Inmarsat Global Xpress® (GX) Ka-band network
- User-friendly design allows operators with little satellite experience to access GX Ka-band services within minutes

EXPLORER 710

Ultra-Portable BGAN Terminal

- The first and only BGAN terminal to support BGAN HDR providing a minimum throughput of 580kbps
- From backpack to live broadcast in only a few minutes enhancing the quality of mobile outside broadcasting
- Connectivity made simple using your Smart Phone or tablet PC to control the terminal

For more information on Cobham SATCOM:
Call SATCOM Land VSAT (Orlando, USA) office: +1 (407) 650 9054
Call SATCOM Land BGAN (Lyngby, Denmark) office: +45 39 55 88 00

www.cobham.com/SATCOM

AT&T Acquires DIRECTV for US$ 48.5 Billion

El Segundo, Calif., May 19, 2014--AT&T and DIRECTV announced that they have entered into a definitive agreement under which AT&T will acquire DIRECTV in a stock-and-cash transaction for US$ 95 per share based on AT&T's May 16 closing price. AT&T will also assume DIRECTV debt bringing the total transaction cost to US$ 67.1 Billion.

DIRECTV shareholders will receive US$ 95.00 per share under the terms of the merger, comprised of $28.50 per share in cash and $66.50 per share in AT&T stock. The stock portion will be subject to a collar such that DIRECTV shareholders will receive 1.905 AT&T shares if AT&T stock price is below $34.90 at closing and 1.724 AT&T shares if AT&T stock price is above $38.58 at closing. If AT&T stock price at closing is between $34.90 and $38.58, DIRECTV shareholders will receive a number of shares between 1.724 and 1.905, equal to $66.50 in value.

This purchase price implies a total equity value of US$ 48.5 billion and a total transaction value of US$ 67.1 billion, including DIRECTV's net debt. This transaction implies an adjusted enterprise value multiple of 7.7 times DIRECTV's 2014 estimated EBITDA. Post-transaction, DIRECTV shareholders will own between 14.5% and 15.8% of AT&T shares on a fully-diluted basis based on the number of AT&T shares outstanding today.

AT&T intends to finance the cash portion of the transaction through a combination of cash on hand, sale of non-core assets, committed financing facilities and opportunistic debt market transactions.

To facilitate the regulatory approval process in Latin America, AT&T intends to divest its interest in América Móvil. This includes 73 million publicly listed L shares and all of its AA shares. AT&T's designees to the América Móvil Board of Directors will tender their resignations immediately to avoid even the appearance of any conflict.

The agreement has been approved unanimously by the Boards of Directors of both companies.

AT&T made some commitments when the deal closes, including the following:

15 Million Customer Locations Get More High Speed Broadband Competition. AT&T will use the merger synergies to expand its plans to build and enhance high-speed broadband service to 15 million customer locations, mostly in rural areas where AT&T does not provide high-speed broadband service today, utilizing a combination of technologies including fiber to the premises and fixed wireless local loop capabilities. This new commitment, to be completed within four years after close, is on top of the fiber and Project VIP broadband expansion plans AT&T has already announced. Customers will be able to buy broadband service stand-alone or as part of a bundle with other AT&T services.

Stand-Alone Broadband. For customers who only want a broadband service and may choose to consume video through an over-the-top (OTT) service like Netflix or Hulu, the combined company will offer stand-alone wireline broadband service at speeds of at least 6 Mbps (where feasible) in areas where AT&T offers wireline IP broadband service today at guaranteed prices for three years after closing.

Nationwide Package Pricing on DIRECTV. DIRECTV's TV service will continue to be available on a stand-alone basis at nationwide package prices that are the same for all customers, no matter where they live, for at least three years after closing.

Net Neutrality Commitment. Continued commitment for three years after closing to the FCC's Open Internet protections established in 2010, irrespective of whether the FCC re-establishes such protections for other industry participants following the DC Circuit Court of Appeals vacating those rules.

Spectrum Auction. The transaction does not alter AT&T's plans to meaningfully participate in the FCC's planned spectrum auctions later this year and in 2015. AT&T intends to bid at least $9 billion in connection with the 2015 incentive auction provided there is sufficient spectrum available in the auction to provide AT&T a viable path to at least a 2x10 MHz nationwide spectrum footprint.

"This is a unique opportunity that will redefine the video entertainment industry and create a company able to offer new bundles and deliver content to consumers across multiple screens - mobile devices, TVs, laptops, cars and even airplanes," AT&T Chief Executive Randall Stephenson said in a statement. "At the same time, it creates immediate and long-term value for our shareholders," added Stephenson.

AT&T U-Verse's TV service has about 5.7 million customers in 22 states. DIRECTV, with about 20 million customers nationwide, is the second-largest pay-TV provider -- behind Comcast -- and the largest satellite TV company in the U.S.

SpeedCast Buys Satcomm Australia

Hong Kong, May 13, 2014 – Satellite services provider SpeedCast Ltd announced the buyout of SatComms Australia, a satellite solutions provider in Australia.

SatComms Australia is a specialized provider of mobile and fixed satellite solutions in the Australian market and in the Asia-Pacific region. The company services customers in the natural resources, maritime and Government sectors. SatComms is based in Queensland, Australia with a teleport and operations center in Henderson, Western Australia.

SatComms' strength in mobile satellite solutions will augment SpeedCast's current L-band offering, a key technology for offshore and exploration customers, according to a company statement. Satcomms' significant presence in Queensland, Australia will enhance SpeedCast's ability to support customers in this important region, a hub for gas exploration and production. The SatComms teleport in Western Australia will provide flexibility and network customization capabilities to SpeedCast's natural resources customers. With two fully owned teleports in Australia, one in Adelaide and one in Perth, SpeedCast will be able to offer the highest levels of redundancy including site and satellite diversity. The acquisition follows the opening of SpeedCast's new office in Perth in February.

"With the SatComms acquisition, SpeedCast expands it presence and its commitment to the Australian market, and marks our third acquisition in Australia in just 18 months," said Pierre-Jean Beylier, CEO of SpeedCast. "SatComms uniquely complements SpeedCast's leadership in the VSAT market with great strength in mobile satellite services, extensive teleport infrastructure in Western Australia, and a sales and engineering presence in Queensland. There are significant synergies between the two companies, which will further enhance our ability to deliver customized turnkey solutions to our customers in Australia and beyond," he added.

The closing of the transaction is subject to regulatory approval.

Telefonica Acquires Spanish DTH Operator Canal Plus

Madrid, Spain, May 7, 2014- Spanish telecom conglomorate Telefonica has acquired Canal Plus, the biggest pay TV operator in Spain, for €725 million (approximately US $1.0 billion).

Telefonica informed Madrid's CNMV stock market regulator of the offer Tuesday. Prisa, the controlling shareholder of Canal Plus, notified the CNMV on Wednesday evening that it had accepted Telefonica's US$1 billion bid. With the acquisition of a 56 per cent stake, Telefonica now becomes the major shareholder in the pay-TV group with a 78 per cent stake, with Mediaset holding the remainder 22 per cent.

Telefonica now becomes the pay-TV market leader in Spain with almost 2.3 million pay-TV subscribers, ahead of Vodafone-ONO with 789,895 and Orange TV with 76,028.

Vodafone has announced that it will appeal before the Spanish Competition body CNMC against the deal as it recently did against Telefonica's campaign to migrate its ADSL clients free-of-charge to fibre optic, including TV packages. Vodafone has accused Telefonica of abuse of a dominant position.

Orange said that the "consolidation" should not be permitted. "None of the incumbents have 80 per cent of the market as Telefonica would have, and the exclusivity on premium content either. The operation would be negative for the competition and should not be approved or if approved it should be with conditions so as not to damage the competition", said the Regulation director of Orange Spain, Julio Gómez.

Telefonica has taken a very aggressive approach to the Pay TV market with the acquisition of premium and exclusive sport content and an integrated offer with TV, the Internet and telephone services to boost subscriptions. The company aims to reach 3 million subscribers in 2016 and extend its fibre optic network from the current 3.5 million to 7 million over the next few years.

PCCW Appoints New MD

Hong Kong, May 30, 2014-- **PCCW** has appointed **Srinivas Bangalore Gangaiah** as its Group Managing Director effective from July 14. Srinivas will succeed George Chan, who will retire from his position as the Group Managing Director of PCCW following completion of his contract with the company on July 7.

BG Srinavas

Srinivas worked for the last 15 years with Infosys Group, where his last role was the President and Executive Director of Infosys Limited. Infosys is an Indian multinational company and global specialist in consulting, technology, and outsourcing solutions. He has held several leadership roles at ABB the Swiss multinational group prior to Infosys.

With revenues of over USD 3.5 billion in 2013, PCCW is a Hong Kong-based company with interests in telecommunications, media, IT solutions, property development and investment, and other businesses.

Srinivas, 53, holds a degree in mechanical engineering from Bangalore University, India, and has participated in executive programs at Wharton Business School, US, and Indian Institute of Management Ahmedabad (IIMA), India.

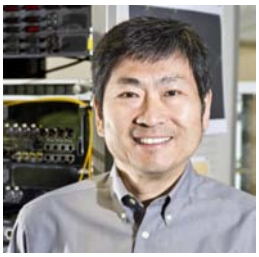
NETIA Hires Regional Sales Manager, Europe

Claret, France, May 29, 2014 — NETIA announced the appointment of **Mathieu Poussin** as regional sales manager for Europe, with a focus on countries in the north, west, and south. In this new role with NETIA, Poussin will be responsible for directing sales activities in the region, as well as for strengthening and expanding NETIA's business in English-speaking European countries. Poussin most recently served as a sales engineer for DCI, where he specialized in prospecting and growing major accounts, as well as development and sales of information infrastructure solutions. He earlier held sales and engineering roles at tech industry leaders such as HP France, Dell France, and StorageTek.

Poussin will be based in Paris at the Globecast/NETIA offices and report directly to Didier Mainard.

Riedel Appoints New Head of Research and Development

Wuppertal, Germany, May 20, 2014 Riedel Communications, announced that **Jiou-Pahn Lee** has been appointed to serve as director of R&D for Riedel Communications. In this role, Lee will be responsible for exploring and developing new technologies and evaluating their impact on achieving business goals. As director of R&D, Lee will be a member of the Management Board.



Jiou-Pahn Lee

"With experience leading product development at well-known technology companies, Jiou-Pahn comes to Riedel with extensive knowledge of designing world-class products for the television broadcasting and production industry," said Thomas Riedel, president of Riedel Communications.

Lee's experience in product development includes 17 years in the United States and nine years in the United Kingdom, working in areas ranging from the exploration of technologies through product development to deployment. He most recently served as vice president of engineering and technical director at Clear-Com, where he was in charge of a culturally diverse product development organization with multiple sites located in the United Kingdom, United States, and Canada. A native Mandarin Chinese speaker, he personally oversaw key customer accounts in China and set up the company's sales office in Beijing.

Lee was previously director of server engineering at Thomson Grass Valley and director of engineering at Videotele.com. Lee holds a bachelor's degree in mathematics from Tunghai University in Taichung, Taiwan, and a master's degree in computer science from Utah State University.

Board Appointments at SpeedCast

Hong Kong, May 13, 2014-- **SpeedCast** announced the appointment of **Michael Malone** as a non-executive Board Director and the appointment of **John Mackay** as Chairman of the Board. John Mackay is current SpeedCast Board Member and former Chairman and Chief Executive Officer of TransACT Communications Pty Ltd.

Mackay takes over the Chairman role from **Edward Sippel,** Managing Director for TA Associates, who will continue to serve on the Board.

Michael Malone

Michael Malone is the former Chief Executive Officer of iiNet Ltd., the second largest provider of ADSL in Australia, where he served as CEO and Executive Director for over 20 years. Malone was a founder of iiNet and was responsible for its development since 1993, including over 40 acquisitions over two decades. Mr. Malone is based in Perth, Australia.

John Mackay AM, has been Chairman and Chief Executive Officer of two major utilities based in Canberra for 15

years, and was Chief Executive Officer and Chairman of TransACT Communications Pty Ltd, a leading broadband communications company in Australia. He serves on the Board of Directors of various organizations including: the Canberra Investment Corp. Ltd., the Little Company of Mary Health Care, and the Canberra Raiders.

Mackay recently retired as the Chancellor of the University of Canberra. Mr. Mackay has been on SpeedCast's board since December 2012 and is based in Canberra, Australia.

Arianespace's New VP of Communications

Evry, France, May 19, 2014--Isabelle Veillon, 47, joins **Arianespace** as its Communication Vice President. In charge of Internal and External Communication, she will report directly to Stéphane Israël, Chairman and CEO of Arianespace and will be a member of the management committee.

Isabelle Veillon

Veillon is a graduate of *Ecole Normale supérieure (ENS)* and has an advanced degree (Agrégation) in contemporary literature. She has been working for 20 years in communication agencies, where she developed a high-level expertise as an adviser to French and international clients, particularly high-technologies companies including IBM, Microsoft, Altran, among others.

In 2012, she was appointed Deputy Chief Executive of corporate communication agency Burson-Marsteller i&e, after having been, from 2004 till 2011, Managing Director and Executive Director of i&e. Between 2009 and 2012, Veillon was a lecturer at Sciences Po Paris.

Calendar of Events

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

June 4-5, 2014, **LATSAT 2014**, Mexico City, contact: Lorraine Whitfield,
Phone: + 33 1 49 23 75 13, E-mail: whitfiled@euroconsult-ec.com
Web: www.latsat-congreso.com/en/

June 16, 2014, **CASBAA Satellite Industry Forum 2014**, Shangri-La Hotel, Singapore, Contact: Cherry Wong, Phone +852 3929 1714,
E-mail: cherry@casbaa.com web: www.casbaa.com

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

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

August 24-27, 2014, **SET EXPO 2014,** Sao Paulo, Brazil,
Phone: +55 11 99595-7791 E-mail: paulo.galante@set.org.br
Web: www.setexpo.com.br

Conference: 11 - 15 September 2014, Exhibition: 12 - 16 September 2014, **IBC 2014** - RAI Amsterdam, the Netherlands, Phone +44 (0) 20 7832 4100
E-mail: info@ibc.org Web: www.ibc.org

September 17-19, 2014, **VSAT 2014**, Millennium Gloucester Hotel, London, UK, phone **Tel:** +44 (0)20 7017 5506, E-mail: itmevents@informa.com
Web: www.vsatevent.com

October 6-8, 2014, **MILCOM 2014**, Baltimore Convention Center, Baltimore, MD, Contact: AFCEA Events, Phone +1-703-631-6130, E-mail: events@afcea.org
Web: www.milcom.org

October 27-30, 2014, **CASBAA Convention 2014**, Hong Kong, Contact: Cherry Wong, Phone +852 3929 1714, E-mail: cherry@casbaa.com
Web: www.casbaa.com

28-29 October 28-29, 2014, **VSAT Mobility 2014,** The Mira Hotel, Hong Kong phone Phone: +44 (0)20 7017 5506 E-mail: itmevents@informa.com
Web: www.mobility.vsatevent.com

November 4-6, 2014, **Global Milsatcom 2014**, London, UK,
Phone: +44 (0) 20 7827 6000 E-mail: events@smi-online.co.uk
Web: www.smi-online.co.uk/defence/uk/conference/global-milsatcom

November 12-13,2014, **SATCON 2014**, Javits Convention Center, New York City, contact: E-mail ccw@nab.org Web: www.satconexpo.com

AFRICOM-1 SUCCESSFULLY LAUNCHED

The AFRICOM-1 satellite was successfully launched to the 78.5°E orbital position. We are now ready to provide African broadcasters, DTH operators, ISPs and telcos with a full range of end-to-end satellite communication services made possible by the satellite's high-power Pan-African C-band beams. **Contact africom@thaicom.net to find out more.**

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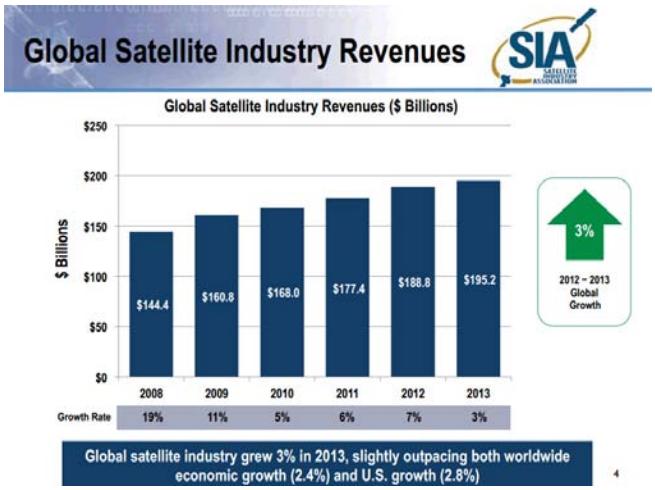
Global Satellite Industry Revenues Reached Nearly US$ 200 Billion in 2013

The Satellite Industry Association (SIA) released its 2014 State of the Satellite Industry Report, showing a three percent growth rate in world satellite industry revenues in 2013. Globally, 2013 revenues for the satellite industry totaled US$ 195.2 billion, up from US$ 188.8 billion the previous year.

Overall industry growth was led by the satellite services segment, the traditional driver for the industry, which saw its revenues increased by almost US$ 7 billion. Satellite manufacturing also saw significant growth, with 2013 revenues coming in eight percent higher than the year prior. Satellite ground equipment revenues saw modest growth, while satellite launch revenues decreased.



In 2013, the satellite industry posted continued growth just as it has done for more than the past 15 years," said Patricia Cooper, President of SIA. "Our industry continues to drive new and innovative space-based technologies, designed to deliver high quality, highly reliable ubiquitous solutions for a vast array of global applications. We serve hundreds of millions of consumers around the world, connect far-flung businesses to their suppliers, partners, and customers, and provide vital services to the public safety and military communities. SIA and its members remain committed to supporting a policy framework which will generate additional growth in the coming years."

This is the seventeenth year in which SIA has issued its annual State of the Satellite Industry Report. The Report was prepared by The Tauri Group. Tauri polled over 80 satellite companies, both SIA members and non-members and augmented the information with market analysis and financial reporting, to assess the performance of four satellite industry sectors: satellite services, satellite manufacturing, satellite launch industry, and ground equipment. Carissa Christensen, the Managing Partner of The Tauri Group, noted that the SIA State of the Satellite Industry Report, "is an industry standard used by senior decision-makers around the world. The Tauri Group is pleased to partner with SIA on the 2014 SSIR and enable SIA to continue its reputation as a reliable and unbiased source for industry information."

Highlights of the 2014 State of the Satellite Industry Report include the following:

Satellite Services revenues increased by five percent globally from 2012 to 2013, reaching US$ 118.6 billion, powered by continued growth in consumer satellite television services.

Satellite Manufacturing revenues, reflecting the value of satellites launched in 2013, grew by eight percent worldwide to US$ 15.7 billion. U.S. satellite manufacturing increased by 33 percent, from US$ 8.2 billion to $10.9 billion, driven by the delivery of a large number of high-value satellites for U.S. government customers.

Satellite Launch Industry revenues, which include revenues for all commercially-competed launches that occurred in 2013, declined by seven percent from their all-time peak in 2012, though U.S. revenues increased by 17 percent, rising from $2.0 billion to $2.4 billion and the number of commercially procured launches conducted worldwide increased slightly from 59 to 62.

Satellite Ground Equipment revenues continued to increase, increasing by one percent over 2012 to reach US$ 55.5 billion. Consumer ground equipment, including satellite TV, satellite broadband, mobile satellite terminals, and navigation devices, constituted the bulk of these revenues.

U.S. Satellite Industry Employment, as of the third quarter of 2013, had halted its post-recession decline, losing less than 250 jobs out of a total of more than 225,000. U.S. private sector employment in the satellite services and satellite launch segments expanded in the first three quar-

Asia-Pacific Compensates for North American Pay-TV Losses

London, UK, May 28, 2014--Global pay TV revenues [subscription fees and on-demand movies and TV episodes] will climb to US$ 209 billion in 2020, up from US$ 193 billion in 2013, according to a new report from Digital TV Research.

The Digital TV World Revenue Forecasts report states that the fast growth years are over - as a point of comparison revenues grew by US$ 24 billion between 2010 and 2013.

In fact, revenues in North America will fall by 9.2% (nearly $9 billion) between 2013 and 2020. Western Europe will decline by 1.6%. However, revenues will grow by nearly US$ 15 billion (up by 47%) in the Asia Pacific region. Revenues will more than double in Sub-Saharan Africa to US$ 5 billion.

Simon Murray, author of the report, said: "Based on forecasts for 138 countries, revenues will fall in 18 countries in 2014, with the US dropping by US$1.05 billion. Revenues will decline for 21 countries between 2013 and 2020."

The US will remain the world's largest pay TV revenue earner by some distance. However, its revenues will fall by US$ 7.9 billion between 2013 and 2020 as homes convert to bundles and as competition forces down prices. Cord cutting will have a limited impact as pay TV penetration will decline from 86.4% in 2013 to 84.1% in 2020. Cable TV revenues will drop by US$ 11.9 billion, with analog cable TV revenues down from US $5.1 billion in 2013 to nothing by 2015. So digital cable TV revenues will also decline - from US$ 37.3 billion in 2013 to US$ 30.5 billion in 2020. However, satellite TV (up by US$ 1.5 billion) and IPTV (up by US$ 2.5 billion) will record growth.

On the other hand, pay TV revenues will more than double in 40 countries between 2013 and 2020. Most of the fast growing nations by percentage increase will be in Africa, with Myanmar, Laos and Bangladesh providing notable exceptions. India's revenues will climb by US$ 6.6 billion between 2013 and 2020, with Brazil up by US$ 2.4 billion and China up by US$ 2.2 billion.

Over 1000 Satellites to be Deployed in the Next 10 Years

Wilmington, DE, May 19, 2014 – NSR's newly released Satellite Manufacturing and Launch Services (SMLS), 4th Edition, report finds the satellite industry fared well in the past 12 months, with more than 100 satellites ordered and more than 100 satellites launched. In total, the combined satellite manufacturing & launch industry generated almost $35 billion globally in 2013.

Procurement of commercial GEO communications satellites will remain stable over the next 10 years. While the industry will experience a short term decline from a high in 2013 (26 satellites ordered, including 3 options for Intelsat EPIC), it will remain driven by replacements and some extensions primarily in Ku-band and HTS. However, a number of trends will affect the growth curve and considerably change the trade-off environment for satellite manufacturing: New propulsion types increasingly used; More platforms proposed by an increasing number of suppliers; Multi-beam architectures becoming more frequent; and launch services capabilities evolve toward higher masses.

2013 was actually a low year for GEO Launch Services as launches were delayed due to failures and late-arriving satellites; as a result only 18 Commercial GEO Satcoms were launched in 2013. ILS' recent Proton failure should not signify a repeat of the tight launch supply situation as there are an increasing number of players ready to satisfy demand. With a constant oversupply of manufacturing and launch services and demand not wholly catching-up, the competition is stronger than ever in the Commercial GEO segment.

"The whole industry is shaping-up; including both satellite manufacturers and launch services providers," stated Stéphane Gounari, Senior Analyst at NSR and author of the report. Key trends to note include reorganizations such as Airbus, Lockheed Martin and Mitsubishi Industries; Merger & Acquisitions such as SSL/MDA and Orbital ATK, Inc.; or through extensive refit of their value-proposition as Thales Alenia Space (Spacebus), Lockheed Martin (A2100) and Lockheed Martin Commercial Launch Services (lower prices on Atlas 5). "Market shares evolved significantly in the last few years and after years of complacency, certain players were bordering on insignificance in this important space," said Gounari.

MILCOM 2014
Affordable Mission Success: Meeting the Challenge

MILCOM 2014
AFFORDABLE MISSION SUCCESS: MEETING THE CHALLENGE

Oct. 6–8, 2014

Baltimore Convention Center

www.milcom.org

The premier international conference and exposition for military communications, MILCOM 2014 showcases the technical innovations and creative talents of military, academic and industry leaders. Attendees will experience an in-depth technical program with industry exhibits, panel discussions and tutorials, which are eligible for continuing education units.

Technical tracks and topics include:

Cyber Security and Trusted Computing

Waveforms and Signal Processing

Networking: Architectures, Management, Protocols and Performance

System Perspectives

Selected Topics in Communications

AFCEA

IEEE COMMUNICATIONS SOCIETY

Raytheon

Customer Success Is Our Mission

From High Throughput to the Oil and Gas 'Bandwidth Optimization Imperative'

by Martin Jarrold

November 2014 will see the 22nd event in the **GVF Oil & Gas Communications Conference Series** take place in Kuala Lumpur. Earlier in 2014, as reported here previously, the 20th and 21st conferences in the Series took place in Rio de Janeiro, and Aberdeen, respectively, and both received wide acclaim.

Prior to this next oil & gas-focused event, the GVF-EMP conference partnership will present the second of its **High Throughput Satellite – Washington Roundtables**, hosted at the Washington DC offices of law firm Jones Day, on 23rd & 24th June 2014. The Washington series parallels the **High Throughput Satellite – London Roundtables**, which take place each December.

photo: Inmarsat

The two-day Washington DC program (www.uk-emp.co.uk/current-events/hts-dc-rt-2014/) will address the following themes through a panel discussion format:

- **Setting the Satellite Broadband SceneHow High Is High-Throughput?**
- **The HTS New Service Provision Paradigm**
- **Engineering the HTS Solution**
- **Deploying the HTS Mobility Application**
- **Overview: What do the Users Need from HTS?**
- **Humanitarian & First Responders Roundtable: The Impact of HTS on Disaster Response**
- **Cyber-Security Roundtable: HTS & the Implications for Robust Network Requirements**
- **Small Cell, LTE & Everything in Between: Satellite Backhaul Redefined**

I now turn to the background to the November 2014 oil & gas communications program. The Asian regional oil & gas industry backdrop to **Oil & Gas Communications South East Asia 2014: Evolving the Big Data Oilfield – Offshore & Deepwater** (the 7th event for the region) is one of a forecast of a 54% increase in expenditure for offshore infrastructure over the next five years, with South East Asia continuing to drive demand, and with Malaysia, specifically, expected to continue to be a key driver of market capex. Malaysia's oil & gas industry has been boosted by favorable taxes and non-tax incentives on the downstream, and this is anticipated to have a positive effect on the upstream. The Petronas Rotan field is projected to see the highest expenditures. Malaysia's strategic geographical location is one of the key influences in the country's determination to increase offshore production, to support both domestic needs, and those of nearby countries in East Asia.

The Asian region as a whole will continue to play an important role globally in the offshore oil & gas industry over the next five years. With a number of developing countries expected to see increasing demand for energy, the region is likely to see increased levels of offshore oil & gas activity. National Oil Companies (NOCs) will continue to be the main focus of investment in the region, with the International Oil Companies (IOCs) closely following behind. Asia will become one of the largest investors in offshore fixed platforms, with Malaysia (and China) dominating demand.

South East Asian and East Asian countries oil & gas industry policy remains tightly centered on ensuring national energy security and the injection of measures – such as the tax incentives

cited above – for continued national, and by extension, pan-regional, economic stimulus. Asia's offshore energy industry does indeed have a significant enough potential to deliver on the need for assured domestically-sourced oil & gas supplies – on the basis of both continuing production from already operating fields and from the accelerated exploitation of newly discovered reserves.

In the shorter term, Asia's offshore E&P environment will continue to be characterized by shallow water developments, and consequently capex on pipelines and fixed platforms will account for the most substantial proportion of the regional new infrastructure spend. However, in the longer term, in order to fully exploit the region's reserves, fresh oil frontiers are being opened up in deeper and more remote waters. Such developments are expected to greatly increase demand for subsea units and floating production units. In Malaysia, increases in capex by Petronas reflect the increase in deep water discoveries in the last few years. Forty per cent of new discoveries in the last six or seven years have been in deep water.

"...South East Asian and East Asian countries oil & gas industry policy remains tightly centered on ensuring national energy security ..."

Working in association with major oil & gas industry-related organizations, as well as the communications sector, GVF & EMP will again be providing a platform for extended networking opportunities for communications end-user and solution vendor expert practitioners, set within the context of a conference program in which the nature of the applications and connectivity imperatives of the energy market vertical will be fully addressed.

Using ICT, widely spread and remotely located experts can see oil & gas field data as it is collected in real time and can determine the size and potential value of a payload before any actual drilling begins, a capability that can significantly reduce the amount of time and other resources wasted on drilling sites that don't have a strong yield potential.

Communications solutions represent only a small fraction of energy companies' total capex and opex, yet well-

managed ICT networks play a disproportionately great role in reducing expenditures not only in remote location exploration, drilling, and production, but in every other area of operations. Included in the regional conference program will be a dialogues on 'Big Data' – the specialism which focuses on solutions and services to store, manage, protect and analyze information extracted from the large volumes of data generated by the oil industry – and the implications for oil & gas E&P of the interface of machine-to-machine (M2M) communications and satellite connectivity.

Another essential facet of South East Asian oil & gas communications connectivity to be included in the Kuala Lumpur program relates to the optimization of bandwidth usage, with particular reference to various key technologies, including:

Adaptive Coding and Modulation (ACM) technology which automatically changes the forward error correction and modulation of satellite links to compensate for changes in link conditions due to weather, e.g. rain fade, and other sources such as RF level changes or interference; and,

- **Advanced Forward Error Correction (FEC)** to improve the performance of error-prone channels found in communication systems, and the effectiveness of which may be measured by Spectral Efficiency, commonly referred to as Bits per Hertz, this is the amount of bits (data) that you can pass through each hertz of frequency.

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Antennas and Terminals...From page 25

"...The market is looking for products with the capability to meet more than one mission and to do it without adding complexity..."
—Keith Buckley, President, ASC Signal

Scardino: Globecomm has stood by the policy of not over-selling bandwidth on shared carriers, and continuing to provision new links as sites enter networks and bandwidth becomes saturated.

LAZ: *This requires a great deal of flexibility.*

Scardino: Yes. And discipline. Tony's remarks about being agnostic are right on. A technology agnostic approach has served us well and allowed us to be more nimble. We can get wherever someone needs to be – because we have thought through this issue and made network choices on a global basis - without frequency being a hold-up.

Wilkey: On the VSAT issue, we're seeing the most significant growth in mobile VSAT applications, especially in the oil and gas sector. These folks are racing to tap into the growth in their industry that's been sparked by heavy demand and advancements in exploration and extraction techniques. These techniques require extremely expensive equipment and extensive bandwidth. AvL is working with several significant customers to develop extremely robust, auto-acquisition VSAT terminals that operate in the most remote, rugged and difficult environments. We like that business.

LAZ: *I want to go back to a theme that Paul's remarks triggered. The touted "Internet of Things" is a trendy phrase but also, apparently, a reality. Does the Internet of Things impact your thinking?*

Buckley: It does. We keep a keen eye on ensuring our products provide useful data without needless complexity and overload. For example, the NGC Controller I mentioned was designed along the lines of this ubiquitous and seamless consumption of data. It not only controls the antenna positioning but it also ties the whole "Antenna Control" concept together in a comprehensive way. It mimes the comprehensive nature of the Internet. It offers at-a-glance plots and trend data that was previously only available after intensive logging, analysis, and graphing. We offer this data real-time so users can see the impact of tuning configurations. People do not want to wait for information, especially when they practically have it built into them!

LAZ: *Is it a double-edged sword as well?*

Scardino: It is an exciting area and of course like everything it is a double-edge sword to civil society. "Security" is no longer just encryption for military applications. Like the Internet, it touches everything, from commercial and personal privacy, law enforcement and the regulation of civic life. In fact, misuse of the Internet of Things poses the largest security threat to advanced nations today. Our new cyber security brand, Cytelics, is addressing the security issues that wireless networks need to consider for example.

LAZ: *Certainly the military gets this. The United States military has a think tank, called the Maneuver Center for Excellence, which is doing some advanced thinking about the nature of warfare going forward.*

Buckley: Antenna technologies will change precisely because of this. While traditional military spending may be shrinking, non-traditional areas of intelligence gathering are growing. We get worldwide requests for radio direction-finding antennas and are doing a deal now for aircraft-mounted military antennas.

LAZ: *And not all military budgets are shrinking.*

Buckley: Correct. We did a deal in Asia with one of Asia's leading providers of HF radio systems for a major HF antenna infrastructure project for coastal communications systems used by the government of China.

Scardino: Yes. Non-traditional deals will continue and drive more innovation. You already see antennas designed in the shape of the tail of drones for military applications.

LAZ: *It seems like there is an endless source of opportunities for our industry.*

Wilkey: There is for us. Our latest antenna controller technology is IP-based, so if a customer in Asia needs us to help him update software, share logged data or diagnose a problem all we need is his controller IP address and an Ethernet connection to assist from our headquarters in Asheville, North Carolina. Like Globecomm and ASC, we can extend our antenna business anywhere now.

LAZ: *We wish you all success and good luck solving the "innovator's dilemma."*

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

The Satellite Markets 25 Index™

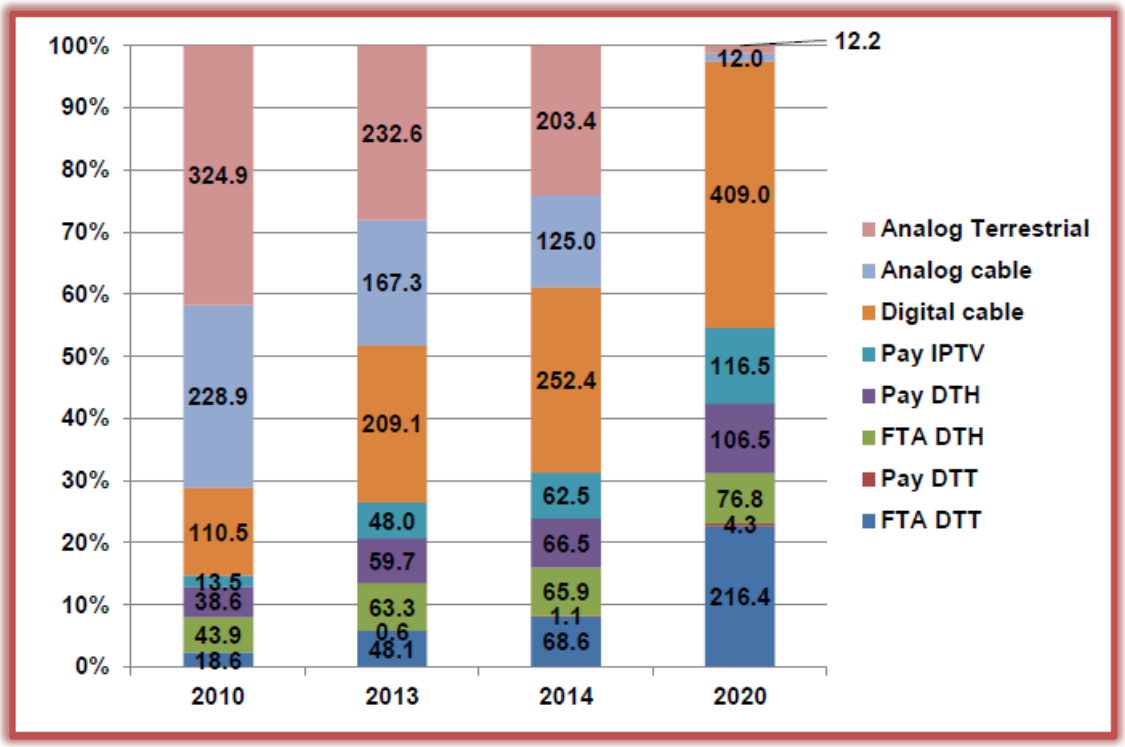
Company Name	Symbol	Price (May 30)	% Change from Last Month	52-wk Range			% change from 52-wk High
Satellite Operators							
Asia Satellite Telecommunications	1135.HK	31.30	2.12%	26.85	35.00	↓	10.57%
Eutelsat Communications S.A.	ETL.PA	25.68	4.09%	20.41	25.89	↓	0.77%
APT Satellite Holdings Ltd.	1045.HK	10.58	2.72%	4.80	12.00	↓	11.83%
Inmarsat Plc	ISAT.L	731.46	-0.01%	80.01	784.00	↓	6.70%
SES GLOBAL FDR	SES.F	26.766	-1.92%	20.81	27.50	↓	2.67%
Satellite and Component Manufacturers							
The Boeing Company	BA	135.25	3.38%	96.31	144.57	↓	6.45%
COM DEV International Ltd.	CDV.TO	3.90	-1.27%	3.42	4.40	↓	11.36%
Lockheed Martin Corporation	LMT	163.65	0.10%	103.04	168.41	↓	2.83%
Loral Space & Communications, Inc.	LORL	72.34	-0.47%	59.11	82.13	↓	11.92%
Orbital Sciences Corp.	ORB	26.18	-6.00%	17.03	34.16	↓	23.36%
Ground Equipment Manufacturers							
C-Com Satellite Systems Inc.	CMLV	1.44	0.70%	1.08	2.37	↓	39.24%
Comtech Telecommunications Corp.	CMTL	32.67	5.42%	23.84	33.80	↓	3.34%
Harris Corporation	HRS	77.25	4.80%	47.69	79.32	↓	2.61%
Honeywell International Inc.	HON	93.15	1.71%	76.15	95.91	↓	2.88%
ViaSat Inc.	VSAT	54.23	-12.57%	53.03	74.78	↓	27.48%
Satellite Service Providers							
Gilat Satellite Networks Ltd.	GILT	4.93	4.89%	4.09	6.11	↓	19.31%
Globecomm Systems Inc.	GCOM	14.10	0.00%	10.49	14.91	↓	5.43%
International Datacasting Corporation	IDC.TO	0.10	11.11%	0.07	0.23	↓	56.52%
ORBCOMM, Inc.	ORBC	6.38	5.11%	3.89	8.21	↓	22.29%
RRSat Global Communications Network Ltd	RRST	9.11	-1.19%	6.97	9.60	↓	5.10%
Consumer Satellite Services							
British Sky Broadcasting Group plc	BSYBY	59.55	-0.85%	47.02	63.79	↓	6.65%
DIRECTV	DTV	82.44	0.86%	57.05	89.46	↓	7.85%
Dish Network Corp.	DISH	58.66	-6.07%	37.30	64.52	↓	9.08%
Globalstar Inc.	GSAT	3.46	17.69%	2.33	3.50	↓	1.14%
Sirius XM Holdings Inc.	SIRI	3.28	2.82%	2.98	4.18	↓	21.53%

INDEX	Index Value (May 30)	% Change from Last Month	% Change Jan. 03, 2014
Satellite Markets 25 Index™	1,727.86	0.02%	0.99%
S & P 500	1,923.57	2.99%	5.04%

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.

Vital Statistics

Asia-Pacific to Add 501 million Digital Homes



Source: Digital TV Research Ltd

The Asia Pacific region is undergoing a rapid digital TV conversion that will see penetration increase from 28.9% of TV households in 2010 to 51.7% in 2013 then 61.2% by end-2014 and on to 97.5% in 2020 – or up by 501 million homes between 2013 and 2020, according to a new report from Digital TV Research.

Of the 501 million digital homes to be added between 2013 and 2020, 172 million will come from DTT. However, the number of analog terrestrial homes will fall by 220 million. Digital cable will contribute a further 200 million additional homes, with analog cable losing 155 million. Pay satellite TV will supply an extra 47 million, with FTA satellite TV adding 14 million. Pay IPTV will record 69 million more subs.

Pay TV penetration will rise from 58.5% in 2013 to 68.0% in 2020, adding 164 million subs to take the total to 648 million. Even more impressive is that digital pay TV penetration will climb from 20.9% in 2010 on to 66.5% in 2020. Digital pay TV subscribers will quadruple from 163 million in 2010 to 636 million by 2020.

Pay TV revenues in Asia Pacific will be $46 billion in 2020; nearly double the 2010 figure. Digital pay TV revenues will triple from $15 billion in 2010 to $46 billion in 2020.

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