SATMAGAZINE.COM

Your Satellite Connection to the World

SES GLOBAL

The State of the Art of the Satellite Industry

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The Satellite Industry Association (SIA) predicts the satellite industry could grow by as much as 18 percent in 2003 from three percent in 2002.

VIEWPOINT

What happens when the war in Iraq iis over and life returns to normal? I an optimist and can foresee how satellite communications will provide the key to rebuilding Iraq and Afghanistan.

COMPANY SPOTLIGHT

SES is involved in three new initiatives, each designed to considerably boost income over the long term.

REGULAR DEP'TS.

Introducing SATMAGAZINE A new Way to Get Timely and Relevant Information

I started SatNews in 1984 when the commercial satellite industry was still almost in its infancy. Our mission then as it is now—is to provide the industry with timely, relevant and accurate information. Starting with the International Satellite Directory, now on its 18th year of publication, and our highly successful SatNews.com portal we have striven to keep up with business and technology sides of this constantly evolving industry.

As we are now experiencing the worst downturn in the industry in recent memory, I think it is appropriate that we launch a new magazine. The need for relevant and accurate information is most acute during periods of difficulty. Information has a way of lifting the fog of ambiguity that can stifle the growth of the industry as a whole.

Also, appropriately, being the first all-electronic publication in the satellite industry we are able to slash the costs of printing and postage that become a drag on the finances of our corporate sponsors. We can therefore concentrate our efforts on bringing you topical and relevant in-depth articles.

We therefore are proud to present to you, ATMAGAZINE.COM — with a mix of features, news, opinion and data that you can use—written by people in the satellite industry, *for* the industry.

25 Barnes Place

Columbo

28th March, 2003

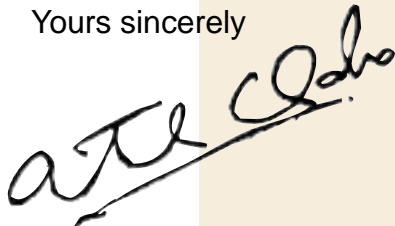**Dear Silvano Payne,**

I receive a new media project almost every day: it's nice to be wanted, except by INTERPOL… However, now that I have reluctantly accepted my limitations of time and energy, most enquirers receive my 'Kindly Drop Dead' reply form.

However, I'd like to send my best wishes to you for your forthcoming magazine – *SatMagazine.Com*

Yours sincerely

Sir Arthur C. Clarke

CALENDAR OF EVENTS

April 5-10	Las Vegas, Nev., USA	NAB2003	Kristie Morris (800) 342-2460 or (202) 429-4194 E-mail: kmorris@nab.org www.nab.org/conventions/nab2002/
April 8-10	Huntsville, Alabama	Launch Vehicle Systems -- Reusables	Tel: 410-531-6034 or toll free 1-888-501-2100; Fax 410-531-1013 E-mail: ati@ATIcourses.com Web: www.aticourses.com
April 9-11	Prague, Czech Republic	EBC 2003: Broadband in an Enlarged eEurope	Julian Clover Tel: +44 20 7585 3849/+44 1371 810433 Email: jclover@broadbandtvnews.com Web: www.ebc2003.com
April 10-11	Orlando, FL	LINK 16 Seminar	Dana Marcus Tel: (310) 563-1223 / Fax: (310) 563-1220 E-mail: marcusd@ttcus.com Website: www.TechnologyTraining.com
April 10-12	Cape Canaveral, FL, U.S.A.	Launch Vehicle Systems -- Reusables	Tel: 410-531-6034 or toll free 1-888-501-2100; Fax 410-531-1013 E-mail: ati@ATIcourses.com Web: www.aticourses.com
April 21-25	Orlando, Florida USA	17th Annual International Symposium on Aerospace/Defense Sensing, Simulation, and Controls	Shana Axemaker Tel: (360) 6763290 Fax: (360) 6471445 E-mail: shanaa@spie.org Website: www.spie.org
April 28-29	MGM Grand Hotel & Casino, Las Vegas, NV, U.S.A.	Military Data Links Conference	Dana Marcus Tel: (310) 563-1223 / Fax: (310) 563-1220 E-mail: marcusd@ttcus.com Website: www.TechnologyTraining.com
April 28-29	San Jose, CA, U.S.A.	Satellite Communication - An Essential Intro	Tel: 410-531-6034 or toll free 1-888-501-2100; Fax 410-531-1013 E-mail: ati@ATIcourses.com Web: www.aticourses.com
April 28-30	Washington DC/ MD, U.S.A.	Solid Rocket Design	Tel: 410-531-6034 or toll free 1-888-501-2100; Fax 410-531-1013 E-mail: ati@ATIcourses.com Web: www.aticourses.com

INDUSTRY NEWS

EchoStar to Launch in May; New Satellite to Test First Ever Ka-Band Commercial Service

Littleton, Colo./March 11, 2003/— EchoStar Communications Corp. has announced that its EchoStar IX satellite is scheduled to launch in May 2003. The satellite will launch from a floating platform at the equator aboard a Sea Launch rocket.

The EchoStar IX satellite is equipped with one of the first commercial Ka-band spot-beam payloads for use over the United States and will be critical to the development of future generations of Ka-band services. EchoStar's Ka-band portion of the satellite will be used to test, verify and deliver future broadband initiatives for the company. The satellite payload also includes 32 Ku-Band fixed satellite services (FSS) transponders, at approximately 120 watts, that will enhance EchoStar's current U.S. DISH Network satellite TV service, including additional service for Alaska and Hawaii. The satellite will operate at the 121 degree West Longitude orbital location.

With the successful launch of EchoStar IX, constructed by Space Systems/Loral based in Palo Alto, Calif., EchoStar continues to invest in new satellite technologies to expand services for its 8.18 million customers nationwide. EchoStar IX will join EchoStar's current fleet of eight satellites that provide DISH Network customers with hundreds of all-digital

EchoStar IX satellite will launch from a floating platform aboard a Sea Launch rocket.

television channels, including interactive TV services, sports programming, high definition television and international programming.

An additional C-band payload on the EchoStar IX satellite will be owned and operated by Loral Skynet, a wholly owned subsidiary of Loral Space and Communications, as Telstar 13. **SM**

Hawaii Pacific Teleport, Hot-Air De-Icing Systems from W.B. Walton Enterprises Win Awards from World Teleport Association

March 5, 2003/— World Teleport Association has announced that Hawaii Pacific Teleport is this year's recipient of "Teleport Developer of the Year" award while W. B. Walton

Enterprises has been awarded "Teleport Technology of the Year" for its Hot-Air De-Icing Systems.

WTA presented the awards at an invitational ceremony and luncheon last week.

For the second consecutive year, the Association awarded its Teleport Developer of the Year honor to a facility based in the American state of Hawaii.

Hawaii Pacific Teleport (HPT) connects global businesses through a network of satellites and fiber optic cables reaching from North America as far west as the Indian subcontinent. Unlike American mainland teleports, HPT can 'see' all the Asia-Pacific orbital slots between 128E and 165E. There are currently five Asian satellites with spot beams on Hawaii. HPT is the only FCC-licensed teleport with antennas pointed at three of the five. This coverage enables HPT to serve customers located as far west as Pakistan and in all countries eastward to Hawaii plus customers in Australia, New Zealand and many Pacific Islands.

WTA cited W.B. Walton Enterprises for helping teleports and satellite earth station operators de-ice their dishes during the past 21 year. While it is defined by

Teleport Technology of the Year: W.B. Walton Enterprises'
Hot-Air De-Icing Systems

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some as a "low-tech" business, the WTA cited the company's continuous focus on its core business and its commitment to quality and innovation as another example of how a company can be successful over the long term in the satellite communications industry. W.B. Walton, headquartered in Riverside, California refers to itself as "The Original Hot-Air De-Icing Company" and has over 4,000 systems installed throughout the world. ◼SM

Hughes and DirecTV Complete $3.1 Billion Financing Transactions

El Segundo, Calif./March 6, 2003/ — Hughes Electronics Corp. has completed the previously announced DirecTV Holdings LLC (DirecTV) senior secured credit facilities. The size of the facilities was increased to $1.675 billion from the previously announced $1.55 billion. In addition to the senior secured credit facilities, DirecTV closed a $1.4 billion senior notes offering on February 28, 2003.

The senior secured credit facilities consist of a $250 million five-year revolving credit facility, a $375 million five-year Term A loan and a $1.05 billion seven-year Term B loan. The facilities are secured by substantially all of DirecTV's assets and are guaranteed by all of DirecTV's domestic subsidiaries. The $1.4 billion senior notes were offered in a Rule 144(A) / Regulation S private placement and bear interest at an 8.375 percent annual rate, payable semi-annually. The

notes will mature on March 15, 2013 and are callable on or after March 15, 2008.

The notes are guaranteed by all of DirecTV's domestic subsidiaries. After consideration of the undrawn revolving credit facility and payment of transaction fees, approximately $2.75 billion of the proceeds from the financing will be paid to Hughes in a distribution that will be used to repay $506 million of outstanding short-term debt, fund Hughes' business plan through projected cash flow breakeven and for Hughes' other corporate purposes. ◼SM

ILS Sets Launch Date For AMC-9 Satellite on Proton

McLean, Va./March 25, 2003/— International Launch Services (ILS) has set April 29 for its first Proton rocket launch of the year from the Baikonur Cosmodrome in Kazakhstan, carrying the AMC-9 communications satellite for SES Americom.

A Proton K vehicle with a Breeze M upper stage will be used for the delivery-in-orbit mission, which was contracted with satellite builder Alcatel Space of Cannes, France.

This will be ILS' 14th launch of a satellite for a member of the SES Global family of companies - SES Americom and its predecessor GE Americom, SES Astra and AsiaSat. In addition, ILS is scheduled to launch AMC-10, 11, and 12 in the 2003-04 time frame. SES Americom also signed

AMC-9 undergoes final tests before it is shipped to the Baikonur Cosmodrome in Kazakhstan. (SES Americom photo)

up this month for an additional Proton/Breeze M launch.

AMC-9 is a Spacebus 3000B3 model with 48 transponders. It will enable SES Americom, an SES Global company, to expand its digital television broadcasting, data transmission and telecommunication service offerings to North America from its orbital slot of 72 degrees West longitude. AMC-9 will weigh about 4,100 kg at launch. ◼SM

Intelsat Sharpens Focus on Three Growing Customer Segments

Hamilton, Bermuda/March 14, 2003/— Intelsat has announced the creation of three business units to sharpen its focus on the data/carrier/Internet, video and government customer segments.

The three new business units, reporting to Ramu Potarazu, President & Chief

INDUSTRY NEWS

Operating Officer, Intelsat, Ltd., represent key opportunities for growth in fixed satellite services and all are sectors in which Intelsat has a solid market presence. The creation of these business units will help sharpen the company's marketing and customer service focus on these segments, and is in alignment with senior management appointments announced last month.

As President of the Data, Carrier & Internet business unit, John Stanton will concentrate on the strategic development of these key Intelsat customers, who comprise the largest customer base. The business unit will encompass Intelsat's regional sales teams and will focus on the changing needs of telecommunications companies around the globe. Stanton and his global team, operating from 12 office locations around the world, will drive new solutions to current customers as well as those emerging in the marketplace.

Intelsat Video Solutions, headed by Jon Romm, President, will streamline all video operations at Intelsat, with the goals of accelerating response times to broadcasters and other video customers while continuing to provide them with high-quality customer service. The new Video Solutions unit is identifying opportunities to grow Intelsat's video business across all regions around the world and introduce the latest video products and services to customers. A dedicated Video Operations Center has also been created to manage all video customer bookings, inquiries and billing. **SM**

Japan Launches its First Spy Satellites on H2A

RocketTanegashima, Japan/ March 28, 2003/— A Japanese H-2A launch vehicle carrying the nation's first spy satellites lifted off successfully today in southwestern Japan amidst growing fears of a missile test by North Korea.

"The rocket was launched at 10:27 am (0127 GMT)," said Yoshihiro Nakamura, spokesman for the National Space Development Agency, minutes after the launch. "It was a nearly flawless launch," he added.

After the announcement of the successful launch, North Korea warned the move could spark an arms race in the region. "Japan will be held fully responsible for causing a new

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NASDA launch of ADEOS-II satellite in December last year using H-IIA Launch Vehicle, similar to the one that launched the spy satellites. (NASDA photo)

arms race in Northeast Asia," an unnamed spokesman of North Korea's Foreign Ministry was quoted as saying by the North's KCNA news agency.

The two satellites, the first of at least four in Japan's $2 billion spy program, will allow Japan to keep an eye on highly volatile North Korea. The satellites will monitor military developments in the reclusive communist state, as well weather, illegal immigration and intrusion by North Korean spy ships, missile bases and plutonium-production sites. U.S. spy satellites currently provide Japan with intelligence. The U.S., however, sells the images for US$8,500 each, which is still a cheap investment when compared to the huge cost of building spy satellites and launching them.

Japan's decision to build its own spy satellites goes back to August 1998 when North Korea test-fired a Taepodong ballistic rogue missile over its without their knowing about it. The U.S. warned Japan of the launch. **SM**

Liberty Media Backs News Corp.'s Bid for DirecTV

New York and Englewood, Colo./March 27, 2003/— News Corp. and Liberty Media Corp. today announced an agreement in which Liberty will invest $500 million in News Corp. to help finance a bid for DirecTV parent Hughes Electronics Corp. estimated to cost at least $3 billion.

The investment gives News Corp. more than enough financial muscle to bid for US satellite giant DirecTV. It also concretizes what Liberty Media has been saying since January this year that it will join News Corp in bidding for DirecTV. As early as December last year, News Corp. chairman Rupert Murdoch had already said he expects a 50:50 partnership with cable mogul John Malone's Liberty, which has promised financial backing in the effort.

Under the accord reached Thursday, Liberty will have the right, within the next six months, to acquire $500 million in News Corp. preferred limited voting ordinary ADRs, at $21.50 per ADR. If Liberty does not exercise its right, News Corp. can require Liberty to purchase $500 million of News Corp. preferred limited voting ordinary ADRs, at $21.50 per ADR, should News Corp. acquire an ownership interest in Hughes Electronics Corporation within two years.

The new development leaves DirecTV with two potential suitors: News Corp. and SBC Communications Corp., the nation's second-largest telecommunications provider. Many, however continue to express skepticism about SBC's proposed multibillion-dollar bid for DirecTV, considering that its revenue dropped nearly 20 per cent in the last two years.

Profit pressures have also prompted the San Antonio-based telecom giant, which once owned a 20 percent stake in Bell Canada but sold it back to BCE Inc. late last year, to lay off nearly 20,000 workers since late 2001. Others say a making a serious foray into the satellite TV industry at this stage is a bit premature and a huge management distraction. **SM**

Malaysian Operator Binariang Orders Next Generation Satellite from Boeing

Kuala Lumpur/March 21, 2003/— Binariang Satellite Systems Sdn. Bhd. and Boeing Satellite Systems, a unit of The Boeing Co., announced today the entrance into a contract for the procurement of a high-power commercial communications satellite.

The new Boeing 601HP satellite, designated Measat-3, will join the existing Boeing-built Measat-1 and Measat-2 spacecraft in the Malaysia-East Asia Satellite (Measat) system. Measat-3 will be co-located with Measat-1 at 91.5 degrees East longitude and will provide expansion and back-up capacity for Binariang to meet the increasing market demand for satellite services within the region. Boeing will also provide an upgrade to the Measat ground facilities on Pulau Langkawi, Malaysia, training and launch support services. Scheduled for launch in 2005, Measat-3 will employ 24 C-band and 24 Ku-band transponders, each providing 36 MHz of bandwidth over a 15-year minimum service life. Measat-3 C-Band payload will cover Africa, Middle East, Eastern Europe, Asia and Australia. The Ku Band payload has been designed to provide high-

Boeing's 601HP features as many as 60 transponders and uses dual-junction gallium arsenide solar cells and other new technologies to provide up to 8,700 watts. (Boeing photo)

powered flexible service options for the development of data services and Direct-to-Home applications in Malaysia, China and India. **SM**

M2sat and Thuraya Launch a New Mobile Broadband Service

March 4, 2003/— M2sat Ltd and Thuraya Satellite Telecommunication Co. have joined forces to launch high-end broadband services of 192 kbps and higher, aimed at the international broadcasting industry and other high capacity users in the government and corporate sector.

The Thuraya's satellite capacity is combined with the advanced features of the M2sat mobile broadband platform with it's portable TakeAway satellite terminals. The launch represents the beginning of a new generation of mobile broadband services that have managed to triple current data transmission levels. In fact, by combining two M2sat TakeAway terminals in Leased Channel mode IP connections up to 384 kbps can be achieved.

9

Exec-Moves

Gilat Announces Impending Changes in Top Executive Positions

Petah Tikva, Israel/March 10, 2003— Gilat Satellite Networks Ltd. has announced the resignations of the company's Chairman and oel Gat and Amiram Levinberg, both co-founders of the company effective upon the meeting of the new Board of Directors expected in April.

CEO Yoel Gat

The voluntary resignations open the way for the appointment of a new Chairman at the upcoming meeting of the new Board of Directors in April where it is expected that Shlomo Rodav will become Chairman of the Most will be the new .

Both Rodav and Most join Gilat with a wealth of financial, business and managerial experience and are well positioned to carry the company forward into a new era of growth. Shlomo Rodav, who is expected to assume the position of Chairman of Gilat, is the successful owner and manager of numerous companies in the high-tech, infrastructure, environment, food and holdings areas.

Orcounty's largest and most successful cellular phone company, where he was one of the company's founders and served as Deputy CEO and Head of the Customers Division.

Prior to his work at Cellcom, Most led two successful

corporate turnarounds, as CEO of Keter, one of Israel's largest book publishing and printing companies, and as Managing Director of Gibor-Sabrina's Pantyhose Division. Oren Most's experience also includes management positions in banking and venture capital in the United States. Most, 52, received his MBA degree from New York University in 1981.

The impending change in the company's top executive positions coincides with the successful conclusion of Gilat's restructuring plan that was authorized by the courts last Thursday. Both Gat and Levinberg, who are committed to helping the new Chairman and President and CEO make the transition with the existing Gilat professional management team, will continue in their present positions until the new Board is elected in April. 🅂🅼

Boeing Names Dave Ryan to Head its Satellite Manufacturing Business

St. Louis/Feb. 27, 2003/ — Boeing officials have selected Dave Ryan to lead Boeing Satellite Systems effective immediately. Ryan, a 13-year Boeing employee, succeeds Randy Brinkley, who has announced his intent to leave the company on June 1, 2003.

As vice president and general manager of Boeing

Dave Ryan

Satellite Systems, or BSS, Ryan will report to Bill Collopy, vice president and general manager of Launch and Satellite Systems, a division of St. Louis-based Boeing Integrated Defense Systems.

Ryan was most recently vice president and deputy general manager, Space and Intelligence Systems. Prior leadership assignments include a variety of military and commercial satellite programs.

Prior to joining Boeing in 1990, Ryan spent a 13-year career designing and operating satellite systems at TRW Defense and Space. His technical training is in communication systems engineering, satellite payload systems engineering, and satellite integration and test. He earned his Bachelor of Science degree in Electrical Engineering from Rice 🅂🅼

F. Suzanne Jenniches Named Vice President and General Manager Northrop Grumman

Baltimore/April 2, 2003— Northrop Grumman Corp. Electronic Systems sector has appointed F. Suzanne Jenniches vice president and general manager of its newly formed Government Systems Division.

A 29-year veteran of

Exec-Moves

Northrop Grumman, Jenniches had most recently served as vice president of the Communications Systems business unit for the company.
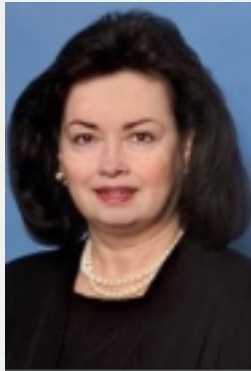
F. Suzanne Jenniches

The new Government Systems Division comprises homeland security, automation and information systems, and communication systems. The primary products and services for both domestic and international defense and government agencies include postal automation and material handling; air traffic control communications and navigation systems; command, control, communications and intelligence military communications; satellite ground stations; information security and a variety of security sensors and systems that support homeland defense initiatives.

Jenniches is also responsible for Electronic Systems subsidiaries and sites located in Cincinnati, Ohio; Gaithersburg, Md.; Peterborough, England; Oslo, Norway; Gentilly, France; Bourg-les-Valence, France; Mechelen, Belgium; and Shanghai, China.

After joining the corporation in 1974, Jenniches has served in a number of positions of increasing responsibility including operations program manager for the B-1B electronically scanned antenna and the APQ-164 offensive radar systems.

In 1986, she was appointed manager of Systems & Technology Operations where she was responsible for transitioning defense avionics hardware programs from engineering into smooth high-rate production.

Upon receiving a Bachelor of Science degree from Clarion State College in 1970, Jenniches began her career in science as a high school biology teacher. In 1979, she attained her master's degree in environmental engineering from Johns Hopkins University evening school and has completed extensive post-graduate work in international affairs at The Catholic University of America. In addition, she has attended the Harvard Business School Program for Management Development. **SM**

Boeing Names New Senior Site Executive for Huntsville

AL/March 18, 2003/– Peri A. Widener has been named the senior site executive for Boeing in Huntsville, Ala., effective immediately. Widener will oversee the business activities for space, missile defense and satellite programs and the overall operation of the Boeing Huntsville site, which employs about 2,600 people. Widener was most recently director for Business Development, Missile Defense Systems, a division of St.

Louis-based Boeing Integrated Defense Systems. In this previous assignment as well as in her new role leading the Huntsville site, Widener

Peri A. Widener

reports to Jim Evatt, senior vice president and general manager, Missile Defense Systems.Since joining Boeing in 1979, Widener has held a number of management and leadership positions on a range of programs that include missile defense, military aircraft, and space. This is not Widener's first assignment in Huntsville.

She was assigned to the Huntsville site from 1981-1992, and in 2001 was Ground-based Missile Defense site executive for Boeing Missile Defense Systems. She has personal roots in the north Alabama area as well. Widener's parents, Wayne and Luanne Widener are long time residents of Decatur, Ala. Widener replaces Gina DeSimone, who took a new position at Boeing Air Traffic Management in McClean, Va. **SM**

Stanton D. Sloane Named President of Lockhead Martin's Martin's Management and Data Sysyem

King of , Pa./March 18, 2003/— Lockheed & Data (MDS). Sloane will replace Marcus C. Hansen, who is retiring next month after

Satellite can benefit from MPEG4

Technology company Tandberg Television are recognised as innovators in engineering solutions for the broadcasting industry. At the upcoming April NAB show in Las Vegas they will be unveiling a fully functioning Windows Media 9 encoder, first outlined at last autumn's Amsterdam IBC. But WM9, and the similar H.264 and MPEG4-Part 10 compression systems, also have major repercussions for satellite broadcasters.

Back in 1994 the fixing of the MPEG2 compression standard revolutionised broadcasting. Who could argue with the logic of swapping out a single analogue transponder in favour of 5 or 6 digital channels. However, MPEG2 has more or less reached the end of its technical limitations. Yesterday's average 5 or 6 channels is today more likely to be 12 or even 16 channels when multiplexed together. Indeed, Tandberg say they have clients looking for 18 digi-channels on a transponder. Charles Cartwright, Tandberg's business development manager, says "Bit rates are still going down, partly because we can deliver to customers equipment that conform to these low rates. One of the things that's interesting, especially oddly enough in the satellite arena, is that they are still equipped with old equipment. They might well be running with products we sold to them at the start of the digital age, back in the 12-U [12-unit size in an engineering room stack] encoder days of 1994. And I can tell you there are plenty of people out there still running those 12-U rack encoders. As a comparison we are now supplying the same units, in fact significantly better units, that take up a 1-U slot. The benefit is that they now operate and deliver a 30% saving in bit-rate for the same or even better image quality. Those 12-U units were expensive to buy, expensive to run and keep cool. Those broadcasters were using 12-U kit and putting typically 6 channels on a transponder. Now, they could certainly manage 12 channels and possibly more. The return on investment case is overwhelming."

"A 1-U codec costs well under $20,000. Our first 12-U shipments, which everyone wanted like crazy, shipped at $80,000. And they were happy to buy because it gave them a business, a successful business. You cannot ignore the power that MPEG2 has had, and will continue to have, to drive TV forward. In 1991 worldwide there were about 800 channels on satellite. It is today close on 9,000. MPEG2 has been tremendously effective in creating this revolution. Few international standards have ever been quite so dramatic in their adoption or their contribution to the establishment of successful businesses."

But now there's a new kid on the block. "The first place where we see these new technologies, whether MPEG4, H264 or Microsoft WM9, is where bandwidth is really precious and costly," says Cartwright. "Telephony is an obvious. DSL take-up is nothing short of incredible, with some 30 million subscribers worldwide. The predictions are huge. But simple high-speed internet is not enough. Services have to be added on top and they are going to be video-based. But besides DSL, there's terrestrial broadcast, as well as mobile broadcast and reception, including UMTS and DAB on satellite or terrestrial."

He says a terrestrial broadcaster with a greenfield development plan for Digital Terrestrial TV (DTT) could now consider an MPEG4-type solution. "The people who are least-likely to adopt this next-generation compression are those with a huge installed base of MPEG2. If I have 8 or 10 million set-tops then you are going to have to swap those boxes out and nobody will rush down that path to save transponder costs. It is going to be a generational thing, and is why MPEG2 has an excellent future. If there are no legacy problems then MPEG4 and the others have a great future. And anyone who is bandwidth constrained," says Cartwright.

But, as always, there's a problem. "If I was to argue that suggestion through, for a country to adopt an MPEG4-type system from the get-go, then even with 80 or 100 channels it would mean they are still going head-to-head with incumbents offering hundreds of channels. In my view it has to be something different," says Cartwright. "Boosting the numbers of

PRODUCT & SERVICE
REVIEWS

channels from [an MPEG2 dependent] 25 or 30 to a [Windows Media-dependent] 50 or 100 still means you are trying to do what the incumbent is doing. But offer something totally different, and offer mobility and services to mobile devices and you might enjoy success. If I were [this operator] I'd be looking at providing some services to buses, taxis and trains. This would be a unique offering, on top of the core channels. Then, add in some specialised services. Some people might go for VOD, And for terrestrial, in my view, this means low bit-rate mobile reception services combined with the core channels." Cartwright says Tandberg is already in discussion with potential DTT operators looking at these advanced compression technologies.

Besides DTT applications, new satellite services using advanced compression are also possible, says Cartwright, and this includes high-definition TV, particularly in Europe which is a Greenfield site as far as HDTV is concerned. "Microsoft is particularly keen and have already demonstrated their [WM9] algorithm in a High-Def format at IBC last year. It performs extremely well and uses a 5 Mb/s HD compression with remarkable results. One might suggest it is time for Europe to consider HD again."

Cartwright says advanced video compressions are also beginning to show themselves in SNG and ENG roles. "We produced our first MPEG2 decoder back in 1994 and have been working on MPEG for almost 10 years. For us now to be working on MPEG4 and WM is wonderful. In five years time we will look back at 2003 and see it as a year of absolute change. Today we are at the front edge, but 5 years from now we will realise where we were. It's exciting." (Chris Forrester)

Mentat and V-ONE to Provide High Performance Satellite Security Solutions

Germantown, MD and Los Angeles, CA/ Satnews/ — VPN security products provider V-ONE Corp. (Nasdaq: VONE) and satellite link enhancement products provider Mentat® Inc. have announced that they are partnering to offer the advantages of virtual private networks with the benefits of link acceleration. V-ONE's SmartSatT

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program was specifically designed to address the needs of satellite users, and incorporates V-ONE's award-winning SmartGate® application layer technology. Using SmartGate in conjunction with Mentat's SkyX® Gateway and SkyX Client/Server products, users can take advantage of satellite link enhancement while maintaining end-to-end data security.

TCP, the protocol used for data communications over IP networks, does not perform well under the long latency, asymmetric bandwidth, and high loss conditions typical of satellite networks.

Mentat's SkyX products overcome these limitations by transparently replacing TCP with a highly efficient protocol especially optimized for satellite conditions. SkyX products accelerate Web downloads, file transfers, e-mail, and all other TCP applications while remaining entirely transparent to end users.

However, data communications that are protected using IP Security (IPSec), which encrypts the TCP headers as well as the data, cannot be accelerated and are therefore subject to poor throughput over satellite links. V-ONE solves this problem while remaining compatible with SkyX performance enhancement by offering a VPN solution that packages data and sensitive addressing information into encrypted payloads, and then transports this protected information to the VPN server using normal TCP packets. Testing by Mentat and V-ONE demonstrated that data transfers secured using SmartGate receive virtually the same level of performance as unsecured data. On a 1 Mbps satellite link, using V-ONE technology with the SkyX Gateway, throughput rates for file transfers were 950 Kbps, nearly 10 times faster than IPSec encrypted transfers or transfers not using SkyX enhancement.

"Our testing confirmed that V-ONE's application layer security technology interoperates well with SkyX satellite link enhancement, allowing full performance enhancement for encrypted data," said Kay Guyer, Mentat's president.

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The State of the Art of the Satellite Industry

By Virgil Labrador

> **"In the middle of difficulty lies opportunity."**
>
> *— Albert Einstein*

World Satellite Industry Revenues
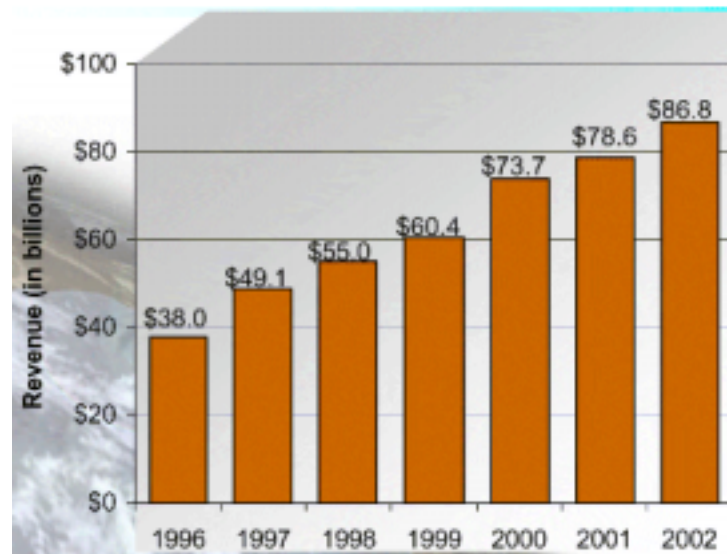
Total Satellite Industry Revenue

Amid a constant barrage of bad news about an economic downturn, falling sales and layoffs and now the raging conflict in the Middle East, a pall of gloom and doom permeates some segments of the commercial satellite industry. Industry consultant Leslie Taylor put it succinctly in a recent presentation at the Pacific Telecommunication Council by asking the audience "Is the sky falling?"

The audience response of course, is a resounding no. However, if we are to believe all the doomsayers it would certainly seem so. It does not help if you were recently laid-off or know someone who has.

Industry statistics, however, show, believe or not, that the industry, *as a whole*, is actually growing. The latest Satellite Industry Association (SIA) survey (April, 2003) reported that the commercial satellite industry generated $86.8 billion in revenue in 2002—an increase of 10 percent over 2001 industry revenues. SIA President Richard DalBello noted that "despite a sluggish global economy in 2002, the satellite industry continues to make significant progress."

Indeed, the industry is growing, just not at its usual pace. The overall satellite industry has grown an average of 15 percent annually from 1996-2002—from total revenues of $38 Billion in 1996 to $86.8 Billion in 2002. This represent a 114 percent (almost double) increase in the last six years. (see Figure I)

But the overall satellite revenue figures, are skewed toward certain segments of the market. The SIA has divided the satellite industry into four segments: Satellite Manufacturing; Ground Equipment; Launch Industry; and Satellite services which includes transponder leasing and retail/subscription services such as DTH, etc;

As in the last several years, satellite industry revenues were driven primarily by Direct-To-Home (DTH) services, which accounted for a whopping $42.5 billion, roughly 49% of the entire

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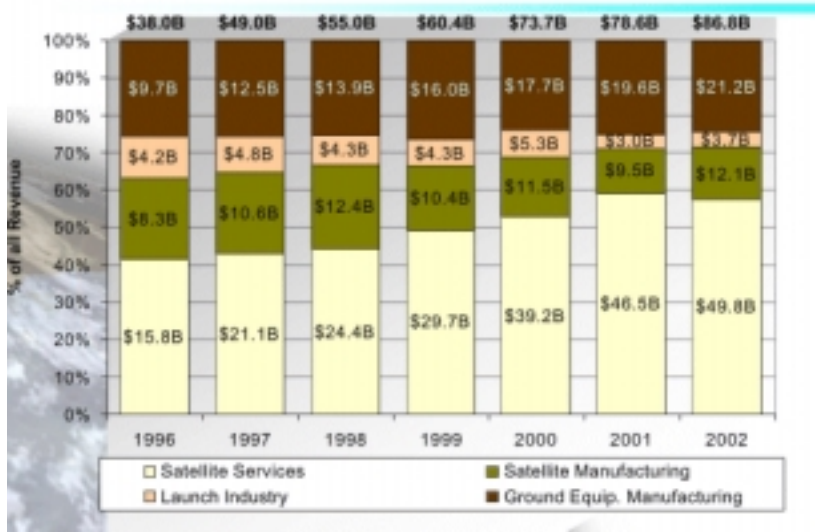
Satellite Industry Revenues by Segment

industry's revenues. By comparison, at just $7.3 billion, transponder leasing revenues experienced zero growth in 2002 after a decline in 2001. DalBello explained the lack of revenue growth in transponder sales was directly attributable to "the introduction of roughly 1000 new transponders into service and subsequent falling lease prices and fill rates."

The decline in the transponder sales segment, which can be characterized as the "bread and butter" of the industry, is where perhaps the downturn in the industry is most felt. DalBello correctly attributed the decline in transponder sales to a glut in the industry brought about by overcapacity after decades of growth.

The failed promise of broadband services which the satellite industry pinned much of its hopes and business plans

three years ago contributed in no small measure to the current capacity glut. The dot.com collapse and the telecom meltdown has resulted in cancelled contracts that freed up substantial capacity. (a more detailed discussion on this is in Dan Fryer's article "The Broadband Promise" in this issue).

Lower revenues and smaller market share has led to consolidation among satellite operators, while smaller, one- or two-satellite systems being absorbed by larger global players. In 2002, for example, the consolidation pecking order was played out by a single European satellite operator, Stellat, bought and absorbed by Eutelsat—which in turn was the object of a competitive bid by global players, PanAmSat and INTELSAT. SES Global from the tiny Grand Duchy of Luxembourg (population

448,569) has emerged as the largest satellite operator in the world with its savvy acquisition of US operator GE Americom (now SES Americom) among others and equity partnerships with Latin American operators Nahuelsat and Star One as well as the Asian operator, Asiasat.

To put the consolidation in the industry in perspective—it will be recalled that there was only one global operator, INTELSAT, for most of the 40-year history of the commercial satellite industry. Only after deregulation in the late 80s paved the way for operators such as PanAmSat and ASTRA (the precursor of SES Global) was that virtual monopoly challenged. This in turn led to the proliferation of many operators and consequently intense competition.

That glut in capacity has hit hard on the satellite manufacturing and launch services side of the industry. According to the SIA survey, global satellite manufacturing revenues in 2002 were $12.1 billion, a 27% increase over 2001 revenues. 2002 revenues however, were driven, in part, by the delivery and launch of two billion-dollar government satellites (the U.S. military's Milstar 5 and the European research satellite, Envisat). Revenues for satellite manufacturing and launch services are booked upon launch, not at the awarding of a contract. DalBello said "although 2002 was a lackluster year for new satellite orders, strong revenues reflect the

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launch of satellites contracted in previous years. The significant decline in orders in 2002 will be reflected in satellite manufacturing revenues in 18-24 months" Dalbello noted.

Overall launch industry revenues increased 23% to $3.7 billion in 2002, while U.S. launch revenues declined by 9% to a seven year low of $1 billion. DalBello noted, "the decline in U.S. launch revenues can be attributed to the continued price war among the many new and old players in the global launch industry and the cautious response of global buyers to the introduction of two new U.S. launch vehicles in 2002."

The manufacturing and launch segments of the industry is also ripe for consolidation. With three major US players in the manufacturing sector (Boeing Satellite Systems, Space Systems Loral and Lockheed Martin) less than 1/3 of current capacity is currently utilized. U.S. Export control issues and increased competition from European and

Asian manufacturers and launch services providers contributed to the woes of US companies.

On the bright side, the satellite ground equipment sector accounted for $21.2 billion in revenue – an 8% increase over 2001. The largest revenue growth in this sector has been observed is in end-user equipment sales for VSAT, satellite television, high-speed Internet, and satellite radio services.

The most promising sector of the industry is indeed DTH and other satellite and video services

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COVER STORY

Despite a positive growth, the satellite industry is experiencing a major down turn.

among others. According to Euroconsult, there are now over 9,500 TV channels broadcasting over satellite (Satellite Video and TV Services: World Survey and Prospects to 2010). They are projecting DTH and other satellite video services to grow by almost three-fold to US$ 120 Billion by 2010.

Satellite Radio is also promising. XM Radio in the U.S. is exceeding all expectations and is on pace to hit one million subscribers by the end of 2003.

Government business, specifically for defense applications, is growing and will continue to grow in the near-term.

The Telecommunications sector, now starting to emerge from bankruptcy, is showing definite signs of recovery. Broadband services and Internet via satellite services are now seen as a longer-term prospects as opposed to the *panacea* a few years ago.

Despite, overall figures presenting the industry in a positive growth—there is no denying that the industry as a whole is experiencing a major down turn. However, the consensus in the industry seems to be that the worse is over. A lot of the start-ups with flawed business plans are gone and those that remain standing have made the neccesary corrections and adjustments to face the current challenges. Satellite companies have also instituted

across the board strict fiscal management policies and have rationalized their resources both human and technical. There is no more talk of the next "killer app" in favor of a more "back to the basics" approach. All these makes the industry better poised to face the challenges and take advantage of the opportunities in the current enviroment.

In sum, the sky is not falling. Far from it. There are more satellites up in the geostationary belt conceived by Arthur C. Clarke only fifty some years ago, than ever and more are in the process of being built and launched. Although satellite technology is capable of reaching every square inch and every person in the planet—only a fraction of the world's population actually are consumers of satellite services. The demand for satellite services will only continue to grow—as it has for the last six years and most of the history of the commercial satellite industry. **SM**
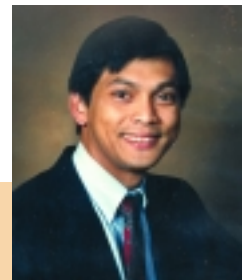
Virgil Labrador is managing editor and editor of **SATMAGAZINE**. He is also Editor of *Satnews Daily* and *Weekly* editions and the annual International Satellite Directory. He has written extensively on the industry and is currently working on a series history of the satellite communications industry serialized in Satnews. He holds a master's degree in Communications Management from the Annenberg School for Communication of the University of Southern California. He can be reached at virgil@satnews.com.

FEATURES

The Satellite Broadband Promise

By Dan Freyer
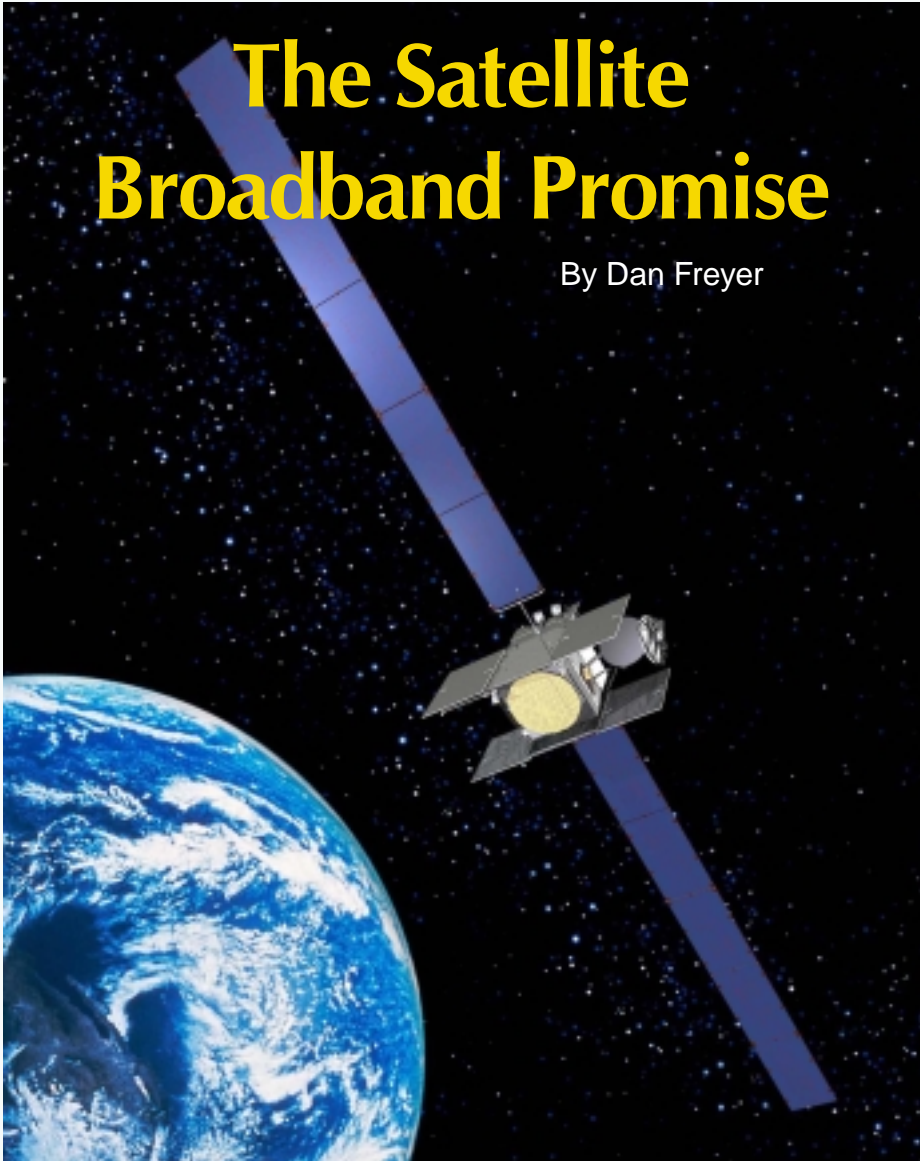
Three years ago, broadband service was heralded as the satellite industry's next big wave. Operators drooled at the prospect of huge new demand for satellite Internet bandwidth for both backbone access and content multicasting. More capacity would be needed than existing Ku-band systems could handle. With advanced Ka-band technology promising up to seven-fold increases in achievable bandwidth per orbital position and the Internet boom in full force, Ka-band projects like Bill Gates and Craig McCaw-backed Teledesic, Lockheed Martin's Astrolink, Hughes' Spaceway, and Wildblue set sail with business plans calling for Billions in new infrastructure. And they succeeded in raising billions in equity. Today's pond is smaller. A ship or two has sunk and some are treading water, but trade winds are blowing in the right direction.

WHAT WENT WRONG?

What went wrong last year in North America's broadband satellite market? According to Brad Greewald, VP Business Development and Marketing for WildBlue Communications, Inc. "The overall financial markets were down so new investment in broadband or satellites was almost non existent. Investment in satellite broadband was non existent". By the end of 2001, in the wake of the dot-com free fall and telecom woes — and satellite finance problems helped by mobile satellite failures like Iridium and Globalstar — Lockheed-Martin stopped support of the $3.6 Billion global Ka-Band venture Astrolink half way through satellite construction. A major Intelsat broadband satellite system RFP was shelved. The once science-fiction-like Teledesic behemoth suspended its 30-satellite construction and let most staff go. And last June,

FEATURE

StarBand, the number two satellite Internet company — with 40,000 customers located in the U.S., Puerto Rico and the U.S. Virgin Islands — filled for Chapter 11 protection. It's currently restructuring.

While some investors were jittery, not so for SES-Global, which announced last summer ambitious plans for a new DBS-plus-Internet satellite network for the U.S. Dubbed AMERICOM2Home℠ , the service will use two spacecraft at 105 and 105.5 West Longitude including a Ka/Ku-Band spacecraft AMC-15 scheduled for launch in Q3 of '04 carrying twelve 125 MHz Ka-band spot beams.

CAN 225,000 CUSTOMERS BE WRONG?

Despite industry consolidation, bankruptcies and shutdowns, U.S. cable modem subscribers grew from 10.3 to 11.3 million last year[1] while U.S. DSL subs jumped from 4 to nearly 6 million[2]. The Yankee Group forecasts 361% growth through 2007. In Canada the DSL growth race outpaced the U.S.

StarBand's Sheila Blackwell, Director, Communications & Dealer Direct Sales says "We wouldn't characterize an industry-wide growth in 2002 to 255,000 consumers using high speed satellite Internet as anything but solid growth in the industry. In fact, Bear Stearns predicts that growth in residential broadband subscribers through 2007 overall will be 22% with the satellite Internet capturing 3.5%

of the broadband households in the US in 5 years." "That's roughly 1.5 million residential subscribers or 2% of online households" she adds.

On top of StarBand's 40,000 customers, Hughes Network Systems' DIRECWAY℠ two-way broadband satellite service now claims an industry-leading 160,000 subscribers. Meanwhile is Hughes is continuing plans hatched over six years ago for a new $1.8 Billion Ka-Band system, SPACEWAY, for which sources report it has spent over $1 Billion so far. HUGHES says SPACEWAY will launch satellites in late 2003 and enter commercial service in the third quarter of 2004. DIRECWAY℠ customers can be expected to migrate to the revved-up Ka-Band on-demand offering of SPACEWAY.

Also building a Ka-Band system, although not yet providing any services, is WildBlue Communications, Inc. of Colorado. Liberty Media,

NRTC, Intelsat and others back the company, and its first Ka-Band payload is schedule to launch late this year aboard the Anik F2 satellite to operate at 111.1° W.L.

Existing service providers like StarBand and Hughes, and future Ka-Band players like WildBlue, are gunning for the same markets.

According to Blackwell, "StarBand's target market are the 20-30 million U.S. households and eight million SOHO businesses unable to get DSL or Cable. ...We can reach any home that can see the southern sky and 9 out of 10 homes do." WildBlue's Greenwald has a similar target "We see 30 million homes not served by Cable Modem or DSL as our key target audience. We are targeting rural consumers and small offices". In addition, the market for U.S. SMEs (small/medium sized enterprises) not addressable by DSL due to their distance from telco switches has been estimated at 2.3 million[3].

Satellite Internet providers argue that that their service is a complement to cable modems and DSL with special features. "We don't compete with those services" says StarBand's Blackwell. Spaceway hopes to differentiate its service by offering "bandwidth-on-demand" ability so that users can run additional apps like temporary large file transfers, or webcasts and video conferences without requiring a hardware or service

FEATURE

upgrade.

KA-BAND TO THE RESCUE

Although satellite internet providers keep their per-transponder sub figures confidential, industry sources say that business plans need 15-20,000 broadband subs per transponder to work. For today's conventional Ku transponders that's difficult. For example, assuming a 40 Mbps one-way transponder pipe, at 10% peak online users out of 20,000 subs, only 20 Kbps would be available per user. But that's less than 48K dial-up.

In this case, return-link space segment cost along might run at $8.25 or so per month per subscriber. But assuming that a minimum bit rate of 128K is provided for worst-case (peak usage) 20,000 subs would need over six times the bandwidth, costing as much as $52 per sub per month out of a typical $60 bill. Add on additional network costs, backbone access, per-subscriber acquisition marketing costs of $120-$175[44] ibid. ($10-$15 per month if amortized over a year), distributor revenue split of 10-20% and other expenses and the profit opportunity narrows.

That's where Ka-Band satellite technology innovations and economics have a huge impact. "We believe our space cost infrastructure is five to seven times less expensive on a 'per bit' basis than existing Ku cost structures", says WildBlue's Greenwald. "Compared with terrestrial broadband, "Our primary advantage is that we can profitably serve less dense areas" he adds.

For its part, Hughes

FEATURE

has developed a new low-power, lightweight receiver/transmitter chip for its payload that bursts at up to 440 Mb/s. When deployed on SPACEWAY birds, the chips should cut 20% off the previous cost for that kind of performance, says Hughes.

Ensuring that affordable Ka-Band consumer terminal gear is widely available will be critical. "We also believe that our use of industry standard (DOCSIS) CPE will reduce cost structure, and hence price points, of a Broadband offering" says Greenwald. WildBlue hopes to take advantage of the $70 and declining retail cable modem pricing made possible by the 11 million-plus quantities shipped to date in the US alone.

CHANGING CHANNELS AND MUSICAL CHAIRS

Retail marketing and distribution are key challenges, and industry alliances and shifts continue keep things interesting. Having settled its messy legal spat with Echostar last year and parted ways with the latter as a

major distributor channel, StarBand's said it intends to play solely as a wholesaler given its pared down operations. WildBlue, with its rural focus has partnered with investor NRTC (National Rural Telecommunications Cooperative) for access to NRTC's 1,000-odd members' 20 million rural customers. Once launched in 2004, WildBlue, will also bundle its services through an agreement with Echostar, also a WildBlue investor, to offer a package of TV entertainment and broadband access. Today however, NRTC is currently selling for WildBlue's competitor. Its re-selling Hughes' DIRECWAY

services along with to Earthlink and SBC Communications. If that weren't a tangled enough web, enter Echostar's just-announced deal to become a major tenant of the Ku-Band transponders on SES-Americom's AMERICOM2Home[SM] TV and Internet satellite platform.

HURRY UP AND WAIT

2003 should mark a major milestone as North America's first Ka-Band commercial birds skyrocket into orbit.   It's an exciting time for satellite technology as next-generation Ka-band systems have a chance to prove their "metal", not to mention their processors.   We should see major improvements in bandwidth efficiency breathe new life into satellite Internet and multimedia applications when Ka service pick up in 2004. [SM]

[1]   Source: National Cable Television Association website

[2]   Source: Convergence Network Digest website

[3]   Source: FCC website document McKinsey & Co.

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Dan Freyer has helped helped leading satellite companies like Intelsat, PanAmSat, and TRW grow their revenues and markets since 1989 in various sales, marketing and business development management positions. He has helped numerous cable, broadcast, Internet and VSAT users design and deploy satellite networks in the US and overseas.   He has been a speaker at industry events and has been a Board member and Vice President of the Society of Satellite Professionals International. Dan is a partner at Westwood Media Group in Los Angeles. Email questions/comments: dan@westwoodmedia.com.

SES Americom: "We'll jump-start A2H this year"

By Chris Forrester

We have prime US real estate, says Olmstead Dean Olmstead, president and CEO of SES Americom. He says they will launch their Americom To Home (A2H) DTH/DBS service this year come what may. Currently, the company is looking for FCC approval to exploit a Gibraltar/UK orbital position at 105.5 degrees West, slap alongside Americom's existing 105 deg West spot. The plan has created controversy and brought Americom into direct conflict with DBS operator DirecTV, which claims that the proposed SES transmissions would cause unacceptable interference to its millions of existing subscribers served from its DBS platforms located at 101 and 110.5 deg W.

"SES Americom is trying to sneak in the back door by using a license allegedly granted by the Government of Gibraltar to place a satellite at an orbital location that would not be permitted if the satellite were licensed by the FCC," said DirecTV president and COO Roxanne Austin recently. "Our opposition to SES Americom's FCC petition is not about competition, we welcome the competition, it's about interference. A DBS service delivered from a satellite at the 105.5 degrees orbital slot would cause our customers to suffer significant service interruptions and impede our ability to deliver local broadcast channels."

Not so, implies Olmstead. "There are real discussions to be had, about frequency co-ordination for example, but you have to go into those discussions in good faith. What we count on

Dean Olmstead
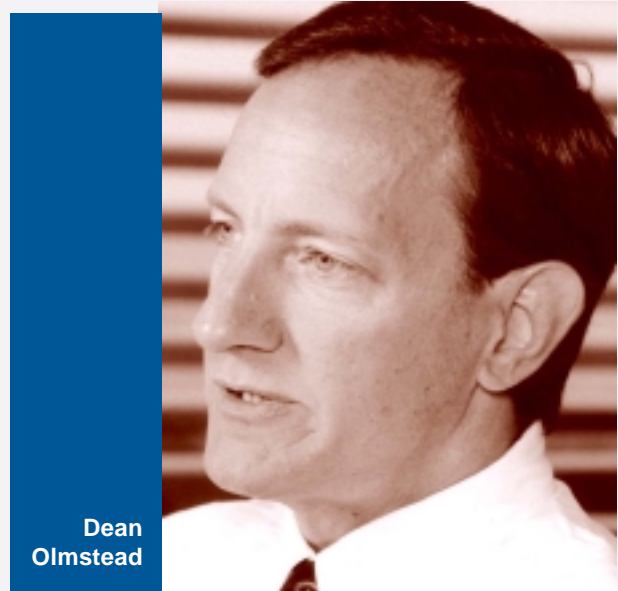
is the [US] government making sure that operators are acting in good faith. What is slightly disappointing is that the FCC is focusing on the wrong constituency. They seem to be trying to protect DirecTV as a US licensee, instead on concentrating on the broad public benefit of having additional operators available to viewers. Satellite geometry is well known. We know exactly how it works and what the angles are. If they work in good faith, and if there are elements that need modification we will make those adjustments. This is what any operator would do, making compromises."

Olmstead also admits there is some confusion over the precise A2H offering. "That's partly our fault. So let's be clear, A2H is our working name for a service that will go to the residential market. We are not new to this. We carried PrimeStar which was the first satellite multi-channel video system in the US, which itself was amazingly successful given all the problems it had. It reached some 2 million subscribers and they were our customer until February, so even after being acquired by DirecTV they remained our customer. So we have been

> **"Our opposition to SES Americom's FCC petition is not about competition, we welcome the competition, it's about interference.**

AMC-15 is Based on the A2100 model and being built by Lockheed Martin, AMC-15 will feature one of America's first operating Ka-band payload along with 24 transponders of Ku-band capacity operating from 105 West,
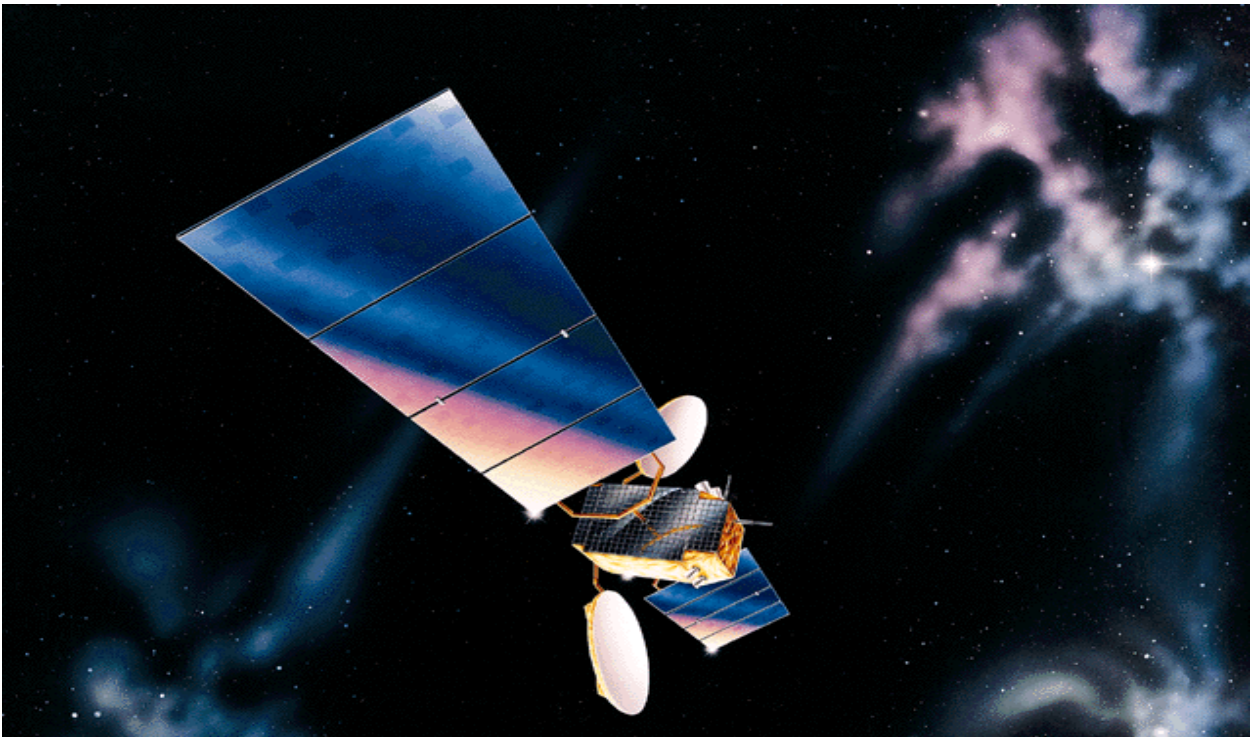
active in that segment, and have looked closely at what we can do to replace that business with something news going forward. We also want to exploit the expertise we have generated in Europe. We want to tap into the revenue possibilities flowing from a residential service."

"Behind A2H there are a range of satellite assets, including AMC 15 which will be launched in mid-2004 with Ku/Ka capability, and we are making some adaptations to make it more attractive to a residential service. It will go to 105 deg West, which everyone recognises as being prime real estate as far as orbital positions are concerned. We are putting circular polarisation on the beams, in addition to linear. What this means is that FSS frequencies can be linear or circular. The advantage in having circular potential is that the BSS frequencies in the US is circular, so it will make it easier for [reception on] multiple LNBs in a dish. They could see us as well as DirecTV. That satellite is not only going to happen but we are looking at putting an interim satellite on to the location to allow us a jump-start to business. There are some major fleet additions coming up, and we have an upcoming launch of AMC-9 and if that goes well then we will redeploy a couple of satellites in the fleet to better serve customers. And this is one option."

"So AMC-15, an FSS craft, is the first stage. The

other nice thing about AMC-15 is that it has Ka-Band on board. Unlike the SES Astra Ka-band fleet which uses Ka-band in one direction, we can use Ka in both directions, up and down or a combination of both. The current thinking is that video can carry on using Ku as normal and the Ka will largely carry broadband. But this isn't exclusive. We have a lot of capacity at 105 degrees, and our proposition to the market is to ask them what we can do to help you launch your service. We'd like to see DVB standards, we'd like to see next-generation boxes, but what does the customer need? It may be uplinking, for example. It means we are moving a little differently to the way Americom used to in the past. We are also saying we can help you, as we did in Europe, to get to market."

Olmstead says there's a key meeting between SES and DirecTV, along with the FCC and the British Radiocommunications Authority in Bermuda scheduled for the end of March and if everyone's done their homework we should be able to sit down and have some real discussions," says

> **"That satellite is not only going to happen but we are looking at putting an interim satellite on the location to allow us to jump-start to business."**
>
> **— Dean Olmstead**

Olmstead. He admits that if the FCC decision to use 105.5 goes against SES it will be difficult to appeal. "The other risk is that everything just procrastinates for ever and we drift on and on without the FCC making any decision, and [everything] becomes irrelevant. The FCC is supposed to ensure efficient use of the spectrum, and if they don't allow us to come into the market they are, in effect, depriving the public, and the market, of that spectrum. I have to say that we have found the FCC wholly interested in our arguments and over our policy discussions with them."

'Americom To Home' represents a huge investment for SES Global. "We will have AMC-15 in place, and we have a procurement for AMC-14, AMC-16 is a ground spare also under construction and we are also looking at an RFI to find out what the industry might do for a high-capacity all Ka-Band satellite. If broadband takes off then we want to be able to put this in place as a next-generation bird perhaps three or four years from now," says Olmstead.

Olmstead says that there's a waiting list of channels looking for suitable carriage, frustrated because of spectrum shortages and not having the muscle to find slots on DirecTV or Echostar's DiSH system. "We are also different to DirecTV and Echostar in our business model. A channel on DirecTV or Echostar never sees the end subscriber. You have to cut a deal with [DirecTV or Echostar] and maybe you'll get a few cents, a few crumbs from their table on some sort of revenue share. What we want to do is simply to sell [channels] capacity, at fair rates, and an opportunity to carve out their own destiny or perhaps combine with others to create their own platform. In other words

we give the channel much more control, much more flexibility. Potentially we might end up operating in the retail sector, but there are also other people operating very well in that area which could help a channel out. We have a number of intermediaries already and they could handle distribution and become more meaningful. They want this role, but wanted a suitable technical solution and we provide this. They could supply the market with a suitable ultra low-cost dish with a twin-LNB that would be good for DirecTV and us, or Echostar and us, or all three."

"We are optimistic about free-to-air, perhaps more optimistic than the market," admits Olmstead. "But the market has absolutely no means of trying that model out in the US. There is no model which today allows someone to launch a nationwide free-to-air channel. You cannot rent a channel on Echostar. So few have thought of it, and besides the advertising isn't sold this way. This is a task for us, which we recognise, that we must educate the market. Free-to-air is an interesting concept that we think will grow over time."

On the question of costs for access Olmstead stresses that 105 deg West is prime real-estate, "So I would not expect our rates to be any less than elsewhere in the Americom system. Today, if you want to lease Ku-band FSS capacity at prime slots you are probably looking at $160,000-$180,000 a month. But we consider this to be the best real estate. On the other hand, penetration rates are going to be very low to start with and we intend working with content suppliers and platform aggregators to recognise this and work with them to help them get their business off the ground. But we need to be cautious on rates, because there are lots of variables, not least if people need conditional access or other services, all of which would affect rates."

As to A2H's optimism of the potential size of the market, Olmstead says Americom's system can support 300-350 channels. "If we get the BSS capacity, and if it were all exploited for video, then it would be upwards of 1000 channels, maybe as many as 2000." **SM**

Are you Protected?

Are you ready in the event that your normal business voice and data communications services are interrupted? Likely not, according to a recent online survey conducted by Disaster Recovery Journal (www.drj.com), only 22 percent of their readership feels that their telecommunications network is adequately protected from outages. That leaves a wide gap of vulnerability—especially when service interruptions are caused from natural or man-made disasters, equipment failures or just plane human error. Additional survey data indicates that 76 percent of network outages occur every three months or less!

Even the most reliable terrestrial networks are susceptible to outages whether natural or man-made. Often, backup connections follow the same underground cable conduits that primary connections use. Furthermore, damage to a facility isn't required to disrupt communications; any interruption along the communications path between a business and its customers or suppliers can result in operational losses. Furthermore, the communication link between key business sites or data centers and the recovery hotsite is especially important is. And in emergency situations the local infrastructure, especially cellular telephones, can be quickly overwhelmed.

The key to minimizing losses is to get back online quickly. VSATs can provide a true path diverse alternative network connection that bypasses the current infrastructure and can be activated within seconds of a telecommunications failure. Further broadband VSATs provide the benefit of service anywhere within their coverage area and with relatively high bandwidth capacities. With an antenna located on a company's various properties, a 2 Mbps end-to-end connection can be made independent of wires, cable, or fiber. Furthermore, backup services can be deployed to just a few critical locations or across an entire enterprise network. The more sophisticated broadband VSAT systems can also be used for load-balancing. So when your primary network becomes congested, the VSAT system brings additional capacity online to data paths that need it the most.
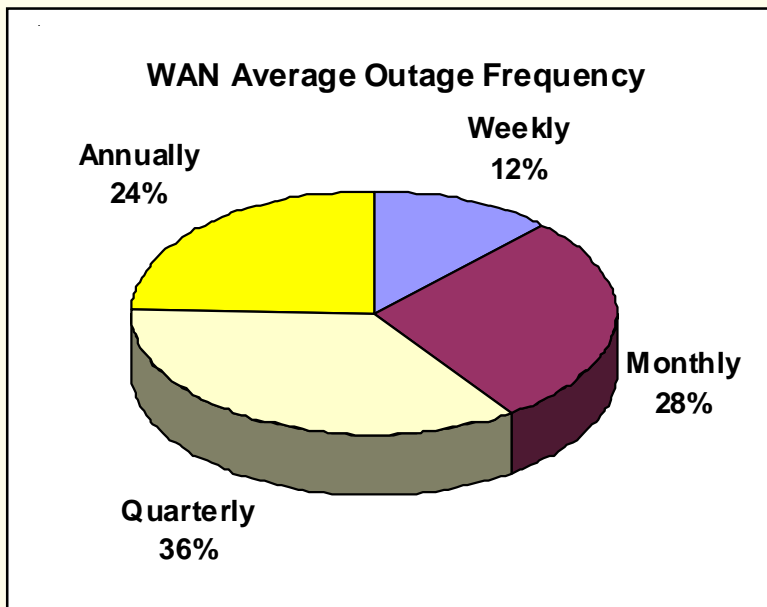
Do these systems really work? "One of our clients recently lost their fiber connection and was operating over our network for several hours before they were aware of the outage. They learned about it only after we had contacted them. So I think that's a good testimonial to seamless switchover in operation," states Jeff Gross, general manager, Immeon Networks (www.immeon.com) located in Atlanta, GA.

Take a close look at the accompanying requirements table. How does your current backup system compare to the checklist? If you're looking for new services, make sure the alternatives you are considering meet these. The right VSAT system

WAN Average Outage Frequency

Weekly 12%
Monthly 28%
Quarterly 36%
Annually 24%

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Requirements for Backup Communications

1. Path diversity — an independent route that bypasses existing network connections

2. Availability and reliability — service must be ready to carry traffic on a moment's notice and must be as reliable, or more reliable, than primary service

3. Capacity that matches primary service and is flexible to accommodate changing capacity needs

4. Quality of service that matches primary service, or that has quality-of-service provisioning

5. Cost-effectiveness — cost should be at parity with or less than the primary service

6. Management facilities to indicate service availability, activation, and usage

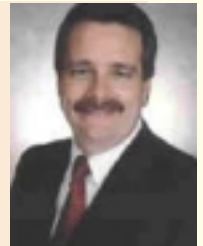## Additional Requirements for Emergency Communications

1. Infrastructure-independent capability

2. Ability to relocate easily

3. Fast deployment

4. Flexible service that supports voice, data networking, and Internet access

implementation can satisfy all of these criteria and at attractive pricing.

Besides the DRJ mentioned above, a number of other online resources are available for disaster recovery planning and telecom alternatives. These include Contingency Planning & Management (www.contingencyplanning.com), the Global VSAT Forum (www.gvf.org) and my website at www.mwc.cc. Plan ahead— it can pay huge dividends in keeping your business running smoothly no matter what is happening around you. **SM**

Mr. John M. Puetz is founder and principle consultant of MasterWorks Communications. He is an internationally known business and technical expert in satellite communications with over 20 years of industry experience serving the radio broadcast, satellite and telecom industries. He possesses a strong foundation in engineering, engineering management, product management, business development, strategic planning and marketing. He can be reached at john@mwc.cc

FEATURES

European pay-TV:

"The rise and rise of DTH"

By Chris Forrester

A major report from Screen Digest *[European Digital Pay TV Platforms, March 2003]* pulls no punches in praising satellite DTH in its forecasts of growth in the sector to 2006. Despite a severe advertising recession that some European countries have still to escape from, war and a general economic uncertainty, pay television in Europe has enjoyed remarkable growth though the past 5 years. In the five years to 2001 pay TV penetration through cable, satellite and terrestrial platforms rose 13 percentage points to 46.5% per cent of Western Europe's television homes," says the report. "In 2002 the increase was more modest, the total approaching 47%. Early indications are that growth should accelerate again in 2003."

This is good, but the real driver is satellite TV, say the report's authors: "the total number of subscribing homes trebling to 15.7m in the five years to 2001. Despite all the bleak media business news headlines in 2002 a further 1.8m subscribers were recruited." Cable has been held back by a series of corporate failures (NTL, UPC) although there are signs of momentum picking up, helped by a half-million growth in subs last year. "If a general trend can be identified to underpin this report, it could be that consumer appetite for multichannel televison remains high. The long term rise in penetration has not been undermined by the recession."

Screen Digest splits Europe's individual countries more or less into two, with one group falling into what it describes as the "Atlantic Model" and the others adopting the "Central Model". The Atlantic model "is that of multichannel TV mostly driven by subscription services. New channels are financed by a mixture of advertising and subscription. The distributors of multichannel television are pay TV operators that shape the offering on a commercial basis and pay licence fees to the channel providers. This is how American cable (and later satellite) television took off and the model was reproduced to a very large extent by the Irish, British, French, Spanish and Portuguese cable and satellite industries."

"The Central model concerns Scandinavia, Benelux and German-speaking Europe. Here multichannel television is provided by pure distributors. Broadcasters pay to get carriage on cable or satellite, and channels are exclusively financed by advertising. Penetration is high: generally over 80% of homes have a dish or are connected to cable. And cable, which dominates the market, is heavily regulated both in content and prices. Subscription-financed channels have penetration rates under 10%."

The report argues that the 'Atlantic' group further enjoys fast-growing adoption or deployment of digital technology, and while 'Central' viewers have numerous (mostly free-to-view) channels, they also suffer heavy cable regulation which has stymied operator's roll out of digital. Nor is there seen to be any pressing need from consumers to trade up to digital.

"In one key respect," the report continues, "the two groups of countries are nevertheless very similar. In both, satellite growth has clearly outpaced that

Digital PayTV Forecasts *

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
	%	%	%	%	%	%	%	%	%	%	%
Austria	0.00	0.00	0.00	0.00	0.09	0.15	0.79	1.68	3.68	6.69	12.99
Belgium	0.00	0.00	0.47	1.58	2.00	2.23	2.04	3.03	4.42	6.20	8.97
Denmark	0.00	0.00	1.64	2.56	7.18	11.55	14.12	16.90	21.70	28.04	35.28
Finland	0.00	0.00	0.06	0.24	0.97	2.38	3.34	5.05	8.16	11.67	16.29
France	2.12	5.71	8.92	11.63	13.88	15.84	17.77	19.89	23.46	27.90	32.99
Germany	0.06	0.60	1.88	3.47	4.58	6.12	6.51	7.40	9.05	12.30	17.89
Greece	0.00	0.00	0.00	0.19	1.55	2.74	4.67	6.22	7.35	8.33	9.20
Ireland	0.00	0.00	0.00	0.00	0.13	21.08	28.49	35.43	50.09	61.40	72.33
Italy	0.26	1.13	2.86	6.52	10.29	10.52	11.73	13.39	15.37	17.07	18.50
Luxembourg	:	:	:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Netherlands	0.00	0.00	0.00	0.03	1.07	2.15	3.37	5.10	7.73	11.72	17.67
Portugal	0.00	0.00	0.33	2.34	4.18	7.28	10.02	14.10	20.42	27.35	35.89
Spain	0.00	3.05	7.85	10.52	15.31	17.32	16.42	17.64	19.61	22.17	25.58
Sweden	0.00	0.00	0.99	2.32	9.80	17.31	22.25	27.57	33.72	41.82	51.51
UK	0.00	0.00	1.03	10.97	26.23	35.45	34.29	38.76	43.22	47.58	49.02
EU total	0.38	1.44	3.16	6.51	11.04	14.08	14.89	17.01	19.88	23.41	27.47
Norway	0.00	0.00	0.41	1.60	12.88	23.62	30.05	36.17	44.34	52.59	61.53
Switzerland	0.00	0.00	0.00	0.35	0.60	2.31	4.03	6.33	9.78	13.63	17.93
W. Europe Total	0.36	1.39	3.06	6.33	10.86	13.96	14.86	17.03	19.98	23.57	27.69
Czech Republic	0.00	0.00	0.00	0.00	0.55	1.08	1.26	1.51	1.86	2.33	2.95
Hungary	0.00	0.00	0.00	0.00	0.81	1.65	1.85	2.32	3.15	3.81	4.78
Poland	0.00	0.00	1.26	4.21	5.66	4.71	5.46	5.99	6.46	6.81	7.37
E. Europe Total	0.00	0.00	0.79	2.65	3.80	3.47	4.01	4.49	5.00	5.43	6.08
All countries	0.32	1.23	2.80	5.91	10.04	12.76	13.62	15.59	18.25	21.48	25.19

*Penetration rates as percentage of TVHHs   Data: Screen Digest

of cable in the past few years and will very probably continue to do so in the medium term."

This report comes more than five years after the launch of digital television in Europe: France's Canal Satellite was the first to introduce a full-scale commercial digital platform in April 1996. When digital television was introduced, cable was the main pay TV distribution system almost everywhere in Europe, except in Britain.

"But half a dozen years later things look very different. The

FEATURE

bulk of the growth in multichannel TV occurred through the expansion in satellite reception. This happened both in Central and Atlantic markets. Satellite growth outpaced cable in virtually all markets in recent years. From 1998 to 2002 respective rises were 76% and 22% in the UK; in more mature Germany the difference was still significant, with a 13% increase for cable against 17% for satellite."

Indeed, the report predicts a massively healthy state of affairs by 2006. Cable penetration will stand at an average 33.24% (held back only by laggardly performance from Eastern Europe). Digital pay-TV penetration will be better than

27% and total (analogue and digital) pay-TV levels will be 50.89% suggests the study. There will be 8m high-speed cable modems in use by 2006, some 27.4m ADSL Internet connections, but only 48,000

ADSL video-equipped homes, well down on some other estimates. Total pay-TV base will be more than 80m homes by 2006. **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

Post-War Opportunities in the Satellite Industry

By Bruce Elbert

We are in the midst of a major conflict of which the duration is uncertain. It is one in which satellite technology plays a pivotal role. Operation Iraqi Freedom is proving the value of this industry's services and systems like none before it. We are giving the world live video accounts from Baghdad – not just voice – and we follow the coalition forces as they speed through the desert. Never before have the news channel "talking heads" been able to interview their counterparts who are direct "imbedded" witnesses, giving us the same perspective.

In the background, mobile and broadband satellite communications provide voice, video and data services to coalition forces in the region as well as the news organizations that make the coverage possible. Satellites that were begging for users are filled to capacity to serve this market.

But, what happens when the action is over and, I believe, life returns to normal? In reflecting upon my role as a communications officer during the Vietnam conflict, with satellites playing only a small role, I witnessed the acceleration of technology, along with unparalleled expansion of the U.S. economy at war's end. When joining Comsat in 1969, I saw the dramatic development of our industry during the ensuing decade. Projects during my Hughes years, like Westar, Palapa A, SBS and Galaxy, provided the strong foundation for what today is a $60 billion industry. Will it not be the same at the end of the current war?

The Middle East, in particular, is the region in which satellite communications already serves vital needs. The innovative Thuraya GEO MSS system, based in the UAE, began operation in 2001 and is now employed by Inmarsat to offer its popular Regional BGAN "always on" medium data rate Internet access service. Availability of C- and Ku-band broadband VSAT products and satellite capacity that will become available as hostilities end are going to produce attractive opportunities to businesses and improve national and regional infrastructure. I'm an optimist and can foresee how satellite communications will provide the key to rebuilding Iraq and Afghanistan. For example, the same data communication products that give Wal-Mart a competitive advantage are inexpensive and capable enough to aid in rebuilding schools and medical treatment facilities.

> **Once war is behind us, we can offer these solutions so other nations in the Middle East may gain a better hold on our collective future in the information economy.**

While these countries may have access to regional satellite TV programming, there is still the opportunity to create instant infrastructure in terms of a targeted DBS service as well as high-speed access to the Internet. If regulatory approval and importation rules can be abridged, I'm positive these applications would be widely distributed – and welcomed.

VIEWPOINT

Once war is behind us, we can offer these solutions so other nations in the Middle East may gain a better hold on our collective future in the information economy. I can't count the inquiries I receive on my Web site from satellite and telecommunications professionals who live and work in the Middle East as well as Africa and Southern Asia. The pieces of the solutions are right there in front of us – all we need to do is transfer the know-how and implement the networks in those places best able to apply them.

SM

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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. Web site: www.applicationstrategy.com emailbruce@applicationstrategy.com

SES GLOBAL Preparing for 2010

Imagine a world with some 60,000 TV channels, many of them in high-definition, full interactivity direct from the set-top box up to the satellite as well as full-service broadband supplied non-stop to a viewer's PC. That's Romain Bausch's view. Bausch is president of SES Global, the Luxembourg-based satellite operator that is now the world's largest player in the business. SES beams channels to millions of viewers on behalf of BSkyB, Canal Plus and Star TV, as well as carrying channels for redistribution by most of the USA's cable operators.

Romain Bausch

But today's history could have been very different if its first satellite, Astra 1A (a GE AstroSpace 4000 model, with just 16 transponders and having a launch mass of only 1800 kg) had not successfully launched back on December 11, 1988, from Kourou in French Guiana. Then, the whole concept of Direct-To-Home (DTH) television, while being understood, was by no means financial assured. des Satellites (SES) has in barely 15 years grown from those fledgling first steps into a true global broadcasting behemoth, having 50%controlof AsiaSat which beams satellite entertainment over the whole of Asia, half of Sweden's NSAB which covers Scandinavia, Europe and Russia. Its own beams cover the whole of mainland Europe while its Americom division has footprints looking down on North and South America. Finally, it owns almost 20% of Star One, which takes care of Brazil.

With this success revenues have also grown, and bit by bit expected to reach $1.3 billion this year, with operating margins of around 82%. SES' first director general was Dr Pierre Meyrat who with commercial director Marcus Bicknell crucially managed to persuade Rupert Murdoch to launch an analogue mini-bouquet of four channels into the UK. Challenging as those early days were, the company has blossomed into a global satellite operator under the direction of Romain Bausch and his team.

The past year or two, however, has been tough for the satellite industry. Revenues have been squeezed as operators' margins fall under pressure. It was no . ES' didn't help matters given that about 40% of SES Global's revenues are paid in dollars. On a like-for-like basis, revenue declined at Astra and Americom by -6.6% and -7.1% respectively. This year's revenues for SES will be – at best –flat.

In this, of course, SES is not alone. The sector as a whole is feeling the revenue pinch, and it always has to be stressed that any business achieving EBITDA margins around the 80% mark is still looking good compared to some within the hard-pressed broadcasting sector.

A2H

But SES is not standing idly by. It is involved in three new initiatives, each designed to considerably boost income over the long term. The first is in the USA, where it hopes this year to have in place

Americom-To-Home (A2H), a head-on challenge to the existing duopoly of Echostar and DirecTV. Dean Olmstead, president and CEO of SES Americom, says they will launch their A2H service this year come what may. Currently, the company is looking for FCC approval to exploit a Gibraltar/UK orbital position at 105.5 degrees West, slap alongside Americom's existing 105 deg West spot. The plan has created controversy and brought Americom into direct conflict with DBS operator DirecTV, which claims that the proposed SES transmissions would cause unacceptable interference to its millions of existing subscribers served from its DBS platforms located at 101 and 110.5 deg W.

The concept of 'free-to-air' broadcasting, commonplace over Europe, Asia and the Middle East, is a new one to most Americans. Olmstead admits there is some confusion over the precise A2H offering. "So let's be clear, A2H is our working name for a service that will go to the residential market. We are not new to this. We carried PrimeStar, which was the first satellite multi-channel video system in the US, which itself was amazingly successful given all the problems it had. It reached some 2 million subscribers. So we have been active in that segment, and have looked closely at what we can do to replace that business with something news going forward. We also want to exploit the expertise we have generated in Europe. We want to tap into the revenue possibilities flowing from a residential service."

At the end of March, Americom sold almost all its capacity on AMC-15 to Echostar. The deal calls for Echostar to lease ("long term") effectively all of Americom's upcoming giant AMC-15 craft, launching later in 2004 to 105 deg West. AMC-15 has 24 Ku-band and 12 (125 MHz) Ka-band transponders. Meantime, Echostar will test using Americom spare capacity. Potentially the deal is worth a fortune to Americom given the life of the satellite, although it will be interesting to see to what extent the deal stymies Americom's own plans to launch a broadband service from the same position. Echostar currently operates from 110° and 119° West, and certainly the 100° position is perfectly placed for joint reception of 105° traffic, with an additional LNB in place. Echostar already have dishes preconfigured with multiple LNB's

competition and more choice for the consumer," says Bausch.

A2H also represents a huge investment for SES Global. "We will have AMC-15 in place, and we have a procurement for AMC-14, AMC-16 is a ground spare also under construction and we are also looking at an RFI to find out what the industry might do for a high-capacity all Ka-Band satellite. If broadband takes off then we want to be able to put this in place as a next-generation bird perhaps three or four years from now," says Olmstead.

Waiting List

Olmstead says that there's a waiting list of channels looking for suitable carriage, frustrated because of spectrum shortages and not having the muscle to find slots on DirecTV or Echostar's DiSH system. "We are also different to DirecTV and Echostar in our business model. A channel on DirecTV or Echostar never sees the end subscriber. You have to cut a deal with [DirecTV or Echostar] and maybe you'll get a few cents, a few crumbs from their table on some sort of revenue share. What we want to do is simply to sell [channels] capacity, at fair rates, and an opportunity to carve out their own destiny or perhaps combine with others to create their own platform. In other words we give the channel much more control, much more flexibility. Potentially we might end up operating in the retail sector, but there are also other people operating very well in that area which could help a channel out. We have a number of intermediaries already and they could handle distribution and become more meaningful. They want this role, but wanted a suitable technical solution and we provide this. They could supply the market with a suitable ultra low-cost dish with a twin-LNB that would be good for DirecTV and us, or Echostar and us, or all three."

"We are optimistic about free-to-air, perhaps more optimistic than the market," admits Olmstead. "But the market has absolutely no means of trying that model out in the US. There is no model which today allows someone to launch a nationwide free-to-air channel. You cannot rent a channel on Echostar. So few have thought of it, and besides the advertising isn't sold this way. This is a task for

SES Time Line	
1985	SES Created
1988	Astra 1A launched
1989	Starts broadcasting
1991	Second satellite launched
1996	Starts digital transmissions
1998	Opens 2nd orbital position
1999	Buys half of AsiaSat
2000	Buys half of NSAB
2001	Buys GE Americom
2002	Forms SatLynx
2003	Announces SatMode

suitable for their multi-position orbital spots. Americom's adjacent 105.5° spot (the Gibraltar/UK filing) is still subject to FCC approval.

Romain Bausch says "The Echostar agreement strengthens our own position because even though the deal is for a large slice of capacity, there is even more spectrum available [to us] at 105 deg W, in the Ka-band, in the BSS band at 105.5 once co-ordination between Gibraltar, the UK and the US has been achieved. There is also the opportunity of A2H launching satellites to other orbital positions, for example to 85 deg West, the old Primestar position, which is an excellent spot from which to cover the Continental US."

"A2H is not dependent on reaching agreement on 105.5 deg W. This is important. There are no frequency co-ordination issues for us in Ka, Ku or FSS at 105 degrees. It is only the BSS frequencies at 105.5 that are subject to negotiation. There's now another meeting planned for May, with the parties agreeing on the criteria to be used to measure that there is no powerful interference and I believe from the Americom point-of-view there is an openness to discuss power levels that the FCC would feel comfortable with and in order to be assured that interference was not an issue. We are sensing a more pragmatic view of events, at least from Echostar, and while that might help us, the agreement might provoke DirecTV. But it is also important to see what value the FCC gives to the fact that by adding capacity there will be more

us, which we recognise, that we must educate the market. Free-to-air is an interesting concept that we think will grow over time."

On the question of costs for access Olmstead stresses that 105 deg West is prime real-estate, "So I would not expect our rates to be any less than elsewhere in the Americom system. Today, if you want to lease Ku-band FSS capacity at prime slots you are probably looking at $160,000-$180,000 a month. But we consider this to be the best real estate. On the other hand, penetration rates are going to be very low to start with and we intend working with content suppliers and platform aggregators to recognise this and work with them to help them get their business off the ground."

SatLynx/SatMode

Then there's two-way satellite. Bausch sees two methods of tapping into this potentially lucrative market. SatLynx is a joint-venture with Alcatel (and probably Gilat) designed to supply broadband two-way connectivity directly between users computers and the satellite. Given that huge swathes of PC users are never going to be able to hook into a cable-supplied service, or DSL telephony service, satellite is a natural solution. AsiaSat is also actively involved in two-way broadband with SpeedCast, a company in which it holds 45%.

Broadcasters also seek connectivity. So far TV stations have satisfied this by making sure a telephone line is connected into the set-top box and this allows viewers to 'play along' with shows like 'Who wants to be a millionaire?' and 'Big Brother'. Unlike full broadband functionality, which needs expensive terminals to operate, SatMode is a spectacular concept. It uses the power supply in the set-top box to send a 0.5 Watt signal (at up to 64 kb/s) directly back to the satellite, via a modified LNB. SES says it will have the first units in commercial production by early 2005, and is already demonstrating prototypes. "All the components are readily available in the market, at prices no more than US$50, which is the overall target for the system. Our industrial partners are going full speed and we are confident of hitting our

| SES' EBITDA* Margins		
Division	**2002**	**2003**
	Margins	Margins
	achieved	forecast
Astra	79%	82%
Americom	79%	81%
AsiaSat	81%	81%

*EBITDA: Earnings before interest, taxati

on, depreciation and amortisation

Data: Bear Stearns

timetable," says Bausch. It's probable that France's Canalsatellite will be the first customer.

If SES can bring this first-generation SatMode device to the market for $50 or less, then by the time the second-generation is in manufacture – and installed directly into set-top boxes – the technique will have been perfected. Five years from now SES hopes that the living room set-top box will be a standard method of interacting with the TV set, via satellite. SES has always been at the leading edge of satellite technology, and Bausch promises this will continue.

In Europe, SES deliver well over 1000 channels to some 91m homes. In Asia, AsiaSat (as we go to press) is counting down the days to the launch of AsiaSat 4, boosting dramatically the number of channels on offer and ready to serve markets in India and China. In the USA, Americom is carving out similar new businesses, having already won a large portion of cable's supply business. Perhaps the 60,000 channels future isn't so far away, after all!1991 Second satellite launched. **SM**
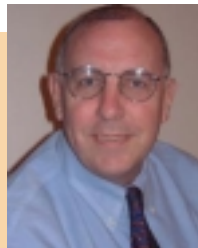
London-based Chris Forrester, a well-known broadcasting journalist is the Editor for Europe, Middle East and Africa for SATMAGAZINE. He reports on all aspects of the industry with special emphasis on content, the business of television and emerging technologies. He has a unique knowledge of the Middle 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

FEATURED EVENT

International Satellite & Communications exchange (ISCe) Conference and Expo

" Where Innovative Satellite Technologies and Business Meet "

*Long Beach Convention Center -
Long Beach, California* **August 18 – 21, 2003**

ISCe 2003 Overview

SES Americom CEO Dean Olmstead addressing ISCE 2002.

International Satellite & Communications exchange (ISCe) Conference and Expo is the premier West Coast annual event that highlights the innovation and use of satellite technologies and services in the global commercial, government and military sectors. The event, billed as the place "where innovative satellite technologies and business meet," will be held August 18-21, 2003 at the Long Beach Convention Center in Long Beach, California.

ISCe brings together decision-makers, engineers, and sales and marketing professionals from the leading satellite operators, manufacturers, service providers and users around the world. Co-hosting ISCe 2003 are Hannover Fairs USA, Inc., one of the world's largest and most active tradeshow organizers, and the Satellite Industry Association (SIA), the premier trade organization representing satellite manufacturers, operators, and launch service providers in the commercial space sector.

"The satellite sector is at an important crossroads, facing a continued economic slump,

industry consolidation and political unrest. Companies have to develop smart business strategies and execute flawlessly," said Richard DalBello, president of SIA. "ISCe 2003 will be dedicated to providing attendees the information and relationships they need to not only survive this downturn but be poised to thrive when opportunity allows."

This year's conference will include several sessions on homeland and national security, taking a close look at the role the satellite industry plays during this time of international political turmoil. The speaker line-up includes several high-ranking officials from both the public and private sectors who will share their firsthand experiences in developing and employing satellite technologies and services that drive global assurance initiatives.

The exhibit floor will host a balanced mix of industry providers, operators, manufacturers and suppliers from the commercial and government sectors, featuring product demonstrations and explanations that provide a firsthand look at the emerging technologies and services driving the next phase of innovation in the satellite industry. Attendees can count on gaining valuable knowledge of the breadth and depth of available offerings, while exhibitors will benefit from face-to-face interaction with key decision makers from around the world.

ISCe is an official CeBIT event and will feature a hands-on satellite technology forum, satellite training workshop, one-on-one interviews with top industry executives, a complete exhibition program (including small business pavilion), matchmaking program, luncheon presentations, awards ceremony and a full spectrum of networking events. Key business sectors to be addressed at the conference include: information and communications, navigation, imaging and remote sensing, and broadcasting.

2002 Highlights

The turnout for ISCe 2002 was strong, and this year's show promises to be an even bigger hit. According to Dean Olmstead, president

FEATURED EVENT

and CEO of SES AMERICOM, "I was most impressed with the timeliness of the sessions, the caliber of speakers and overall quality organization of the inaugural conference. We'll definitely be back!"

Nearly 800 people attended last year's inaugural event, and more than 50 exhibitors participated. More than 30 percent of those in attendance were among the ranks of senior management, with marketing and sales professionals accounting for another almost 40 percent. Attendees and exhibitors included a balanced cross-section of services, information and communications systems companies, navigational imaging and remote sensing companies, and broadcasting and broadband services organizations.

In the words of Jan Molvar, business group lead for Scitor Corporation, "ISCe 2002 was extremely valuable and enjoyable. The venue and the amenities were 'first cabin' and the proceedings exceptional. In a few days, I was able to gain excellent insight into the spectrum of issues facing government and commercial enterprise."

Insights into ISCe 2003

The issues facing the satellite community have only intensified over the course of the past year, and ISCe 2003 promises to provide attendees with in-depth insight into the state of the industry and tangible take-aways to improve business operations. The sessions will be grounded in

real-world cases, presented by forward-looking speakers driving the next phases in the innovation and use of satellite technologies and services across the public and private sectors.

"With homeland security and global assurance as top priorities on the international agenda, the satellite industry is more important than ever before," said Art Paredes, vice president and general manager of West Coast operations for Hannover Fairs USA. "ISCe 2003 is the 'must-attend' event for companies and government leaders who need to know about the latest developments in leading-edge technologies, dual-use applications and regulatory policies. This venue is where innovative satellite technologies and business meet, putting attendees a step ahead of their competition."

The following are just a few of the topics that will be addressed at ISCe 2003:

· Homeland Security and Global Assurance

· Dual-use Applications of Satellite Technologies

· Government Services and Opportunities

· Satellite Broadband & Broadcasting

· Global Navigation Opportunities

· Regulatory and Policy Issues, Including Export Control

· Global Alliance Strategies

· The Launch Industry

Future

· Satellite Remote Sensing for Homeland and National Security

This year's agenda features industry leaders such as Asia Satellite Telecommunications, Boeing, Booz Allen Hamilton, the California Space Authority, Cisco Systems, the FCC, Eutelsat, the Global VSAT Forum, Hughes Network Services, Intelsat, Lockheed Martin, the National Aeronautics and Space Administration (NASA), the National Rural Telecommunications Cooperative (NRTC), the National Oceanic and Atmospheric Administration (NOAA), PanAmSat, the Scitor Corporation, the Space Enterprise Council, Space Systems Loral, the Satellite Broadcasting & Communications Association (SBCA), SES AMERICOM, Thuraya Satellite Telecommunications, and the U.S. Chamber of Commerce — among many others.

Value-Added ISCe 2003 Programs

The first day of ISCe 2003 will feature a series of three unique value-added programs designed to further increase the return on investment in attending the show.

The first, hosted by the SIA and SBCA, is **"Getting Up to Speed: A Satellite Training Wo** This management-training seminar is targeted at new satellite industry professionals and those trying to keep up with the ever-changing high-tech

FEATURED EVENT

ISCe 2003 Registration

Registration is now open for ISCe 2003.

The full conference program is available for a discounted rate of $995 before April 30, after which the standard rate is $1,195. Government and academia discounted registration is available, with valid ID, for $395.

A one-day conference pass is available for a discounted rate of $495 before April 30, after which the standard rate is $595.

Exhibit space is still available in 10' increments at a cost of $31 per square foot.

To register for the event or for more information on attending or exhibiting at ISCe 2003, visit www.isce.com or call 310-410-9191. [SM]

marketplace. This satellite industry primer is a comprehensive overview of the satellite marketplace with a unique focus on the consumer satellite services industry. The course includes a history of the industry, C-Band and DBS hardware information, programming, legislative and regulatory issues, satellite consumer market research statistics, commercial satellite operations and the global launch industry.

," is hosted by the Global VSAT Forum and will focus on the role satellite technologies play in three unique vertical markets: transportation, oil and gas, and entertainment. This program promises to provide valuable information and unique insight into the types of services and technologies that these key vertical markets need to improve efficiencies and protect their assets. Today's leading experts in the user communities and satellite industry executives will discuss requirements, challenges and solutions for innovating, implementing and improving industry-specific applications of leading-edge satellite technologies.

The third special session, **"Inside Scoop: One-on-One with Satellite Industry Leaders,"** hosted by Edelman, brings together top satellite executives from around the world to provide personal insights and field questions from the media and conference attendees. The session will engage four individuals representing different sectors and varying viewpoints, each presenting a five-minute overview of his or her company and region. Each will then answer questions for a full forty minutes, addressing the challenges and opportunities most pressing in today's global satellite industry – unscripted and at the audience's discretion.

Exec-Moves... *Continued from p.19*

a stellar 34-year career. will be responsible for a $2.3 billion business with over 8,200 employees in five geographic regions. He will direct a broad array of information technology business areas with capabilities in system engineering and integration, software development, architectural definition, and large-scale information systems design. DS as its executive vice president in February 2000. Previously he had been senior vice president, Network Systems Development, Lockheed Martin Global Telecommunications (LMGT) since 1998. Sloane had served as vice president, Communications LMGT.

Stanton D. Sloane

An 18-year Lockheed Martin/GE Aerospace veteran, Sloane's previous assignments included vice president, Radar/Sensor ensor Systems business in Syracuse, New York. He also held several leadership positions in the Business Development arena including overseas assignment in Greece, England, and Australia where he served as the first CEO of a Lockheed Martin in-country joint venture.

Darby Sanchez Appointed as Chief Executive Officer, GlobeCast Asia

Paris, 2 April 2003/Satnews Daily/ — Leading satellite broadcast provider GlobeCast announced today that Darby Sanchez has been appointed as Chief Executive Officer of GlobeCast Asia, according to

GlobeCast Chairman and Chief Executive Officer Christian Pinon. GlobeCast - a subsidiary of France Telecom - is the world's largest provider of satellite transmission and production services for professional broadcast, enterprise multimedia and Internet content delivery.

As CEO of GlobeCast Asia, Ms. Sanchez will be responsible for overall direction and management of the company's operations in the Asia Pacific, which comprises a master control center and access to teleport facilities in Singapore, and liaison offices in New Delhi and Tokyo. Based in Singapore, Ms. Sanchez will assume the position at the end of April following the departure of Doug Triblehorn.

Darby Sanchez joined GlobeCast in 1999, as the Vice President,

Latin America Sales based at GlobeCast America in Miami. Prior to GlobeCast, Ms. Sanchez was the Director of Sales, Latin America for L3 Communications-Satellite

Transmission Systems; and, previously, Senior Manager, Ibero-America Sales for General Instrument Corporation.

GlobeCast is the global leader in satellite transmission services for professional broadcast, enterprise multimedia and Internet content delivery. Operating 16 offices and teleport earth stations throughout Europe, America, Asia, Australia, the Middle East and Africa, GlobeCast offers the complete range of satellite broadcast solutions, including TV channel distribution.

VITAL STAISTICS

Pas and SES are world's "video titans"

As of Feb 2003	Broadcast TV channels		Transponder fleet	
	Pay TV	Free TV	Total stable 36MHz trx.	% used for video distribution
PanAmSat	1,823	303	850	33%
SES Global	1,085	603	431	81%
Eutelsat	867	541	382	59%
Loral Global Alliance	359	217	450	19%
Intelsat	214	132	913	6%
New Skies	129	89	189	17%

Data: Vista Advisors, Lyngsat, satellite operators

Vista Advisors, the Paris-based consultancy, say there are currently about 10,661 channels distributed by satellite worldwide, of which 6,362 are distributed by multi-regional satellite operators. PanAmSat and SES Global are the world's "video titan" says Vista.

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COUNTRY PROFILE:

NIGERIA

> Basic Facts:
> **Location:** Western Africa, bordering the Gulf of Guinea, between Benin and Cameroon
> Area: **923,768 sq km**
> **Population:** 129,934,911
> **Telephones - main lines in use:** 500,000 (2000 est)
> **Internet Service Providers (ISPs):** 11 (2000)
> **Telephones - mobile cellular:** 200,000 (2001)
> **:** AM 83, FM 36, shortwave 11 (2001)
> **Television broadcast stations:** 3 (the government controls 2 of the broadcasting stations and 15 repeater stations) (2002)
> **Internet users:** 100,000 (2000)

Market Background

·   The Nigerian telecommunications market is far from developed. By 2001, Nigeria had only 500.000 main fixed lines in service, with a fixed-line penetration of only 0.4%.

The telecom sector is showing signs of a recovery, with the government introduction of competition in the sector in 2002 and the subsequent licensing of Private Telecommunication Operators (PTOs), local and national long distance carriers, a Second National Operator (SNO), and four mobile operators.

But there is still an urgent need to expand the telecom infrastructure. Detecon International, a German consultancy specialised in telecoms, sees the Nigerian telecom market as the fastest growing in Africa.

On top of that, the geography is vast, the rollout of fixed networks is expensive, and the former incumbent, NITEL, has infrastructure and service problems. This is promising for satellite operators, VSAT service providers and manufacturers.

Satellite Communications Activity

According to the Nigerian Communications Commission (NCC), there are five primary licensed earth stations in Nigeria. They are in Lagos (Victoria Island), Lanlate, Kujama, Kaduna and Enugu. The stations at Lagos, Enugu and Kaduna are digital and are used for international traffic; Kujama is used as a VSAT hub mainly to corporate customers, and Lanlate is used for data traffic.

There are also 19 licensed domestic satellite earth stations (DOMSATs) located in state capitals. These operate on three leased Intelsat transponders (two Atlantic Ocean, one Indian Ocean) for national TV coverage. In addition, there are 143 INMARSAT terminals in operation in the country.

Commercial Opportunities

Satellite operators can benefit from the restructuring of the telecom market: An SNO license was awarded to Globacom in August 2002, which entitles the company to provide international long distance services. In the absence of submarine fibre-optic cables, satellite presents the only means to carry their international traffic.

In the course of deregulation, four mobile operators were licensed in 2002 providing opportunities for satellite operators and VSAT manufacturers: Detecon International expects the Nigerian mobile operators to carry more voice traffic than their fixed-line counterparts. Where mobile operators have international gateway licenses, they will suck up excess satellite capacity. Where they do not have international licenses - like in the Nigerian case - they must switch through companies that have international licenses. And they in turn must increase their satellite capacity.

MTN Nigeria, for example, uses the satellite network of GS Telecom to provide its international connectivity using PanAmSat and New Skies, and also to carry GSM traffic between mobile switching centres (MSCs) in Lagos, Port Harcourt and Abuja. In other words: The need of mobile operators to backhaul traffic from remote base stations to central MSCs or between MSCs is an additional driver for satellite demand in Nigeria. MTN is pursuing network expansion to the eastern and northern regions of the country.

Hhowever, most of the satellite capacity is used for domestic connectivity rather than international traffic. There are numerous PTOs licensed in Nigeria using wireless local loop (WLL), fixed wireless access (FWA) or VSAT connectivity

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