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By Stuart P. Browne

**Our Asia-Pacific** 

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highlights of the

year for the Asian

market.

Asia



12/2003-2004: Years of Transition in the Satellite Industry

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Characterizing 2003-2004 as "Years of Transition" for the industry, Bruce Elbert says there a lots to be optimistic about.



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# **NOTE FROM THE EDITOR**

# "Transition Years"



We've got a very good issue for you to start the year off. We surveyed key industry executives (pages 19-23) representing every segment of the satellite industry and the consensus seems to be that 2003 was not as bad as 2002 and that 2004 will definitely be better.

Our resident analyst of the satellite industry, Bruce Elbert sums up in the lead feature the key events of 2003 and what will be the driving forces in 2004. He characterizes these years as "transition years" for the industry. We also have the view from Europe and Asia-Pacific from our respective regional editors, Chris Forrester and Stuart Browne.

Indeed, the year started off on a good note. Europe launched its first two HDTV channels on New Year's Day. Leading up to the New Year, we had two major successful satellite launches of AMOS 2 and EXPRESS AM. And of course the big story was the approval of the News Corp. merger with the U.S. largest DTH operator, DirecTV.

So as the views of the executives interviewed for this issue would reflect, it looks like it's going to be a good year.

For us at SatMagazine, this is now our tenth issue and we are now going on our second year of publication. We like to thank all of our readers and supporters who have help us get this far and we appreciate your continued patronage and support.

However, as we all know, there is still a long road ahead. A new year is just another new begining. We'd like to be there with you to help chart the course for the long journey.

Vingil Lahadon

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# **CALENDAR OF EVENTS**

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## FEBRUARY 2004

February 10-13 Moscow, Russia Cable, Satellite, TV & Radio Broadcasting, Broadband (CSTB) Project Manager - Anastasia Kasatkina Exhibition manager - Victoria Senukhina phone. +7-95 7377479 fax +1-95 1455133 E-mail: <u>anastasia@midexpo.ru</u> Web: <u>http://www.cstb.ru</u>

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# Mark Your Calendar for ISCe 2004:

**June 1-3,2004 Long Beach, CA, USA (Note new dates)** ISCe is the premier annual conference and expo highlighting dual-use satellite-based services, applications and innovative technologies for the <u>commercial, civil and military</u> sectors. Key program highlights for ISCe 2004 include: Satellite Users Forum, Defense and Security Forum, Global Navigation Forum, Satellite Communications Forum,



Satellite Entertainment/DBS Forum, U.S.-Asia Satellite Business Roundtable, GPS educational seminars and the Space Career Program. For more information, please visit <u>www.isce.com</u> or contact Gina Lerma of Hannover Fairs USA, Inc. at (310) 410-9191 or <u>glerma@hfusa.com</u>.

# **ISCe 2004:** Truly an Industry Show

Long Beach, California June 1-3, 2004

Now going on its third year, ISCe 2004 in Long Beach California is a must-attend event that features leading industry executives and decision makers in a three-day conference and expo from June 1-3, 2004. Organized by Hannover Fairs, USA, one of the leading event organizers in the world, ISCe has carved a niche as the premier annual conference and expo highlighting dual-use satellite-based services, applications and innovative technologies for the commercial, civil and military sectors.

Truly an industry show, the sponsors and supporting organizations of ISCe consist of the leading organizations in the business including: Satellite Industry Association, Asia - Pacific Satellite Communications Council, The Boeing Company, California Space Authority, Global VSAT Forum, European Satellite Operators Association, Lockheed Martin Commercial Space Systems, Stellar Solutions, SES Americom, Mobile Satellite Users Association, World Teleport Association and the Society of Satellite Professionals International, among others.

"The quality of ISCe as both a tradeshow and a conference program stems directly from the quality of the organizations that we work with to develop the strategic direction of the show," said Art Paredes, Vice President and General Manager of West Coast Operations for Hannover Fairs USA, Inc. "The guidance we receive from our supporting organizations and sponsors helps us integrate the most relevant industry trends and topics into the show floor and conference content."

"We are pleased to continue the relationships we have established over the last few years with some of the elite organizations in the satellite and aerospace industries for ISCe 2004," added Paredes. "Our focus this year has been on creating additional value for ISCe participants by assembling both the end-users and satellite service providers."

Indeed, there are numerous sponsorship opportunities at ISCe that will maximize your company's visibility and brand. ISCe provides the ideal venue to target key decision-makers from the global satellite & communications industry.

"The caliber of the attendees at ISCe makes the show a very important venue for establishing brand recognition among high-level executives both in the satellite industry and in end-using industries," said Joachim Schafer, President of Hannover Fairs USA, Inc. "Our variety of sponsorship opportunities allows our clients to position themselves to segmented target groups, as well as to all of the ISCe attendees."

For more information on sponsorship or registration, visit <u>www.isce.com</u> or contact Gina Lerma of Hannover Fairs USA, Inc. at (310) 410-9191 or <u>glerma@hfusa.com</u>.



ISCe Satellite & Communications

# Organizations involved with ISCe 2004:

## **Organizer**

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## **Supporting Organizations**

Asia-Pacific Satellite Communications Council (APSCC)



APSCC is a nonprofit international regional organization which aims to promote satellite communications and broadcasting in the Asia-Pacific region through regional cooperation among members of APSCC for the social, cultural and economic prosperity of the region. To achieve these objectives, ongoing efforts are being made to exchange views and ideas on policies, technologies, systems, and services, which have the potential to benefit the region, to accelerate the introduction of

(HFUSA) is the U.S. subsidiary of Hannover, Germany's Deutsche Messe AG. Established in 1985 in Princeton, New Jersey, Hannover Fairs USA organizes tradeshows, conferences, group exhibits and marketing programs at events throughout the world. For more information, please visit www.hfusa.com.

## Co-Host

### Satellite Industry Association



The Satellite Industry Association (SIA) is a U.S.-based trade association

representing the leading U.S. and international satellite service providers, manufacturers, launch services companies and ground equipment suppliers throughout the world. The SIA is the unified voice of the commercial satellite industry on policy, regulatory, and legislative issues affecting the satellite community. The SIA represents the common interests of its members to domestic and international government officials, the press, the public, and other industries.

# ISCe 2004 Conference & Expo June 1-3, 2004 • Long Beach, California "Strong Signals on the Horizon"

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Join the global satellite community at ISCe 2004, the premier U.S. West Coast annual conference and expo for the commercial, government and military sectors!

### ISCe 2004 Highlights:

- Dynamic three-day conference program:
  - Satellite Users Forum
  - Satellite Communications Forum
  - Global Satellite Navigation Forum
  - Defense and Security Forum
  - Satellite Entertainment/ DBS Forum
- GPS Training Seminars
- Special "Galileo Opportunities for U.S. Providers" presentation
- One-on-One Interviews with industry leaders
- + U.S. Asia Satellite Business Roundtable
- Matchmaking Program
- ISCe 2004 Awards Dinner
- Exhibition Center with product demonstrations
- Satellite Career Day

For complete program details, registration, exhibit sales and sponsorship opportunities, please visit www.isce.com or call +1 (310) 410-9191



January 2004

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services via satellite and to develop and broaden the national and regional satellite communication and broadcasting services of Asia-Pacific countries. APSCC is also active in the formulation of recommendations on technical standards within the region and the world.

### **The Carmel Group**



The Carmel Group is a world-renowned consulting and market research firm, offering clients around the world the best intelligence and strategic guidance, allowing each to

enhance its position and profitability within its industry segment (or within new industry segments). Our expertise includes cable, satellite, telephony, set-top boxes, programming, digital video recorders, video-on-demand, broadband, videogames and other advanced media, telecommunications and computer services. Located in Carmel-by-the-

Sea, CA, The Carmel Group also organizes and hosts premiere annual telecommunications events and publishes in-depth databooks, white papers and monthly newsletters.

### **Global VSAT Forum**



The Global VSAT Forum is an association of key companies

involved in the business of delivering advanced digital fixed satellite systems and services to January 2004 consumers, and commercial and government enterprises worldwide. The Forum is independent and nonprofit and has a global remit. It is also non-partisan - any companies or organizations with an interest in the VSAT industry are encouraged to join.

### The Mobile Satellite Users Association (MSUA)

MSUA

The Mobile Satellite Users Association (MSUA) was

established in 1992 as a non-profit association to promote the interests of users of mobile satellite communications worldwide. It fosters effective communication among Mobile Satellite Services (MSS) users, suppliers of equipment and services, operators of the satellite systems, and the various governmental entities that may affect the future of the industry. Membership is not limited to USA entities, and is open to organizations worldwide engaged in any of these activities.

### Navtech Seminars & GPS Supply



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Navtech Seminars has been providing technical courses and advanced GPS training since 1984. We offer

more than 20

courses on professional GPS, DGPS and related topics. Navtech GPS Supply offers an extensive selection of books, software, and equipment for GPS users of all types. We have GPS/GIS systems for professional users, DGPS systems, board-level receivers, and the industry's most popular hand held GPS receivers.

### Society of Satellite Professionals International



The Society of Satellite Professionals is a nonprofit memberbenefit society that serves

satellite professionals throughout their careers. Specifically, this means:

- Promoting the development of and access to — high-quality, satellite-related education on the post-secondary an continuing (adult) levels.
- Helping satellite professionals to advance their careers by creating opportunities for them to do business with each other and learn from each other.
- Honoring extraordinary achievement by satellite professionals and the companies they work for.
- Stimulating the growth of the industry by communicating its accomplishments to the financial markets, policy makers and both business customers and consumers.

### World Teleport Association



World Teleport Association (WTA) is a nonprofit trade association representing the key commercial players in

broadband. WTA's members in 20 nations includes teleports, satellite and terrestrial carriers, technology

providers, engineering firms, investment houses and consultants. Through our special interest project, the Intelligent Community Forum, WTA also attracts property developers and governments as members. Developers of intelligent buildings turn to WTA for expertise in using broadband to build property value. Governments on the local, regional and national level seek to use broadband for economic development.

### **Sponsors**

### SESAMERICOM

The largest SES AMERICOM supplier of

satellite services in the U.S., SES AMERICOM, Inc. is recognized as a pioneer of global satellite communications services. Established in 1973 with its first satellite circuit for the U.S. Armed Forces, the company currently operates a fleet of 16 spacecraft in orbital positions providing service throughout the Americas, across Europe, over the Atlantic and Pacific oceans, and throughout Asia. As a member of the SES GLOBAL family, AMERICOM is able to provide end-to-end telecommunications solutions to any region in the world. SES AMERICOM's key customers include ABC Radio Networks, AT&T Alascom, AOL Time Warner, Deutsche Welle, Discovery, EchoStar, Fox, TV Guide/Gemstar, Gannett, HBO, Hughes Network Systems, NBC, The New York Times, NHK, PaxNet, PBS, TELE Greenland, TV Europa, Verestar, Viacom and, through AMERICOM Government Services, various agencies of the U.S. government. January 2004

### California Space Authority



Governed by a statewide board of directors, the California Space Authority is a nonprofit corporation representing

the diverse sectors of the space stakeholder community: commercial, civil, and military. As the California Space Authority, CSA serves as the policy advisor to the Secretary of the California Technology, Trade and Commerce Agency on all spacerelated matters and represents the State of California on space issues to the international community, to the federal government, other states, and to local and regional government entities.

### The Boeing Company



Boeing Company, with

headquarters in Chicago, is the leading aerospace company in the world and the United States' leading exporter. The company has an extensive global reach, including customers in 145 countries, employees in more than 70 countries and operations in 38 U.S. states as well as Canada and Australia.

### Lockheed Martin Commercial Space Systems

and a second

Lockheed Martin Commercial Space Systems' (LMCSS) mission

is to provide the best overall value for their customers' investments in satellite communications and

support services. From the launch of the first

communications payload in 1958, Lockheed Martin has earned a reputation for delivering highly reliable and cost-effective solutions in the commercial and military space markets.

In recent years, factors such as reliability and quality have become as important to operators as price. Equally important is the stability of the satellite provider. LMCSS is backed by the strength and commitment of its parent company Lockheed Martin Corporation, a \$30 billion global enterprise leading in the research, design, engineering, development, manufacture and integration of systems, products and services.

A recent Frost & Sullivan study ranked the A2100 first among manufacturers for the fewest insurance claims, while the Frost & Sullivan 2003 Satellite Market Product of the Year Award reinforced Lockheed Martin's leadership role in the industry.

With an extensive heritage of mission success and the solid backing of the Lockheed Martin Corporation, LMCSS is staunchly poised to successfully compete in a 21st Century global marketplace.

### Stellar Solutions, Inc.



Stellar Solutions. Inc. is an engineering services business providing

technical expertise and problemsolving skills to significant national and international aerospace programs. The Company has

distinguished itself by satisfying customers' critical needs on diverse projects, including defense-related intelligence projects, international telecommunications satellites, commercial imagery satellites and NASA's earth science and planetary missions.

Stellar Solutions areas of expertise include systems engineering, systems integration, mission operations and engineering, program management and strategic planning. Customers and projects

### include NRO, CIA, NSA, NIMA,

DoD, NASA, Commercial Systems (communications, direct broadcast, satellite radio and remote sensing) and Launch Systems. The Company is listed as one of the fastest-growing and largest womenowned businesses in Northern California. Fortune Small Business magazine recently recognized

Company founder Celeste Ford as one of six "Best Bosses" in the country. And Company spin-off QuakeFinder, LLC recently built and launched a scientific research satellite designed to identify and monitor earthquake-related signals from space. SM



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# **INDUSTRY NEWS**

## **Verestar Files for Bankruptcy Protection**

Verestar, Inc. has filed a voluntary petition for Chapter 11 relief in the United States Bankruptcy Court of the Southern District of New York last December 22. In a statement, Verestar said it chose to file Chapter 11 as a result of an unprofitable acquisition in 2000 and its associated long-term space commitments, along with the financial impact of customer bankruptcies due to the overall decline in the telecommunications industry.

In September 2003, SkyTerra Communications Inc. announced a definitive agreement to acquire a majority interest in Verestar. SkyTerra terminated that agreement prior to the filing , but is engaged in negotiations with Verestar to acquire the Company's business, subject to definitive documentation and bankruptcy court approval. "We remain excited about the future prospects of Verestar and its core business of providing data, voice and video solutions to government, enterprise and broadcast customers," stated Jeff Leddy, Chief Executive

Officer and President of SkyTerra.

# AMOS 2 Launch Successful

Starsem and Arianespace successfully orbited the Israeli communications satellite Amos 2 from the Baikonur Cosmodrome in Kazakhstan. The launcher lifted off as scheduled at 2:30 a.m. local time on December 28 (i.e. 21:30 UTC on Saturday December 27, 10:30 p.m. Paris time on December 27).

To comply with Israel Aircraft Industries' (IAI) requirements, Arianespace and Starsem had decided, in agreement with Israeli operator, Spacecom Ltd., that the Amos 2 spacecraft launch, initially planned by an Ariane 5, would be performed by a Soyuz launch vehicle. This decision reflects the policy set up by Arianespace and Starsem to meet customers' needs, providing enhanced flexibility based on a family of launch vehicles.

The launch was also the 12th carried out by Starsem, which is responsible for international marketing of the Soyuz launcher, as well as for its operation. Starsem's shareholders are Arianespace, EADS, the Russian Aviation and Space Agency and the Samara Space Center.

In 1996, Arianespace launched the first Israeli communications satellite, Amos 1. Co-located with Amos 1, at 4 degrees West over the Gulf of Guinea, Amos 2 will provide additional high-power transmission capacity for Europe, the Middle East and the East Coast of the United States. The satellite was designed and built by MBT Space Division of IAI. Weighing 1,374 kg at liftoff and equipped with 14 transponders.

Amos 2 will be operated by Spacecom Ltd.

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# **INDUSTRY NEWS**

## NetworkAdvantage Commissions Satellite Bandwidth-on-Demand System for Pakistan's Cyber.Net

NetworkAdvantage<sup>TM</sup> Corporation in conjunction with LinkSat America, who acted as the prime contractor, have commissioned an automatic circuit restoration system over satellite for Cyber.Net in Pakistan. Cyber.Net, Pakistan's largest Internet Service Provider, chose NetworkAdvantage's satellite bandwidth-on-demand system to provide rapid automatic restoration of circuits between the major cities of Karachi, Lahore and Islamabad in the event of landline transmission failure. The NetworkAdvantage<sup>TM</sup> system allows Cyber.Net to share a 'pool' of bandwidth for 'on-demand' use by several backbone circuits, thereby saving satellite bandwidth costs. Cyber.Net, backed by the Lakson Group of Companies, are rolling out a full suite of telecoms services throughout Pakistan.

"The NetworkAdvantage<sup>TM</sup> bandwidth-on-demand system has been integrated with our network management system to provide rapid and seamless restoration of our critical national backbone circuits" says M. Javed Wadood, Cyber.Net General Manager. "In addition to extending protection of our landline links to other cities, Cyber.Net are planning to offer a valueadded flexible bandwidth satellite service to enterprises and organizations within Pakistan and neighbouring

territories based on the NetworkAdvantage<sup>™</sup> platform."

"With NetworkAdvantage<sup>TM</sup>, satellite service providers can offer tailored packages tuned to customers changing needs, bandwidth as needed, when needed and where needed."

Marc Nadon, Vice President of Sales for LinkSat America, saw an ideal fit for the Network Advantage solution during the early stages of Cyber.Net's network needs evaluation. "The Network Advantage BOD system appealed to us because of its unique, highly integrated network manager. It became clear to us during our evaluation of the various solutions available that this highly flexible platform represented the best fit for our

client's needs."

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January 2004

### www.paradisedata.com

# **COVER STORY-The Year in Review** 2003-2004: Years of Transition for the Communications Satellite Industry

By Bruce Elbert President, Application Technology Strategy, Inc.

In the first year of publication, SatMagazine has provided a glimpse into how 2003 grew in terms of new services and applications. The dislocations and imbalances were still being wrung out amongst satellite service providers and manufacturers. At the same time, we've witnessed how the Free World responds to the global threat of terror. Satellite communications has had a pretty good year – revenues are up in several sectors

and there is a new feeling of optimism among providers and users alike. Let's take a look at the year that was, and the year that's just around the corner.

### In 2003 – the year that was

From a retrospective point of view, 2003 was a year in transition. We saw the US economy pick up and hit an attractive growth rate. The economies in Japan and Western

Europe also showed improvement as the world got back to business and financial flows worked their magic. We've seen changes along many dimensions – Intelsat purchased the US satellite assets of Loral, which now appears to be coming out of its bankruptcy problems and selling new spacecraft to several customers. Overall, the satellite communications industry hadn't returned to the high growth rate of the late 1990s, but solid engineering once again showed how satellite technology could gain a foothold in this improving economic outlook. The following are examples:

**Connexion by Boeing<sup>SM</sup> demonstrates true broadband Internet to the skies** – the team at CBB has put the pieces together to make broadband Ku band service available to commercial jetliners. The technologies needed to do this, such as phased array receive and transmit antennas and spread spectrum transmission, may have been off-the-shelf, but overcoming all of the technical, operational, regulatory and market hurdles is nevertheless something to recognize.

**Thuraya reaches 100,000 users** - the first handheld service to do so for telephone communications. Those of us who worked on this concept in the early days have to be impressed with how the folks at Thuraya made GEO mobile satellite into an effective business. Availability of Thuraya services in the Middle East is a solid factor in rebuilding infrastructure because without

"... Satellite communications has had a pretty good year – revenues are up in several sectors and there is a new feeling of optimism among providers and users alike..."

# good communications, everything else is a challenge.

XM hits the golden 1 million subs

 100 radio channels to cars is indeed a business. Sirius Satellite Radio is likewise climbing towards this benchmark. The neat, little SKYFI radio is a tremendous success, helping XM Satellite Radio exceed its targets.

Horizons 1 reaches station at 127 west – technical, regulatory and business challenges didn't keep PanAmSat and JSAT International from getting their new Ku-band satellite into operation and ready for business.

**News Corp closes the DIRECTV merger** - and Hughes gets a permanent home. This has been a story of the *Perils of Pauline* but subscribers of the largest DTH system in the world can look to a future of even greater programming options and innovation. And finally,

**"We got 'em!"** - and satellites played a vital role in getting on top of the story still unfolding in a liberated-Iraq. More satellite services are in the offing in Iraq and

# **COVER STORY**

Afghanistan, countries which see the promise of democracy and a better life for citizens.

### In 2004 - to come

According to Forbes Magazine and Fox News Network, 2004 could yield the best economy in 50 years. Possibly the War on Terror has provided the environment for a strong economy – witness the current 6 to 8% growth rate with low inflation and interest rates. These things are never permanent and can go the other direction, particularly if there is another attack like September 11<sup>th</sup>. On the other hand, a strong economy is a self fulfilling prophecy in its ability to impact many industries and many people, in the US and throughout the world. Discussed below is a breakdown of technologies and applications which stand to grow as a result of their maturity and the demand fostered by a growing economy.

The CDN finally takes root - digital media is the wave of the future in many commercial businesses and satellites provide their unique multicast benefit. This area was touted as one of huge growth back in the late 1990s, but the scheme never found its way out of a paper bag. Now, companies in North America and Western Europe are experimenting with electronic alternatives to posters, billboards, signage, and paper materials. We're all familiar with digital displays in airport terminals, but the CDN allows companies to display and communicate almost instantaneously and on a uniform and controlled basis. Expect this to pop up in movie theatres, grocery and department stores, car dealerships, and the like. It will begin to impact equipment sales and the use of teleport and satellite capacity in coming months.

**HDTV** - and big screens are a hit! The more-expensive TVs based on plasma and LCD displays were big sellers during Christmas. The TV and cable networks currently provide or will shortly provide significant programming in one of two HDTV formats – 1080i or 720p. Consumers will ramp up their purchases of the appropriate receivers and cable and satellite TV companies will offer more options. The degree of adoption remains to be seen, but satellite operators are no doubt going to see some up-tick in demand. **Ka band goes prime time** – well, maybe. EchoStar and Loral put the EchoStar 9/Telstar 13 satellite into



One of the most promising new applications of new satelite techonologies is Connexion By Boeing's Inflight broadband Internet. (photo courtesy of Boeing)

operation with Ka band capabilities, This, along with comparable SES-Astra birds in Europe could well find a beneficial niche in the return channel business. And 2004 is announced by Hughes Network Systems as the Inflight year of launch of Spaceway in North America. In addition, Telesat Canada intends to launch its first Ka band payload in 2004 aboard a Boeing 702. Ka band has its technical challenges, but it has bandwidth and multi-beam capabilities unmatched by the more populated bands below.

More satellites address the War on Terror – new satellites enter service, providing capacity in critically needed places. The ground-based technologies are becoming more portable and mobile, which will help connect our forces from some of the remotest territory where critical operations are on-going. Much of this goes on below the radar, which of course is a good thing.

**Connexion by Boeing enters the Asia Pacific Region** – JAL and others have committed to using CBB in the Asia region, allowing Boeing to proceed with its global rollout. Satellite and teleport operators around the world are benefiting from Boeing's vision of broadband services to previously underserved users who need connectivity regardless of their physical location. Similarly, Inmarsat – itself the subject of acquisition by new investors - will continue to expand the Broadband Global Area Network, now running on Thuraya but

## **COVER STORY**

communications is beyond a doubt. Innovation and investment continue apace and a new generation of professionals is at work. One can only be optimistic about our New Year. **SM** 



Bruce Elbert has over 30 years of experience in satellite communications and is the President of Application Technology Strategy, Inc.,

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

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Worldwide and worldclass.



# **COVER STORY-The Year in Review** The View from Europe: A Look Back at 2003 (*and 1993*)

By Chris Forrester SatMagazine Editor for Europe, Middle East and Africa wonderful, exciting business. A business which collectively holds its breath when \$250m-worth of rocket and its cargo are lofted into space, and only breathes again when all is well. A business which

from early 1993, and it made a marvellous trip down memory lane. The issue spoke of Eutelsat looking at "co-locating a third satellite at 13 deg East" around 1995 and speculated that Eutelsat was

Politician Harold Wilson once said a week in politics is a long time, and it is the same in the satellite industry. Barely a week passes without some notable change in the mix of operators, satellites in space or thank goodness fresh business opportunities. This past few



Sky's early days, including a younger Rupert Murdoch and SES ASTRA's Dr. Pierre Meyrat.

weeks there has been considerable attention on two of Europe's major players, SES and Eutelsat, helped by the impending sale of Telenor's satellites.

Eutelsat's CEO, Giuliano Berretta, like our other industry leaders, is nothing if not passionate about his company. Indeed, in many respects the industry is massively fortunate to have more than its fair share of senior folk who share a passion, a love affair even, with this crazy, has grown spectacularly, helped by some equally brave analogue pioneers who kept their courage when some early business plan failures would have sent weaker men scurrying back to the safety of the trenches.

2003 has been just such a year. Indeed, the past 10 years have been never less than interesting. Recently I stumbled upon an old issue of Interspace [Edited by SatMagazine's Roger Stanyard]

"actively planning to put the infrastructure in place for the digital era..." The old issue described the 13 deg East position as Eutelsat's cable TV "hot bird" position, and cannot help but wonder whatever happened to that phrase! The planned satellite, initially ordered as Eutelsat 2F6 with 16 transponders, was launched by Ariane on March 28 as Hotbird 1.

But even then Eutelsat

was Europe's Number 2 operator. The1993 issue stated: "the third bird carrying digitally compressed TV channels could dramatically increase channel capacity there and provide serious competition to SES's now dominant 19.2 deg East slot...." Astra was then building its 1D and 1E craft which were slated for launch in 1994 and 1995. The issue speculated on which television operator would want to swap out the huge number of analogue IRDs then installed. The comments were justified. Digital receivers were as rare as hen's teeth, and at that time DirecTV was

# **COVER STORY**

contemplating costs of around \$700 for its early digital IRDs.

Most interestingly, the issue talked about Eutelsat "selling capacity direct to broadcasters", something that must have been truly revolutionary to its then Director General Jean Grenier (who took over from Eutelsat's 'founding father Andrea Caruso, who retired in 1989). Commercial director Giuliano Berretta inherited Grenier's Director General responsibilities on Jan 1, 1999, and then took Eutelsat into its privatised phase. Eutelsat today, although committed to becoming more directly involved in the direct

negotiation sales chain with broadcasters, continues to work largely through wholesalers and capacity resellers. Another sign of the times (back in 1993) was the prospect of Eutelsat opening a 'second DTH platform'

for the important UK market, and away from Astra for potential broadcasters looking to by-pass the Sky platform. This much-talked about plan was never to come into being, although there was considerable support from some broadcasters, not least Turner Broadcasting.

Also topical in 1993 was HDTV. Indeed, it might be said that despite all the progress made in broadcasting since 1993, how little topics have changed! Although the HDTV feature (by leading European industry commentator Jean-Luc Renaud) was referring to the then embryonic "Grand Alliance" of assorted US technologies that led over time to the transmission model used in the US today. Renaud perceptively talked about the morass of standards that the 'Grand Alliance' was supposed to cure. His comment about the various test models that had the industry arguing whether a 720 line progressive or 1050 interlaced system would provide better images, is almost tragic in that much the same arguments are still being made ten years later!

One report from 1993 was, however, almost spot on and it concerned UK multichannel forecasts from Morgan Stanley and its then senior media analyst Rebecca Winnington-

"...The 1993 issue talked about how cable's limited 40+ channel (analogue) offering could possibly compete with Astra's upcoming 'Death Star' and its diversity of choice..."

> Ingram. Her report is an object lesson in thorough research. She described the UK's then cable industry as "All wired up and ready to go...", and in 192 pages talked about how investment from America's RBOCs community had "fundamentally" changed the UK telco scene. The report listed the players, and the line-up makes a fascinating trip down memory lane: Nynex, Telewest, General Cable, Southwestern Bell, Videotron, Jones Cable, Comcast, Insight, CUC and Diamond Cable. From giant Nynex and its 2.8m franchise homes (19.6% market share), down to tiny Diamond Cable and 3.5% market share (514,000 franchise homes) the cable operators had dug up the

roads past 14.6m homes. By March 1993 the industry had signed up 440,000 paying customers and using this benchmark Morgan Stanley forecast that by now (end 2003) the industry would grow massively to "more than 50%" connections and 6.78m CATV homes. If only! In 1993 Interspace predicted that cable would have to achieve a better than 50% take-up for it to recover its massive build costs. No mention at the time of the 'triple play' that would eventually help cable out of its financial mess, but one can forgive Morgan Stanley for enthusing about cable's TV and telephony offering and even

allowing for their forecast that 75% of cable's residential customers would sign up for telephony (and 40% of businesses). By 2003.

Winnington-Ingram missed that one

completely, but she was significantly more accurate in looking at DTH (and SMATV) viewing homes. Indeed, her Crystal Ball must have been especially clear for she stated that by the end of 2003 the UK would have 7.635m DTH subs. The 1993 issue talked about how cable's limited 40+ channel (analogue) offering could possibly compete with Astra's upcoming 'Death Star' and its diversity of choice. Given that satellite choice then meant a mix of mostly English or German-language fare, we can only wonder at today's state of play with hundreds of channels on offer in most European countries and thousands available over Europe as a whole.

# **COVER STORY**

## "...Without doubt every European satellite operator would like to see some platform or other pick up the HD ball and start running with a nice chunky 10 or 20 channel package..."

Eutelsat is frequently mentioned in the 1993 issue. Besides the topics already covered, it had just held a joint EU/Eutelsat seminar in Moscow attended by more than 400 delegates, while the notorious porn channel RedHotTV was transmitting on Eutelsat-II F1 and managing to upset ultra-sensitive British eyes (it had been banned in the UK) although grey market imports of its SAVE smart cards were helping make small fortunes for dealers. One satellite magazine was still carrying adverts for the porn channel although with printed lines on the page only slightly obscuring the contact points for obtaining the prohibited smart cards, in order to get around the law.

Today pornography is a fastgrowing business with every digital operator supplying a handful of channels. Indeed, one UK service (Xtreme) in December started an "interactive element" to their porn channel. Before the mind completely boggles with what this might mean, let me stress that it meant viewers could order their night's fun using the increasingly ubiquitous red button. This, says the fascinatingly named channel boss Amanda Kiss, saves viewers the possible embarrassment of speaking to a human operator over the phone. Kiss says viewers will shortly be able to order adult toys via the redbutton and to vote on which movie they want to see during the lateevening hours. Whatever next! Evidently Playboy UK is looking at

introducing a similar range of services early next year.

This past year has shown quite remarkable European growth in the number of such channels, and in its near-relative, the text and phone-based channels, that usually have scantily clad ladies on screen encouraging expensive text messages to be sent. One supposes that a business model that works – especially in a 500channel environment – is itself praiseworthy even if the content is less than squeaky-clean.

On reflection, 2003 has shown itself to be another year perhaps best forgotten by the industry. However, by general consensus 2003 has been better than 2002, and we have to be hopeful that 2004 will see further progress in the industry's key indicators: profitability, of course; satellite orders and hence some movement in launch activity; fill rates, and hope-amongst-hope, some upward movement in the vexed area of transponder rentals.

Finally, it's is always worth a trawl through the shorter stories in any back-issue if only to note 'where are they now?' One industry face, Jon Miller, had just been promoted to MD at Nickelodeon, then about to launch in the UK (and James Baker as director of programmes). Both have done well, with Miller now running Time Warner's giant AOL division. Baker is programming boss at BSkyB. But as a precursor to today's fascinating digital picture, Interspace reported on 'Europe's first digital service', being two channels then broadcasting on Intelsat K reported as being from NBC and Spelling Entertainment. The channels were to be distributed to Spain and covered Spanishlanguage Canal de Noticias and Canal Hollywood. Whatever happened to those brave pioneers?

And to the future New Year of 2004. Without doubt every European satellite operator would like to see some platform or other pick up the HD ball and start running with a nice chunky 10 or 20 channel package that soaks up a ton of unused bandwidth. Well, we can all dream. But it's probably not likely in 2004, although the green HD shoots from the AlfaCam-backed Euro1080 project is to be undoubtedly welcomed and we will be tuning in enthusiastically.

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



# **COVER STORY-The Year in Review**

# **The View from Asia-Pacific**

## By Stuart P. Browne SatMagazine Editor for Asia-Pacific

 $\frown$  003, the year of the Ram in the Chinese zodiac, is now history. In the Asia-Pacific region, satellite communications continued to play an important role throughout 2003 providing a fundamental platform for both regional and domestic broadcast and telecommunication networks. During the year, communication satellites: Optus C1 Chinasat 20, Insat 3a, Insat 3E and AsiaSat 4 were launched successfully providing additional new capacity in region with a seemly endless appetite for space segment. While new satellites were launched, satellite operators in the region appear to have extensive inventories of unused C and Kuband transponder capacity, with some operators offering substantial discounts at prices well below \$3,000 per mHz.

Perhaps the most notable event of 2003 in the Asia-Pacific region was the spectacular launch of China's first manned space capsule in October. China now becomes only the third nation to accomplish manned space travel. Not to be out done, the Indian Space Research Organization is now vetting plans for a launch to the moon. Indeed, space has become an import focal point for countries in the region. In November, a China based Asia-Pacific Space Cooperation Organization (APSCO) was proposed to promote the use of

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space resources and space applications in the Asia-Pacific region. The goal according to China's Peoples Daily "The countries involved with establishing APSCO intend to make use of space technology for environmental protection, disaster reduction, resource exploration, construction, telecommunication and distance education." Fourteen countries and the UN Economic and Social Council have been involved in forming APSCO. APSCO will be Beijing based.

On the ground, VSAT networks continued to be developed for government and enterprise as the need for broadband internet based communications distance education and back-up to fiber based networks was unabated. As the year ended, Galaxy Satellite, the joint venture between Intelsat and TVB (Hong Kong's largest Chinese language television producer and broadcaster) began its operations from a new teleport and broadcast center providing uplinking service and distribution via several regional C and Ku-band satellites. Distance education networks in



many countries in the region continue to be developed with distance education looking like the hot new vertical market for VSAT.

With the year of the Ram making way for the year of the Monkey, 2004 will see the launch of APstar 5, SuperBird 6, Insat 4a and the long awaited Ipstar 1. Ipstar, which will utilize 87 Ku and 10 Ka transponders with onboard beam switching capability will be the first of a new generation of communication satellites designed specifically for broadband IP networking from ultra small terminals (USAT's). Questions certainly remain as to the viability of this new satellite technology, but if successful, and with the successful launch of other new birds, 2004 is expected to be a banner year for satellite communications in the SM Asia-Pacific region.

Hawaii based - Stu Browne has more than 28 years in satellite communications as a network engineer, planner and developer. He has been involved with VSAT networks since the early 1980's and has worked in Alaska, Europe, Africa, the Middle East and across Asia developing telephony, transactional data and broadband solutions for telco's, governments and enterprises. He is the Editor-Asia-Pacific of

SatMagazine and is currently the Vice President and Managing Director, Asia-Pacific Region for iDirect Technologies Inc., a US manufacturer of broadband VSAT network systems headquartered in Reston, Virgina. He can be reached at: sbrowne@idirect.net



# Key Industry Players Share their Views on 2003 and 2004

For our special issue looking back at 2003 and looking forward to the opportunities and challenges in 2004, we asked the views of key industry executives on how they saw the year that was and what's in store for 2004. Excerpts:

## Conny Kullmann, CEO, INTELSAT

The satellite industry, or satellite communications industry, was not hit as hard as any of the other branches of telecommunications and media entertainment. We saw some leveling off of our revenues and some slight drops, but not at all to the same levels as the cable guys or as when the "bubble burst" initially.



The continuing industry consolidation impacted the industry quite a bit and sticks out in my mind. This is certainly an industry where consolidation and size make sense. If you add a handful of new satellites to your fleet, it generally means that you don't have to take on a lot of additional operational expenditures. Also with larger fleets, you can generally operate the satellites more efficiently in terms of your capital expenditures.

I believe that 2004 is a year where the telecom market in general will gain some momentum.

I also think that applications like broadband and DTH will continue to grow in certain markets creating expanded opportunities for satellite operators in certain regions around the world. Intelsat is ready and able to maximize on the opportunities that exist in the marketplace.

I think a challenge that always exists for operators – no matter the year – is to stay abreast of the evolving needs of our customers and to continue to develop flexible solutions that help them bring value to their customers.

The overall numbers of operators will continue to be reduced from a strictly economic basis. You've already seen that through the moves by SES Astra when they bought American operator GE Americom, and through that move became the largest operator in the world. We are just now in the process actually of buying the North American business of Loral, where we're picking up five of their satellites and six orbital slots. There are reports of a lot of other discussions going on around the industry, and many of the smaller operators are in discussions to either be acquired by the larger players or to join strong partnerships with them.

## Dr. Karl Classen, CEO, ND SATCOM AG

The departing year 2003 had many different challenges. The economic slow-down in the Western Hemisphere continued. Our world faced military and political crises, terrorist attacks and the spread of dangerous diseases. This had short term effects on the



business we are confident that the upswing of the economies in the different regions will have a positive impact on our business. We continued our globalization strategy, bringing us closer to our valued customers worldwide.

Looking forward to 2004, we expect the Western economies to turnaround. We expect to see a continued growth in the emerging markets. We are prepared to increase our customer base globally in the broadcast & media, government & defence and telecom markets.

In 2003 we observed a further consolidation in the satellite value chain. Due to the world events we also observed an increase in governmental spending in specific satellite communication solutions. In 2004 we will see this trend continuing.

### Noah Samara, Chairman & CEO of WorldSpace



There were definitely more positive signs then in the previous couple years as specific segments of the satellite industry showed promise. Areas with the most marked improvement included government satellite communications for military application, high definition television and digital satellite radio.

For satellite radio in particular it has become a story of growth, first seen in the United States with XM (using WorldSpace's technology) reaching its one million subscriber mark and now on a more global recognition of service. This is both on a consumer level and through government-based initiatives that have given military troops from Afghanistan to Iraq access to critical information, news and entertainment such as NPR, CNN and customized music programming.

I expect to see continued momentum in the industry as more companies re-evaluate their technology, available bandwidth and market needs to generate targeted and complete solutions for the user community. For instance, the success of satellite radio utilizing the WorldSpace technology in the U.S. has generated a global understanding that satellite is an ideal service to deliver digital content via audio. It can also provide more comprehensive broadband access by allowing digital content found on the Web to be cached and pushed to specific countries and locations without telephone connectivity.

Additional opportunities include providing services on a more regional basis so the information is incredibly targeted and meets specific needs. By localizing content, there is greater value and therefore increased revenue generation opportunities.

Due to the war in Iraq, a couple changes of note in the satellite industry were government's reliance on satellite for a greater multitude of communications purposes and the increased understanding globally of the value of satellite in areas of limited telecommunications infrastructure.

One specific change was with consumers, car manufacturers and after-market/home audio manufacturers clearly recognizing that digital satellite radio is an untapped market with great promise. I expect more partnerships to evolve as the industry's perception of the satellite market increases and the revenue potential becomes more apparent.

# Mark Dankberg, Chairman and CEO , VIASAT

We found 2003 to be a better, stronger year than 2002 for ViaSat. We saw revived and renewed interest in satellite broadband, especially. A few of the most significant events were:



- New \$150+ million investment round in WildBlue Communications.
- Intelsat decision to launch DTH satellite broadband service using the DOCSIS<sup>®</sup> platform was the first major migration of that platform beyond WildBlue – consequently raising the awareness of satellite DOCSIS among many ISPs, DTH providers, and satellite operators.

- Very successful trials for the Connexion by Boeing<sup>SM</sup> service on both Lufthansa and British Airways. The successful trials were followed by significant commitments for service by several international carriers.
- Consensus acceptance of the critical role of satellite communications in the war in Iraq has reinforced the value of broadband satellite networking to the military – increasing the potential for defense/commercial cross over technologies and services.
- The sustained growth of terrestrial broadband services (DSL and cable modems), in the US & abroad, has conclusively shown there is demand for broadband at reasonable prices without emergence of a single "killer app." The implication for satellite is that broadband service is really a technical/economic issue not a question of market demand. That is, the basic question has changed from "If we build it, will they come?" to one of "What technical solution do we need in space and on the ground that will deliver an equivalent grade of service to terrestrial for a comparable price?" Clearly there is market demand for service providers that can meet that challenge.

ViaSat has played important roles in almost all these events. We see that the impact on the industry is a growing acceptance that *broadband is real*, it wasn't just an artifact of the bubble, and that it's going to play an increasing role in the future of VSAT networking. We believe this acceptance, combined with other macro factors in the VSAT and DTH market, have created a growing sense of a "changing of the guard" in the VSAT industry for the first time in over a decade.

We see 2004 to be a continuation of 2003. We think a very important factor will be indicators of commercial success for some of the pioneering broadband services such as Connexion by Boeing, WildBlue Communications, and the Intelsat/Orbit Data Systems DTH broadband service. We also think that during 2003 the satellite communications industry needs to continue to make progress in positioning VSAT for IP-based broadband services among enterprise users. While there has certainly been a lot of progress here, it appears that while VSAT is recognized as a "safe" solution for POS or other transaction networks, many CIOs still aren't quite there when it comes to IP broadband services. We think there's opportunity to advance that cause in 2004.

We think 2003 will reveal meaningful changes in relative VSAT network hardware market share among the leading providers. We see that trend continuing in 2004.

We also foresee (maybe starting in 2004) that the dialog for satellite broadband will change away from questions such as "Is Ka-band needed? Are spot beams needed?" towards issues like "How specifically do we use Ka-band and spot beams to achieve the price/ performance ratios needed to attract subscribers and earn the economics that terrestrial providers do?" We think that will mark an end to the "Woe is me - satellite can't compete" phase and a start to a new phase of "Here are the economic performance metrics we're going to achieve, and continuously improve, to compete for this proven and very significant consumer and enterprise business."

## Gary Hatch, Founder and CEO, Antenna Technology Communications Inc. (ATCi)

Reflecting on the first half 2003, we could feel it coming, the second half we could actually see the industry changing. As a result of the global events of the past year, there is an increased awareness of the challenges facing the military and government areas in particular...



and because of the need and overall effectiveness of satellite communications, there has been greater interest by these sectors to improve their communication infrastructures.. via satellite.

We are optimistic about 2004 being strong, developing and growing, especially in the government, military and commercial areas. Companies are interested in purchasing satellite communication products based upon the value it brings to their business.

Although improving, continued constraints in the capital markets forced satellite-related companies to

refocus and center efforts on providing customers more profitable products, services and improved solutionsbased business models as we move into 2004. It is important to build upon existing point-to-multipoint technologies, which will ultimately help our markets leverage equipment investments, streamline operations and boost our customers overall profitability significantly.

## David Helfgott, President & CEO, AMERICOM Government Services



In the United States Government Satellite Communications services sector, AGS saw a continued level of activity and cooperation between the Department of Defense (and related agencies) and commercial SATCOM service providers, for applications and users both domestic and abroad.

Although the Department of Homeland Security (DHS) has yet

to release many major procurements, AGS did note a great increase in planning and coordination with industry in the latter-half of 2003 and we anticipate increased activity going forward.

We anticipate more of the same, especially in emerging DHS requirements for commercial SATCOM services and increasing DOD requirements globally. Specifically, the DOD's network-centric warfare strategy and the military's ever-increasing requirements for broadband/ satellite bandwidth are key to this demand. This fundamental strategy places broadband connectivity at the nexus of communications, applications, and systems... all interconnected and designed to support the warfighter.

The SATCOM services industry (including AGS) noted the GAO Report on DOD Commercial SATCOM Procurement Practices, which came out this December. The gist of the report, that DOD can and should modernize its procurement activities to reflect best commercial practices, was welcome news for an industry looking to work closer and more efficiently with both procurement and user groups within DOD.

## Rick Masoni, Executive Vice President, Lockheed Martin Commercial Space Systems

2003 was a marked improvement over 2002, which was the worst year in recent history. Firm orders for 16 or 17 satellites represented a four fold increase in activity. Clearly, the impending purchase of Hughes Electronics by NewsCorp is the most significant event, creating a media giant with both



satellite content and delivery capability. It will raise the stakes in the direct-to-consumer market. The purchase by Intelsat of Loral's North American Skynet assets, and the forced bankruptcy of Loral stemming from that transaction, has an impact on both the operator and manufacturer side of the business.

2004 looks very much like 2003 to us. We see roughly the same number of new satellites ordered, driven primarily by the replacement market, but with some traction in new services such as internet local access and HDTV relay or DBS.

Operator consolidation was evident (the aforementioned Intelsat/Loral deal, SES's increased stake in NSAB, for example) and one would expect that trend to continue. On the manufacturing side, we saw the European suppliers teaming as partners instead of competing for several opportunities. It remains to be seen whether this is a harbinger of a more formal collaboration in 2004. It's interesting to note, on the other hand, that talks of consolidation among US suppliers was non-existent in 2003, and we would expect the current environment to prevail throughout 2004.

# Joe Amor, VP and GM, Microspace Communications, Corp.

Upon reflection, there were two key events in 2003 for the satellite industry. There was Loral's bankruptcy and the process of that bankruptcy. Another big event was the failure of Telstar 4. That failure was a surprise because it affected a satellite that



was not a Hughes/Boeing design satellite, which have experienced problems for the past several years.

Also in 2003, the pending PanAmSat ownership transition to News Corp. has impacted the industry only slightly because of their lack of movement during the acquisition process. Now that the merger has been approved, I am expecting we are going to see that the new owners will have a true change in PanAmSat in the way that it operates in the coming decade. A lot of people haven't focused on the PanAmSat aspect of the News Corp. acquisition, but News Corp is acquiring DirecTV, PanAmSat and Hughes Network Systems. I think the News Corp. acquisition of those three satellite assets will have a profound impact on the satellite industry in this decade.

The satellite industry challenge is to determine and define its position as part of the worldwide telecommunications infrastructure.

In the last ten years, telecommunications as a whole has continued to evolve and satellite technology has evolved. But, satellite technology has an advantage about which we need to continue educating the telecommunications industry and telecommunications buyers. We need them to know about the inherent advantages of satellite technology and how our networks are part of that whole telecommunications fabric. That's our real challenge.

If we accomplish that, the rest will fall into place. Microspace in particular needs to continue educating American enterprises about the cost effectiveness of satellite telecommunications.

What's significant is that there's a huge lack of change. We've seen very little in the way of new technology over the last two years. That's a result of the very limited research and development (R&D) and engineering expenditures that we have seen previously in high technology fields. In that regard, the satellite industry is no different than any other industry.

Compared to 1996-1999, by the time you figured out what that widget did, there was a new widget replacing it. The reason there was a lack of innovation in the last couple of years and that R&D was so stagnant was threefold: there's a lack of venture capital, it's a negative byproduct of the dot-com implosion and there's a general desire to avoid risk. All those factors together resulted in a lack of new product development in the satellite industry.

# Tal Meirzon, VP-Marketing, Gilat SatelliteNetworks

There are some indicators for a better 2003 compared to 2002. In 2003, there were more requests for longer term Broadband Internet access projects In addition, there has been an increase in network expansions among existing Gilat customers, which is an indicator of market improvement and customer confidence.



Furthermore, there have been more government initiated projects investing in development of rural communications - for both telephony as well as Internet access.

The main challenge the VSAT market industry is facing, in my mind, is how to increase the VSAT market significantly by adding value and efficiency while limiting the technology price erosion.

(1) Reduce the life cycle cost for VSAT operators via lowering all VSAT service components; lower CPE cost, automated installation, SLA based embedded service provisioning, all embedded products, and multiple services supported over the same platform for different markets.

(2) Increase the number of additional Applications and Solutions operational over VSAT enabled networks.

(3) Steer to define a more comprehensive and cost effective standard (i.e. Enhanced DVB-RCS) that will provide the best cost effective satellite network solution.

2003 is probably a year where the industry is changing its course back from slow down and its poorest performance in 2002, to stability in 2003 and hopefully a rebound in 2004. To achieve this, the number of VSATs delivered by all vendors to the market should increase at a level quicker to that of the price erosion. **SM** 

# **FEATURES** Satellite System Acquisition:

A Fresh Approach to Evaluating and Purchasing a Communications Satellite System

# By Harold E. McDonnell

It has been almost half a century since Sputnik first orbited earth. The progress in satellites, and particularly Communication Satellites, has been greater than the comparable first half century for manned flight. Since the time the first American voice message (a Christmas greeting from then President Eisenhower) was delivered from space, the capability has exploded to pictures, voice and data transmissions that cover the entire planet.

The procurement of these systems has not advanced as rapidly. The process that evolved during the early days of government procurement has hardly changed. While effective, the procurement system evolved slowly and has been handed down to succeeding generations of technical buyers who naturally concentrated on the science and engineering of satellite system procurement. Little attention was given to the lifetime operational and insurance costs.

Buyers of communication satellite systems today must balance multiple decisions on the TOTAL COST OF OWNERSHIP (TCO). This evaluation must consider not only the purchase price, but also the significant costs of operations over the fifteen-year life of the spacecraft, as well as the substantial and increasing cost of insurance.

## **Conducting An Effective Evaluation**

The satellite system buyer must, first and foremost, know what he wants to procure. The evaluation of the technical design of the satellite will vary depending on the company's market needs and requirements. It is one thing to procure a replacement satellite to maintain existing service. It is entirely different if the intention is to grow the service by providing additional satellite capabilities.

Under all circumstances the evaluation team must be cross-functional and capable of analyzing vendors from multiple perspectives: business, technical (hardware and software) financial and ongoing operational. This cross-functional balance is critical to understanding and clearly defining the requirements and costs of the new system.

According to Walter Braun, a leading industry consultant, "The best evaluation teams represent all critical areas of a satellite operator. Everyone at the table must have an individual stake in helping to make the best possible decision. A crucial first step is generating a set of tight market-driven requirements, which may involve input and dialogue with the customers. Employing engineering professionals who can analyze technical requirements is not enough. Buyers must also include their technical operations, sales, marketing, finance and other key business units in the evaluation process."

### Request for Information (RFI)

It is always worthwhile to generate a formal Request for Information (RFI). A comprehensive RFI brings a high degree of rationality and market place reality into the procurement process. It enables the prime contractor time to study and understand the requirements. Satellite vendors should be encouraged to critique the RFI and suggest additions and modifications. These 'suggestions' may strive to bias the RFP toward a particular manufacturer's capabilities, but the contribution can be helpful. The buyer's team that will draft the RFP must be knowledgeable enough to extract quality information from the sales suggestions. In the past, the most expensive and time consuming mistakes made in satellite procurement have been in issuing an RFP with faulty assumptions.

Manufacturers of communication satellites are well known and have long and public records of achievement. The RFI should be issued to select manufacturers who, in the judgment of the business buyer, have the hardware and software technical capability to satisfy requirements while having the financial strength and available resources to be applied to this procurement.

# **FEATURES**

### **Developing the RFP**

In the process of drafting the RFP, every one - sales, marketing, finance, strategy, engineering, software and ground operations – should sign off on every aspect of the RFP. Once issued, change must be avoided. Changes made during the procurement process result in time

1
delays and skyrocketing costs. Functions within a
satellite system are extremely interdependent. A change
in one subsystem cascades into others. The true
impact of this cascading is hard for the manufacturer to
accurately evaluate. Since time is always a critical
component, changes during the manufacturing process
force the prime or sub-contractor senior management to
focus on costs, not technical consequences.
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To assure that the quality of the manufacturing process is not compromised, the buyer should insist on access to subcontractors by the technical staff. According to Jim Wehri, president of PSI Group, interest among satellite buyers in visiting subcontractors reflects a trend in which prime contractors increasingly are outsourcing critical activities that can directly impact reliability and schedules. In responding to the RFP, a manufacturer should be permitted to offer options that he may have elected not to reveal in responding to the RFI, but which may better address the final specifications in the RFP.

### **Evaluation Process**

The proposal evaluation process is facilitated and quantified by developing a bidder 'score card'. Listing all the requisite technical and financial criteria, the scorecard can allow each vendor to be scored by its history and performance in these specific areas. For each RFP criterion, the team should assign a 'weight' of importance that will help in adding up each vendor's score at evaluation time and minimize subjective

	Annual Staff Costs per Satellite	15-Year Staff Costs per Satellite	Infrastructure Costs per Satellite	Total Operating Costs per Satellite
Small Operators (1-2 satellites)	\$1.25M - 1.5M (outsourced)	\$18.75M - \$22M (outsourced)	(outsourced)	\$18.75M - \$22M (outsourced)
Mid-Sized Operators (3-12 satellites)	\$0.4 - \$0.75M	\$6M - \$10M	\$3M - \$6M	\$9M - \$16M
Large Operators (>15 satellites)	\$0.25M - \$0.5M	\$3.75M - \$7.5M	\$2M - \$4M	\$5.75M - \$11.5M

### Source: FUTRON 2003

arguments among team members. The more heavily a criterion is weighted, the more important it is for a vendor to receive a high score in that particular area.

Total Cost of Ownership (TCO)

In addition to an objective technical evaluation of the RFP, the business buyers must analyze the total estimated costs for the new system over the expected lifetime. This analysis is typically referred to as the Total Cost of Ownership (TCO). It is comprised of three key areas:

- Satellite and Launch Vehicle Costs
- **Operational Costs**
- Insurance Costs

Satellite and Launch Vehicle Costs

The costs for the satellite and launch vehicle are major and up-front. The satellite should be compatible with a variety of launch vehicles. Particularly because the worldwide launch providers are combining their capabilities across continents for total mission assurance and on-time schedules. Examples are Proton (Russian) backing up Atlas (USA), and Arianespace (French) securing back up from Sea Launch (USA/ Russian) and Mitsubishi Heavy Industries (Japanese). Operators may choose a 'delivery in orbit' proposal, or purchase the satellite and negotiate their own launch and insurance package. Either way, the satellite specifications, mass and dimensions have a significant

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impact on the choice, price and insurability of the selected launch vehicle. Total mission assurance by the launch providers has been shown to have a beneficial effect on the insurance industry.

The initial purchase price is the largest factor (70 to 80 percent) in the TCO a business buyer faces in selecting a satellite platform.

design, the manufacturer's current performance on the satellite he is offering should be key in the evaluation. Operators should evaluate the anticipated system costs from an overall performance perspective, balancing subsystem power margins against the expected life of the satellite. For instance, if a solar array design starts life with a power margin of 25 to 20 percent, it is less likely to have problems fulfilling lifetime performance if the spacecraft is built with a power margin of 25 to 30 percent. The same concept applies to many



What is not always obvious is the relationship between the initial costs of the satellite relative to its projected lifetime cost. For example, building in superior margins for critical subsystems may result in higher upfront costs, but can result in a significantly lower TCO. Other factors such as insurance, customer support and lifetime reliability also affect the total system cost.

Major in-orbit anomalies are unpredictable, but by researching all satellite models, operators can identify those with records for the fewest and least expensive anomalies.

Bus anomalies have occurred in the satellites of all manufacturers. They have been attributed to faulty design and most frequently to faulty manufacturing of components. At the time of the evaluation of the

### Source: FUTRON 2003

subsystems, such as batteries, radiation resistance, etc. The additional power margin may cost more up front, but can add years to the life of the spacecraft and generate additional revenues over mission life.

### **Operational Costs**

Bidders should be evaluated on the operational support they provide over the typical 15-year life of a spacecraft. What is the extent of the manufacturer's post-launch customer services? Are they available 24/7 to assist with anomaly analysis and resolution? Does the manufacturer charge extra for this support or is it included in the price of the spacecraft?

A study by the Futron Corp., "GEO Commercial Satellite Bus Operations: A Comparative Analysis, 2003", found that ongoing operations and program management costs such as staff, hardware and software vary greatly depending on the satellite. This 'consumer report' on the commercial satellite industry found that the major components of total operations costs over the life of a satellite are those for staff and the hardware and software for spacecraft monitoring and maneuvering.

According to the Futron study, "Operators report that their operations staff spend 20 to 40 percent of their time on anomaly-related activities, with the rest spent on routine maneuver planning, development of new procedures and preparations for new satellites." This finding suggests that by increasing the onboard autonomy of their satellites, buyers can more efficiently manage anomalies and reduce annual operating costs through lower staffing needs over the life of the satellite.

The cost of operating a satellite is the aggregate of many factors, such as the complexity of components, ease of spacecraft pointing and the effectiveness of onboard autonomy. The complexity of hardware and the sophistication of the software are intrinsically related. Achieving a balance between these elements is essential to providing an "operator friendly" satellite. The Futron Study , illustrates this relationship among current spacecraft models. The more difficult a satellite is to keep stable and maneuver, the more likely it is to cause operator errors. The analyses and resolution of these errors, as well as hardware anomalies, drive up staffing demands and consequently, operating costs.

The age of the satellite is another key consideration impacting costs. While 21st Century technology can achieve satellite lifetimes longer than 15 years, it should be noted that longer lifetime could increase operational costs. First, older satellites are less effective moneymakers owing to limited bandwidth and transponders compared to newer models. Secondly, the operating procedures will be different for the newer, high quality software-controlled satellites now available, thereby increasing an operator's burden. Furthermore, customer support by the manufacturer almost two decades after satellite delivery, but certainly beyond contract life, is not a reasonable expectation.

### **Insurance** Costs

The cost of insurance for in-orbit satellites represents a considerable portion of TCO. Insurance costs for the various satellite platforms can vary by 10 percent or more, which can equate to at least \$20 million for a \$200 million satellite and launch vehicle procurement. Other insurance considerations are whether the satellite is likely to be fully or partially insured or subsystem risks excluded in their entirety. On some satellite models, insurance coverage may exclude a component that has a higher likelihood of failure based on anomaly records.

The 2003 Frost & Sullivan study on satellite reliability found that "simpler, leaner, more versatile design platforms have been demonstrated to be more reliable. On-board autonomy further enhances reliability by improving anomaly resolution."

The better the track record of a satellite platform and launch vehicle, the stronger underwriter interest will be in providing insurance. Increased demand by the underwriter community leads to competition for the business and, ultimately, more attractive insurance prices for the operator.

The Frost & Sullivan Study shows a trend toward higher insurance premiums and an increasing number of claims.

Summary – Weighing the Options

With all the technical, pricing and program support information gained from the qualified bidder, the evaluation team can rank each bidder against the specified criteria. The results will indicate which vendors have the most comprehensive technical, support and management capabilities to build the system, and therefore which ones are qualified to be down-selected for contract negotiations.

During negotiations for the final contract, the business buyer will be able to measure and assess the teamwork, chemistry and customer commitment of the short-listed bidders. This process will lead to selection of the satellite manufacturer who offers the best combination of price and performance.

The purchase of a satellite system is one that should lead to a long and mutually rewarding relationship between the owner and the manufacturer. It is critical to factor in all costs – THE TOTAL COST OF OWNERSHIP – of the system before contract signing.

SM

Harold "Hal" McDonnell retired from Hughes Electronics in May 2000 after a nearly 15 year "second" career that spanned several executive roles in Hughes' commercial operating company



and at its satellite manufacturing division. Previously, McDonnell held a series of management and executive posts at The Aerospace Corporation for 26 years. He has been an internationally known and recognized designer and architect of military and commercial communications satellites since their inception in the late 1950s.



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# Satellite Service Providers and the Battle for the Oilfield Customer

How Application Focused Technologies are Changing the Market

# **By Alan Gottlieb**

For VSAT providers, few markets are as attractive as the Oil Industry. Offshore and Land Drilling, Production, Well Logging, Pipeline and other Oil Service support and infrastructure operations are often located in remote areas far from fiber networks

of the Oil Industry and build a market position. Long term players like Sola, Petrocom, Stratos, Schlumberger, Invsat, RigNet and Polar are finding themselves competing against aggressive newcomers like MTN, Verestar and in some cases, the satellite

Companies who have researched the industry have already recognized that it is a large and complex market composed of many segments, each with its own requirements. Offshore and land rigs, Logging, Infrastructure

making satellite the only realistic communications alternative. Unlike other markets that will ultimately be served by terrestrial links, this market offers a secure promise of long term growth for



those VSAT providers dedicated enough to learn the industry's requirements. Many such providers have recognized the industry's potential and are intent on market entry.

At Gottlieb and Company, we are seeing more and more clients seeking to expand their knowledge operators themselves. Providers vary in what they offer. Petrocom offers a high-end, turn key service package while other providers on the satellite side tend to work with third party service providers. In addition to new market entrants, new technologies and customer requirements are changing the industry. Construction and SCADA applications each have different requirements. Understanding user the user's needs and applying the most appropriate technology solution is fundamental to success in the marketplace. Some examples include the rig owner's desire to offer their own satellite services to their subcontractors through a single antenna and modem, a service requiring VLAN tagging. In Well Logging, the need to

uplink large amounts of data from dispersed locations makes a strong case for the shared bandwidth technologies.

Some of the newer technologies employed in the Oil Field include iDirect, DAMA, Inmarsat's Regional BGAN and Iridium's data service, solutions offered to satisfy the

industry's demand for greater bandwidth availability, low cost terminals and mobility. iDirect solutions have become extremely attractive since they combine bidirectional, shared bandwidth with IP Acceleration and low cost terminals. In essence, new technology and the varying demands of the industry are bringing to a close the age of the universal Point-to-Point solution. Here are just a few examples of how the new technologies can be employed in selected segments.

Offshore – Demand for Greater Bandwidth

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Offshore Drilling Rigs are essentially mini-communities. A typical rig accommodates one hundred or more individuals, usually for several weeks at a time. Data and voice requirements are extensive for both business and personal needs, and reliability and service of communications links are of critical importance. Demand for Bandwidth on Demand is increasing as transmission of large files, VoIP and Videoconferencing applications is becoming more common. Since it is impractical from a cost standpoint to maintain broadband fixed links for such "bursty" traffic, shared bandwidth solutions are generating significant

interest, and traditional "turf battles" between regional and corporate IT over centralized network control and planning are gradually giving way to the overwhelming economic advantages of the new technologies. As a result, selling such technologies has definitely become easier. While the availability of new satellite technologies and the demand for greater bandwidth are the predominant driving forces in the business, there is also a growing demand for new and innovative services to fit the unique requirements of offshore operations.

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While provision of pre-paid calling and internet access is in its infancy, the demand for limiting access to the oil operator's corporate network to employees only as well as the cost associated with providing communications services to third party contractors is generating interest in pre-paid solutions for both internet and voice carried over parallel networks through common antennas. Hence the ability to sell complete packages of services and to provide innovative, full service solutions will become critical to success in this market.

### **On Shore, Land Rig Operations**

With 500 land rigs currently active outside of the U.S., there is considerable opportunity for satellite service providers. However, land rig communication has its own distinct set of requirements. Unlike the Offshore market, crews are smaller, usually fifty or less, movement of the rigs is more frequent and communications traffic tends to be limited to 2-4 voice circuits and e-mails containing daily drilling statistics, the traditional "morning report." Typically, the requirements for land rig operations have been met by narrow band, VSAT Point-to-Point links. Introduction of iDirect and Inmarsat's Regional BGAN service will offer the land rig operator new opportunities for cost savings and convenience.



For workover and other short-term drilling related operations, Inmarsat's new Regional BGAN is a likely alternative to VSAT. With Regional BGAN, antenna pointing is vastly simplified. A non-technical individual can easily and rapidly deploy the small, notebook-sized terminal, point it to the satellite and initiate communication. While the service is convenient, current pricing structures make the service most suitable for e-mail and occasional medium bandwidth data transmission. Regional BGAN currently provides bi-directional service across Europe, northern to central Africa, the Middle East, several CIS countries and east



transmission in this application is "bursty," many rigs can share bandwidth thereby elimination the need for many individual Point-to-Point SCPC links.

### Well Logging

Well Logging typically involves transmission of large amounts of data from remote locations to corporate headquarters or a central processing point. Typically, data transmission can run in the 6 Megabyte per/day per/rig range. When the data from numerous rigs is aggregated in the field, use of conventional SCPC links to carry such large amounts of data can be prohibitive. However, with iDirect, bulk bandwidth can be shared among many locations significantly lowering costs. The economics of this technology are now being reviewed by various companies within the industry and could make the transmission of well logging data practical on a much larger scale.

### SCADA

SCADA data requirements are spread across many segments of SATMAGAZINE.COM



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the industry including pipeline and production monitoring. Typically, the most important consideration is terminal cost since data requirements are usually limited to narrow band. Iridium's new data service appears to be a likely fit for such applications.

### In Conclusion

There are numerous market segments within the oil industry where satellite technology can be applied effectively. New solutions that fit specific applications are contributing to increased usage. For those firms willing to understand the varying needs of each sector and apply the appropriate solution, considerable opportunity exists. Those providers with a broad array of innovative solutions and the determination to focus on the industry will find that a long-term revenue stream can be developed and maintained thereby insulating the satellite provider from other markets that may be eroded by low cost, terrestrial fiber.



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

For the second year in a row, Mr. Gottlieb will moderate the Oil Industry Panel at ISCe 2004 (June 1-3). Join him for some valuable insights into the new technologies and how they are enhancing oil industry communications. He can be reached at agottlieb@gottliebandcompany.com



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# VIEWPOINT

# Are We Listening?

## By John M. Kealey, President and CEO, iDirect Technologies

The start of a new year is always **L** an appropriate time to assess the recent past while peering into the future for new opportunities. No doubt the past two years has witnessed a dry spell in the financial markets that limited capital expenditures, resulting in consolidation and altered business plans. But with the benefit of this hindsight, it's good to now explore ways that satellite owners and network operators can generate incrementally new revenue from the assets in place right now. But to do this accurately we have to ask ourselves if we are listening and responding appropriately to our customers and the market.

What's called for here is completely fresh thinking. For too long the satellite business has pursued a "build it and they will come" strategy. This historically meant massive upfront capital investment in transponder capacity with relative assurance that longlease customers will come. As the past two years have shown, that's no longer a sure bet.

So from where will the new revenue come? We don't have to look far to see that the potential \$30 billion market for two-way enterprise January 2004 broadband services is now at hand. Some industry players are investing billions of dollars on new technologies designed to appeal to the enterprise. But in my estimation, this model is built on the old assumptions, continuing the "build it and they will come, sell it as we always have" mentality. The methodology of the past will not carry the industry to the future.

The industry needs to reduce dependence upon renting huge

"...What's called for here is completely fresh thinking. For too long the satellite business has pursued a 'build it and they will come' strategy..."

swaths of capacity to the old standby customers and become much more flexible in meeting the needs of this new set of demanding customers. The corporate networking market consists of the literally thousands of globallydispersed enterprises with IP-based networks supporting everything from Internet access to virtual private networks, e-commerce, and voice communications. But serving this set of customers requires a new mindset; it's no longer about locking up swaths of bandwidth on fixed, dedicated circuits, but rather thinking like the terrestrial broadband providers who can offer scalability, reliability, security and customer support at a competitive price. It requires us to listen closely to this customer and apply our technology in a way that satellite operators and technology providers have not typically done in the past. These enterprise

customers will be utilizing hybrid networks to meet their demands, requiring blending technologies of both satellite and terrestrial networks.

Within current cash constraints and ROI limits, there are indeed new opportunities for growing the satellite customer base and meeting the stringent requirements of enterprise users, especially those that are moving assembly and R&D operations to lower-cost regions where skilled labor

costs might be low, but terrestrial broadband infrastructure is unavailable or too costly. Fortunately, a new generation of VSAT equipment now makes it relatively easy to carry this type of traffic on existing satellite infrastructure — primarily using transport capacity that can't be practically sold to the broadcast market. In addition, it's now possible to deliver the type of

# VIEWPOINT

reliability and performance the enterprise market demands, backed by industry-standard service level agreements.

If we just listen to what the terrestrial operators are doing, we have the tools available to effectively enhance their services, and, especially in greenfield applications, to surpass their value proposition. The new generation of all-IP VSAT gateway equipment can be up and running at a fraction of the time, cost and energy as compared with laying out fiber or even sharing facility costs paid to common carriers.

But rather than being landlords who collect rent on transponder space, our industry must realize that our business can't be sustained with a few large tenants. With the right approach, we can get far better ROI from our current assets by appealing to the enterprise decision maker's gut concerns about productivity gains, security and reliability. The selling proposition must fundamentally change from a long-term capacity lease to one where the cost of satellite-based, two-way broadband is judged within the total ROI in a seamless global IP-based private and virtual private network.

The good news is that this is possible without massive investments required in new access equipment that will only be compatible with an individual set of satellites. In fact, there are commercially available solutions that allow an operator or service provider to enable enterprise-class IP networking over existing satellite infrastructure, and be ready to carry traffic in a matter of days, at a fraction of the total cost of ownership of alternative SCPC equipment.

This innovation is significant for a number of reasons. First, it offers an immediate improvement in the utilization of bandwidth, which allows operators to use the orphan bandwidth that can't be sold in conventional markets. It's enabled through a number of strategies to increase bandwidth efficiency exponentially, including real-time compression, better carrier spacing, turbo codes, dynamic forward error correction, and others.

In fact, the amount of IP-usable bandwidth on existing satellites is very close to what the new satellites are expected to provide in the future. Further, bandwidth can actually be shared between different enterprise customers, which can significantly reduce costs. In addition, the operator has the flexibility to spread capacity over different frequencies, and at the hub, to carry traffic over multiple satellites.

The bottom line is this: the market for enterprise broadband services will be one of hybrid networks where IP networking over satellite will play a much needed role. To best serve the enterprise customer we must first listen to the enterprise customer and understand what is important to them. A lot of that customer feedback is already evident in the products and services they buy from terrestrial carriers. Our challenge is to take on an approach of satellite and terrestrial collaboration to provide a seamless blending of products and services that are simplified, practical and affordable. SM



John M. Kealey, is President and CEO, iDirect

Technologies. He is an experienced senior executive with more than 20 years in the information technologies and communications industries. Most recently, Mr. Kealey was the founder and former CEO of TenFold Communications, a subsidiary of TenFold Corporation. Within one year, Kealey led TenFold Communications from concept to more than \$30 million in customer contracts. He is an advisor and board member of 3Genesis and Connect Capital and holds an M.B.A. from Washington University. He can be reached at jkealey@idirect-tech.com