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Satellites and IT: What's the Connection?

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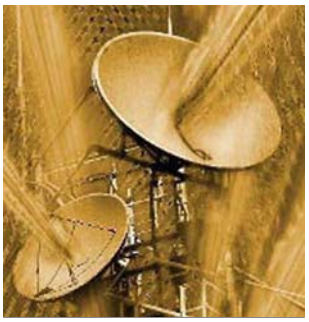

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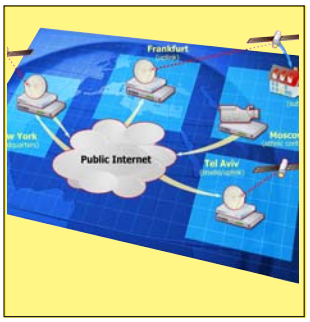

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NOTE FROM THE EDITOR

The Pieces are Finally Coming Together

Just before the holidays, global satellite operator SES GLOBAL announced its purchase of the assets of erstwhile Intelsat spin-off, New Skies Satellites. SES GLOBAL which lost it's number one spot as the largest global satellite operator when Intelsat announced earlier its purchase of PanAmSat. SES GLOBAL's purchase of New Skies still does not make it back to the no. 1 spot, but it will certainly strengthen its position in Europe, Latin America and Asia.

SES Global made a logical move by taking over New Skies. Intelsat is prevented by the ORBIT Act of 2000 from reacquiring New Skies, which it spun off in 1998.

We are finally seeing the denouement of the process of consolidation that started a few years ago. There are now only two satellite operators with global coverage—Intelsat and SES Global (there used to be five before the mergers). The competition is going to be fierce. Who's next? Do I hear Eutelsat?

Meanwhile, in this issue, we look at another important piece of the satellite puzzle--the relationship between satellite technology and information technology (IT). IT has become more and more indispensable component of any satellite service. In our cover story by Howard Greenfield, he provides a comprehensive view on the relationship between satellites and IT. Bruce Elbert in his Viewpoint column (page 33) dispels many of the myths surrounding this important aspect of satellite technology.

As with many businesses, IT is driving satellite technology to the next level.

Virgil Labrador

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CALENDAR OF EVENTS 2006

JANUARY

January 15-18, Honolulu, Hawaii USA PTC'06
Shift Happens: Transition to IP
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FEBRUARY

February 6-9, Washington, D.C.
Satellite 2006
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February 20-24, Johannesburg, South Africa
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MARCH

March 7-9, Dubai, United Arab Emirates
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March 21-23, New Delhi, India
Convergence India 2006
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E-mail: exhibitionsindia@vsnl.com Website:
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APRIL

April 22-27, Las Vegas, Nevada
NAB 2006
Tel: +45 3815 3332 / 202-429-5300 Fax: 202-429-4199
Email: nab@nab.org / Website: www.nab.org

MAY

May 4-5, Copenhagen Business School, Copenhagen, Denmark
European Satellite Cultures Conference
Julie Uldam
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Website: www.cbs.dk/esc

JUNE

June 13-15, San Diego Hilton Resort at Mission Bay, San Diego, CA, USA
ISCe Conference and Expo
Hannover Fairs USA
Phone: +1 310 410 9191 / Fax: +1 310 410 9396
Email: info@isce.com / Website: www.isce.com

June 20-23, Singapore
CommunicAsia 2006
Tel: +65 6738 6776 / Fax: +65 6732 6776
Email: min@sesallworld.com
Website: www.communicasia.com

AUGUST

Aug. 22-26, Beijing, China
BIRTV 2006
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Fax: +86 10 86093790 , Email: birtv@birtv.com
Website: www.birtv.com/english/about.asp

OCTOBER

Oct. 19 - 21, World Trade Centre, Mumbai, India.
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FEATURED EVENT

ISCe 2006 Expands Program with Joint-Conference with AIAA

ISCe Conference and Expo 2006

June 13-15, 2006, San Diego Hilton Resort at Misson Bay, California

Celebrating it's fifth year anniversary, ISCe, which has carved a niche as a must-attend event in the satellite industry, will be jointly holding the 5th Annual ISCe Conference and Expo with the 23rd American Institute of Aeronautics and Astronautics (AIAA) International Communications Satellite Systems Conference (ICSSC) from June 13-15 at the San Diego Hilton Resort in San Diego, California.

The partnership with AIAA will bring together two major international satellite conferences in one venue. The joint conference bring many synergies between the two programs in terms of content, speakers and a larger pool of attendees from all sectors of the industry. The partnership with AIAA is the latest addition to ISCe's growing program lineup that includes joint programs with the Carmel Group's Cable, Satellite and Telco Entertainment Forum, the World Teleport Association (WTA)'s Translating the Trends Workshop , and the Global VSAT Forum's Wireless Forum. ISCe is also supported by the Washington D.C.-based Satellite Industry Association (SIA), whose Executive Director, David Cavossa will be presenting it's annual "State of the Industry" Report at ISCe.


HILTON RESORT AT MISSION BAY

"Hannover Fairs USA is pleased to be working with AIAA on the joint ISCe and ICSSC programs," said Joachim Schaffer, President, Hannover Fairs USA, organizers of ISCe. "The joint program will allow both the satellite engineering and business development communities to interact and discuss the key issues, policies, challenges and opportunities facing the satellite industry under one roof," he added.

ISCe 2006 will be focusing on Satellite and Hybrid Solutions for the **enterprise**, **entertainment and media**, and **government/ military markets**. The conference will focus on the value and cost-effective solutions that satellite and hybrid networks (cable, telcos and utilities) provide to the end users.

As in its previous successful conferences, ISCe 2006 will feature leading industry speakers in a comprehensive conference program that includes the following key components:

- **GVF Wireless Forum**
- **Space & Security Forum**
- **WTA Translating the Trends Workshop**
- **Carmel Group's Cable, Satellite & Telco Entertainment Forum**
- **Digital Content & Mobile Forum**
- **Military & Government Requirements Forum**
- **Retail Enterprise & Business Forum**
- **Global Business & Financial Outlook Forum**

In addition, ISCe 2006 will continue to have innovative features such as their "Product Demonstration Program" and many networking events including the Annual ISCe Awards Dinner.


David Bross

Apart from the new venue and an expanded schedule, Hannover Fairs has also added new staff to spearhead preparations for ISCe 2006. The dynamic David Bross joined Hannover Fairs last November as director of business development and vice-chairman of ISCe. Bross will be responsible for program development and exhibit and sponsorship sales for ISCe. Before joining HFUSA, Bross was responsible for advertising sales at *Space News*, a leading space industry publication, and prior to that he was conference chairman for the Satellite Conference in Washington, D.C.

For more information on ISCe 2006 go to www.isce.com or call +1-310-410-9191 or e-mail: info@isce.com SM

INDUSTRY NEWS

SES Global to Acquire New Skies for $760-M

BETZDORF, Luxembourg — SES Global S.A., the world's second largest satellite group and operator, has agreed to buy New Skies Satellites Holdings Ltd. for $760 million to expand coverage in Asia and the Middle East.

According to a Dec. 15 joint press statement, SES Global will acquire 100 percent of New Skies by way of a merger under Bermudian law for $22.52 per share in cash for a total payment for the equity of New Skies in the amount of $760 million.

In addition SES will take over debts of New Skies amounting to $400 million putting New Skies Satellites' enterprise value at $1.16 billion.

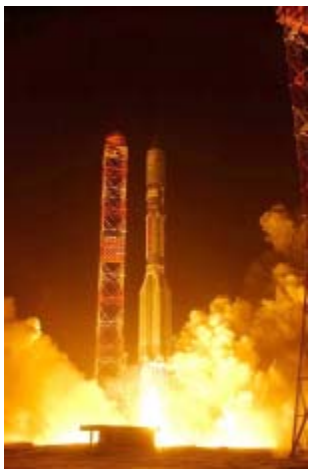
New Skies, a Bermudian company with its main operating subsidiary headquartered in The Hague, The Netherlands, is the world's fifth largest satellite operator based on transponder capacity, with five spacecraft positioned at strategic orbital locations around the globe and an additional satellite due for launch in 2006. For the twelve months ended September 30, 2005, New Skies generated revenues of $232.9 million.

With its acquisition of New Skies, SES will be expanding its current satellite portfolio of 40 by five additional satellites, whose footprints though they appear in Asia, Africa and the Middle East and will help SES strengthen its position in Latin America. SES said the integration of New Skies' satellite assets will notably extend SES' presence in India, the Middle East and Africa as well as in Latin America, allowing SES better to meet its customers' requirements for global service offerings. The combination would also firm up SES as the second largest global satellite operator behind the combined Intelsat-Panamsat.

In addition, New Skies' customers will benefit from the expansion capacity, redundancy and broad service offerings provided by the larger SES fleet and organization, the two companies said.

New Skies' existing business mix also is also expected to enhance SES' video-centric core business by strengthening its video, data and government segments. In the government services market, New Skies' position as a satellite capacity provider to a range of government customers is a strong complement to the comprehensive capabilities of SES' Americom Government Services in this important and fast-growing market. The transaction, SES said, will allow the company to reduce its reliance on third-party capacity for government services in certain regions of the world and, moreover, allow for synergies with respect to operating expenses across the business more broadly.

AMC-23 Telecoms Satellite Launched from Baikonur, Kazakhstan



A Proton launch vehicle with AMC-23 on board lifts off at 9:28 pm EST on Dec. 29 from Baikonur. (ILS photo)

PARIS — The AMC-23 communications satellite was successfully launched on Dec. 29 from Baikonur in Kazakhstan. The satellite, dedicated to the U.S. operator SES Americom, an SES Global company, was launched by International Launch Services on a Proton Breeze M rocket.

The satellite will provide high-speed broadband services to commercial airline passengers throughout the Pacific region. In addition, the 18 transponder C-band payloads will be available to broadcasters, cable programmers, Internet service providers, government agencies, educational institutions, carriers and private networks for next generation distribution solutions and connectivity to North America and Pacific Rim.

Alcatel Alenia Space, manufacturer of AMC-23, said this hybrid C/Ku-band satellite has been designed to meet the particular requirements of Americom's customer, Connexion by Boeing, and will provide high-speed broadband services to commercial airline passengers throughout the Pacific region.

Alcatel added AMC-23 is the fourth Spacebus satellite delivered to SES Americom in seven years and the fourth Spacebus 4000 telecommunication satellite to be launched this year.

The Proton launcher lifted off at 8:28 a.m. December 29 local time at the Baikonur space center (9:28 p.m. Wednesday EST, 02:28 Thursday GMT). After about nine hours and 20 minutes, the satellite separated from the Breeze M upper stage and entered a transfer orbit. Following a few weeks of maneuvers and in-orbit tests, the satellite will provide services throughout the Pacific Ocean region.

Inmarsat Launches BGAN Service

The launch of Inmarsat-4 F2 communications satellite on Nov. by Sea Launch Co.

LONDON — Inmarsat launched on Dec.7, its Broadband Global Area Network (BGAN) billed as the world's first mobile communications service to provide both voice and broadband data simultaneously through a truly portable device on a global basis. It is also the first to offer guaranteed IP data rates on demand.

Delivered via the Inmarsat-4 satellites, the service is initially available across Europe, Africa, the Middle East and Asia.

Inmarsat took six years to develop the BGAN service. Following the successful launch of Inmarsat's second I-4 satellite on November 8, network coverage will be extended to North and South America from second quarter of 2006. The two I-4 satellites will deliver seamless broadband coverage across 85 percent of the world's landmass and be available to 98 percent of the world's population according to Inmarsat.

"BGAN delivers broadband where other networks can't," said Michael Butler, Inmarsat's chief operating officer. "It enables anyone to set up a broadband mobile office in minutes and remain fully productive - wherever they are on the planet."

BGAN offers IP data speeds of up to 492kbps, with the option of guaranteed data rates up to 256kbps. The service is designed for mobile users who want dependable, secure broadband access when working in locations with an unreliable or non-existent telecoms infrastructure.

BGAN also enables users to access their corporate network via a secure VPN connection, use e-mail and other office applications, browse the Internet, send large file attachments, stream video or audio - and make a phone call at the same time. It also supports a range of encryption standards for secure communications.

The service is accessed through a range of lightweight satellite terminals - the smallest is about half the size of a laptop. BGAN terminals can be connected in minutes using wired or wireless connections, including Bluetooth and WLAN 802.11b. BGAN can be used by single users or small teams wherever and whenever reliable voice and broadband data communications are needed.

"Once again, through Inmarsat's ongoing commitment to innovation, we have established a new benchmark for our industry," said Michael Butler. "Today's launch marks a key milestone in our vision to deliver broadband for a mobile planet."

The company unveiled the new service to the world in a joint press briefing with representatives of its Distribution Partners and manufacturers at its London HQ.

Intelsat Partners with APT Satellite to Serve Asia-Pacific

HONG KONG — Intelsat Limited and APT Satellite Company Limited, a subsidiary of APT Satellite Holdings Limited, signed on December 5 a strategic cooperation agreement to work together using their combined satellite fleets.

In a signing ceremony at the Island Shangri-La Hotel here, the two companies agreed to market each other's satellite capacity and ground resources, as well as to provide broadcast and telecommunications services to the Asia Pacific region, including China.

This strategic move will allow Intelsat, as well as its media and corporate data customers, to access the Asia Pacific market through APT Satellite's two newly launched satellites, Apstar 5 and Apstar 6. APT Satellite will have access to Intelsat's capacity in other regions of the world via Intelsat's fleet of 28 satellites, thereby expanding APT Satellite's reach and giving it the ability to seamlessly carry its customers' traffic wherever they may need service. As part of the alliance, the two companies have agreed to explore additional growth initiatives in the Asia-Pacific region, including China.

Ni Yifeng, executive director and president of APT Satellite, said the strategic alliance will significantly strengthen APT Satellite's and Intelsat's sales and marketing functions in the region. "The alliance will also enable APT Satellite to provide more comprehensive services to its customers," he said.

"We believe that the agreement with APT positions us well to take advantage of any new business initiatives or opportunities

that arise in the Asia Pacific region, including China, over the near and longer terms," said David McGlade, CEO of Intelsat. He said entering into the agreement creates value at the company and customer levels and enables Intelsat to expand its service offerings in the region while creating a new avenue for customers of both companies to seamlessly take their traffic into or out of the region.

Structural Damage Holds Falcon 1 Rocket Launch; Maiden Flight Moved to January

EL SEGUNDO, CA — A fuel tank barrel section that deformed due to faulty pressurization valve had been cited as the apparent cause of the second postponement of the inaugural launch of SpaceX's Falcon 1 rocket on Dec. 20.

Due to high winds, launch controllers placed the countdown on hold and technicians began draining the fuel tank. SpaceX said that as fuel was drained from the first stage tank, a faulty pressurization valve produced a vacuum in the tank, causing the fuel tank barrel section to deform and suck inward.

SpaceX CEO Elon Musk emphasized that the root cause of the problem is an electrical fault with a valve, not structural design. He added there appears to no damage was sustained to the vehicle or the satellite, SpaceX said, although the rocket will be lowered down and placed in the company's hangar for further inspection.

The setback came during the second countdown for the inaugural launch for Space Exploration Technologies. The first launch try on November 26 was stopped because of an incorrectly set vent valve that allowed liquid oxygen to escape from a ground storage tank.

After the launch was scrubbed, SpaceX said it will also do another full review of all the vehicle systems, including propulsion, structures, avionics, software and ground support systems. "We expect that the earliest that launch would occur is late January," the company said.

A day before the Dec. 19 scheduled launch, SpaceX said all systems have passed their prelaunch checkout, assuring the press it had also improved and upgraded the countdown sequence in several ways.

Falcon 1 on Launch Pad in Kwajalein.

SpaceX said it now has more computer controlled operations vs. manual, it improved ground support equipment to load propellant/pressurant faster, it worked with range safety to speed up checkout of the thrust termination system, and changed to simultaneous load of auxiliary liquid oxygen (LOX) and fuel on both stages.

Falcon 1 is a two-stage rocket powered by liquid oxygen and kerosene and is being billed as the first privately developed, liquid-fuelled rocket to reach orbit and the world's first all-new orbital rocket in more than a decade. At $6.7-million, Falcon 1 could be the lowest cost per flight to orbit of any launch vehicle, according to the company.

SpaceX is developing a family of launch vehicles intended to reduce the cost and increase the reliability of access to space ultimately by a factor of ten. With the Falcon 1, Falcon 5 and Falcon 9 launch vehicles, SpaceX aspires to offer light, medium and heavy lift capabilities.

Russia, Indonesia to Study Joint Satellite Program

KUALA LUMPUR — Russia and Indonesia signed on December 15 an agreement to study the possibility of developing a telecommunications satellite as well as a ground control station to provide the most advanced multimedia services on Russia, Indonesia and the Asia-Pacific region.

The agreement between Russian Satellite Communications Company (RSCC) and PT Telekomunikasi Indonesia Tbk was signed as one of the sidelights during the just-concluded Russia-Association of Southeast Asian Nations summit held in Malaysia.

According to RSCC, the orbital position for the satellite and its parameters are to be specified in the course of further cooperation of the operators. The spacecraft is envisioned to cater to growing customer demands in reliable and available digital TV

services, Internet access, and other interactive applications in Russia and Asian countries.

"The international cooperation allows us to more efficiently develop national telecommunications networks providing an equal availability of up-to-date satellite communications services to the population. Broad experience in the field of developing and operating the satellite constellation enables us to plan business diversification," said Yuri Izmailov, RSCC' acting director general.

Ariane 5 Successfully Launches India's Insat-4A, Europe's MSG-2

KOUROU, French Guiana — Arianespace's Ariane 5 completed its dual-satellite mission on Dec. 21successfully launching India's Insat-4A communications satellite and Europe's MSG-2 weather satellite.

Lifting off from Europe's Spaceport at the start of its 28-minute launch window, the Ariane 5 Generic vehicle deployed Insat-4A first – releasing it in geostationary transfer orbit at just over 29 minutes into the flight. Approximately seven minutes later, the European MSG-2 second-generation Meteosat spacecraft was also injected into geostationary transfer orbit.

Ground tracking stations immediately received the first telemetry signals from Insat-4A and MSG-2, confirming that both passengers were in good condition after their ride aboard Ariane 5.

Arianespace said ground tracking stations immediately received the first telemetry signals from Insat-4A and MSG-2,

INDUSTRY NEWS

confirming that both passengers were in good condition after their ride aboard Ariane 5.

The three-axis stabilized Insat 4A carries a mixed payload of 12 Ku-band and 12 C-band transponders, and is the first in India's new Insat 4A telecommunications spacecraft series that will provide coverage over the Indian subcontinent. It was designed, built and integrated by the Indian Space Research Organisation (ISRO), and it had a liftoff mass of approximately 3,200 kg.

The MSG-2 platform is a spin-stabilized spacecraft developed by Alcatel Alenia Space to provide high-resolution images of the Earth's weather activity for the European Meteorological Satellite organization (Eumetsat). The 2,034-kg. satellite also will measure the planet's radiation balance for information on climate change.

The Ariane 5 rocket blasts off from Arianespace's Kourou launch pad. (ESA/CNES/ Arianespace photo)

Arianespace CEO Jean-Yves Le Gall said the next Ariane 5 mission is set for February 21. This will be another dual-satellite flight, using the heavy-lift Ariane 5 ECA version to loft Hot Bird 7A for Eutelsat and the Spainsat spacecraft for Hisdesat.

The Arianespace CEO also confirmed that Starsem's year-ending Soyuz mission is on schedule for liftoff from Kazakhstan. SM

EXECUTIVE MOVES

Northrop Appoints John F. Olesak Vice President of Space and Intelligence

John F. Olesak

MCLEAN, Va. — Northrop Grumman Corporation has named John F. Olesak vice president of space and intelligence for the company's Information Technology (IT) sector.

As vice president of space and intelligence, Olesak will develop and direct innovative geospatial solutions and services including systems engineering, integration and tactical operations support for the defense and intelligence communities, Northrop said.

"John has been an integral part of Northrop Grumman's intelligence unit for nearly 15 years and has effectively delivered enterprise-level integration and interoperability engineering solutions to our customers," said Sidney Fuchs, president of Northrop Grumman IT's TASC business unit.

"In this new role, John's expertise and leadership will help influence the scope of the geospatial intelligence solutions that we provide to the U.S. government, military, homeland security and intelligence agencies."

Olesak earned a bachelor's degree in business administration from American University and attended executive development courses at the University of Virginia Darden Graduate School of Business Administration.

Boeing Board Elects Ken Duberstein Lead Director

CHICAGO — The Boeing Company board of directors has elected Kenneth M. Duberstein lead director, replacing Lew Platt who passed away earlier this year. Duberstein, 61, has served on the Boeing board since 1997.

Duberstein is chairman and chief executive officer of The Duberstein Group, a Washington, D.C.-based consulting firm. Prior to starting the firm, he served in the Reagan administration, including two years as the president's Chief of Staff, in 1988 and 1989.

"Ken has in-depth knowledge of this company and has a proven ability to build consensus. His global perspective and government experience will continue to benefit Boeing, and I am very pleased that he has agreed to take on this role," said Jim McNerney, Boeing chairman, president and CEO.

Swales Aerospace Appoints John Klineberg as CEO

BELTSVILLE, Md. — Swales Aerospace has announced the appointment of Dr. John M. Klineberg to serve as chief executive officer. Dr. Klineberg will serve for an interim term and participate in the company's search for a long-term replacement.

Dr. Klineberg, former president of Space Systems/Loral and vice president of Loral Space & Communications, joined the company's board of directors in May 2002. A 32-year veteran of the aerospace and defense industry, his achievements include the establishment of the Globalstar constellation of low- earth orbit satellites while at Loral, as well as service in a variety of management and technical positions at NASA.

During his career at NASA, he was director of the Goddard Space Flight Center, director of the Lewis Research Center and deputy associate administrator for Aeronautics and Space Technology at NASA headquarters.

L-3 Communications Appoints Steve R. Osborne Corporate VP of Business Acquisition

NEW YORK — L-3 Communications has promoted Steve R. Osborne, Ph.D. to the newly created position of corporate vice president of business acquisition.

In his new position, Dr. Osborne will be responsible for supporting L-3's organic business acquisition activities, as well as overseeing the proposal processes of L-3's business units. Dr. Osborne reports to Jill Wittels, Ph.D., L-3's corporate vice president of business development.

With over 25 years of entrepreneurial and strategic business development experience, Dr. Osborne is a well-known expert on

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proposal development, strategic planning and business development. Prior to his new appointment, Dr. Osborne was director of strategic business initiatives for L-3, a position he held since 2001. Prior to his work with L-3, Dr. Osborne served as president and senior consultant of Cornerstone Training, a company he founded in 1991.

Prior to that he served as president of Hughes Training Systems, Inc., where he established Hughes as a systems integrator for major training system programs. Dr. Osborne has also held management positions within the training system organizations of the McDonnell Douglas Corporation, Reflectone Inc., American Airlines and other technology organizations.

Dr. Osborne has authored a variety of articles and research papers dedicated to the topics of business strategy and training systems design. He is also the author of Winning Government Business: Gaining a Competitive Advantage, published in 2002.

Dr. Osborne began his career as an assistant professor at Arizona Sate University, where he received his Doctorate Degree. He received a Bachelor of Arts degree from the University of California, San Diego. Prior to his academic work, Dr. Osborne served in the Combat Infantry of the United States Army.

Marcel Fenez Re-elected Chairman of CASBAA

HONG KONG — The Cable & Satellite Broadcasting Association of Asia (CASBAA) re-elected on Dec. 12 Marcel Fenez, Asia Pacific Leader, Entertainment and Media Practice of PricewaterhouseCoopers, for another two-year term as chairman of the association.

James Ross, media marketing director for Bloomberg Television,

EXECUTIVE MOVES

Marcel Fenez

and Ian Carroll, senior VP and GM, Turner Broadcasting System Asia Pacific, were elected for two-year terms to the CASBAA board of directors.

Re-elected to the CASBAA board were Michelle Guthrie, CEO of STAR Group, Francois Theron, COO of UBC, and Alexander Brown, president and CEO of CNBC Asia. Remaining on the CASBAA board of 2006 for the second year of two-year terms are Peter Jackson, CEO of AsiaSat, William Pfeiffer, CEO of Celestial Pictures, and Jonathan Spink, CEO of HBO Asia.

The following were also elected to the CASBAA council of governors, the association's most senior advisory body: Ted McFarland, VP Asia Pacific of ILS, Stephen Ng, chairman, president and CEO of Hong Kong Cable Television, Jamie Davis, managing director, ESPN STAR Sports, Anthony Tse, GM corporate development, TOM Group, Paul Brown-Kenyon, COO of Measat, Sue Taylor, VP and GM Asia Pacific of NDS, Steve Garton, director of Media Research at Synovate, Andrew Jordan, MD of Loft Communications, Mark Patterson, CEO North Asia of GroupM, and Yong Lum Sung, president of StarHub.

DC Palter Appointed President of Apposite Technologies

DC Palter

CULVER CITY, CA — DC Palter has been appointed president of Apposite Technologies, a start-up focusing on network test tools for the satellite, wireless, and terrestrial markets.

For the previous ten years, DC was vice president of Sales and Marketing at Mentat Inc. Prior to Mentat, he worked at Hughes Electronics and Honeywell.

DC Palter has co-authored three patents on satellite link acceleration and is the author of the textbook, Satellites and the Internet: Challenges and Solutions.

Eagle Broadband Appoints Brian Morrow as GM for IPTV Solutions Division

HOUSTON — Eagle Broadband, Inc. has appointed Brian Morrow as General Manager of IPTV Solutions division effective immediately.

In this newly created position, Morrow will assume overall management and profit and loss responsibility for Eagle's IPTV Solutions division which includes the company's core IPTVComplete and MediaPro IP set-top box product lines.

Morrow brings more than 25 years of senior-level sales, marketing, product development, operations and general management experience in the technology industry to Eagle Broadband. With a diverse background that ranges from launching technology startups and corporate turnarounds to strategic management consulting, Morrow has a proven track record building and growing technology companies into industry leaders.

Morrow joins Eagle from geographic information systems software and services firm Analytical Surveys, Inc. where as president and COO, he rejuvenated the sales, marketing and operational performance of the company. Prior to joining Analytical Surveys, he served as a management consultant for several early-stage communications and technology start-up companies where he performed CEO/COO-level trouble-shooting and business strategy work, including interim roles as CEO of Peerseeker (handheld voice and data communications) and VP of Business Development with NetSapiens (Voice over IP PBX solutions).

Before his recent consulting assignments, Morrow served as president and COO with Endeavors Technology, a Java and .NET web services start-up company that developed Web collaboration and application delivery enterprise software, which he grew to a leadership position until its acquisition by U.K.-based Tadpole Technology.

He holds a B.S. in Computer Science from Dalhousie University and an MBA in Finance from the University of Ottawa.

EXECUTIVE MOVES

Hassan Ghoul Named Director of Sales, Middle East for Ascent Media

DUBAI, U.A.E. — Hassan Ghoul, an industry veteran with extensive sales and marketing experience in the Middle East, has agreed to join Ascent Media Systems & Technology Services as director of Sales, Middle East. Ghoul will be based in Dubai and will be responsible for leading Ascent Media's systems integration business development in the region.

Ghoul graduated from the American University in Beirut in 1975 with a BE in Electrical Engineering. He then joined COMSIP Enterprises in Paris, France as Systems Engineer within the IT Projects Department. With 3M Middle East, he served as Technical Sales and Marketing Supervisor for their power and telecommunication products.

Ghoul joined Sony Broadcast and Professional Europe in February 1984, occupying various sales and marketing positions in the Middle East and Africa, advancing into the position of General Manager, Sales, in charge of Sony's sales and systems integration operation in the Middle East.

In May 2005, Ghoul founded MediaNet Fz-LLC, which will continue to specialize in Consultancy Services for the broadcast, satellite, production and post-production markets in the Middle East and North Africa regions. Ghoul speaks fluent Arabic, French and English. SM

NEW PRODUCTS

Apposite's New Link Emulator Simulates Terrestrial, Wireless, and Satellite Networks

NEW YORK — Apposite Technologies, Inc. has released the Linktropy™ 4500 link emulator, which provides an efficient and economical way to simulate terrestrial, wireless, internet, satellite or private network links in a lab environment, making it easy to validate application performance and test and troubleshoot networks under a variety of real-world conditions.

Apposite said the Linktropy 4500 simulates bandwidth, delay, congestion, bit errors, and other important link characteristics independently in both directions at speeds up to 155 Mbps while its highly precise algorithms help guarantee accurate results. With an intuitive and easy-to-use browser-based interface, users can install Linktropy and begin testing within minutes. According to Apposite, the ability to switch between multiple stored configurations makes Linktropy ideal for automated product testing. It added, Linktropy is also perfect for product demonstrations of networking equipment and client/server applications at customer sites and tradeshows.

"Even as the WAN becomes every more mission-critical for the transfer of data, voice, and video between distant offices, the choice of wired or wireless WAN technologies can have a great impact on performance," said DC Palter, president and co-founder of Apposite Technologies. "We developed the Linktropy 4500 to help test, validate, and troubleshoot any type of enterprise or military network in the lab."

"We've over-engineered the product for precision and designed it to mimic the real behavior of WAN links so users can be confident in the results of their testing," said Jeremy McCooey, CEO and co-founder. "We wanted to ensure engineers get their testing right the first time and don't waste time retesting," he added.

Linktropy 4500 prices start at $2500, including one year of support and maintenance.

Integrasys Demos Two-way Terminal Installation Tool

NOORWIJK, The Netherlands — Integrasys recently demonstrated its Satmotion Pocket low cost VSAT line-up system, in collaboration with the European Space Agency (ESA), during the SatLabs Group meeting at Noorwijk, The Netherlands.

Integrasys said the demonstration consisted of the complete configuration and alignment of a two-way broadband satellite terminal pointing to Hispasat 30° W with only the help of a compass and a Satmotion Pocket PDA tool. The demonstration did not require on-site instrumentation or terrestrial communication support.

SatLabs Group members followed the pointing and line-up procedures at the terminal antenna site, where one single installer achieved easily, quickly, and accurately the complete setup. Integrasys said that in only five minutes, the installer carried out indoor unit configuration, forward link acquisition, return link EIRP and cross polarization adjustment and, finally, installation validation using Satmotion Pocket on a wireless PDA, without coordination with Hispasat Network Operation Center staff.

Satmotion Pocket is being used by Hispasat to guide installers in pointing and aligning VSAT's providing broadband data services to South and North America, Europe and Middle-East from 30° and 61° W orbital positions.

Integrasys Satmotion Pocket is a tool that allows installers to remotely display in a PDA the NOC carrier monitoring information to perform VSAT pointing and line-up. The system provides to installers with a low-cost but powerful tool to perform terminal indoor unit configuration, forward link acquisition, and line-up EIRP and cross polarization isolation on the return channel. Installers get remote real-time monitoring information from the NOC via the satellite forward link, ensuring the service on geographical areas where no other communications but the satellite are available.

WildBlue Enters Enterprise Market With Low-Cost High Performance Broadband Internet Services

DENVER — WildBlue Communications has announced that it is aggressively entering the Enterprise Very Small Aperture

NEW PRODUCTS

Terminal (VSAT) market with its high-speed Internet access via satellite.

WidlBlue said it will begin offering enterprise class high speed, two-way wireless satellite-delivered products and services at compelling price points to small and medium enterprises (SMEs), telecommuters and specialized industries, such as retail, financial, telemedicine, energy, remote monitoring, federal, state and local government, disaster recovery, homeland security and other markets beginning the first quarter of 2006.

The company plans to establish a strong presence in the VSAT Enterprise Market with low cost equipment and affordable pricing. WildBlue and its distributors will offer the service levels and value-added services expected from Enterprise customers.

WildBlue has initially contracted with four nationwide Value Added Resellers (VARs) to offer WildBlue's equipment and monthly high speed Internet service. The VARs will handle all sales, installation and service for their individual subscribers. The four VARs that WildBlue has contracted with are:

- Ground Control, based in California, is a leading provider of mobile and fixed satellite Internet access and application solutions for business, small business, enterprise, government and educational clients;

- OptiStreams, based in California, is a leading provider of fixed and mobile satellite services for business, enterprise, government agencies and federal contractors;

- Broad Sky Networks, based in Oregon, offers aggregated broadband satellite services that allow their clients to receive and their channel partners the ability to deliver secure, cost effective business class broadband internet connectivity, anywhere in the United States; Amtech,

NEW PRODUCTS

based in Virginia, provides nationwide service, and is experienced in multi-site businesses such as oil & gas, financial, convenience stores, and restaurants.

"WildBlue is ready to take the success of our low-cost, high volume consumer platform and hit the traditional VSAT market full force," said Dave Leonard, CEO of WildBlue. "We believe that with our low price points for both equipment and monthly service we can grow the Enterprise VSAT Market, and we are eager to begin working with Ground Control, OptiStreams, Broad Sky Networks and Amtech to offer WildBlue to small and medium enterprises across the country. We hope to add other VARs in the coming months."

Sirius Launches Christian Talk Channel

NEW YORK — FamilyNet and Sirius Satellite Radio launched on Dec. 12, "Christian Talk" on Sirius channel 159.

The new channel airs FamilyNet's most popular programs, including preaching from some of the nation's top pastors, innovative radio-specific programs, and leading evangelical talk personalities. FamilyNet is the broadcast arm of the Southern Baptist Convention.

FamilyNet said the new Christian Talk channel will include such programming as ACLJ This Week with Jay Sekulow, The 700 Club with Pat Robertson, and daily shows At Home-Live! and Your Health, as well as some of the nation's top pastors, including Dr. Charles Stanley, Dr. Jack Graham, Dr. David Jeremiah, and Dr. Bryant Wright. In addition, special radio programs such as Way of the Master, a daily, two-hour program featuring actor Kirk Cameron and legendary evangelist Ray Comfort, and leading evangelical talk personalities such as Dr. Richard Land, are also featured.

Christian Talk channel 159 is the companion to Sirius' Christian music programming, which offers three commercial-free channels devoted to Christian Hits (Spirit, channel 66),

NEW PRODUCTS

Christian Rock (Revolution, channel 67) and Gospel (Praise, channel 68).

Telenor, Xantic Launch BGAN Service

OSLO, Norway, & ROCKVILLE, Md. — With Inmarsat's launch on Dec. 7 of its Broadband Global Area Network (BGAN), Telenor Satellite Services, a subsidiary of Telenor of Norway, and Xantic also announced the commercial launch of their BGAN service for customers in Europe, the Middle East, Asia and Africa.

BGAN is billed as the world's first global, mobile service to provide voice and broadband data simultaneously.

Telenor said it is the only BGAN Distribution Partner to offer Terralink, a proprietary IP networking platform and Global Points of Presence (PoP) Network enabling Telenor's BGAN users to take IP networking to higher levels of performance and capability.

According to Telenor, its BGAN PoP located in Norway is an integrated part of the Inmarsat BGAN Core Network and is connected to the Inmarsat Satellite Access Station through high-capacity leased lines. Terralink enables IP-connectivity for all BGAN services, including the robust new Streaming IP services with guaranteed data rates up to 256 Kbps.

Terralink offers a range of service connection options, each with increasing levels of service quality and security. The premium option enables end-to-end security and guaranteed bandwidth for BGAN users through easy and cost-efficient access to Telenor's worldwide customer interconnect points.

Xantic also announced it will supply a wide range of added value features above and beyond the core BGAN service. It is also offering various special promotional offers to mark the launch of BGAN, which can add up to as much as six months of free subscription to the service.

DirecTV Now Offers Local Channels in Hawaii and Alaska

EL SEGUNDO, Calif — DirecTV customers in Hawaii and Alaska now have access to their local news, weather, sports and prime-time network programming - all in digital-quality picture and sound - as the company rolls out local Honolulu broadcast stations, including ABC, CBS, NBC and Fox, throughout the Hawaiian islands and Alaska beginning Dec 8.

DirecTV said with the launch of local channels in Hawaii and Alaska and three other markets later this month, DirecTV will offer local channels in 142 markets, representing more than 93 percent of U.S. TV households.

DirecTV said customers will be able to access their national DirecTV programming and local channels in Hawaii by using a new DirecTV H20 receiver and a 1.2-meter dish.

The following local channels are available via DirecTV in Hawaii: KHON (FOX)/Channel 2, KHET (PBS)/Channel 11, KITV (ABC)/Channel 4, KHNL (NBC)/Channel 13, KFVE (WB)/ Channel 5, KIKU (IND/UPN)/Channel 20, KGMB (CBS/UPN)/ Channel 9.

With the roll out local broadcast stations in Anchorage, Juneau and Fairbanks, Alaska on Thursday, DirecTV said customers will be able to access their national DirecTV programming and local channels in Alaska by using a new DirecTV H20 receiver and a 1.2-meter dish. The new receiving equipment and live local channel feeds can be viewed at AP&T Wireless, an independent DirecTV dealer in Juneau beginning Dec. 12.

HP to Help Starz Entertainment Bring Movies to Subscribers on Cable and Satellite

PALO ALTO, Calif. — Starz Entertainment Group (SEG) said on Dec. 6 it has deployed an advanced HP storage solution that will streamline its delivery of uncut movies to millions of customers.

SEG said it will use the HP Media Storage solution to store and manage its complete repository of movies and television content, which is delivered to cable and satellite operators and ultimately to its approximately 25 million subscribers via 13 channels, including Starz and Encore.

SEG, a wholly-owned subsidiary of Liberty Media Corporation, provides cable and satellite-delivered premium movies in the United States. Like many other media companies, SEG must be able to manage massive amounts of digital information. For example, a single, full-length movie in digital format can consume 140 gigabytes of storage. SM

COVER STORY

Satellite and IT: At the Digital Crossroads

by Howard Greenfield

"I can't figure out if it's the end or beginning."
– Robert Hunter lyric

"Virtually every year some expert forecasts the satellite industry is about to die or stagnate and I haven't seen anything but growth the last two decades."
-- Francois Modarresse, SkyStream

Is the industry bound for stagnation or growth? For years rumors of satellite's demise have been greatly exaggerated and most agree the industry remains sound for years to come, albeit with conservative growth. The issue is that it will take formidable instincts to see what's around the corner and plan accordingly. Exploring this crossroads on the future with some of the industry's most informed executives and analysts this month was very revealing.

These four experts provide a perspective that is hard to beat. Read on. The road ahead may challenge your assumptions.

The satellite industry has always been about change. We've seen consumer dishes that were once three meters wide shrink to sizes smaller than a pizza. Data volume and transmission speed requirements have increased tremendously. "When we started Mainstream," says Mainstream Data CEO Scott Calder, "1200 bits per second was a 'high speed feed'. Today I don't think we even have a customer that requires so little capacity. The principal reasons for this exponential increase in bandwidth utilization are twofold: first, information applications (including video) are increasingly and more faithfully representing reality (think of HD versus low-res still pictures), and second, the asymptotic decline in bandwidth cost has made it possible to buy much more capacity."

Today, satellites carry dozens of transponders with multiple channels per transponder. The challenge is in managing rapidly evolving digital technologies—finding efficient ways to integrate within ever-growing global IT and DTH networks. Consumers world-wide demand more channels, content, and services everyday. Internet media downloads, 24X7 business data, and interactive distance learning are changing what networks are all about. There is a growing hunger for bandwidth, finer customer segment granularity, and greater remote

coverage for achieving commercial and equal opportunity goals. Some rightly say that these transmission systems are "no longer simply a way to deliver content; they have become competitive weapons in a global information war." Media volume, Internet protocol, and interactivity are three change drivers.

No compromise network communications are necessary for mission-critical business and consumer content delivery. Satellite has always been part of the

CONTRIBUTING EXPERTS

"Business television, remote access, credit card authorization . . . for better or worse satellite in many cases is the only option."
- Christopher Baugh, *President, Northern Sky Research*

"We see ourselves continuing to push the envelope as it relates to . . . a vision and roadmap for their next generation of products."
- Scott E. Calder *is President, CEO, and a co-founder of Mainstream Data*

"Satellite companies especially in the U.S. have taken the initiative of becoming content aggregators."
- Francois Modarresse, *Vice President of Marketing and Business Development, SkyStream*

"Convergence represents more and more of these companies merging – I think that continues to accelerate."
- Jimmy Schaeffler, *The Carmel Group*

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solution adapting to new customer needs. More channels, more business application complexity, and lately the migration to IP, continue to raise the bar. A "major trend we have seen in the last few years has been the dramatic shift toward IP protocol" says Mainstream CEO Scott Calder. "It's tough to find things that aren't IP these days". Can the industry keep up with the these pressures to deliver increasingly sophisticated digital applications?

Digital Crossroads

Moving from analog to digital, the Satellite industry will be forced to support the migration to digital data and technology. Interfacing with telecoms and broadcast applications, handling IP over satellite, and tackling quadruple-play delivery of data, voice telephony, media broadcasting, and wireless will be key.

In November 2005 Cisco bought broadcast device pioneer Scientific-Atlanta for $6.9B. Though the deal leverages cable, the news is an indicator of merging enterprise and home entertainment technologies. "We expect video will follow this pattern by also merging into the IP world" says Scientific-Atlanta CEO Jim McDonald who envisions a *one network* future. "With this convergence of media onto one network, our customers are also looking to provide far more personalized or customizable services than the previous monolithic offerings of just phone or cable TV. All of these elements combined are creating a very dynamic, fast moving, and extremely promising worldwide market."

Maintaining market position is increasingly about offering video along with voice and Internet service. "Echostar and DirecTV do not have a viable telephone solution in house and they really don't yet have a viable two-way internet broadband solution in house" points out Jimmy Schaeffler of the Carmel Group. Part of the problem is the latency factor between the time someone talks and when the signal is received which "makes it very awkward—not a great telephone solution yet" says Schaeffler. "The other great problem" he says "is that with satellite they still can't cost-effectively compete with a cable or internet two-way broadband solution. To put up a satellite costs a quarter billion dollars and you need to recoup the costs. If you don't have that

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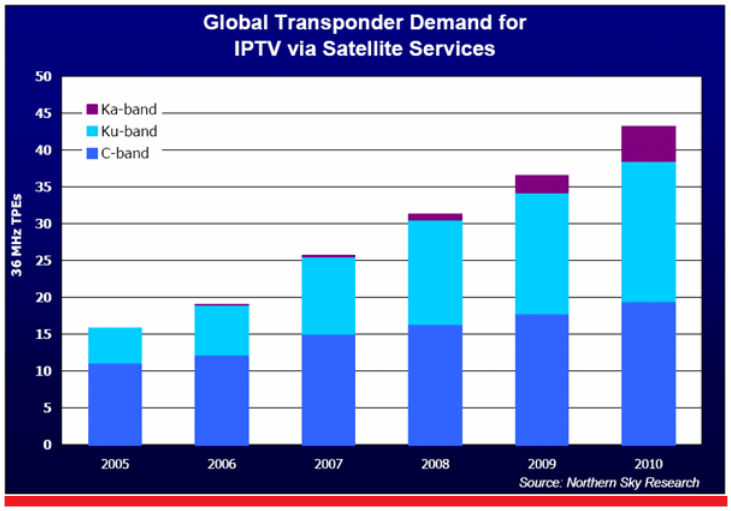
many subscribers it doesn't make it that attractive. It's still a very challenging road for the satellite providers, but what's interesting now is that Wall Street doesn't like any of them: It doesn't like the telcos, the cable operators, and the satellite operators."

Change is everywhere. It's in the race for High Definition (HD) programming and bandwidth and the development of interactive applications and mobile content. Consumers express a growing sense of entitlement; they want the highest quality and widest selection of movies, TV, sports on any device whether it's PC, TV, or hand-held. Projected growth in 3G and iPod video have shown this to be on the rise.

What Satellite Does Best

There are some things for which Satellite remains the best provider. It has the unparalled ability to deliver a data signal when terrestrial networks break or power down. It can reach outlying regions and provide uniform high-resolution content for training or broadcast distribution like no other technology. For consumers, DTH offers programming quality and variety to videophiles around the world and for B2B, it supports many industries including Broadcast, Finance, and Training.

"It also provides instantaneous access around the globe that no terrestrial network can give" says *Francoise Modarresse, VP Marketing at Skystream.* "The brokers around the world that use information to guide their financial decisions transmit financial news, stock prices, including video, and this impacts several million transactions per second." *Modarresse adds that* "a whole new growth segment is data delivery over satellite. So we have ISPs that start services in new developing countries – it is very often much more cost-effective to deliver that over satellite than developing a terrestrial infrastructure."



As the industry has expanded providers like 180 Connect, Dycom, and others provide home DTH connectivity field support. Even more demanding, storage and distribution of data have become increasingly important to satellite customers, the ability to manage the content effectively has challenged the industry. "With the US (and now worldwide) economy fixated on reducing costs" says Mainstream Data's Scott Calder, "companies have discovered that they can really save a lot of money by focusing on the things they do particularly well and outsourcing other things to companies that specialize (and therefore have lower costs) in non-core functions. We have seen considerable growth in our revenue from companies that have decided that they can be more cost competitive by having us do things they used to do themselves (at much higher cost)." Clearly, companies will continue to outsource, focus on their core business, and enlist outside support to optimize the bottom line.

A promising new satellite offering is content aggregation. "Satellite organizations are acting as content aggregators for more affordable content" says Skystream's Modarresse. "Smaller telcos simply cannot afford having their own video head-end right now and the satellite companies especially in the U.S. have taken the initiative of becoming content aggregators, acquiring video compression technologies to offer that as a service to their customers to seed the smaller market or the myriad of smaller customers with a fully turnkey media solution." According to Modarresse there are four U.S. operators "who have announced services and these include SES Americom, Broadstream, Globecast in association with Eagle Broadband, and Aurora".

Quadruple Threat

What used to be "triple-play"—the collective offering of voice, Internet, and video by one provider—is increasingly referred to as "quadruple-play" to include wireless services. Satellite must increasingly face a growing business and consumer customer base demanding as many of these services at the highest quality for the lowest price all in one place. Cisco CEO John Chambers refers to this as the need to minimize the complexity of collapsing data, voice, and video into a single IP-based network. And like many examples in the industry the only true solution seems to be "an integrated architecture is the only way to reduce this complexity."

This affects the industry because "the satellite market is more integrated with the terrestrial world now" says Christopher Baugh, President, Northern Sky Research who refers to Mainstream Data as a company that tackles this: "satellite is number one for them – because of that they're a good example of a company that understands IT pretty well probably takes different technologies and

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builds the solution."

Mainstream Data's Calder believes that "History is the best predictor of the future. We expect to see new products and services which will continue the (unstoppable) march to the future: better, faster, cheaper. The only thing I would add to that is that we see an increasing emphasis on applications—not just transmission. It isn't just getting the stuff to end users; it's also making sense of the content once it arrives. We have a whole suite of applications called 'Medias' that runs on edge servers we deploy for many of our customers."

These applications may not yet handle the full suite of services to tackle quadruple play, but as Calder says "we see ourselves continuing to push the envelope as it relates to providing turnkey transmission and associated applications and fulfillment. Technicolor and our other customers—which include Bloomberg, Reuters, the European Pressphoto Agency, and many others—expect not just cost savings, but increases in the quality of their products, improvement in the service to their end users, and a vision and roadmap for their next generation of products. We hope to continue to deliver all of those."

IPTV and "Switches in the Sky"

The satellite industry may not expect to see the same barn-burner growth likely in store for wireless and interactive TV markets. Yet its role in data communications will be key in several areas and support a steady though measured incremental growth. Analysts and executives seem in accord satellite will play a critical role as technology and content provider. One spike in the not too distant future will be IPTV.

Northern Sky Resaerch interprets this growth due to revenue-sharing deals satellite providers will be able to strike with the content providers themselves. This figure would reach $17B by 2010, a ten-fold increase from 2005 and taking over 3% of the overall market according to Northern Sky (IPTV Via Satellite report, 2005).

As the days of the exclusive analog broadcast process fade, a range of new digital applications, networking, and data management are in getting into full swing. Satellite remains in demand for its ability to provide the fullest global coverage, continuous network up-time, and high volume data delivery. Phizer runs extensive sites for sales team distance learning as does GM where dealer locations have a Gilat box for training on new products, cars, and company news according to Northern Sky's Christopher Baugh. This connection is directly to "the dealer location" says Baugh. "So those types of opportunities are the sweet spot because what satellite does the best is broadcasting. When you're pushing content down and mainly one way link, and your return channel is a satellite does that tremendously well because one link up and one link down is a pretty compelling value proposition."

Other examples of growth the last few months include France Telecom subsidiary Globecast's newly announced services in the U.S., India, France, and the Middle East as well as Skystream's selection by China's leading industry players China Telecom, China Education TV, and the ministry of Water Resources for satellite-based delivery.

Is there even more potential ahead in the new Spaceway bird? "Most satellites today are simply reflectors, big transponders that bounce the signal off the bird and back down" says Carmel Group's Jimmy Schaeffler. "But Spaceway" says Schaeffler "has talked about a 'bigger, better' satellite: a 'switch in the sky' that can take a signal and direct it to a different point on earth depending on where it's being sent. But as Newscorp has recently sold the company, it could be they don't have the deep pockets any more and the new owners decide they don't want to pursue it".

It seems almost every week a new industry challenge presents itself—a procession of emerging technologies, services, and companies. As Schaeffler concludes: " One thing that appears to me is this overused term *convergence* representing more and more of these companies not only merging but more and more of these technologies overlapping – I think that continues to accelerate. So, I can see a company possibly purchasing Echostar in the next two to five years and I can see a telco cable alliance which becomes a better way of delivering the signal to the consumer." Some may say history is the best predictor. But beyond this digital crossroads is a new history that will be written by the industry's creative direction during the remaining years of the decade. SM

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FEATURE

SES expands its orbit again

By Chris Forrester

Back in the spring of 2002 a senior industry executive predicted that there would soon be just two truly global players operating satellites. The consolidation game was already well under way the year before (March 2001) when SES acquired GE Americom. Since then we have seen almost every significant satellite player either get bought (and frequently sold again) by private equity funds, or as a direct result of their own privatisation seen the sort of mega-mergers take place, like Intelsat and PanAmSat, or the latest (Dec 2005) acquisition of New Skies Satellite by SES Global.

Eutelsat CEO Giuliano Berretta

SES Global CEO Romain Bausch

SES Global's president Romain Bausch summed up the situation recently when he said: "The next step in consolidation will either be acquisitions of regional satellite operators. And there is still a lot [of scope] in Asia, or someone will acquire Eutelsat."

Before we look in detail at Eutelsat's now lonely position, let's look at the nuts and bolts of the SES/NSS deal. SES and NSS were near-ready to sign the deal on Friday Dec 9, and again early on Dec 13, but a few last minute legals slowed the process down. Insiders suggest that while these last-minute discussions were only over minute contract details the arguments between the lawyers reached fever pitch at times. At day's end SES agreed to pay Blackstone Group (who held 55% control of NSS) and its shareholders an attractive $22.52 per share in cash, worth $760m, plus absorbing about $400m of debt (which SES will refinance), and thus an all-up price of about $1.16bn. For the year to Sept 30 New Skies generated revenues of £232.9m. Dan Goldberg, on behalf of NSS, was rightly justified in saying that he'd achieved a very healthy premium for his shareholders, equal to 36% over its own IPO listing just 7 months ago. Blackstone itself, once the deal closes, will pick up a cool $400m in profit.

The deal brings to an end what NSS CEO Dan Goldberg described as his talking to "every conceivable would-be acquirer" over the past year or two. Indeed, other than hang a placard around his neck saying 'buy me', Goldberg has been consistent in stressing to any listener that his business was for sale – but only at the right price. One of the reasons for settling on SES was the fear that New Skies might be left out of this current wave of consolidation – and left sitting on the shelf. It also seems that SES is relaxed – or has already factored in – any potential problems with NSS craft.

The analysts will number-crunch and – perhaps grumble – over earnings multiples, enterprise value, return on investment and generally whether SES over-paid for these assets, but in the realtor's jargon New Skies is all about location, location, location. The satellites are in place and earning income. The fleet is by and large youthful, and occupying increasingly valuable orbital slots – and one suspects SES thinks it can enthusiastically exploit the new assets now under its belt. Moreover, this expansion-by-acquisition means that SES does not have to invest in risky green field activities. The spadework has already been done. The deal is expected to close in about 6 months, and is unlikely to hit any major regulatory obstacles.

FEATURES

Winning control over New Skies, besides giving the usual revenue benefits, provides SES with a truly global role, especially in terms of two highly complementary Indian Ocean craft NSS-6 and NSS-8 as well as boosting SES gaps in coverage over the Atlantic and Pacific oceans. (NNS-8 launches next year). Romain Bausch, in an analysts briefing on Dec 14, stressed that even though the New Skies craft were generally located above the world's oceans their beam focus was very much on the nearby landmasses. He also stressed the complementarities in terms of C-band and Ku-band in terms of regional and market coverage. The addition of such a high ratio of data traffic will alter SES Global's overall bias towards video traffic (currently about 80% of its total traffic) downwards, to about 75%. However, SES welcomed the additional DTH traffic New Skies will bring in particular from India and the Mid-East, described as major existing gaps in SES Global's coverage.

Mix in SES' other recent investments, like Canada's Ciel, Mexico's QuetzSat and the global jigsaw begins to look complete. Additionally the combined fleet gives additional security in terms of back up, and flexibility in terms of pricing. AsiaSat's CEO Peter Jackson was said to be "very excited" at the prospect of working with NSS. No satellites would be moved or relocated, said Bausch. Dan Goldberg stays on and will join the SES Global board. There will be some other tangible synergies in terms of satellite procurement and technical operations. SES shares rose immediately 3.2% to •14.39, their highest for more than four years.

Which is, sadly, not the case at Eutelsat, which now looks increasingly beleaguered. Had Eutelsat itself bought New Skies then it could have justifiably claimed a global role. Eutelsat already owns a large slice of Hispasat that gives it access to a valuable satellite over the America (Amazonas), and Eutelsat on its easterly arcs easily reaches Asia. But the Paris-based operator has had more than a few challenging weeks since our report last month.

It scrubbed, then hastily reinstated its IPO, and at a Euro12 price/share ($14.40), a huge discount from its initial prospectus target range of $18.30-$21.31 – and its price fell further after the IPO, only a few Cents but a clear indication of market sentiment. Nevertheless, Eutelsat was able to raise around $1bn to clear a few debts and prepare for an intensive – and expensive - period of satellite building and buying. It is difficult now to predict a possible end game for Eutelsat. No European regulator would easily permit SES Global to buy Eutelsat, even if there were willing sellers. A merged Intelsat+PanAmSat, as a buyer, would not raise such regulatory hackles, but one suspects that Intelsat is likely to have enough on its plate for at least the next 12-24 months simply digesting the current meal.

Seemingly Eutelsat has absolutely no intention of standing by waiting to be someone or others next meal. CEO Giuliano Berretta revealed that besides its two imminent heavyweight additions to its impressive Hot Bird fleet (HB7 and HB8, launching Q1 and Q2 2006 respectively), it has comprehensive plans to boost its in-orbit assets. Eutelsat is working on three other craft W7, W2A and W2M, all designed to either replace existing craft or add to orbital capacity. Berretta was particularly enthusiastic about 36 deg East, a position that initially was focussed on Russia and the former Soviet bloc of countries. "We have two Eutelsat craft, W4 and Sesat 1 serving eastern Europe and Africa. W4 is a TV satellite with perfect characteristics for the Russian and ex-CIS market, meaning that it matches Russia's own broadcasting model, which is circular polarity within DBS frequencies (11.7-12.5). We are the only operator carrying a Russian pay-TV platform, with NTV+. W4 is growing in importance in eastern Europe. We very recently concluded a contract with Poverkhnost Satellite Communications which last month launched the first DTH pay-TV platform in the Ukraine, and [in December] added HDTV channels in MPEG4. We think that this region has enormous potential for satellite broadcasting and broadband services."

Eutelsat's current trio of Hot Spots

Position	Capacity	Target market
13 degrees East	5 'Hot Birds'	Greater Europe
8 deg West*	Atlantic Bird 2	AOR
	Telecom 2D	
36 deg East	Sesat 1	Former CIS/
	W4	sub-Saharan Africa
	W7 when launched	"

Notes:

8 deg West is 1 deg from NileSat's 7 deg W position, where Eutelsat will also be co-locating a craft shortly to tap into the Middle East market

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Then there's Eutelsat's growing revenue from its African DTH market, beamed from 36 deg E. "We use both W4 and Sesat 1 to cover sub-Saharan Africa. In this region our anchor-broadcasting client is MultiChoice's pay-TV platform which last year increased its capacity to 7 transponders spread over W4 and Sesat 1. The expansion for MultiChoice was made possible by reorienting Sesat 1's spotbeam from the Indian sub-continent [to focus] over Nigeria and surrounding countries." Eutelsat's clients on its Asia spotbeam were transferred to Sesat 2 (at 53 deg E, where the craft is also known as Express AM22).

These new markets are vital to Eutelsat's longer-term plans, especially now that following a planned merger between Canal Plus and Television Par Satellite (TPS), the two French pay-TV broadcasters, it is likely down the line that Eutelsat will lose its lucrative French DTH contracts.

Berretta outlined Eutelsat's plans for W2M, now in the advanced planning stage. "W2M will be a 29 transponder satellite, that could substitute for W1, restoring the full capacity of the original W1. We are giving this procurement high priority, not so much because of W1's end of life limitations but in order to bring capacity at 10 degrees East back to original levels. What we are looking for is essentially a satellite that has the same cost per transponder as can be achieved by a large platform."

Also well advanced is W7, which Berretta explained is part of his strategy to expand capacity on offer, especially over Africa where demand is high. In essence Eutelsat will double capacity on offer will W7 which is likely to have 58 transponders on board, of which 50 could be used at any one time. "W7's mission will be to replace Sesat 1 well ahead of its expected end of life which is in the 2010-2011 timeframe. We are keen to push ahead with the procurement of this satellite because demand for capacity for broadcast and broadband services is very high at 36 degrees East, which has become a key location for Africa. Our objective is for W7 to substitute Sesat 1 well before the latter's end of life. This will allow us to move Sesat 1 elsewhere. Our strategy is to continue to build up 36 degrees East, with W4 and W7, to more than double capacity into sub-Saharan Africa and provide capacity over Europe as far east as what we all call the 'Stans'. W7 will be slightly bigger than W3A. It will carry frequencies able to function in DBS, FSS and Ka-band feeder links."

Berretta used our conversation to say he was enthusiastically looking to a reduction in launch costs, with new suppliers also providing greater flexibility to satellite operators who are currently subject to delays and the consequent commercial implications. "Satellites originally represented such a high cost because of the cost of launch services. We are now seeing strong price pressure on launchers with new competitively-priced proposals, mainly from Russia and the Ukraine, ahead of developments in India and China. Other commercial developments are coming from Boeing's SeaLaunch, and LandLaunch from Baikonur, both based on the Ukraine's Zenith rocket. If this trend continues it could completely alter the established equation for satellite building, enabling operators to launch satellites with some modularity and more economically."

"Established players such as Arianespace have a challenging task although they are well equipped to stay competitive through their innovative technology and ability to launch two satellites. While the Proton booster continues to evolve, we see less and less of Lockheed Martin's Atlas while Boeing's Delta has disappeared from the commercial scene with all of its production going to military needs. Some innovation is emerging from outside the Western World in the same way as in computer and TV technology where China is emerging as a major force."

And satellite builders, for some time the subject of criticism for building satellites with high-degrees of complexity and not commensurate degrees of reliability, are also being innovative, says Berretta. "A similar evolution [is taking] place in satellite manufacturing, perhaps at first at a lower level with smaller satellites. Europe and the US are moving towards higher-level, larger platforms which give a lower average cost per transponder [to build and launch]. This

FEATURES

opens the market to builders of smaller satellites who can move in to take the place left by platforms such as Boeing's 376 ['Spinner'] which is no longer in production. If you look around there is a lack of smaller platforms. Orbital Science is one player from the US, as are players from India and Russia."

While Berretta remains sceptical of DARS (satellite radio) over Europe, suggesting that Europe's FM and digital terrestrial radio services more than adequately serve their local markets, he is enthusiastic about mobile TV. "We would be willing to consider an S-Band payload to support mobile TV. We have no plans ourselves to develop a 9m on-board antenna for experimental needs but we would consider carrying a piggyback payload for ESA or a national space agency that could be commercialised after an initial phase of experimentation. Look at how TV to mobile is being achieved via S-Band over satellite with terrestrial gapfillers. However, in my view the window for S-Band is quite narrow. Either it will have happened by the end of this decade or it will not happen because it will be overtaken by other technologies."

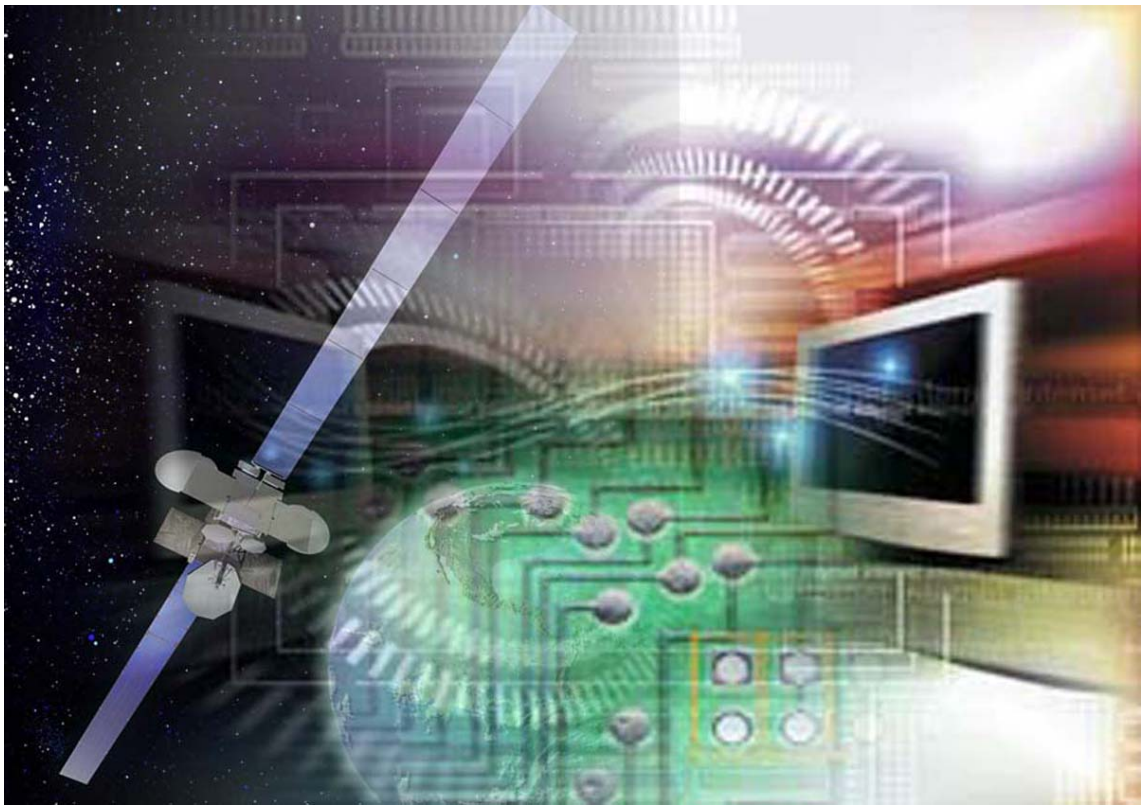
SM

London-based **Chris Forrester,** a well-known broadcasting journalist is the Editor for Europe, Middle East and Africa for SATMAGAZINE. He reports on all aspects of the industry with special emphasis on content, the business of television and emerging technologies. He has a unique knowledge of the Middle East broadcasting scene, having interviewed at length the operational heads of each of the main channels and pay-TV platforms. He can be reached at chrisforrester@compuserve.com

FEATURE

Is Automated Satellite Network Management a New Competitive Advantage?

By Alan Gottlieb



In a market where satellite bandwidth has become a commodity, how can operators achieve product differentiation, add value and enhance their offerings? As industry watchers are aware, the search for competitive advantage in this market is endemic. Ever since the emergence of satellite over- capacity, operators have been struggling to develop new ways to enhance the value of their satellite services and have achieved only limited success. This scenario is about to change.

A New Value Added

Advancements in satellite network management software are now offering network operators the opportunity to provide significantly improved services to their customers. V*endors of satellite services will soon recognize that advancements in software technology are much more than a convenience and efficiency enhancement for the network management staff. They can be deployed as a powerful sales tool that can differentiate generic services, allow for higher margins and reduce churn.*

To date, satellite network management has been a rather home-brewed affair with operators relying on varying combinations of HP Openview, offerings from ILC (MaxView) and High Street Networks (Xpress). The offerings from ILC and High Street Networks represent a significant step in the evolution of satellite network management software.

Essentially, these products focus on management of individual network elements. In particular, ILC's Maxview and High Street Networks Xpress products are especially adept at interfacing with legacy network devices not compatible with SNMP or monitoring environmental conditions. While these software packages have been the products of choice, they tend to lack the ability to overview very large networks in a convenient way and concentrate on technical rather than the business aspects of network operations. Essentially, they do little to automate the satellite network management process and improve the operator customer relationship.

Recently, however, a promising new

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software product was introduced into the market by Parallel. Known as SatManage, it utilizes and integrates with existing applications such as Openview and element focused solutions from ILC and High Street and provides an automated, manager of managers, network management center that consolidates monitoring, analysis, trouble ticketing and resolution and predictive features into a streamlined and simple solution. This is a solution that improves the service offering and complements the operator customer relationship. To understand the value of this approach and the problems solved, consider the experience of Hughes Network Systems in Europe.

Improving Business Operations

For HNSE, the existing vendors monitor and control system was unable to manage both the network traffic and RF performance. In addition, it was taking months to prepare and approve SLA reports thereby delaying payments. Trouble ticketing was limited and time consuming —— all contributing to a less than ideal customer experience. Finally, managing a large and complex hybrid network was increasing demand for skilled network management staff.

Working with HNSE, Parallel developed a series of value-added software solutions that evolved into an automated network management product known as SatManage.

With the installation of SatManage, HNSE was no longer faced with the

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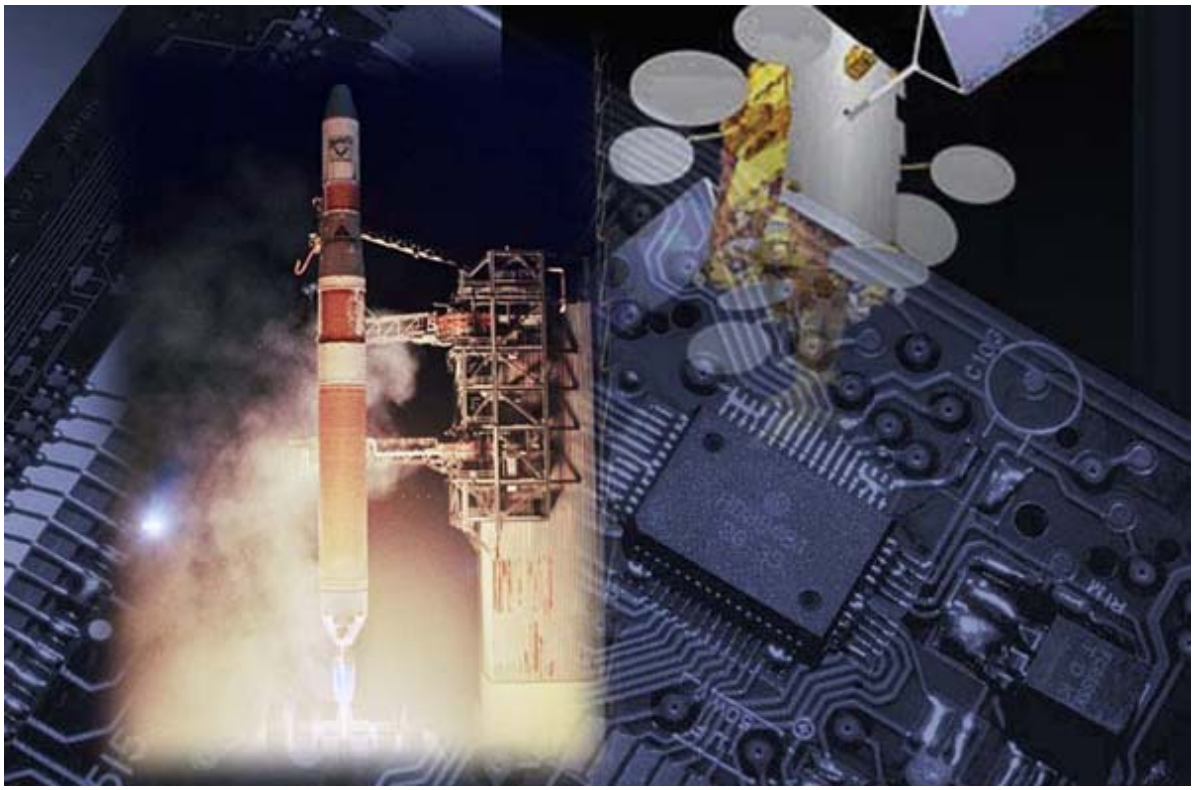


challenge of monitoring the network from two separate systems and is now able to handle all network management functions from one centralized, easy to interpret web-based GUI. In addition, the resolution of trouble tickets no longer presented a problem to HNSE.

In the past trouble ticketing was arduous and time consuming. With SatManage 70% of trouble tickets are resolved automatically and nearly 100% of faults were logged. In addition, because most common problems are handled in an automated mode, network managers have more time to investigate and resolve more serious problems. With the installation, HNSE can now manage a network three times the size with no increase in staff. The manager's "window" on the network was reduced to a single GUI managing an ingenious data interpretation system.

This data interpretation system or *Network Correlator* reviews all of the millions of lines of data collected by the NMS, decides which are important, allows correlation between related performance indicators such as signal quality and network latency and summarizes them on a single web page. It allows visual identification of time related problems, highlights trends that could evolve into future problems and reduces calls to the helpdesk. These capabilities form the basis for *Predictive Network Management.*

Only a small percentage of NMSs globally are predictive, which involves monitoring trends, analyzing data and examining any patterns that may be emerging and causing potential problems. This capability is invaluable in improving the performance of the network and demonstrating to the customer the ability to minimize network underperformance and outages. Other features of SatManage further complement the operator/customer relationship.

Bettering Customer Relationships

Consider the fact that using SatManage, Operators can now allow their customers to log on through the web and obtain a quick overview of their network status, follow trouble ticketing, spot problems and monitor their resolution. Finally, network managers now have the ability to produce SLA focused reports on the fly assuring their ability to demonstrate their level of compliance with SLAs thereby shortening the billing cycle and improving collections. SM

Alan Gottlieb is CEO and Principal Consultant at Gottlieb and Company, Inc. He can be reached at agottlieb@gottliebandcompany.com

CASE STUDY

RTVi Expands Revenue Opportunities and Reduces Expenses Using the Public Internet

By Dan McCrary

RTVi, a Russian language television network, serves over 50 million viewers worldwide through its broadcasts. RTVi uses the public Internet for private transmissions among facilities, and reaches its audience through satellite distribution. The deployment of Path 1 IP video gateways enables a 90% cost savings over satellite usage. Furthermore, RTVi can move additional high-quality content through its facilities and grow its subscription base.

Business Results:
- New Revenue Opportunities
- Reduced Costs
- Simplified Management
- Increased Flexibility
- Increased Throughput

Solution Components:
- Path 1 Cx1000 IP video gateways at each network interface (New York, Frankfurt, Moscow and Tel Aviv)

The Challenge:

RTVi is a pioneer international broadcaster that delivers ethnic multi-channel programming worldwide via satellite. RTVi broadcasts 24 hours a day from their headquarters in New York City and maintains broadcast and studio facilities in Frankfurt, Moscow and Tel Aviv. On an international scale, satellites are used to deliver targeted content to widely scattered viewers. Satellite time can be cost-effective for point-to-multipoint distribution, but costs can quickly exceed revenues when also used extensively for backhaul feeds on a point-to-point basis.

Movies, documentaries and games, as well as talk shows and children's programming, must all be moved around the network in preparation for broadcast. In addition to the primary program stream, a myriad of news items, especially interviews, benefit from real-time capability. Conducting interviews with extended latencies between the parties is difficult on those involved and reduces the quality of the interview.

To expand its subscription base and reduce its costs, RTVi needed a more cost-effective means to transport broadcast-quality video among its facilities. One possibility was to use the public Internet for real-time transmission of live and taped feeds. Existing store-and-forward technology had its advantages, but also had shortcomings due to latency and throughput concerns. A real-time solution that utilized the public Internet would allow increased throughput, reduced costs and increased flexibility for programming, while still allowing the use of satellites if, and when needed.

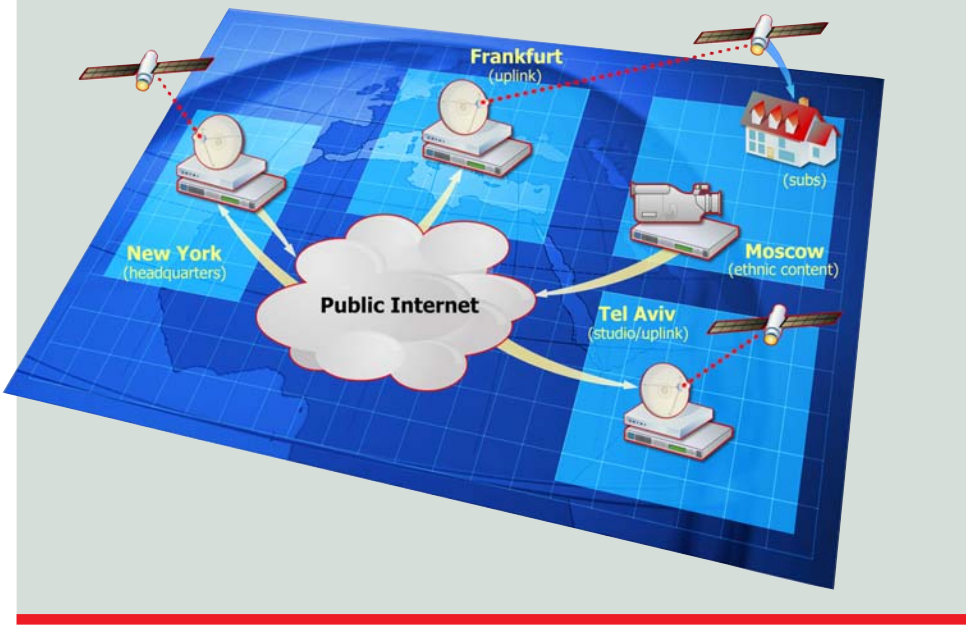
The Solution:

The ideal solution arrived in the form of Path 1's Cx1000 IP video gateway, which offers forward error correction (FEC), is easy to setup, and provides high-quality video over both impaired and unimpaired networks. While some US terrestrial networks may provide very high quality of service (QoS), that is not always the case in the rest of the world. A circuit from New York to Moscow was monitored and more than 1,000 packets/hour were lost. More than 10,000 packets/hour arrived out of order, and the jitter was found to be greater than 25ms. Despite these numbers, Path 1's IP video gateway was able to reliably and securely transport video without significant latency and

CASE STUDY

without any video impairment. According to Julius Feinstein, RTVi's VP of Broadcast Operations and Engineering, "We monitored the first 96-hour period and saw no glitches. There have been no outages. There's no special provisioning, it just works."

Path 1's technology is designed to effectively handle the problems found in IP networks, not just those that are pristine, but also circuits that are far from perfect. Using sophisticated algorithms, the Cx1000 can operate on a variety of data circuits without compromising the quality and integrity of the transported video. Problems such as network jitter, packet loss, duplicate, and out-of-order packets are all handled seamlessly within the Path 1 equipment.



Business Benefits:

Reduced latency and increased flexibility are two primary benefits that provide daily returns. The reduced latency provides increased throughput over the various circuits involved. With this added throughput, additional attention can be paid to the available bandwidth. Like any asset, RTVi manages their network bandwidth for maximum return. While store-and-forward operations as well as data exchanges continue over the network in the background, high-priority "live" feeds can now be arranged quickly as needed.

As those in broadcast are well aware, last minute changes and emergencies come with the territory. The increased flexibility afforded by Path 1's IP video gateway has made these situations easier to deal with. One such emergency occurred recently, when the European portion of the Internet failed, isolating the Frankfurt facility. Within ten minutes, arrangements were made to re-route the Frankfurt traffic through Tel Aviv. With the Path 1's technology, a simple reconfiguration allowed RTVi to quickly return to normal operations while repairs were accomplished in Europe.

Beyond daily operations, using the public Internet to transport video, data and other communications allows broadcasters additional means to cost-effectively reach new and distant audiences. Despite the constant fragmentation of mainstream audiences, the international reach of satellite and network technologies offers an opportunity for niche broadcasters to aggregate an audience large enough to attract the attention of advertisers. By applying complementary technologies in innovative ways that maximize the return, pioneers such as RTVi have found new ways to apply traditional business models.

Financial Benefits:

The most obvious financial impact is the cost reduction afforded by the switch from satellite time to IP bandwidth. Sufficient bandwidth can be available at around 10% of the cost of satellite time. While additional hardware is needed, it is comparable in price with the hardware required for satellite usage.

Additional benefits come in the increased ability to simply and quickly deal with last-minute changes. The fact that a hastily-scheduled last-minute interview can be included in a newscast increases RTVi's credibilty within the worldwide Russian community, and thus their appeal to advertisers seeking that market. That in turn, pays off in the form of increased advertising dollars. Reinvesting the cost savings in improved programming and distribution grows RTVi's audience, as well as its appeal to advertisers.

Technology Benefits:

Beyond the ability to move high-quality video over the public Internet in real-time, the change away from circuit-switched systems toward a packet-switched network represents a fundamental change in facility infrastructure. Data already seems to traverse public and private networks in mysterious ways. Managing to transport the sights and sounds of video in real-time over the same network can be almost magical. Improving

CASE STUDY

connectivity, reliability and throughput of all content in a single ubiquitous network enables the creation of a powerful business asset that will provide returns now and in the future. SM

Dan McCrary has over 14 years of experience in sales, marketing, product management and business development with a focus in IP networking, video communications and digital media. As Vice President of Marketing of Path 1, McCrary leads all marketing, product management and vertical market development programs at Path 1. Previously McCrary served as the head of Sales and Business Development for Glowpoint,. Before Glowpoint, McCrary served as Vice President of Marketing for Envivio, a leading provider of MPEG-4 solutions. Over his career, McCrary has also held executive and senior level positions at video networking companies including Cacheflow, I-Beam Broadcasting, Picturetel, and Sprint Communications.

VIEWPOINT

Satellites and IT – Myths and Realities

by Bruce Elbert
President, Application Technology Strategy, Inc.

The connection between satellite communications and Information Technology (IT) was established some 20 years ago when the Very Small Aperture Terminal (VSAT) first appeared, but the debate as to its validity still rages. That major corporations like Wal-Mart and Chevron as well as several US government agencies including the US Postal Service and FEMA would adopt VSAT networks for data is clear proof. However, obstacles remain to satellites being a more common tool for overcoming the limitations of terrestrial services like T1s, Frame Relay and DSL. It is perhaps a contradiction that even in corporations that rely on private satellite TV for training and employee communications, the IT connection for data is lacking. I believe that greater confidence results when users understand that (1) satellite data communications is practical and affordable, and (2) the adoption of this approach is achievable with a reasonable amount of effort.

Satellites and Data

Satellite communication of data is merely a part of the overall telecommunications picture and thus has a natural connection to IT. This is because information resources that comprise IT are really embedded within a network, and that network employs telecommunications. Organizations with lots of employees at a single location, as well as at other locations, rely on Local Area Network (LAN) and Wide Area Network (WAN) facilities that they construct within and between buildings and that are obtained from service providers, notably telephone companies. All of this is expensive and demands attention to detail since every IT application is dependent on the availability and performance of these resources.

The good news is that the aforementioned front-line users of VSATs have demanded the same capabilities and service guarantees from leaders in the satellite industry as they do from other IT and telecommunications providers. Our industry is therefore prepared to respond to IT requirements for extended broadband connectivity. The Army discovered this – their "Network Centric" style of battle relies on commercial satellite links and ground equipment.

Why don't most IT managers "think" in terms of satellites when an appropriate requirement comes up? I believe this is because satellites are appropriate in certain special cases, and these cases are exceptions to what normally arises for most enterprises or even individuals. Examples of these exceptions include:

1. High-speed access from remote places not adequately served
2. Extending service over a wide region such as a large country, continent or ocean
3. A necessity to deliver identical technical characteristics in areas with incompatible services
4. Extending across borders to achieve a trans-national network
5. Multicast of digital content on a point-to-multipoint basis
6. Distributing high-quality real-time video and audio

The key point is that when one such demand arises, an adept IT manager or network engineer will include potential satellite data solutions among the alternatives considered for extending the overall

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network. Experience shows that managers who do this will get results when and where they need them.

Dispelling Myths

Several of these exceptions involve service to remote or extensive areas where terrestrial networks either don't exist or are very difficult to employ on a seamless basis. Thanks to the success of DBS and Satellite Radio, most IT managers and network engineers are well aware of what a satellite can physically do. However, that little piece of knowledge can be a dangerous thing because of a variety of myths that seem to prevail. Here is my summary of these doubt-creators:

Myth 1 - Satellite technology is for space cadets who were raised at a launch site. While it is true that some satellite knowledge is helpful, a depth of understanding of these systems is not required.

Myth 2 - Satellites are unreliable and fall from the sky. In fact, end-to-end reliability is better than cable and telephone for the end user. Parenthetically, GEO satellites cannot re-enter the atmosphere due to their altitude; old ones that reach end-of-life are simply raised to a higher altitude and turned off.

Myth 3 - It's a big investment. This will not be the case if you work with a service provider who invested the capital and provides the hands-on expertise.

Myth 4 - Latency will kill the application. Latency only affects some applications and can usually be addressed with a combination of satellite network "tuning" and possibly application modification.

Myth 5 - Satellite broadcasts are insecure because anyone can listen to them. Information security of satellite transmissions is achieved with the same technology that addresses this issue with regard to the open Internet.

Some of these myths are based in technical issues that require careful attention. For example, *Myth 4* regarding latency is an inherent concern because of the propagation delay of one quarter second between ground sender and ground receiver. This, of course, adds to the delay caused by other IT resources, particularly client/server processing and IP switching and routing. Data application users generally do not notice response times less than two seconds, so propagation delay is certainly manageable. However, if the computers, servers and digital processing elements add substantial delay, the service quality may suffer.

This issue can be overcome by identifying the time-sensitive application and configuring it appropriately. In one such difficult but soluble case, an inventory management application was designed to run on a PDA via a wireless LAN. The designer, assuming very short transmission delay, coded the application so that the data was sent piece by piece, requiring confirmation at every step. When a long distance connection over a satellite hop was inserted between the PDA and the server, the application slowed down to a crawl. The solution was to modify the application to forward its data in blocks rather than short queries. Once the user hits the

VIEWPOINT

return key, the accelerated application connects to a local VSAT and directly uploads the entire block over the satellite. Due to a high-degree of error correction, there is minimal retransmission delay because block delivery is so reliable.

A requirement for secure data delivery (*Myth 5*) can be addressed with confidence thanks to encryption and authentication technology. The Secure Sockets Layer (SSL) protocol used to assure privacy of on-line transactions is very effective for securing end-to-end satellite data transfers. Also, the popular Digital Encryption Standard (DES) can be used to secure all data that is transmitted to the satellite and thus relayed to all points within the footprint. Even stronger encryption technologies are available. One very popular IT networking approach on terrestrial networks is the Virtual Private Network (VPN) using a standard called IPsec. This approach, like DES, secures all information that leaves the point of origination (typically a firewall) until it is deciphered at the distant server. Putting a VPN over a satellite is potentially effective, but requires the same kind of care as I discussed with regard to application acceleration.

How to Proceed?

Say that you're convinced that there is a role for a satellite-IT connection; how much, then, do you need to understand about getting such a network into existence? My recommendation is that you first understand your telecommunications requirements, and then determine what expertise you and your organization require with regard to alternative satellite solutions. Then, be sure to allocate the time and money to do it right.

Here is a suggested check list of success factors:

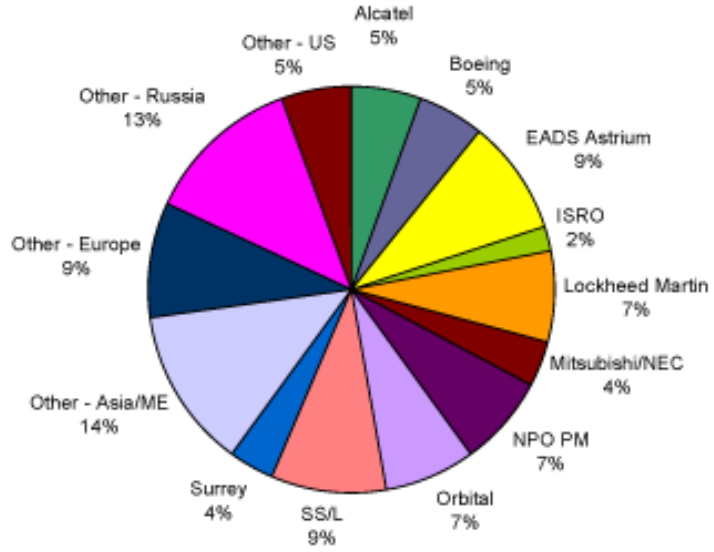
1. Understand what you're trying to do – basic requirements and desired outcomes
2. Survey what's out there – attend conferences and visit vendors
3. Get internal buy-in – find allies who would benefit as well
4. Run demos and pilots – see how this works in your real-world situation
5. Choose the right supplier partner(s)
6. Stick to your idea and plan – don't get sidetracked
7. Get your technical people into satellite training – dispel the myths

I've covered what I believe are primary inhibitors and enhancers for those needing to connect IT to satellites for the first time. This is basic IT planning and design, not rocket science. Take this list and adapt it to your needs. Bounce ideas off others and get comfortable with the thinking and players in the industry. It would be very effective to meet with other users who have gone before you to learn how best to establish your connection between satellites and IT. SM

Bruce Elbert has over 30 years of experience in satellite communications and is the President of Application Technology Strategy, Inc., which assists satellite operators, network providers and users in the public and private sectors. He is an author and educator in these fields, having produced seven titles and conducted technical and business training around the world. During 25 years with Hughes Electronics, he directed major technical projects and led business activities in the U.S. and overseas. He is the author of The Satellite Communication Applications Handbook, second edition (Artech House, 2004). Web site: www.applicationstrategy.com / Email: bruce@applicationstrategy.com

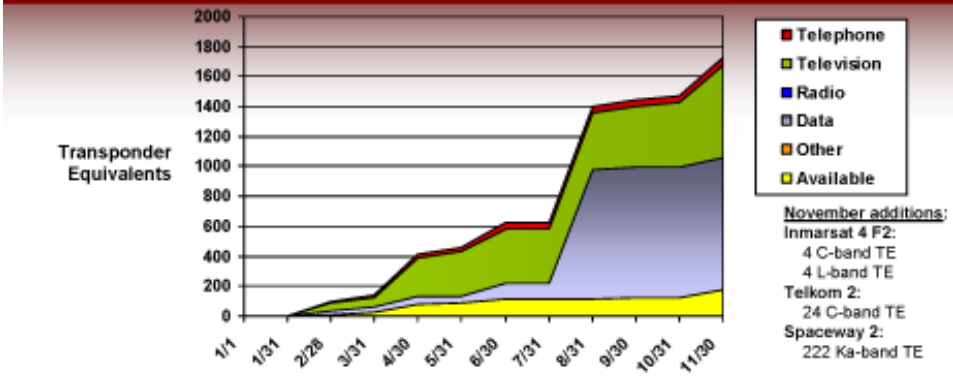
VITAL STATISTICS

Manufacturer Market Share of Satellites Launched Through November 30, 2005



Manufacturer	Number	Share
Alcatel	3	5%
Boeing	3	5%
EADS Astrium	5	9%
ISRO	1	2%
Lockheed Martin	4	7%
Mitsubishi/NEC	2	4%
NPO PM	4	7%
Orbital	4	7%
SS/L	5	9%
Surrey	2	4%
Other - Asia/ME	7	13%
Other - Europe	5	9%
Other - Russia	7	13%
Other - US	3	5%
Total	55	100%

2005 Cumulative 36-MHz Transponder Equivalents Launched by Application



November additions:
Inmarsat 4 F2:
4 C-band TE
4 L-band TE
Telkom 2:
24 C-band TE
Spaceway 2:
222 Ka-band TE

2005 Cumulative 36-MHz Transponder Equivalents by Application

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Telephone	0	8	21	28.3	28.3	42.5	42.5	42.5	42.5	42.5	53.3	
TV	0	51	60	259.4	294.4	358.5	358.5	380.5	409.1	429.1	612.7	
Data	0	26	39	46.3	46.3	110.4	110.4	860.4	872.6	872.6	881.8	
Radio	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Other	0	0	0	0	0	0	0	0	0	0	0	
Available	0	11	23	83	87	111.6	111.6	113.6	120.8	124.8	175.2	
Totals	0	96.1	143.1	417.1	456.1	623.1	623.1	1397.1	1445.1	1469.1	1723.1	

EXECUTIVE SPOTLIGHT

Executive Spotlight with ATCi CEO Gary Hatch

Satnews Managing **Editor Virgil Labrador** spoke with ATCi CEO ***Gary Hatch*** on his views on how 2005 went and prospects for 2006. Excerpts of the interview:

Reflecting on the satellite industry as whole in 2005, how was it compared to 2004? Did you see any marked improvement?

Improvement was noted in 2005 over 2004 in the growth of high definition Ku-band, Military C-band, Ku-band and IPTV projects and planning internationally.

GSM back-haul circuits showed a dramatic increase in transponder use throughout the industry.

What impact would the Intelsat-PanAmSat merger have on the industry?

Candidly, I believe this merger (if approved?) will have a potentially negative impact. All satellite related projects require competitive transponder pricing. Approximately 80% of the direct recurring cost in most projects is attributed to the transponder cost in the early years. Lack of opposition will obviously reduce competition and therein reduce the ability to fulfill acceptable internal rate of return financial models. If approved, this merger appears to unfortunately enrich a few and adversely affect an entire industry worldwide.

How did your company do in 2005?

ATCi experienced growth in both hardware and services in the video entertainment segment. We were relatively flat in our voice and data markets.

How do you see 2006? What new opportunities and challenges will the industry in the general and your company in particular be facing?

We are optimistic in our video entertainment sector in both the product and teleport services business. We see satellite as a driving force and an enabler in the emerging Telco TV and/or IPTV marketplace.

Constant change has always and will always be both a challenge as well as an opportunity in this industry. Particularly IP, M-PEG-4 and DVB-S2 will help the satellite industry bring forth more efficient video bandwidth to DTH, CATV, and the new Telco TV markets, however, these changes will come about over time and are primarily contingent upon low cost customer premise equipment and related regulation. SM

MARKET INTELLIGENCE

Beyond WSIS – Plurality in the Digital Divide

Exploring the ICT imperatives of developed economies

By Martin Jarrold
Chief of International Program Development, GVF

The Second Phase of the World Summit on the Information Society (WSIS) has come and gone, and a new agenda has been set-out for the world's Information and Communication Technology (ICT) "stakeholders" – policy makers, regulators, product and service providers, end-users, and many others – to continue to expend all necessary energies and re-focus on the imperatives of bridging that now oh-so-familiar *digital divide*.

Most recent GVF program input into the November 2005 Tunis proceedings included:

- ` The **Contribution of Satellite Communications to the Information Society workshop**, which was designed to advance the private/public sector dialogue on spanning the digital divide through broadband satellite solutions; and,
- An edited and reworked version of the GVF-researched/IDRC-funded report **Open & Closed Skies: Satellite Access in Africa** (originally published in September 2004) within the *United Nations ICT Task Force Working Group on the Enabling Environment* publication **Open Access for Africa: Challenges, Recommendations & Examples**.

The GVF contribution to the latter focused on the specifics of policy reform and regulatory issues in bridging the African digital divide through satellite technologies, whereas ***'The Tunis Agenda for the Information Society'*** (Document Reference: WSIS-05/TUNIS/DOC/6 (Rev. 1)-E) more broadly noted that "advances in communication technology, and high-speed data networks are continuously increasing the possibilities for developing countries, and countries with economies in transition, to participate in the global market for ICT-enabled services on the basis of their comparative advantage. These emerging opportunities provide a powerful commercial basis for ICT infrastructural investment in these countries."

It went on to note that, "Therefore, governments should take action, in the framework of national development policies, in order to support an enabling and competitive environment for the necessary investment in ICT infrastructure and for the development of new services. At the same time, countries should pursue policies and measures that would not discourage, impede or prevent the continued participation of these countries in the global market for ICT-enabled services."

This post-Tunis position – sharing some common ground with GVF – is illustrative of an emergent global consensus that has been developing over the period of the transition from the first phase of WSIS to the second, a consensus that the countries of Europe – in the form of the European Union – has helped, and is helping, to forge, as a result of reflection upon its experiences with its own policies to encourage information technologies in all parts of the networked economy.

Indeed, the EU is itself at an important juncture with regard to Information Society policies. The European Commission (EC) has recently launched a key initiative to boost the Lisbon agenda***** and to promote higher growth, more jobs and greater inclusion. Policies on ICTs, content and Research and Development (R&D) play an important role in this context. The forthcoming **i2010**[#] initiative aims to boost the economic potential of ICTs for generating growth in Europe. In addition, the Commission has just tabled two major proposals to strengthen Europe's position in ICTs: the seventh R&D Framework Programme (FP7) and the Competitiveness and Innovation Programme (CIP). Furthermore, the EU has reviewed its contributions to the Millennium Development Goals (MDGs) process.

On 25 November 2006 the EU Information Society & Media Directorate-General issued a ***'Call for Input on the forthcoming review of the EU regulatory framework for electronic communications and services'***, the objective of which is to contribute to a process of review of the five European Parliament and Council Directives that make up this EU regulatory framework. In summary, interested parties have been invited to comment on the following:

- **General Topics:**

The strengths and weaknesses of the framework
The extent to which the framework has achieved its objectives
The impacts the framework has produced to date
Improvements to the framework
Framework contributions to the Lisbon goals

- **Specific Topics**

Scope and objectives
Convergence and technological developments
Single markets aspects of the framework
Article 7 procedures (Framework Directive)
Spectrum management
Competition and access regulation
Authorisations and rights of use
Consumer protection, citizens' interests and users' rights
Privacy and security
Standards and interoperability
Leased lines
Institutional aspects

Views submitted will provide input to a Commission Communication on the functioning of the regulatory framework planned for mid-2006. This will also launch a public consultation on possible changes. The full 'Call for Input' document is available at: http://europa.eu.int/information_society/policy/ecomm/doc/info_centre/public_consult/review/511_25_call_for_input_comp.pdf and the deadline for submissions is 31 January 2006.

Next Generation Networks

In the realm of Next Generation Networks (NGN) the EU is a leading facilitator. For telecoms service providers throughout the world, the NGN challenge is how to integrate nomadic users and providers, fixed and wireless access, Internet networks, and IP-enabled services into a coherent, secure, and high-quality global public telecommunication infrastructure. For the policy-making and regulatory community, embodied, for example, in the various institutional structures of the EU, there is no small challenge in trying to ensure that all the right elements are in place to encourage investment, infrastructure deployment, and innovation, whilst securing that the needs of the general public (e.g., for interoperability and inter-connectivity between platforms and services, emergency communications, privacy protection, legal interception, security and integrity issues) are adequately met. Successfully meeting this challenge requires a careful and balanced dialog, and avoidance of a situation where industry is left in a vacuum, and 25 different national policies and incompatible regulatory regimes and network capabilities would be implemented for future networks and services.

Next Generation Telecoms Conference

In Central and Eastern Europe (CEE), a region which has provided some of the most recent countries to gain EU membership and where a number of its candidate accession states are located, the telecommunications arena has experienced remarkable growth in recent years. The liberalization of individual national telecommunication markets across the region is playing a key, underpinning, role in encouraging thriving competitive markets and in enhancing the availability of a wide range of network services, with broadband access services having assumed a lead position as key driver of CEE telecoms growth. But, despite this, questions about the affordability and wider availability of efficient Internet services still remain.

A roundtable discussion featuring panelists from Skylogic, Loral Skynet, Satlynx, Telekom Austria, Laban Communications, and Hungaro DigiTel, and entitled ***'Driving your national broadband economy with satellite network solutions'*** takes place at the Next Generation Telecoms (NGT) event in Ljubljana, Slovenia, on 31 January next year. The objective of this roundtable will be to address questions relating to the existing and potential role of satellite communications in providing cost-effective solutions to increase the reach of digital communications across CEE. Specific topics will include:

- DVB-RCS and the deployment of other 'standardized' satellite technologies in emerging CEE markets
- Evaluating satellite technology's current and potential future impact on broadband Internet penetration in CEE
- Extending the reach of WiFi and WiMax technologies via satellite
- Key market drivers: identifying economies of scale and other factors to enable affordable high-speed Internet access via satellite
- Meeting the demands of the mobile next generation user

On 30 January, the day before the satellite roundtable, GVF will host its **Satellite Business Course @ NGT 2006** workshop. Part of its suite of capacity-building courseware, the GVF Satellite Business Course is for professionals who are engaged in, or are thinking about, starting a satellite communications business venture which may, or may not, be closely associated with a pre-existing telecommunications business which currently focuses on the use of other platforms and technologies. The content is not highly technical, although business-relevant technical issues are covered in outline. Some basic understanding of the Information Technology and communications industries will be assumed, as will some basic understanding of business

strategy, marketing and operations.

The course content is designed to be of interest to the following:

- Investors
- Business principals
- Marketing & Sales management
- Customer care management
- Implementation management
- Financial & Administrative management
- Government policy makers & regulators
- Telecommunications planners/ management
- Internet Service Provider (ISP) management
- Corporate communications management
- Distance Education providers
- Telemedical services providers
- NGO management
- Donor Government agencies
- Anyone else interested in businesses which will rely on VSAT technology

Course topic components

The course/workshop will cover business aspects of VSAT oriented businesses, including:

Structure of the communications industry and where VSAT fits; Regulatory frameworks; Types of VSAT-based businesses; Critical Success Factors; Core competences; Customer management; Business strategy & planning; Risk analysis; Outlook for the future; Where do we go from here?

The course/workshop will not cover: Detailed technical subjects; Financial planning; Issues specific to specific businesses.

Further details are available from me at GVF on + 44 1727 884513 or martin.jarrold@gvf.org. SM

i2010 – European Information Society 2010: For Growth and Employment

First proposed by the European Commission in June 2005, **i2010** is a strategic framework to promote an open and competitive digital economy, emphasizing Information and Communication Technologies as a driver of growth and jobs in Europe – the so-called Lisbon Strategy.* ICTs account for approximately half of Europe's recent productivity growth, while the ICT industry alone generates 6-8 percent of European Union GDP. Digital convergence will provide the right conditions for continued and accelerating economic growth only if appropriate regulatory reform is implemented and research and development encouraged. In other words, European policy must evolve to match the characteristics of the digitally converging marketplace, specifically in respect of:

Single Information Space – Europe's Information Society must create a "single information space" to leverage the opportunities of converging markets. Digital convergence requires policy convergence aiming at a common set of regulations governing the supply of content and services and the operation of networks.

Research – Future European competitiveness depends on significantly increased levels of investment in research in ICTs. OECD data for 2002 shows that European (EU – 15) investment per inhabitant in ICT stood at just 80 euro, compared to per capita figures of 350 euro and 400 euro in the USA and Japan, respectively. In the same study, European ICT R&D as a percentage of Total R&D stood at just 18%, compared to 34% and 35% in the USA and Japan, respectively.

Inclusive Information Society – The application of ICTs to public sector services bring immediate benefits. These must be widely available and accessible to all – *Europe must not develop a **digital divide**,* where a lack of digital literacy or Internet access in remote regions deprives people of better services. **i2010** will develop a far-reaching initiative on inclusion, starting with immediate actions on eAccessibility and the broadband territorial divide.

For further information: http://europa.eu.int/i2010 & http://europa.eu.int/information_society/

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REGIONAL UPDATE

Colombia's Compartel Program Lead Satellite Applications for E-GOV in Latin America in 2006

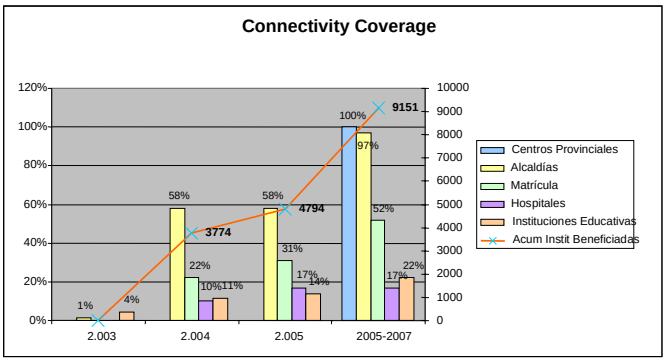
Colombia is one of the best example of using satellite technology in E-Gov programs to break the digital divide between the main cities and remote and village areas with low income or rural population in the developing world.

Compartel is a program created by the Colombian government to develop the social Telecommunications in the country by reaching the most distant rural locations of the Colombian territory with very low socioeconomic regions. Because of the Compartel Program some actions have been developed to expand access to telecommunications, especially Internet and telephony, to most people of those areas. There are 3 main Compartel subprograms: the Compartel Rural Telephony Program, the Compartel Social Internet Program and the Compartel Broadband Connectivity Program for Public Institutions

The Broadband Connectivity Program for public Institutions has been established in order to address a social and technological challenge: Bridging the Digital Divide. This Program allows to make the broadband Internet access widely available and affordable for public institutions located in the most far-away and poorest towns in Colombia, where is difficult to have access to information and communication technologies.

With the Connectivity program, public institutions will have access to information and communications technologies targeting quality in public education, widen educational contents, develop e-government tools for mayor offices, and support a more efficient management of public hospitals and telemedicine programs.

Besides the infrastructure for offering the Internet service, the Connectivity Program provides public institutions with tools to use these services. Then, the program gives computers and networks, and includes a training component focus in the basics of computers.



The program was developed in two phases; the first one began in 2004 and, when completed during 1Q2006, will have connected 4.020 public schools, 624 mayor offices, 120 public hospitals, and 30 military bases. The second phase was launched in November 2005 and will connect 3.793 public schools, 427 mayor offices, 80 hospitals and 57 remote agro businesses. Phase I will last for 6 years, and Phase II for 5 years. 53% of local students, 97% of mayor offices in small towns, and 17% of public hospitals will be connected to the broadband Internet Services.

Compartel Connectivity Program phase 2 bid process finished last November where five companies presented proposals. The bid companies selected to participate in this phase were: Coldecon, which won the north zone of the country, and e-America, which won the south zone. An important aspect to mention as of result of Phase II, both of the winning companies offered to increase the bandwidth for access in 150%.

Coldecon is a company formed by: AIRSPAN NETWORKS INC (57%), TEKCOM LTDA (17%), GEONET S.A (1%), and COLDECON (25%). Their experience in Colombia is offering Internet Services, and Coldecon is one of the companies with more dial-up Internet clients.

The other provider e-America is a company formed by: GRUPO ODINSA S.A (60,9%), INTERNET POR COLOMBIA S.A (25%), ANDITEL S.A (13,9%), ANDICEL S.A.(0,1%), and ODINSA PROYECTOS E INVERSIONES S.A. (0,1%). These companies have experience in Internet service in Colombia. Besides Internet por Colombia is one of the operators of the Phase 1 of the Connectivity Program.

The phase 2 will be developed during 5 years. The schedule is divided in three phases: Planning, Installation and Operation. Both Coldecon and E-america announced they are planning to use mainly Satellite technologies (VSAT) for their connectivity. The technology and space segment will be defined during 2006. At the end of the Connectivity Program (Phase 1 and Phase 2), 53% of public students, 97% of mayor offices in small towns, and 17% of public hospitals will be connected to the broadband Internet Services. In Summary the Compartel Program is using about 14 transponders (each one of 27 MHz) to connect all the institutions and the access community centers. SM

Bernardo Schneiderman has over 30 years of experience in the Satellite & Telecom Industry. He is the Businesss Development and Technical Director of Space & Telecom Divison for Futron Corp based in Irvine, CA. USA and is responsible for the West Coast and the International Market. He has global experience in Marketing and Eng. Consulting , Sat and Telecom Carriers, VSAT and Telecom Manufacturers. Mr Schneiderman has been writing for the industry during the last 12 years and can be contacted at bschneiderman@futron.com

STOCK MONITOR

Company Name	Symbol	Price (Jan. 4)	52-wk Range
APT SATELLITE	ATS	**1.32**	1.12 - 1.57
ANDREW CORP	ANDW	**10.82**	10.07 - 14.19
ASIA SATELLITE TELECOMMUNI-CATIONS (ASIASAT)	SAT	**17.80**	16.50 - 20.55
BALL CORP	BLL	**41.93**	35.06 - 46.45
BOEING CO	BA	**70.7425**	49.52 - 72.40
BRITISH SKY ADS	BSY	**35.64**	33.59 - 44.99
CALAMP CORP	CAMP	**10.68**	5.23 - 12.59
C-COM SATELLITE SYSTEMS	CMI.V	**0.32**	0.21 - 0.56
COM DEV INTL LTD	CDV.TO	**2.16**	1.67 - 3.24
COMTECH TELECOM	CMTL	**31.35**	21.0267 - 45.65
THE DIRECTV GROUP	DTV	**14.45**	13.17 - 17.01
ECHOSTAR COMMUNICATIONS	DISH	**28.65**	24.44 - 33.52
FREQUENCY ELCTRONICS	FEI	**10.7901**	9.80 - 15.90
GILAT SATELLITE NETWORKS	GILTF	**5.63**	5.06 - 7.62
GLOBECOMM SYS INC	GCOM	**6.74**	5.09 - 8.44
HARRIS CORP	HRS	**43.96**	26.94 - 45.78
HONEYWELL INTL	HON	**37.38**	32.68 - 39.50
INTL DATACASTING	IDC.TO	**0.19**	0.17 - 0.34
INTEGRAL SYSTEMS	ISYS	**19.22**	17.25 - 24.70
KVH INDS INC	KVHI	**9.98**	8.54 - 13.23
L-3 COMM HLDGS	LLL	**75.85**	64.66 - 84.84
LOCKHEED MARTIN CORP	LMT	**64.56**	52.54 - 65.46
NEWS CORP	NWS	**16.49**	14.76 - 19.20
NORSAT INTL INC	NSATF.OB	**0.78**	0.43 - 1.51
NTL INC	NTLI	**67.90**	55.52 - 72.61
ORBITAL SCIENCES	ORB	**13.01**	8.84 - 13.23
PT PASIFIK SATELLITE	PSNRY.PK	**0.0001**	0.09 - 0.30
QUALCOMM INC	QCOM	**45.18**	32.08 - 46.60
RADYNE CORPORATION	RADN	**15.58**	7.15 - 15.49
SCIENTIFIC ATLANTA	SFA	**42.85**	26.73 - 43.90
SIRIUS SATELLITE RADIO	SIRI	**6.32**	4.42 - 7.98
SES GLOBAL	SDS.F	**12.45**	6.70 - 12.47
TRIMBLE NAVIGATION	TRMB	**36.15**	26.64 - 44.55
WORLDSPACE INC	WRSP	**13.12**	10.26 - 26.00
VIASAT INC	VSAT	**27.36**	17.30 - 28.84
XM SATELLITE RADI0	XMSR	**27.90**	26.16 - 37.31

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