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October 2004

Worldwide Satellite Magazine

Vol. 2 No. 6



Internet Via Satellite



Your Satellite Connection
to the World

SES GLOBAL

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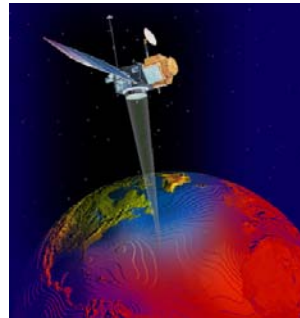
The question with Internet via Satellite is not so much “will it work” (because it does), but rather “how do I use it in my work.” Bruce Elbert explains.



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NOTE FROM THE EDITOR

Internet Via Satellite's Future is Up in the Air

The future of internet via satellite may be up in the air. Literally, that is. Analysts have pointed out that internet via satellite may have all but lost the ground war to more established DSL and cable, but apparently the skys are still fair game. So much so, that in most broadband internet via satellite business plans, such as Wildblue in North America and Skylynx in Europe, the focus is in underserved rural areas to avoid competing head-to-head with cable and DSL.

The great success of JetBlue's offering of DirecTV programming in the US has given impetus to various other service providers to provide in-flight entertainment and internet connections via satellite.

Last year, airline expenditures on in-flight entertainment, cabin communications products and services were up 17%, reaching \$1.6 billion according to the World Airline Entertainment Association. (WAEA). Boeing believes in-flight internet can bring in as much as \$ 5 Billion in revenue by 2010. That certainly is a good chunk of business which the satellite industry can ill afford to neglect.

Boeing's subsidiary, Connexion by Boeing has already signed seven major airlines including Lufthansa, Singapore Airlines, Scandinavian Airlines, Japan Airlines and China Airlines to its service. Trials with Lufthansa of its Flynet system, which provides unlimited internet access for about US \$30.00 per flight have been well received by business travellers. The service is scheduled to launched in late April or mid - May 2005.

Other service providers such as Seattle-based Tenzing and Maryland-based ARINC. Tenzing has a simpler system using telephone networks already in the aircraft and is thus cheaper to install, while ARINC is trying to provide the service to the private jet market. Another start-up company, AirTV is planning to launch it's own satellite dedicated to provided TV, internet and data services to aircraft. AirTV has just signed a partnership deal with Arianespace and hopes to launch its satellite by 2007.

Considering there are an estimated 4,800 long-haul flights and thousands more private jets in the air per day, there certainly is great potential in this market.

Virgil Labrador

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CALENDAR OF EVENTS

October 5-6, Dubai, UAE

Middle East & North Africa Satellite Summit (MENASAT)

E-mail: menasat@thecwcgroup.com or martin.jarrold@gvf.org

Web: www.thecwcgroup.com

October 11-13, Sydney, Australia

SATCOM Australia 2004

Tel.: +612-9005-0775, Email: ayusha.tyagi@terrapinn.com

Web: www.carriersworld.com/2004/satcom_AU

October 11-13, Shanghai, China

2004 Global Mobile Congress

E-mail: china@b3g.orghttp://mobile2004.com

October 13-15, Kiev, Ukraine

Eastern Europe Broadband Convention (EEBC) 2004

TEO Group, Tel: +380 44 2427342 / Fax: +380 44 2304789

info@eebc.com.ua <http://www.eebc.com.ua/>

October 20-22, Beijing, China

China Satellite 2004

Richard T. Kusiolek, Tel: (650) 428 1872 / Fax (650) 964 0977

E-mail: richardtheodor@aol.com Web: www.chinasatellite.org

October 25-27, New York City, NY, USA

SATCON 2004

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E-mail: mdriscoll@jdevents.com

October 26-30, Mumbai, India

Broadcast India 2004

E-mail: saicomtradefairs@vsnl.com

Web: www.saicom.com/broadcastindia/

October 26-30, Beijing, China

PT Expo Comm 2004

E-mail: owens@ejkrause.com / Web: www.ejkrause.com

October 26-29, Hong Kong SAR, China

CASBAA Convention 2004

E-mail: events@casbaa.comwww.casbaa.com

October 31-November 3, Monterrey, CA, USA

Milcom 2004

E-mail: milcomregistration@jspargo.com

Web: www.milcom.org

Tel. (703) 449-6418 / Fax (703) 631-6288

November 3-5, World Trade Centre, Mumbai, India

Satellite & Cable TV India Tradeshow 2004

Tel. +91-22-5660 4029 / Fax: +91-22- 2496 3465

E-mail: scat@vsnl.com

Website: www.scatindia.com

November 9-13, Hanoi, Vietnam

Vietnam Telecomp 2004

Tel: (852) 2811 8897 / Fax: (852) 2516 5024

E-mail: exhibition@adsale.com.hk

Web: www.adsale.com.hk

November 17-18, London, UK

6th Annual Global MILSATCOM Conference

Tel +44 (0) 20 7827 6746

E-mail: jnesbitt@smi-online.co.uk

November 19, London, UK

VSATs: Satellite Solutions and the Bottom Line

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E-mail: jnesbitt@smi-online.co.uk

November 29-30, Singapore

VSAT Satellite Communications

Tel: (65) 6536 8676 / Fax: (65) 6536 4350

E-mail: mktg1@abf.com.sg / Web: www.abf-asia.com

November 30-December 3, Strasbourg, France

9th Annual ISU International Symposium on "Civil, Commercial and Security Space"

E-mail: symposium@isu.isunet.eduwww.isunet.edu

December 2-5, World Trade Center, Istanbul, Turkey

Broadcast, Cable & Satellite eurasia 2004 – A CeBIT Event - Fair and Conference

Hannover-Messe International Istanbul

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Fax: +90.212.334 69 34

E-mail: ufuk.altintop@hf-turkey.com/

Web: www.cebit-bcs.com

December 7-8, Shangri-La, Pudong, Shanghai, China

Emergency Communications Asia 2004

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Website: www.terrapinn.com/2004/eca_CN

FEATURED EVENT

ISCe 2005: New Expanded Program for 2005



May 31 – June 2, 2005 Long Beach, California

Now going on its fourth year. The International Satellite Communications Expo (ISCe) has established itself as one of the leading satellite and communications events.

“We are pleased with the continued growth and interest in this intimate and high-quality program,” said Joachim Schafer, president of Hannover Fairs USA, the event’s organizer.

“Feedback from our customers and sponsors indicates that our dual commercial and military track program is ideal and allows both sectors to meet under one roof,” said Schafer.

“ISCe is an excellent forum for leaders from the commercial satellite industry to meet with their DoD and government customers to discuss further cooperation and business opportunities”, said David Cavossa, executive director of the Satellite Industry Association.

“As co-host of ISCe, the Satellite Industry Association looks forward to expanding the program in 2005 to include many more buyers and users of satellite-based services,” said Cavossa.

ISCe 2005 Preliminary Program

The 4th Annual ISCe will be held May 31 – June 2 at the Long Beach Hyatt Regency Hotel in Long Beach, California.

ISCe officials are excited and pleased with the development and progress of next year’s ISCe program. “We have met with and listened to many of the industry leaders to discuss ideas on improving ISCe and creating additional value for our participants.” said Art Paredes, ISCe chairman. In an effort to help achieve this objective ISCe has announced the addition of three new components to the ISCe 2005 program:

- **10th Annual Satellite Entertainment / DBS Forum: “The 5 Burning Questions”**, presented by The Carmel Group
- **Government / DoD Satellite Requirements Summit**
- **ISCe Gallery of Innovation Demo Program**

Preliminary topics and other special events to be presented at ISCe 2005 include:

October 2004

Commercial / Consumer Sector:

- Broadband Services and Solutions
- Broadcasting; DVB/IP
- DBS /Satellite Entertainment Products and Services: DTH, HDTV, Satellite TV/Radio and VOD
- “Direct-to-Users” Strategies
- Enterprise Solutions via Satellite
- FSS and MSS Applications and Solutions
- Future Trends and Replacement Market
- IP-based Application for the Enterprise
- Launch Services
- Manufacturing
- Private Equity Investments / Financial Forecast
- Regulatory and Legal Issues
- Satellite-Centric Solutions: Hybrid Networks

Military / Government Sector:

- C4ISR Solutions and Interoperability
- Combatant Commander’s Requirements
- DoD Satellite Network-Centric Solutions
- Government Satellite Requirements
- Homeland Defense and National Security
- Increased Military Use of Commercial Satellite Services
- Information Transformation
- Joint Military Ops, Intelligence & Logistics Integration
- Military Space Operations and the War on Terrorism
- MSS for Government Applications
- NASA Space Communications Project



FEATURED EVENT

- Next Generation Fixed and Mobile Ground Terminals
- SATCOM for Network-Centric Warfare
- Transformation Communications - MILSATCOM

In addition to the dual-track conference program, ISCe will also offer several networking and special events, including:

- ISCe Welcome Luncheon
- Sunset Cruise and Casino Night Welcome Reception
- Leadership Luncheon
- ISCe Awards Dinner and Reception
- Gallery of Innovation Demos
- Closing Reception

New Gallery of Innovation Program at ISCe 2005

ISCe 2005 will launch the satellite communications' most innovative and new product "showcase" – ***The Gallery of Innovation***. The Gallery will introduce satellite-based services, products and applications that are innovative and unique to the industry.

This new product demonstration program offers select companies an opportunity to promote and demonstrate their new and innovative product and/or services to a vast audience of **media / press personnel, industry analysts, investors and key industry decision-makers**. Companies selected to participate will have the opportunity to provide product demonstrations during **two** distinct events at ISCe.

For information on registration or sponsorship opportunities, visit www.isce.com or call Gina Lerma at +1-310-410-9191 or e-mail: glerma@hfusa.com **SM**



ISCe
Satellite & Communications
a CeBIT Event

ISCe 2005

May 31 — June 2, 2005
Hyatt Regency Hotel
Long Beach, California

www.isce.com

Mark Your Calendar!

Join the global satellite community at the 4th Annual ISCe Conference & Expo and meet with key leaders and decision-makers from the commercial, civil, consumer and military sectors!




Program features include:




- + **Three-day Conference Program:**
 - Satellite Entertainment / DBS
 - Commercial Enterprise Solutions
 - MILSATCOM
 - Space Enterprise & Communications
 - DoD / Government Requirements
 - MSS and FSS Applications
 - Financial Overview / Private Investment
 - Future Trends / Replacements
 - Military Space Ops / Integration
- + **SIA "State of the Industry" Report**
- + **ISCe DEMOvation Program**
- + **Sunset Cruise & Casino Night Welcome Reception**
- + **Networking Breaks, Lunches and Receptions**
- + **ISCe Awards Dinner**




For sponsorship opportunities, DEMOvation Program details, exhibit sales or conference program information, please visit www.isce.com or contact Gina Lerma at glerma@hfusa.com or (310) 410-9191.

Organized by:  Hannover Fairs USA, Inc.

Co-hosted by:  SIA

Supporting Organizations:      

INDUSTRY NEWS

Boeing Wins Major Contract to Build 3 Satellites for DirecTV



The Boeing 702, the successor to the Boeing 601, can carry up to 118 high-power transponders, of which 94 are active and 24 are spares and, deliver any communications frequencies that customers request.

Alaska.

In addition to expanded national HDTV broadcasting, standard definition television broadcasting, and interactive television, Boeing said DirecTV 10 and DirecTV 11 will provide the capability for DirecTV to broadcast local HDTV to 90 percent of their customers.

“This contract is a testament to our relationship with DirecTV, and to the value, service and robust technology we continually provide,” said Dave Ryan, vice president and general manager of Boeing Satellite Systems. Arianespace Wins Launch Contracts with DirecTV, PanAmSat

Arianespace Wins Launch Contracts with DirecTV, PanAmSat

Arianespace announced last September 9 the signing of two new contracts with the DirecTV Group for the launch of Spaceway 2 satellite in April and the second contract for a still un-named DTH satellite.

Boeing (NYSE:BA) received last September 8 a contract from DirecTV to build three Boeing 702 model satellites. The spacecraft, according to Boeing, will provide DirecTV with national and local broadcast coverage in High Definition Television (HDTV).

The three 702 satellites, dubbed DirecTV 10 and DirecTV 11, an on-ground spare and six KA band uplink sites, will enable DirecTV to significantly expand broadcasting to their customers across the continental United States, Hawaii, and

Arianespace also announced it has been chosen by U.S. operator PanAmSat to launch the Galaxy 17 satellite. Galaxy 17 will be orbited by an Ariane 5 as early as late 2006 from Europe’s Spaceport in Kourou, French Guiana.

Arianespace said its new contract with DirecTV is its sixth and seventh contracts of the year, and fifth and sixth overall with the DirecTV Group.

The first contract will be for the launch of the Spaceway 2 satellite in April 2005. This 6.1 metric ton satellite carries an all Ka-Band payload destined to expand and enhance DirecTV’s direct-to-home (DTH) television service and to provide satellite broadband services across the United States. The second contract is for an un-named direct-to-home satellite. Both payloads will fly the Ariane 5 from Europe’s spaceport in Kourou, French Guiana.

Launch preparation of the Spaceway 2 satellite will be completed in seven months from contract signature to launch.

PanAmSat’s Galaxy 17 will be built by Alcatel Space using its Spacebus 3000 B3 platform. Galaxy 17 will provide TV broadcast and telephony services for North America. Offering a design life of 15 years, it will weigh about 4,100 kg at liftoff and will be fitted with 24 Ku-band and 24 C-band transponders. This will be the 21st Arianespace launch for PanAmSat.

Jean-Yves Le Gall, CEO of Arianespace said the contract with DirecTV proves Arianespace’s flexibility and innovative solutions meet our customers’ changing needs.

Intelsat Pulls Out of Hong Kong Venture, Absorbs \$30 Million Loss

Intelsat has decided to end its 51% participation in Galaxy Satellite TV Holdings Limited of Hong Kong, whose subsidiary Galaxy Satellite Broadcasting Limited provides local and international pay-TV programming in Hong Kong.

Intelsat said on September 16 its partner in the Galaxy business, Television Broadcasts Ltd. (TVB), will acquire Intelsat’s share in the joint venture and has agreed to release Intelsat from any future cash contributions. But Intelsat’s would have to include a non-cash charge of approximately \$30 million on its financial results for the period ended September 30, 2004 to write down the Galaxy investment.

Galaxy was established by TVB, the larger of Hong Kong’s two terrestrial television broadcasters, in late 2000. Intelsat took its

INDUSTRY NEWS

stake only last year in a deal that required the U.S. firm to contribute \$52.98 million (HK\$413.3 million) in cash over three years and transponder capacity worth \$16.5 million (HK\$128.7 million) during the period. Because of this, the venture has been considered a cash drain on Intelsat.

Galaxy Satellite launched its pay-TV service, branded ExTV, in Hong Kong on Feb. 18, after months of delay.

There has been speculations for months now that Intelsat would eventually pull out of Galaxy.

DirecTV Group Completes Acquisition of Pegasus Satellite Television Assets

Following the approval last month of a U.S. Bankruptcy Court judge in Portland, Maine, the DirecTV Group, Inc. (NYSE:DTV) announced that its subsidiary, DirecTV, Inc., has completed the acquisition of the primary direct broadcast satellite assets of Pegasus Satellite Television, Inc., (Pegasus) which includes the rights to all DirecTV subscribers activated through Pegasus.

DirecTV said it expects to complete the migration of Pegasus customers to DirecTV within 30 to 45 days. It also assured customers DirecTV and Pegasus will work together to ensure a seamless migration of Pegasus customers to DirecTV. The company said DirecTV customers in Pegasus territories will continue to receive uninterrupted service during the transition process.

Pegasus had approximately 1.08 million customers as of June 1, 2004, the day when DirecTV ended Pegasus' exclusive contract to distribute DirecTV television services to about 8 million rural households in 41 states.

Chase Carey, president and CEO of DirecTV Group, said the completion of the agreement not only gives DirecTV the rights to more than 1 million customers but also gives the company access to an additional 10 million households in rural areas to whom it can offer the full benefits of DirecTV programming, pricing and service.

Pegasus Satellite Communications, Inc. and its subsidiaries, including Pegasus Satellite Television, Inc., filed a voluntary petition for relief under Chapter 11 of the U.S. bankruptcy code on June 2, 2004 because of the termination of its exclusive contract with DirecTV. On August 2, 2004, DirecTV Group announced an agreement with Pegasus for DirecTV to purchase the primary direct broadcast satellite assets of Pegasus

NASA Awards \$359 Million GOES Weather Satellite Instrument Contract to ITT Industries

NASA has selected ITT Industries, Inc. (NYSE:ITT) Space Systems Division for a \$359 million contract to develop, manufacture and test an advanced Imager for the next generation of geostationary weather satellites operated and funded by the National Oceanic and Atmospheric Administration (NOAA).

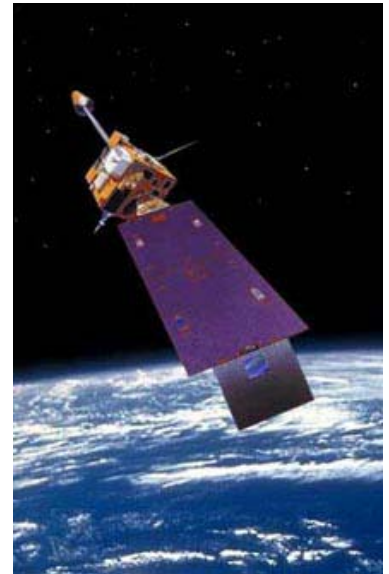
The new Advanced Baseline Imager (ABI), will be a primary instrument on NOAA's future Geostationary Operational Environmental Satellites (GOES) beginning with the GOES-R mission in 2008. The ABI will view the Earth from a 22,300-mile-high-orbit over the equator gathering critical weather data for use by the National Weather Service for routine and severe storm forecasts.

The GOES constellation is one third of America's early warning systems for severe weather events like hurricanes and tornadoes. The other systems include NEXRAD radars and the Polar Orbiting satellites known as POES. POES instruments are also developed and manufactured by ITT.

The new instruments upgrade U.S. weather satellites' technology to provide accurate, precise weather information with improved resolution to forecasters and other users in a timely manner, NASA said. The work will be performed mainly at ITT's Fort Wayne, Ind. location.

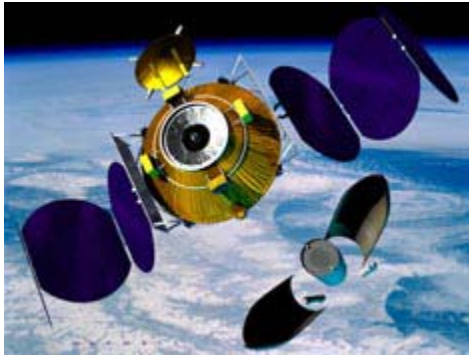
Under the terms of a basic cost-plus-award fee contract, ITT will design, develop, fabricate, integrate and test and provide post-delivery support for a prototype model and two flight models.

Hank Driesse, President, ITT Industries, Defense said the new contract is a key program win for ITT's new Space Systems Division, adding, "we are well positioned to address future opportunities in the \$6 billion remote sensing markets."



INDUSTRY NEWS

Swedish Space Corp. to Invest in Orbital Recovery



A depiction of the ConeXpress Orbital Recovery System being developed by Orbital Recovery Ltd. (Orbital Recovery Ltd photo)

The Swedish Space Corp. said it is in advanced negotiations on a significant strategic investment in Orbital Recovery Ltd.

When completed, the Swedish company will join Dutch Space of The Netherlands as part of the team that is financing the design and development of Orbital Recovery's ConeXpress Orbital Life Extension Vehicle (CX OLEV) space tug.

"Swedish Space Corp. is strategically very important for us, and this further demonstrates our commitment to European industry and know-how," said Orbital Recovery Ltd. CEO Phil Braden. "The company will bring to our team its significant and unique experience, most recently as prime contractor for Europe's Smart-1 lunar exploration spacecraft."

Launched in September 2003, Smart-1 currently is en-route to the moon using the same electric propulsion and data handling systems proposed for the CX OLEV.

Orbital Recovery recently successfully completed its mid-term review of the B1 Phase of its program, which is funded by the company and the European Space Agency under its ARTES 4 Public-Private Partnership initiative.

The CX OLEV will serve as an orbital "tugboat" - providing the propulsion, navigation and guidance required to maintain telecommunications satellites in their proper orbits for years beyond the normal fuel depletion. Primary mission of the CX OLEV will be to prolong the in-service lifetimes of expensive geostationary orbit telecommunications satellites, which currently are junked when their on-board fuel supply runs out. The space tug will also be equipped for other essential services to operators, such as to provide the graveyard burn or effect plane changes for inclined satellites. **SM**

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EXECUTIVE MOVES

Dean Olmstead Leaves SES Americom



Dean Olmstead, president and CEO of SES Americom, an SES Global Co. (Euronext Paris; Luxembourg & Frankfurt Stock Exchanges: SESG), has

suddenly left the company.

SES Americom in a news release last September 9 said Olmstead left to pursue other interests. It said, Romain Bausch, SES Global CEO and Chairman of the SES Americom Board, together with the members of Americom's Management Committee, will continue to execute the business strategy until a successor is appointed.

Olmstead was appointed president and CEO of SES Americom in November 2001 shortly after SES Global completed its acquisition of GE American Communications Inc. stock and other satellite related assets from General Electric Capital Corp. Reporting directly to Bausch, Olmstead also became a member of the Executive Committee of SES Global.

Olmstead has outstanding experience in the satellite communications business, ranging from strategic planning and regulatory affairs to satellite systems and broadcast center development, implementation and operation. He has more than 20 years of professional experience from assignments with the US federal government as well as business.

At the US Department of State, Olmstead was responsible for satellite policy, and at NASA Headquarters, Communications

Division, he served as Program Manager for the Advanced Communications Technology Satellite (ACTS), the first Ka-band system with on-board processing.

Bausch acknowledged Olmstead's contributions saying he was instrumental in the successful integration of SES Americom into the SES Global family and in developing new market areas, such as Americom2Home.

"We thank Dean for his contribution to SES over the past several years, and wish him continued success in his future endeavors. The company is on track to grow in each of its market sectors, thus maintaining its industry leadership in North America," Bausch said.

The SES Americom Management Committee that will run the company until a new president is appointed is comprised of Andreas Georgiou, senior vice president, business operations; David Helfgott, president and CEO of Americom Government Services; and Robert Kisilywicz, senior vice president of finance and chief financial officer.

Dr. Eui K. Koh Reelected President of Asia-Pacific Satellite Communications Council

Dr. Eui K. Koh, president of ASA Technologies, Singapore, was unanimously reelected president of the Asia-Pacific Satellite Communications Council (APSCC) recently. Dr. Koh's new term will expire in 2006.



Founded in October 1994, APSCC is a non-governmental international organization promoting satellite

communications in the Asia-Pacific region. Among its members are satellite related industries such as satellite manufacturers, satellite service providers, launch vehicle service providers, government regulators, and satellite users. Since Dr. Koh was elected president at the 5th plenary meeting in 2002 at Seoul, APSCC has grown to 90-member organization from 31 countries worldwide.

Dr. Koh is currently the president of Asia Space Alliance, a Space/Telecommunications consulting company, based in Singapore. He was formerly vice president for the Asia Pacific of New Skies Satellites N.V.

Dr. Koh has more than 30 years experience in the telecommunications industry. Prior to joining NSS, he was managing director, Asia-Pacific, at Intelsat where he was responsible for business development and marketing activities in the region for Intelsat. He also played an active role in various international and regional telecommunications organizations, such as Pacific Telecommunications Council (PTC) and Asia Pacific Tele-Community (APT). He also served on the PTC Board of Governors in 2003.

Prior to joining Intelsat, he worked with the American Satellite Corp. and Hughes Network Systems in Germantown, Maryland, where he participated in the digital satellite system design. He also served as an Advisor to the Electronics Telecommunications Research Institute (ETRI) of Korea on the early system design of KoreaSat.

Dr. Koh received his Bachelor's of Science Degree in Electrical Engineering from Hanyang University in Seoul, Korea and earned his Master of Science degree and Ph.D in Electrical Engineering at the Catholic University of America in Washington D.C. in U.S.A. Dr. Koh is a Senior Member of the IEEE. He has published numerous articles in the satellite communications field.

EXECUTIVES MOVES

Scopus Names Eitan Koter as VP- Sales

Scopus Network Technologies has appointed Eitan Koter as vice president, sales, effective immediately. Scopus said Koter will move from his prior position as director of sales for EMEA (Europe, Middle-East & Africa) to this position where he will have full responsibility for sales activities in EMEA and APAC (Asia & Pacific). In addition, Koter will assume responsibilities for Professional Services Activities.

Koter joined Scopus in 2001 as a sales manager for the Asia Pacific region. Afterwards, he was appointed as director of sales for Europe, Middle-East & Africa.

Prior to Scopus, Koter served as senior sales manager of the Next Generation Telephony and DCME division of ECI Telecom, today Veraz Networks. There, he was responsible for the company's sales activities in India, Africa & Israel and for the company's global service sales activities.

Previously, Koter was Marketing & Sales Director at CoreQuest, a start-up ASIC company specializing in transmission & reception components for the Cable TV industry. There, he was responsible for sales & implementation activities of NRE & Chip manufacturing projects working with international FAB manufacturers.

European Satellite Operators Association Appoints New Secretary General

The Board of Directors of the European Satellite Operators' Association (ESOA) has appointed Aarti Holla-Maini as the association's new Secretary General. Based in ESOA's Brussels office, Holla-

Maini will manage and represent the association on a day-to-day basis, succeeding Fulvio Sansone.

As Secretary General, Holla-Maini will work to generate and strengthen awareness of the benefits of satellite-delivered services with key decision-makers, fostering the necessary political, industrial, trade and regulatory environments to ensure the Global availability of these services.

ESOA Chairman Dan Goldberg said Ms. Holla-Maini's background and experience in the satellite domain, and in working with various European institutions, will ensure that the views and objectives of the association are effectively communicated to policy makers so that they understand the critical role satellite technology plays in the European and Global communications infrastructure. ESOA members contribute significantly to Europe's Global pre-eminence in the satellite services sector. In 2003, members achieved revenues in excess of \$4.38 billion (Eur3.5 billion) from capacity on board the more than 100 in-orbit satellites operated and/or commercialized by them, and maintained a workforce of more than 4,700 people.

"Our business accounts for close to 50 percent of the activity of the 35,000 people working for the European space industry at large, according to the space industry's association Eurospace. ESOA members' satellites are used to deliver data, voice, Internet and video signal distribution services Globally, including delivery of services -directly or indirectly - to more than 100 million European homes," Goldberg said.

Holla-Maini has substantial experience in the aerospace industry, most recently representing the joint-venture company Galileo Industries in Brussels and working with European institutions in preparing the Public Private Partnership scheme for

the \$1.96 billion (Eur1.6 billion) Galileo project. Prior to this, she was a project manager working on new satellite ventures at EADS in Munich, Germany.

Holla-Maini holds a Masters of Business Administration from HEC France and speaks five languages. In 1995, she qualified as a solicitor in the United Kingdom. Holla-Maini resides in Brussels.

DigitalGlobe Names New Chief Financial Officer

DigitalGlobe, provider of high resolution commercial satellite imagery and geospatial information products, has named a new chief financial officer (CFO) to its executive team.

Yancey Spruill joins DigitalGlobe as the company's new CFO, bringing over 14 years of professional experience across several industries to the DigitalGlobe team. He comes to DigitalGlobe having most recently served as a principal in the Investment Banking group at Thomas Weisel Partners. Spruill's prior investment banking experience includes Lehman Brothers and J.P. Morgan & Company. Spruill also brings a strong operations background to DigitalGlobe, having had a successful engineering career with Corning Incorporated and The Clorox Co. Henry Dubois, DigitalGlobe president and COO said with the company's ongoing growth, it is imperative that we it increased depth and breadth of its management team. "Having Yancey on board provides us additional financial expertise, while allowing me the opportunity to continue spending significant time with our valued customers and partners," he said. Spruill earned a bachelor's degree in electrical engineering from Georgia Tech, and a Master's of Business Administration from the Amos Tuck School of Business at Dartmouth College. **SM**

NEW PRODUCTS

Hughes Network Systems Introduces Satellite-based Virtual Private Network Solution



DirecTV subsidiary Hughes Network Systems, Inc. (HNS) has introduced a satellite-based virtual private network (VPN) acceleration technology. Based on the IPsec standard, DirecWay VPN Accelerator enables enterprises and government agencies to

implement uniformly efficient and secure, wide area broadband networks, reaching teleworker employees at any location, urban or rural.

There are approximately 24 million teleworkers in both the private and public sectors throughout the United States today. In order to satisfy the remote networking demands unleashed by this fast growing trend, organizations are increasingly moving from conventional leased lines or frame relay technology to broadband satellite-based solutions.

HNS said DirecWay 's continent-wide service now offers an advanced VPN acceleration technology to connect teleworkers located at branch offices or homes, anywhere, to their private intranets. DirecWay VPN Accelerator has been designed to interoperate seamlessly with industry standard Nortel IPsec VPN solutions, and in later releases, with Check Point and Cisco systems. It enables the implementation of uniformly secure and responsive VPNs, eliminating the latency constraints of prior satellite-based VPNs.

"DirecWay VPN Accelerator allows organizations to expand the use of satellites to all teleworkers, wherever they are located, without the geographic limitations of DSL or cable. DirecWay service is available today, everywhere in the U.S., from a single national provider, Hughes Network Systems," explained Emil Regard, HNS vice president of North America strategic marketing. "Enterprises and government organizations alike can now

unlock the benefits of an efficient and connected force of teleworkers in a truly universal network."

GlobeCast, PanAmSat and Scientific Atlanta Debut End-to-End HDTV Distribution Platform on Galaxy 13

GlobeCast, PanAmSat, and Scientific Atlanta have joined forces to offer a turnkey high-definition television (HDTV) satellite distribution platform on the Galaxy 13 North American spacecraft.

By integrating the end-to-end resources necessary to enable quality HDTV transmission, the service will allow programmers to beam HDTV signals via satellite to cable and broadcast affiliates for live or pre-scheduled events such as sports, concerts, or PPV, as well as full-time HDTV channels.

Under the agreement, GlobeCast will manage end-to-end HDTV transmissions and connect customers from its digital media teleport in Los Angeles, using Scientific-Atlanta's state-of-the-art PowerVu HD encoding and digital content distribution system and PanAmSat's Galaxy 13 satellite.

Established cable networks and start-up channels can tap this sophisticated HDTV program delivery platform as well as a variety of associated GlobeCast services including master control, playout, ad and live feed insertion, remote video production, studio, and post production services. The service is ideal for delivery of live or pre-scheduled HD events on a part-time or occasional basis.

PanAmSat's Galaxy 13 satellite will support the Globecast HD



An artist's concept of the Galaxy 13/ Horizons 1 spacecraft. (Boeing Photo)

platform, offering ubiquitous C-band coverage over the United States.

Specially designed to support HD transmissions, Galaxy 13 has double the power of its predecessor.

Located at 127 degrees west longitude in the U.S. cable arc, Galaxy 13 is part of PanAmSat's "Power of Five" antenna program, which provides qualified cable operators with simultaneous access to five Galaxy neighborhood satellites. It is also one of the industry's most advanced satellites and the nation's strongest HDTV cable

NEW PRODUCTS

neighborhood. Its roster of HD programmers includes Cinemax HD, HBO HD, Encore HD, Fox Sports HD, NFL HD, STARZ! HD, TNT HD, HDNet, HDNet Movies and WealthTV.

HD programmers, Hollywood studios, and production facilities can easily feed HD signals to the platform via GlobeCast's HD-ready local access ports at key video exchange hubs in Los Angeles. Programmers in New York or Miami can seamlessly access the platform by entering GlobeCast's virtual teleport network through points-of-presence in those cities. GlobeCast's teleport offers full domestic arc and international satellite reception and uplinking, as well as the ability to connect to the HD platform from Europe, Asia, Australia, the Middle East and Africa via the company's global fiber ring and five-continent teleport network of the satellite link constant for protection against rain fading.

Comtech EF Data Introduces LDPC and 8-QAM

Comtech EF Data Corp., a subsidiary of Comtech Telecommunications Corp. (NASDAQ: CMTL) has introduced a new Forward Error Correction codec, based on Low-Density Parity-Check Codes (LDPC), for their CDM-600 Satellite Modem. This codec even surpasses Comtech EF Data's own 2nd Generation Turbo Product Coding, previously the industry's most bandwidth efficient Forward Error Correction (FEC).

When utilized in networks with lower FEC coding rates and higher data rates, Comtech EF said, the power and bandwidth savings offered by LDPC are most apparent. In conjunction with the introduction of LDPC for the CDM-600 satellite modems is a new modulation technique, 8-QAM, which exhibits far superior performance compared with conventional 8-PSK.



A Comtech EF Satellite Modem

The techniques for acquiring and tracking 8-QAM signals are the subject of a pending patent application filed by Comtech EF Data. When LDPC and 8-QAM are combined, satellite transponder utilization can be maximized, resulting in minimized operating expenses. As an example, compared with the current industry standard 8-PSK, LDPC and 8-QAM can reduce satellite link power by 40%, while saving 10% bandwidth.

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The CDM-600 is an open network satellite modem that supports data rates up to 20 Mbps, an array of modulation techniques, standards and interfaces, plus the widest range of FEC options, ensuring optimum performance based on varying network conditions. CDM-600s are deployed to support a number of satellite communications applications, including broadcast, cellular backhaul, offshore and enterprise communications.

Comtech EF Data is now accepting orders for both new CDM-600s with LDPC and 8-QAM, as well as upgrades for existing customer systems.

Satlynx S.A. Launches New DVB-RCS Platform

Satlynx S.A. has launched its state of the art DVB-RCS platform that offers a wide range of two-way broadband satellite services. Satlynx said the new service will be available across the whole of Western, Central and Eastern Europe and meets the market demand for a greater selection of higher data rate services at cost-effective conditions.

Corporate enterprises and larger SMEs, with a need for high-speed communication across the Internet, will benefit from this new range of services. The Residential market will also be targeted along with the corporate sector for Professionals Working From Home (SOHOs), who have specific requirements to use high-speed connections for daytime remote-access to a private corporate networks via the Internet, using VPN (Virtual Private Networks). The platform also ideally fits to the market needs for a shared satellite and wireless access networks to connect local communities.

Satlynx SVP Sales and Marketing Hervé Sorre said the platform itself represents a unique position in the market for customers wanting a high performance standards compliant solution.

ARINC and Telenor Complete Test of In-Flight GSM Mobile Phone System

ARINC Incorporated and Telenor announced Thursday they have successfully completed ground tests of a new mobile phone technology for use by passengers on commercial airlines.

The ARINC/Telenor mobile connectivity system makes use of existing satellite capability, operating over Inmarsat equipment already in use on thousands of passenger aircraft. The system works with GSM type mobile phones through the 'picocell'

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NEW PRODUCTS



Airline passengers test ARINC/Telenor mobile in-flight technology (ARINC photo)

system located in the cabin, allowing passengers to use their phones in flight just as they do on the ground—for both voice and text messages.

Graham Lake, ARINC vice president and managing director said the new mobile phone technology was accomplished with newly-developed proprietary software. “Ground tests were completed this month in Ireland with multiple simultaneous calls placed successfully through the satellite,” he said.

Telenor said it currently has more than 220 international roaming agreements, which would allow users of the service to use their own mobile phones—with their own mobile subscriptions.

MeterSmart Launches Remote Meter Reading Via Satellite

MeterSmart, a company engaged in energy data management for utilities and an energy information service of Hunt Power, has revealed an innovative meter data collection service. The new MeterSmart offering allows utilities to collect accurate meter data across the globe, including rural and remote areas, via a deployed constellation of more than 25 orbiting satellites.

MeterSmart said satellite data communication for metering is more reliable in remote areas than cellular technologies because it clears any interference caused by large natural or man-made obstructions, plus it is accessible where rugged terrain prevents installing phone lines at a reasonable cost.

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Daniel Price, president of MeterSmart said utilities have consistently demanded a simple, efficient means to collect data throughout their entire service territories, and this is the first technology to actually meet that demand at an affordable cost. 

COVER STORY

What Use is Satellite Internet?

by **Bruce Elbert**

President,
Application Technology Strategy, Inc.

The question about Internet over satellite is not, “will it work” (because it does) but rather “how do I use it in my work?” Putting satellite Internet to work requires a thorough understanding of the technical capabilities of network technology as well as the satellites themselves. As such, it demands that we understand how satellite Internet can effectively meet needs better than competing alternatives. To this I dedicate and address this article.

Posing such a question reminds me of the first home computer I had, back in 1979. It only had the capability to run simple programs written in Microsoft Basic (which was an early commercial product from Bill Gates and Paul Allen). The machine was a self contained microcomputer on a large printed circuit board that included the keyboard as well. I added a power supply and TV monitor, along with one of those inexpensive cassette recorders to save programs and data, such as my stock portfolio. When I showed it off to friends, they found it somewhat amusing, but invariably would ask the question, “What exactly do you use it for?”

Today, no one need ask such a question about the PC found in most homes and all offices. The same goes for the Internet, the power and depth of which increases daily. Broadband Internet services are growing popularity to the point that almost 40% of US Internet households use them. Satellite Internet is a somewhat different beast, and one might dismiss it as a weak competitor to DSL and cable modems. Some of the reasons for this doubt include the high equipment and service cost relative to these alternatives, the complexity of establishing a solid working link over the satellite, and the occasional service outage due to rain attenuation. These issues have impeded the growth of satellite Internet as a consumer service, although it is viable



for individuals and small offices where DSL and cable modems are unavailable.

In past articles (February 2004, for example) I suggested that satellite-based Internet service is one of our greatest opportunities for industry growth and innovation. A first step in this development was the successful launch last July of Telesat F2, a Boeing 702 spacecraft with 45 Ka-band spot beams. As one

COVER STORY

of the few Ka band satellites to be born of the 1990's grab of new orbit-spectrum, Anik F2 represents a milestone and watershed. To understand why, let's examine this from three perspectives: the space segment, the ground segment, and the application system.

Space Segment for Satellite Internet

The prospects for advanced broadband satellites seem to languish almost ten years after the "land rush" for Ka band. The underlying efforts by Hughes, Boeing, Lockheed Martin, Northrop Grumman, Alcatel, Astrium, ViaSat, Motorola and others have enhanced the technology base for digital processing and complex phased array antennas. Large spacecraft vehicles, capable of almost 20 kW of raw end-of-life power, present opportunities for greater satellite performance and more usable bandwidth. Ambitious projects like Astrolink, Spaceway,



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Teledesic and Skybridge, cannot now be counted among active ventures in consumer or corporate Internet. At least one Astrolink satellite was nearly completed by team-members Lockheed Martin and Northrop Grumman; however, the program was halted before the first launch. Spaceway, the oldest of the group, almost followed a similar path at Boeing, but the new owner of the project, The DIRECTV Group, recently announced that they will adapt the mission for much-needed local program distribution capacity. The versatility of the processor and phased array design facilitates redirection; yet, Spaceway could eventually address a two-way communications market and therefore the Internet.

Spot beam satellites at Ku band recently have been launched for the local distribution market, but with analog bent pipe transponders. On-board processing and phased arrays can be implemented at Ka band to provoke a new wave of exploitation of existing orbit slots. As mentioned previously, current Ku-band satellite Internet services like Starband and DirecWay are niche players in remote areas and retail business networks. Starting with perhaps a few hundred thousand satisfied Ku band Internet customers provides a base to exploit new technology and provide bits per second at a lower base cost. Furthermore, rain attenuation is approximately one third, in dB, that at Ka band. This means that satellite power can be shifted from raw

link margin over to higher channel data rates (one limitation of current Ku band offerings) and perhaps for higher service reliability.

Developing the Ground Segment

Ground segment technology for teleports and user terminals has advanced considerably in the past ten years. From the terminal side, who would have thought of a broadband VSAT selling for around \$1,000 or a triple LNB TVRO, capable of viewing three satellites, being given away as part of a service package? These innovations provide foundation for attractive satellite Internet terminals in the coming years.

While terminal prices are falling, the cost and complexity of the central earth station/hub/teleport are stable. Antennas, power amplifiers, up- and down-converters, and monitor and control systems remain at the same level in technological and investment terms. These developments are merely at what network architects call the Physical Layer, which is the bottom of Open Systems Interconnection (OSI) model. Moving up the seven-layer stack, we see greater innovation at the Link, Network, Transport and Application Layers. We are moving from partial solutions that contain lash-ups that just work to adaptive systems that mesh properly with the terrestrial side. For example, the technique of “spoofing”, well proven and quite effective for basic TCP/IP communications, lacked the facility for complex services like Virtual Private Networks (VPNs) and Voice over IP (VoIP) telephony. Now, we see the leading VSAT suppliers offering solutions to deliver the VPNs and VoIP on the same bases as that offered by terrestrial carriers like AT&T.

This is part of new application environments, discussed in the next section.

Applications for Satellite Internet

It's obvious now that users in the consumer, business and government sectors continuously find new ways to exploit the Internet. We've moved beyond Web browsing to e-commerce and corporate Intranets, and now the concept of open collaboration is upon us. The latter includes internal services to support distributed teams that span distance and organizational boundaries. Applications include video conferencing, virtual meetings,

“...Ku-band satellite Internet services like Starband and DirecWay are niche players in remote areas and retail business networks.”

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Anik F2 satellite, built by Boeing, will deliver North America's first commercial satellite-based broadband communications service.



concurrent engineering, and automated product and service delivery. Selecting the best-in-breed software tools and making them function in an interoperable manner has been quite a challenge. Yet, it must be done with excellent technical performance in terms of high speed data

transfer and ease of use. At the same time, using organizations demand secure environments that protect data and control who can access their systems.

We in the satellite industry are what IT people call “infrastructure types”. The opposite of this is represented by companies who innovate through software development and network management. A good example is how Cisco sells products and provides much of its technical documentation and training – all through the medium of the Internet itself. But, we satellite infrastructure types are being driven to application innovation in order to meet the market in broadcasting (DBS and S-DARS) and now the Internet (discussed below). At the same time, the Cisco’s of the Internet economy may realize that satellite communications offers unique abilities to serve enterprises and individuals on a continental and nearly-seamless basis. What we have is application married to infrastructure, both space and ground.

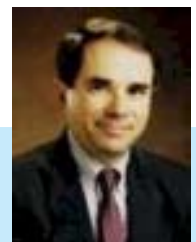
One-way multimedia content distribution is now with us and relevant for some interesting possibilities. For The DIRECTV Group, Spaceway could represent the entertainment “vehicle” of the decade. And Internet may become as closely tied to satellite communications as broadcast video and sound now seem to be. With widescreen displays and caching set-top boxes, television will probably move to a new

level of interest and utility. Interestingly, what we do with our home computer today could be as odd as what my friends thought of mine some 25 years ago.

Satellite Internet to Come

From a business perspective, what satellite Internet can do is offer a medium that provides more focus on customers as opposed to products. As a case in point, digital retail solutions from JSAT International allow a private satellite network to deliver customized content to hundreds or thousands of commercial locations. Stores, automobile dealerships and financial service establishments can positively influence their clients by informing, educating and entertaining. What we have is the prospect of creating movie-like entertainment the same way many of us create and update web pages. Provision can be made for special content delivered to groupings of locations or even one location, and even that location can tailor its content off of the national feed.

We paint an attractive picture from today’s satellite, ground segment and application palate. For an idea, walk into a Wal-Mart and see what they’ve done with Wal-Mart TV – a melding of Fox News Channel with targeted content for Wal-Mart promotion and information. This has gone from the old model of announcing a K-Mart Blue Light Special, using only the store speaker system, to custom TV with entertaining video and useful content. What’s next is up to the imagination, because satellite Internet holds much more than what we can scratch from the surface. **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

FEATURES

IBC Agonizes Over Standards

by Chris Forrester



*Tandberg CEO
Eric Cooney*

Last month's giant IBC set new records (40,776) in attendance, with HDTV kit being highly visible. A slew of announcements at the show reflected Europe's fast-growing interest in high-def, and more than a few satellite operators are breathing much easier after the show, than before, helped in the knowledge that surplus capacity will be soaked up by all the bit-rate heavy HDTV plans now emerging. Typical is SES Astra, the European division of SES Global, which will start benefiting in November 2005 from 3 all-HD channels from Germany's Premiere World DBS outfit. CEO Dr Georg Kofler said the initial channels would cover sports, movies and documentaries. Premiere will adopt MPEG4. "The talking is over. We're

making HD real in Germany, which I believe is the perfect market for HDTV. Our viewers have a huge appetite for technology, and we are targeting an initial 300,000-500,000 homes with higher than usual income, and keen on new technology."

Kofler admitted that integrating MPEG4 into new set-top boxes in time for November 2005 was going to be tight, but they were in advanced discussions with Philips, Thompson and Sony over design and implementation. Premiere World, which has just moved cash-flow positive after some years of losses following the collapse of the Kirch Group, has almost 3m subscribers. Kofler said Premiere's HD signals will also be available to Germany's

cable operators at much the same time. Premiere is also talking to its 15 channel partners, such as Discovery, Disney, MGM and others about their HD plans for Germany. "The more we get the better the offering," he said.

BSkyB (2006) and France Televisions (2005) have already made similar HD announcements. The BBC, while not themselves revealing their hand as far as HD is concerned, nevertheless admitted that HD is high on their agenda. Andy King, head of capital development at BBC Resources, said he's encouraged about HD. "There's a huge increase in the amount of HD kit in the show this year compared to 2003, and it's getting affordable. I am beginning to say 'I might be able to buy this', and we are now buying equipment that if it isn't HD switchable, is at least HD

upgradeable." King bought a batch of standard definition studio cameras earlier in 2004 at NAB, and said they'd probably be the last as he now plans for HD in refurbished studios, beginning in 2005. "We are seeing HD growth in high-end specialist factual production, music and drama and in some films. It's more expensive, more glossy and increasingly creeping across into those areas where we are already selling to the US, to Japan and for packaging into DVD and the like. These are the drivers. So maybe we don't transmit in HD for a while, but we'll continue capturing in HD for the future."

The BBC is widely rumoured to be planning a joint-venture showcase channel (in co-operation with Discovery

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and NHK Japan) for the UK, perhaps by mid-2006. King wouldn't comment, but said the BBC could go a number of ways with its HD strategy: "We might go to another organization, let's just call them Sky for a moment – but let me stress we are not yet talking – and we could end up with what we might call a co-delivery deal for satellite, and if I were a betting man I suspect that's how we might end up. Or else we might adopt the Japanese or Australian HD models, where we start with a few hours, building to fill prime-time and starting with the high-value material."

King added: "Besides our own increasing output, there's material coming into us, whether sport or drama or bought-in programming already arriving in true HD, that we have to down-convert today. The BBC has no official view just yet, but a special strategy committee, and I sit on it, is due to make its recommendations by March 2005 with a plan and timetable. 2006 isn't just about what Sky might do, but it's also the World Cup." King was referring to the biggest sporting event on the planet, after the Olympics, the upcoming soccer 2006 World Cup in Germany. This is the reason behind Premiere World's high-def announcement, and figures large in the plans for every other Euro-broadcaster.

As mentioned, Europe's major satellite operators now take a much more buoyant view of the future because of HD. SES Global's CEO Romain Bausch said he expected SES to move to "double-digit growth" in 2005 and 2006. Indeed, SES has a major problem in serving the UK, with a near-critical shortage of capacity. Under current plans the UK doesn't get a new satellite until 2006, and the final complete transponder was sold in September (to Channel 4). It is understood that SES is looking to bridge this capacity gap with an alternate – perhaps rented and relocated – satellite.

But while IBC saw massive enthusiasm for HD, there was confusion over the compression codec likely to be adopted. Currently the standards battle is between Europe's MPEG4 (Part 10/H.264/Advanced Video Codec) and Microsoft's WM9/VC-1 alternative. "VC-1 isn't a standard yet, but the recent move by SMPTE (Soc. Of Motion Picture & Television Engineers) to pass the codec from Committee Draft to Final Committee Draft is a major step, said Erin Cullen, Microsoft's lead product manager at its Windows Media Division. Peter Symes, VP/Engineering at SMPTE, said: "Most of the technical issues have been resolved, and a structured family of documents is evolving that will provide a sound basis for future work."

Cullen added that Microsoft is still taking a neutral position as far as its WM9/VC-1 compression technology is concerned. She was commenting following the news that the VC-1 codec would form a "mandatory" part of the Blu-Ray high-capacity optical disc specification (which does not rule out either Blu-Ray or other HD-DVD players also carrying MPEG4-based codecs). "Consumers do not want to be bothered as to whether a player has this or that codec. They don't even know what a codec is. It is important that interoperability exists, and that different manufacturers can use whatever they want to use in terms of HD compression."

Tandberg, Telestream, Tarari and Inlet Technologies all had end-to-end WM9 HD capture, software and hardware-based encoding, and acceleration units at IBC, along with STM, Sigma, Equator and TI chip-sets. Tandberg's claim to fame covers the world's first hardware HD encoder (EN5980 unit) based on VC-1.



Questioned on whether Microsoft had an additional window of opportunity because of unresolved anxieties over MPEG/LA's uncertain licensing deals, Cullen said it was clear that both formats would co-exist. "MPEG4 and Windows Media are two solid codecs that sort of meet two different needs. The licensing is one element that continues to be in process, but there's content out there in WM, but having the SMPTE progress is a great help. A year from now the HD activity in Europe and elsewhere will be huge, having moved forward quickly, and we see WM being a strong part of that."

Tandberg's CEO Eric Cooney, having what he described as a "magnificent" IBC, took the agnostic line on advanced compression, and said the battle was far from won despite the apparent MPEG4 announcements. "It's very early days in measuring compression."

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sion technology success because everyone accepts the two rivals compare pretty well.”

Cooney also warned against the term MPEG4 being treated by the industry as a generic term, with many in the broadcast community talking of MPEG4 when in reality they were only referring to advanced compression. “There’s no doubt that these early MPEG4 announcements are not based on price. It could simply be a decision that reflects the comfort factor given by a long reliance on MPEG2, and where the MPEG family is now their default position. Broadcasters, by tradition, are conservative and most have very little experience of Microsoft other than on their desktops.”

Cooney added that some broadcasters might also ask whether Microsoft is really serious about television, especially at the professional end. “If there’s doubt, then I say look at what’s being done in

terms of video quality, latency, channel change time. Indeed, all the usual end-to-end parameters. My sense is that if a broadcaster is already heavily leaning towards MPEG4 then it cannot be based on technology, but is part of the broadcaster’s religion, or comfort factor. It cannot be commercial, because the whole question of MPEG4’s usage fees is still unresolved, and is an untested business model. In other words, the decisions are based on softer, much more intangible issues.”

“Microsoft is ahead in their ability to demonstrate end-to-end system solutions. At the recent CES there were some 500 consumer devices able to receive and decode WM9 to multiple devices. You don’t have those options yet in MPEG4. Our customers are asking to see both, but they also want to see real world availability of set-top boxes. The bottom line is that the jury’s still out in terms of the long-term success of both systems. Globally, they can still both win.”

A similar statement came from Harmonic Systems, also in the front-line as far as compression kit was concerned. Yaron Simler (president/convergent systems division), said he expected massive shipments of VC-1 encoders into telcos and other DSL clients. “But broadcasters, even in radio, have shied away from using Windows, and favour Unix. They’re not prepared to run their mission critical businesses on what some argue are not stable systems. This, I believe, has led to a bias away from Microsoft, towards AVC. Oddly enough, VC-1 being backed by such a powerful player might give VC-1 a very real advantage for some. In other words I absolutely wouldn’t write Microsoft off at all.”

Dr Simler also said that he expected much more rapid progress in bit-rate reduction with both rival codecs. “Bit rates will come down, just as they did

On MPEG4 vs Microsoft WM9/VC-1

“As a commercial arm of the BBC, we have to ask where’s the HDTV commercial model? Is the consumer going to care whether it’s MPEG4 or Windows Media? If everything else is more or less in balance, then the success or otherwise of a codec depends on the commercial model. The consumer will probably never know.”

-- Andy King, BBC Resources

with MPEG2. We have gone through the learning curve once, and we are now in an evolutionary phase, not a revolution. Five years out it’s likely that bit-rates will have dropped 50%.”

As to the eventual winners in the advanced codec battle, Simler said: “Microsoft can be a lot of things. Their technology is viable, and is great competition to AVC. Frankly, we wish one of them would simply go away, for selfish reasons, giving everyone a single product line.”

Simler’s suggestion that both MPEG4 and Microsoft’s VC-1 would see further dramatic bit-rate savings down the road, is also likely to influence another HD-based standard battle now taking place. The squabble comes from Europe’s public broadcasters, each with a huge commitment to terrestrial transmission where there simply isn’t spare capacity. By and large Europe’s satellite players (operators and broadcasters are favoring a 1920 x 1080 interlaced (at 50 Hz) transmission for HD, in MPEG2, MPEG4 or VC-1. But at IBC, in some highly-public forums, one of the European Broadcasting Union’s technical sub-committees came out strongly in favour of 720

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progressive as their chosen method for HD. This prompted Phil Laven, director of the EBU's technical department, to step in and tell a packed audience that the 720p vs 1080i debate was far from over. "It is a work in progress. The EBU has not endorsed the recommendations," Laven added: "We recognize the natural preference for progressive display [and] we'll be making more detailed recommendations early next year." Laven was courteous, but his statement reflected a growing anxiety amongst broadcasters that adopting 720/50p could be a backward step. Sony's John Ive criticized the 720p lobby. "We wholly welcome Phil Laven's very straightforward comments. We want Europe to be much more ambitious with HD. HD is all about creating a 'Wow' factor, and not something that's just a little bit better than MPEG2," said Ive. Mike Croll, head of the BBC's R&D image department at Kingswood Warren, heads the EBU/BTQE committee which, he said, had paid particular attention to broadcasting spectrum needs over the next 10 years, and that his committee was making a "firm recommendation" in favour of 1920x720/50P. "This is an opportunity to work together and make our TV ready for the next generation." Not so, implied Ive. "We don't need this debate. Movies, entertainment, kids, current affairs, docs and even sport all work wonderfully well in Interlaced form. 720p will be a detour, not a migration. We don't wish to delay broadcasters wishing to use 720p, but the

difference in resolution claimed is not worth getting excited about. 720p is a minority format. 1080i is also the 'Common Image Format' as supported by the ITU." **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

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VIEWPOINT

New Owners, New Directions the Satellite Industry: Is Vertical Integration the Key to Operator Growth?

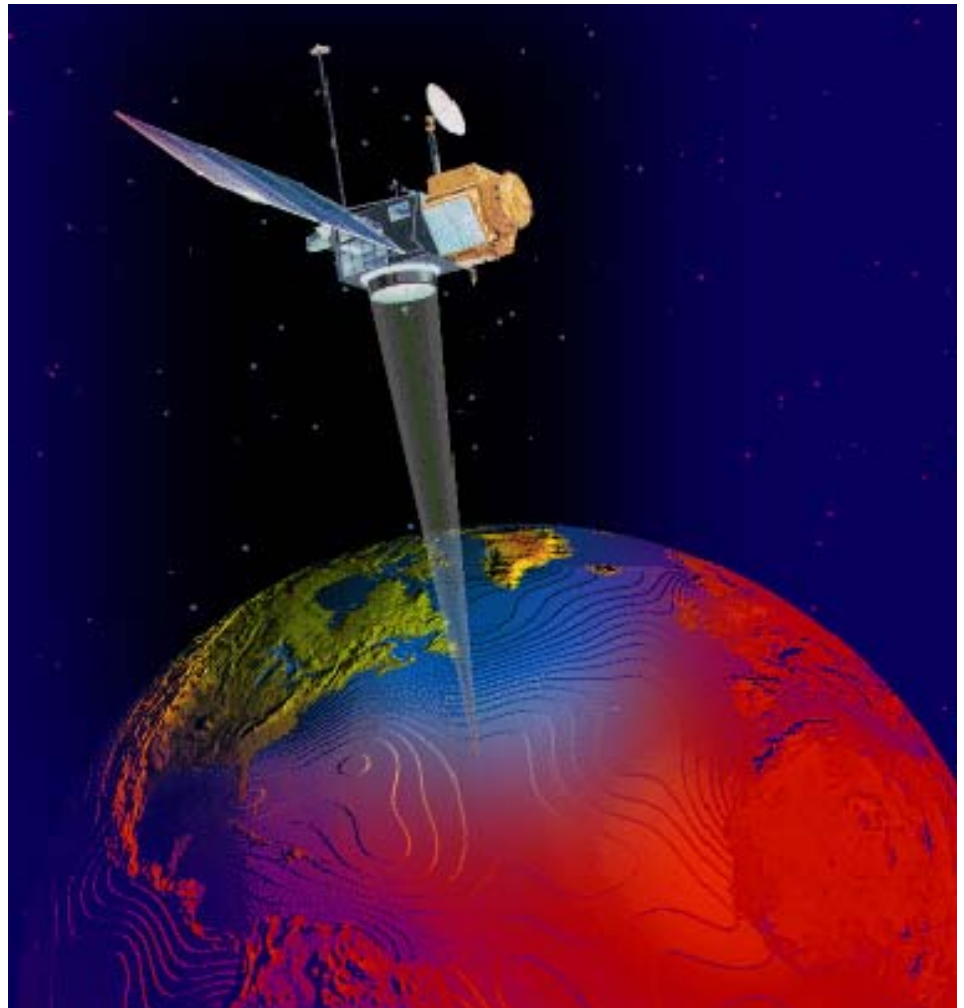
By Alan Gottlieb

The Satellite Industry is an industry struggling to grow beyond its commodity-based roots, intent on finding new ways to drive revenue growth and enhance margins. Already, Operators have experienced the perils of relying solely on bandwidth to produce revenue. They have seen their companies shrink buffeted by an over supply of bandwidth and experienced the consequent wrenching changes in management structure and ownership. *Since opportunities to sell large amounts of bulk bandwidth at premium prices are few and far between and most new niche markets require limited bandwidth, operators must sell less bandwidth at higher prices. Therefore, they have no choice but to move to a value added model.*

We at Gottlieb and Company expect that the acquisition of most Satellite Operators by major firms in the financial industry will facilitate a quantum shift in the industry's strategic direction and create a new breed of vertically integrated service providers with the ability to supply both value added and commodity elements of the solution.

Strategic Alternatives:

Managing this shift in strategic direction means transitioning from a commodity based marketing environment to a solutions-based culture that seeks out and solves customer problems at the Micro level and provides turn-key



solutions. This means find a problem; provide bandwidth, technology and service. The more complete the offering, the higher the value. Moving up the value chain partially or totally can be achieved by:

- **Identifying Unmet Needs:** Re-staff or add market research personnel skilled in building relationships at the customer level. Such relationships lead to the discovery of problems and the development of solutions. If a

VIEWPOINT

problem is widespread across an industry sector, a significant opportunity may be available.

- **Provide Proprietary Technology to Solve the Problem:** Develop or acquire the rights to new technologies including hubs, antennas, network management and monitoring software, compression software and other products that solve problems and create barriers to competition;

- **Acquiring Value Added Providers:** Acquire or invest in niche-based, purveyors of satellite service thereby allowing the operator to participate in both the supply of bandwidth and

high margin, value added solutions and service.

Of the above, acquiring value added service providers represents the solution most likely to produce significant, short term gains in revenue and margins.

Market Opportunities for Value-Added Acquisitions

Given the mandate to seek out and either acquire or invest in niche specific, value added providers; here are a few areas where we see genuine opportunity.

Note, however, that we caution that intensive field research is required to identify suitable acquisition candidates in each niche.

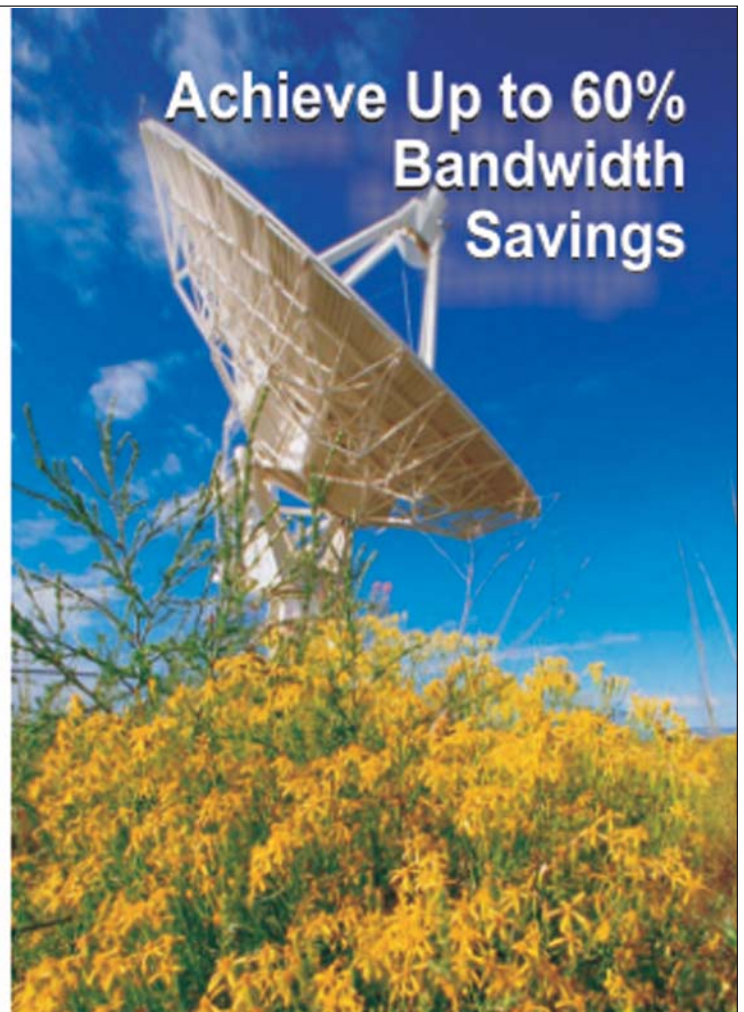


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- **Telematics:** Telematics encompasses the provision of services to automobiles and truck fleets. New, inexpensive antennas combined with satellite Broadband transmission offer the potential for significant upgrades to services such as Onstar. In the commercial sector, Fleet Management, monitoring vehicle activity and location services and theft recovery applications are becoming more widespread.

- **Industrial Security:** Enhancement of industrial security is creating an explosion in the deployment of remote security cameras. Many of these cameras will likely be deployed in areas where terrestrial broadband and conventional wireless connectivity is limited. Assets such as pipelines, electrical transmission lines, producing oilfields, etc. must be monitored and the video transmitted and recorded. Obviously, transmission of video images from such

monitoring networks could require considerable bandwidth.

- **Freight Tracking and RFID:** We are at the early stages of a revolution in our ability to monitor goods in transit. RFID promises the ability to monitor and control product shipping and manage inventories. Such data can be transmitted from thousands of shipping containers, via satellite, to

central monitoring stations where software can interpret the data and isolate spoiled, compromised, or misplaced goods.

- **3G Cellular Backhaul:** As 3G is deployed in market with poor terrestrial infrastructure, broadband satellite capability will be required for backhaul purposes. Principal areas of potential include 3rd world markets.

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- **Internet on Rail Applications:**

Already underway in Europe, the provision of Broadband services on rail is now feasible. Icomera in Sweden has successfully implemented internet on rail through the use of its Mobility Manager, software that runs on a server in the train and combines broadband access from satellite and GSM to offer relatively uninterrupted IP access. Obviously, there is huge potential for the deployment of this technology in selected international markets.

- **Marine:** This market has several segments: 1) cruise ships; 2) container carriers; 3) bulk carriers; 4) large and small fishing boats including whaling fleets; 5) luxury yachts.

However, these markets are currently served by such providers as MTN and Inmarsat. As part of the Global Marine Distress System, Inmarsat services are nearly impossible to displace. Hence, genuine economic demand for broadband must be present to justify installation of

stabilized C or Ku Band Antennas. Such demand could come from SCADA systems and new demand for transmission of cargo tracking and security related information. However, Operators are urged to approach this market with caution since bandwidth requirements may be limited.

- **Aircraft:** Some commercial aircraft and private business jets are now being fitted with broadband capability. Boeing Connexion and Arinc's *SkyLink* service are the first movers in these markets. However, the installation of cellular base stations aboard aircraft has now been judged to be feasible and could create a competitive channel. At the very

least, satellite bandwidth will be required to backhaul the voice.

In Conclusion:

As we have stated above, there are several paths for operators to follow to achieve higher margins and growth. While we believe all paths will be pursued, we at Gottlieb and Company anticipate an upcoming rush to acquire the end user service provider. We expect that the major financial firms that control most of the industry will realize that the Operators they have purchased are only part of the solution and that attainment of revenue growth and higher margins will require either buying or building the remaining elements of the value chain.

SM

Alan Gottlieb is CEO and Principal Consultant at Gottlieb and Company Inc. his most recent assignment for Verestar Inc., opening of enterprise markets in Oil and Gas, International Construction, Pulp and Paper, hospitality and Call Center Industries, employed an innovative combination of on-site market research interviews and specialized sales technique to produce market entry strategies as well as generate initial sales. He can be reached at agottlieb@gottliebandcompany.com



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REGIONAL UPDATE

Satellites for Social Development Programs: An Emerging Market in Latin America

By Bernardo Scheidemann

Latin America as a region has a large potential to provide communications via satellite. Satellite in the majority of times is the only way to cover all the countries of the region. From the south in Patagonia, the Andean Region, the Amazon Forest and the Caribbean islands are among the major geographical areas where satellite is the only way to provide services.

But as a Latin America still a region of underdeveloped economies the majority of cities with more than 1 million people have usually all the communications system are available as the developed world. As we going to small cities and towns in rural areas the only way to provide communications is satellite. Historically countries like Peru, Colombia, Chile and Argentina during the 90's gave licenses for independent operators to provide rural telephony services using satellite.

During 2000's the trend in the region is to provide Internet for remote and rural areas and the first target application in the majority of countries are for education with the School (Elementary and High Schools) are the first target. Additionally they have project for Libraries, Health Sector and other support services in the remote region.

In this article I will highlight a few cases of projects that are looking to expand the Internet access in the Schools and Social Programs. Among the key countries in the region with specific project are Colombia with Compartel, Chile with Subtel – Internet School Program and in Brazil (SCD) that is a

October 2004



Pilot project in Brazil during 2004: Satellite and Internet in a Mobile solution for students in rural areas

broadband social program and which the main target is Internet for Schools.

We don't have a specific number of schools in Latin America that will need Internet. But base on the estimate from some regional and country market information, during this decade the target in Latin America is to have in the range of 200,000 school location in Latin America that will need a satellite terminal to provide Internet Access. The accomplishment of this challenging task not only

requires local government support and financing and development organization as the World Bank, USAID (United States Agency for International Development), ICA (Institute of Connectivity of the Americas) is a Canadian non-profit organization that was created during the 2001 during the Summit of Americas to support projects in the Latin America Region. Additionally some private organization

as example Microsoft Community Reach Program and other are involve in support Government and NGO to develop the Internet for Social applications and school are the main target in any of this projects.

We are planning in the future articles to consolidate all the regions with Social program in Latin America where Satellite is a key technology to give an overall scope of the Latin America region in this area.

Colombia

Compartel Broadband Social Program – www.compartel.gov.co

Colombia developed a Program called Compartel Broadband Connectivity Program for Public Institutions, aimed at installing, operating, maintaining and providing Internet connectivity services in Public Education Establishments, Mayor's Offices, Hospitals and Military Departments, during a 6-year period.

REGIONAL UPDATE

The COMPARTEL initiative to provide telecommunications access to public institutions in Colombia. The Project was divided into three phases to support Rural Telephony, Telecenters and Broadband Internet access. In particular, this third phase that is being developed in 2004 was designed to support Broadband Internet access for more than 3,700 sites throughout Colombia. The project involves providing a high-speed Internet service together with access LAN support and PCs for local municipalities, schools, hospitals, and military sites.

The aim is to guarantee Internet access in public educational locations that have computers with certain minimum characteristics in operation but which lack connectivity services. With the participation of the Ministry of Education, the objective is to generate educational contents to attain maximum impact and efficiency in the use of the ICTs (Information Communications Technologies), thereby improving the level of education of the students.

- Currently, most municipal mayor's offices do not have connectivity services that will allow them to attain greater efficiency and effectiveness in government tasks. The use of ICTs will therefore be encouraged to promote the spread of "on-line government", thereby improving the country's governance levels. In addition, the aim is to promote transparency and citizen participation in public administration, and particularly in public procurement.

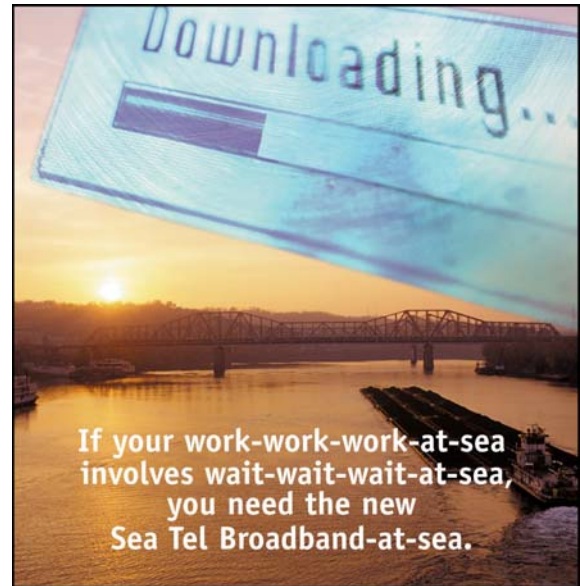
- With respect to the hospitals, the goal is to offer a computer-based infrastructure and Internet access to support the tasks of the medical personnel and hospital administration, as well as "telemedicine" projects.

-In relation to the military divisions, taking advantage of the training class-

rooms fitted out by the Armed Forces, the aim is to strengthen the democratic security strategy of the National Government. The civic-military tasks and the virtual training programs of the Military Forces; furthermore, the program seeks to contribute to the strengthening of State presence in the conflict zones and facilitate soldiers' communication with their families.

During the second quarter of 2004 the Colombian government, through COMPARTEL, conducted a competitive tender for the installation and operation of a turnkey telecommunications network which will provide broadband internet access to locations throughout the country.

The tender called for bids on 5 designated zones, of which two bidders were selected. One was Comsat International led Consortium that bid on three zones. Compartel award the project at the end of July 2004 and are in process to have both consortium signed the agreement at the month of September. The Comsat Consortium bid an innovative combination of VSAT and WLL (Wireless Local Loop) technologies was one of the awarded consortium. COMPARTEL will pay the Comsat consortium in excess of US\$ 20 million over five years as it builds and operates the networks. The other consortium was Internet for Colombia that bid in other two zones. The Internet for Colombia consortium will use satellite solution and compartel will pay the consor-



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4.15.03. *Source: KVH website. **Source: Delta Communications website

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REGIONAL UPDATE

tium in excess of US\$ 21 Million over five years.

Chile

Subtel Project – Internet for Schools – www.subtel.cl

Chile's Ministry of Transport and Communications (MOPTT) launched a tender last August 16 for a US\$ 6.26 million project to provide broadband connectivity for up to 667 rural schools (High School) in Chile.

Subtel the telecoms regulator in Chile is the organizer and manager of this program.

The ministry expects to select the winner on October 25. The financing is available through the government's telecommunications development fund FDT.

The project calls for installation of Internet access solutions which meet operability and a 60 km radius of coverage, and operators will therefore be required to provide services for the rest of the community surrounding each school.

The subsidies available cover service provision for at least three years. Subtel prioritized schools in regions I, II, III, XI and XII, and the province of Palena (Region XI) in particular, as well as large schools throughout Chile where local internet penetration is zero. Bidders also have the option to provide connectivity for small schools in the first coverage area where residential internet penetration is less than 3% and large schools throughout Chile where local internet penetration is less than 3%.

The priority areas include 422 schools in all and the optional areas another 245 schools. As the article is written the main bidder for this projects are main existing Telco and Service

Providers: CTC (Telefonica), CTR (Compania Telefonica Rural), Entel (Long Distance Carriers). Newcomers could bid considering the winner of this bid will get a new license to provide this services for this communities but will have license to provide to other business in the area.

Brazil

SCD (Digital Communications Services) Program launched by Anatel – www.anatel.gov.br

Brazil is planning to launch a new program during the 4Q04 with the intention to provide Internet Access for more than 100,000 rural schools and other social application. With this target the SCD was created and Anatel (FCC equivalent) will provide 11 new licenses for incumbent and new operators that want to implement a new platform to provide Internet Access.

Anatel will be using US\$ 1 Billion sourced by FUST (Universal Fund of Communications) to support the projects of the new 11 operators that will bid for licenses. The winners will be the operators that will request less money from the government. Satellite is Key Solution in this program and each operator will have a number of states to fulfill their obligations with this budget (Average will be US\$ 80 millions for each SCD Operator). The project is to offer not only internet access but a turnkey solution include computers and all the logistics to have a full solution to the end users.



Currently Brazil have a project called GSAC that already implemented as part one initial project a turnkey solution that include computer and Internet Access for 2,300 location in Brazil where is a mix of Government sites and Schools that was conclude during 2003.

SCD will be the biggest project in Latin America during 2004 and may be in the World considering the number of sites and the money allocated. The license for each new operator will be valid for 15 years and the project need to be implemented in 5 years time frame (2005-2009).

Anatel defined SCD as the telecommunication service that, by the use of digital signal transportation, allows the access to the digital information network oriented to the public access.

Some main features are: broadband, access code, portability, mobility, inter-connection with another services, capability to reach and offering information, capability to job groups. Additionally, Beside School Libraries, Health Clinics and other government isolated department (Border Patrol, etc.) will be included in this program. **SM**



Bernardo Schneiderman has over 20 years of experience in Satellite communications and is the President of Telematics Business consultants based in Irvine, CA. He has been working in Business Development, Sales and Marketing for Satellite Carriers, VSAT Equipment Manufacturer and Consulting Companies in the USA, Latin America, Brazil and Africa developing business for the Telecom, Broadcast and the Enterprise Market Segment. He was the editor of the Publication Brazil Telematics Newsletter during 1995-2003. He has a MBA from University of San Francisco with Major in Telecom and International Marketing and BSEE from UFRJ in Brazil. He can be contacted at tbc-telematics@cox.net

MARKET INTELLIGENCE

African ICT:



Nigeria ascendant on the development curve

By Martin Jarrold

Chief, International Programs, GVF

Three detailed national case studies on satellite regulation, policy, and licensing conditions comprise part of the recently published *Open and Closed Skies: Satellite Access in Africa* report, covering the western, northern and eastern sub-regions of the continent: Nigeria, Algeria and Tanzania, respectively. ⁽¹⁾

The studies found that the three countries are on different points of the ICT-development curve and that the varying levels of progress – particularly with regard to access to satellite-based telecommunication services – are largely attributable to the effectiveness of each country's policies and regulations.

In trying to compare the license fee burden on VSAT networks in the three countries a hypothetical 100-terminal network was costed according to each country's license fee structure, assuming an arbitrary monthly revenue or turnover of \$200 per terminal over five years. The graph below (Figure 1) shows that Tanzania's license fees place almost 2.5 times as much burden on the network than does Nigeria. In Tanzania the fees over the five-year license period amount to over \$260,000, or about 22% of the five-year operating cost vs. \$106,000, or about 9% in Nigeria. Algeria's cost is considerably lower, at about \$33,000, but this is likely to increase when licensed VSAT operators are introduced.

In a ranking of telecommunications development in the three countries surveyed, Nigeria would be at the top of the curve, followed by Tanzania and Algeria.

Nigeria's success is largely attributable to how much further it has progressed in liberalising and deregulating its market. But the underlying explanation for Nigeria's progress is the effectiveness of the regulator.

Algeria has begun restructuring its telecommunications sector, but the new conditions to be applied to the VSAT sector are as yet unknown; if they become more restrictive they are likely to result in service cost increases. In Algeria, users are concerned about the regulator's past vacillations regarding VSAT licensing approaches and see the recent imposition of a satellite "sky tax" (a move that has since been rescinded) as indicative of a lack of understanding of how to facilitate service provision.

Growth of the Algerian ICT market in general has been stalled by an inconsistent regulatory framework, which has created a perception of high risk for investors. The erratic policy environment, however, reflects the desire by government to create an enabling framework. If the Administration strengthens dialogue with the private sector before finalising its planned strategic liberalisation of the VSAT sector, a regulatory framework

could be implemented that will promote development.

In contrast, Nigeria has seen dramatic growth in ICT investment since 2001, coinciding with liberalisation and deregulation of the sector. The regulatory framework is already open, relatively consultative and enabling and commercial users consider the Nigerian Communications Commission (NCC) to have transformed from a highly bureaucratic organisation to one run efficiently along business lines. The result is increasing demand although there is a danger that VSAT will be bypassed in this

License Fee Cost Comparison (US\$)

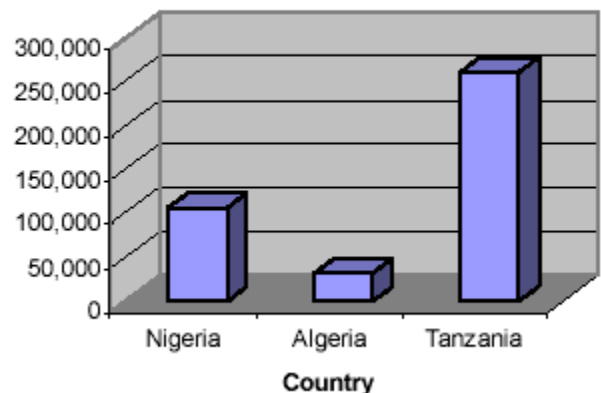


Figure 1 – Three Country Case Study Analysis: License Fee Cost Comparison. (Note – The precise figures for each country are US\$106,538, US\$32,900, and US\$262,000 respectively. This analysis compares the license fee burden on VSAT networks in each of the three countries with a hypothetical 100-terminal network being costed according to each country's license fee structure, assuming an arbitrary monthly revenue or turnover of \$200 per terminal over five years.)

MARKET INTELLIGENCE

growth curve. Obstacles to VSAT growth in Nigeria include a lack of local technical skills and the perception that Ku-band VSATs suffer inordinately from rain attenuation. Both obstacles can be easily surmounted with information dissemination.

Tanzania also has a progressive approach to liberalisation and deregulation, but the extent to which the regulator has used licensing to generate revenues has limited local investment, and consequently, development of the sector. Further, it is claimed that the large number of players ensures a highly competitive environment but one where few parties are prepared to risk increased investment because of the perception that there will be low returns.

The current approach to licensing in Tanzania incentivises operators to focus on high-margin corporate-enterprise business to pay their licence fees. Operators do not perceive Tanzania to have an environment that will provide them with a return on their investment and this also explains their reluctance to invest in a local hub. Added to licensing fees are customs duties, which are often so high as to prevent cost-effective access to VSAT equipment.

The case studies also revealed that access to satellite-based services is generally being hindered by lack of knowledge.

The three case studies also highlight different sets of challenges, each of which are reflected by a Cyber-café Consumer Survey (also conducted for the *Open and Closed Skies: Satellite Access in Africa* report and detailed therein). Usage is increasing dramatically in Nigeria with consumers requiring more bandwidth-intensive applications. Of the ICT consumers surveyed in Lagos, 47.1% said they had increased their usage of cyber

cafés, compared to 40.5% in Algiers and 32.7% in Tanzania. In Algeria, usage is increasing steadily but consumers are beginning to turn towards applications that require less bandwidth. A significant portion of consumers in Algiers - 31.1% compared with 16.5% and 12.5% in Lagos and Tanzania, respectively - reported that their usage had decreased over the last six months. In Tanzania, a common complaint is the high price of bandwidth; 54.9% of consumers reported that their usage patterns had remained the same. The conclusion to be drawn is that the consumer and user market is stagnating without investment in local infrastructure as market entry cost remains high and economies of scale are not achieved.

Nevertheless, the consumer surveys undertaken in all three capital cities are striking because of the similarity in usage trends and, although the findings are limited, they indicate a similarity in demand that is driven by the need for affordable, fast connectivity. Accordingly, these case studies demonstrate that VSATs are seen by all three Administrations as strategically vital in enabling them to achieve public-policy objectives and each is moving to

facilitate their use through liberalisation and improved regulatory approaches.

In conclusion it is clear that these three Administrations stand in stark contrast to African countries where duopolies and monopolies are still in place. When an Administration is focused on protecting state investments in a monopoly or duopoly, the inherent potential of market forces to more rapidly increase access and decrease cost of service is greatly inhibited... or prevented outright.

Footnote

(1) This briefing is abstracted from Section 3 of *Open and Closed Skies: Satellite Access in Africa*, a recently published report on research into *Policy Reform and Regulatory Issues in Bridging the Digital Divide through Satellite Technologies* led by the GVF and funded by the Canadian IDRC, and in support of the British Government DfID CATIA project. A copy of the full report may be obtained from The Administrator, GVF, 2 Victoria Square, Victoria Street, St Albans, Hertfordshire, AL1 3TF, UK or by emailing helen.jameson@gvf.org **SM**



Martin Jarrold is the Director, International Programs of the Global VSAT Forum. He can be reached at martin.jarrold@gvf.org For more information on the GVF go to www.gvf.org

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