SatMagazine

ASIA

Checking Off The Successes . . .
. . . One At A Time

INTEGRAL SYSTEMS

SATMAGAZINE
JUNE 2009

CONTENTS

CONTENTS

— BEAM —

The Asian and pan-Pacific market is a crucial component of the global satellite and ancillary business market. Indiginous and foreign investment in Asian projects continues to mount, expectations remain positive, albeit somewhat muted, all despite the worldwide economic "challenges" facing business. The Year of the Ox — 2009 — will require an even greater concentration on the core elements that help business succced — customer service and soul inspiring technologies.
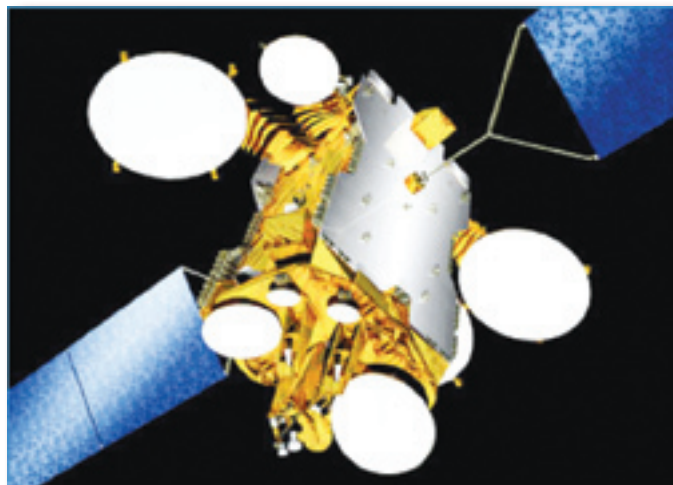
As **AsiaSat** President *Peter Jackson* wrote regarding his company, "2009 will no doubt be a challenging year for all of us and we are heading into uncertain and difficult times that will affect our industry, our clients and their customers." AsiaSat certainly has targeted success, as the Company celebrated 20 years of operation in Asia. They played an important and contributing role in telecasting and supporting a number of major world and sports events. During the Beijing 2008 Olympic Game, AsiaSat satellites were the prime content delivery platforms for many global broadcasters as well as the service provider for live coverage of the most widely watched and successful Games in Olympic history. AsiaSat also signed Space Systems/Loral to produce *AsiaSat-5C*. This satellite will back up *AsiaSat-5*, which is also being currently built by SS/L and both are based on their *1300* satellite bus.

AsiaSat 5 satellite

Continuing SATCOM investments are bringing services to Asia and the pan-Pacific region and are exemplified by a number of companies. With clients through-

out Southwest Asia, the Middle East, Africa and Europe, **Mubadala Development Company** and **Al Yah Satellite Communications Company PJSC** (known as '**Yahsat**') have achieved financial closure on their Yahsat satellite project. Yahsat will own both of the satellites through two, wholly-owned subsidaries, those being **Al Yah Advanced Satellite Communications Services** and **Star Satellite Communications**. Star will use its leased capacity to provide commercial customers with broadcasting services (such as HDTV through its '*YahLive*' service via a partnership with **SES ASTRA for broadcast** via the 2010-scheduled launch of *Yahsat-1A*), Internet, and broadband (through its '*YahClick*' service), corporate data networks, and backhauling services to telecom operators (through its '*YahLink*' service), as well as space and ground communications for other clients throughout southwest Asia, MENA and Europe.

YahSat 1A satellite

The UAE-based mobile satellite service (MSS) company, **Thuraya**, has invested the resources necessary to launch their services in Korea as the Company expands their presence in the Asia and pan-Pacific region of the globe. The business partner for Thuraya in this endeavor is **Asia Pacific Systems, Inc.**, and they will provide the local services and solutions for customers. Thuraya will be providing border-to-border coverage in Korea with heightened interest in this service from government, marine and emergency services. This new offering is thanks to Thuraya's recently launched *Thuraya-3* satellite.

Thuraya 3 satellite

Additional SATCOM coverage is going to be offered to most of Central Asia and MENA, thanks to a new agreement between **Satlynx** and **Arabsat** for capacity on the *Arabsat-5A* satellite, starting in early 2010. Services to be offered include *SCPC*, *iDirect*, and *DVB*-based technologies — the Company is currenlty scoping, designing, and initiating the build phase of this project.

Boeing, back in April, was awarded a contract by **Intelsat Ltd**. to manufacture a satellite that will address customers in Asia, MENA, and Europe. Scheduled for a launch in early 2012, this satellite will also be accessed by the Australian armed forces. The latter is part of a deal signed between Intelsat and Australian Defence forces for a share of the increasing services provided by the commercial SATCOM sector for a capacity lease period of 15 years. As Intelsat's CEO *Dave McGlade* said, "There is no longer a bright line between spacecraft owned by the government and the commercial sector." By the way, Intelsat delivered the very first digital HD transmission between the U.S. and Japan on April 12th... 1989.

O3b Networks company founder and CEO *Greg Wyler* is also strong on the Asian market. He stated, "Our low latency, high bandwidth, affordable solution allows us to tap into the global pent up demand of emerging markets. To meet this growing demand we have now opened a regional office in the UAE and increased our sales team in the Asian region." By 2010, O3b plans to have 16 satellites launched into orbit to provide inexpensive Internet service to billions of users in remote areas of the world, based on a fiber-optic network, and by allowing direct connection to core networks and 3G Cellular/WiMAX towers to service underdeveloped countries at reasonable cost.

Arabsat 5A satellite

MEASAT 3 satellite

— BEAM —

Capacity renewals are also a "big deal", and **MEASAT Satellite Systems** just recently renewed the contract for *Asian Food Channel* (**AFC**) on their *MEASAT–3* satelite. AFC happens to be Southeast Asia's only 24-hour food channel and is based in Singapore — the channel reaches some 15 million viewers in seven territories. Also garnering *MEASAT–3* capacity is **Telekon Malaysia Berhad (TM)** for three more years for their communications services and solutions offering in broadband, data, and fixed-line services.

And **Faizan Productions (Pvt.) Ltd**. has signed a lease agreement for the use of C-band capacity on *AsiaSat–3S* to broadcast "*Madani*", a religious channel, to Asia, Australasia, and the Middle East. The Madani Channel has commenced 24-hour, free to air distribution and offers a mix of religious programming including speeches, lectures, documentaries, talk shows, Hamds, Naats, religious travelog, in Urdu, Arabic and English languages.

NSS–9 satellite

AsiaSat 3S satellite

provides coverage of the entire Earth visible from 183 degrees East; a West Hemi beam (covering Australia, Indonesia, the Philippines, Japan, China, Korea and the Pacific Islands); and an East Hemi beam (providing coverage and connectivity to the continental U.S., Hawaii and Polynesia). With a minimum service life expectation of 15 years, NSS–9 is based on **Orbital**'s *Star 2* satellite bus, offers a payload power of 2.3 kW, and features command encryption and key redundant on-board systems for maximum operational security. **SES NEW SKIES** has a marketing office

THAICOM 4 satellite

The *40th* spacecraft in the **SES** global fleet, *NSS–9*, entered commercial service to service the Pacific Ocean region, replacing *NSS–5* at that slot. All traffic was successfully transfered. NSS-9 carries 44 active C-band 36 MHz equivalent transponders. The satellite features three beams that can interconnect on a transponder-by-transponder basis — a global beam

located in the Chaoyang district in Beijing, China, in the **Yintai Office Tower**.

When it comes to service subscriptions, **SKY Perfect JSAT Corporation**, HQ'd in Tokyo, Japan, as of the close of April of this year, has managed 65,603 new subscribers, with the number of re-registered sub-scribers coming in at nearly 8,000. Their monthly churn rate is 1.4 percent and the cumulative to-tals for SKY PerfecTV!, SKY PerfectTV! c2 and Wired Broadcasting Services is 3,730,825, an increase of 23,073 customers. Additionally, the Com-pany has signed a pro-curement contract with **Lockheed Martin** for the *JCSAT-13* satellite, which will be launched by Airanespace. This will be the successor to *JCSAT-4A*, currently oc-cupying the orbital slot at **124 degrees East**. JCSAT-13 will pack 44 Ku-band transponders as well as a beam for Ja-pan, a beam for south-east Asia, and steer-able beams for coverage ranging from the Middle East to southwest and southeast Asia and Oce-ania. Offerings will con-sist, primarily, of satellite broadcasting services, broadband backbone networks, emergency and communications links for digital-divide regions.

In Australia, **IPSTAR Australia Pty Ltd (IPA)**, a subsidiary of **Thaicom Public Company Lim-ited**, has now surpassed 60,000 connections since the firm's inception in 2003. IPA also announced they now offer an open

access policy to any service provider who would like to access the *THAICOM-4* satellite capacity and use it with their ground system of choice to deliver Aus-tralian rural broadband requirements. THAICOM-4 is a *High Throughput Satellite* (**HTS**) that IPA uses in conjunction with the IPSTAR ground system to deliver those 60,000 connections today.

There has certainly also been the requisite amount of tension throughout Asia, but there have also been

— BEAM —

ProtoStar II satellite

examples of purported comraderie afoot — the Chinese government is offering Indonesia a remote sensing satellite to help monitor the seas surrounding that nation's islands.

As reported by the *Antara News Agency* in Jakarta, the satellite "will be used for monitoring happenings and developments in the sea." The agency quoted *Tri Yuswoyo*, the head of the **Indonesia Maritime Security Co-ordinating Board**, *Badan Koordinasi Keamanan Laut (Bakorkamla)*, stating the archipelago nation had a vast maritime area, but monitoring capabili-

MEASAT 3a satellite

ties were limited. *Yuswoyo* said that many government agencies are conducting activities at sea such as the customs and excise office, the maritime and fisheries ministry, and the navy.

He said the satellite would be owned and operated by Bakorkamla, but data from the satellite (with a reported sub-5m resolution, possibly via a small SAR payload) could be used by other national agencies. No details regarding the satellite's exact capabilities were revealed by either Chinese or Indonesian officials.

In the satellite launch department for Asian and pan-Pacific coverage, **IndoStar II | ProtoStar II** is operating normally following its launch on May 17th abord a *Proton Breeze M* vehicle from Baikonur Cosmodrome. **Boeing** manufactured the satellite, and **International Launch Services** took care of the rocket empowerment.

Upcoming in late August is the expected launch of **MEASAT-3a**, the fourth satellie in **MEASAT**'s fleet. **Orbital Sciences Corp**. built the satellite, which will find its way to orbital slot **91.5 degrees East**, courtesy of a **LandLaunch** *Zenith-3SLB* launch vehicle. MEASAT-3a will be packing C- and Ku-band capacity.

Global Vision and **international Datacasting** are bringing the latter's digital cinema products to the Asian and Pacific region, featuring IDC's **SuperFlex Pro Cinema** product that delivers file-based movies and live events over broadband satellite networksusing DVB-S2 broadcast technology. Growth potential? How about more than 20,000 screens in this region of the world.

Based in Spain, **GMV** has taken to the road and has now opened offices in Asia, one in Malaysia and the other in the Korean Republic. The former is in Kuala Lumpur in the Business Center near the **Spanish Embassy's Economic and Trading Office**, and the latter is located in Seoul at the **Invest Korea Plaza**.

Inmarsat's *BGAN X-Stream* service, available through **Vizada**, is commercially available for users located in Asia, and the service is totally accessible from all **BGAN Class 1** terminals from **HNS** and **Thrane & Thrane** with the added plus that no extra hardware is required – which means no additional costs need to be considered! X-Stream brings into play data rates of up to 450 kbps, with a minimum of 384 kbps.

Did someone mention satellite antenna systems? **C-COM Satellite Systems** certainly did, as their *iNetVu* Mobile system has received a whole slew of orders from their resellers in Vietnam, China, New

Zealand, India and Malaysa. They will be deployed mostly by government agencies for public safety needs as well as by telecom providers for mobile marketing and cell backup, and for SNG operations.

As far as trade exhibitions and conventions are concerned, the major-major is the **CommunicAsia2009 Summit**, which is held alongside **CommunicAsia2009**, Asia's largest infocomm exhibition. Highlighted will be infrastructure technologies and how to leverage them to increase profitability. The four-day *Summit* will feature a balance of mainstay business and technology issues. Delegates can look forward to exciting conference topics such as *Mobile Services and Business Models*, *Network Enablers and Architectures*, *Satellite Communications*, *Green Telecoms*, *Mobile Marketing and Advertising*, *Mobile TV and Entertainment*, *IPTV*, and *Next Generation Broadband*. The latter will discuss issues operators face as they seek to meet the increasing consumer demand for bandwidth connectivity. More than 100 speakers from industry giants such as **Infocomm Development Authority of Singapore**, **THAICOM**, **Telekom Malaysia**, **City Telecom (HK)**, **Intel Corporation**, **TANBERG Television**, and **Yahoo!** will be featured.

The SATCOM market climate and activity in Asia and the pan-Pacific region is far from sloth-like. The *SatNews.com* daily news site is continuously addressing new

items from this important region of the world on a nearly daily basis — after all, growth sectors within our industry deserve the press recognition and financial rewards resultant of solid business acumen and the ability to quickly and affordably address customer needs. Given the aforementioned positives and scores more, one could say that business in Asia is good! — *Hartley Lesser, Editorial Director*

Stealth Consolidation in Asia
by Patrick M. French

Over the years, many commentators on the Asian satellite market have wondered aloud about when consolidation of satellite operators in the region would finally occur. The stock answer given to the question is that Asia remains dominated by national operators with little interest in forfeiting the pride that is garnered by a country having its own flag satellites in space in exchange for a more economically rational overall Asian satellite market. Others have noted that often there are serious disparities between what some satellite operators think they are worth and what another operators may be willing to pay for them. Further, it is well known that regulatory issues can be a serious, if not insurmountable, barrier to consolidation.

Yet, it is **NSR**'s view that over the last decade substantial consolidation has occurred among Asian satellite operators. This "stealth" consolidation has, in fact ,happened in plain sight of the industry. However, the ingrained views that little progress has been made remain largely held in the market place. As described next, the consolidation among operators sometimes has taken a tortuous path and resulted in a not always direct acquisition of one operator by another — still, the result has essentially been the same.

National Consolidation Trends
Most recently in Asia, there has been a "mini-trend" in countries with more than one satellite operator to consolidate into single national players. Over the course of the last two years, China finally went ahead with the long anticipated merger of **ChinaSatCom** and **SinoSat** to create **China DBSAT** (as of December 2006). One of the leading Chinese companies pushing for this merger was **China Aerospace Science and Technology Corporation** (**CASC**), which is the primary contractor for the Chinese space program and owner of ChinaSatCom. This point on CASC is raised because, as described below, they will resurface again in regards to another Asian operator.

In Japan, **SKY Perfect JSAT** began the process of formally integrating **Space Communications Corp (SCC)** into the group in March 2008, and the merger

was made official the following October. There is a third satellite operator in Japan, **Broadcasting Satellite System Corporation (B–SAT)**, whose largest shareholder is **NHK**. B-SAT is in a somewhat special situation in that its main mission is to provide television programming to Japanese households who do not have, or have only poor, access to terrestrial TV signals. Given its specific role in the Japanese market, **NSR** understands that a direct acquisition of B-SAT by another operator would be difficult. However, B-SAT and SKY Perfect JSAT announced in December 2008 they would jointly procure a satellite from **Lockheed Martin** that would serve the needs of both companies at their shared **110 degrees East** slot. This move to a "condosat" for 110 East essentially places the two companies in the same bed, even if they have not formalized the union with a marriage.

In the cases of China and Japan, the large majority of revenues for the respective satellite operators came from domestic services. It had become apparent over the years that their domestic markets could not support two healthy operators, and this was the driving force behind the consolidations. Looking around Asia, there is really only one additional country that still has multiple satellite operators primarily making their businesses off domestic demand. This is Indonesia with the two leading satellite operators, those being **PT Telekomunikasi Indonesia (TELKOM)** and **PT Indosat** (there is one further Indonesia operator that will be addressed below). There has long been speculation that Indonesia would be better off if TELKOM and Indosat were to merger their fleets. Supporters of this argument often point to the fact that TELKOM owns a number of transponders on *Palapa-C2* through its stake in **PT Pasifik Satelit Nusantara**. However, this does ignore the long rivalry between the companies and very complex (and historically charged) overall telecommunications market in Indonesia.

Singapore— A More "Financial" Approach
As noted above, consolidation can take more forms than simple acquisition and Singapore is a good example in this area. In the 1990s, **SingTel** and Taiwan's **Chunghwa Telecom** formed a partnership to launch *ST-1*. This 50/50 venture is essentially a classic condosat arrangement and therefore aligns each company such that (at a minimum) they do not try to compete with each other. SingTel and Chunghwa Telecom announced in 2008 that they would be or-

dering a follow-on satellite, *ST-2*, though in this case, SingTel would have a 62 percent share to 38 percent for Chunghwa. The follow-on order is a clear indicator that the SingTel/Chunghwa relationship is a long-term consideration.

In 2001, SingTel did acquire, outright, Australia's **Optus** including the Optus fleet of satellites. Optus' satellites are in practice operated as an independent unit from SingTel's business unit that operates the ST-1 satellite. Yet again, such as the case with the Chunghwa relationship, the two operating units coordinate their activities to avoid competition and direct clients to the appropriate satellite resources within the overall company.

In addition, SingTel has an ownership stake in Hong Kong's **APT Satellite** through its wholly-owned subsidiary **SingaSat Pte., Ltd**. SingTel owns a number of transponders on the *APSTAR* fleet, which the company markets in parallel to its ST-1 capacity. Coming back to the China Aerospace Science & Technology Corporation, CASC directly and through subsidiaries also holds a substantial stake in APT Satellite. Industry speculation for years has been that CASC is aiming to eventually merge APT Satellite into China DBSAT (and prior to that it was China SatCom), but such a move has yet to occur. Nor is it at all clear to NSR if such a merger would be in, or against, the interests of SingTel as such an assessment is dependent on the actual form of the transaction should such materialize.

To add a further wrinkle to this Singapore story, it must be recalled that SingTel itself is 55 percent owned by **Temasek Holdings**, one of Asia's leading investment houses that owns and manages the Singapore Government's direct investments into a diverse range of Singaporean and Asian companies. In January 2006, Temasek purchased 49 percent of **Shin Corp**. and has a substantial ownership stake in the Thai satellite operator **Thaicom.**

Again, industry speculation feels that Temasek may one day attempt to merge, in one form or another, its satellite operator holdings in SingTel, APT Satellite, Thaicom, and Optus into one consolidated operating unit. Further fuelling this speculation has been **Telesat**'s announcement that it is considering selling its interests in the *APSTAR-IIR* (*Telstar-10*) satellite and *Telstar-18* (*APSTAR V*) satellites. While not a focus of this article, Telesat's sale of its interests in these satellites (or eventual decision to invest in replacement capacity at these slots) is complicated by taxes issues related to its sale to **Loral.**

Overall, how easy or practical such a move by Temasek and SingTel to try to consolidate any one of these operators more formally is beyond NSR's intention to assess. However, it seems that there is enough of a swirl of options and events surrounding these companies that NSR would not be surprised to see something materialize over the course of the next twelve months.

Also in the "financial" area, but separate from Singapore, it must be pointed out that **SAT-GE** is a subsidiary of the **General Electric Company**, and GE is also a major shareholder in **AsiaSat.** NSR is not of the impression that GE is in any hurry to push SAT-GE and AsiaSat together. It is known that GE would face tax issues if it were to sell its holdings in the short-term, and there may well be other complications that NSR is unaware of that could make this difficult. But it is not outside the realm of possibility that, in the long term, a decided push will be made by GE to sell off its stakes in one or both of these operators.

— NSR Executive Briefing —

Regional Satellite Indie Operators Making Moves

Beyond the national satellite operators, there are also a number of smaller, independent satellite operators serving the Asian market. These are typically investor backed outfits that are very much focused on making a substantial return for their owners. In terms of consolidation efforts, **ProtoStar** has actually been successful over the last year or so in making things happen in the region. Most in the industry are aware of ProtoStar's effective (though NSR believes not yet formally completed) acquisition of **Mabuhay** of the Philippines. In many ways, the two companies are a good match. Mabuhay has long been struggling with the issue of replacing its aging *Agila-2* satellite and ProtoStar, following issues with initial attempts to work in Singapore, was essentially looking for an operational base for its growing satellite business. ProtoStar is already marketing Agila-2 capacity under the "*ProtoStar-III*" brand name, and NSR understands that ProtoStar and Mabuhay management are looking at options for a longer term solution for services from the **146 degrees East** slot.

Less noticed by the satellite industry has been Proto-Star's partnership with **PT MNC Skyvision** (**Indovision**), who is the above mentioned third Indonesian satellite operator with the *IndoStar-1/ Cakrawarta 1* satellite at **107.7 degrees East**. This satellite has a small S-band payload that has been dedicated to delivering Indovision's DTH platform. While NSR is not privy to the details, it is assumed that some type of arrangement was made by ProtoStar for use of this orbital slot for its *ProtoStar-II* satellite and an S-band payload was added to the satellite (called *Indostar-II*) as a replacement for the aging IndoStar-1/ Cakrawarta 1. Once again, this is another condosat type arrangement that, while not a direct acquisition, certainly strongly aligns the business priorities of ProtoStar and Indovision. Assuming ProtoStar can get through its frequency coordination issues and finally close a deal with Mabuhay, then it could be said to have done more for consolidation in the region than any operator in a number of years.

Additional Asian Operator Moves

As is well known in the industry, **SES**, through **NEW SKIES**, is active in the Asian market, and **Intelsat** is a major player as well. SES has been quite public about its ongoing search for acquisitions, either of opera-

tors or specific satellites, to strengthen the NEW SKIES fleet, and NSR has no doubt that Intelsat (or **Eutelsat,** for that matter) would proceed similarly, should the right opportunity arise. Potential targets for these companies include almost any of the companies mentioned above (except the "hard core" national operators) as well as **Asia Broadcast Satellite** and even possibly **MEASAT.**

It should also be noted that MEASAT and **Antrix** (the commercial marketing arm of India's **ISRO**) signed a JV partnership in late 2004. It seems little has come of this JV to date, but there is always the possibility that the two companies could revive their efforts in the future. Similarly, ABS signed an MOU with **Vietnam Telecom International** in October 2007 for the possible exchange of capacity on their respective satellites, *ABS-1* and *VINASAT-1*. Further, **KT** signed a deal with Intelsat in January 2009 to become a distribution partner for Intelsat's *Network Broadband Global Maritime* service.

Consolidation Is Happening

Overall, NSR is not aware of a single satellite operator in the Asian market that is not, in one way or another, tied to another. Granted, some of the links can be tenuous at times, and in practice may have limited influence on the behaviors of the connected parties. Yet, the fact is that a real web of relationships exists throughout the region and much more coordination of efforts between operators exists than many in the industry realize. More importantly, this "stealth" consolidation has yet to reach the end of the path, and it is highly likely that in the months and years to come, new deals will emerge that will ever more tightly bind together the seemingly disparate players in the Asian market. It is just a question of patience and keeping one's eyes and ears open in the region.

About the author

Mr. French joined Northern Sky Research in 2003 and has authored numerous studies, the most recent being the Global Assessment of Satellite Demand, 2nd. Edition and Broadband Satellite Markets 5th. Edition: pfrench@nsr.com*.*

— Futron Brief —

As no one individual can possibly know all about our industry, we rely upon proven expertise in various subject-matter arenas to help us understand various aspects of various market segments. One such firm is Futron, and *Brendan Murray*, the Market Analyst for Space and Telecommunications at Futron offers the following thoughts...

China and video equipment — we've certainly heard this story before! When it comes to selecting a telecommunications standard, China's *State Administration for Radio, Film and Television* (**SARFT**) is following a familiar path through its decision to install proprietary technology, rather than adopt a standard that has been established elsewhere in the region, or in the West.

In the same way that China insisted on deploying its own standard for 3G wireless voice/data services, the nascent DTH platform (*Free-to-Air* on *Chinasat-9*) is based on the home-grown **ABS-S** standard, as opposed to the widely used **DVB-S**, or the up-and-coming **DVB-S2**. This is despite the fact that millions of "unsanctioned" dishes in China are connected to *set-top- boxes* (**STBs**) receiving signals transmitted on foreign satellites in DVB-S.

One could chalk that up to applying an advanced technology in a green-field environment. There's no legacy equipment to swap out, apart from the "unsanctioned dishes": China is building this DTH community from scratch as part of a nationwide plan to distribute state controlled content to remote villages underserved by terrestrial television signals. And ABS-S is an improvement in efficiency over DVB-S, requiring 30 percent less power equivalent bandwidth. This allows the operator to transmit more channels or reduce the receive antenna size. Of course, similar claims could be made about DVB-S2, which is starting to be deployed in different regions as a means to more efficiently add HD content to existing packages. Why not go with a standard that is starting to prove itself on the global stage?

Choosing a home-grown standard may also have been to serve as a stimulus to the domestic STB and VSAT industries. In December of 2008, SARFT awarded contracts to seven companies to supply more than 3.6 million STBs. The biggest winners of the tender were Chinese, including **Changhong Electronic Co. Ltd.**, **Jiuzhou Electronic Technology Co. Ltd.**, and **Shenzhou Electronic Co. Ltd**. More tenders are expected over the next two years. It remains to be seen if the DTH community on *Chinasat-9* will see a pay-TV service with additional channels and value-added services.

— D.I.S. Consulting Brief —

The NAB Show Holds Strong —
Underscores Start of an Industry Recovery
by Douglas I. Sheer

Two primary gauges of industry improvement are the annual NAB Show and the USA's Television Bureau of Advertising calculations of broadcaster budgets. Both seem to be indicating that the recovery everyone is hoping for is already under way. There may still be obstacles ahead, and setbacks, but irrefutable indications of a recovery are already evident.

True, the recently concluded NAB Show in Las Vegas was off 20 percent in attendance from last year, yet the number of exhibitors was just about the same, despite some notable manufacturer names such as **Quantel** and **Apple** missing. That is consistent with my firm, **D.I.S**.' research results that predicted a 14 percent decline, overall, in equipment purchases planned for 2009. And, square footage, a major arbiter of success held close to even with the past.

Traffic seemed generally strong with the possible exception of the last day, Thursday, but that, too, is normal. And, exhibitors were uniformly pleased with the quality, the numbers of leads, and the business they accomplished. At 84,000 attendees registered, down from last year's 104,000, clearly things were off, but not devastatingly so. The event retains its place as the industry's largest and led the way by showing that, even in the midst of the present recession, there is reason to be hopeful.

As of the close of the show, renewals were running pretty close to what could be expected in terms of the queuing and jockeying for 2010 positions and relative square footage plans. From a purely qualitative basis, incidentally, feedback from exhibitors seems to indicate that, while overall numbers were down, major constituent groups, such as station groups and networks, were nonetheless well represented, even if they sent less individuals than last year. The decision-makers were still present.

Meanwhile, the longtime research body that keeps track of budgets of broadcasters in the USA — and therefore can be predictive of equipment spending generally — the **Television Bureau of Advertising** — predicted the current downturn ahead of the September 2008 stock market tumble, showed at the end of 2007 that there was already a 6 percent percent decline in budgets.

Broadcasters Budgets in the USA

Source: Television Bureau of Advertising

— D.I.S. Consulting Brief —

That same group has recently issued its four quarters report for 2009 and that shows a 6.3 percent decline from 2008 budgetary numbers.

The Bureau was prescient in its 4th quarter 2000 numbers that preceded the 9/11 financial crisis, which illustrated that we were already in an industry recession before the attack occurred. But, what could be brighter news and indicative of an improvement, however mild it may seem, in budgets and ultimately equipment spending is the T B of A's 2010 forecast that calls for between 1.5 percent and 5.5 percent growth for that year. Splitting the difference, that would predict an average of 3.5 percent growth. Although they do not yet make any predictions for forward quarters in 2009, we have forecast that the 4th quarter can be expected to rise in anticipation of the assumption that 2010 will be a better one than 2009.

Once such an advertising budget increase begins to occur, the next step is a related rise in equipment spending, and that is very good news for the industry, overall. And, that trend also tends to spill into increases in production and post services, rentals, and ultimately the hiring or re-hiring of staff that were either fired or furloughed during the recession. Good news, indeed!

About the author
Douglas I. Sheer is CEO and Chief Analyst of D.I.S. Consulting Corporation in New York and may be reached at Doug@DISResearch.com.

FOCAL POINT
Safety @ Sea: SATCOM To The Rescue

by Carlton van Putten, **Blue Sky Network**

In early 2009, the pirate hijacking of the Maersk Alabama and its 20-man US crew off the Somali coast garnered worldwide media attention. This recent attack shed light onto the constant threat vessels face when they are "off the grid" and out of country jurisdiction. This event, and other piracy-related activity since then, has thrust the spotlight on the absolute need for nautical safety by ship owners, managers, and crews.

In open water, the challenge of keeping a crew safe from hijackings has become a paramount task. Supplying the vessel with proper two-way communication equipment is one key to achieving safe transit. Without constant ship-to-shore and ship-to-ship communication, the danger of managing a vessel off the grid becomes all too real.

Scenario: Pirates are attempting to hijack a ship. Every second counts during this critical time and each move affects the final outcome. Certain actions need to be immediately instituted. First, the authorities and other ships must be made aware of the danger the crew of the ship under attack faces. Secondly, the vessel's exact location must be relayed in order to notify others who can then be of assistance or even aid in a rescue. These two time critical steps are vital to a safe outcome and both are rooted in real-time and reliable communication.

The only way to guarantee the crew's Mayday notification is received and the location signal is accurate is via a truly global GPS system and communication package. With satellite communications and GPS locators onboard, a ship's location is always known in the event aid is required. This greatly decreases the emergency response time by third parties.

One example, among others, of such an effective communication system is **Blue Sky Network**'s *SkyRouter.* Using a global web-based map, SkyRouter working in tandem with a BSN tracking and two-way messaging device such as the Company's *D2000*, transmits satellite messages to and from ships with exact GPS position reports and two-way text messages. This technology also delivers real-time Mayday/panic alerts. These messages can be forwarded to any email address or mobile phone.

Without communication technology such as this, ships cannot signal for immediate help — without this tracking technology, precious time will be wasted searching for the correct location of those in trouble. Using BSN's technology, all pertinent information is situated in one secure location and an Internet connection or mobile phone is all that is necessary to receive reports.

The necessity for accurate and rapid communication to and from nautical fleets is more apparent today than ever before — SATCOM is one solution to the critical need for maritime emergency planning. In the event of a hijacking, ships must have the ability to transmit a distress signal, which can specify the broadcasting vessel's location. Even off the grid, ships should never be untraceable, and with a technology such as *SkyRouter*, that speck in the vast ocean can be readily identified and located.

About the author

As Senior Vice President of Sales and Marketing, Carlton van Putten is responsible for worldwide sales and marketing for Blue Sky Network. His responsibilities encompass sales and channel management, corporate communications, and product marketing activities and has more than a decade of senior management experience.

Executive Spotlight On...

Ross Perrault, ProtoStar II Program Manager
Boeing Space & Intelligence Systems

SatMagazine timed this interview with Mr. *Perrault* perfectly — only a few days ago as of this writing, *ProtoStar II | IndoStar II* was successfully launched by an *International Launch Services* (ILS) *Proton Breeze M* rocket from the Baikonur Cosmodrome launch pad in Kazakhstan.

Ross is the *ProtoStar II* Program Manager for *Boeing Space & Intelligence Systems* in **Boeing Integrated Defense Systems**. He was responsible for the final systems testing and launch preparation of the *IndoStar II/ProtoStar II* satellite, which will now provide optimized direct-to-home communications (DTH) for the Asia-Pacific region. Ross has 26 years of experience with Boeing in engineering and management. Before serving as Program Manager, Ross served as Product Manager on the *Payload Integrated Product Team* for three **Boeing 702** payloads and oversaw multiple vendors for all outsourced hardware. From 2000 to 2005, he was a *Senior Staff Engineer* and the *Payload Integrated Product Team* lead for two Boeing 601HP programs, Galaxy VIII-iR and Measat 3, where he managed the first 100 percent outsourced payload unit procurement.

Earlier assignments included work in Boeing's System Design Center, where Perrault managed all technical responses to requests for proposals. Perrault also was an integral member of systems engineering, where he coordinated system engineering duties on 601HP and 702 programs. He also was the Integrated Product Team Leader responsible for radio frequency testing during integrated system test and environmental test phases.

Before joining Boeing, Perrault worked with Spar Aerospace on the 376 and 601 satellite programs under the Hughes Electronics Corporation and also with SkySwitch Satellite Communications. He began his career in the satellite industry as a test engineer with General Instrument Corporation in 1983. Perrault completed his electrical engineering studies at the Ryerson Polytechnic Institute in Toronto, Canada.

SatMagazine
What brought you to Boeing to work on IndoStar II/ProtoStar II?

Ross Perrault
I started my career as a design engineer with General Instrument Corporation after studying at Ryerson Polytechnic Institute in Toronto, Canada, with a concentration in electrical engineering. Before joining Boeing, I worked on a Hughes 601 satellite program with Spar Aerospace. My earliest assignment with Boeing was as a test engineer, followed by projects in the System Design Center, where I managed all technical responses to requests for proposals and coordinated system engineering duties on several 601HP and 702 programs. I also served as the Integrated Product Team Leader and was responsible for radio frequency testing during integrated system test and environmental test phases.

Indostar II | ProtoStar II satellite

I've continued to work in a variety of engineering and management roles throughout my career. Before joining the ProtoStar II program, I was Senior Staff Engineer and Payload Integrated Product Team Lead for two of Boeing's 601HP programs, Galaxy VIII–iR and Measat 3. I also served as Product Manager on the payload integrated product team of three Boeing 702 satellite payloads, where I managed multiple vendors for all outsourced hardware. Today, as the ProtoStar II Program Manager, I am responsible for final systems testing and launch preparation of the IndoStar II/ProtoStar II satellite, which will provide optimized direct-to-home communications for the Asia-Pacific region.

SatMagazine
ProtoStar Ltd. of Bermuda awarded Boeing the contract for a high-powered 601HP satellite In May of 2007 — the satellite can provide advanced direct-to-home (DTH) broadcasting and telecommunications services, including broadband Internet. What is the history behind this important award? And why is this award so important?

Ross Perrault
The launch of IndoStar II/ProtoStar II paves the way for ProtoStar to significantly expand direct-to-home (DTH) satellite television and Internet service to families and businesses across the Asia-Pacific region. IndoStar II/ProtoStar II will replace the on-orbit Indo-Star-I and become operational after a period of in-

orbit checkout during the second quarter of 2009. A key feature of the IndoStar II/ProtoStar II satellite is the fact it will double the capacity of ProtoStar's primary customer in Indonesia, Indovision. The three payloads on the satellite offer S-band coverage for Indonesia and Ku-band coverage that will add important additional DTH capacity to India and broadband access to the Philippines, Taiwan and Indonesia.

SatMagazine
What are the capabilities of IndoStar II/ProtoStar II? What will each of those features offer and accomplish?

Ross Perrault
The IndoStar II/ProtoStar II spacecraft has 10 active high power transponders for the S-band payload. The Ku-band payloads feature 12 high power transponders covering India and 10 high power transponders that can be flexibly switched between the Philippines, Taiwan and Indonesia.

SatMagazine
What kind of operations will IndoStar II/ProtoStar II provide for Indonesia? What has it been like working with ProtoStar and their primary customer, Indovision?

Executive Spotlight On...

Ross Perrault

The successful launch of this spacecraft under-scores Boeing's dedication and teamwork to bring the spacecraft from design, integration and test-ing to successful delivery. It has been a collab-orative effort with both ProtoStar and Indovision throughout the whole program in order to ensure a high-quality product that meets all their techni-cal needs, and we are very pleased to have a role assisting Proto-Star in the expansion of their services.

SatMagazine

The IndoStar II/ProtoStar II satellite is based on the Boeing 601HP bus. How long has this bus been in service for Boeing and why was this bus selected, as opposed to other Boe-ing bus, for this satellite?

Ross Perrault

The Boeing 601 class of spacecraft has been in operation since 1992 and is the world's best-selling mid-sized communi-cations satellite. The 601HP bus selected by ProtoStar is a high-power (HP) version of Boeing's 601 satellite and offers the optimal combination of pay-load power and cov-erage areas to meet ProtoStar's business requirements. To date, Boeing has built and launched a total of 70 of the 601 spacecraft.

SatMagazine

What Boeing teams are involved in IndoStar II/Proto-Star II? Who manages the teams and their history? Are all of the workers at Boeing, or do you work counter-parts at a subcontracting organization?

Ross Perrault

The ProtoStar II program for the IndoStar II/ProtoStar II satellite was organized using an integrated product team structure with our internal teams consisting of payload products, bus products, system engineering, assembly, integration & testing and launch. On the ProtoStar II program, we also teamed with world-class suppliers to deliver the payload products supporting our customer's requirements. These include NTSpace, Thales Alenia Space, L-3 Communications and COM DEV International.

SatMagazine

How long has IndoStar II/ProtoStar II been at the Baikonur Cosmodrone launch site in Kazakhstan? What kind of processing is completed or in the works now? How did Boeing select this particular launch service?

Ross Perrault

IndoStar II/ProtoStar II arrived at Baikonur on April 16, 2009. The launch vehicle — a Proton Breeze M rocket — was selected by ProtoStar. All satellite testing was completed and the satellite was encapsulated in the fairing and mated to the Breeze M upper stage (this combination of the satellite, payload fairing and Breeze M is called the ascent unit). The next steps included mating the ascent unit with the Proton rocket.

SatMagazine

What are your hopes for IndoStar II/ProtoStar II once it is launched and in orbit? How will the satellite switch its Ku-band capabilities to target specific geographic areas?

Ross Perrault

The IndoStar II/ProtoStar II satellite will provide expanded capacity and growth opportunities for our customer, ProtoStar, in the Southeast Asia region. The spacecraft provides optimized S-band and Ku-band capabilities for unprecedented DTH programming to ProtoStar's customers. The Ku-band of the Philippines, Taiwan and Indonesia payload has beam select switches that allow these regions to be chosen dependent on customer demand.

SatMagazine

What significant milestones have been achieved? When will IndoStar II/ProtoStar II become operational?

Ross Perrault

The successful launch is now followed by a two-week orbit-raising period, during which we travel to our orbital location for in-orbit testing. This is followed by deployments and in-orbit test of the bus and payload. At that time, Boeing will then transfer control of the satellite to ProtoStar to determine when the spacecraft will become fully operational.

SatMagazine

How do you see the future of the Asian / pan-Pacific market? Does Boeing have any additional projects in the works for this market segment?

Ross Perrault

Boeing continues to respond to customers requests from the Asian and pan-Pacific market, and we have long-standing relationships with many customers in the Asian region, but for competitive reasons, we don't disclose these discussions.

This is our busiest launch year since 2000. IndoStar II/ProtoStar II is the second of eight Boeing satellites that are scheduled to launch this year, each of which will deliver enhanced communications technology to meet the specific needs of each of our government and commercial customers.

INSIGHT
The Keys To Success In Asian Markets

by James Kramer, Integral Systems, Inc.

The Asian region is, and will continue to be, a growing market for satellite ground system providers. Due to the geographic make up of Asia, satellites are the perfect solution for providing the region with voice, data, and video services. As such, the need for satellite ground system infrastructure seemingly increases on a daily basis, with more and more requirements for satellite control systems, ground equipment/ network management systems, and satellite earth stations. While successfully gaining market share in Asia can prove challenging, the potential rewards can be significant. Integral Systems has met its challenges and is a proven success in Asia, delivering every aspect of satellite ground systems while also rapidly moving into adjacent arenas (*e.g.*, hybrid/cellular networks and remote site management).

Integral Systems is in a unique position as the Company offers a complete set of commercial, product-based solutions that meet, and often exceed, the needs of a wide variety of customers. Through our family of companies, we provide the most widely used satellite control software, industry-leading satellite RF processing and monitoring products, and award-winning network management software. Depending on our customers' needs, these products can be fielded as complete end-to-end system, as stand-alone elements, or integrated with legacy systems.

However, a significant differentiator for Integral Systems is that by using our integration expertise, combined with intimate product knowledge, we are able to offer customers a one-stop shop for turnkey solutions that satisfy mission-critical needs. For a typical satellite communications operation, this includes antenna/RF systems design and integration all the way back to the satellite or network control system. With one interface, customers have the advantage of managing a single supplier throughout the project. This makes customer management and oversight during the procurement and implementation phases of a project much more efficient. For a project's sustainment phase, which typically lasts much longer, the efficiencies gained from having a single supplier can be even more significant. This is particularly advantageous for Asian customers when dealing with a global provider in a separate time zone.

Perhaps the single biggest factor contributing to business success in Asian markets is building relationships with customers — not always a simple task to accomplish from half way around the world. Obviously, the time zone issue must be dealt with, but the more significant impediment to global companies establishing trusting relationships with Asian customers are the cultural differences and language barriers that must be overcome.

Integral Systems has successfully applied a multi-pronged approach to tackle the "long-distance relationship" issue. Early on, we hired a business development manager who understands Asia's business culture and has helped educate the rest of our team. This is supplemented by a network of local representatives throughout Asia. Finally, once Integral's business in Asia was capable of sustaining a local presence; we placed staff in-region to better serve our growing customer base.

There is no doubt that it takes a long time to foster trust and establish relationships with Asian customers, so it is important to plan for long lead times when considering potential new business opportunities; however, once a successful relationship has been established, long-term repeat business can be favorable assuming the provider delivers high-quality solutions that meet the customers technical and schedule needs. Some general philosophies on doing business in Asia are included in the remainder of this article. In addition, several examples are cited that demonstrate the potential that the Asian markets represent for companies like Integral Systems that are willing to cultivate these markets and deliver high-quality products and services.

What Works

Thorough and comprehensive written correspondence is more effective than a verbal exchange as it allows both parties to fully digest and comprehend the information at a much slower pace. Providing

this written information in advance of a particular meeting, be it a design review, training program, or test phase, is highly recommended as it allows both parties to be prepared ahead of time and therefore makes for a more productive meeting. As these meetings often require long-distance travel from one of the parties in the relationship, it is particularly important to get the most out of these meetings since follow-up meetings can be cost prohibitive.

Extensive documentation and training for the customer builds confidence with the team and the provided solution. Training needs to be intensive, hands-on, and designed with the consideration of a cultural environment that does not include many inquiries directed at the instructor. Training programs designed toward an open Q&A forum will not fare well as many Asian cultures consider questioning the instructor improper or disrespectful. Extensive documentation combined with intensive hands-on training, facilitates a student's ability to resolve any outstanding theory-related questions through the baseline training program.

Local representation to facilitate communication and execute business in the native culture is paramount to success. Vendors should expect additional time needed for collecting data and surveying architecture as this may be the first exercise of this nature experienced by the customer. Take an element management system for example, additional time should be set aside for onsite commissioning as the system may have similar models of equipment, but with varying firmware versions because of disparate facility and mission growth cycles.

Onsite time is reduced by using the built-in simulation and training capabilities of Integral's software suite to factory test operator interfaces and associated system logic. This minimizes onsite efforts to validate physical connectivity and correct status reported from the equipment.

For the sustainment phase of the program, consideration must be given to how the delivered system will be supported from half way across the globe. Two methods have proven particularly effective for Integral Systems as our market share in Asia has grown.

One method is to establish remote access through secure *Virtual Private Networks* (**VPN**). By using secure VPN over the Internet, Integral Systems provides cost-effective remote support to customers for system administration and problem investigation. Because of the time difference, remote access is often granted during the customer off-hours, which is the supplier's normal working day, thus turning the time difference into an advantage rather than a disadvantage. The customer can report a problem at the end of their day, and by the time they arrive to work the next day, a problem resolution is waiting. However, remote access is not the only way Integral supports customers in Asia.

The other method is to establish local technical support through Integral Systems personnel and local representatives. This provides customers with local support in their time zone and often, support personnel are fluent in the customer's native language, which offers a tremendous advantage. In the rare event of an emergency, local support allows Integral to have an expert onsite in a short period to assist with problem investigation or a recovery action, giving the customer tremendous piece of mind when performing mission-critical activities.

What to Avoid

System architecture flexibility is an area for consideration when examining an existing system that may have components already managed by another system or through OEM software. In cases of legacy equipment, trying to interface directly to the equipment can prove challenging because access to necessary information can be limited or completely unavailable. If the system already has a subset of equipment managed through an existing system, exploring the option of interfacing to the existing system can provide a more cost-effective solution for the customer and integrator.

Business development and sales personnel should be careful to avoid setting unrealistic schedule expectations for closing deals. Negotiations take time since

much of the business conducted is based on establishing trust relationships with the customer. This is where local representation can help foster relationships and growth with customers. Time is the critical investment here so anticipate long lead times for potential new business; however, once a successful relationship has been established, repeat business is not at all uncommon.

How Integral Systems "Broke Into" Asia's Markets

Integral Systems has its products in use throughout Asia — some deployments include our *EPOCH Integrated Product Suite* (**EPOCH IPS**), while other instances are standalone solutions from our **Newpoint Technologies** or **SAT Corporation** subsidiaries. Having the ability to expand systems for growing missions has brought continued success to both Integral Systems and its customers. Our complete ground station solution continues to provide customers with scalability to "right-size" solutions to meet current mission needs, and offers expandability as requirements grow and budget becomes available. Scalability and expandability, combined with low cost of ownership have been key factors in making Integral Systems a choice solution provider in Asia.

Success in Asia

In 2008, Integral Systems scored a major success when it supported China's broadcast of the Olympic Games from Beijing. *Chinese Central Television* (**CCTV**) broadcast the games using the **China Direct Broadcast Satellite Company**'s (**China DBSAT**) satellite capacity. More than 92 percent of China's TV audience viewed the Olympics through direct-to-home channels broadcast by CCTV via ChinaDBSAT satellites (*ref. CSM Media Research*). The ChinaDBSAT system is based on industry-leading products from two of Integral Systems wholly-owned subsidiaries. Newpoint Technologies products manage the satellite network

AsiaSat's Tai Po Earth Station

vided a state-of-the-art integrated control system for the **BSAT 3a** satellite that can be expanded to accommodate the **BSAT-3b** and **BSAT-3c** satellites. SkyPerfect JSAT uses Integral's control system, element management, carrier signal monitoring, and geolocation product to ensure satellite mission reliability. Re-

infrastructure and SAT Corporation's products manage critical satellite payloads and detect carrier interference or anomalies.

An excellent example of the long lead times required to foster long-term customer relationships in Asia is our **AsiaSat** experience. Integral Systems began communication with AsiaSat back in 1997, but it was not until AsiaSat finished its new *Tai Po Earth Station* facility in 2004 that it decided to consolidate its fleet operations by using EPOCH IPS for a new *Satellite Control Center*. The relationship formed between Integral and AsiaSat over the years has led to follow-on projects. In fact, early this year, Integral Systems completed the upgrade of AsiaSat's satellite control system to accommodate its soon-to-be-launched **AsiaSat-5** satellite.

Integral Systems solutions have also been widely accepted in Japan. Integral has built long-term, trusting relationships with **B-SAT** and **SkyPerfect JSAT**, both having selected Integral Systems for their critical satellite ground system needs over the past several years. In the case of B-SAT, Integral Systems built on the relationship established nearly a decade ago during the **BSAT-2** program and has more recently pro-

peat business speaks volumes about customer satisfaction and it is clear from the follow-on contracts we have received from our Japanese customers that they are very satisfied with our service and products.

Over the past couple of years, Integral Systems has been deeply involved in providing the entire ground infrastructure for **ProtoStar**, a relatively new, but rapidly growing, satellite operator in the Asian region. In mid 2007, Integral Systems was contracted to provide a completely integrated turnkey solution for the **PS-I** satellite. The solution consisted of the TT&C antenna/RF systems, the basebands equipment, the ground equipment/network management system, the payload management system, and the satellite control system. The system was delivered in less than a year, in order to support the PS-I satellite launch. At the tail end of the PS-I program, ProtoStar again put its trust in Integral for a fully integrated, full-featured solution for the PS-II satellite, and again Integral System delivered in less than a year before the PS-II launch. These two programs are a clear demonstration that the one-stop-shop approach can be extremely efficient when satisfying demanding ground infrastructure

needs on an aggressive schedule.

While ProtoStar is an example of a customer that took advantage of many Integral Systems capabilities, other customers select Integral for more focused needs. **MEASAT** for example, continues to take advantage of our network/element management products'

ISI EPOCH-IPS based AsiaSat Satellite Control Center provides excellent operational support to its customers. (Photo courtesy of AsiaSat)

interoperability and scalability to expand its systems as mission needs grow. Infrastructure management provided by products from Integral's wholly-owned subsidiary, Newpoint Technologies, has facilitated mission expansion and minimized cost of ownership by delivering products that can be easily integrated when system challenges arise. In addition, local Integral Systems representatives have provided support for more complex expansion challenges.

Trends + The Future For Asian Markets

Fluctuations in the world economy will continue to be a factor for foreign markets as available budgets may grow or shrink with exchange rates. This can slow or halt projects when significant fluctuations drain exchange rate value from budget dollars. However, the need for ground system infrastructure is not directly related to the global economy. In fact, as budgets are constrained, the need for innovative, efficient solutions actually increases. Integral Systems will continue to provide our customers in Asia with value-added solutions that drive efficiencies into all phases of their expansion plans, from procurement, through opera

tions and sustainment, and we are confident that our customers will continue to trust Integral Systems for their ground system solutions.

About the author
James Kramer is currently the Senior Vice President and General Manager of the Commercial Systems Group at Integral Systems, Inc., in Columbia, Maryland, USA. He is responsible for the Commercial division based in Maryland, as well as two wholly-owned subsidiaries of Integral Systems – Newpoint Technologies based in New Hampshire and Integral Systems Europe with locations in France and the United Kingdom. Mr. Kramer has nearly 20 years experience in the satellite ground systems and operations field.

He can be reached at jkramer@integ.com.

Executive Spotlight On...

Rob Bednarek, CEO
SES AMERICOM–NEW SKIES

When Rob Bednarek takes the podium as the featured keynote speaker at CAS-BAA on the eve of CommunicAsia in Singapore later this month, he will unveil the inner strategy driving his newly combined SES division's global success. He will also share his view of the dynamic Asian markets and how his company's energetic team and long-term participation in the market continues to help Asian customers to benefit from satellite services.

SatMagazine caught up with this industry veteran two weeks ago and received a thorough update regarding **SES AMERICOM–NEW SKIES** as well as obtaining a better understanding of this leading satellite services company's success, direct from the company's president and CEO.

The answers we secured were refreshing and straightforward and were, in many ways, a reflection of Bednarek himself and the SES division that has been busy of late breaking new ground and marking historic milestones from North America to Taiwan and everywhere in between.

SatMagazine
There has been no shortage of good news coming from SES AMERICOM–NEW SKIES this year. What's the driving force behind all of your new business activity across Asia and the world? Can you divulge your successful strategy?

Rob Bednarek
The success of our business revolves around our unwavering commitment to our customers. Commitment is a word that frequently gets loosely tossed around the industry. But it's much more than just a word at SES AMERICOM–NEW SKIES. It is the engine that drives our people, our solutions, and ultimately our customers to new levels of achievement.

It starts with our ability to listen to our customers' needs. Our core commitment is to consistently deliver what they need, not just the latest, great technology or solution. We have insisted that commitment become an integral part of everything we do and deliver. As a result, we are a leader in the experienced support of innovative video content and diverse communications applications — from advanced HD to high-speed broadband and the many and diverse businesses spawned by these developments. And our customers — from Asia to the Americas and everywhere in between — know they have a secure business platform in SES AMERICOM–NEW SKIES that they can count on for the long haul as they invest in their business.

Our customers know they can rely on us based on their experience with us. They've seen firsthand that our vision, our prior investments and our desire to understand their business challenges leads to long term solutions that work. SES AMERICOM–NEW SKIES has the right satellites in place to meet regional and global requirements, for example. We've talked with our customers and placed capacity where demand is coming — years in advance.

We have the best orbital locations in space to support even the biggest needs for content and connectivity in even the remotest cities and towns. Whether it's growing business demand for broadband across the islands of Indonesia, the emerging DTH market in Taiwan, or the insatiable craving for HD in the U.S. and Europe, our customers know for a fact that SES AMERICOM–NEW SKIES provides commitment they can count on. It comes in the form of reliable, well coordinated satellites and the best orbital real estate available. It's also in the knowledge base that can only come with the kind of deep experience our teams have around the globe. And we deliver that commitment with the strongest financial backing in the industry.

SatMagazine
You and your company have certainly committed to the Asian markets. What is your take on the drivers of satellite demand across this important region?

Rob Bednarek

One of the strongest and healthiest developments throughout Asia is the rapid uptake of DTH broadcasting. There is a real desire and ability to launch new DTH platforms and services across this part of the world. Just look at India, for example, where subscriber counts and demand are extremely healthy and growing.

The rise in regional DTH startups is proof positive that satellite provides the quickest, most effective way to launch a new broadcast operation today. That coupled with the exciting evolution of HD and VOD in the U.S. and Europe, not to mention the relaxed regulatory stance across Asia, is really promoting the growth and expansion of DTH in countries like Thailand, Vietnam, and Australia.

We saw it coming a few years ago. And now there is a proliferation of three and four transponder, 40–50 channel DTH offerings sprouting up all over the Asian markets. SES AMERICOM–NEW SKIES is carrying a bulk of the Asian DTH content. We just signed a three-transponder deal in Taiwan, for example, where our NSS–11 satellite will be delivering more than 50 channels across the country.

SatMagazine

What are some of the other Asian markets and applications that are counting on your satellite capacity and expertise?

Rob Bednarek

Other applications in Asia are essentially driven by the growing need for broadband connectivity almost anywhere there is economic activity. A growing number of broadband service providers are using satellite to offer solutions to enterprises of all sizes. Throughout the region, particularly in places like Indonesia, Malaysia, and India where there's a strong history of economic development and growth, there's

big demand for connectivity to support and further drive that economic activity.

Just getting connected to the Internet backbone is vital to business, and we see our satellites being used more and more to provide that kind of link. Outside of major metropolitan areas the use of terrestrial networks remains difficult in a lot of the Asian geographies.

Indonesia has seven thousand islands and not many of them have full broadband connections. So if you run a business in environments like that, satellite represents not only the best way but often the only way to establish connectivity or a lifeline for conducting business across the country and around the world.

SatMagazine
How is SES AMERICOM-NEW SKIES positioned to serve Asia markets today and tomorrow?

Rob Bednarek
SES AMERICOM-NEW SKIES has long been committed to Asia markets and we continue to add to our portfolio of capacity dedicated to the region. The launch of our NSS-9 satellite earlier this year represents the most recent expansion and we have additional capacity in the pipeline, including NSS-12 slated for launch in just a few months.

NSS-12 satellite

Currently, we have five satellites serving the region, enabling both media distribution and enterprise connectivity types of applications throughout this important part of the world.

We had an extremely smooth and well coordinated transition, as we brought NSS-9 online without any customer disruptions. We had made a significant investment in the planning and execution of this transition in order to ensure minimal disruption for our customers. That, as well as the investment in the new capacity itself, is clear evidence of our strong and long-term commitment to the market.

We understand the customer's need for a commitment to continuity. And we've responded by consistently delivering new capacity and committing early and clearly to the replacement of existing satellites as they near the end of their lives.

That's what the Asian market wants. That's what any market wants. And SES AMERICOM-NEW SKIES is well positioned to exceed the demands of Asian markets with our unmatched assets in the sky and unsurpassed expertise and presence on the ground.

SatMagazine
What about your local support in Asia — both facilities and people?

Rob Bednarek
SES AMERICOM-NEW SKIES has a major office in Singapore staffed by a dedicated sales team as well as technical and business support teams that consistently help us understand our markets and our customers' businesses. We constantly strive for the deepest possible understanding of Asia — from capacity, regulatory, and customer points of view. And we have people and offices in every corner of the world sharing best practices in support of our global customer base.

In terms of facilities, we partner with the leading teleports throughout Asia and throughout the world. Reach and Galaxy in Hong Kong are two examples of leading ground service operations supporting our work in Asia. It is part of our commitment to the customer and the region to establish commercial

relations with existing operators in the region, who are more than capable of providing our terrestrial access points.

We could come in and construct our own ground facilities, but then we're competing with our customers and the communities we serve – and that goes against our philosophy and company culture of complete customer and market commitment.

SatMagazine

What is it that you want your audience at CASBAA and CommunicAsia and the markets you serve throughout Asia to know about SES AMERICOM–NEW SKIES?

Rob Bednarek

It's what our customers already know about us. That once you build your successful business on our platforms, our satellites and our people will always be there for you.

It's this stability that helps differentiate SES AMERICOM–NEW SKIES from our competition. It's the financial stability of our parent company SES and it's the rock solid expertise and insight that we provide our customers day-to-day that allows our business and our customers' businesses to thrive. That's the kind of commitment and quality Asian markets and global markets demand – in good times and tough

times. As a result, SES AMERICOM–NEW SKIES and our customers are weathering the economic storm better than most.

Asia is poised for success and we're positioned to take our Asian customers anywhere they need to go.

FOCAL POINT
SatLink's Gateway To Asia

Asia represents an enormous challenge to companies who wish to penetrate this region's broadcast markets. With a plethora of languages, religions, and political cultures, Asia presents a varied geographical makeup, which makes for an exciting, yet daunting, business market.

Corporations, whether local, national, or international, must pay close attention to local and national elements in order for a successful business foray. The nuances of each and every operating environment tell a story — for international entities entering Asia, paying attention to the stories that create the local environment are the key to success.

Business models require broadcasters and networks, telecom, and IP providers to reach as many populations as possible. This requires proper planning, uncovering the correct mix of content segmentation, as well as selecting the correct transport vehicle to satisfy the challenge.

The ultimate platform is one whose footprint encompasses population centers and has extensive depth, range, and penetration; one large enough to handle ample traffic; one that can handle HD applications and, finally, one with superb technical specifications. Behind this platform there needs to be an adept technical staff to handle all manner of support needs, one that can perform the appropriate tasks at the proper times and working in facilities that can meet changing needs.

SatLink's 13m dish

The experience of **SatLink Communications** as a gateway to and from the Asian market is one of success. The global satellite communications services provider has developed its geographically strategic located facilities in the rich Judean Hills outside of Jerusalem to offer services and platforms to and from Asia. Sitting atop a wooded ridge in the Holy Land, the company is a leading provider of tailor made transmission solutions for *Global Content Distribution* with advanced teleport facilities and fiber networks to enhance the global presence of its clients' brands as well as its own. Named as one of the *Top 20 Independent Teleports* by the **World Teleport Association** in 2009, the company provides access to a worldwide network covering five continents. The Company supplies broadcast, IPTV, government, and private corporation clients with flexible transmission solutions via multiple satellite platforms, fiber and IP. Recognition for its business and technical acumen has come from companies such as **SES NewSkies**, **AsiaSat,** and **Hellas Sat** who have designated SatLink Communications as their official Middle East port of choice for moving content between Europe, the Middle East, Africa, and Asia.

To enhance its ground facilities, the company has developed a sound strategy of creating a space presence in the form of various **MCPC**s (*Multiple Channels Per Carrier*) platforms. By linking the ground station to leading satellites around the globe and a world-wide fiber network, the company is able to offer full service solutions, especially for HD and SD broadcasters, networks, operators, and telecoms seeking to connect far-flung audiences or to open new markets. SatLink operates a range of premier MCPC platforms on *AsiaSat 2*, *HotBird 8*, *Galaxy 19*, *Sirius 4A* (*Astra 4*), *Eutelsat W2*, *Eurobird 9*, *Hellas Sat*, *Amos* and others. SatLink Communication's far-flung fiber network stretches from New Zealand and Australia to Hong Kong and Singapore, to Europe and the Mediterranean, and to North, Latin, and South America.

For the Asia-Pacific market, SatLink operates two digital MCPC platforms on AsiaSat 2. At **100.5 degrees East**, this satellite provides regional power and coverage with a C-band beam reaching China, India, Indonesia and other mass markets. For Asian

networks moving into Europe, North America, and Africa, the Company uses its MCPC resources on the most popular **DTH** (**Direct to Home**) satellites such as *Hot Bird*, *Galaxy 19* and *Sirius 4* (*Astra 4*).

In the case of occasional use, the **EBU** (*European Broadcast Union*) used SatLink as the primary back-bone for its *2008 Beijing Olympic* coverage, sending footage from China over AsiaSat 2 to SatLink's facili-ties, where it was fibered directly to the EBU facili-ties in Geneva. *Reuters* and *APTN*, two of the world's leading providers of broadcast materials including news and entertainment, employ the Company for contribution and distribution of their materials to and from Asia on a daily basis.

HD is another upgraded technology — early in 2009, SatLink expanded its HD transmission ca-pabilities to as many as 12 simultaneous streams, including feed encoding, decoding and multiplex-ing. This investment makes SatLink the first opera-tor in the region to possess complete end-to-end

HD teleport facilities with a dozen simultaneous feeds. The new HD systems comply with the stan-dards of top global sports rights holders and add a new layer of technologically advanced services, making SatLink a major gateway to and from Asia for sports, news, and special occasional events. The technology enables the company to meet its partners' growing needs for HD entertainment pro-gramming for sports offerings such as **UEFA** foot-ball matches (starting later in 2009), nature shows and films, with services including the encoding, encrypting, and multiplexing of multiple HD feeds. The systems also enables the insertion of different languages into the streams prior to re-transmission and distribution, as well as down conversion of HD to SD and vice versa.

For SD and HD broadcasters and networks seeking entry into the Asia Pacific region, the SatLink's ex-perience is also compelling. Currently, the Company is providing a strong neighborhood on its platforms and providing these broadcasters with comprehensive

transmission solutions. This includes downlinking the signal to SatLink's teleport with its more than 80 earth stations, or receiving the signal via SatLink's global fiber network, or using SatLink's advanced Playout centers. The signal can be uplinked for contribution to cable head-ends, re-broadcasters, as well as for distribution to individual home viewers. A complementary service, the company also offers a dedicated channel distribution manager for assisting clients on the AsiaSat 2 platform to penetrate the complicated Asia Pacific market.

Networks seeking to expand coverage into Asia are finding a fertile neighborhood on SatLink's Asian MCPCs. On Asia's prime satellite AsiaSat 2, the prestigious **International Club de Bruges** bouquet includes such leading European international TV channels as *RAI International*, *TVE*, *RTP Planeta* and others. They are joined by others: *LUX HD* and *euronews*, in addition to AsiaSat 2's spiritual bouquet including channels such as *Daystar Network*, *God's Learning Channel* (**GLC**), *Cancao Nova* and *The Supreme Master Network* that are broadcasting their messages into the continent. The Company is targeting the flourishing spiritual and religious market due to its location in the Holy Land where the company provides clients with production and SNG services as well as distribution directly to the entire globe.

Sports also carries a high priority on SatLink's lists. The company offers rights-holders, pay-per-view networks, and global sporting brands the ability to reach markets and directly engage spectators and fans. With its new HD facilities, the organization brings the action and excitement of sports to a new level of viewing pleasure. In fact, the company is currently working to create a package for **FIFA**'s *2010 World Cup Football* matches in South Africa to the rest of the world.

The satellite communications industry is able to take advantage of SatLink's geographic location to link continents and extend coverage as well as to undertake sophisticated technical projects. A case in point is SatLink's **TT&C** and **E.I.R.P.** services to satellite operators and satellite owners. Based on its technical expertise and transmission facilities, SatLink offers satellite engineering services including satellite beam measurements and performance, satellite tracking and command, and traffic management multi-beams measurements, and hub hosting.

In addition, SatLink's staff is fully capable of technically challenging projects done off site. In Nagoya, Japan, the company brought together its skill sets to develop and implement a full scale DTH turnkey project for a client. Implemented on time and on budget, SatLink worked side-by-side with its Japanese partners and completed the project to everyone's satisfaction.

According to Satlink CEO Mr. *David Hochner*, "We are positioning ourselves to be the communications provider of choice for international broadcast services, networks and news agencies seeking to maximize coverage in Asia and around the world. In a dynamic industry, satellite owners, networks, broadcasters and governments trust in SatLink for our reliable high service, creative technical solutions and comprehensive satellite and fiber capabilities."

SatLink CEO David Hochner

"Our commitment to the future of broadcasting and media transmission guides SatLink's steps and strategy. Integrating HD and multiplexing confirms our allegiance to providing high end solutions with the highest service level and we look forward to serving our clients in the years to come."

CASE WORK
Minding Your Business

by John Graham, GlobeCast Australia

Inventive use of satellites for major tourism promotions, Annual General Meetings, corporate dinners on live hook up, and prize draws are all part of a growing transmission demand for GlobeCast Australia.

From Port Moresby to Perth, business TV satellite transmissions nationally and internationally for major clients including **ANZ** and **Lihir Gold** have been successfully delivered by **GlobeCast Australia** in recent weeks. In 2009, more companies are selecting these technical solutions as a less expensive and highly effective alternative to road shows or national conferences.

Lihir conducted its Annual General Meeting in Papua New Guinea, with GlobeCast Australia uplinking the proceedings on *AsiaSat 2* and Thomson Reuters distributed the meeting as a webcast available to shareholders throughout the world — plus, webcast participants could also phone in and email questions. Dr. *Ross Garnaut*, Chairman, Lihir Gold said: "Welcome to many shareholders on every continent — except perhaps Antarctica — who have the opportunity to join with us today through electronic means. This is the first time we and perhaps any company has followed this process for an annual general meeting to allow direct involvement in the proceedings by shareholders everywhere."

GlobeCast Australia used a 2.4m **Advent Mantis** flyaway antenna with phase combined 400 watt amplifiers, **Tandberg** *E5740* encoder modulators and baseband distribution and monitoring. Uplinked was a 4.5Mbs video and audio service, down-linked off **AS2** at a dish on the roof of **Thomson Reuters Sydney** offices, where GlobeCast Australia installed **Tandberg** *TT1260* decoders on site for the duration of the event. Thomson Reuters then converted the content for the live web stream. The satellite flyaway

CASE WORK

GlobeCast Australia HD DSNG at the Optus Belrose satellite farm

kit was deployed to Port Moresby with two engineers who worked closely with producers to ensure logistics and delivery. The vagaries of international gear freight led to the equipment taking longer to reach this country, just north of Australia, than a kit that was sent from Australia to Costa Rica! GlobeCast Australia also used the resources of Port Moresby's **Pacific View Multi Media** to locally hire other necessary kits, including cameras, lighting, and audio.

Fresh from the successful Lihir broadcast, the Globe-Cast Australia team deployed to Brisbane, Sydney, Melbourne, Adelaide, and Perth for a 5-City live satellite hook up for **Top Four Bank ANZ**'s *Budget Night Dinner and Analysis*, for participants at major hotels. Using **Optus D2**, both Sydney and Melbourne were broadcasting and receiving various speeches and performances, while other cities were able to watch the evening live. ANZ CEO *Brian Hartzer* noted it was "cutting edge" to be live via satellite to key ANZ clients at dinners in five cities.

DSNG vehicles with Tandberg encoders and decoders on board were on location in Brisbane, Sydney and Melbourne, while TVRO sites were set up in Adelaide and Perth. Sydney and Melbourne, using **Advent Newswift** antennae, uplinked 9Mbs video and audio services to Optus D2. The Sydney contribution feed was integrated in Melbourne by outside broadcast company **On-Site Broadcasting** for downlink and projection onto the installed big screens in the five target cities.

All locations were inner city, predominantly five star hotels, so positioning the antennae to see D2 led to inventive cable and fiber runs at most of the locations. The client described the satellite up-linking and smooth delivery as "awesome". All feeds were monitored by GlobeCast Australia's 24/7/365 *Master Control and Teleport*. In 2008, the facility moved more than one million hours of content.

GlobeCast Australia is known for its international broadcast clients, including all major terrestrial networks

and leading pay television companies such as **BskyB**, **FOXTEL,** and **Sky New Zealand**. GlobeCast Australia moves more than 120 channels in and out of Australia, in addition to its ad hoc satellite and fibre bookings for sport and news. However, business television projects such as the ANZ and Lihir Gold transmissions are also becoming an increasingly important segment of the Company's activities.

GlobeCast Australia Commercial Manager *John Graham* said the same skills that appeal to its broadcast clients give reassurance to corporate clients, most of whom have little knowledge of, and significant fear of, technology, particularly in a live environment. Extra technical explanation and assurance is usually necessary. Also, given the business environment, their signals are encrypted if such is required.

Graham said other business TV clients over the past two months alone have included **Monash University**, **Tag Heuer**, **National Australia Bank**, **IG Markets**, **Commonwealth Bank**, **Crown Casino**, **Burswood Casino,** and **Microsoft**. GlobeCast Australia was used for various corporate transmissions by these firms, including product launches, medical procedures, prize draws, and staffing announcements.

Client needs are widely varied. GlobeCast Australia carries a full time channel for **National Australia Bank**, distributed on Optus D2 to the bank's 850 branches. For **Tag Heuer**, the Company transmitted a live Q&A with **F1** driver *Lewis Hamilton* from Melbourne to the *International Watch and Jewellery Exhibition* in Basel, Switzerland. "In addition to its broadcast excellence, covering everything from major sport to news, GlobeCast Australia specialises in venue to venue transmission for corporate clients, including annual general meetings, investor briefings, events, promotions and staff communication. Clients include manufacturers, medical companies and organizations, finance and mining companies," according to *Graham*.

Another innovation implemented in 2008 involved GlobeCast Australia equipping more than 50 cinemas with 1.5m **Johnsa** antennae to receive various broadcasts, live, onto their big screens — this content ranged from conferences to opera to ballet to children's concerts.

ABC TV, **The Australia Council for the Arts,** and **The Australian Ballet** presented *Firebird* and other legends live from the **Sydney Opera House** for almost three hours on Wednesday, April 22nd, 2009, and also broadcast the event on television.

The *Firebird* ballets were broadcast live to eight remote locations: **Federation Square** in Melbourne, **Albany** in Western Australia, **Hervey Bay** in Queensland, Devonport in Tasmania, **Port Augusta** in South Australia, **Wagga Wagga** in New South Wales, and **Yarram** in Victoria. The ballet was then broadcast on a slight time delay on **ABC2 Digital** nationally. This broadcast follows several similar events in recent months which ranged from *La Boheme* last October, to *The Wiggles Children's Christmas Show* in December, both to various cinemas throughut Australia.

Another major GlobeCast Australia project in May received worldwide attention. GlobeCast Australia was the exclusive uplink provider for **Tourism Queensland's** *Best Job in the World* campaign off Hamilton Island in early May.

Hamilton Island

GlobeCast Australia mobilized the key HD unit in its DSNG fleet. GlobeCast Australia's DSNG facilities, fiber, and satellite connectivity and 24/7/365 Master Control and Teleport were a key component of feeding the tourism pictures to the world. Via the GlobeCast Australia uplink, there were 2 x 9 Mbs services daily for domestic and international *Best Job in the World* pool feeds via Reuters to broadcasters internationally, via fibre to Los Angeles and London, and

on satellites including *Optus D2*, *AsiaSat 2*, *Eutelsat W1* and *Intelsat-9*. There were also live and tape unilateral requirements for broadcasters from visiting countries including France, Singapore and Canada.

Asia Pacific broadcasters taking unilateral feeds and conducting lives included Australia's **Sky News Australia**, **SBS**, **7**, **9** and **10 Networks**; New Zealand's **TVNZ** and **TV3**; Japan's **Fuji TV**, Tokyo Broadcasting System and Nippon TV and China's **CCTV**. American broadcasters taking feeds and live interviews included **CBS**, **ABC**, **FOX** and **CNN**, while in the U.K. both the **BBC** and **ITV** had bookings. Germany's **ARD**, **N24,** and **RTL** also acquired unilateral coverage.

"Amidst intense interest, we handled around 100 individual bookings to 10 different countries in three days and all feeds were delivered cleanly and to schedule," according to Mr. *Graham*. "This was a tremendous example of first class broadcast infrastructure ensuring widespread coverage for a Business TV client, Tourism Queensland, wanting to connect its message with mainstream media."

GlobeCast Australia's next key project is just as exciting. For the past eight years, GlobeCast Australia has been providing transmission facilities for **Granada**'s production of *I'm a Celebrity, Get Me Out of Here*, which it produces in Australia for British broadcaster ITV. NBC is producing a U.S. version of the show and the GlobeCast Australia team will be on location in Costa Rica, bringing its expertise to the broadcast. Once again deploying its flyaway facilities, and this time using capacity on **Intelsat *IS-9*** and *IS-805*, the engineers will be on location in Costa Rica through June. "Whether you're a celebrity, a channel, or a company, for GlobeCast Australia, it's all second nature to deliver," *Graham* said.

About the author
John Graham is GlobeCast Australia's Commercial Manager. He joined in July 2008 after more than 20 years at five major Asia Pacific broadcasters, most recently as General Manager Production and Sales for the Australian Broadcasting Corporation until June 2008. Before he joined the ABC in 2001, Graham was Head of Programming at Optus Television, and he has also worked as a television news executive and journalist at Australia's Ten Network and Television New Zealand.

INSIGHT

Hybrid Network Opportunities In Asia

by Laurence Peak, Verimatrix, Asia Pacific

The analog to digital switchover is providing a major catalyst for operators to think differently about how they deliver pay–TV services. As the number of sub-scribers in Asia continues to grow, operators have a huge opportunity to increase ARPU with new and compelling content.

The Cable & Satellite Broadcasting Association of Asia (**CASBAA**) recently reported that there are 71 million digital pay–TV households out of 300 million pay–TV connections across Asia, which is seen as a "tipping point." While the pay–TV market has grown across the region, CASBAA estimates that the cost of video piracy is also on the rise at US$1.7 billion in 2008, up from $1.5 billion in 2007.

However, a bright spot for operators and con-tent owners are the interesting statistics CASBAA revealed on the concentration of this pay–TV piracy. Asian markets with "the lowest levels of revenue leakage (or piracy) are generally those with the highest percentages of digital deployment."

Therefore, operators are led to believe that building a more ad-vanced digital network makes it more difficult for service and content theft. As piracy de-creases and copyright rules are enforced, there is potential for significant business upside. In particular, we are seeing opera-tors in the Philippines and India proactively

reducing grey market effects — and securing more revenue — with an advanced network.

Other signs that content protection is being taken more seriously are groups like the **Centre for Con-tent Protection** (**CCP**). Based in Singapore, the goal of the CCP is to act as a clearinghouse and resource for information related to all aspects of digital dis-tribution and content protection for the Asia Pacific region. The consortium wants to "expand consumer viewing choices by promoting technological measures that permit secure distribution of digital television."

Hybrid Network Opportunities

Operators know that the long–term vision of digital networks is more than a simple substitution of *Digital Video Broadcasting* (**DVB**) for existing analog services.

Ideally, digital networks should accommodate broad-band IP services and multi-screen delivery. As a result, Asian operators are evaluating some form of hybrid network that enables them to serve multiple tiers of subscribers and deliver material ranging widely in value from blockbusters to niche content. Transitioning broadcast subscribers to those who are willing to pay for richer, on-demand services is the ultimate goal for operators.

Yet hybrid network architectures raise unique issues regarding content security and digital rights enforcement. Offering premium, high-value content goes hand-in-hand with higher ARPU. Content owners need to be assured that their assets are protected, and operators are more motivated to stop theft of service. The good news is that there are more choices for operators looking beyond the scope of legacy solutions to address their content security requirements.

Standardizing on IP

The advent of all-digital infrastructures is incorporating core components of the mature DVB standards, which are supported by other organizations like the *Association of Radio Industries and Businesses* (**ARIB**), a Japanese standards organization. The majority of these industry standards bodies have included the use of IP protocols to standardize the delivery and security of content across diverse network types — merging legacy **MPEG-2** delivery with IP infrastructures and IP centric clients. In parallel with this trend of cost-effective, IP protocols standards is the recognition of software-based IP security technologies as the gold standard for securing everything from web-based banking and financial transactions to high-value video in broadband and pay-TV service applications.

Advantages of IP

Leveraging the inherent two-way nature of IP connectivity, IP-based protection can deliver an industrial-strength content security system that addresses all the requirements essential to delivering cross-network security cost effectively. Furthermore, an IP-based platform eliminates the need for multiple *conditional access* (**CA**) or encryption vendors. Equally important to cost-sensitive operators and subscribers, software-based IP content security maintains a high-level security through downloadable updates to devices. This not only presents a much more responsive and less costly mechanism for addressing

security breaches or new threats, it also lowers the costs of set-top boxes.

One main advantage of DVB-IP hybrid networks is that operators can offer tiers of subscriber packages that can include broadcast-only content (one-way) and/or interactive features, like on-demand movies and user generated content. This is especially important in regions where there is a lack of disposable income to spend on TV services. Software-based content security offers the cost advantages that position it as the first choice for operators.

Verimatrix' *VCAS*™ *for DVB* solution, which supports any combinations of broadcast and hybrid networks from a single head-end, is attracting early interest from operators primarily in India and Asian regions. Mainly we feel this is because *VCAS for DVB* offers tremendous value in supporting base of lower ARPU subscribers in one-way networks while providing a clear upgrade path to capture higher ARPU subscribers with hybrid networks.

CommunicaAsia/BroadcastAsia 2009 will provide a good opportunity for Verimatrix to further assess the current environment from both the network operators and content owners. The Company will also be participating in the CCP's *Digital Future Seminar Series* on "*Developments in Broadcast Content Protection and the Role of Government*" on **June 17**. Please stop by booth **#6C4-03** for more information.

About the author

Laurence Peak, Verimatrix's Vice President, Asia Pacific, has 25 years of experience in entertainment technology and five years of working in Asia. Previously, Peak has held key positions with telecom consultancy Access Point Asia, telecoms equipment vendor ECI Telecom, Shell UK and British Telecom.

CASE WORK

THE FLECK FOCUS

by Michael Fleck, Columnist

Many mothers and grandmothers across Australia were treated to a unique gift this past Mother's Day. Australia's best selling artist *André Rieu* returned to Australia for a special Mother's Day visit to launch '*Live In Australia*' on the big screen in cinemas across Australia and New Zealand.

André joined Australian television host *Richard Wilkins* on the red carpet at **Hoyts' Entertainment Quarter** in Moore Park, Sydney on Sunday, May 10th, before a screening of *André's* hugely successful Australian concert that took place late last year.

However, it wasn't only those at the Moore Park cinemas who saw *André*. In an Australian-first, the red carpet arrival and *André*'s introduction to the broadcast were transmitted live via satellite to participating Australian metro and regional cinemas reaching over 2,500 fans. Those at cinemas nationwide were a part of the excitement as *André* arrived at Hoyts and delivered his special message to all Australian fans before they sat back to enjoy the concert on the big screen in high definition and 5.1 surround sound.

During the live transmission, *André Rieu* said,"I am so proud to be presenting this live nationwide satellite broadcast of my Melbourne concert from last year. To all the Mums out there seated in cinemas throughout Australia, thank you for being there and sharing my music with me."

One of the Mums is *Michelle Coles* who, with her husband Roger, are the proprietors of **Cinema Augusta** in the town of Augusta, South Australia. Located four hours drive north of Adelaide, this town of approximately 13,500 people has little opportunity to see performers such as *André Rieu* live. Michelle said, "We invited the people of the town to come and share Mother's Day with André Rieu and it was just so heartwarming to see the response. We had families coming all together. One nine year old girl brought her grandmother." She added, "These were people who were able to come together and share an experience with other people all over the country. It felt like we were right there in Sydney. I had people hugging me afterwards, it was awesome."

André Rieu being interviewed for "live" event

Tickets for the live event included the live 30 minute red carpet telecast, the exclusive '*The André Experience*' CD, souvenir program, and the screening of the '*Live In Australia*' concert.

André Rieu became Australia's best-selling artist and broke all records at the end of last year when his DVD '*Live in Australia*', rush-released from his enormously successful debut Australian tour, went 12x Platinum in the space of two weeks. For the second consecutive year, he can boast being Australia's biggest selling recording artist. Sales of his CDs and DVDs are now approaching 2.5 million.

In 2008, Hoyts commenced equipping its digital screens with capability to receive live content from satellite. The red carpet event with *André Rieu* was the first of many such live presentations that Hoyts believes will change 'going to the movies'. *Anthony*

Thiessen, Hoyts Marketing Director said, "This is the first of many such red carpet events Hoyts has planned for 2009. Our research is telling us that people want more than super heros and live content is one of those things. Of course people can see some of this content at home, but nothing compares to the buzz of a live event like a concert on one of our really big screens with the sound cranked way up — the whole place just rocks."

The live *André Rieu* red carpet event was written, produced, and transmitted by Sydney based **Global Vision Networks**. The company is currently equipping cinemas across the Asia Pacific region to receive events live by satellite. Using their C-band platform on *AsiaSat 4*, Global Vision is delivering HD content to locations from Dubai to Mumbai to Beijing.

Based on the success of the Hoyts events in Australia, and drawing on their 20 years' experience working in Asia, Global Vision is commencing the installation of 10 test sites at cinemas around Asia. These will be the first of what is expected to be a region-wide network delivering alternate content to locations as diverse as Dubai, Delhi and Beijing.

Selected exhibitors have been invited to take part in screening up to 12 live events between July and November of 2009. The pilot has four key objectives:

- *Trial the concept of live programming in different markets*
- *Determine price point for tickets*
- *Generate interest in the media*
- *Collect statistics on customers*

The heart of the receive systems will be the **International Datacasting** satellite receiver range, which currently powers the majority of satellite enabled digital cinema networks in North America, including **Cinedigm** (formerly **Access IT**). The latest in the range is the *SFX 2020,* which was designed with the business TV market in mind. However, in emerging markets, Global Vision will be using this receiver for the delivery of live standard definition and high definition content to cinemas. Further, the SFX 2002 has the *Sensio®3D* built in, which will allow Global Vision to begin trials of live 3D content to suitably equipped screens.

Global Vision's development of satellite delivery to digital cinemas is being driven by the company's head of global operations, Mr. *Adrian McCarten*. "We're building an open delivery system covering the region. This roll out of the pilot sites in Asia is the first step in a network that will allow content distributers to connect directly with exhibitors in a variety of markets. All exhibitors will have access to all content, to much the same effect as 35mm could be played everywhere."

While cost savings to content owners and distributors is driving the roll out of digital cinema infrastructure, it is the 'live by satellite' capability that is of real and direct benefit to exhibitors. Alternate content represents new revenue stream streams for cinemas.

Global Vision has been developing the necessary systems and solutions for satellite delivery of content to cinemas in Asia and the Middle East and are looking for distributors and exhibitors to now bring the benefits to market. Content distributors can expect to reach a much wider audience of Mums on Mother's Day 2010.

About the author
Michael Fleck is managing Director of Global Vision Networks, the Asia Pacific region's leading provider of services to the corporate world. Based in Sydney with representative offices in Hong Kong, Singapore, Chennai (India) and in Beijing. Contact: **michael@globalvisonnetworks.ne**t

FOCAL POINT
Add Power As You Need It!

As the world's insatiable thirst for information access continues to grow at an ever increasing rate, satellite service providers are faced with the need for power amplifiers that can deliver large amounts of linear power reliably. Today's complex modulation and coding schemes increase the number of bits one can pack into a hertz of transponder bandwidth and when it comes to transmission, more bits requires more power. High-order modulation schemes become an inherent challenge when factors such as single-carrier spectral regrowth, multi-carrier intermodulation distortion with associated memory effect and AM/PM phase distortion are factored into the equation.

In the past, when thousands of watts of uplink power were required, earth station designers had little choice but to incorporate Klystrons or high-power TWTAs to achieve power levels of this magnitude. Klystrons, though cost effective, are bandwidth limited to a single transponder and are consequently unable to provide access to the satellite's entire frequency resource. Though wideband TWTAs are not plagued with the bandwidth issue, they are still tube-based products that require extremely high-voltage power supplies, are subject to out-gassing and by design, have numerous single points of potential failure. These limitations are partly responsible for the enormous growth in demand for *Solid State Power Amplifiers* (**SSPAs**). As SSPAs are based on transistor technology, they are much less susceptible to the distortion effects previously mentioned. Additional benefits include the use of low voltage power supplies, the ability to achieve high linearity without the need for additional linearizers and higher *Mean-Time-Between-Failure* (**MTBF**) values. Unlike tubes that require special handling for transport, SSPAs utilize small, compact RF "modules" that can be shelf-spared without concern for out-gassing.

If asked for their proverbial "wish list", some operators would say the ability to size the amplifier to suit their current needs and scale it up to higher power levels in the future as the need for more power arises would be a nice feature. Long term maintainability might be a key factor as a disruption in service can equate to a serious loss of revenue. The elimination of mechanical devices such as waveguide and coaxial switches as a method of gaining redundancy increases reliability as does the ability of station operators to remove and replace critical amplifier components without disrupting service.

In order to meet these demanding requirements, **Paradise Datacom** has introduced the latest innovation in high power, Solid State Power Amplifier design — *PowerMAX*, the latest in modular and scalable amplifier systems.

Modularity = Maintainability

The key to providing a truly maintainable system is through the provision of easy access and simple removal of critical components for site technicians. This includes the SSPA module, cooling fans, power supply modules, and M&C card. All active assemblies within the PowerMAX system are hot-swap replaceable either from the front or rear panel of the amplifier chassis. There is no need to pull a chassis from the equipment cabinet.

Having an inventory of lower cost replaceable sub-assemblies means that there is never a need to return any part of the PowerMAX system to the factory for any repair. Mean time to replace any subassembly is 10 minutes. These repairs can be made without the need to power down the entire system.

FOCAL POINT

Therefore there is never any down-time with the PowerMAX system.

Soft-Fail Redundancy

The PowerMAX system was designed to be used as a redundant amplifier system. The PowerMAX architecture is considered "pure parallel" by reliability engineers. This means that there are no waveguide switches or other active components in the RF path. The failure of an SSPA module results in a small decrease in total system output power capability. The amount of total output power decrease in the event of a SSPA module failure depends on the total number of RF modules in the system and is summarized below.

```
4 Module System
1 failed module = 3dB decrease

8 Module System
1 failed module = 1.2dB
decrease

16 Module System
1 failed module = 0.6dB
decrease
```

Another important advantage of passive power combining is that there is never any finite interruption of the signal traffic with the failure of an RF module. This is critical in systems requiring master clock resynchronization when a large decrease in signal is experienced, even for a brief period of time.

When the system is used in *Gain Correction Mode,* the system gain is maintained at a constant level in the presence of an amplifier module failure. Therefore, if a system is sized such that the loss of one RF module can be tolerated by the system link budget, there will be no noticeable system performance change with the loss of one RF module.

The power supply is sized to have a full spare module. Thus a failure of any power supply module means that there is no decrease in output power or any other operational characteristic of the amplifier.

Even the system *Monitor and Control* facility is completely parallel redundant. Each SSPA chassis has its own embedded controller with a hierarchy of system

control. An entire SSPA chassis can fail and no system performance parameters will be affected. Additionally the system will maintain remote communications with a system level Monitor and Control via *RS485* or *Ethernet* communications. This advanced hierarchy of control enables the entire parallel system to be operated as if it were a single thread amplifier. This is true of both local (front panel) control as well as remote control.

Scalability

The capital investment in an installation's *High Power Amplifier* is always a major expense regardless of the HPA technology. A great deal of system engineering and planning must go into the selection of an amplifier's output power capability. It is often difficult to predict the potential growth in signal traffic and end user application of a particular HPA. The field scalability of the PowerMAX system offers a great way to protect the customer's investment. The customer can start out with a 4 module system and later upgrade to 8 or 16 modules. The design of the system makes it extremely easy to add additional RF and power supply modules in the field.

The system uses **Paradise Datacom**'s proprietary 4-way waveguide combiner network that makes conversion from a 4 module system to an 8 module system very easy to perform in the field. The chassis power easily connects to the system DC bus via quick connect style connectors. Thus there is minimal nut-and-bolt assembly required when upwardly scaling the PowerMAX system.

Performance

The PowerMAX is the first HPA system to utilize "*True RMS*" output power detection. Legacy HPA systems have long used simple diode peak detector circuits that provide a very crude means of output power detection. These circuits only give an accurate output power indication with an unmodulated CW carrier. By utilizing RMS detection and thermistor-based sensor technology, the PowerMAX system reports accurate RMS output power regardless of the number of carriers and modulation schemes present.

As PowerMAX architecture is based upon Paradise Datacom's wide range of high density SSPA modules, a variety of output power levels and frequency bands can be addressed simply by populating the system accordingly. At present, the system can be configured as a C-, X-, Ku-, or Ka-band SSPA with the following output power levels.

```
C Band
250W, 300W, 400W, 500W & 600W

X Band
250W & 500W
Ku Band
125W, 150w & 200W

Ka Band
40W & 80W
```

Thanks to Paradise Datacom's proprietary RF power combining network, modules can be "scaled" in

Table 1. 4-Module PowerMAX System Output Power

SSPA Module Power		4 Module System 4 Module, Output Power Psat dBm (Watts) [P1dB dBm (Watts)]		4 Module System 3 Module: *Redundant* Output Power Psat dBm (Watts) [P1dB dBm (Watts)]	
C Band	250W	59.3 (850 W)	[58.3 (676 W)]	56.3 (430 W)	[55.3 (339 W)]
	300W	60.3 (1.10 kW)	[59.3 (851 W)]	57.3 (537 W)	[56.3 (427 W)]
	400W	61.6 (1.50 kW)	[60.6 (1.15 kW)]	58.6 (725 W)	[57.6 (575 W)]
	500W	62.6 (1.80 kW)	[61.6 (1.45 kW)]	59.6 (912 W)	[58.6 (724 W)]
	600W	63.4 (2.20 kW)	[62.4 (1.74 kW)]	60.4 (1.10 kW)	[59.4 (870 W)]
X Band	250W	59.6 (900 W)	[58.6 (724 W)]	56.6 (457 W)	[55.6 (363 W)]
	500W	62.6 (1.80 kW)	[61.6 (1.45 kW)]	59.6 (912 W)	[58.6 (724 W)]
Ku Band	125W	56.3 (425 W)	[55.3 (339 W)]	53.3 (214W)	[52.3 (170 W)]
	150W	57.2 (525 W)	[56.2 (417 W)]	54.2 (263 W)	[53.2 (209 W)]
	200W	58.2 (660 W)	[57.2 (525 W)]	55.2 (330 W)	[54.2 (263 W)]
Ka Band	40W	51.2 (130 W)	[49.7 (93 W)]	48.2 (66 W)	[46.7 (48 W)]
	80W	54.2 (250 W)	[52.7 (186 W)]	51.2 (132 W)	[49.7 (93 W)]

Table 2. 8-Module PowerMAX System Output Power

SSPA Module Power		8 Module System 8 Module, Output Power Psat dBm (Watts) [P1dB dBm (Watts)]		8 Module System 7 Module: *Redundant* Output Power Psat dBm (Watts) [P1dB dBm (Watts)]	
C Band	250W	62.0 (1.50 kW)	[61.0 (1.20 kW)]	60.8 (1.20 kW)	[59.8 (955 W)]
	300W	63.0 (2.00 kW)	[62.0 (1.60 kW)]	61.8 (1.51 kW)	[60.8 (1.20 kW)]
	400W	64.4 (2.70 kW)	[63.4 (2.20 kW)]	63.2 (2.10 kW)	[62.2 (1.66 kW)]
	500W	65.4 (3.50 kW)	[64.4 (2.70 kW)]	64.2 (2.63 kW)	[63.2 (2.10 kW)]
	600W	66.2 (4.10 kW)	[65.2 (3.30 kW)]	65.0 (3.20 kW)	[64.0 (2.51 kW)]
X Band	250W	62.4 (1.70 kW)	[61.4 (1.38 kW)]	61.2 (1.32 kW)	[60.2 (1.05 kW)]
	500W	65.5 (3.50 kW)	[64.5 (2.82 kW)]	64.3 (2.70 kW)	[63.3 (2.14 kW)]
Ku Band	125W	59.0 (790 W)	[58.0 (631 W)]	57.8 (603 W)	[56.8 (478 W)]
	150W	60.0 (1.00 kW)	[59.0 (790 W)]	58.8 (759 W)	[57.8 (602 W)]
	200W	61.0 (1.20 kW)	[60.0 (1.00 kW)]	59.8 (955 W)	[58.8 (758 W)]
Ka Band	40W	54.0 (250 W)	[52.2 (166 W)]	52.8 (190 W)	[51.3 (135 W)]
	80W	57.0 (500 W)	[55.5 (355 W)]	55.8 (380 W)	[54.3 (270 W)]

groups of four to achieve extremely high output power levels. *Tables 1* through *3* summarize the available system output power capability with 4, 8, and 16 module systems.

Summary
The PowerMAX family of solid state amplifier systems provides output power levels previously obtainable only with Klystron or TWTA technology. The system engineer can now design high power earth stations with all of the advantages solid state power amplifiers bring to bear. Unlike the high power amplifiers based upon tube technology, the PowerMAX system has all of the advantages of a pure-parallel redundant system. A soft-fail, parallel redundant system with complete hot-swap modular subassemblies makes the PowerMAX architecture one of the most exciting new systems to come along in the Satcom and base station amplifier environment in quite some time.

Table 3. 16-Module PowerMAX System Output Power

SSPA Module Power		16 Module System 16 Module, Output Power Psat dBm (Watts) [P1dB dBm (Watts)]		16 Module System 15 Module: *Redundant* Output Power Psat dBm (Watts) [P1dB dBm (Watts)]	
C Band	250W	65.0 (3.20 kW)	[64.0 (2.50 kW)]	64.4 (2.75 kW)	[63.4 (2.20 kW)]
	300W	66.0 (4.00 kW)	[65.0 (3.20 kW)]	65.4 (3.50 kW)	[64.4 (2.75 kW)]
	400W	67.2 (5.20 kW)	[66.2 (4.17 kW)]	66.6 (4.60 kW)	[65.6 (3.63 kW)]
	500W	68.2 (6.60 kW)	[67.2 (5.25 kW)]	67.6 (5.75 kW)	[66.6 (4.57 kW)]
	600W	69.0 (8.00 kW)	[68.0 (6.31 kW)]	68.4 (7.00 kW)	[67.4 (5.49 kW)]
X Band	250W	65.2 (3.30 kW)	[64.2 (2.63 kW)]	64.6 (2.90 kW)	[63.6 (2.30 kW)]
	500W	68.2 (6.60 kW)	[67.2 (5.25 kW)]	67.6 (5.75 kW)	[66.6 (4.57 kW)]
Ku Band	125W	61.7 (1.50kW)	[60.7 (1.17 kW)]	61.1 (1.30 kW)	[60.1 (1.02 kW)]
	150W	63.0 (2.00 kW)	[62.0 (1.58 kW)]	62.4 (1.75 kW)	[61.4 (1.38 kW)]
	200W	64.0 (2.50 kW)	[63.0 (2.00 kW)]	63.4 (2.20 kW)	[62.4 (1.74 kW)]
Ka Band	40W	57.0 (500 W)	[55.5 (355 W)]	56.4 (440 W)	[54.3 (269 W)]
	80W	60.0 (1.00 kW)	[58.5 (708 W)]	59.4 (870 W)	[58.2 (660 W)]

Executive Spotlight On...

David Ball, Vice President, Asia-Pacific, Intelsat

Asia has become one of the most robust regions for satellite-enabled services. Throughout Intelsat's nearly 45 year history in serving the countries of Asia-Pacific, it has introduced a variety of satellite services: the roll-out of broadband infrastructures connecting island nations to mainland countries; the provision of satellite bandwidth for maritime communications; direct-to-home television platforms; and the delivery of regional and international programming, to name a few. *David Ball*, Intelsat's Regional Vice President, Asia-Pacific, recently shared his views on what is driving business growth in the region. Here is what he had to say:

SatMagazine

David, would you please share with our readers some of your Company's recent business highlights.

David Ball

We have had some significant business developments in recent months. I would have to say the pre-commitment contract for capacity on our Intelsat 18 satellite by Office des Postes et Telecommunications of French Polynesia (OPT) was a huge testament to our excellence in delivering an infrastructure that enables a diverse grouping of applications such as DTH, VSAT and Internet delivery services; KT Corp becoming a distributor for our maritime service and hosting two new GXS Network Broadband hubs that expand our managed services portfolio in the region; and more recently, the contract win with ABS-CBNi where we are expanding its DTH services in North America.

SatMagazine

What is driving the growth for media services in the Asia-Pacific region?

David Ball

New video channels are gaining momentum, fueled by the globalization of content. We are seeing growing demand for regional content to be delivered to North America, as well as an increased demand for Asian programming to reach viewers in Europe, Africa and the Middle East.

SatMagazine

How important is deregulation in your region to allow Intelsat to grow its business?

David Ball

Regulatory change occurring throughout Asia-Pacific is quite important for near- and long-term satellite industry growth. Of course, we would like to see regulatory change in China, currently a closed market for us with respect to domestic services. We have had great success in distributing Chinese content globally, but with such a large land mass and minimal terrestrial infrastructure in place, satellite connectivity is becoming increasing more important for domestic delivery of not only video, but voice and data communications and we can have a robust and positive impact in China.

SatMagazine

When is HD going to become the headline story of Asia-Pacific?

David Ball

We are starting to see that occuring now. Special events and sports are really driving the growth for more HD content in the region. We saw that with the Beijing Games this past summer. Viewers in Asia, like any other region, once they view programming in HD, they begin to demand it on a regular basis. Today we are seeing an increase in the pay-TV channels arena starting to expand their programming into HD. Many countries are also starting to deliver regional content in HD throughout the region. As MPEG-4 continues

its rollout, we believe programmers will accelerate their HD content offerings.

SatMagazine

Which applications will drive demand for satellite-enabled services in the coming years?

David Ball

We are experiencing tremendous interest for expanded video and network services throughout the region. There is strong demand across the Indian Ocean region for connectivity between Northeast Asia and Africa for telecoms services; while Southeast Asia continues to be a very strong video distribution region for us. I definitely believe Intelsat will have an enduring presence in Asia.

The replacement satellites within our fleet upgrade program will bring much-needed capacity and capabilities to the region. I don't think there will be huge changes in application demands in the near term but if there are changes, we will be well-positioned to serve those growing needs for our Asian customers.

CASE WORK
Power Flexing Satellite Links

by Max díOreye

Providing IP trunking services to ISPs in a highly competitive market with razor-thin margins requires constant scrutinizing of the operation expenses (OPEX). Satellite service providers, teleports or satellite operators that provide these services are faced with new and complex challenges to maintain their competitiveness, while remaining profitable. Implementing new technical solutions to deal with these challenges is more essential than ever. Technology should address the following business needs:
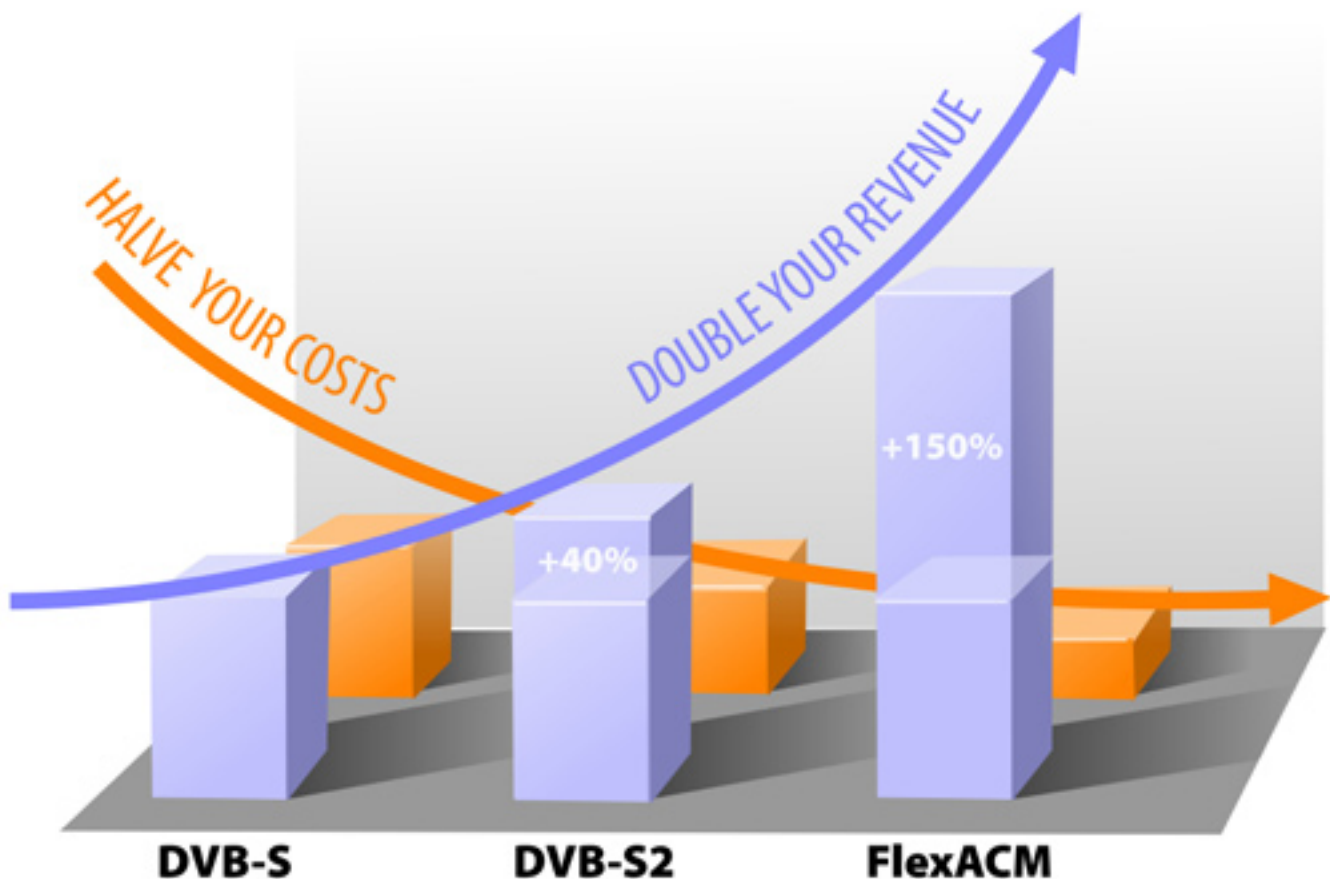
- *Reduce costs*
- *Improve customer satisfaction*
- *Achieve very high service reliability*

This article explains how the latest *DVB–S2 ACM* technologies, integrated with a range of smart IP appliances, provide the perfect answer to these business requirements. **Newtec**'s DVB–S2 *FlexACM* implementation doubles the data throughput in satellite IP trunking and IP backbone systems, and provides 100 percent link availability. Getting up to speed with these latest technologies allows service providers to double their revenue or reduce their operational costs by half, whichever is their goal. The following case studies explain how companies are using this new technology, and what value it brings to their business:

Cobranet – FlexACM & heavy rain fade
A satellite link throughput gain of 70 percent without acceleration or compression. During heavy rain fade of 20dB, the link remains available, outperforming all competitors.

CASE WORK

Horizon Satellite Services – FlexACM & suboptimal receive conditions— an increase of 43 percent in IP throughput, without using acceleration or compression.

SkyVision – FlexACM & inclined orbit satellites — an average increase of 85 percent in IP throughput, with peaks of improvement up to 137 percent.

What is FlexACM?

FlexACM is a unique end-to-end solution for implementing ACM technology, IP shaping, compression and acceleration in a very efficient way for IP trunking and IP backbone satellite links. The implementation of FlexACM can result in a doubling of the data throughput in a given satellite segment while also guaranteeing a 100 percent link availability.

Adaptive Coding and Modulation (**ACM**), part of the **DVB-S2** standard, allows modification of the modulation and coding parameters (modcods) of a satellite signal on the fly, without interrupting the transmission and without losing data.

Newtec's FlexACM solution is more than DVB-S2 ACM: it is the first commercially available system on the market, which integrates DVB-S2 ACM with advanced IP optimization technologies such

as traffic accelerating, compression, and shaping. The FlexACM solution can be used in point-to-point and point-to-multipoint systems, in one way (with terrestrial return channel) as well as in two way configurations (with the return channel also over satellite). It is also possible to implement the FlexACM solution in existing satellite links without changing the rest of the transmission chain, such as the antenna and HPA. The FlexACM solution combines ACM technology with an automatic measurement of the instantaneous link conditions (signal to noise ratio) every few seconds and a system that automati-
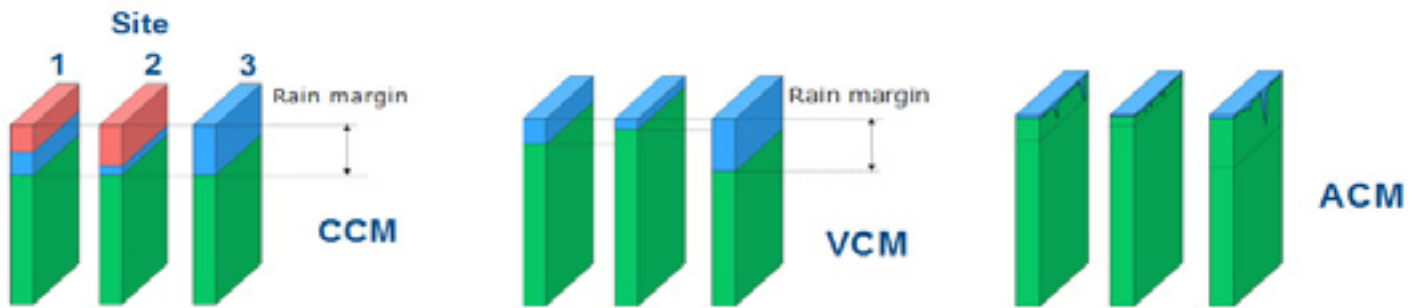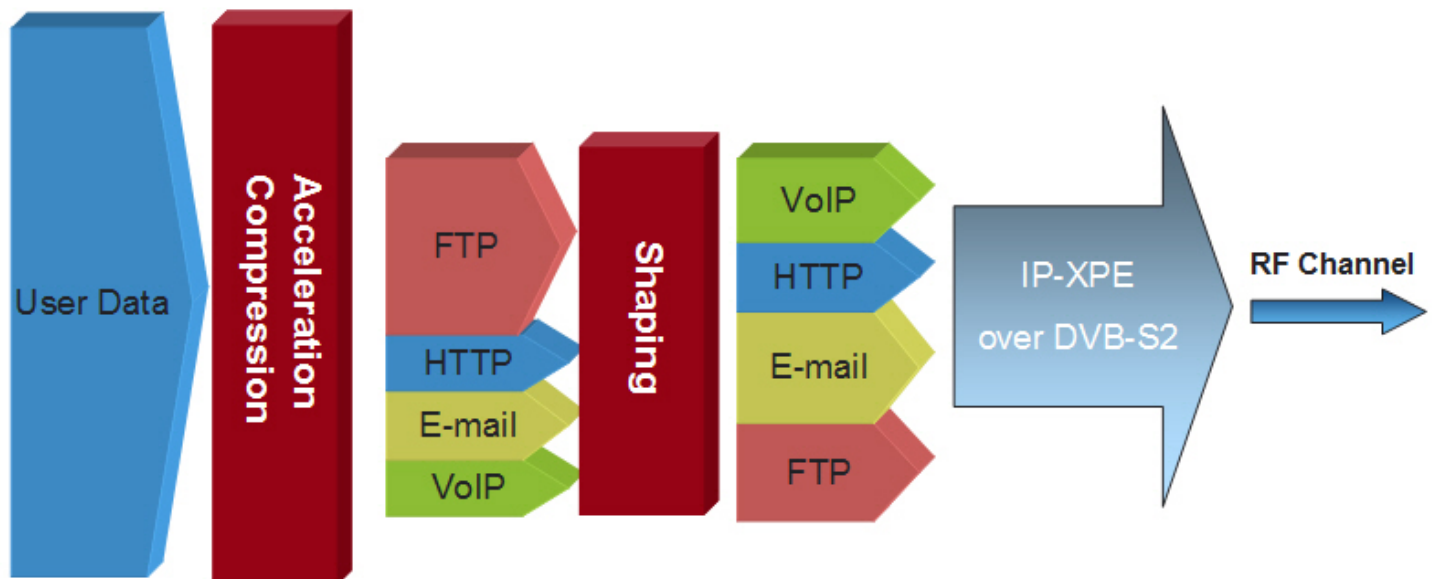
DVB-S2 Coding and Modulation: Constant (CCM), Variable (VCM) or Adaptive (ACM).

cally adjusts the modcods parameters when needed. Under these circumstances, the satellite link always uses the highest possible modulation scheme and the lowest possible level of error correction, while still keeping the signal to noise ratio above the minimum threshold to guarantee an error free transmission at all times.

By using FlexACM, teleport operators do not have to take rain margin into account at all. When the conditions of the link become worse because of rain fade or other reasons, the system will automatically change the parameters to avoid loss of signal reception. In fact, in almost every form of interference or in less optimal transmit or receive conditions, like ground noise, tracking losses, cross poll and inter-satellite interference ... FlexACM proves to be beneficial.

The FlexACM system must then decide how the remaining capacity is distributed among the different services and receiving points. This requires a dynamic shaping of the IP services and a QoS management in line with the bandwidth variations caused by the ACM behaviour. In addition to this, the built-in traffic shaper also needs to ensure priority for services with predefined SLA, VoIP, audio and video services. By using FlexACM, technology teleport operators can turn the additional rain margin that was wasted before, into increased data throughput, resulting in extra revenue for the teleport operator. To further optimize the efficiency of the system, FlexACM includes cross layer optimization using advanced features such as traffic acceleration and dynamic compression of the IP traffic, which bring a considerable reduction of the data traffic that needs to be sent over the satellite link.

Cross Layer Optimisation

FlexACM® is part of Newtec's *Elevation* product line that allows simple, yet very efficient implementation of ACM (Adaptive Coding and Modulation) in IP trunking and IP backbone systems.

The Value Of FlexACM

Reduce costs

Space segment is one of the biggest operational costs for a teleport operator and is often in scarce supply. The challenge for teleport operators is in the fact that they are buying space segment in MHz, but their customers are typically paying them for Mbit/s throughput. The logical consequence is that the more data throughput they can achieve per MHz bandwidth, the more profitable their business becomes. The Newtec FlexACM solution integrates advanced IP optimization technologies (such as traffic acceleration, compression and shaping) with the complete feature set of DVB–S2 (generic mode, ACM technology) in order to increase the throughput of the satellite channel.

Efficiency gain related to the use of ACM technology can reach up to 130 percent compared to DVB–S systems without ACM. On top of the benefit of DVB–S2 ACM, the integrated result of cross layer optimization (dynamic optimization across the physical and traffic layers) results in a drastic reduction of the required satellite bandwidth for a given data throughput. This means that the cost of the satellite segment per Mbps is reduced from *e.g.* 2,500 USD/month/Mbps to 1,250 USD/month/Mbps!

In other words, IP trunking networks based on Newtec's FlexACM technology can increase the revenue for the teleport operator by a factor of 2!

Improve Customer Satisfaction

The FlexACM solution contributes to improving customer satisfaction at many levels. FlexACM offers advantages for the ISP as well as for the end-user. Because the FlexACM system recognizes data packets at application level, the FlexACM system can dynamically assign bandwidth and priority to each individual service or application. For example, VoIP applications typically get one of the highest priorities while FTP download gets a lower priority, and services are differentiated according to the Service Level Agreements (SLA) subscribed by the customers.

This process of dynamically assigning bandwidth and providing prioritization is called shaping of the IP traffic and is embedded as a standard capability in the FlexACM solution. Shaping allows the ISP to avoid congestion even at peak times and provides customers with a 'superior user experience'.

The ISP can also define different sets of profiles for groups of customers, determining features such as Maximum Information Rate (MIR), Committed Information Rate (CIR) and overbooking ratios. With all these features, the ISP can avoid having a small part of its customers consume almost all the available bandwidth and affect the satisfaction of the other users.
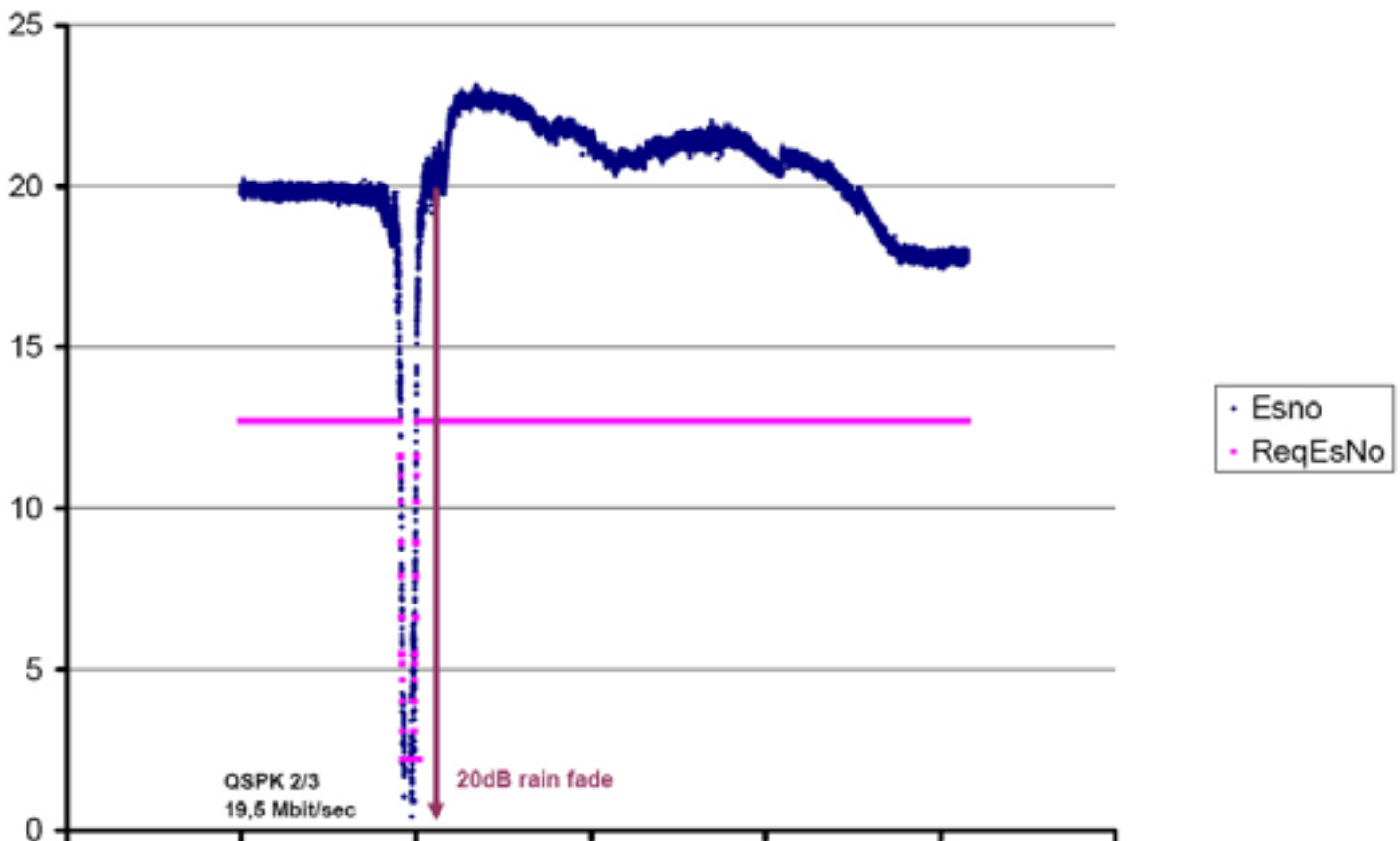
Achieve very high service reliability

A unique feature of FlexACM is its ability to react very fast to heavy rain storms, increasing dynamically the level of error correction so the satellite link is never interrupted. This results in a reduction of the available throughput, but the shaping function makes sure the SLA are respected and that critical services are not affected. When the storm is over and the link conditions improve again, every customer immediately recovers its original transmission speed. Even in the worst weather conditions, FlexACM guaranteed "Always on" connectivity. Higher SLA's can offer and result in higher revenues for the teleport owner.
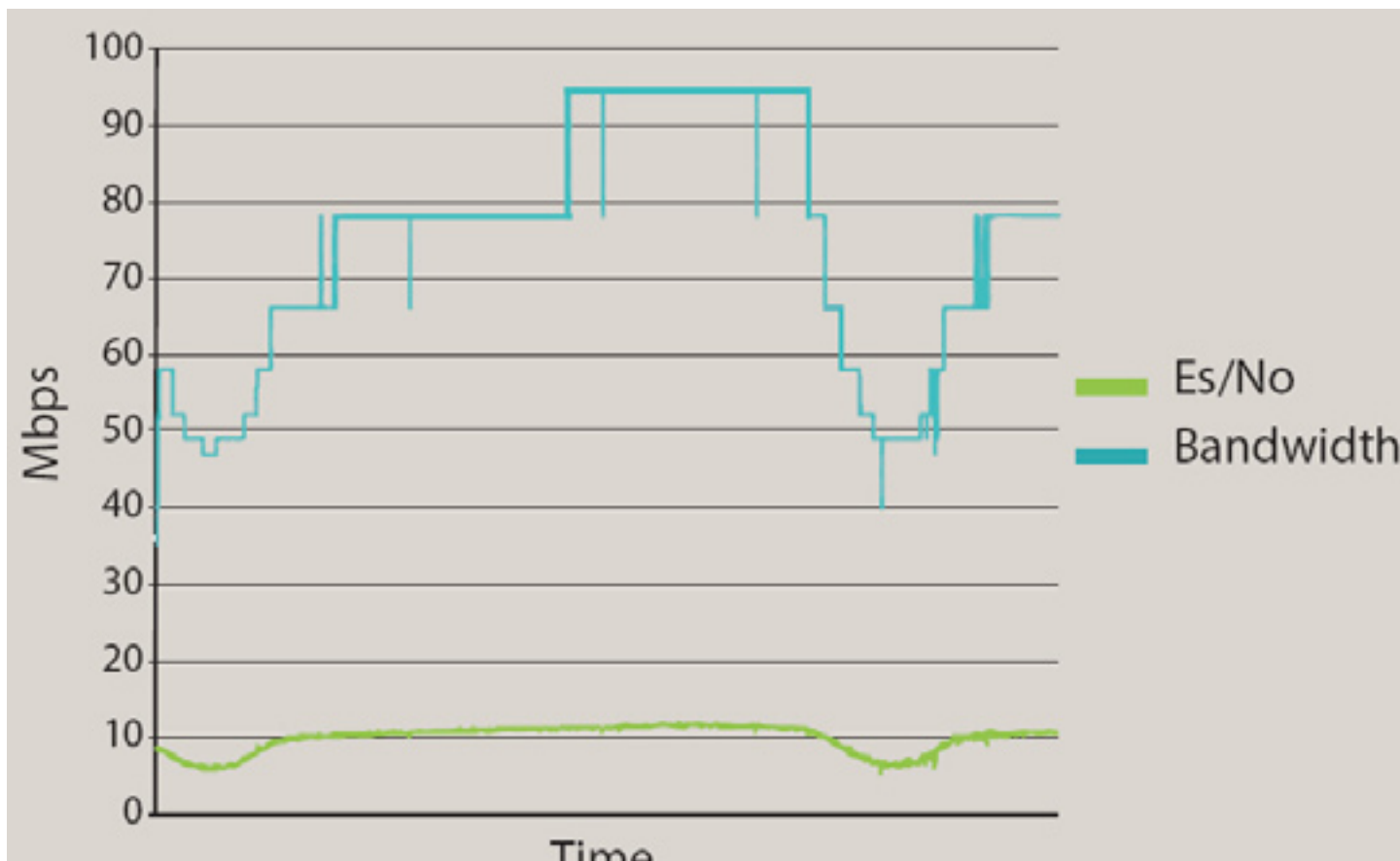
Case studies

Cobranet - FlexACM & heavy rain fade

Nigeria-based CobraNet is a leading provider of broadband Internet services. CobraNet wanted to improve the bandwidth efficiency of its satellite link between the Intelsat Teleport in Fuchsstadt, Germany, and its own in Lagos, Nigeria, as well as carrying out

Cobranet graph

SkyVision graph

upgrades from DVB-S to DVB-S2 modems. Newtec's technology was incorporated into both ends of the link introducing 16APSK and 32APSK capabilities and Newtec's FlexACM technology. Before the upgrade, the link was implemented with 8PSK signals and the throughput was limited to 38 and 14 Mbit/sec respectively. Following the upgrade, the satellite link gained on average 70 percent in throughput: a forwards efficiency of 65Mbps with 32APSK and a return efficiency of 32 Mbps with 32APSK.

Additionally, the satellite transmission is now also much more robust, able to sustain very heavy rain fades: during rain fades as deep as 20 dB, the modulation parameters are changed gradually to QPSK 2/3 and the data throughput drops momentarily to 20Mbit/s in the forward, but the system does not loose synchronization. This is the only satellite system in the region to maintain its service in presence of such heavy rain.

SkyVision - FlexACM & inclined orbit satellites
SkyVision is a leading global provider of Internet services over satellite. The company operates a point-to-point link between its Teleport in Kenya and

its main teleport in Austria using satellites in an inclined orbit. In order to follow the position of satellites in inclined orbits SkyVision needs to use tracking on outbound and inbound antennas.

However, due to interference from different satellites during the movement of the satellite, the receiving site conditions can drop by as much as 6dB, which means that a low modulation scheme and increased error correction (QPSK 2/3) has to be used, resulting in data throughput of only 40Mbps in a full transponder. However, most of the time, the receive conditions are much better and a link margin is present that is not being used, effectively wasting available throughput.

Newtec's *Elevation* modems with on-board FlexACM client/controller provide the ideal solution in this situation. With FlexACM, SkyVision can use a higher modulation scheme and less error correction (up to 16APSK 4/5) whenever the situation allows, which results in an average data throughput of 74Mps, an increase of 85 percent for most of the time, and 95 Mbps or 137 percent increase during the best link

conditions. The activation of FlexACM on this link also guarantees 100% link availability.

Horizon Satellite Services - FlexACM amd limited receive conditions

Horizon Satellite Services, headquartered in UAE, is a leading provider of end-to-end communications solutions for corporate networks and facilitates access to tier one internet backbones for the regions largest companies and internet providers. Horizon has a link with an uplink in Europe, connecting to several sites including Lebanon and Iraq. The throughput of these different links varied between 7Mbps and 74 Mbps. For a certain link, conditions on the receive side were not optimal, as the receive site was on the edge of the satellite footprint. Further, the link experienced a daily variation of 2dB peak-to-peak in C/N, for unknown reasons. Horizon upgraded its existing Newtec Elevation equipment to enable
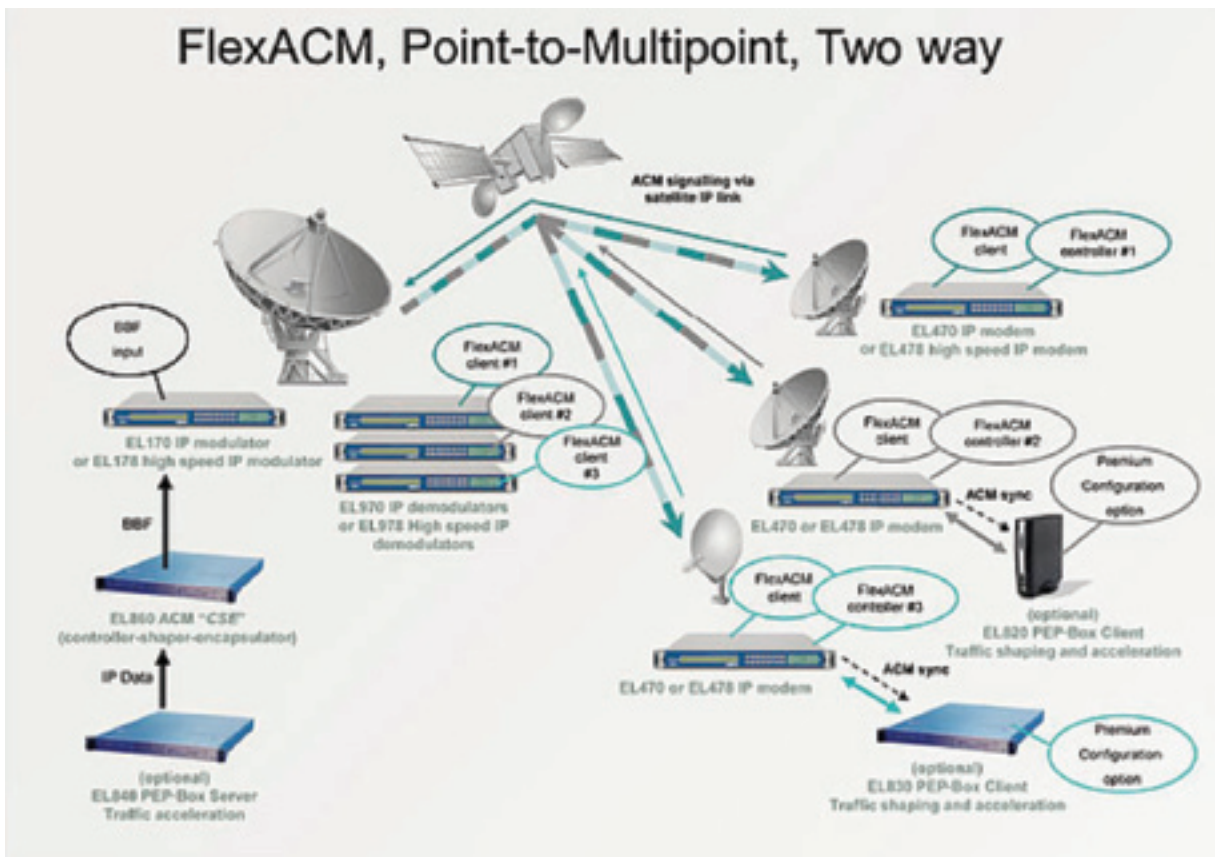
Newtec's FlexACM solution. With this solution, the link remained up at all times, even during degraded link conditions. In addition to this, Horizon was able to utilise a higher modulation order on its links, increasing from 8PSK 3/4 to 16APSK 4/5. This meant a gain of 65 Mbps to 93 Mbps (an increase of 43%, without acceleration or compression used). Horizon is now assured that the link performs to the maximum capacity achievable in the given situation.

About the author

Max díOreye joined Newtec in 1998 and was recently appointed Vice President Professional Equipment Business Line. Max has held various responsibilities, among which Program Manager for all ESA activities and more recently VP Marketing. Max has more than 15 years of professional experience in the broadcast and satellite industry and is a specialist of video encoding and satellite transmission technologies and products.

FlexACM, Point-to-Multipoint, Two way

INSIGHT
Playing Our Role as Part of the Asia-Pacific Family

by Elliot Holokauahi Pulham, The Space Foundation

"The idea of the world's economic, political, and cultural center moving from Europe to the Pacific region is already more than 100 years old. The term Pacific Age was coined in Japan in 1892, and around the turn of the century the idea was discussed in the United States and Australia. During the 1920s it became a catch-word among Pacific liberal intellectuals, but the gloom of the 1930s ended the vision. In 1967 the idea reappeared in connection with the emerging Pacific integration process, and rapid economic development in East Asia has kept the optimistic vision alive since then."
The Pacific Age in World History
Journal of World History – Volume 7, Number 1

Growing up in the Asia-Pacific melting pot of Hawai'i, attending college at the home of the East-West Center (University of Hawai'i), and spending part of my early professional life developing commercial air transport service between such distant Pacific Rim locations as Alaska to the North, the U.S. West Coast to the east, Japan and Guam to the west and the Samoas, Tonga and Tahiti to the South, I have always been an optimist about the social, political, and economic potential of this, the most vast and diverse geographic region on the planet. Today, as the space industry matures, it is only natural that global providers of space-based systems, services, and applications turn their eyes and business plans toward the Asia-Pacific region.

But we need to temper our optimism with caution. This is a part of the world that is full of surprises, where cultures are complex, significant capabilities already exist, outsiders are not easily trusted, and relationships trump profit almost every time. When the British explorer *James Cook* sailed **HMS Resolution** and **HMS Discovery** into Kealakekua Bay, Hawai'i, in the winter of 1779, the 180 westerners were greeted warmly by more than a thousand Hawaiians. My great, great, great, great, great, great, great, great grandfather, the "High Chief" or "King" Kalani'ōpu'u, extended a royal welcome. He lavished two-thirds of the annual tribute paid him by the local people upon the visiting British. Cook's ships were fully provisioned, the Hawaiians placing the needs of their guests ahead of their own. Yet, despite such auspicious beginnings, Cook and his men eventually turned upon their hosts — abducting my great-times-eight grandfather in a hostage-taking blunder that would end in Cook's death and the expulsion of the British from the islands. Having seen no militia and having arrived during a festival season when warring was forbidden, the British assumption, that kidnapping Kalani'ōpu'u was a low-risk tactic, backfired horrifically — loyal warriors skilled in native martial arts swiftly overwhelmed the technically superior British forces.

A low-water-mark in relations between the western world and the peoples of Asia and the Pacific, *Cook*'s misadventure remains, some 230 years later, an object lesson in how western arrogance, insensitivity, and cultural indifference can lead to diplomatic, economic, political, and business blunders when Europeans or Americans blithely dip their toes into the warm, beckoning waters of the Asia-Pacific region.

To be sure, this is a tantalizing "market." As described in *Wikipedia*, "There are many economic centers around the Pacific Rim, such as Auckland, Busan, Brisbane, Ho Chi Minh City, Hong Kong, Lima, Los Angeles, Manila, Melbourne, Panama City, Portland, San Diego, San Francisco, Santiago, Seattle, Seoul, Shanghai, Singapore, Sydney, Taipei, Tokyo, Vancouver, and Yokohama. Honolulu is the headquarters of various intergovernmental and non-governmental organizations of the Pacific Rim including the East-West Center and the Institute of Asian Research."

However, while this is a huge market, it is by no means easily approached. "The region has great diversity," *Wikipedia* continues, "with the economic dynamism of Hong Kong, Taiwan and Singapore; the technological expertise of Japan, Korea and the Western United States; the natural resources of Australia, Colombia, Canada, Mexico, Peru, the Philippines, the Russian Far East and the United States; the human
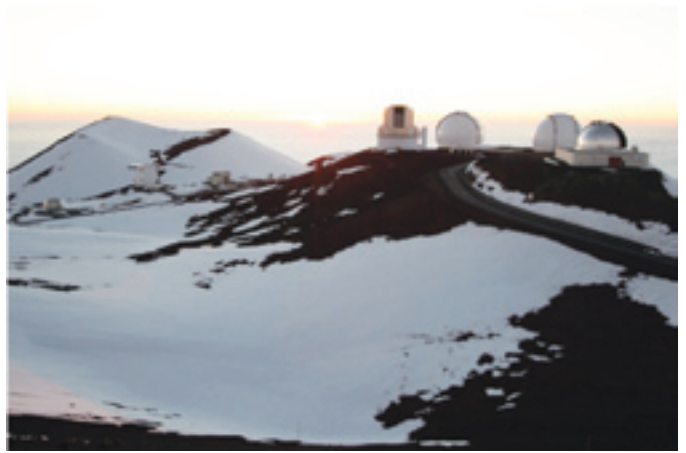
resources of China and Indonesia; the agricultural productivity of Australia, Chile, New Zealand, the Philippines, and the United States among others."

On the one hand, the vast geography of the Pacific Rim seems to make it an automatic candidate for space-based solutions. In meetings convened by the **Space Foundation** in Honolulu in recent years, a common theme was "*the tyranny of distance.*" The distance between points A and B in the Pacific can be so enormous that space systems seem the most logical, in some cases the only way, to provide critical information infrastructure. Just because your company may have the perfect answer to some pressing challenge in the region, or just because there are more consumers in China and India than in all of North America and Europe combined, it doesn't necessarily follow that you should pack up your sales kit and head out toward the Pacific.

For one thing, there's already a tremendous amount of space capability in the region. Here in the west, most people tend not to pay a lot of attention to this huge and dispersed area of the world. And when we do think about the Pacific, the romantic stereotypes of bygone ages still seem to endure.

Take Hawai'i, for starters. (Since we started with Captain *Cook*, let's return to the scene of the crime.) Say "Hawai'i," and most people will conjure up images of romantic sunsets on white sand beaches, snorkeling, luaus, yummy rummy drinks with fruit salad and umbrellas in them. While Hawai'i is, of course, a U.S. state, it is so exotic that many tourists still arrive wondering what the local currency is.

Almost no one, except an astronomer, would start a Hawai'i monologue by talking about the fact that this isolated group of islands in the middle of the Pacific is the leading astronomy and space surveillance location in the world. Many people do know that there are telescopes atop *Mauna Kea* on the "Big Island" of Hawai'i. Far fewer know that this is the astronomy site of preference for astronomers from all over the world. (Runner-up, by the way, is another Pacific site, in the Andes of South America.) Or that there is a world-class astronomy research community here. Or that the modest little *University of Hawai'i–Hilo* campus is one of the best places to take up the study of astronomy and astrophysics.

Observatories at Mauna Kea, Hawai'i

But that's only for starters. Hop across the Alenuihaha Channel, to *Haleakala* on Maui. This is the home of the *Air Force Maui Optical Station,* arguably the most sophisticated optical space surveillance installation in the world. Not only does Haleakala fairly bristle with the various sensors and instruments associated with **AMOS**, but the unique capabilities of the facility are supported by a rapidly growing, local space industrial base. Renowned for its hospitality, Hawai'i almost never gets the respect it is due for its space economy, which includes not only scientific and military installations, but research universities and nearly 300 private sector companies as well. And, since we hopped the Alenuihaha Channel to get from Hawai'i to Maui, we shouldn't forget that this 110-mile stretch between the tops of *Mauna Kea* and *Haleakala* is where Japan and other nations are testing and developing the technology for microwave transmission of solar-electric power through space.

U.S.A.F. Maui Optical Station, Haleakala, Hawai'i

Did I say Japan? Here's another highly space-capable location in the Pacific. Need a launch vehicle? **Mitsubishi Heavy Industries** has got you covered. Need a satellite of almost any kind at all? Once again, the Japanese can deliver world class hardware. Japan has already fielded one of the most robust robotic interplanetary exploration programs in the world. While Americans justifiably take pride in **NASA** programs such as the Mars rovers, the fact is that, if there is a rival to the rich portfolio of robotic exploration spacecraft managed by NASA's **Jet Propulsion Laboratory**, that rival is the *Japanese Space Agency*, **JAXA.** In fact, the *2008 John L. "Jack" Swigert, Jr. Award for Space Exploration* was presented by the Space Foundation to JAXA for the design, development, launch, and operation of its pioneering fleet of space exploration spacecraft — *Suzaku*, *Akari*, *Hinode*, *Hayabusa,* and *Kaguya*. I won't go into the diverse and intriguing missions of all these spacecraft, but suffice it to say that when materials mined from an asteroid in space are returned soon to earth, it will be by a Japanese spacecraft. And whoever looks most likely to return humans to the Moon can save themselves a lot of R&D by buying high definition imagery and the most detailed optical and SAR mapping data ever acquired from JAXA, not NASA.

Japan, by the way, has recently doubled its space exploration budget, enacted legislation to begin allowing its *Defense Forces* to own and operate national security satellites, and is entering the U.S.-dominated position-navigation-timing business with a Japan-specific satellite *PNT* system of its own design and manufacture. Japan's plans to send humans to the Moon are extremely credible, given not only the Japanese launch capability, but its human-rated vehicle capabilities, as impressively demonstrated with the addition of the *KIBO* experiment module to the International Space Station.

Nor is Japan alone in the Pacific in its lunar ambitions. China and India have both the ambition and the means.

Let's consider India first. Here is a country which already has world-class satellite design and manufacturing capabilities. In fact, until relatively recently, India held the global lead in commercial remote-sensing

satellite technology. Along the way to becoming world-class satellite manufacturers, India, through **ISRO** (*India Space Research Organization*) also developed highly capable orbital launch capabilities. Largely unnoticed in the west, ISRO quietly but successfully launched an orbital re-entry testbed spacecraft, which demonstrated the ability to manage the thermal and aerodynamic challenges of re-entry into the Earth's atmosphere. India, too, recently announced a doubling of the nation's space research and development budget.

Then there is China . . . the most populous nation on earth and the market that everyone would like to crack. Only — *they don't especially need our help.*

Launchers? Forget about it. There are eight different models in the ***Long March*** family alone, and while Russia (another Pacific nation) still leads in worldwide commercial space launches each year, the fact that U.S. payloads are banned from Chinese rockets creates a huge market distortion. China, too, has world class satellite design, manufacture, launch, and operation capability and has space partnerships of various sorts with more than 130 nations around the world.

When the ninth and newest Long March model comes out, China alone will have the capability of putting 25 tons of payload into trans-lunar injection. And in about two years time, when the U.S. space shuttle fleet retires, only two nations on the planet will have the ability to launch humans into space — the Asia-Pacific nations of China and Russia.

Regrettably, editorial space doesn't permit me to go on and on about the many other space programs, from fledgling to sophisticated, that abound in the Asia-Pacific region. But from Tonga to Malaysia, Singapore to South Korea — the Asia-Pacific Region is rich in both emerging and mature space capability.

By no means does that mean that western space operators should give up on the Asia-Pacific marketplace. The fact is that this region is home to the fastest growing economies and populations on the planet. There is plenty of room to develop successful partnerships and profitable business ventures. There is no way for domestic production in the Asia-Pacific region to keep up with consumer demand. But do be aware that partnerships are critical. Be mindful of our old friend Captain *Cook*!

When the Space Foundation recently hosted the U.S. visit of a high level delegation representing the *China Manned Space Flight Program*, a lot of people asked me how we pulled that off. After all, China has only sent high level space leaders to the U.S. on two occasions since joining the very exclusive human space flight club — and both of those visits were carried out under the auspices of the Space Foundation. The reason is not that we're geniuses — the reason is we are patient and sensitive to cultural issues. We have been working with the Chinese space community for more than a decade. When we met with the Chinese leadership in Colorado Springs to start mapping out next steps in fostering U.S.-China relationships in space, we did so as old friends.

This, too, is how I think any western space enterprise can be successful in the Asia-Pacific region. By starting softly and quietly, and putting relationships first. Understand the cultures, and you will understand why business models can't simply be transplanted from the U.S. to India, or from Europe to China. Understand the politics, and you'll understand that, just as in the west, governments and the people they govern are not necessarily perfect reflections of one another.

Growing up in the crossroads of the Pacific during the rebirth of "Pacific Age" thinking, I am extremely optimistic that the best is yet to come in this part of the world, and that there will be a role for the west to play — especially the Americas, which are by definition part of the Pacific. So long as we are willing to faithfully play our role as part of the Pacific family, and not just sail onto the shores and start barking instructions, a warm welcome, and limitless opportunity, awaits.

CASE WORK

Improving Bandwidth + Capacity For A Remote Location

*by Adam Davison, **Expand Networks***

Few people know the troubles of Norfolk Island, located in the Pacific Ocean between Australia, New Zealand, and New Caledonia. In fact, few people may know of Norfolk Island at all. The tiny, self-governing island territory of Australia is home to about 2,000 people and covers just over 34 square kilometers. With only one airport and no railways, waterways, ports or harbours, the island's remoteness and dependence on distant suppliers of goods and services, alongside its growing tourist industry means that residents and businesses are heavily dependent on a telecommunications infrastructure, which was heavily burdened by bandwidth and capacity limitations. Not surprisingly, they have only one telecommunications service provider on the island — Norfolk Telecom, a Government Business Enterprise wholly-owned and operated by the Administration of Norfolk Island.

Due to the residents' dependence on tourism and ever increasing need for bandwidth and more capacity on its network of approximately 2,500 landlines, as well as a prepaid mobile network, Internet services, and the satellite communications network, **Norfolk Telecom** was desperately seeking ways to improve the service offered to the Island in order to increase the bandwidth and reduce the latency of all internet-based services.

Norfolk Island's voice and data communications was dependant on parallel satellite links, with few aspects of life and business not reliant on Norfolk Telecom's ability to prioritize traffic over the WAN, and was looking for a way to ensure acceleration of all applications on the network to maximize the island's virtual proximity to the rest of Australia. By working together with Expand Networks to introduce a combination of compression, TCP acceleration for web traffic and web and FTP caching, Norfolk Telecom was able to deliver immediate improvements in bandwidth and traffic speed.

Due to **Expand Networks**' *Accelerator 6930*, which has a hard drive capacity of 500GB and can deliver 10Mbps of compression, 100Mbps optimization, and

45Mbps acceleration; and Expand Networks *Accelerator 4930*, which can deliver 6Mbps of compression, 45Mbps optimization and 15Mbps acceleration, both use low latency, lossless techniques that work on all applications to consistently deliver average bandwidth increases between 100 and 400 percent. *Quality of Service* (**QoS**) enforcement also ensures that applications run unimpeded on the WAN, enhancing prioritization with sophisticated algorithms to combat congestion, mark packets for downstream QoS handling and rate control shaping to make sure data flows get the bandwidth they need.

In addition, Expand Networks' technology excels in satellite environments by mitigating the traditional low bandwidth, high latency obstacles to improve application performance and user productivity. With Norfolk Island's infrastructure so reliant on its satellite environment, it was especially suited to the needs of the island. As a result, Norfolk Telecom was able to increase available bandwidth between 25 and 50 percent across the network overall — and up to 100 percent in some areas. The WAN optimization technology improvements saved Norfolk Island $80,000 per year in satellite bandwidth costs, optimized existing satellite links, and boosted bandwidth across the territory by as much as 100 percent.

"By using WAN optimization technology, we were able to double the bandwidth we can offer, and reduce the latency experienced by customers when using internet based services," said *Stuart Robertson*, Chief Technology Officer Technical Officer, Network and Systems, for Norfolk Telecom. "We have cut costs by avoiding the need to upgrade our satellite links. The QoS and priority traffic functions of the accelerator ensure our remote location does not hinder our key community services or our ability to communicate with the mainland."

About the author

Adam Davison is Corporate VP Sales and Marketing for Expand Networks and is responsible for implementing sales processes across the regions, and coordinating and initiating global efforts and alliances to enhance Expand's worldwide presence. Davison has over 14 years experience in sales, management and business development roles for the Company.

Index of Advertisers

COMPANY	PAGE
AAE	41
ABS	INSIDE FRONT COVER
ANACOM	29
APSCC	43
AVL	45
COMTECH EF DATA	33
CPI WIRELESS	37
D.I.S. RESEARCH	17
FUTRON	15
GE INTERNATIONAL	35
GLOBAL LINK PRODUCTIONS	49
GLOBAL VISION	51
GLOBECAST	BACK COVER
IDIRECT	21
INTEGRAL SYSTEMS	25
INTOREL	59
MITEQ INC. | MCL	53
NEWTEC CY	11
NSR	13
PARADISE DATACOMM	INSIDE BACK COVER
SATLINK COMMUNICATIONS	05
W.B. WALTON DE–ICE	39
WAVESTREAM CORPORATION	09
YR20	31