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Turned On...

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Features

Triple Band Deployment

ORBIT Communication Systems, Inc., based in Netanya, Israel, a subsidiary of ORBIT Technologies Ltd. (TASE:ORBI), has announced that its new Triple Band tracking antenna systems have been successfully deployed and tested at the U.S. Naval Air Station Patuxent River.

This is the first operational deployment of ORBIT's breakthrough Triple Band technology, designed to deliver unmatched performance for long-range telemetry missions while facilitating a smooth augmentation of C-band.

ORBIT's patent-pending Triple Band feed is an innovative solution developed in response to the telemetry market's growing adoption of C-band frequencies in parallel to their legacy L- and S-bands.

Based on its concentric coaxial cavity technology, ORBIT offers a single feed supporting simultaneous telemetry communication in all three bands for various antenna reflector sizes.

Moreover, the feed enables switching between tracking bands on the fly without compromising performance.

Two Triple Band systems were delivered for field testing to the Naval Air Warfare Center telemetry team, which defined the stringent test requirements and conducted the actual tests.

The results of these tests demonstrated the clear superiority of ORBIT's new feed in terms of performance to any other available technology.

ORBIT's Triple Band solution is available for order and can be supplied as part of a new system or via ORBIT's upgrade and refurbishment program.

#

Taking It To The Theaters

Intelsat S.A. has a new agreement with Grupo Chilefilms to provide satellite connectivity for a new digital cinema distribution network that will serve Mexico, the Caribbean and South America.

Under a multi-year contract, Intelsat will provide C-band capacity to Grupo Chilefilms on the Intelsat 1R satellite at 310 degrees East, transitioning to capacity on the Intelsat 27 satellite, which is scheduled for launch in the first quarter of 2013.

Grupo Chilefilms owns and operates CINECOLOR SAT, a new satellite-based distribution network that will deliver feature films and live events directly to cinemas throughout Latin America. Grupo Chilefilms began testing the network on Intelsat 1R in early October, and it is expected to be fully operational by the end of 2012.

"Delivering content via satellite improves the speed and reliability of distribution while reducing the cost," said Cristián Varela, CEO of Grupo Chilefilms. "The instantaneous nature of satellite distribution will allow cinemas to show live broadcasts, such as concerts and sporting events, which create new revenue streams for these cinemas.

"As Latin America is a vast region with great distances between cinema complexes in many cases, physical distribution of films is a logistical challenge. Intelsat understood our requirements and worked with our engineers to create a solution that meets our needs today, and will allow CINECOLOR SAT to grow in the future."

Artistic rendition of the Intelsat 27 satellite

Carmen Gonzalez-Sanfeliu, Intelsat's regional vice president for Latin America and Caribbean sales, said, "With this innovative approach to feature film and live event distribution, Grupo Chilefilms' customers will benefit from the reliability and flexibility of our network, which will ultimately deliver a service of the highest quality."

#


When It Matters Most
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OS/COMET® provides Telesat with a TT&C solution that is scalable, customizable, and extensible. With OS/COMET, Telesat has the flexibility to customize the concept of operations and can easily expand operations to control additional satellites from multiple manufacturers on a single integrated system.
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Angolan Amelioration...

Wide Area Communications specialist Hermes Datacomms is used to working in difficult, hostile and remote environments but on this particular occasion, the environment was more challenging than usual.

Hermes Datacomms has provided its client, a major E&P company, with a leased line service to Luanda, Angola, since November 2011.

Recently, the service experienced some prolonged outages due to civil engineering works resulting in frequent fiber optic cable cuts. Hermes has full responsibility for the end-to-end Service Level Agreement.

Although the cuts were outside of Hermes' direct responsibility, the company is fully committed to the SLA. Hermes Datacomms dispatched Barry Bouwmeester, Africa Business Development Manager, and Johan Lepen, Service Account Manager, to Angola to negotiate a resilient path option with a local service provider and Angola Telecom.

Commenting on the situation, Account Director Bill Green said, "We, at Hermes, were disappointed professionally that the service was suffering, even though the causes were outside our control. Nevertheless, we take our SLA commitment to our clients very seriously and the implementation of the diverse routing, although costing us in financial terms, has been paid back in customer confidence, which we consider a far more valuable commodity".

Hermes Datacomms provides satellite and fiber links to some of the most remote and challenging locations, both onshore and offshore. Solutions are tailored specifically to the oil and gas industry and include international connections, managed networks and oilfield infrastructure.

#

Bringing Better Business

Spacecom, operator of the AMOS satellite fleet, announced that it is providing Europe-based Signalhorn with Ku-band capacity on its AMOS-5 communications satellite located at 17 degrees East.

Signalhorn, a provider of communications solutions to Europe, the Middle East and Africa, is using the capacity to enable broadband connectivity to retail businesses across Southern Africa.

Spacecom's AMOS-5

"The AMOS-5 Ku-band platform perfectly meets the needs of our tailored enterprise communications solution, which requires highly available broadband connectivity service to cover a wide section of Southern Africa," said Robert Kubbernus, chief executive officer of Signalhorn. "Our ability to provide reliable and secure end-to-end solutions to our clients is a key differentiator for our business development in Africa. Working with Spacecom's AMOS-5 satellite adds value to our project."

"Together with Signalhorn, we've developed a solution that meets their data communications needs throughout the required geographic region," said Amir Carmeli, Spacecom's vice president for sales, West Europe. "AMOS-5 is providing an array of services to communication service providers and broadcasters throughout Africa. As we move forward, we expect our service portfolio to continue to grow."

From its orbital position, AMOS-5 provides powerful C-and Ku-band beams for supplying broadcast and data services to the entire African continent.

The satellite initiated commercial operations in January 2012 and is a prime carrier of African satellite communications traffic.

Signalhorn provides satellite and terrestrial communications globally. The company was formed from the strategic acquisition of GE Satcom (the Satlynx Group of Companies).

Signalhorn's heritage dates back more than 40 years with its origins in some of the pioneering companies in the satellite communications business.

Signalhorn operates two technical centers, one at its headquarters in Backnang, Germany, and the other in Leuk, Switzerland; these are extended through partnerships with third party U.S. and Asia-Pacific teleports. Signalhorn delivers solutions that are customer-driven by partnering with global operators and system integrators.

#

ARSAT + Rural 3G Backhaul

Argentina recently announced the cancellation of an auction for the 25 percent of the country's 3G spectrum still controlled by the government.

The country will go, instead, into business itself through **ARSAT**, the state-owned satellite company. The government cites competition as the reason for the move as well as its goal of helping rural populations access the web.

Using ARSAT as the satellite backhaul platform, particularly in parts of Argentina where consumers and small businesses have little or no choice, when accessing the web could certainly boost rural 3G adoption.

However, a key question is whether the model is sustainable given ROI considerations in rural and underserved areas where 3G provisioning has remained a major challenge due to cost structures.

As a general trend in the global wireless backhaul via satellite market, a market shift is expected to take place. NSR expects usage of legacy C-band and Ku-band transponders will decline and be replaced over the long term by **HTS** and **O3b** due primarily to lower OPEX costs, leading to positive ROI and thus, deployment of wireless BTS sites in support of 3G or 4G services.

In NSR's latest research study, ***Wireless Backhaul via Satellite, 6th Edition***, the Latin American satellite backhaul market was indeed found to grow at high levels, particularly in the 2018-2021 timeframe.

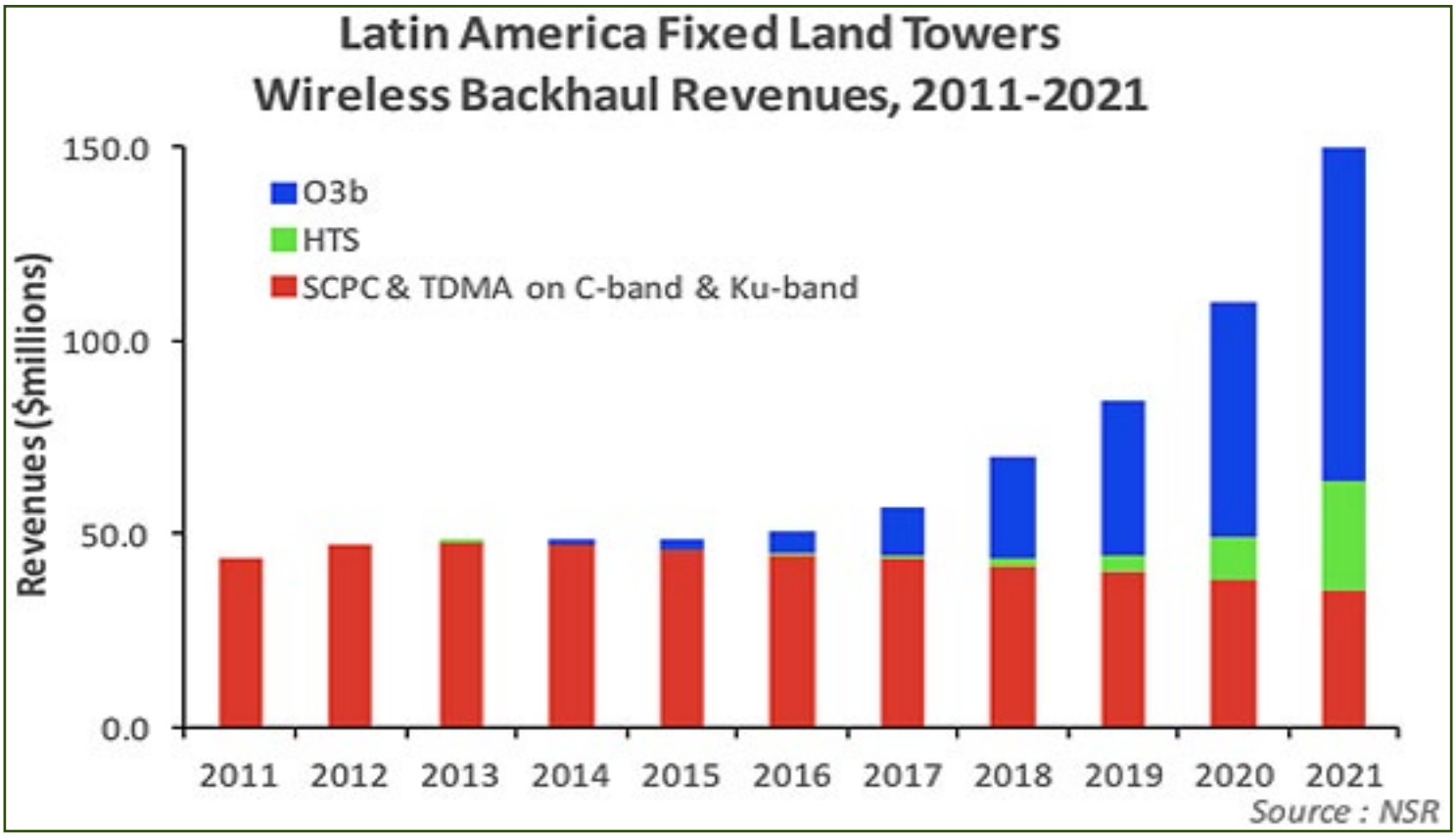
The main reason for growth has to do once again with the entrance of HTS and O3b that drive down OPEX costs. For HTS, CAPEX due to lower equipment costs further enhances ROI prospects.

ARSAT is building three satellites based on legacy C-band and Ku-band transponders, in part to provide 3G rural services where it is predicated that with the government's help, small companies and cooperatives should find it much easier to become wireless and Internet providers. However, the OPEX equation based purely on commercial legacy C- and Ku-band transponder prices may not support the ROI considerations to enable wireless and Internet providers to justify infrastructure investments.

In **NSR**'s view, the government's plan to go into business itself via ARSAT can only be justified from a satellite backhaul perspective if the transponder costs are subsidized, or ARSAT is used as an internal cost mechanism to support the rural backhaul 3G market in Argentina.

The government has to contend with much lower ARPU levels that rural customers will pay for wireless and Internet service compared to their urban counterparts.

From a purely backhaul perspective, rural ARPU at or below $5 per subscriber per month may not be enough to justify a BTS deployment and 3G service provision for a given site or community.



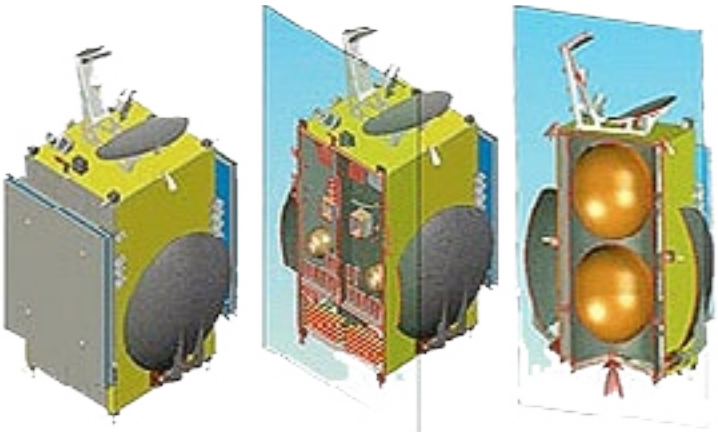


Illustration of ARSAT-1, being built by INVAP with assistance from Astrium + Thales Alenia Space

As such, the government's plan in targeting rural areas may not be based purely on commercial business considerations. Although the goal is novel, it would appear that the rural program may become a government-backed venture where ROI considerations and profitability may not be attained using traditional C-band and Ku-band transponders.

The government has two options to enable rural wireless broadband usage:

- *First, the government via ARSAT becomes the wireless and Internet provider to support the program*
- *Second, the government will have to sell C-band and Ku-band capacity at huge discounts to wireless service providers and wireless ISPs to usher in BTS and service deployments*

In both cases, some form of subsidy will be at play. A purely commercial 3G and 4G rural backhaul solution can be realistically achieved via an HTS or O3b platform.

Using legacy C-band and Ku-band bandwidth can achieve 3G-like services or 2.5G services, but the service provider margins will likely be low, which will likewise become a market restraint.

In NSR's view, provisioning true 3G and 4G services using legacy C-band and Ku-band for backhaul would require ARSAT to target urban customers aggressively and displace the market share of current incumbents in order to subsidize its rural 3G initiative.

Analysis by Jose Del Rosario, Senior Analyst, NSR, Manila

#

How Do You Transport A Hi-Res Earth Observation Satellite? Very Carefully...

The transportation of satellites occurs regularly and is a delicate dance of moving an object that is heavy and big that houses delicate equipment.

Pléiades 1B, the second dual-use, very-high-resolution satellite in the Pléiades family built by ***Astrium*** for the French space agency CNES (prime contractor for the system and system architect), has left the Astrium Satellites facilities in Toulouse en route for its launch site in French Guiana in late November.

Pléiades 1B will join its twin, Pléiades 1A, to form the first constellation of very-high-resolution satellites on the same orbit able to offer a daily revisit of the same point.

Pléiades 1B will be lifting off at the end of November 2012 on board a Soyuz launch vehicle from the Sinnamary site at the Guiana Space Centre (CSG).

Pléiades 1B will be joining its twin, the Pléiades 1A satellite, which has given full satisfaction since its launch last December, at an altitude of 695 km in the same quasi-polar heliosynchronous orbit.

Like its twin, Pléiades 1B will provide 50-centimeter products over a 20-kilometer footprint to the French and Spanish defense ministries, civil institutions, and to private users through Astrium Services, the exclusive distributor of Pléiades products for the civil market.

The Pléiades satellites offer major operational advantages to users, thanks to their incomparable image acquisition capabilities (up to 900 images/day, daily revisit of a point anywhere in the world).

Combined with remarkable agility (rapid pointing), it will be possible to image points out to 1500km on either side of nadir in multiple acquisition modes (stereo, mosaic, corridor, target).

There's more information regarding Pléiades ***at this direct link.***

Astrium is the only European company that covers the emtore range of civil and defence space systems and services.

#

A Historic Feed

MEASAT Satellite Systems Sdn. Bhd. ("MEASAT") now has an agreement with Encompass Digital Media ("Encompass") for the addition of HISTORY™ North East Asia regional feed on MEASAT's HD video neighborhood at 91.5 degrees East via the MEASAT-3 satellite.

HISTORY™ provides quality entertainment programming, with award-winning original series and event specials that connect viewers with history in an informative, immersive and engaging manner across multiple platforms.

The addition of HISTORY™ North East Asia regional feed brings to 34 the number of HD channels on MEASAT's video neighborhood that features news, general entertainment, sports and factual programming.

Artistic rendition of the MEASAT-3 satellite, courtesy of Boeing

#

Smarter Utilities

VT iDirect, Inc. (iDirect) and Pike Research have released a new white paper on the role of satellite communications for smart meter backhaul in the utility industry.

The report examines the growth of smart meter backhaul communications and how satellite has evolved to meet the challenges of this important segment of the emerging smart grid.

In the white paper, Bob Gohn, Chief Research Director, highlights multiple areas where IP-based satellite technology offers strong differentiation including: geographic reach, performance, reliability, and security. Additionally, the paper discusses how satellite has become more cost-effective with recent technology innovations that optimize the use of bandwidth and provide higher speed connectivity to meet the growing data demands of the energy and utility market.

Among the key items highlighted in the Pike Research paper were the following:

- *Pike Research estimates that over 50 million smart meters will be deployed in North America by the end of 2012, with as many as four times this number installed across the rest of the world. By 2020, smart meters are expected to make up nearly 70 percent of North American electricity meters*
- *Satellite's geographic reach makes it suitable choice for AMI backhaul and Distribution Automation (DA) deployments, which represent the most ubiquitous smart grid applications across a utility's service territory*
- *With a roundtrip latency of 600 milliseconds, satellite connectivity offers a viable solution for the majority of AMI and DA applications and compares favorably with mesh technologies used within the smart grid*
- *Newer satellite technologies such as the Digital Video Broadcasting Standard (DVB-S2), adaptive coding and modulation (ACM), and advanced forward error correction schemes enable highly reliable communications in all kinds of weather*
- *Private satellite networks offer robust security benefits, including advanced encryption and authentication, alleviating concerns often associated with public cellular networks*

"Thanks to advances in satellite technology, as well as reduced pricing for both the equipment as well as monthly service, satellite communications has emerged as a viable and attractive means of connectivity for many smart grid applications, particularly smart meter backhaul. This information will be especially helpful for utility network designers as they work to maintain coverage across the entirety of their service territory without sacrificing performance."—Bob GOHN, Chief Research Director, Pike Research

"As they build out the Smart Grid, utilities are increasingly turning to satellite technology to meet a wide range of communications applications, from SCADA monitoring to smart meter backhaul. iDirect has taken a leading role in educating the utility industry about the benefits of today's satellite solutions, partnering with Pike Research and other leading institutions to investigate emerging smart grid trends."—Toni Lee Rudnicki, Chief Marketing Officer, iDirect

#

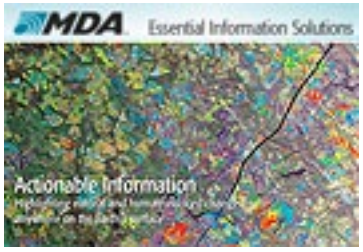
Land Surface Exams

MacDonald, Dettwiler and Associates Ltd. (TSX: MDA) has announced that the U.S. National Geospatial-Intelligence Agency (NGA) has exercised a one year option valued at US$4 million to continue the provision of apparent changes in land-cover anywhere around the globe.

MDA will deliver changes for more than 100 million square kilometers of the Earth's land surface.

Overlaying satellite images from multiple dates, MDA's sophisticated software identifies changes in land-cover that persist regardless of seasonal changes or weather effects. Changes identified are typically caused by human activities.

Knowing where these changes occur allows the analyst to focus only on the areas of change when updating global map databases. This allows map updating to be done more frequently in rapidly changing areas and less frequently elsewhere, significantly improving the customer's efficiency.



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Fear Not For C-Band

NSR's latest assessment for global C-band transponder demand trends, from its *Global Assessment of Satellite Supply & Demand, 9th Edition* study, predicts that total, worldwide C-band demand will drop by approximately 190 TPEs (36 MHz transponder equivalents) between 2011 and 2021

As the chart below shows, global C-band transponder demand is predicted to remain relatively stable/increase slightly between 2011 and 2016, and then demand will begin to drop off from 2017 onwards.

The immediate industry reaction to such a forecast is typically a mix of consternation, denial and concern. However, a closer examination of the individual C-band application trends illustrates that this forecast is no more or less a compilation of well known industry trends.

First, no one in the industry will deny that legacy services such as point-to-point telephony and carrier demand have long been ceding to expanding fiber and undersea cable.

The same applies to IP trunking as the arrival of new undersea cables to Africa began impacting IP trunking in that region in 2010 just as has occurred in other regions like Asia and Latin America in years past.

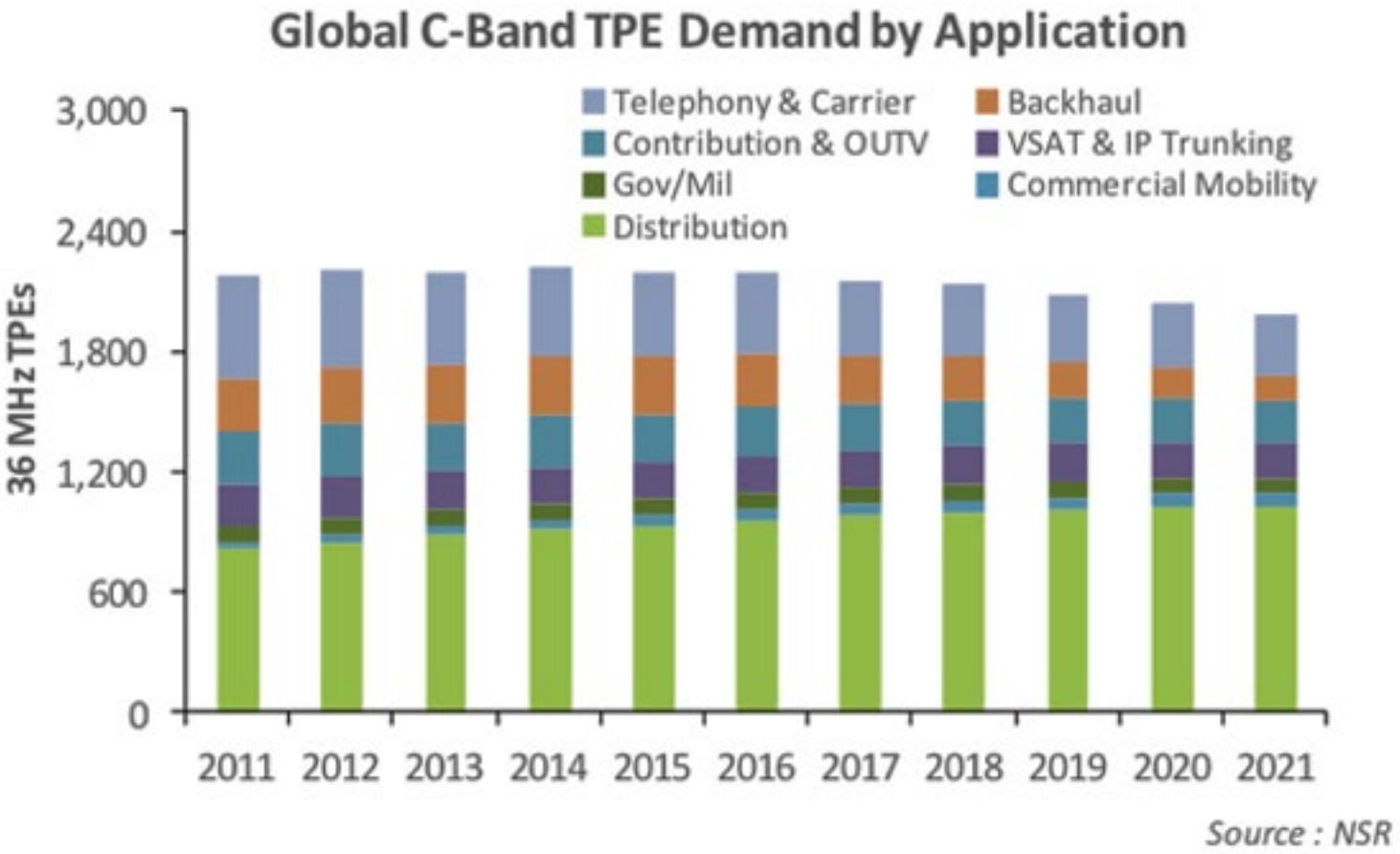
Further, new technologies such as Adaptive Coding and Modulation (ACM) are becoming more and more accepted even in many regions where rain fade is important.

This trend is leading to a migration of former C-band VSAT networking services to Ku-band and even Ka-band in some instances. A similar trend is also underway in the gov/mil market as well as SNG services as heritage C-band provisioning moves to newer Ku and Ka-band services.

In all of these examples, the entire industry realizes that this is not the death of C-band, just a gradual transition to Ku-band, widebeam Ka-band and HTS.

In NSR's view, the same realization will soon occur for the C-band backhaul market. Through 2016, NSR predicts steady C-band transponder demand gains for backhaul services as cellular networks continue to expand and other factors, such as government obligations on telcos, push mobile phone services into lower and lower density markets. C-band remains the global standard for cellular backhaul, but primarily for 2G, voice dominated services.

Once one attempts to apply classic SCPC C-band to more advanced mobile phone networks such as 3G and eventually 4G services, the value proposition for C-band begins to break down.



It is NSR's strong belief that as of 2015 there will be a significant migration in the industry to new satellite backhaul services primarily based on lower cost HTS capacity as well as new alternatives such as O3b.

Just as with legacy telephony & carrier, IP trunking and VSAT, a slow steady migration away from C-band will begin to occur.

Yet, all of the above trends are related mainly to fixed data and voice-type applications. The single biggest market for C-band is video distribution. Growth in channels of all flavors, be they SD, HD, Ultra HD or 3D, will continue in all markets around the world, and this will drive future C-band transponder demand gains.

In particular, the well established C-band video hotspots serving each regional market will tend to grow ever more in value.

Further, the C-band commercial maritime market, while relatively small in demand terms, will also see further demand gains as large global and regional C-band beams bring real value to this mobility segment.

Change in any market is inevitable. Just as the industry came to accept that legacy telephony & carrier, the dominant application in the 70s and 80s, ceded to fiber and undersea cable, so will the same realization that C-band backhaul will, too, eventually cede to more cost effective solutions.

The key is that overall the industry continues to be inventive and finding ways to maintain the backhaul revenues even if new types of capacity like HTS or O3b come to the fore. But fear not, the one unassailable C-band application remains video.

The large coverage areas and high-quality transmission characteristics of C-band continue to make satellite one of the single best and most cost effective transmission technologies for video.

As channel bandwidth gets larger as the broadcast industry moves to HD and eventually Ultra HD (plus whatever comes after), satellite's place in the market is even more secure because, outside dense urban cores, there will be no more cost effective way to transmit this content.

Analysis by Patrick French, Senior Analyst, NSR Singapore

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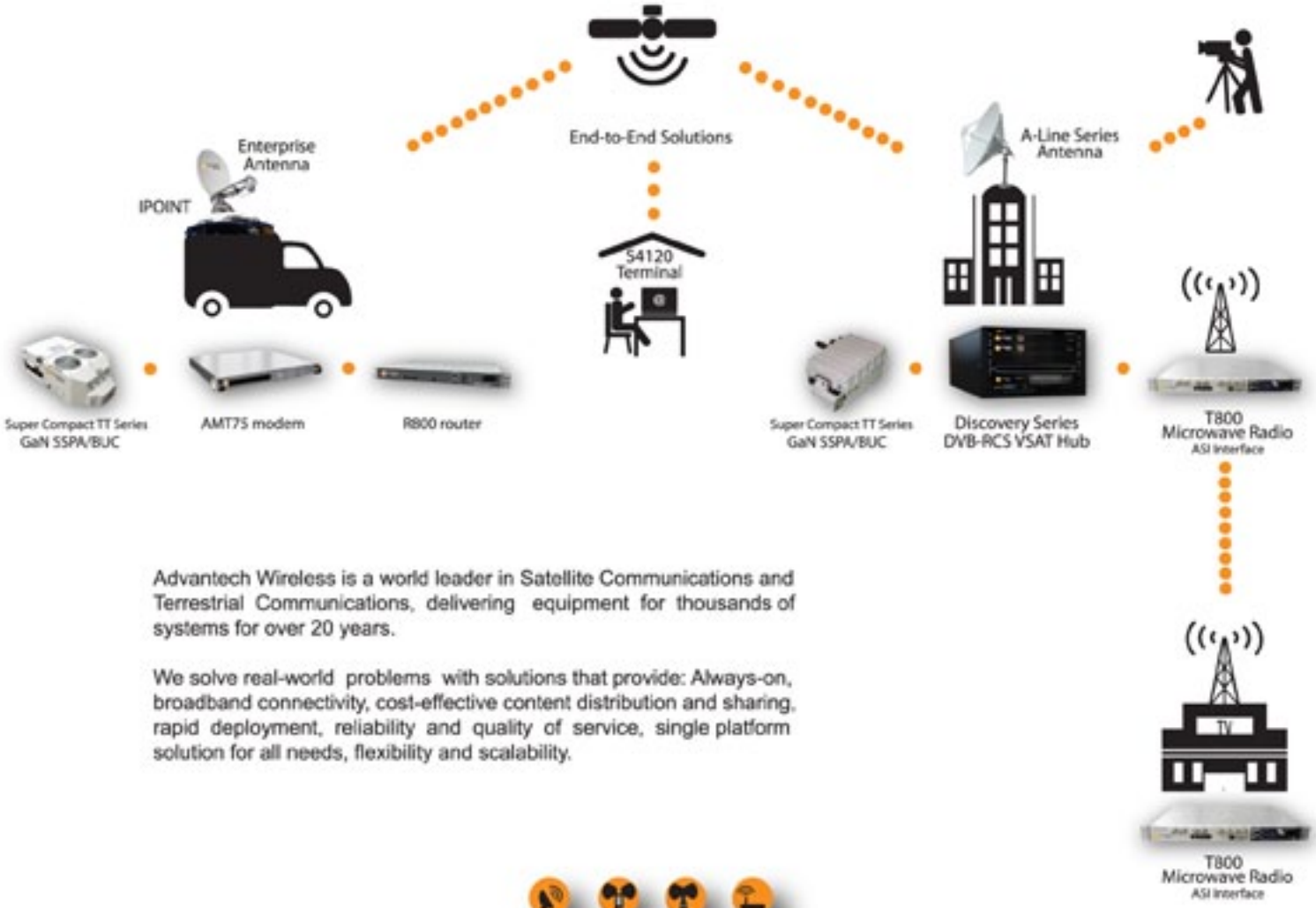

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South America Is Uplifting

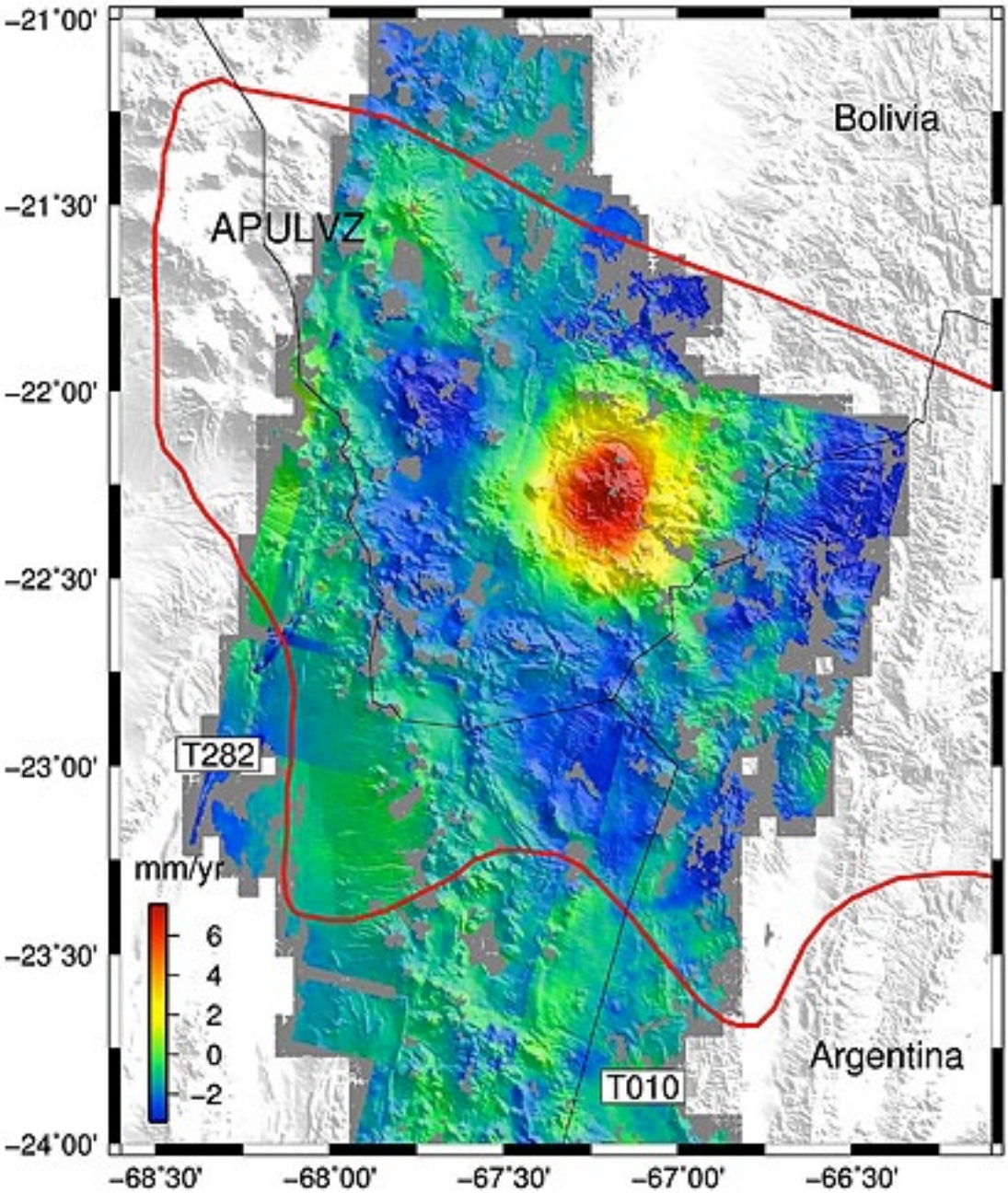
In the central Andes mountains, satellites have detected ground deformation under way above a major subterranean magma body.

The Altiplano–Puna volcanic province is part of an active volcanic arc in South America's central Andes. Extending through Peru, southwestern Bolivia, Chile and northwestern Argentina, it is home to a number of large calderas formed following catastrophic eruptions.

Beneath the surface of Altiplano–Puna, about 17 to 19km deep, lies the largest known active magma body in Earth's continental crust. Satellites show that the ground in this area has been rising by about 10 mm per year over the past 20 years.

In a study published in *Science*, scientists used radar data from the ERS and Envisat missions to study an unusual uplift near the Uturuncu volcano, which had been dormant for 270,000 years.

The surrounding area, however, is sinking at a slower rate of about 2mm per year. With the wide-brimmed hat-like shape this creates, the study team has nicknamed this the 'sombrero uplift'. The deformation is attributed to a ballooning of a buoyant volume of molten rock at the top of the Altiplano–Puna magma body. The authors suggest that much of the melt is being withdrawn from the adjacent parts of the magma body, causing the peripheral subsidence.



Radar data from ERS-1, -2 and Envisat show a central uplift of about 10 mm per year near the Uturuncu volcano (dark red). The surrounding region shows a slower subsidence at a rate of about 2 mm per year (blue). Data were acquired 1992–2010. Scientists refer to the deformation pattern as the 'sombrero uplift'. Credits: Y. Fialko, SIO/UCSD

The ground deformation was measured using Interferometric Synthetic Aperture Radar—or InSAR—a remote sensing technique where two or more radar images over the same area are combined to detect slight surface changes occurring between acquisitions. Changes on the ground cause changes in the radar signal and lead to rainbow-colored interference patterns in the combined image, known as a 'SAR interferogram'.

In 2006, the study team asked ESA to task the ERS-2 and Envisat satellites to acquire more data from the northbound and southbound orbits over Altiplano-Puna.

"It was really important to have good data from different lines-of-sight, as this allowed us to estimate contributions from vertical and horizontal motion of Earth's surface, and place crucial constraints on

This Envisat image features salt flats in southwest Bolivia, near the crest of the Andes Mountains. The Salar de Uyuni (the lower white area) is the largest salt flat in the world, occupying 10,582 sq. km. It is located at the southern end of the Altiplano, a high plain of inland drainage in the central Andes. Credits: ESA

depth and mechanism of the inflation source," said Yuri Fialko, Professor of Geophysics at the University of California San Diego and lead author of the paper.

"Back in 2006, it looked like the satellites stopped acquiring data from the ascending orbits over the area of interest. Fortunately, ESA was very responsive to our requests, and generated an excellent dataset that made our study possible."

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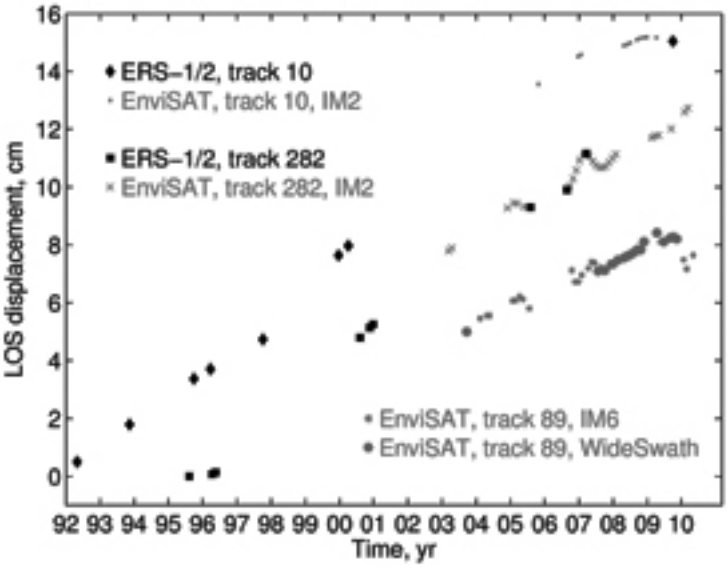


Displacements calculated using data from ERS (black symbols) and Envisat (grey symbols) over the Altiplano–Puna volcanic province 1992–2010. Credits: Y. Fialko, SIO/UCSD

A Private Affair For Russia

The first Russian satellite, manufactured by a private company for private funds will be put into orbit in 2014, most probably onboard the "Progress" state-owned cargo vehicle—so believes "Sputniks" General Director Andrei Potapov.

"Sputniks" is the branch of ScanEx RDC that in November 2011 became a resident of the Skolkovo Center in Moscow. The company plans to create small-size space vehicles of 12 to 50 kilograms.

"Within two years we plan to build our own satellite which will be the technological demonstrator to test and fine-tune the systems. It will be used for solutions of applied tasks in limited mode, for example for Earth surface imaging at 50m resolution," said Andrei Potapov in his interview with RIA Novosti.

Creation of micro- and nano-satellites is not news. Such vehicles are created around the world by private companies and universities. For example, five CubeSat standard satellites are to be launched from the Japanese Kibo module of the ISS (one of them was manufactured by Vietnamese radio fans).

Universities such as Bauman MSTU and Lomonosov MSU have already been engaged in the manufacturing of micro-satellites in Russia. However, the micro-satellites that the "Sputniks" company plans to launch will truly become the first private Russian spacecrafts.

"Those are very small and cheap satellites, but they are capable of solving different applied tasks and will become a part of the space industry, a part of market economy," said Andrei Potapov.

"Sputniks" specialists are planning to design their own space platform, a unified module upon which a customer will be able to "put together" a customized space craft. One basic module—a hexagonal "tablet" named TableSat—can be connected with other similar modules.

"We have been designing our own original contraption, having no parallel in existing projects. Nowadays we have been developing service systems that can be later on assembled into our own platform," said Andrei Potapov. He believes that future "tablet" satellites will also operate for Earth observation purposes at medium resolutions of 10 to 50 meters. Such images are useful for studying crops' status, forests (e.g., in search of illegal loggings) and other needs.

"The idea is to launch a wide scanning camera onboard the microsatellite, which will ensure the imagery within the swath of around 600km at the medium resolution. This will allow taking images of large territories and then, in certain intervals, doing comparative analysis of images to assess changes and to receive updated information about the condition of territories in our country," added Potapov.

These vehicles will be similar to the UK-DMC2 small-size satellite, developed and produced by the British Surrey Satellite Technology Limited (SSTL) company.

"I think that in three to five years from now, large private space firms may appear in Russia—in some industry sectors, they will be able to even compete with leading Roscosmos enterprises," concluded Potapov.

#

Satellite Detection Service Testing OK'd In Kuwait

Canadian Oil Recovery and Remediation Enterprises Ltd. has been successful in securing a pilot contract through Ecotecnos with Kuwait Oil Company ("KOC") to test its satellite detection service.

As announced previously, CORRE has secured the exclusive right to market a satellite detection service which generates accurate visual definition, assessment and measurement of oil lakes, sludge pits or specific oil leaks up to 150 feet underground in order to allow an indepth analysis of clean-up project costs and to better understand the scope of the environmental damage.

The main objectives of the pilot project are proving the effectiveness of the technology to KOC as well as demonstrating how the technology produces an enhanced understanding of the environmental contamination before tendering projects.

A 2D image produced by Ecotecnos will allow KOC to better understand the scope and cost of tenders by better defining the work needing to be done to remediate the entire area up for bid.

Tenderer and bidding parties will both know the depth and density of the contamination, whether there are foreign objects within the contamination such as land mines and the biological makeup of the ground, thus creating a more efficient tendering process for KOC.

The signed agreement has KOC assuming all costs and will involve Ecotecnos validating the technology to a depth of 1.5m.

This is the first step in a process that, if successful, will allow CORRE and Ecotecnos to move forward with large scale contracts in the Middle East, North Africa, United States of America and Canada.

The satellite detection service will provide CORRE with an auxiliary revenue stream and an additional service which can be provided in unison with its oil remediation services or on a stand-alone basis.

"I believe this will be a successful technology which has the potential to be a game changer in how KOC and other similar companies will write future tenders. In Kuwait, Ecotecnos' technology can redefine the tender evaluation process for remediating the approximate 6,000 oil pits and Kuwait oil lakes which will be up for public bid over the next decade along with other remediation opportunities in areas of the Middle East and North Africa", said John Lorenzo, CORRE's CEO and Chairman.

#

Space Education A Key To The Future

Educators, who effectively use space themes to inspire students and strengthen lesson plans, have a great opportunity for additional support from the nation's premier space advocacy organization.

The Space Foundation is now accepting applications for its 2013 flight of Teacher Liaisons. This will be the 10th year of this prestigious, nationally recognized program that provides an honored few educators numerous benefits and privileges, helps strengthen their teaching skills, builds résumés and influences education at a national level.

Pre K-20 teachers and other professional or informal educators in the Pre K-20 arena are eligible to be Space Foundation Teacher Liaisons.

Teacher Liaisons tend to be Master Teachers who want to inspire the next generation of students to pursue and excel in the areas of science, technology, engineering and math (STEM).

Teacher Liaisons do not need to be science or math teachers; they need only to have a desire to integrate space education within their curriculum.

Space Foundation Teacher Liaisons serve as active links between the Space Foundation, NASA and their schools and school districts.

This influential role includes numerous benefits, privileges and activities such as special recognition during the 29th National Space Symposium, to be held at The Broadmoor Hotel in Colorado Springs, Colorado, April 8-11, 2013.

There is no fee to apply, or membership cost. #

The Controller Factor

Antenna designer Winegard, has rolled out a new VSAT Integrated controller that neatly stores an iDirect Evolution® X5 or iDirect iNFINITI® 3000 modem inside the controller housing.

Other popular VSAT platforms also are compatible with the new controller, including HughesNet™, Spacenet®, Comtech® and Nera, minus the integrated feature of storing the modem inside the IDU casing.

The new Integrated Controller is completely universal and backward compatible with all other Winegard VSAT antenna systems. It comes equipped with built-in DVB (digital video broadcasting) receivers and GPS.

The Integrated controller holds CE certification for international use. Winegard VSAT antenna systems and controllers are operational worldwide, including the countries of United Arab Emirates, South Africa, Russia, Iraq, Pakistan, Saudi Arabia, Scotland and Columbia.

Winegard introduced the new controller at the OilComm Show held in Houston, Texas, that was held from November 6th through the 8th.

#

Taking To The Air

OnAir and Honeywell have signed an agreement making OnAir the distributor of Inmarsat's Global Xpress Ka-band aircraft connectivity services to the business and general aviation segment.

The five-year agreement gives passengers access to high-speed, in-flight wireless broadband. Geneva-based OnAir already distributes this technology to commercial airlines.

Ian Dawkins, OnAir CEO, said, "This contract reflects a revolutionary trend that the passengers are demanding—to use their devices in the sky just as they do on the ground. It is essential to be at the forefront of providing the passengers and crew with what they need: inflight connectivity."

OnAir's in-flight mobile phone and Wi-Fi products can be used across the world, over both land and water. OnAir has a unique network of regulatory authorizations from over 80 countries and more than 350 roaming agreements with mobile network operators.

Inmarsat Global Xpress Ka-band will be available to all business and general aviation aircraft types from early 2015.

#

The Latin American Satellite Markets: An Assessment

by Ahsun H. Murad, President + CEO, Optimal Satcom

Latin America, broadly identified as the countries of Central America, South America, and the island states of the Caribbean, represents approximately 8.5 percent of the world's population and about 7.6 percent of the world's gross domestic product (GDP).

In recent years, as the world has seen a marked economic slowdown, Latin America has realized somewhat stronger growth with the five largest regional economies—Brazil, Mexico, Venezuela, Argentina and Colombia—having a combined GDP growth rate of 6.0 percent and 3.9 percent in 2010 and 2011, respectively; compared to global GDP growth rates of 4.3 percent and 2.7 percent over the same years according to figures released by The World Bank.

Latin America holds a lot of promise as a market for the satellite industry, and major satellite operators and service providers have identified it as an important market for their future growth. Economic growth in Latin America along with an increasing trend towards globalization—both from multinationals looking to invest and expand into the region; and from regional companies looking to gain global presence—has resulted in an increase in demand for satellite bandwidth for corporate infrastructure needs.

One of the major drivers of growth in the region is Brazil, which contains 48 percent of the Latin American population and accounts for about 41 percent of the region's economy. It is currently ranked sixth in the world behind the United States, China, Japan, Germany, and France, based on **World Bank** 2011 GDP numbers, but is expected to overtake France as the fifth largest national economy by the end of 2012.

Though somewhat depressed by the world's economic slowdown, growth in energy, manufacturing, mining, food production and distribution, and retail industry are fueling a net increase in demand across Latin America for satellite capacity for enterprise and infrastructure needs.

Another important driver of growth in demand for satellite capacity is the *direct-to-home* (**DTH**) satellite TV market. Here, the market is also following trends in globalization with greater numbers of international channels being brought in for regional consumption with content in Spanish, English, and Portuguese. Even economically disadvantaged populations now consider TV to be a necessity and it is the primary medium for consumption of news and entertainment in these markets.

DTH satellite TV providers are increasingly offering *high definition* (**HD**) channel lineups to augment or replace their standard definition (SD) offerings. For example, **Sky Brazil**, which was founded in 1996 and is now majority owned by **DirecTV**, started its HD offering in 2009 with 10 HD channels and now carries over 40 HD channels. (Sky Brazil is carried on ***Intelsat 11***, whose Ku-band payload supports the DirecTV coverage.)

Sky Mexico, which was also founded in 1996 and is jointly owned by **Groupo Televisa** and **DirecTV**, also offers about 40 HD channels. (Sky Mexico operates from ***Intelsat-9*** and ***Intelsat-16***.) The **2014 Soccer World Cup** in Brazil, followed by the **2016 Summer Olympics** also in Brazil, will no doubt accelerate the growth in demand for satellite capacity for satellite TV in Latin America with an increase in the number of channels offered; the conversion of SD to HD; the growth in satellite capacity for enterprise needs to support the economic development and infrastructure growth associated with these world events; and the temporal growth in demand for satellite capacity for occasional use *satellite news gathering* (**SNG**) services surrounding these events.

There are a number of global and regional satellite operators that offer satellite coverage to Latin America. According to information published by the **Brazilian Agency of**

The Latin American Satellite Markets: An Assessment (Cont.)

Telecommunications—Agência Nacional de Telecomunicações (**ANATEL**), amongst FSS satellite operators, **Intelsat**, **SES**, **Eutelsat**, **Telesat**, **Star One**, **Hispasat/Hispamar**, **HNS Americas**, **DirecTV**, and **SatMex** are permitted to operate in Brazil.

Intelsat is currently the largest provider of satellite capacity to Latin America with 13 satellites covering the region: ***G-28*** at **89 degrees West**, ***IS-21*** at **302 degrees East**, ***IS-16*** at **302 degrees East** which is leased to DirecTV for providing DTH services, ***IS-9*** at **302 degrees East**, ***G-11*** at **304.5 degrees East**, ***IS-1R*** at **310 degrees East**, ***IS-14*** at **315 degrees East**, ***IS-11*** at **317 degrees East**, ***IS-903*** at **325.5 degrees East**, ***IS-801*** at **330.5 degrees East**, ***IS-907*** at **332.5 degrees East**, ***IS-905*** at **335.5 degrees East**, and ***IS-901*** at **342 degrees East**.

Intelsat has a recent launch and an upcoming launch: ***IS-23***, built by **Orbital Sciences** was successfully launched by **International Launch Services** (**ILS**) on October 14, 2012 to replace ***IS-707*** at **307 degrees East**; and ***IS-27***, based on the **Boeing *702MP*** platform, which is expected to be launched in January 2013 by **Sea Launch** to replace ***IS-805*** at **304.5 degrees East**. (IS-805 will then be relocated to **310 degrees East** and may continue to serve the Latin American market in a more limited capacity.) Both satellites have significant C- and Ku-band coverage over Latin America.

Artistic rendition of the Intelsat-21 satellite, courtesy of Boeing

Seven satellites in the **SES** global fleet provide Latin American coverage: ***QuetzSat-1*** at **77 degrees West**, which is leased to **Dish Mexico**, ***AMC-4*** at **67 degrees West**, ***NSS-703*** at 47 degrees West, NSS-806 at 319.5 degrees E, ***NSS-10*** at **322.5**

degrees East, ***SES-4*** at **338 degrees East**, and ***NSS-7*** at **340 degrees East**.

Several additional SES satellites in the ***AMC*** (heritage Americom) series have continental U.S. coverage that also extends into Central America and parts of the Caribbean. An additional satellite, ***SES-6*** is being built by **EADS Astrium** and is expected to be launched in 2013 to replace ***NSS-806*** at **319.5 degrees East,** which is past the end of its design life.

Artist's concept image of the SES-6 satellite, courtesy of Astrium

EUTELSAT currently operates three satellites providing Latin American coverage: ***EUTELSAT 12 West A*** (formerly ***Atlantic Bird 1***) at **12.5 degrees West**, ***EUTELSAT 8 West A*** (formerly ***Atlantic Bird 2***) at **8 degrees West**, and ***EUTELSAT 5 West A*** (formerly ***Atlantic Bird 3***) at **5 degrees West**.

An additional satellite, ***EUTELSAT 3B*** that is being built by **EADS Astrium** is expected to be launched in 2014 to the **3 degrees East** orbital position and will provide C-, Ku-, and Ka-band coverage, some of which will be over Latin America.

Four **Telesat**-operated satellites provide Latin American coverage: ***Anik F1*** at **107.3 degrees West**, ***Telstar 14R*** at **63 degrees West**, ***Telstar 11N*** at **37.5 degrees West**, and ***Telstar 12*** at **15 degrees West**.

An additional satellite, ***Anik G1***, is being built by **Space Systems/Loral** and is expected to be launched in Q1 2013 to the **107.3 degrees West** orbital position and will provide C-, Ku-, and X-band coverage over Latin America.

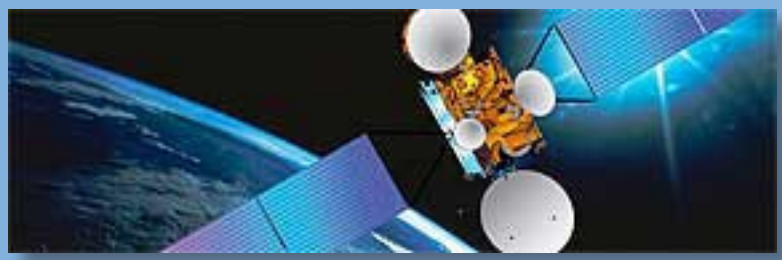


Illustration of the Eutelsat 5 West A satellite, courtesy of Eutelsat Communications

Hispamar is a joint partnership between **Hispasat** of Spain, and, the largest fixed telephony operator in Latin America. Hispasat/Hispamar currently operate six satellites with coverage over Latin America: ***Hispasat 1C***, ***1D***, and ***1E*** at **30 degrees West**, ***Amazonas 1*** and ***2*** at **61 degrees West**, and ***SpainSat*** at **30 degrees West**.

Mexico City-based satellite operator **Satmex** (**Satélites Mexicanos S.A. de C.V.**) currently operates ***Satmex 5*** and ***Satmex 6***.

A third satellite, ***Satmex 8***, is being built by **Space Systems/Loral**, and is expected to be launched in December 2012, just in time to replace the ageing ***Satmex 5*** satellite, which only has a few months of fuel left. Satmex 8 has 64 Ku- and C-band transponders, and will replace ***Satmex 5*** at **116.8 degrees West**, subsequent to

Artistic illustration of the Telesat 14R satellite

Artist's concept illustration of the Satmex 8 satellite, courtesy of Space Systems/Loral

which, Satmex 5 may be deorbited or moved to an inclined orbit at another orbital location.

Satmex has also teamed with Hong Kong based operator **Asia Broadcast Satellite** (**ABS**) on a package deal with **Boeing** to build four satellites based on their ***702SP*** "small platform" that employs the revolutionary, light-weight, all-electric propulsion system, with an option for four more satellites. As part of the deal, Satmex is expected to acquire two of the satellites, the first of which will be named ***Satmex-7*** and will carry the equivalent of 61 36-MHz Ku- and C-band transponders and will operate at Satmex's **114.9 degrees West** orbital slot. Satmex is expected to make a final decision on the second satellite no later than July of 2013.

The Mexican government has contracted with Boeing to build a three-satellite geo-mobile satellite system to provide next-generation satellite services to the Mexican government for military, civilian, and humanitarian purposes. The **Mexican Satellite** (***MEXSAT***) **System** consists of two L- and Ku-band satellites operating in the *Mobile Satellite Services* (**MSS**) segment (***MEXSAT-1*** and ***MEXSAT-2***) based on the Boeing 702HP bus with 14kW of power, a 22-meter L-band reflector for mobile terminal links, and a 2-meter Ku-band antenna.

Boeing subcontracted with **Orbital Sciences** to build the third satellite (***MEXSAT-3***) operating in the *Fixed Satellite Services* (**FSS**) segment with 12 extended C- and 12 extended Ku-band transponders. MEXSAT-3 is expected to be launched in December of 2012

MEXSAT-1 illustration, courtesy of Boeing

The Mexican government currently operates a number of services on Satmex satellites. Once the MEXSAT satellites become operational, a substantial portion of these Government services are expected to be moved from Satmex to MEXSAT, freeing a significant amount of capacity which will then be available for commercial use.

Brazilian satellite operator **Star One** (a subsidiary of **Embratel**, a major Brazilian telecommunications company) currently operates six satellites: ***BrasilSat B2***, ***B3***, and ***B4***, and ***Star One C1***, ***C2***, and ***C12***.

A seventh satellite, ***Star One C3*** built by Orbital Sciences and scheduled for launch by **Arianespace** in late 2012 will have 28 active C-band transponders for coverage of South America and 16 x 72 MHz Ku-band transponders with six channels switchable between a Brazilian and an Andean coverage region. The Star One C3 satellite will replace ***Brasilsat B3*** at **75 degrees West**.

Earlier in 2012, Star One also contracted with Space Systems/Loral to build an eighth satellite, ***Star One C4***, which will have 48 Ku-band transponders. There are also future plans to develop additional satellites ***C5***, ***C6***, ***D1***, and ***D2*** with Star One D1 and D2 expected to carry Ka-band high-throughput multi-beam payloads.

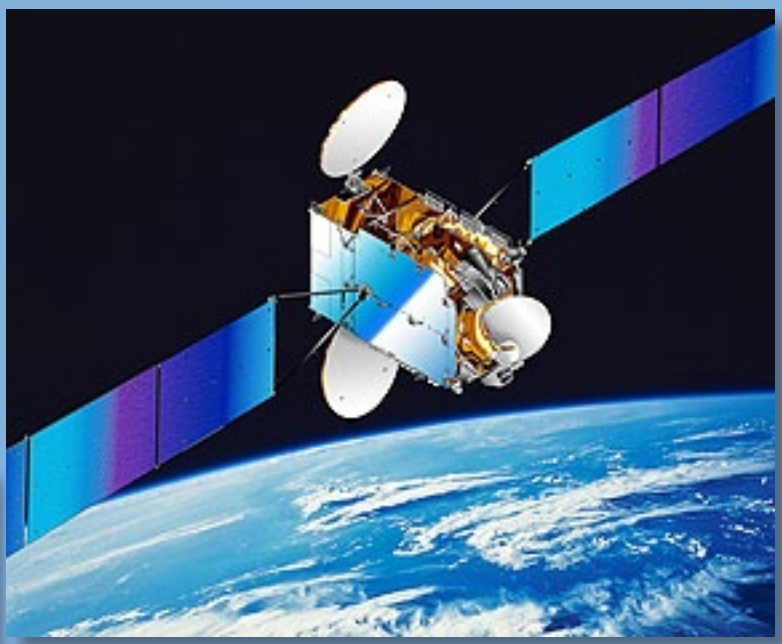


Illustration of Star One's C2 satellite

With the new C generation of satellites, Star One is seeking to grow its DTH TV business and rebrand itself as a regional, rather than a Brazilian domestic operator, with coverage designed to cater to the broader Latin American region. Star One is headquartered in Rio de Janeiro, Brazil.

Venezuela launched its first geosynchronous satellite, ***Venesat-1*** (also known as ***Simón Bolívar***) in 2008. Venesat-1 is owned by Venezuela's *Ministry of Science and Technology* and operated by the state-owned telecommunications company, **CA Nacional Télefonos de Venezuela** (**CANTV**). Venesat-1 has 12 C- and 14 Ku-band transponders and operates at **78 degrees West**, an orbital slot assigned to Uruguay and used by Venezuela under mutual agreement. It was launched on a Chinese ***Long March 3B*** rocket, from the **Xichang Satellite Launch Centre** on October 29, 2008. A second satellite, ***Venesat-2*** is expected to be launched in 2015.

Argentina's state-owned satellite company, **ARSAT** has contracted **INVAP**, an Argentinian space contractor, to build the ***ARSAT-1*** satellite to be launched in mid-2013 by Arianespace to be followed by ***ARSAT-2*** and ***ARSAT-3*** which will also be built by INVAP. The satellites will be deployed at **81 degrees West** and **72 degrees West** and will operate in C- and Ku-band.

The adoption of Ka-band for delivering high throughput multi-beam satellites capable of providing broadband services throughout the world has not gone unnoticed in Latin America. In November 2011, **ANATEL**, the **Brazilian Agency of Telecommunications,** released a document soliciting comments from the public regarding standards for operation of geostationary satellites operating in Ka-band over the Brazilian territory. The solicitation, which was received favorably by the industry, sought to set clear standards for operation in Ka-band with specified limits and methods for computation of adjacent satellite interference, and the coordination process.

Artistic rendition of Venezuela's Venesat-1

ANATEL's May 2012 report on the list of satellites authorized to operate at Ka-band lists orbital slot exploitation rights for **Hispasat/ Hispamar** at **61 degrees West**, **HNS Americas** at **45 degrees West**, ***Star One D1*** at **70 degrees West**, and ***Star One D2*** at **84 degrees West**.

The ***Amazonas-3*** satellite built for Hispasat by Space Systems/ Loral and expected to be launched in the first half of 2013 (delayed from late 2012) by Arianespace carries 9 Ka-band broadband spot beams (in addition to 33 Ku-band and 19 C-band transponders), and will be deployed at Hispasat's **61 degrees West** location. It has also been reported that Eutelsat won an auction for Ka-band exploitation rights at **65 degrees West** earlier this year—as of this writing, that company has not announced any plans for use of the slot.

Global operators **Inmarsat** and **O3b Networks** are also building systems to bring high-throughput Ka-band satellite capacity to Latin America—Inmarsat with its ***Global Xpress*** system consisting of three initial ***Inmarsat 5*** Ka-band satellites; and O3b with its *medium Earth orbit* (**MEO**) low-latency system consisting of an initial fleet of eight satellites. Two O3b gateways are planned in Latin America, one in Lima, Peru and another in Rio de Janeiro, Brazil. The O3b satellites are expected to launch in 2013, with the system commencing commercial operations in early 2014. Inmarsat also expects to launch its Global Xpress satellites starting in 2013 with global coverage becoming available with the launch of its third satellite expected in late 2014.

Artistic rendition of the ARSAT-1 satellite, courtesy of Thales Alenia Space

Changing Dynamics

With this level of activity from global and regional satellite operators in Latin America, there is some concern that there will be an oversupply of capacity in the 2013-2016 timeframe before demand catches up with supply. However, some of this oversupply is likely to be offset by the increase in demand and the premium that is expected to be placed on satellite capacity in Latin America around the 2014 World Cup and 2016 Summer Olympics, which will no doubt bolster the profitability of the satellite business in this interim period.

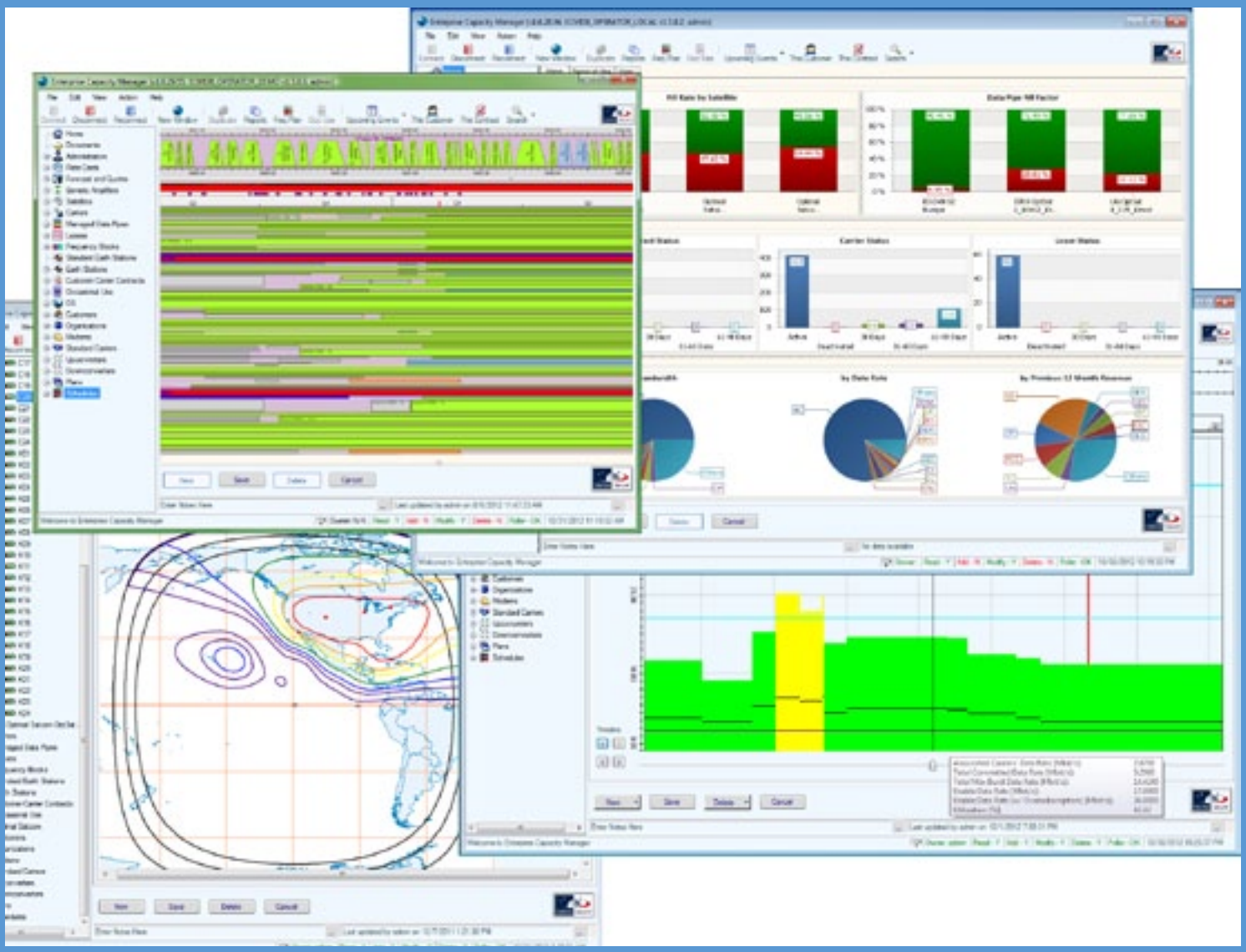
The changing dynamics of the Latin American market brings new challenges for regional and global satellite operators and service providers. Regional satellite operators with available satellite capacity need to appeal to, and gain access to, a broader base of customers. Some of these customers are global service providers that have established Latin American subsidiaries, but in other cases, they are service providers who have historically operated in other markets such as North America, Europe, and the Middle East, and now seek to tap the growth potential of the Latin American market, but have little or no prior experience operating there.

The Amazonas-3 satellite under construction

Concept illustration of the Inmarsat 5 series of satellites, courtesy of Boeing

On the other hand, global satellite operators wishing to operate in Latin America face competition from these regional operators, and in some cases, protectionist government agencies and regulations that place hurdles before international companies. Global operators that tend to see Latin America as a monolithic market bloc often fail to realize the differences between the many cultures and regional alliances.

For example, Mexico, although a Latin American country, has stronger ties to the North America market and historical alliances with United States and Canada, rather than with the South American countries, and is worth considering as a separate sub-market with its somewhat distinct business practices. Similarly, while resident populations in the island countries of the Caribbean represent a relatively small market for satellite capacity, the extensive oil and gas exploration and drilling activities in the Gulf of Mexico sharply define this market with major oil multinationals, drilling and exploration companies, rig operators, service and supply ships generating significant demand for satellite bandwidth to fulfill their remote communications requirements.



Screenshots of Optimal Satcom's Enterprise Capacity Manager (ECM)

Brazil, which represents almost half of the Latin American economy, is also a different sub-market. First, unlike the other countries in Latin America, Brazil's primary language is Portuguese, not Spanish, and though a majority of the educated population can understand both languages as well as English, Portuguese is still the language for most business conversation.

Second, due to its size as a regional economy, it is worth adapting business practices to Brazil's legal and regulatory environment that is under the jurisdiction of ANATEL, which governs all commercial satellite communications within the country, sets its own limits and guidelines for interference and coordination, and authorizes companies for access to space. ANATEL, in most cases, requires that business contracts be executed through a Brazilian company, which, in the case of international satellite operators and service providers, means establishing a subsidiary to conduct business in Brazil.

About the author

Ahsun H. Murad is the President and CEO of Optimal Satcom, which he co-founded as a spin-off from Lockheed Martin Corporation in 2002. Since creating the company, Mr. Murad has focused Optimal Satcom on developing new applications for fully-integrated, enterprise management systems. In addition, he continues to pursue various market opportunities around the world, targeting satellite operators, satellite service providers, and satellite-centric MILSATCOM initiatives, and their requirements for efficient management of their satellite capacity and associated networks.

Prior to Optimal Satcom, Mr. Murad worked in various positions across the satellite communications industry. Immediately before founding Optimal Satcom, he held management positions at Lockheed Martin and COMSAT Laboratories. In these positions, he headed the development of products for transmission planning and satellite capacity management and was the lead system architect for a number of commercial SATCOM and MILSATCOM projects.

About the company

Optimal Satcom® has been supporting its customers who operate in the Latin American market for a number of years, working with global satellite operators that serve Latin America, Latin American regional satellite operators, major satellite service providers that operate in the region, and governmental entities. As a provider of enterprise software systems for satellite capacity management including market-leading products Enterprise Capacity Manager® (ECM) and COMPLAN®, Optimal Satcom seeks to support its customers with planning, management, and operations of their satellite business, facilitating expansion in global markets and adaptation to regional markets.

ECM is a software system that integrates all the functions related to satellite capacity planning, management, operations, sales, cost and revenue tracking, and customer management into a single system; and is in operational use by a number of satellite operators, some of the world's largest satellite service providers, and several governmental agencies.

Global companies seeking to expand into Latin America and regional companies wishing to expand into international markets find ECM's ability to support multi-site integrated operations, multiple currencies, multi-language reporting, and easy customizability to be attractive. The ability to easily segregate and track business performance by regions, market verticals, product types, technologies, etc. provides real-time business intelligence to help them understand their market and identify metrics for success. For companies that need to operate through regional subsidiaries in different markets, ECM also supports the use of a single system that reduces overhead by integrating the planning, operation, and management of satellite capacity at the parent organization level, while allowing financial functions to be segregated amongst the separate business entities.

Smashing The Satellite Throughput Barrier

by Dave Suffys, Sales Support Manager, Newtec

Particularly in the current global economic climate, but always a topic of concern, satellite service providers are seeking to get more out of what they already have, or to do the same, with less. In competition with terrestrial markets, it is important for satellite service providers to always offer the best possible value to customers. Advances in technology are making this goal possible. Research and development departments are working overtime to come up with new and innovative solutions to achieve this goal.

One of my roles at **Newtec** is to perform measurements and field trials with customers to demonstrate new products. Working together with our customers and the satellite operators, the object is to obtain endorsements for the new technology Newtec is bringing to the market. Currently, one of the newest technologies that is being tested—***Clean Channel Technology***™ (**CCT**), is a potential S2 extension candidate. Three elements comprise the technology; a reduction of Roll-Off factors, significantly reduced RF sideband noise, and a much cleaner carrier.

Record Breaking Technology

CCT works by applying a smaller *Roll-Off* (**RO**) percentage than is currently used in the **DVB-S2** standard. Roll-Off percentages of 20, 25 and 35 percent are common. The bigger the Roll-Off, the more satellite bandwidth is needed in order for a certain carrier rate to be accommodated.

Implementing low Roll-Off factors allows for carriers to be spaced more closely to one another. Of course, the slidelobes of these carriers will then create interference into the neighboring carriers. Therefore, reducing the Roll-Off alone is not enough—the slidelobes need to be suppressed even more. This is where CCT comes into play. With CCT, one can reduce the Roll-Off to as low as 5 percent, increase the carrier rate in the same bandwidth, and place carriers closer to each other without any degradation.

In order for new technologies to be accepted by the market, we work closely with satellite operators. With this in mind, we visited **Eutelsat** and **Intelsat**—two of the most important providers in the market. Without this strong relationship, testing of the equipment in live, real-world conditions would not have been possible, and operators would not benefit from improved service to their customers.

The testing process was initiated by a brainstorm between the technicians. An exhaustive number of test cases were defined and then performed in the Newtec labs. Once completed, the first target was one of Intelsat's largest teleport bases in *Fuchsstadt*, Germany. The capabilities of these latest developments were theoretically known, but real-world proof was needed.

The Seal Of Approval

As a game changing organization in terms of its influence in the worldwide satellite industry, Intelsat requires the highest performance, quality and reliability. During tests, three equally sized DVB-S2 carriers were used with and without CCT carriers at equal or unbalanced power to simulate fading conditions. These tests were completed with several modulation and coding configurations from QPSK up to 32APSK.

The goal was to reach the never before achieved rate of 500Mbps on a 72MHz transponder. Initial results, transmitting at 8PSK-5/6 over 68Mbaud with bandwidth cancellation were promising—a little more than 320Mbps was realized. With a few tweaks to the configuration, the headline transfer figure began to move in the correct direction.

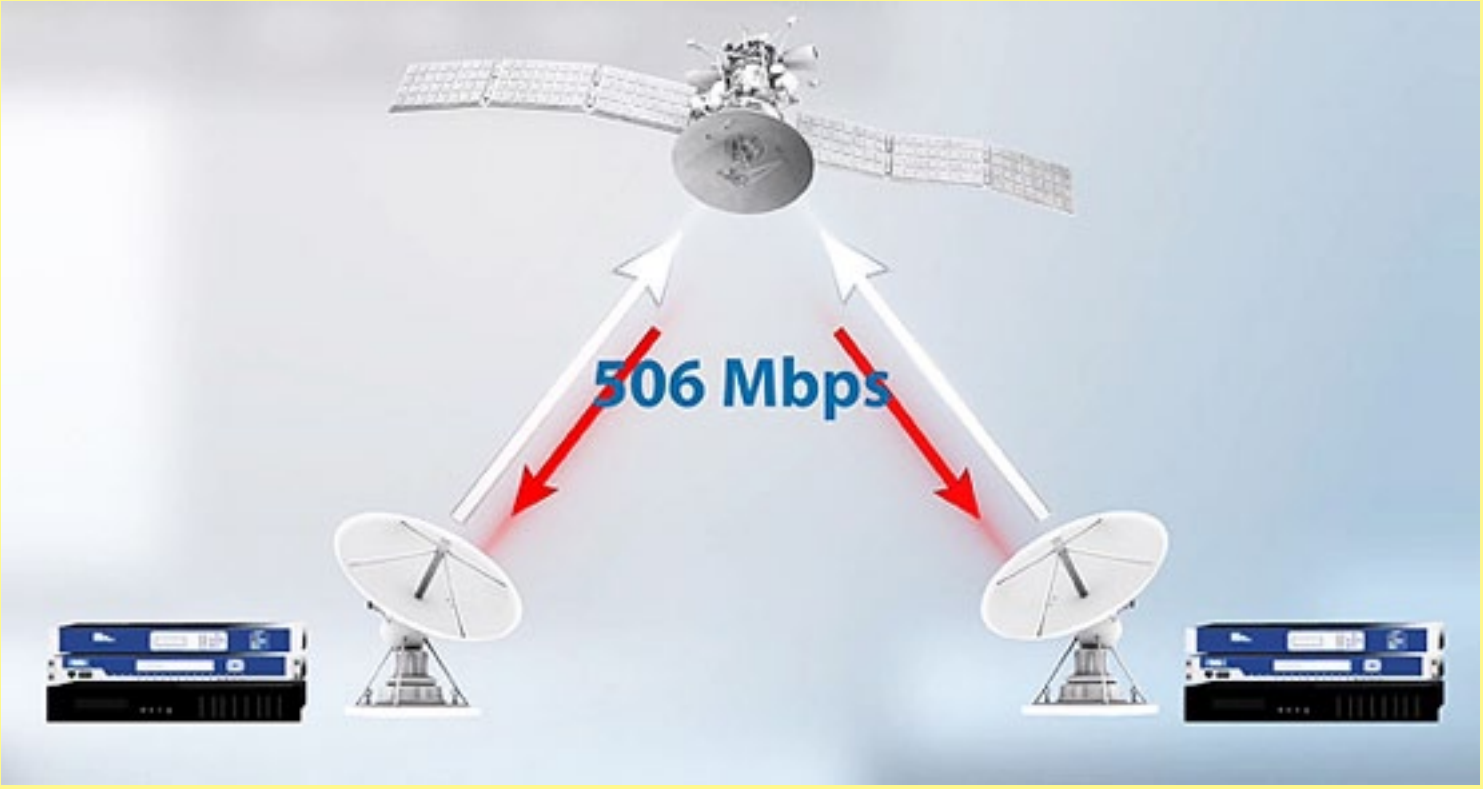
Two carriers of 64.68Mbaud, 32APSK-4/5 were live on air. Ways to improve this headline figure even further were identified and the Forward Error Correction was lowered to 3/4. This allowed the symbol rate to be upped to 67Mbaud.

With this success, existing records were surpassed and 485Mbps was transmitted on the 72MHz transponder. Not quite enough to

hit that important landmark of 500Mbps, but still an impressive achievement. A great deal was learned as to what could be done to improve the tests.

Breaking The Half-A-Gig Barrier

With an extremely high throughput rating achieved at Fuchsstadt, it was time for the next testing appointment. With masses of real-world data in hand, the opportunity to break the world throughput record



again was present, this time at Eutelsat's teleport in *Rambouillet* to break the psychological important half-a-gigabit barrier.

This is the satellite transmission equivalent of handing the keys of a Bugatti Veyron to *Sebastian Vettel* for him to complete an unimpeded circuit of the **Nurburgring**. Instead of the Nurburgring, it was the Rambouillet teleport, Newtec's CCT, automatic non-linear ***Equalink*** (our new wideband modem), Bandwidth Cancellation and Eutelsat's transponder.

With all in hand, nothing could impede the test and the 500Mbps barrier was broken through at Eutelsat's teleport. A similar set-up during a two-way high speed backbone test was used and we combined our Bandwidth Canceller and nexgen modem Newtec ***MDM6000*** series to achieve the staggering 506Mbps (2 x 253Mbps)—this ushers in a new era of bandwidth efficiency.

What Does This Mean?

While terrestrial services are often achievable at a lower cost, they are not always available, nor are they the best option. Being able to offer a lower price per Megabit is crucial to the satellite industry's continued prosperity. The demand for IP backhaul is increasing year on year with smartphones driving a relentless surge in the use of data services. The vast majority of mobile phone traffic now is IP-based.

In Asia and Africa, where terrestrial networks are unreliable and prone to failure, satellite is being used as a backup. The customers are still experiencing higher and higher service level agreements (SLAs)—satellite, as a backup, must be able to step in and bridge the gap at the same customer-expected levels. Being able to offer speeds of up to half-a-gigabit per second are no-longer nice-to-have—they are a requirement.

When breaking a barrier, though, another one comes into sight. With the upcoming extensions to the DVB standard, which will enable even higher modulation modes and symbol rates, as well as the new and more powerful satellites scheduled for launch, Newtec's aim is at the 1 Gbps barrier. Our recently launched new platform certainly has the power under the bonnet to accomplish much, so ***stay tuned***!

About the author

Dave Suffys is Newtec's Sales Support Manager since 2000 where he manages the team of Technical Sales Support engineers that forms an integral part of the Customer Solutions department of Newtec. His personal expertise lies within DVB-S2 and IP networks over satellite.

SatBroadcasting™: The Satellite Wars Intensify

by Chris Forrester, Senior Contributing Editor + Editorial Director, Broadgate Publishing

Europe is suffering a massive amount of deliberate satellite jamming—most is coming from the Middle East and, mainly, affects ArabSat and NileSat. However, the deliberate jamming is also adversely affecting Paris-based Eutelsat.

The problems came to a head, at least as far as Eutelsat and Intelsat were concerned, in October when Eutelsat stopped carrying channels from Iranian state broadcaster IRIB (Islamic Republic of Iran Broadcasting). The UK-based services provider holds the contract, which has now terminated the IRIB contract. Some 19 TV and radio channels are affected, mostly transmitting from Eutelsat's popular Hot Bird satellites.

French media regulator, the Conseil Superieur de l'Audiovisuel (CSA) started the ball rolling and confirmed that the Iranian channels had violated various human rights in its transmissions. Earlier this year, the EU placed the head of IRIB, *Ezzatollah Zarghami*, on a list of people 'sanctioned' again due to human rights violation terms. Eutelsat says it is duty bound to obey the CSA.

IRIB's head, Zarghami, pictured on the left, is on the EU's list of sanctioned persons

The EU followed by approving tough new sanctions on Iran covering financial transactions, trade, energy and shipping. "We terminated the contracts because it was the order of the European Commission. We have to follow it," *Karen Badalov*, area manager at Eutelsat told Press TV, an Iranian-financed English-language channel that's also been banned by some European countries for its highly controversial on-air statements and comments.

Iran TV also initiated a *Facebook* petition to 'save' the channels over Europe, although some of its statements border on the absurd.

For example, **Press TV** in a statement described the move as hypocritical."Never was there freedom of expression in the U.S. or EU, only selective loose talk that is branded as Freedom of Expression."

The Opposite View

"The Islamic Republic of Iran Broadcasting (IRIB) has contracts going back 20 years with Eutelsat, which were renewed for five- or 10-year periods," IRIB vice president Mohammed Sarafraz was cited by state television as saying. "The contract was still valid and the decision to stop broadcasting 19 Iranian channels is political. Eutelsat broke the contract between us unilaterally and without legal justification," he said, adding that IRIB lawyers planned a formal complaint.

Another wholly ridiculous posting, part of the non-stop flow of rhetoric from Tehran, described Eutelsat as "actually Israeli" and that the "French sounding 'Michel de Rosen' who runs Eutelsat is an Israeli citizen, and the company has Israeli stockholders, that the company has long been dictated to by extremist groups within Israel, such as the militant ultra-nationalists of the Likudist regime of Netanyahu."

Syria also climbed onto the anti-Eutelsat bandwagon. Its Journalists Union has condemned the action, stressing that the decision constitutes a violation of the UN Charter and the rights of people to express themselves. On October 19th, Press TV started an on-line petition to generate comments on the ban.

All in all, tensions have been raised and those who actually suffer are usually the innocent channels that share transponder space alongside the equally innocent (by 'Western' standards) 'jammed' channels. There have even been allegations—unproven—that some sophisticated jamming is

Deliberate Interference

The BBC revealed on October 18th that it was again experiencing interference to transmissions in Europe and the Middle East. Describing the actions by parties as yet unnamed as "deliberate," although "intermittent," the corporation says that it and a number of other broadcasters have experienced interference that has impacted services that include the BBC World News and BBC Arabic television channels as well as BBC World Service radio services in English and Arabic.

In a statement, the BBC said it, and other broadcasters, continue to suffer. "Deliberate interference such as the jamming of transmissions is a blatant violation of international regulations concerning the use of satellites and we strongly condemn any practice designed to disrupt audiences' free access to news and information."

The other broadcasters affected include Voice of America and Deutsche Welle.

coming from within Saudi Arabia. Eutelsat has used its diplomatic contacts to formally complain to the ITU and other regulatory bodies, but, seemingly, there's little that can formally be done to punish transgressors.

Closer To Home

Paris-based satellite operator Eutelsat is also involved in an increasingly bitter dispute with its arch-rival SES Astra, based in Luxembourg. The two satellite giants are arguing over 500MHz of satellite capacity at the hugely valuable 28.5 degree East position, which is used to beam hundreds of channels into the UK and Ireland. If Eutelsat loses the slot, it would also lose significant revenues. It is not clear, as of this writing, whether SES Astra has included potential revenues into its formal guidance to the market for anticipated earnings.

Eutelsat on October 16th filed a request for arbitration against SES with the Paris-based International Chamber of Commerce (ICC), arguing that SES Astra is in breach of an agreement signed with SES back in 1999 which coordinated the transmission of each party's signals from 28.2 degrees East (over which there is no dispute) and 28.5 degrees East. SES is obliged to recognise the ICC arbitration process as it was a built-in legal safeguard to the core 1999 agreement.

"Eutelsat's position is that the agreement between SES and Media Broadcast, signed seven years ago, and only disclosed by SES in its release of October 1, 2012, violates the terms agreed in the 1999 Intersystem Coordination Agreement, specifically SES's commitment to respect Eutelsat's operations at 28.5 degrees East," said Eutelsat in a statement.

The Spirit Of The Agreement?

The BBC revealed on October 18th that it was Eutelsat that was complaining that its 1999 'Intersystem Coordination' agreement with SES was 'open ended', which a joint press statement issued on June 8 1999, seemed to confirm. Your editor has tracked the debate and argument between the two operators closely for more than 13 years.

Here's a brief historical timetable:

1989	*Eutelsat files to occupy the 29 degrees East slot with a pair of EuropeSat craft*
January 1999	*SES wins an ITU ruling in favour of SES at 28.2, thus rendering 29 deg E redundant*
January 1999	*Eutelsat appeals against the 29 deg East decision*
June 7 1999	*Both sign an 'Intersystem Coordination' agreement, but with conditions*
2005	*SES signs agreement with Media Broadcast, but keeps deal secret*
2011	*Reportedly, SES tells Eutelsat of its intentions*
May 2011	*Eutelsat asks for Arbitration with Paris Court, over Media Broadcast's rights*
October 2012	*Eutelsat calls for Int'l Chamber of Commerce to arbitrate on SES agreement*

Eutelsat also says that, while Media Broadcast (which is owned by French transmission company TDF Group) has the absolute right to end its contract with Eutelsat one year from now, it is not entitled to sell off the 500MHz of bandwidth included within the agreement.

SES fired back a robust—and highly detailed—statement that bluntly explained why the company believes they are on safe ground. In essence, SES claims they have acquired the disputed rights by means of a clear and above-board agreement with the company, which actually owns the license to use the frequencies. Moreover, they say the rights have the backing of the German regulator as well as the ITU. SES says it "strongly disagrees" with Eutelsat's position and will "vigorously defend" its rights.

The full statement says, "SES has been granted rights to use German Ku-band orbital frequencies at the 28.5 degrees E orbital position effective from October 4, 2013 onwards pursuant to a 2005 agreement with German media service provider, Media Broadcast ("MB") (as successor to T-Systems Business Services). MB holds a license for these frequencies issued by the Bundesnetzagentur, the German regulator, on the basis of German filings that have priority under the rules of the ITU.

SES continues, saying: "The agreement will give SES the right to use, on its fleet, 500MHz of bandwidth at this orbital position adjacent to SES's 28.2 degrees East in the frequency bands 11.45 – 11.70GHz and 12.50 – 12.75GHz in downlink and 14.00-14.50GHz in uplink. SES has procured and will launch and operate new satellites (ASTRA 2E and ASTRA 2G) at 28.2 degrees East/28.5 degrees East, along with the recently launched ASTRA 2F satellite, to replace SES's existing fleet at 28.2 degrees East and to provide new capacity. The new satellites in this neighbourhood will use the additional frequency spectrum as of October 2013 for DTH satellite television services in the UK and Ireland and for other services inside and outside of Europe."

"Eutelsat," added SES, "is currently operating these frequencies on the Eurobird-1 satellite (also known as Eutelsat 28A) under a 1999 agreement with Deutsche Telekom AG ("DTAG"), the former license holder of these rights before it transferred its satellite activity to MB in 2002. Eutelsat has commenced arbitral proceedings against DTAG and MB in April 2011, claiming that it has the rights to use these frequencies beyond October 2013."

SES' statement concluded, saying: "Eutelsat also disputes the grant of right of use of these frequencies by MB to SES. SES strongly disagrees with Eutelsat's position and will vigorously defend its right to use these frequencies from October 4, 2013 on the basis, among other things, that Eutelsat's rights to these frequencies will expire on October 3, 2013, that nothing prevents SES from using these frequencies as of October 4, 2013 and that the filings pursuant to which MB's license for these frequencies was issued by the Bundesnetzagentur have priority under the rules of the ITU."

SatBroadcasting™: The Satellite Wars Intensify (Cont.)

SES stresses it is launching new, powerful satellites to enhance coverage from 28.2/28.5, and bring these craft into use during 2013-2014, as well as the recently launched Astra 2F which will supply the new capacity..

Eutelsat already has an application before the Paris Arbitration Court, which it is asking to rule in its agreement with Media Broadcast. SES is not involved in this action.

It is also worth examining the damage this (potential) loss of 500MHz of satellite capacity and what it could represent to Eutelsat's revenues. The disputed 500MHz is about two-thirds of the satellite's capacity and equals about 30-transponder equivalents (some are 72MHz transponders), or around 300 standard-definition (SD) channel equivalents.

A recent report from bankers Credit Suisse talked about Eutelsat generating $3.54 million/year per transponder at its nearby 'Hot Bird' slot. However, revenues from the 28.5 position are said by interested parties to be much less than this, especially at Eutelsat's 'wholesale' rates to the likes of Arqiva and Globecast which sells on the capacity to end-user broadcasters.

Of course, the same sort of number could apply to SES if—and it isn't yet clear that they have—if they have built in these revenues into their own guidance for 2013-14 and beyond. With a results announcement in November, analysts will have to ask SES these questions for clarification.

However, while the satellite operators squabble over what is an extremely valuable piece of orbital real estate, and where there can be only one 'winner' (unless another compromise agreement emerges), it seems the actual broadcasters will not be unconvinced.

It seems they have been made aware of the problems and told that any switch from Satellite A to Satellite B will be seamless. Of course, the one group which will always make money out of these sorts of problems are the lawyers, and while arbitration might see an eventual resolution, such disputes are rarely solved overnight.

In other words, this problem could take some time to come to a solution. At the moment, it isn't clear what will happen come next October in terms of a practical solution for broadcasters

The veiled threat is that the 1999 agreement between SES and Eutelsat could now be seen to be ended—this could well lead to a much more complicated life for the two transmission giants...

About the author

Senior Contributing Editor Chris Forrester is a well-known broadcasting journalist and industry consultant. He reports on all aspects of broadcasting with special emphasis on content, the business of television and emerging applications. He founded Rapid TV News and has edited Interspace and its successor Inside Satellite TV since 1996. He also files for Advanced-Television.com. In November 1998 he was appointed an Associate (professor) of the prestigious Adham Center for Television Journalism, part of the American University in Cairo (AUC), in recognition of his extensive coverage of the Arab media market.

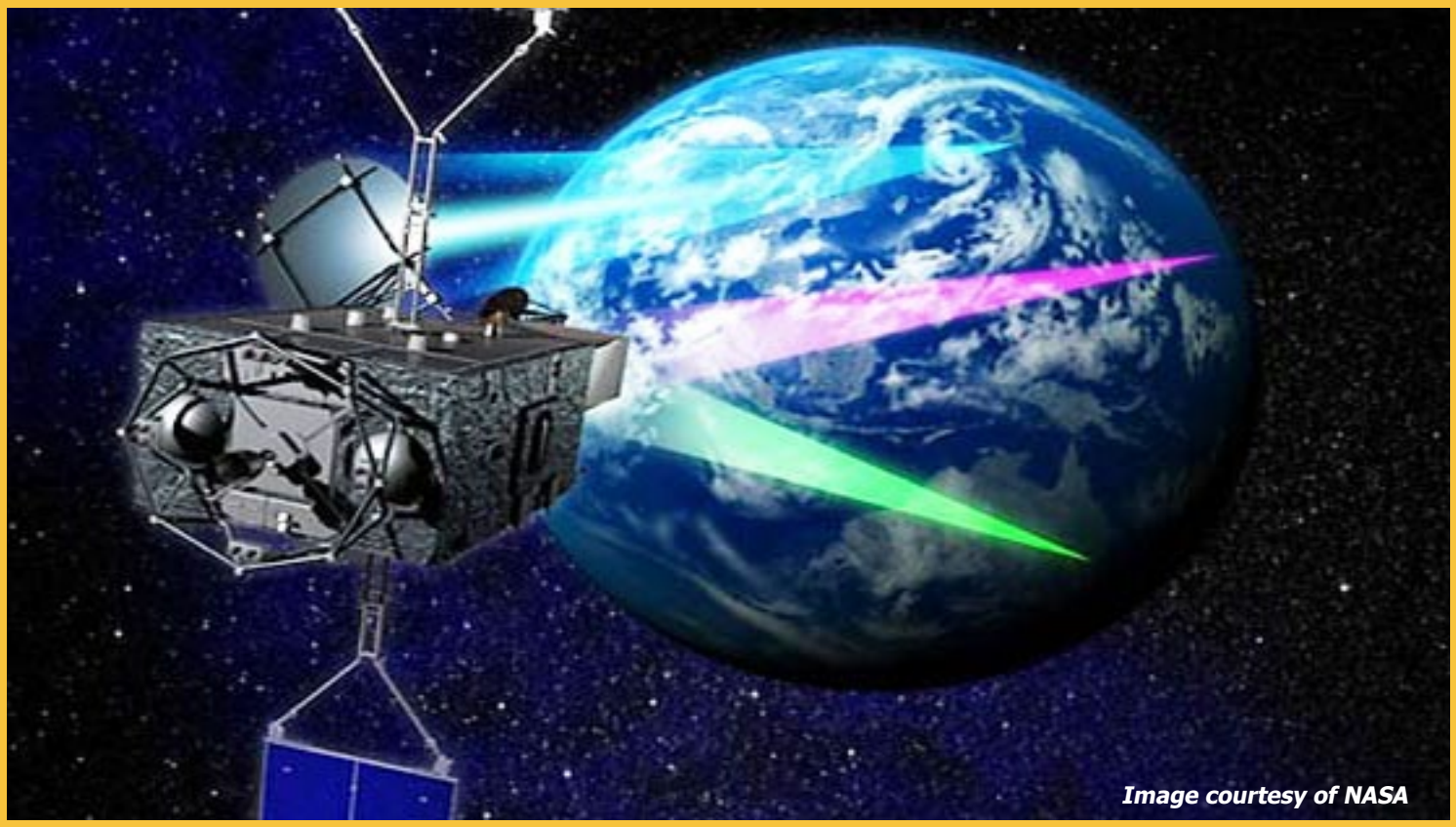


Image courtesy of NASA

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HIGH POWERED KA-BAND COVERAGE
"RAW" CAPACITY AND FLEXIBLE PAYLOADS

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- Multi-spot, regional, steerable beams
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Africa: Poised To Leapfrog Space Technology + Applications

by Jacob Gullish, Director, Space & Telecommunincations Division, Futron Corporation

The recent award to South Africa of the US$2.5B Square Kilometre Array (SKA) project represents a critical milestone in the continent's efforts to stimulate its nascent space industry, and develop its space science capabilities. More importantly, the decision highlights the growing realization among African decision-makers about the importance and benefits of space as driving force underpinning technological advancement, economic growth, and societal benefit. Space positively influences our daily likes—from weather forecasting to telecommunications—and an increasing number of African nations and institutions seek to tap the promised space data, applications, and services.

With the global space economy fast approaching US$300B, Africa has yet to leverage its full potential and promise. In fact, the region trails the world in space investment and usage; and it should come as no surprise that the corresponding benefits have yet to be realized.

Take satellites as a case in point. Not only does Africa lack meaningful indigenous capability to build and launch satellites (the *Government of South Africa* plans to take control of local manufacturer **SunSpace**), the region operates a surprisingly limited number of current systems.

With more than 1,000 functioning satellites orbiting our planet, only nine—five SATCOMS, three Earth Observation (EO), and one technology development—are owned or operated by African governments, business or organizations.

Nigeria and *Egypt* each owns three satellites. *South Africa*, the region's leading economy, does not currently own/operate any satellites. Seven of the nine satellites of are government programs, two are commercial, and one is owned by the **Regional African Satellite Communication Organisation** (**RASCOM**), an intergovernmental commercial agency which, in 2007, launched a pan-African telecommunications satellite.

There is also the **Intelsat *New Dawn*** satellite, which is a joint venture that is led by Intelsat that includes capital from African-based financiers **Convergence Partners**, **Altirah Telecoms**, **Nedbank Capital**, and the **Industrial Development Corporation of South Africa**. Even if New Dawn is included, by percentage African-owned satellites represent a mere 0.009 percent of all operational satellites across the globe.

The effective absence of regional African satellite operators occurs amidst a boom in demand for SATCOM services in the region. According to analysis in **Futron**'s soon-to-be-related forecast, demand for fixed satellite services in Africa will increase more than 11 percent in each of the next five years, one of the highest growth rates globally.

The key driver behind demand is macroeconomic growth and a rapidly modernizing economy. The **International Monetary Fund** forecasts 2012/2013 growth for the region at 5.0 and 5.7 percent, respectively. The market is also steadily introducing technology for expanded corporate and consumer services such as *direct-to-home* (**DTH**) broadcasting and broadband Internet access via satellite.

Africa has also experienced an explosion of mobile and corporate communications services, which use satellites to backhaul traffic to major connection points. With strong underlying economic growth, the future for satellite communications services in Africa looks positive, and satellite operators, as illustrated in *Figure 1*, are planning large increases in supply to meet market requirements.

Africa: Poised To Leapfrog Space Technology + Applications (Cont.)

Despite the overall increase in satellites serving the region, there is limited activity among African providers. The only satellite that has an official contract is the *Algerian* ***ALSAT 2B*** communications satellite, which is to be launched later this year and operated by the government. Of course, there are speculative satellite systems and broader space mission in the offing such as replacements of the ALSAT series and Nigeria's ***NigeriaSat*** series and a few smaller initiatives, but no tangible program which would dramatically change the perception and reality that Africa remains a growing user of space applications but is not a tangential player in the manufacturing or provisioning of these services. Outside of satellite telecommunications, Africa has a very small footprint in the space arena.

There are signs of hope—several African governments, and indeed the **African Union** itself, are poised to alter the status quo. On the SATCOM side, Africa has become more organized in its engagement with the **International Telecommunication Union** (**ITU**), which is critical to obtain access and priority over useful orbital locations and coordinate frequency use.

On the space side, several countries are developing and/or increasing capability within national space agencies. Nigeria's **National Space Research and Development Agency** (**NASRDA**), founded in 1998, has outlined a 25-year roadmap focused on basic space science and technology, remote sensing, satellite meteorology, communications and information technology (ICT), and defense and security.

South Africa established the **South African National Space Agency** in 2010 and pledged to develop its astronomy and space sector. The government regards the **South African National Space Agency** (**SANSA**) as an institutional vehicle to drive space science and technology in the development if the country.

Ghana just established their **Space Science and Technology Center** (**SSTC**) Space Center this year in 2012. Other countries with space agencies include: Algeria, Egypt, Morocco, and Tunisia, with Tunisia being the most active.

The most exciting trend is regional collaboration, where African governments increasingly discuss regional and Pan-African initiatives. Central among these is possible creation of **AfriSpace**, an **African Space Agency** modeled on the **European Space Agency** (**ESA**), coordinated via the **African Union** (**AU**).While AfriSpace currently lacks any concrete foundations, the organization has conducted a series of feasibility studies culminating in public pronouncements at the AU's telecommunications ministerial meeting in Sudan in September 2012. The proposed **African Resource and Environmental Management Satellite Constellation** (**ARMC**), involving South Africa, Algeria, Kenya, Nigeria, and possibly Egypt, further typify the momentum behind regional coordination.

Spaceports highlight another avenue of potential investment. As the continent lacks launch facilities, several plans are afoot, with activity surrounding two former missile and satellite launch facilities in South Africa's *Overberg* and Kenya's *Malindi* coast, the site of a decommissioned Italian launch facility. An idea to link the two sites into a polar and equatorial tag team was recently floated at the *5th Annual Kenya Scholars' and Studies Association* (**KESSA**) *Conference*. The South African initiative is relatively more mature; however, neither spaceport has official backing or specific plans.

While there is significant excitement around these and other initiatives, space activity in Africa remains well behind other regions of the world. With clear benefits of space activity across the economy and society, the time is now for the region's decision-makers to consolidate recent gains, albeit small, and chart a clear course covering policy, investment, and the customization of local applications. It is well understood that space technology, data, and applications are the catalysts of development, commerce, and goodwill. Space infrastructure will be critical in the 21st century as enablers of next-generation technology, and will emerge as central to our knowledge-based economy.

There is optimism that space represents a leap-frogging opportunity for Africa similar to mobile telecommunications that generate socio-economic prospects for entrepreneurs, government officials, academics, scientists. Through effective and pro-active national, regional collaboration Africa is poised to capture potential benefits from technology, services and applications. There is a clear launch window for decision-makers to act, and the countdown has begun...

About the author

Mr. Gullish has nearly 20 years of experience in the aerospace and telecommunications industries, including extensive international experience in 20+ markets in Africa, Latin America, and Asia. An economist by training, he has participated in a large number of financial transactions, strategic assessments, due diligences, trend analysis and market forecasting. Jay has conducted strategy development, targeted outreach, and advocacy senior level, including integrated marketing communications, message development and dissemination, management of public relations and media outreach, marketing support, conference content development, and workshop leadership.

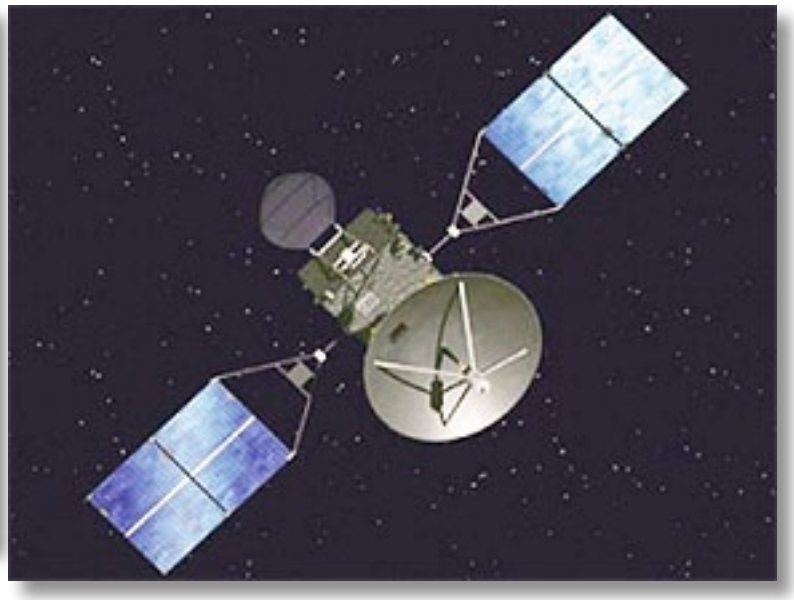
This article was also supported by Mr. Allen Herbert, President Phezu Space, and an ongoing Futron partner. Phezu Space specializes in emerging market consulting, space technology research and business development. The company is also part of an international joint venture initiative with Isibizo Investments Pty Ltd of Johannesburg, South Africa. The joint venture, called Isibizo Phezu Space, offers consulting services in space and aviation.

Africa/Middle East Demand	*CAGR 2012-2017*	*CAGR 2012-2021*
	8.0%	6.7%
SSA Demand	**SSA Demand CAGR 2012-2017**	**SSA Demand CAGR 2012-2021**
All bands	9.8%	7.8%
Ku-band	6.6%	2.3%
C-band	5.9%	5.4%
Ka-band	47.7%	35.5%
MENA Demand	**MENA Demand CAGR 2012-2017**	**MENA Demand CAGR 2012-2021**
All bands	6.8%	5.9%
Ku-band	3.8%	1.6%
C-band	4.1%	4.9%
Ka-band	38.5%	29.7%
Africa/Middle East Supply	**Africa/Middle East Supply CAGR 2012-2017**	**Africa/Middle East Supply CAGR 2012-2021**
TOTAL	5.7%	3.1%
Ku-band	2.5%	1.3%
C-band	7.6%	3.8%
Ka-band	14.4%	7.8%

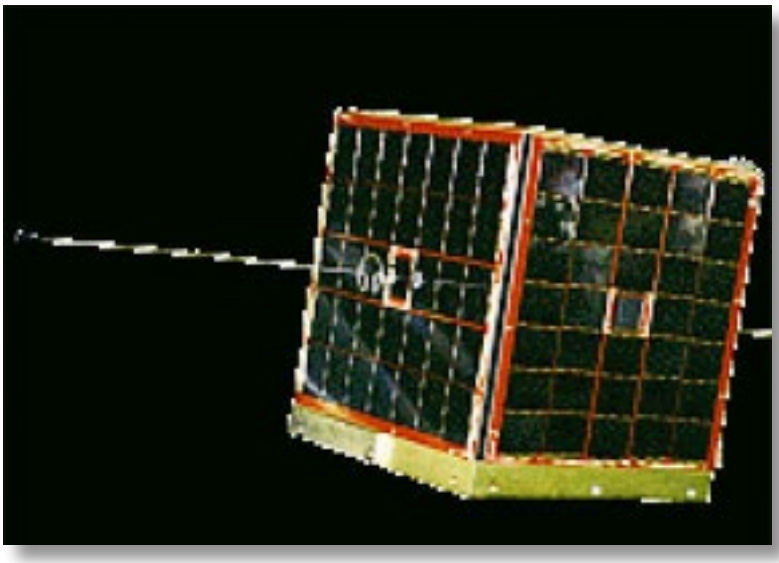
Figure 1: MENA and SSA Supply-Demand Chart

African Satellites In Operation—2012

ALSAT-2A (Algeria Satellite 2A)
Centre National des Techniques Spatiales (CNTS), Algeria
Pupose: EO

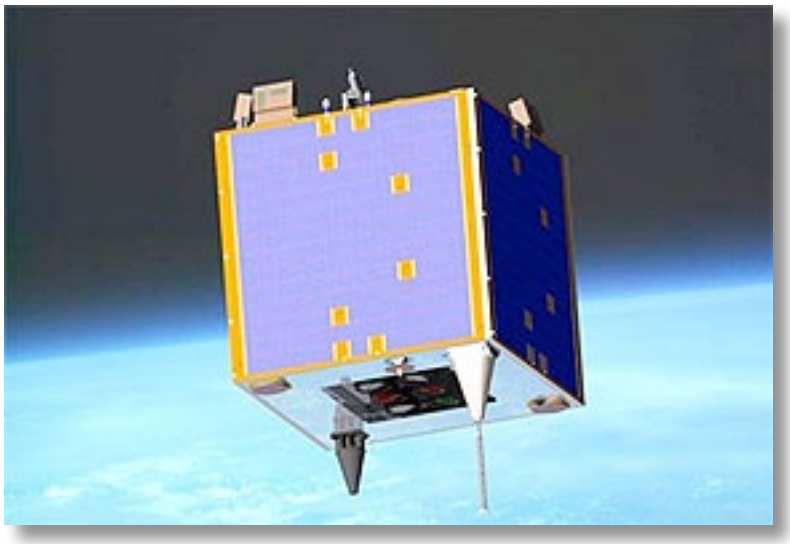


NigComSat-1R / Nigeria
NigComSat
Purpose: Communications



Maroc Tubsat / Morocco + Germany
CTRS Morocco/Institut für Luft-und Raumfahrttechnik (Berlin)
Purpose: Technology Development

NigeriaSat-2 / Nigeria
National Space Research and Development Agency (NASRDA)
Purpose: EO



NigeriaSat-X / Nigeria
National Space Research and Development Agency (NASRDA)
Purpose: EO & Technology Development

Nilesat 201 / Egypt
Egyptian Radio and TV Union
Purpose: Communications

Nilesat 101 + 102 / Egypt
Egyptian Radio and TV Union
Purpose: Communications

Rascom-QAF 1R / Pan African Organization
Regional African Satellite Communications Organization (RASCOM)
Purpose: Communications

THE GOOD

Encouraged largely by Lt. Gen. *Ellen Pawlikowski* and the newly established Hosted Payload Office (HPO) under her command, the FY13 President's budget created several different funding lines in support of hosted payloads.

This is a sign that some of the apprehension surrounding the hosting of government payloads on commercial satellites is subsiding.

The *Space Modernization Initiative* is used, in part, to fund innovative programs to ensure that space systems will meet future endeavors. The money attached to the hosted payload initiative was $12 million. While comparatively speaking this is a small portion of the budget, it does provide a funding stream that allows the government to take advantage of hosted payload opportunities. Further, the Space Modernization Initiative asks the HPO to identify relevant commercial opportunities for proof of concept to develop/integrate system concepts.

The Senate went a step further, and included several increases in the Defense Appropriations Bill, supporting hosted payloads.

- ***$30 million for AEHF SMI to be used for radiation hardened manufacturing, hosted payloads, and "design for affordability"***
- ***$20 million for SBIRS SMI, to be used for alternative overhead persistent infrared technologies, hosted payloads, "design for affordability", and related efforts.***

This year's budget did show positive steps forward in the support of hosted payloads even though it may be slower than the industry would like.

THE BAD

While the President's budget and the Senate seemed to be in full support of innovative programs such as hosted payloads, the House Appropriations Committee fought back. The House rejected the funding for the hosted payload that had been part of the Space Modernization Initiative.

More troubling than the lost funding is the accompanying language, that states:

> *The Committee is concerned that, in a time of declining budgets, the Air Force and the Department of Defense may resort to silver-bullet acquisition concepts in an attempt to save money and accelerate immature concepts and technologies… Quick-fix substitutes for years of hard-won experience are attractive but illusory.*

To refer to programs like hosted payloads as "immature concepts", "quick fix substitutes" and "illusory" is disturbing, particularly in light of the recently successful payloads, such as the **Australian Defence Force** hosted payload and the ***Commercially Hosted Infrared Payload*** (**CHIRP**).

In many ways, this language closes the door on innovation and implies that only programs that have been acquired over decades are valid solutions. Solely protecting large programs of record is a slippery slope not only in this budget environment, but also as we look to continue our space superiority in the future through disaggregation and a greater need for resilient architectures.

THE UGLY

Of course, the ugly refers to the lame duck session of Congress. The passage of the *Continuing Resolution* has made the FY13 budget, and each of the Committee marks, irrelevant.

A clean CR was passed in September that would fund the government at FY12 levels through March 27th. The November election will largely shape what happens next. In the new Congress, all previous bills will need to be reintroduced, and it is unclear whether they will use the existing mark ups as a baseline or will start all over again from scratch.

"Our hope is that the government will look toward innovative solutions such as hosted payloads to deliver more cost-effective solutions in this environment of tough choices and budget cuts." (*The preceding abstract was provided by Karen Yasumura, Government Affairs Manager for* ***Intelsat General Corporation.***)

HPA Insights

Question: What can we as an industry do to further educate Appropriators and Congressional leaders on the value and cost benefits of commercially hosted government payloads?

"Persistence and consistency pay off. We spend a great deal of time and effort educating members, committees and staffs about our programs. Let's make sure we continue to find new ways to add value in every meeting, like we do now offering hosted payload recommendations for hard problems facing national security interests and Government overall. We must always make sure members and staff hear the same messages from HPA regardless of who delivers the message.***"—Robert Burke, Vice President & Deputy General Manager, Space Systems, Northrop Grumman Aerospace Systems***

"Governments around the world have been involved in hosted payloads for many years with great success. Traditionally, these programs consisted of government payloads on government satellites, however there are even plenty of examples of success with government payloads on commercial satellites in more recent history. The Federal Aviation Administration's (FAA) Wide Area Augmentation System (WAAS) started using hosted payloads on commercial satellites in the 1990s. Hosted payloads are not new, nor are they 'silver bullet' initiatives. While they may not be the panacea for all capabilities, the time and cost benefits offered by commercially hosted payloads make them a viable tool in our future communications architecture."***—Tim Deaver, Vice President, Government and Institutions Development, SES***

"Boeing believes that the value and cost benefits of commercially hosted government payloads are currently being demonstrated on the UHF hosted payload aboard the Intelsat IS-22 for the Australian Defense Force (ADF) and currently being utilized by the United States Government, as well. This satellite, built in less than 30 months, has been operational since May of 2012. The ADF has publicly stated that this hosted payload approach saved them more than $150M. In addition to Communications payloads, the Air Force CHIRP program demonstrated economic value of IR starer technology for missile warning. These two examples underscore the need for the United States Government to further apply the Space Policy, which encourages the use of hosted payloads, by removing impediments to enable wider implementation of these capabilities. Appropriators and Congressional leaders need to hear that hosted payloads are a demonstrated, affordable alternative to dedicated government satellites through shorter build cycles and shared satellite, launch, and ground infrastructure."***—Jim Simpson, Vice President of Business Development, Boeing Space & Intelligence Systems***

"Hosted payloads are not meant to be the solution for inefficient space acquisition processes. However, hosted payloads can offer an alternative way to cost-effectively implement certain space missions that can coexist with commercially operated satellites. The best way for industry to educate Congress is by providing examples of hosted payload successes. There are several examples of hosted payloads that have fully achieved the mission objectives at a fraction of the cost of traditional space missions. Industry must share these approaches with Congressional leaders, including the factual analysis of the mission economics, the key factors that enabled the hosted payload success and the obstacles that were overcome to achieve this success. The Hosted Payload Alliance was formed to provide objective advice and subject matter expertise on hosted payloads. The HPA has been working with organizations like USAF SMC and NASA to fully explore these issues and should do the same with key Congressional staff."—***Don Thoma, Chairman of the Hosted Payload Alliance, President and CEO, Aireon***

"With DoD spending slated for significant cuts, cost-effective hosted payload missions will surely be increasingly attractive to both the executive and legislative branches of government, particularly if these new solutions are thought about in terms of expanding the government's current architecture of legacy systems and capabilities still in the pipeline. As an industry, we need to continue to demonstrate the value of hosted payloads as a complement to dedicated satellites, and to show that rather than a "quick fix," they represent a crucial and logical step toward developing a sustainable space architecture for the future."***—David Anhalt, Vice President, U.S. Government Solutions, Space Systems/Loral***

SATCOM Transforms Latin America

by José A. Sánchez Elía, CEO, TESACOM

In 2012, despite the negative impact of the United States and Europe's financial crises and China's economic slowdown, Latin America managed to sustain its dynamic pace and GDP increase. Growth rates of around 3.5 percent and 5.5 percent were experienced, fueled in part by the vast development of regional industries, such as mining, energy and oil activities (*).

Latin America is positioned as an emergent and appealing market for the satellite communications industry. Exporting manufacturers call for communication systems that can overcome the lack of infrastructure in conventional networks. These companies demand just as much connectivity in the region's remotest zones as that enjoyed by their headquarters. Additionally, they need to have their corporate networks integrated with suitable bandwidths, sound communication services and responsive suppliers to provide 7x24 "on site" assistance in critical situations.

When **Tesacom** decided in 2004 that it was time to reinforce its presence in the region by adding offices in Peru and Brazil to those in Argentina, Chile and Paraguay, the expansion period that started in 2003 showed its first signs of growth, offsetting the years of stagnation that started in 1998.

The region's huge and practically unpopulated spans of land, where terrestrial or cellular telecommunication networks fail to meet the minimum demands of users in those areas, increasingly boost the requests for fixed or mobile satellite services. Oftentimes such services are integrated into the terrestrial or cellular networks. With the support of innovative projects and products, Tesacom has succeeded in those countries where the company operates.

Since the start-up of Tesacom's operations in 1997, the company has undergone remarkable development in response to the demands for increasingly more complex and customized solutions, which are tailor-made to each project in particular. These are all in line with the requirements for local technical support, regulatory compliance and local currency billing. Such has paved the way for year-to-year growth of the company's operations in Argentina, Brazil, Chile, Panama, Paraguay, Peru and Uruguay.

Tesacom's groundbreaking projects implemented across several countries of the region have sparked a high degree of acceptance for satellite technology innovations. In all of these undertakings, it was necessary to integrate various satellite networks to derive the best solutions for vertical markets for that particular region's satellite industry.

Some examples include the use of **Inmarsat**'s ***BGAN*** technology since 2008 for the transmission of electoral outcomes in Brazil; the use of this same technology for testing purposes in several Argentine election processes during 2010 and 2011; and the implementation of the 911 system through SOS poles in various routes of Argentina and Peru via Inmarsat's and **Iridium**'s networks.

Another example of success is the installation in more than 600 vehicles of the Brazilian electric power company, **Elektro**. These hybrid communication solutions integrate cellular technology with Inmarsat's BGAN network and *Push To Talk* technology. In Argentina, Tesacom also designed the configuration and installation of more than 1,000 satellite and GPRS communication devices for the transmission of energy meter readings for the **Cammesa Company**; in Peru, we worked in the development and maintenance of the control system for the Peru LNG client, using the **Satamatics** service.

Other interesting examples are the development and installation of a solution for the **Bradesco Bank** ships that navigate across the Amazon River area. These ships incorporate a bank branch as well as an ATM that is connected to an Inmarsat's ***FleetBroadband*** service.

Additionally, **Hispasat**-linked VSAT antennas are deployed in Paraguay to connect rural zones with management centers. **KVH**'s ***miniVSAT*** equipment has been installed onto several Argentinian, Chilean and Peruvian fishing ships.

A Bradesco Bank Ship

When, in 2010, Chile was hit by a devastating earthquake that devastated vast areas of the country, leaving thousands isolated, more than 200 Iridium and BGAN satellite equipment devices were immediately deployed from the company's location in Chile to provide support. Another clear example of the importance of SATCOM was the emergency communications assistance provided to *Rio do Janeiro*, Brazil, during the floods of January 2011.

SATCOM is well on its way to positively transform Latin America into a more communications integrated and safer area. Such explains why the company strives to launch, year after year, varying satellite products and services to deliver the best communication solutions throughout the region—"right" where our clients request these crucial services.

(*) Data extracted from "Estudio económico de América Latina y el Caribe, edición 2012" of the Economic Development Division - Economic Commission for Latin America and the Caribbean ECLAC (known as CEPAL in Spanish)

About the author

Since November 2003, José A. Sánchez Elía has applied his business experience and a deep understanding of the emerging communications challenges in the region and the opportunities into Tesacom. He reorganized the company and successfully managed the growth of the enterprise and introduced new business units. Today, the company operates in Argentina, Brazil, Paraguay, Chile, Peru, Uruguay and Panama. Prior to joining TESACOM, José founded a law firm, was part of the management of the family construction business, and participated as vice president of the government-CNT (National Telecommunications Commission) as Chief Adviser of the Secretary's Office of Communications. He was President of the Commission study dealing with the regulation of satellite systems at low altitude as well as President of the Commission and Director of the Argentine satellite System Tender, Nahuel. In international areas, he represented Argentina, Chile and Paraguay at INTELSAT.

When Are Problems Good For You?

by Bert Sadtler, President, Boxwood Executive Search + Contributing Editor

These are extremely challenging times for employers who need to acquire top level talent as well as for those seeking a career change. Today, companies' economics compel them to re-assess their talent needs in order to remain competitive and drive growth. The satellite communications industry is ripe with new opportunities. Employers are challenged with making a "great hire." For the candidate, finding an opportunity can sometimes be a rather difficult proposition.

To assist with career searches, we asked Bert Sadtler of Boxwood Executive Search to respond to readers' questions regarding the processes of recruitment and hiring as well as how Companies can retain crucially-needed talent. Boxwood is located in the Washington, DC, region and has success in senior level recruitment in satellite communications, government contracting, and within the intelligence community. Boxwood also provides a consulting solution for the analysis and improvement of the employer's current recruitment process. If you would care to submit a recruitment, hiring, or retention question for Bert to answer, please email your question to *BertSadtler@BoxwoodSearch.com*.

Many regard "**A Problem**" as a bad thing that gets in the way before good things can happen. *Webster*'s defines a problem as: "*A question raised for inquiry, consideration, or solution*".

Our business world is faced with problems. A solid argument would be that if there was no problem to be solved, all of us might not have a job. Assuming that were true, it would then make "A Problem" a pretty good thing!

How Does "Problem" Relate To Recruiting Critical Talent?

Three simple questions ought to be incorporated into every recruitment and into the thinking of every candidate:

1. *What is the business problem?*
2. *Do we have someone who can solve it?*
3. *Do we want them to solve it?*

First, for the employer to acquire the appropriate talent, the business problem must be articulated. It is difficult for an employee to join an organization and be expected to deliver value when they don't even know what is expected from them, or what they are there to improve for the company.

Well written position descriptions are an excellent means to describe the business problem and for possible candidates to understand the business problem. In my experience, a lot of recruitments never get off the ground because the employer was unable to state their particular business problems.

Once the detailed position description has been developed to describe the business problem, candidates can then determine if they have the qualifications to fix the problem. Much of this involves having, or not having, the technical experience or technical abilities or technical aptitude.

Second, upon deciding that a candidate feels qualified, the candidate can provide the employer with their qualifications saying "*I have the technical skills or experience to solve the business problem*."

This is why the employer would acquire critical talent... "To make the problem go away." Communicating the candidate's qualifications can take many forms which include interview questions, written questions, personality assessments, samples of past work, and so on.

Up to this point, the problem discussion has been technical. In summary, first, state the problem and second can you fix the problem.

The Third Question

After progressing through two of the three "Problem Questions", the third question requires more time to develop and is more important than the others. Get this one right and the employer and employee are on their way to a lasting relationship.

Remember, best practice recruiting is not about the "wedding" or the hire, it is all about the "marriage" or long term employment. Long and successful marriages and long employments have strong chemistry or fit.

The final "Problem Question", is... "*Do you want them to solve your problem?*" —while the candidate should be asking, "*Do I want to solve this problem?*"

Just like dating, answering this question should include multiple meetings between employer and candidate in several settings. You are going to be spending a lot of time together. Wouldn't you want to be sure rather than rush it, get it wrong and then face the consequences and expense of a failed hire?

During the interaction, ask yourself, "*Do I like this candidate?*" or "*Do I like this employer?*" Chances are if you can't answer one of these questions with a resounding "***YES***", you may be better served considering an alternative option.

So, you see — ***Problems can be good for you***.

About Boxwood Search

There is an ongoing battle for senior level talent. A great hire can make a long term positive impact and a failed hire can prove to be very expensive. How does a company recruit and hire the right talent? It is more than just networking within the community of friends and business associates. It requires focusing on results through a process oriented approach. Boxwood Search is committed to reaching a successful outcome with recruitment methods that have repeatedly proven to deliver very qualified senior talent. The firm exclusively represents employers in the marketplace as a dedicated resource and discrete trusted advisor. Through original research and industry contacts, qualified candidates are targeted and then motivated to consider the opportunity.

Candidates are screened against key criteria, technical fit and cultural fit analyzed, interviews conducted, references contacted and hiring recommendations then presented. Upon making the offer, Boxwood Search is the employer's advocate and an active participant in communicating with the candidate until offer acceptance has been secured. Results are guaranteed.

Executive Spotlight: Ali Ahmed Al-Kuwari, CEO, Es'hailSat—The Qatar Satellite Company

Ali Ahmed Al-Kuwari is Chief Executive Officer (CEO) of Es'hailSat. Prior to this appointment Mr. Al-Kuwari was Assistant Secretary General at ictQATAR. He also held the position of Finance Director at ictQATAR and was a member of the organization's management team overseeing the strategic investment in the satellite initiative which became Es'hailSat. Mr. Al-Kuwari has a Bachelor's degree in Business Administration and Master's degree in Financial Decision Analysis. He joined ictQATAR in 2006 following senior financial and managerial positions with Customs & Ports General Authority, RasGas and the Ministry of Finance.

SatMagazine (SM)

Es'hailSat is a new name in the industry—what will the company offer?

Ali Al-Kuwari

The **Qatar Satellite Company** was established in 2010 by **ictQATAR** as an independent operating company to manage and develop Qatar's presence in space. Trading under the name of **Es'hailSat**, the company will provide advanced satellite services to strategic stakeholders and commercial customers who value broadcasting and communications independence, quality service and wide geographical coverage.

Es'hailSat has contracted with **Space Systems/Loral** to build its first satellite called ***Es'hail 1***, which is scheduled for launch in the second quarter of 2013. It will provide television, voice, Internet, corporate and government services across the Middle East and North Africa region and beyond. The name of the satellite is derived from the name of a star which becomes visible in the night sky in the Middle East when summer turns to autumn. Traditionally, the sighting of Es'hail brings happiness, as it means that winter is coming and good weather will soon be with us. We hope that the arrival of Es'hailSat will equally be beneficial for the satellite community.

Our objective is to serve the strategic interests of national Qatari stakeholders and build a credible reputation as a world-class satellite operator and center of excellence.

SM

Would you please tell us about your background and how you became involved with Es'hailSat? What do you hope to accomplish as the CEO of the company?

Ali Al-Kuwari

I have a financial background. I joined the satellite project team immediately after ictQATAR signed an agreement with **Eutelsat** to share a satellite platform and I was part of the negotiation and procurement processes jointly with Eutelsat.

SM

What was your role with ictQATAR and how did that position prepare you for your current executive role with Es'hailSat?

Ali Al-Kuwari

I was Assistant Secretary General for Corporate Services, which is more or less equivalent to a CFO role. Adding to that, I was in a number of other managerial roles before I joined ictQATAR. Being part of the national satellite committee which was formed to follow the satellite manufacturing process and to form the company (Es'hailSat), I gained in-depth exposure of the satellite industry and was delighted to take on the challenge of spearheading such a new industry in Qatar.

SM

What is your company's relationship with the Kratos Company? How much independence will your firm have when deciding what courses of action are needed to compete in this market segment?

Ali Al-Kuwari

Kratos Integral Systems Europe won the tender to provide our interim NOC which will be known as the CMC—the **Carrier Management Centre**. This was an open tendering process and we were pleased to select Integral based on their experience, technical capabilities, and other factors.

SM

Would you tell us about the Es'hail 1 Satellite?

Ali Al-Kuwari

Es'hail 1, weighing more than six tons, is currently under construction by Palo Alto-based high tech satellite manufacturer **Space Systems/Loral**. The satellite is scheduled for launch in the second quarter of 2013 on board an ***Ariane 5*** launch vehicle, which will send the satellite into orbit from the spaceport in French Guyana. Es'hailSat has one satellite (Es'hail 1) under construction and plans for future satellites to expand the network.

SM

What services will the satellite support?

Ali Al-Kuwari

TV viewers will have more choices and better quality, thanks to the Es'hail 1 satellite. Es'hail 1 has been designed to cover the

entire Middle East and North Africa region and is located at a prime hotspot for broadcasting—**25.5 degrees East**. Current TV viewers receiving programing from this neighborhood will soon be able to receive richer, more diversified content, without the need to install a new dish. The satellite will support SD, HD, 3D and in the future super-HD transmissions, but they will be driven by our TV broadcaster customers.

Es'hail 1 will also support broadcasters and news organizations around the world with advanced satellite connectivity for the transmission of breaking news and special events. With the spotlight on Qatar and the region, we anticipate that our broadcast independence will be of high value for the region. For business and government users, Es'hail 1 will provide low-cost communications that can be established quickly and securely.

SM

What does Es'hailSat mean for Qatar?

Ali Al-Kuwari

Es'hail 1 is the country's first satellite and the Es'hailSat program plays an important role as Qatar works to meet the rapidly growing communications needs in the region. Our mission is to become a world-class satellite operator and center of excellence in the region and to fully-support the goals of Qatar's 2030 vision. With Es'hail 1 and our future satellites we can provide high quality, independent satellite services to customers throughout the Middle East and North Africa and support Qatar's commitment to meeting the sophisticated communications infrastructure the country is putting in place to host FIFA's World Cup in 2022.

Es'hailSat has a huge potential to become a leader in the satellite industry in the Gulf region. Es'hail 1 is an advanced communications satellite and has the necessary capacity to enable its customers to substantially increase their communications capabilities, particularly in the area of broadcasting in HD and 3D. With an installed base of more than 13 million satellite homes across the region and growing demand for HDTV, Es'hailSat will provide much needed additional capacity for the Middle East and North Africa.

SM

How will Es'hailSat market their services in a market that is rich with ever-increasing product from a number of MENA-based companies?

Ali Al-Kuwari

There are indeed a number of satellite operators in the MENA region now, and some competition is always good for the market. Es'hailSat particularly expects to attract customers who value independence, quality of service and wide geographical coverage. For example, we have already entered into a strategic agreement with **Al Jazeera Networks** to support the development of their satellite services, including, satellite radio, ground services, news gathering and other ancillary communications services.

SM

Where will your Network Operations Center be located? What services will be provided?

Ali Al-Kuwari

This month we moved to our new dedicated office building in Doha, and our interim NOC (which will be known as the CMC) is being built in our offices. As we develop our satellite fleet with ***Es'hail 2*** and further satellites we will build our own teleport facility at a new site outside Doha which will have three roles—we will control our satellites from there, we will provide up-linking and teleport services from there, and we will build our new CMC there. The interim CMC at our offices with then become our back-up / disaster recovery facility.

SM

What is the future of SATCOM, and even more, specifically, satellite broadcasting, in the Middle East?

Ali Al-Kuwari

SATCOM has always been a niche market when viewed in the wider context of telecommunications in general, but it's a significant niche in which multiple satellite operators have happily co-existed since the liberalization of the market in the 1980s. Satellite broadcasting has always been a major part of the Satcom market as satellites are very well suited to television broadcasting—they provide a wide geographical coverage and give broadcasters access to a large population of homes with receiving installations in place. This is particularly true in the Middle East and in developing regions of the world where terrestrial infrastructure may be under developed.

SM

Are there any plans to expand your operations to other countries?

Ali Al-Kuwari

Our first objective is the Middle East and Es'hail 1 will provide a classic MENA coverage, from Morocco eastwards across north Africa, down the Red Sea and back up the Gulf, although we also cover a good part of sub-Saharan Africa.

Having said that, we also have a steerable beam on Es'hail 1 which can provide connectivity with anywhere on the surface of the visible earth from the 25.5 degrees East orbital location including Europe, Africa, India and a large part of Russia. With Es'hail 2 and beyond, we hope to further increase our reach, building up to a global fleet over time.

SM

Given your background, what project, or projects, truly bring you a sense of satisfaction?

Ali Al-Kuwari

Building the Es'hailSat company and launching Qatar's first satellite. Not many people get the opportunity to undertake such a satisfying project.

Executive Spotlight: Vivian Quenet, V.P. Sales—Asia Pacific, KVH Industries

Based in Singapore, Mr. Vivian Quenet has led the Asia-Pacific sales efforts for KVH Industries since March 2011. Before joining KVH, Mr. Quenet served as director, Asia-Pacific, for mobile satellite communications provider Vizada, where he oversaw all operations for the company's office in southeast Asia. Over the course of 10 years with that company, Mr. Quenet worked to bring satellite communications services to commercial mariners in several regions across the globe.

SatMagazine (SM)

Mr. Quenet, your experience within the world of satellite communications is truly global in nature. How did you decide upon a career in this industry in the first place?

Vivian Quenet

I initially chose a career in the cellular industry that was exploding, because I was attracted by the novelty and the potential of the work. I moved from cellular to satellite and then specialized in maritime.

Cellular is a local mass market, where individuals are drawn in by the immensity of a huge industry. Satellite is a niche market at a local level, yet sizable, internationally. It means individuals can make a significant difference in their market.

This is what was appealing to me in the first place. The fact that satellite communications addresses specific businesses that operate in remote and harsh environments adds to the interest of the job. We truly provide the ultimate link to civilization. The maritime industry, although it is a niche and specific market, adds an international flavor to my work. It's a global community of passionate people, which I like.

SM

For our industry, one of the crucial areas of concern in the United States revolves around locating and hiring trained professionals, from sales to engineering, from marketing to understanding the financial ramifications and more, for crucially needed positions. How different is it in locating suitable candidates for crucial positions in the APAC region of the world, as opposed to the same searches in the United States? If there is a noticeable sense of talent, to what do you attribute the difference?

Vivian Quenet

I'm often confronted with the challenge of recruiting talented people who need several skills to be successful. They should have some knowledge of the satellite industry and the maritime industry, and on top of that, understand the challenges that IT managers are facing within the shipping industry. This type of profile is not easy to find—anywhere in the world.

In Asia, the challenge is even bigger due to the immense difference between the communities and cultures that are active in the maritime industry. The sense of community is far stronger in Asia than in Western countries, and Asians highly value their peer groups. It is therefore very difficult to find profiles that can address several national markets in Asia. The ideal candidate must not only have the same attributes as his colleague in the U.S. or Europe, but also be very versatile and flexible to deal with different cultures and communities.

SM

What was it about KVH Industries that drove you to change your career goals to this company, rather than remaining in a similar position with one of your now competitors?

Vivian Quenet

It was the spirit, the innovation, and the vision of the company that drove my decision. The consolidation of the **MSS** (*Mobile Satellite Services*) industry happened with new types of companies entering

the game. Most of them were fund managers, private equities, and similar financially driven companies. Their model is simple. They acquire several companies in the industry, merge them together, and look for "internal synergies" to optimize their profitability. Their growth is mainly external and profit is usually linked to cost cutting. With a nice growth curve and record profit, the newly created group is usually sold within a few years at a premium price, benefiting the fund and its customers, but leaving the group usually in poor shape, due to the lack of investment, loss of customer focus, and unclear direction.

What attracted me to KVH Industries is exactly the opposite. Although the group is attentive to financial performance, it focuses primarily on its customers and invests in new technology to continually launch new products and services that can help existing and new customers. The result is a fast and healthy organic growth led by innovation. If you look at the company's business growth in the past year, much of it comes from the ***mini-VSAT Broadband***sm business, which did not exist prior to 2007.

SM

How does KVH Industries work with its partner, ViaSat, in Asia-Pacific accounts and servicing?

Vivian Quenet

ViaSat is a true partner. We are working together on government customers and on licensing issues in the Asia-Pacific region.

SM

What is your opinion of the Ka-band maritime satellite communications services coming online soon vs. existing Ku-band solutions?

Vivian Quenet

The most important factor is how customers use the frequency—and which company they are buying from, rather than the frequency those companies are using. Look at Ku-band, for example. KVH uses Ku-band, and so do all our competitors, yet our products and services are quite different. The mini-VSAT Broadband network uses ***ArcLight***® spread spectrum technology that allows faster speed, lower latency, and smaller, cheaper antennas, despite using the same Ku- frequency as our competitors.

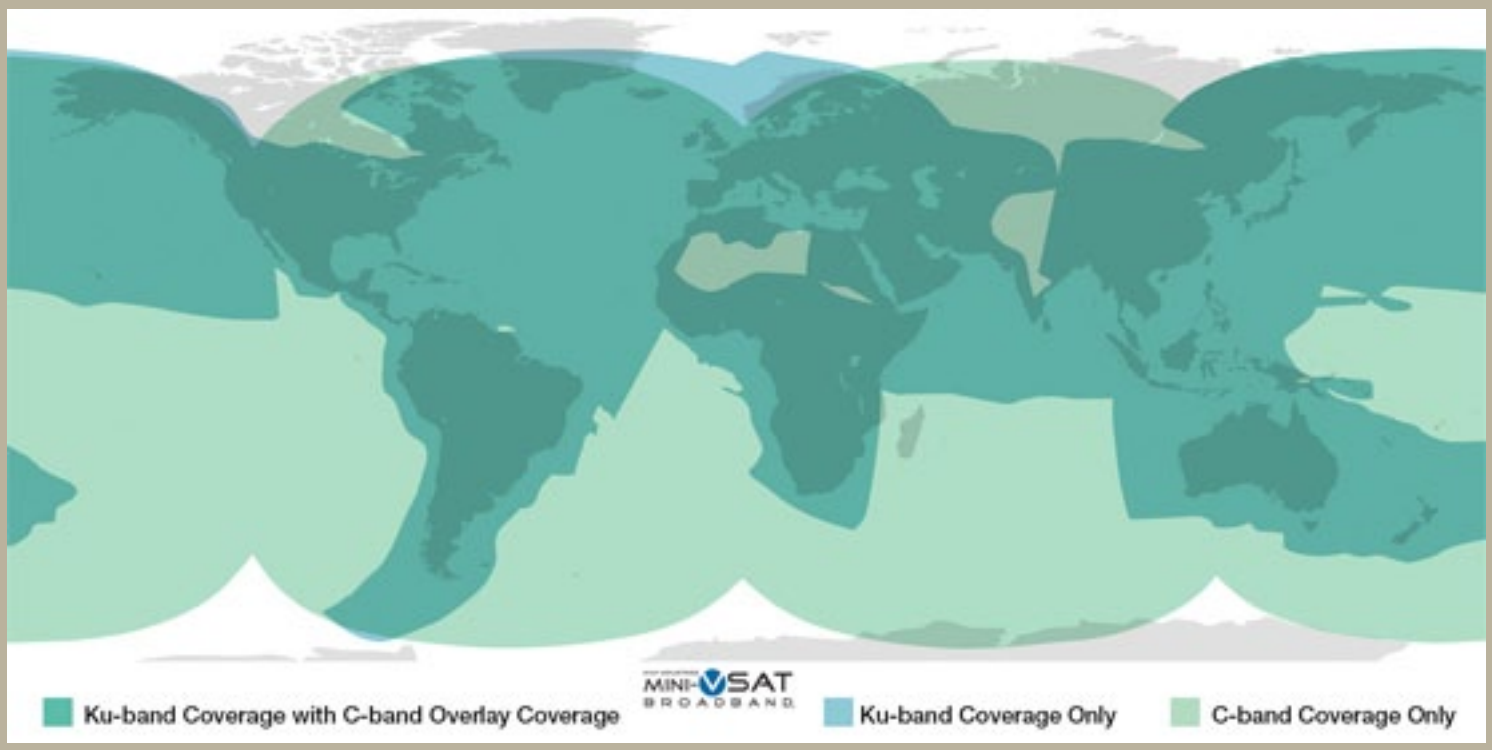
SM

What is KVH's answer to the Ka-band technology? What are the differences that make KVH technology more competitive?

Vivian Quenet

I think the most important difference at this stage is that there is no Ka-band solution yet. Maritime Ka-band is only experimental at this point, and is so far only working in a laboratory. There is a lot of noise today because **Inmarsat** attempts to stop its high-end customers from moving to KVH's mini-VSAT Broadband network. Inmarsat could have a global maritime solution in late Q4 2014, early 2015, when all its satellites are launched—and if everything goes according to plan.

I have no doubt Ka- can work in a lab, but the maritime environment is very different. Ka- is far more subject to rain fade than Ku-band and requires very accurate pointing. This makes it very challenging in a maritime environment considering frequent rain, especially in a tropical area like Singapore, and considering the rolling and heaving of each vessel.



Already it was announced that Ka-band will need to be backed up by a ***FleetBroadband*** system when Ka- can't cope with conditions. How much is the customer really going to be able to use Ka-band high-throughput at sea? How much will the product cost? What speed will users get? How many people are going to share the satellite's capacity? This is information Inmarsat is not disclosing. There is simply too much uncertainty.

SM

KVH's biggest competitor in the maritime satellite communications market is, obviously, Inmarsat; how will KVH answer that company's recent price increases for its Fleet and FleetBroadband services, as well as its well-advertised upgrade path to the new XpressLink Ka-band service?

Vivian Quenet

Inmarsat is losing, one by one, many of its top-end customers who are moving to mini-VSAT Broadband to optimize their operation. Inmarsat's answer is to jump on Ka-band without really knowing if this is the right frequency for maritime usage. They won't know until 2015, so they are launching an intermediate solution called ***XpressLink***, which is based on old TDMA VSAT technology that is only capable of 256 to 512Kbps max, and backed up by FleetBroadband.

The issue remains that Inmarsat still needs to pay for the ***Inmarsat 4*** satellites (FB service) and finance the ***Inmarsat 5*** new satellites (Ka-band). As they are losing many good customers, they must increase the price of Fleet and FB services to satisfy their shareholders. This is mathematically working, but as the shipping industry is also facing a severe downturn, this move is very unpopular among ship operators.

At KVH, we focus on our customers and we continue to develop innovative, cost effective and high-quality products. We make sure our public pricing is known, and Inmarsat does the rest.

SM

What are the primary satellite communications' concerns for maritime operators based, or primarily operating in, the Asia-Pacific region?

Vivian Quenet

Maritime operators need to communicate with shore for many reasons...

- Regulatory purposes, such as ENOAD (Electronic Notification Of Arrival and Departure) when calling or leaving the U.S.
- Email, including picture or video files, for vessel repairs
- Operation and maintenance, with the PMS (Planned Maintenance System) connected to the communications device for remote and automatic operation
- Crew welfare

Lately, with the charter price decrease and fuel price increase, we see more and more applications for route planning. Optimizing the vessel route not only saves fuel, it shortens the voyage, which translates to crew cost savings and faster goods delivery. To work efficiently, those routing applications need to collect a lot of real-time data analyzed on shore—weather forecasts, optimal cargo delivery times, and geopolitical events, to name a few. A leading Japanese fleet just signed with KVH to deploy this route optimization on more than 100 vessels.

SM

How does KVH compete successfully against local providers in the ever-increasing markets of the Asia-Pacific region of the world?

Vivian Quenet

KVH Industries Pte Ltd., based in Singapore, is one of the newest KVH offices worldwide. Although we don't yet have the same name recognition as KVH in the USA or in Europe, we have already won very large contracts with Asian companies, and we are already the maritime VSAT company selling the most VSATs in the region. Local providers tend to focus on regional coverage because they don't have global coverage. We can address local and international companies.

SM

What KVH products are a success for the APAC markets? Why?

Executive Spotlight: Vivian Quenet, KVH Industries (Cont.)

Vivian Quenet

Our ***TracPhone® V7*** three-axis combines the best attributes of traditional MSS devices with affordable hardware and easy logistics and installation, but it also has the advantages of faster speed, lower latency, and a fixed monthly price.

We just introduced the dual mode C-/Ku-band ***TracPhone V11*** and we already have large shipping companies who have signed up for trials with an intent to buy. V11 is the ideal solution for commercial and offshore vessels traveling outside Ku-band coverage and in tropical and humid areas. Its potential 4Mbps download speed is more than enough for any type of application and its single small dome allows it to be installed on every type of vessel.

SM

What are the major differences between APAC and the other areas of the world where you have SATCOM experience, such as Europe and Africa, as far as product alignment and sell-through?

Vivian Quenet

Our European colleagues are selling the same V7 three-axis to their merchant shipping customers. They also have a leisure market in the Mediterranean (and Caribbean) area and are successfully selling our V3 terminal, which offers 2Mbps download speed and a very affordable airtime rate of $0.99/MB. That's perfect for casual web browsing. In addition, the size of the V3 is only 37cm, similar to a ***FB250***, which perfectly fits the size of most yachts. The leisure market is limited in Asia, hence we are selling fewer of those products. My experience for the African market was mainly for land applications, so it doesn't really compare.

SM

What does the next year or so hold in store for KVH in the APAC market segment?

Vivian Quenet

We are going to continue our commercial efforts in Singapore, which have been especially successful with tanker companies. We see a lot of interest among offshore vessels for our C-/Ku-band TracPhone V11, and we will focus more on this segment in 2013. We will also focus on North Asia, establishing KVH people in this part of Asia to market our products.

SM

Where do you believe the SATCOM market is headed? And what are some of the most significant challenges ahead for our industry? How do you see such being addressed?

Vivian Quenet

After the consolidation in the MSS market, we are seeing a consolidation in the VSAT market as well, which will continue in the years to come. The market will continue to go towards broadband and fixed-rate plans with VSAT service. I believe the companies that will be successful are the companies that will provide real solutions to the shipping industry, rather than just cheap commodities. That's what happened with the cellular market. All phones are 3G or 4G now and provide voice, data, bluetooth, and Wi-Fi connections.

What really makes the difference is the apps, the content, and the solutions the phones contain. You don't buy your *iPhone®* or *Android* because it's cheap or fast, but because it comes with that app you really want. That's why I don't think it's important to focus on Ka-, Ku-, L-, or C-band. What's most important is how you combine it with your own corporate value. The merchant shipping industry has a lot of issues to solve and the successful companies will be the ones who listen and understand the real issues of the industry, and address them with the right solution.

SM

Looking back over your career, what project or projects have brought you the most satisfaction?

Vivian Quenet

I have had successful commercial contracts with the largest shipping companies in both Europe and Asia, but two things really stand out. The first was my decision to move to Asia and start a sales unit in Singapore, from scratch, for my previous company. Beyond the entrepreneur experience, I learned to adapt and understand different cultures and why they are successful.

The second one was joining KVH Industries to develop its activities in the Asia-Pacific region. Although I had a comfortable situation, I'm very happy I made the move. KVH is customer and innovation driven, rather than self-focused and financially driven. That is corresponding better to my way of thinking.

A Case In Point: M&C In Myanmar

by Dragana Lazic-Mijanovic, Operations Manager, Intorel Sarl

Intorel Sarl, based in Luxembourg, has proven how much can be accomplished in a mere four days with the proper planning, testing, and more testing, all while working closely with the client.

Myanmar's *Ministry of Telecommunications* was seeking a fast and reliable installation of their uplink Monitoring and Control (M&C) system for their Earth station based in Tanyin. The company learned that *Visionic*, by Intorel, met their criteria: The application could encompass the entire system, from input to output, and provide secure, uninterrupted signals.

Visionic 5 Professional, which was installed on the Tanyin Uplink station, is an industry standard with a vast library of device drivers that have been assembled over the past 12 years.

Myanmar's Ministry of Telecommunications sent the station's hardware schematics one month before the project was to start. Everything was prepared ahead of time in Intorel's Luxembourg office—a team of Intorel's engineers was able to test the device drivers to ensure total viability prior to installation. The equipment required for the uplink station in Tanyin was procured locally.

Intorel's local partner, Anat Bongsudhiruks from Anatron, organized and secured the timely procurement of all of the necessary equipment prior to the arrival of the Intorel Sarl team from Luxembourg. A real plus was in obtaining the equipment locally. Such helped to prevent any transport and customs issues that could have been related to equipment importation.

A demo version of the system was already working and tested in Luxembourg, so the first phase upon arrival of the Intorel team in Myanmar was to start cabling and connecting the equipment to the server. Engineers from Myanmar's Ministry of Telecommunications also had an active role in the process of the installation and connection of the system, in order to be up-to-date themselves with the set-up process.

Advising and informing clients on the process of installation, as well as training them so they will know how to fix any issue themselves, has been proven to be one of the as best ways to ensure a trusting client / provider relationship. In this manner, engineers from Myanmar's Ministry of Telecommunications would understand how everything was installed and connected. If any issues arose, they would know how to sort it out themselves.

After the server installation and the remaining connections were completed, the Intorel team tested all facets to make certain the server communicated with the other equipment. The next phase was to provide training for the Myanmar's engineers.

Over the course of training, Intorel introduced its flagship product—Visionic Professional—which is now fully installed on the uplink station in Tanyin. Visionic 5 Professional is based on a simple idea, that being, a well-engineered and conceived drawing is composited by the software and is then compiled into the standalone, client-server solution.

A sophisticated GUI, based on Microsoft Visio®, contains libraries with hundreds of devices that allow the user to simply "drag and drop" selected elements into the system design. The has been carefully tailored to suit most customers' unique needs and has also been designed with the knowledgeable assistance of hundreds of network engineers. A single screen view integrates all of the systems for viewing. From this point forward, users can connect and operate remote or in-house equipment in any way that can possibly be imagined.

Visionic is based on familiar concepts and does not require any prior programming experience. The software offers a unique user experience and considerably reduces training time and user effort.

The main reason for hundreds of satisfied customers around the word is Intorel's dedication in providing customers with the most reliable, user-tailored and comprehensive monitoring and control solution available, regardless of any client's unique requirements.

From top to bottom: pulling cable | a trusted partner | training | finished and ready to go...

Making Your Business More Profitable With Multiple Service Plans

by Denis Sutherland, Sr. Manager, Sales System Engineering, iDirect

Can Service Providers be more profitable by offering a number of service offerings to customers? Or does that make your operations and network less efficient?

A *study* finds that three to four tiers of service would be all that it would take to create better options for consumers and near-optimal profits for providers.

However, how is that achieved in a VSAT network?

You certainly need the infrastructure in place to allow the segregation of groups of customers to take place. You will also need to report on the different customers groups in your *Network Operations Center* (**NOC**) and your *Service Level Agreement* (**SLA**) reports, and thus the business velocity to which you respond to such groups.

Or, maybe you want to allocate bandwidth to specific applications, to prioritize specific applications and ensure that some apps don't consume the network. This is becoming more and more important to service providers... see...

http://broabandtrafficmanagement.blogspot.com/p/dpi-market-size-forecast.html

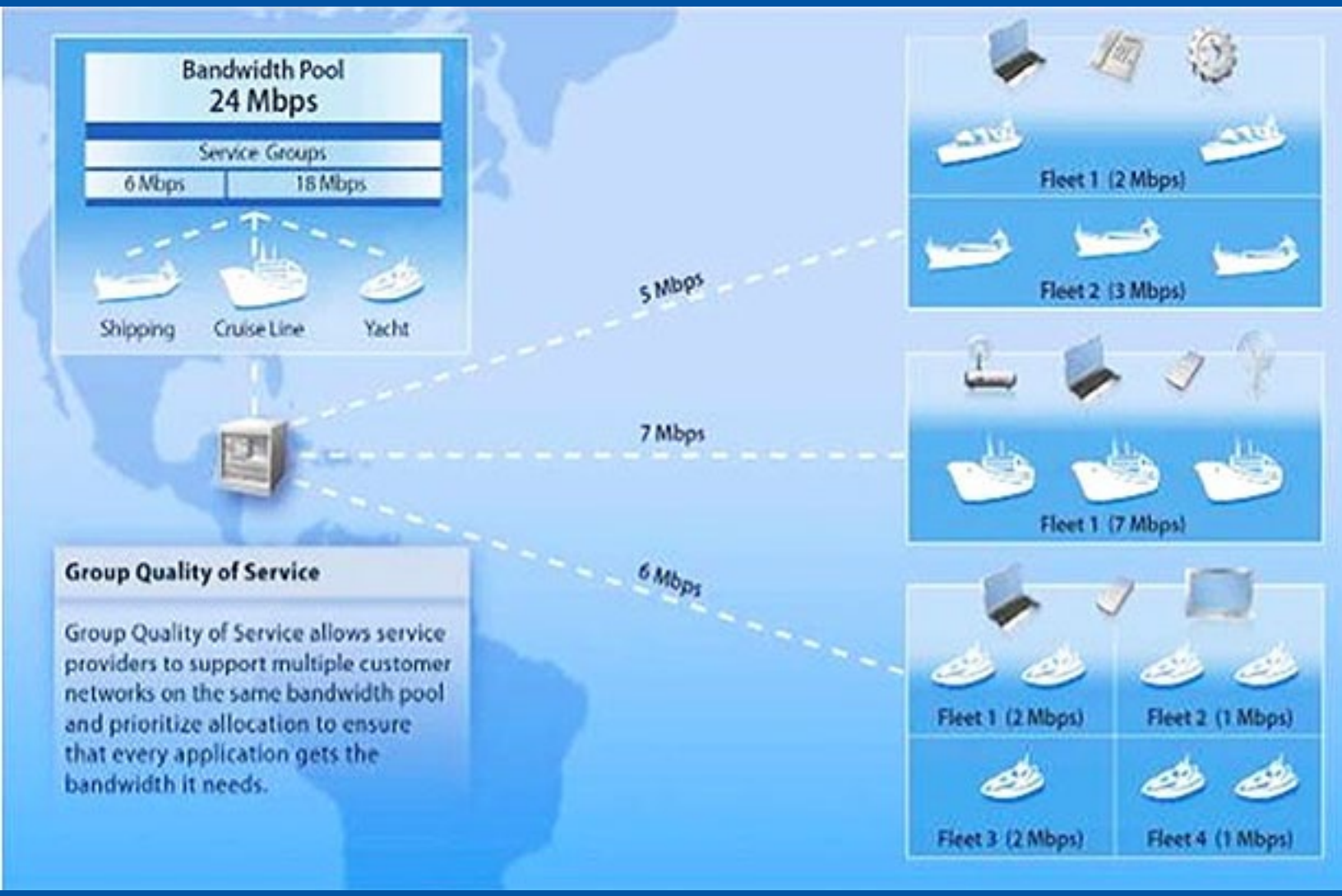
Some **iDirect** features help you to build a network that supports high-end SLAs, and thereby attracts high-value customers. In this article, we will look at *Group Quality of Service* (**GQoS**) as well as look at **DVB-S2/ ACM**, and the tight link between them that allows them to work together for maximum benefit. It's even better now that they are available in iDirect's SatManage.

What Is GQoS?

GQoS is iDirect's bandwidth allocation algorithm and it offers many opportunities to improve performance. With GQoS, you can realize a significant increase in bandwidth management capabilities when prioritizing traffic for customers in a shared network environment.

Group QoS is a capability of the iDirect ***NMS*** platform, enabling network operators to manage the bandwidth allocated to a group of remotes more efficiently. Group QoS allows a network operator to dynamically allocate a pool of bandwidth between groups of remotes, based upon a predetermined set of criteria, to maximize the overall capacity of the network, while ensuring end-users are within the committed SLAs.

This is good news for network operators who service multiple user groups. Instead of committing a set amount of fixed bandwidth to each group, the operator can pool the total bandwidth for multiple user groups and reallocate it dynamically as needed. The end result is a significant OPEX cost savings for the operator and, importantly, your SLA is still achieved.



Making Your Business More Profitable (Cont.)

Maybe you are a Service Provider with Gold, Silver and Bronze service offerings. Those can be offered within the same bandwidth using GQoS, but using different *Max Information Rates* (**MIR**), contention rations, and *Commitment information Ratios* (**CIR**).

Until now, the problem Service Providers raised was, "*We give our customers a CIR but we are not sure if they are using it. How do we know when to recommend a customer using Bronze Service package upgrades to Silver? Let alone prove it to them?*"

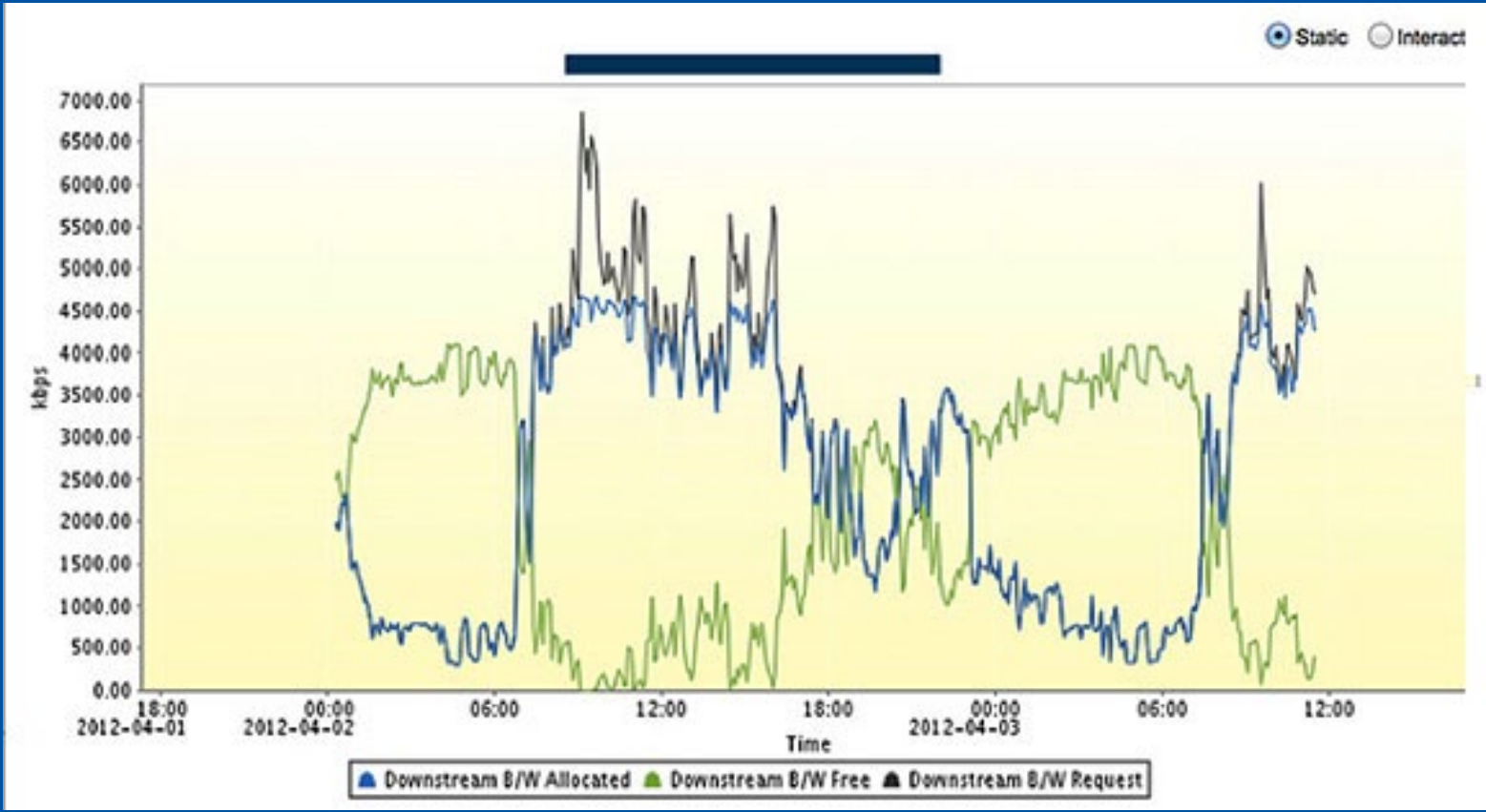
Do you see a need to show how much free capacity is available in your network and how much CIR has been allocated? Would that help your customer upgrade their service plan?

With ***SatManage 5.2,*** you can run reports on CIR satisfied, CIR Requested and see how much free capacity you have in your network.

You can see from the table below from SM5.2 that it shows some statistics over several days for one bandwidth group. The requested, allocated, and free bandwidth is shown in one chart allowing for network analysis and thus optimization.

You will see in this case the black line indicates the free capacity available in the system, and the green line the free bandwidth, measured in Kbps IP. With some analysis, we can see in this network that there are periods when this bandwidth group is running short of capacity.

This Group could be a number of remotes, and represent one customer, so perhaps you should approach them and ask if they would like to upgrade their bandwidth allocation?



	Visible in iMonitor	Enhancements with SatManage
GQoS Monitoring	BW requested and allocated per virtual remote	SatManage graphing capabilities for Virtual Remotes Graph bandwidth requested / allocated to virtual remotes per physical remote (ex: stacked area chart of traffic per application profile for a physical remote Maintains stats for a physical remote, through config changes

SatManage and GQoS working together can enhance the acquisition, manipulation and presentation of key network performance indicators. This allows the network to be fine-tuned to allow key customers to always get their CIR, but also excess bandwidth is removed after having a better understanding of how the network is performing over time. (*See the chart on the following page*.)

The *Group QoS Reporter* in SatManage presents GQoS-level and remote-level statistics. You can also view statistics by Remote or Virtual Remote, ksym, kbps. GQOS reporter can display reports in two modes:

1. *GQOS mode, where we can graph metrics like B/W allocated, free, and requested. In GQOS mode can report on elements as per the GQOS hierarchy tree elements omitting the remotes.*

2. *Physical remotes, where we have additional traffic metrics broken down by traffic type (ICMP, IGMP, reliable, TCP, UDP and so forth). When physical remote is selected we can see "Show virtual remotes" in the output pane.*

This allows you to display the "traffic per application" when "yes" is selected or display the whole traffic otherwise. The output selector allows grouping by series or node.

The link below is an iDirect customer that is using GQoS—its bandwidth allocation algorithm offers them the flexibility to control quality of service levels, bandwidth management, and traffic prioritization:

http://blog.idirect.net/lintasarta-installs-idirect-evolution-platform-for-vsat-service-in-indonesia/

About the author

Denis Sutherland is the Sr. Systems Engineering Manager for iDirect Europe. He is responsible for leading a global team of Subject Matter Experts on SatManage, which includes network management and network optimization, along with data visualization, big data sets, data-driven decisions, and service level agreements (SLAs). He also assists customers across Europe with product selection, designing satellite networks and infrastructure, and spends the majority of his time working with customers in the maritime, oil and gas and defense/government sectors. Sutherland was awarded best sales iDirect engineer in 2005, 2006 and 2008.

Sutherland has worked in the telecommunications and network industries for nearly 20 years. Prior to joining iDirect in 2005, Sutherland was a technical sales and support manager at Inmedia (now Arqiva) where he worked in a satellite Earth station and served as the design authority for many successful major global projects to deliver voice, video, data, DTV, Digital Signage, IP Networking, and IP Video.

A Closer Look At SatManage

*A powerful extension to iDirect's **iVantage™ NMS**, SatManage takes a Network Operations Center (NOC) operations to an even higher standard of network performance and scalability.*

*With solutions for small and large, more complex networks, **SatManage Standard** and **SatManage Enterprise** editions enable any network operator to streamline NOC operations, enhance customer visibility and provide a higher level of service and responsiveness, improving the overall efficiency of their network operations.*

*SatManage is also **STIG** compliant for secure operations for Defence and Government customers.*

» ***Streamlined Network Management Operations***
SatManage integrates and automates nearly every aspect of a NOC and through a rich set of monitoring features, provides an in-depth view into the network's quality performance.

» ***Enhanced Customer Management***
SatManage brings intuitive customer management tools and powerful portal interfaces that enhance communication and reporting, deepen network visibility and improve overall customer satisfaction and confidence in the network.

» ***SLA Management Facilitates Negotiations***
SatManage provides service providers and end customers alike with a uniform view into the exact same data points and methodology predetermined in the SLA. SatManage streamlines SLA compliance by automatically generating intelligent reports on SLA performance tailored to each specific customer's agreement thus greatly simplifying end-of-month SLA reconciliation.

A Case In Point: ROCKs In Papua New Guinea

by Katia Gryadunova, Marketing Manager, Pactel International

The challenge—communications and logistics are one of the most complex decisions that must be faced by mining, oil and gas companies. The decision's complexity is further complicated for companies that require frequent site relocations. The exploration team needs to communicate as if every remote site is but an extension of their corporate network. The logistics process associated with relocation must be optimized and the costs must be minimized.

Communication Challenges

Finding a solution compatible with specific network requirements, yet portable enough to suit frequent site relocations, can be a most difficult task. In this particular instance, the communications infrastructure has to be ruggedized as well as easy to deploy and operate. Furthermore, the network service must meet the corporate needs as well as those of the workers living on site, while being scalable to allow for future growth and expansion.

Failure to address corporate and personal communication requirements will compromise productivity and result in unhappy personnel. Ideally, the company should be offered a solution that provides reliable industry-specific communications, all the while being robust enough to support frequent site relocations.

Logistical Challenges + Solution

Establishing a traditional VSAT service can be a challenge as well as resource-consuming when relocation must occur every few weeks or so. Dismantling, transporting and installing the equipment often requires the service provider's help. Such incurs extra time and additional costs. In this situation, quick deploy communication becomes a far more viable solution.

To overcome the communication and logistical challenges associated with frequent site relocation, **Horizon Oil**—a company exploring for oil and gas in *Papua New Guinea* (**PNG**)—needed a solution that would combine the portability of quick deploy equipment with a satellite service in conjunction with an immediately available and flexible bandwidth pool.

The exploration activities required a camp relocation every two to three months until a permanent camp could be established. In PNG's Western Province region, transport infrastructure is limited, with heavy lift helicopters the primary freight option for camp relocation. Consequently, the equipment had to be highly portable, and simple to set up and operate with minimum technical support in a hot and humid tropical environment.

The key communication requirement was the availability of dedicated bandwidth for a *Virtual Private Network* (**VPN**) that supports Internet and voice applications. In addition, instant wireless and voice access had to be available, the worker welfare solution incorporated into the network, and the voice communications prioritized.

The resource sector's unique requirements prompted Pactel International to design a ***Remote Office Communications Kit*** (**ROCK**) solution with a set of options specific to temporary network deployment at mining, exploration and construction sites. Although, the solution can be standardized, the customer has an option of choosing their desired hardware, service and the antenna type.

In the case of Horizon Oil, the solution included a 2.4 meter semi-fixed antenna, a ruggedized equipment rack and a VPN service with dedicated bandwidth. Based on one of Pactel's corporate C-band platforms, the service supports simultaneous, but separated, corporate voice and Internet applications and recreational traffic. An additional QoS platform ensures that the priority is given to the voice traffic. The dedicated bandwidth pool allows for sharing of satellite bandwidth between operations in the day and welfare applications such as Social Media and *Skype* at night.

The equipment and antenna were designed for rapid and simple deployment with training for company self-install and commissioning, saving time and the costs associated with logistics and equipment operation and maintenance.

"Having access to a communications network which could be up and running with short lead times, whilst minimizing the logistical challenges is important during the initial exploration stages", said *Graham Madsen*, **KDC**—Project Consultants to Horizon Oil. "We congratulate Pactel on developing a solution that precisely meets our customer needs and allows us to cost-effectively manage bandwidth and equipment across all locations, added Mr. *Madsen*.

Pactel International's ROCK product ensemble

About Pactel International

Founded in 2003, Pactel International is an Australian-owned global satellite communications provider, supplying connectivity across all areas of the Asia-Pacific region, with offerings ranging from commercial and corporate to carrier-grade networks that support services such as Internet, Private WAN, Telephony and Voice and Mobile GSM. Complete service customization; 24x7 network monitoring and customer support as well as superior quality and reliability of service and equipment during harsh environments and extreme weather conditions within the Asia-Pacific Region are all priorities for Pactel Intentional. The primary mission is to provide remotely-based businesses and communities with peace of mind by keeping them connected: constantly, reliably and efficiently. Accordingly, the company is committed to providing a communication infrastructure that reflects the diversity and support for end-user requirements.

About Horizon Oil

Horizon Oil Limited is listed on the Australian Stock Exchange (ASX) and is one of Australia's leading junior upstream oil & gas companies. It is currently included in the ASX 300 index with a market capitalisation of around US$400 million (April 2012). Horizon Oil's ASX stock code is HZN. Horizon Oil's head office is located in Sydney, Australia and oversees the Company's international operations. Horizon Oil's focus area is South East Asia and Australasia where there is a strong demand for oil and gas, a mature operating environment and limited competition from big companies. Horizon Oil's portfolio includes offshore production and exploration assets in New Zealand and assets under development and/or appraisal offshore China and onshore PNG. Horizon Oil's PNG assets include a 50 percent interest in PRL 4, which contains the Stanley gas / condensate field and a 50 percent interest in PRL 21, which contains the Elevala and Ketu gas / condensate discoveries. Horizon Oil has been active in PNG since the late 1990s, establishing a permanent office in Port Moresby in 2009.

Supporting The Digital Television Transition In Africa

by Peter Ostapiuk, Vice President, Media Product Management, Intelsat

Many nations are making big strides toward the implementation of Digital Terrestrial Television (DTT), and for good reason. Digital signals provide improved reception quality and enable the delivery of larger channel lineups and enhanced multimedia applications such as video-on-demand and entertainment services. Switching from analog to DTT signals also allows for the more efficient use of spectrum, as frequencies formerly used by analog broadcasts can be repurposed for wireless networks that can contribute to national economic growth.

Satellite is a critical part of the content delivery chain for DTT, just as it always has been for analog distribution. The ways in which satellite links are utilized vary from country to country. Satellites carry DTT signals from the multiplexing facilities that bundle packages of television channels to the digital transmission towers that send the signals into homes. Satellite signals can be beamed directly to private residences, reaching customers who do not live near broadcast towers.

Intelsat was the first satellite operator to introduce service to Africa, and we cover the continent with more capacity than any other provider. Intelsat carries state broadcast channels for 25 African nations and offers both C- and Ku-band capacity on 23 satellites.

Flexible + Scalable Approaches

Intelsat can offer customers a number of different technical approaches to DTT distribution, based on their individual needs and circumstances.

The most basic option uses Intelsat satellite capacity to distribute DTT signals from multiplexing facilities to broadcast towers, which then send over-the-air digital signals to homes, where digital set-top boxes convert the signal for viewing. This approach results in signal delivery to all homes in the range of a broadcast tower. (See *Diagram 1 below*)

For greater penetration, the basic backbone architecture can be complimented with a *direct-to-home* (**DTH**) overlay. Homes that are not in range of a broadcast tower can be outfitted with a small satellite dish and receive the digital signal directly from the satellite. This dual-distribution approach can allow nations and license holders to reach up to 100 percent of the population without incurring the expense of constructing and powering new broadcast towers and laying new fiber connections. (*See Diagram 2 on the next page*)

Nations and license holders can create a more attractive channel line-up by creating a bouquet of state and non-state broadcast channels for their populations by leveraging content already carried on Intelsat satellites, including many of the most popular regional and global television channels. This requires nations and license holders to negotiate directly with the content owners for carriage rights.

Intelsat's satellite fleet and expansive IntelsatOne^{SM} fiber network can allow state broadcast channels to be exported anywhere in the world.

Meeting Africa's Needs

Sentech, working on behalf of the **South African Department of Communications**, selected Intelsat to provide satellite capacity for a DTT television service that will launch in South Africa this year. The

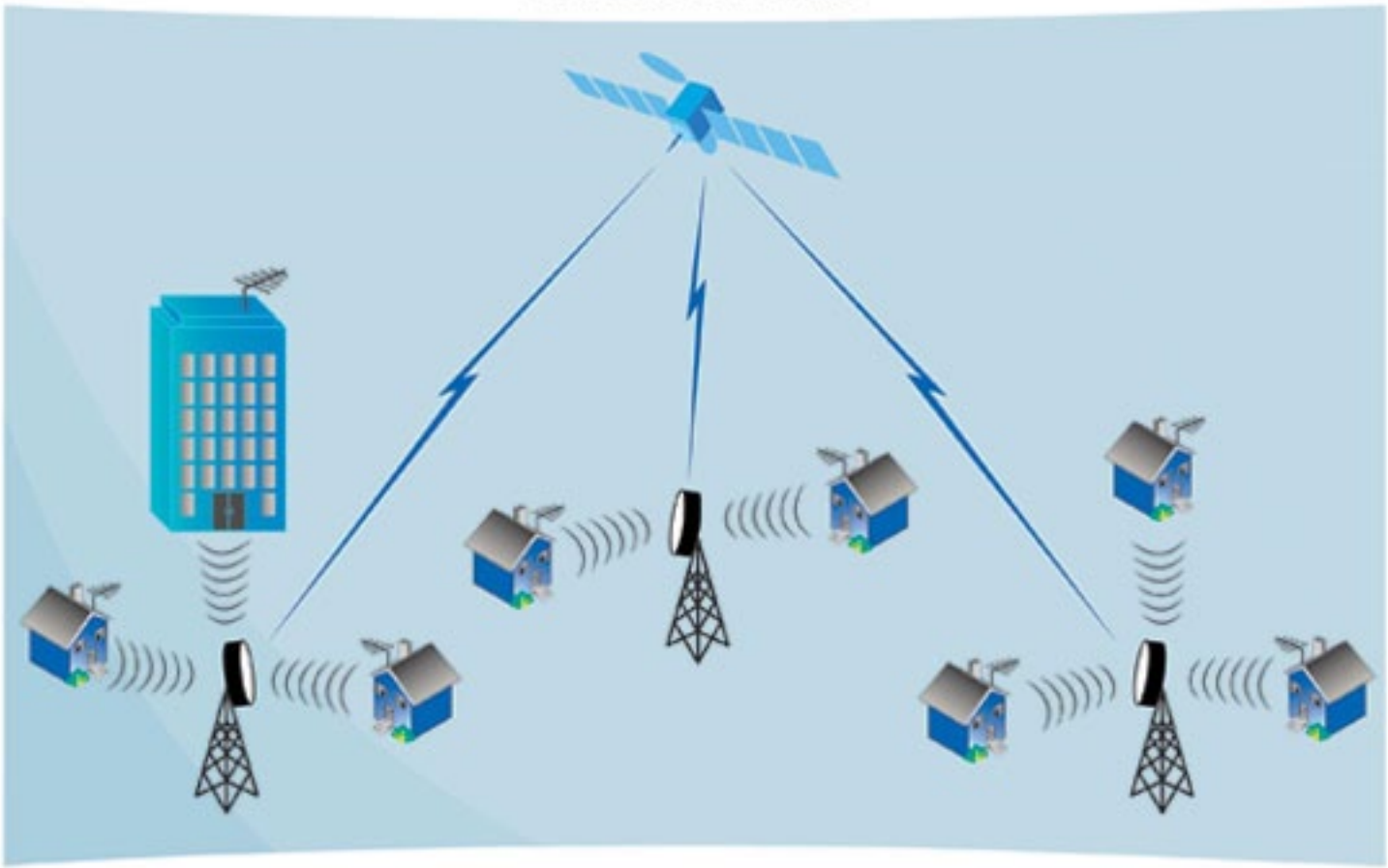


Diagram 1

Supporting The Digital Television Transition In Africa (Cont.)

service will use two, 36MHz, Ku-band transponders on the ***Intelsat 7*** satellite to provide backbone connectivity and DTH television distribution across South Africa.

In addition, **Kenya Broadcasting Corporation** (**KBC**) signed a multi-year agreement with Intelsat to provide backbone connectivity that will carry multiplexed DTT signals from production facilities in *Nairobi* to terrestrial base stations around the country. The signals will then be transmitted over the terrestrial airwaves to homes around Kenya. KBC will use capacity on the ***Intelsat 709*** satellite and the new ***Intelsat 22*** satellite.

Artist's concept illustration of the Intelsat 7 satellite

Technical Considerations

As the transition to DTT is started, consideration of the following nation-specific factors should be given:

- *Ownership of DTT spectral licenses*
- *Obligations of the DTT license holders*
- *Required population penetration potential for subsidized STBs*
- *Timelines for implementing DTT broadcasts*
- *Shut-off dates for analog signal broadcasts*
- *Desired content to distribute*
- *State channels only*

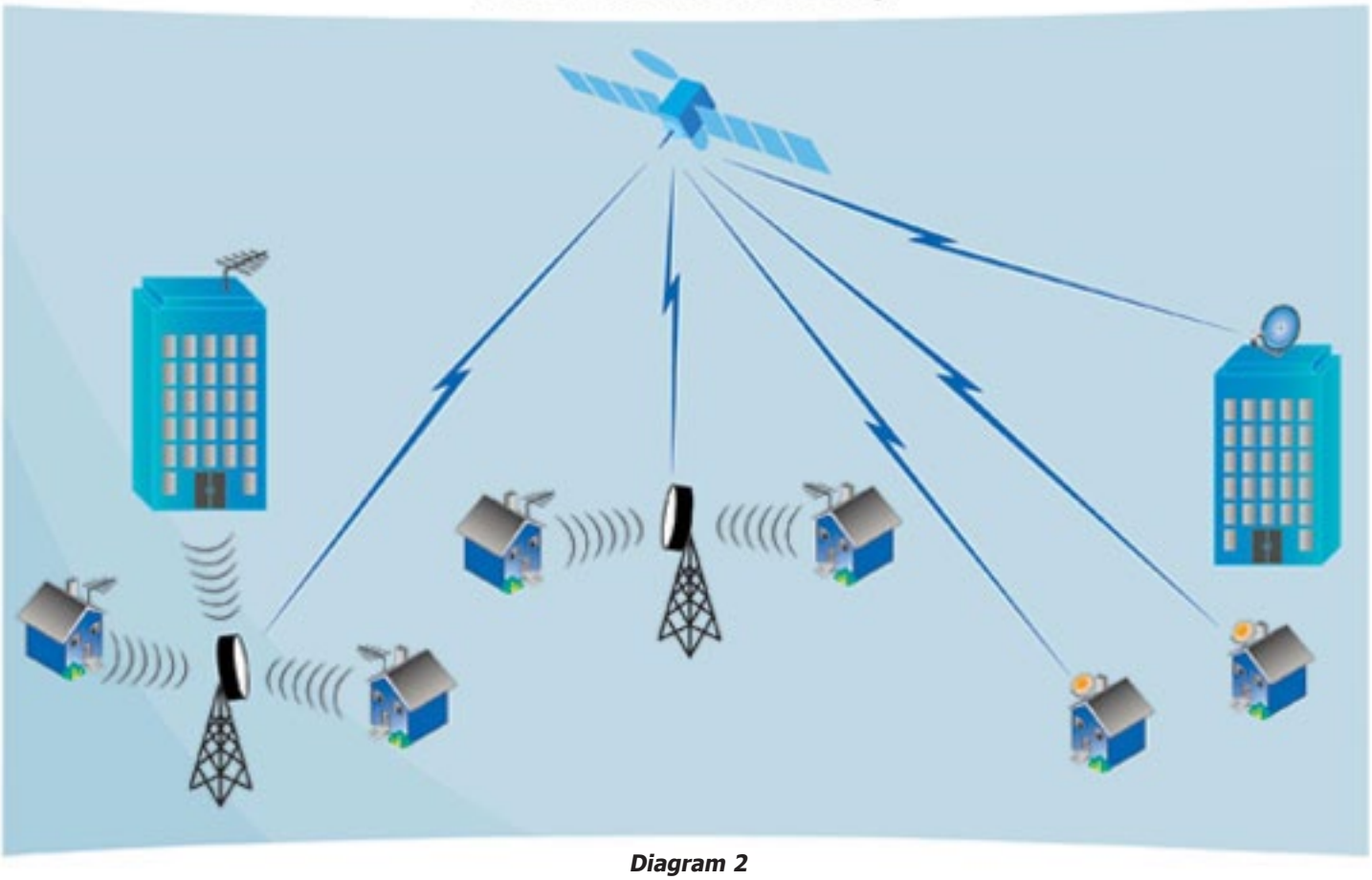
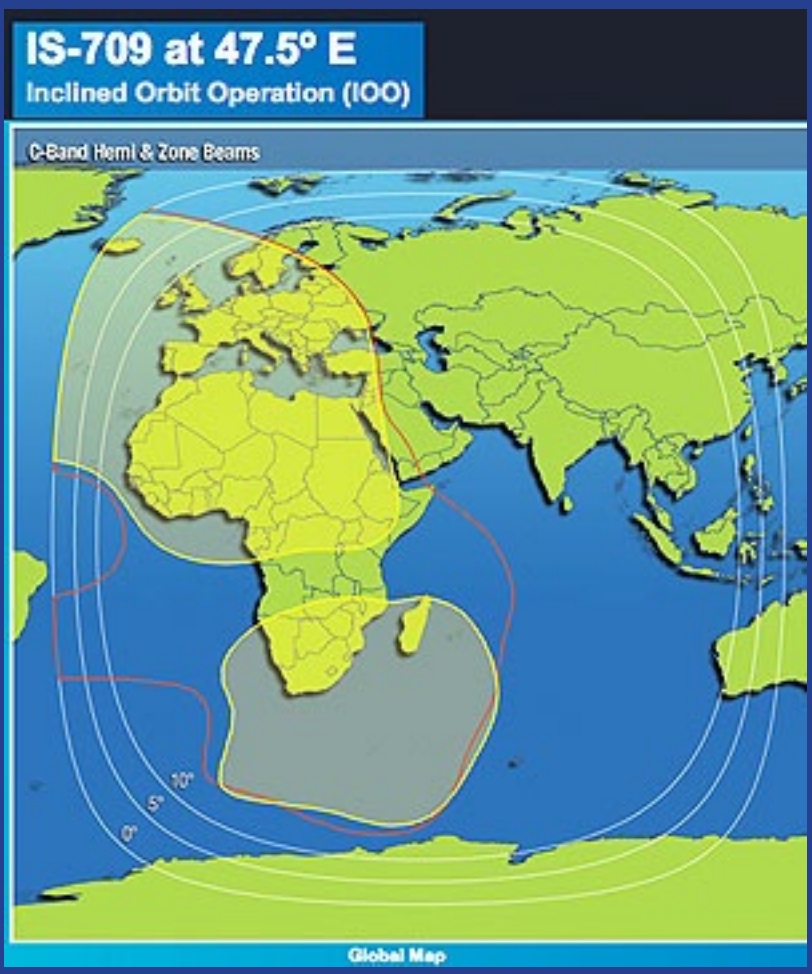


Diagram 2



- *Bouquet of channels already carried by Intelsat*
- *Origination of content*
- *Encryption options that serve as control mechanisms and advertising feedback tools*

DTT technology offers many benefits over analog TV, including greater spectrum and power efficiency, improved picture and sound, and an increased channel line-up. Intelsat can share best practices on how to improve offerings for your customers with DTT.

Artistic rendition of the Intelsat 22 satellite

About the author
Peter Ostapiuk is responsible for management and development of Intelsat's media products portfolio. He manages a global team of marketing and product-management professionals that is responsible for management of media satellite neighborhoods and managed IntelsatOne video services that include fiber, teleport and MCPC products. Mr. Ostapiuk is also responsible for Intelsat's Occasional Use business and development of Intelsat EpicNG media applications. Mr. Ostapiuk has 20 years of experience as a sales professional, including 17 years in the telecommunications and satellite industries.

A Case In Point: USO Services For Brazil

by David Leichner, V.P., Marketing, Gilat Satellite Networks

São Paulo State is the driver of the Brazilian economy, but even this highly developed State has regions where terrestrial communications is difficult. Telefonica had the obligation to provide USO services across the São Paulo. They selected Gilat to create a turnkey solution running on the *SkyEdge*™ System with remote facilities integrating VSAT, payphones, rectifiers and solar panels, which Gilat supplied in only 90 days.

The Need

Telecomunicações de São Paulo S.A., **Telesp**, a subsidiary of **Telefonica, S.A.**, provides the full range of telecommunications services in São Paulo State, Brazil, which is the most populous, rich, and developed state of Brazil. The state has an area of 248.176,7 km^2 (larger than France—243.965 km^2).

While the state is very well developed, there are still a few locations where satellite is the only economically viable alternative to provide telephony services. Telefonica has the obligation to provide *Universal Service Obligation* (**USO**) telephony across the State—VSAT technology was selected for those locations.

Telefonica

"After witnessing Gilat's fast, efficient deployment of this VSAT network, it was evident how they came to achieve a global leadership position in this market."

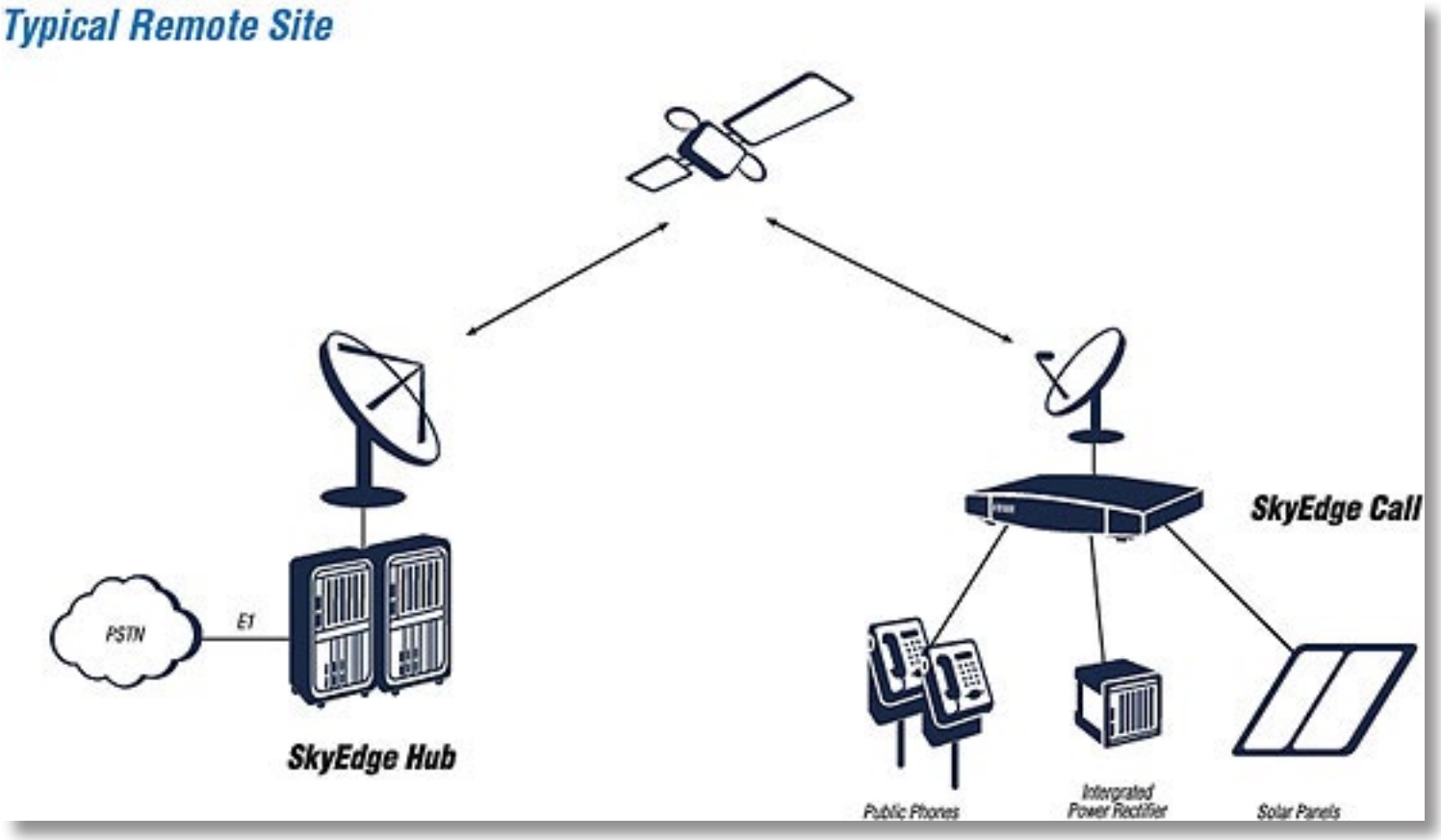
Jose Luis Dutra
TELESP's Engineering & Planning Director

The Challenge

Providing rural telephony coverage is often expensive as the population density of those areas is low and the terrestrial communication infrastructure is not advanced. Knowing that, **Telefonica**, with its wealth of experience in service provision, established a team of experts to study all of the aspects of its challenge on how to provide services to remote communities.

Adding to the difficulties was the need to know how many communities existed. In fact, the first phase of the project was to identify the villages. Taking satellite imagery, Telefonica surveyed the state and listed the target villages that required a solution.

While Telefonica prioritized the villages and selected the first ones to receive their services, Telefonica management also had to decide on a technology for rural telephony. Laying cables would be quite expensive and would take far longer than their contract allowed. *Wireless Local Loop* (**WLL**) radio transmission technology was also investigated, but would also be expensive. There was a satellite option, but Telefonica did not possess significant internal experience with satellites. They quickly needed to better understand the technology and its implications.



A Case In Point: USO Services For Brazil (Cont.)

The Solution

Satellite systems avoid the problem and expense of installing telephone cables to distant low population areas. After evaluating a number of satellite communications solutions, Telefonica decided upon **Gilat Network Systems** and its ***SkyEdge*** System.

One reason was Gilat's position one of the leading firms providing global rural telephony solutions. Telefonica was confident that Gilat's deep global experience could help the company quickly roll out a solution.

One of Telefonica's key criteria was speed of solution implementation—the company only had a short time to create the system—Gilat committed to a three month project time frame, which included delivery and deployment of a turnkey system that helped meet USO requirements. The final system included:

- A SkyEdge Redundant Hub
- SkyEdge Call VSATs spread across São Paulo State
- Each VSAT supports two public payphones with 12KHz metering
- Complete deployment package including poles, rectifiers, solar panels and fences. Integration with Brazil SS7 (ISUP Br) Signaling

The SkyEdge Hub in São Paulo communicates with remote SkyEdge VSATs, directly connecting rural telephones with the rest of the PSTN system and bypassing the need for terrestrial wiring or a series of radio towers. SkyEdge's bandwidth management means that high-quality voice and fax communications is available from every telephone.

Telefonica realized that SkyEdge would provide...

- Experience in Rural Telephony & USO
- Rapid development and installation
- High quality telephony communications
- Integration to Brazilian telephony standards
- Low Total Cost of Ownership

A technical requirement was that Telefonica needed the signaling interface to be a Brazilian variant of ISUP. As Gilat has global experience in adapting to local standards, it committed to making the required customizations and the solution was ready in two weeks.

"After witnessing Gilat's fast, efficient deployment of this VSAT network, it was evident how they came to achieve a global leadership position in this market," said Jose Luis Dutra, Telefonica's Engineering & Planning Director. "We were particularly impressed with the speed with which they deployed the entire network solution. It took only 90 days from signing of the contract to its full implementation."

Making Telefonica management even happier is that the SkyEdge system isn't just powerful, stable and rapidly deployable, it also provides excellent Total Cost of Ownership (TCO). VSATs mean no terrestrial cabling, significantly lowering fixed costs. High system availability (over 99.95 percent), efficient use of satellite bandwidth, and speed of installing additional VSATs provide lowered operational expenses.

A Tailored Solution

Gilat was able to work quickly to provide a solution tailored for São Paulo State's USO requirements and telephony infrastructure. Along with the full SkyEdge system providing rural telephony, Gilat designed and created an enclosure that combined a VSAT and integrated rectifier.

While the immediate need was for telephony, future plans are to add broadband and, potentially, transportable communications offerings. The SkyEdge System serves as a platform for telephony, data and multimedia communications, supporting the full range of communications needs.

Using SkyEdge, Telefonica was able to quickly roll out their USO requirements while creating a system that works not only for current services but also for the future.

About the author

Mr. Leichner has over 20 years of marketing and management experience. He is responsible for corporate marketing and business development in Gilat and its subsidiaries. Prior to joining Gilat, Mr. Leichner served as the VP of Sales and Business Development at Dynasec; CEO of SafePeak Technologies; CMO at BluePhoenix Solutions; VP of Marketing at Unipier Mobile; and as VP of Worldwide Marketing at Magic Software Enterprises. Mr. Leichner has been a member of the global board of the Israeli Mobile and Communication Association since 2005. He holds a BA in Computer Information Systems and an MBA in International Business from the City University of New York.

For more information, access the Company's website at:
http://www.gilat.com

A Case In Point: Network Upgrades For The Mobile Operator

Bharti Airtel Limited is a leading integrated telecommunications company with operations in 20 countries across Africa and Asia. Headquartered in New Delhi, India, the company ranks amongst the top five mobile service providers globally in terms of subscribers. In India, the company's product offerings include 2G, 3G and 4G services, fixed line, high-speed broadband through DSL, IPTV, DTH, and enterprise services including national and international long distance services to carriers. In the rest of the geographies, it offers 2G, 3G mobile services.

In June 2010, Bharti Airtel acquired the **Zain Group**'s Africa mobile operations. Today, **Airtel** provides mobile services using GSM technology to 50+ million subscribers in 17 countries across Africa, namely Nigeria, Burkina Faso, Chad, Congo Brazzaville, Democratic Republic of Congo, Gabon, Madagascar, Niger, Ghana, Kenya, Malawi, Seychelles, Sierra Leone, Tanzania, Uganda, Zambia and Rwanda.

More than one billion people reside in Africa. Airtel entered the region with a clear intent and strategy—to transform how individuals communicate and how communities interact in the region. The low mobile penetration levels across many of the African countries of operation presented an opportunity for this service provider. However, managing operations in 17 countries with different levels of infrastructure, a variety of terrains, varying population density and changing availability of resources is a complex task.

In Africa, Airtel is a major consumer of satellite capacity, particularly in landlocked countries without direct access to submarine cable capacity. In order to enable sustainable and profitable service expansion and subscriber growth to rural areas and remote villages, Airtel needed to upgrade its satellite-based network infrastructure.

After a review of available satellite infrastructure technologies, Airtel selected the bandwidth optimization by **Comtech EF Data** and subsidiary, **Memotec**. The technologies will facilitate Airtel's significant growth planned for the African region, including supporting a network upgrade and service expansion across its operations in 16 African countries. The equipment was selected based on Comtech EF Data's/Memotec's track record of providing operators globally with infrastructure products that reduce OPEX and increase throughput for satellite-based mobile backhaul.

Bandwidth Optimization

CDM-625 Advanced Satellite Modem with DoubleTalk® Carrier-in-Carrier®

Airtel selected Comtech EF Data's ***CDM-625*** Advanced Satellite Modem with ***DoubleTalk***® *Carrier-in-Carrier*® bandwidth compression to optimize their satellite links and to better leverage available bandwidth.

DoubleTalk Carrier-in-Carrier, based on the patented "*Adaptive Cancellation*" technology, allows transmit and receive carriers of a duplex link to share the same transponder space. DoubleTalk Carrier-in-Carrier is complementary to all advances in modem technology, including advanced FEC and modulation techniques. This allows for its successful deployment in bandwidth-limited and power-limited scenarios, as well as reduction in Earth station BUC/HPA power requirements.

Memotec CX-U Series

The ***CX-U Series*** brings together a flexible access device and mobile backhaul traffic optimization, offering a variety of backhaul interfaces and transmission options. Airtel selected several CX-U models for deployment in Africa—***CX-U 1010***, ***CX-U 1220*** and ***CX-U 1240***.

The CDM-625 modem

The CX-U 1010

The products are optimizing Airtel's *Radio Access Network* (**RAN**), significantly reducing the amount of backhaul bandwidth required to support their mobile services over constrained links.

Finishing Touches

Bharti Airtel completed the first phase of their network upgrade. By using the Comtech EF Data and Memotec bandwidth optimization technologies, they have successfully reduced network operating expenses—for some satellite links by as much as 50 percent.

As traffic and subscriber demand increases, Airtel is prepared to cost-effectively expand services while maintaining the quality of service their users have come to expect.

The combined Comtech EF Data and Memotec mobile backhaul solution enables sustainable and profitable service expansion for mobile operators, including:

- Expansion into low density regions
- Superior service quality
- Network scalability
- Power efficiencies
- Bandwidth efficiencies
- Reduction in leased bandwidth

To learn more, visit ***http://www.comtechefdata.com***.

The BIG Book of Satellite Communications

Still at Your Finger Tips After 25 Years.

The 2012 International Satellite Directory

Visit: www.satnews.com/directory

The Directory is a comprehensive guide to the people, companies, products, services and the market of the booming satellite industry. With changes of all kinds affecting this dynamic industry, the Directory remains a powerful tool, mapping in detail an otherwise uncharted and complex segment of modern communications.

NO RISK GUARANTEE!
We firmly believe that the International Satellite Directory will be so invaluable to you that we guarantee it. Use the Directory and if you are not totally satisfied, simply return it to us within 21 days of receipt for a full prompt refund.

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- Manufacturers of Satellite Ground Equipment
- Network Systems
- PC-Satellite Connectivity
- Users of Satellite Systems
- Providers of Satellite Services
- General Services
- Satellite Operators
- Geosynchronous Satellites
- EIRP Maps
- Uplink Facilities
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