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Satellites and Wi-Fi

Your Satellite Connection to the World

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TABLE OF CONTENTS

Vol. 2 No. 9, February 2005

COVER STORY

FEATURES

VIEWPOINT

Click on the title to go directly to the story

REGIONAL UPDATE

20 / Satellites and Wi–Fi

By Virgil Labrador

Wi-Fi and other wireless technologies are expanding rapidly. Will satellite companies be able to take advantage of this opportunity?



25 / Satellite and Wi-Fi Bandwidth Intergration: Cost Effective 'Last Mile' Solutions

By Thomas van der Heyden

The critical bottleneck in the development of broadband services is the 'last mile.' Satellite wireless technologies like Wi-Fi provide viable solutions.



28 / Satellites can Win European HD Distribution

By Chris Forrester

3

4

Europe's satcasters remain confident of success in 2005. They see the next few years as one where they have an exclusive opportunity to push HD television to an enthusiastic audience.



32 / In Wi-Fi Veritas

By Bruce Elbert

Veteran consultant Bruce Elbert gives the bottomline on Wi-Fi.



34 / Latin American Satellite Market 2005: A Hot Spot for Vendors

By Bernardo Schneiderman

2005 began auspiciously for the Latin American satellite market with the awarding of two major broadband contracts.

REGULAR DEPARTMENTS

- / Note from the Editor
- / Calendar of Events
- **5-8** / Featured Event: ISCe 2005

Solving the Teleport Equation

by Bruce Elbert

- 9-13 / Industry News
- 14-16 / Executives Moves

- 17-19 / New Products and Services
- **36** / Market Intelligence:
 - "Middle EAST Satcoms"

presented by the GVF Forum

38 / Stock Monitor / Advertisers' Index

Back to Contents 3

NOTES FROM THE EDITOR

The Evolving Business of Teleports



Two editors of SatMagazine have been invited to chair sessions on the business of teleports at the forthcoming ISCe Conference and Expo in Long Beach, Calif. from May 31st to June 2, 2005. Yours truly will be chairing a session on "**Evolving Teleport Solutions for Enterprise**" and our contributing editor, Bruce Elbert will be chairing the World Teleport Association (WTA) workshop on "**Creating Value Through End-to-End**

SATCOM Solutions." Another contributing editor of SatMagazine, John Puetz will be chairing a session on "**Next Generation Fixed and Mobile Ground Terminals**."

As a former teleport person myself, I am excited to chair this session. The teleport business has undergone so many changes since I left the teleport business for the publishing world seven years ago. We will have great panel composed of key industry leaders such as David Justin, Senior VP, Marketing and Product Development-Globecast; Brent Bruun, SVP and General Manager-AMERICOM Enterprise Solutions and Keith Regan, VP of Global Engineering and Operations- Telenor Satellite Services.

The WTA workshop to be chaired by Bruce will examine the continued evolution of the satellite communications business into an array of tightly-focused niches, to which competitors seek to provide high-value, end-to-end solutions.

It should be a great show, so do mark your calendars. Bruce, John and myself are all residents of Southern California and we look forward to welcoming you in June.

Meanwhile, we have a great issue for you this month. We focus on the growing Wi-Fi market and how satellites can take advantage of this unique opportunity.

As we went to press, the *New York Post* reported that XM Satellite and Sirius are in preliminary merger talks. This report was immediately denied by both XM and Sirius. Hmmm...there seems to be no end to the twists and turns in this industry. Next month we focus on Satellite Radio and discuss this market in depth. Watch out for it!

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CALENDAR OF EVENTS

FEBRUARY



February 1-3, Le Meridien Etoile, Paris, France SatCom Europe 2005 Stefan Nilsson Tel: +44 (0)20 7827 5997 / Fax: +44 (0)20 7242 1508 E-mail: <u>stefan.nilsson@terrapinn.com</u> Website: <u>www.terrapinn.com/2005/satcom</u>



February 14-18, Johannesburg, South Africa SatCom Africa 2005 Richelle Sher E-mail: <u>richelle.sher@terrapinn.co.za</u> Tel: +27 11 516 4052 / Fax: +27 11 707 9965

MARCH

March 1-4, Sao-Paolo, Brazil Telexpo 2005 Cida Duarte Tel: (55-11) 3170-7000 / Fax: (55-11) 3170-7010E-E-mail: <u>cduarte@advanstar.com.br</u> Web: <u>www.telexpo.com.br</u>

Website: www.satcomafrica.com

March 15-17, Chelsea Village, London, UK

NewCom Africa 2005 Paul Stahl Tel: +44-(0)208-954-2081 / E-mail: <u>pauls@aitecafrica.com</u> Web: <u>www.aitecafrica.com</u>

March 17, Bafta, London, UK **The 2nd European HDTV Summit** Chris Forrester Tel: +44 20 89 488 561 / Fax: +44 20 89 406 009 Mobile: +44 77 678 10606 E-mail: <u>chrisforrester@compuserve.com</u> Web: www.tvconferences.com

March 22-25, Washington, D.C., U.S.A. **Satellite 2005** Rick Felperin Tel: +1-301-354-1691/2000/Fax: +1 (301) 340-3169 E-mail: <u>rfelperin@satellite2005.com</u> Web: <u>www.satellite2005.com</u>

March 25-27, Guangzhou, China Expo Comm China South 2005 Karen Owens-Leon Tel: (301)493-5500/Fax: (301)493-5705 E-mail: <u>owens@ejkrause.com</u> Web: www.expocomm.com/chinasouth

APRIL

April 11-14, Istanbul, Turkey Caspian Telecoms 2005 Elena Peredel'skaia Tel: + 44 (0)20 7596 5205/ 5000 / Fax: + 44 (0)20 7596 5208 Email: <u>Elena.Peredelskaia@ite-exhibitions.com</u> Websites: <u>www.ite-exhibitions.com/</u> www.caspianworld.com/

April 16-21, Las Vegas, Nevada, U.S.A. NAB 2005 Tel:+1-202-595-2052+1-888-740-4622 E-mail: register@nab.org/ Web: www.nabshow.com

MAY



May 31-June 2, Long Beach, CA, U.S.A. ISCe Conference and Expo Gina Lerma Tel: +1-310-410-9191 / Fax: 1-310-410-9396 E-mail: <u>glerma@hfusa.com /</u> Website: <u>www.isce.com</u>

May 31-June 3, Almaty, Kazakhstan KITEL 2005- 12th Kazakhstan and Central Asian International Telecoms & Computer Technologies Elena Peredel'skaia Tel: + 44 (0)20 7596 5205/ 5000 / Fax: + 44 (0)20 7596 5208 Email: <u>Elena.Peredelskaia@ite-exhibitions.com</u> Websites: <u>www.ite-exhibitions.com/</u> www.caspianworld.com/

JUNE

June 14-17, Singapore CommunicAsia 2005 Victor Wong Tel: (65) 6233 8662 / Fax: (65) 6835 3029 Email: vw@sesallworld.com Web: www.communicasia.com

June 14-17, Singapore Broadcast Asia 2005 Jackson Yeoh Tel: (65) 6233 8633 / Fax: (65) 6835 3029 Email: jy@sesallworld.com Web: www.broadcast-asia.com

June 23-25, Agricenter International Memphis, TN Satellite Expo 2005 Lee Gilliland1-877-SAT-SHOW E-mail: info@satelliteexpo2005.com

FEATURED EVENT Solving the Teleport Equation With End-to-end Application Products

The satellite communications teleport is a location-specific facility that offers uplinking, downlinking, application hosting, collocation, and interconnect services. As the title to this article indicates, this is an equation that seeks a profitable solution for the teleport operator. Converting capital expense and operating expense into a profitable bottom line has never been an easy task and the successful teleports get there through lots of hard work. Like many local businesses, it's a matter of being in the right place at the right time with the right answers.

With the increasing complexity of needs and ways of meeting them, the teleport operator must grasp the end-to-end objectives of the customer, and move rapidly from concept to through proposal to working system. The obvious way to achieve this process is to have the right tools "on the shelf" and people on board who know how to configure and run the infrastructure. Any teleport operator who achieves a positive cash flow will tell you that this is not a "cake walk" but more like "living on a battleground".



Our workshop at ISCe, organized by the World Teleport Association, will give you a head start in solving this modern "Riddle of the Sphinx" through a set of cutting-edge panels under the general panoply of **Creating Value Through End-to-End Satcom Solutions**. It is my pleasure to chair the workshop and

share the podium with some of the most creative people addressing these challenges.

Specifically, the WTA workshop will examine the continued evolution of the satellite communications business into an array of tightly-focused niches, to which competitors seek to provide high-value, end-to-end solutions. In this market, the teleport has become the linchpin of the transaction, because it is at teleports that the value is added to the basic, bent-pipe satellite circuit. The past year has offered a strong endorsement of this view, with the world's largest satellite carriers investing in teleport assets in order to maintain their competitive position.

The existing and emerging niches in the satcom business, for which teleports have become essential to value delivery, include:

- Hybrid enterprise and government networks for oil & gas exploration and production, mining, aid and disaster relief efforts, and other applications.
- Narrowcast DTH service for ethnic and other narrow TV markets.
- Distribution of high-value data and video feeds to closed distribution networks for financial services,

by Bruce Elbert, President, Application Technology Strategy, Inc.

hotels, retail stores and malls, bars and restaurants, and other specialty markets.

- Digital content development, management and distribu tion through multiple private and public networks
- Origination and distribution of independent TV chan nels to cable MSOs outside the traditional program boutique.
- Distance education and training networks for enterprises and government.
- Internet and VoIP backbone services to ISPs, enterprises and government.
- Mobile telephony backhaul in regions underserved by fiber.

The third bullet, dealing with closed distribution networks involving multimedia for retail-oriented enterprises, offers one of the most promising, if still nascent, opportunities for teleports. I have recently been working closely with a three-way partnership of teleport operator, satellite service provider and distribution/ display technology provider, in addressing this segment of the market. The respective companies are: GlobeCast North America. JSAT International Inc., and Sony. The combined technical and management resources mesh well in working out end-to-end solutions on a custom basis for particular companies. Anyone working this field knows that each customer prospect has very unique needs - and these needs may not be quantified unless a working system is put together for them. Like any project involving high-quality media, the customer is as much a part as any other partner. From the teleport side of the equation, active listening and innovative problem solving are essential skills that empower the team to maintain the right degree of awe in the customer's mind.

The workshop at ISCe will take place on **Tuesday, May 31st** and will provide a forum to explore such partnerships and customer initiatives. Come and listen, and share your ideas and challenges. **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: <u>www.applicationstrategy.com</u>

Email: bruce@applicationstrategy.com

FEATURED EVENT

Day One to Highlight Exciting Programs and Special Events at ISCe!

nce again, ISCe will offer several special panel discussions and workshops designed to give you a deeper understanding of the rapidly changing satellite industry and tools to better equip you. On Tuesday, May 31st, the first day of ISCe 2005, there will be numerous educational workshops and presentations on important private and government business and technology, as well as several networking and special events that you won't want to miss.

Networking and Special Events

ISCe Welcome Lunch



Sponsored by the California Space Authority (www.californiaspaceauthority.org), the ISCe Welcome Luncheon will kick-off the networking events during the three days in Long



Hon. Andrea

Hon. Ken Calvert

Beach. Keynote Speaker will be

Seastrand **The Honorable Ken Calvert** (R-CA), Senior Member of the House Science Committee. Opening comments will be made by The Honorable Andrea

Seastrand, Executive Director of the California Space Authority (CSA) and former U.S. Congresswoman (R-CA).

Product Demonstration Program

Making its first appearance at ISCe is the Product Demonstration Program, which features select companies' new and innovative products and services that will have a tremendous impact on the satellite industry. These companies will make an exclusive presentation to key decision-makers, press, and analysts on Tuesday, May 31st. For the remainder of the Conference, they will present their products and services in a premier exhibit area located right outside the ISCe conference sessions, separate from the main exhibit floor.

For consideration for participation in the Product Demonstration Program, or for more information about ISCe 2005, please contact Gina Lerma at (310) 410-9191 or Glerma@hfusa.com, or visit www.isce.com. Deadline is March 16, 2005 to apply for the Product Demonstration Program.

Sunset Harbor Cruise Welcome Reception

The Satellite Industry Association (www.sia.org) will host



another inaugural event for ISCe - the Harbor Cruise Welcome Reception, which will provide attendees and presenters an opportunity to meet and network in a relaxing sunset cruise through the beautiful Long Beach Marina and

Harbor. Join your friends and colleagues for a fun-filled evening of music, hors d'oeuvres, drinks and games!

Kicking off the ISCe conference on Tuesday is a number of panel discussions and workshops full of in-depth information and discussions on a variety of topics:

Workshops

Corporate Growth & Exit Strategy

This workshop will help you be on top of running your business. Designed for decision makers in the aerospace, space & defense sectors, this session will investigate various stages in a corporate life cycle, strategic alliances, mergers and acquisitions, the injection of capital - and what to do if you are faced with needing an exit strategy such as selling your company.

Business Strategies

Business Aspects of VSAT-oriented Businesses:

If you want to gain a deeper knowledge of business-



related aspects of VSAT-oriented businesses, you will want to attend this session presented by David Hartshorn, Secretary General of the Global VSAT

Forum (www.gvf.org). You will explore regulatory framework, types of VSAT-based business, and critical success factors, customer management, and where VSAT fits in various communications industries.

Topics include specific needs and requirements for individual countries, supply chain, organizing your business, maintaining it, and growing it as the communications industry technologies rapidly evolve and converge, opening up new

FEATURED EVENT

opportunities for you and making your business successful. Additionally, we will look at the structure of the communications industry and where VSAT fits in various communications industries including Broadcast, Internet/IP including Narrow band (dial-up, VHF, Radio), and Broadband, DSL vs. OC3, Cable, VSAT scalability/flexibility, Fixed line telephony, Cellular, Sat phone, and Hybrid (e.g., RBGAN).

Teleports: Creating Value Through End-to-end SATCOM Solutions



If you're already in the teleport industry or if you're looking to develop partnerships and new customer initiatives, you won't want to miss this session, hosted by Bruce Elbert, Regional Chairman of the World Teleport Association (<u>www.worldteleport.org</u>). You will hear major teleport operators and users

discuss new business opportunities and the critical issues facing them today, including:

- Hybrid enterprise and government networks for oil & gas exploration and production, mining, aid and disaster relief efforts, and other applications.
- Narrowcast DTH service for ethnic and other narrow TV markets.
- Distribution of high-value data and video feeds to closed distribution networks for financial services, hotels, retail stores and malls, bars and restaurants, and other specialty markets.
- Digital content development, management and distribution through multiple private and public networks
- Origination and distribution of independent TV channels to cable MSOs outside the traditional program boutique.
- Distance education and training networks for enterprises and government.
- Internet and VoIP backbone services to ISPs, enterprises and government.
- Mobile telephony backhaul in regions underserved by fiber.

Satellite for Beginners

Whether you're new to the satellite industry, or you want to brush up on your knowledge, you will want to attend this highly successful SBCA/SIA (<u>www.sbca.com</u>) training seminar for professionals. Offering a comprehensive overview of the



satellite marketplace, this session has a unique focus on the consumer satellite services industry

Private Industry Focused Panels

Broadband Advancements: What's On the Horizon?

Learn about new developments and challenges in broadband via satellite, presented by Max Engle, Satellite Industry Analyst, Frost & Sullivan. This seminar will also address enhancements in wireless systems, competitive issues with satellite and terrestrial systems, and hybrid network solutions for the "last mile" problem.

Satellite Investments: A Paradigm Shift!

This unique panel of key financial and industry players will discuss the recent acquisitions of several satellite operators by private investment companies and the effect on the satellite industry. Does this new paradigm affect the satellite manufacturers' business strategies and increase their risks? Don't miss this informative panel of financial and investment leaders discuss the latest developments and their progress reports!

NASA and Space-Focused Panels



Next Generation Space Communications (SC) Technologies: NASA's Space Communications Project

The primary focus of the SC projects is the development of end-to-end information delivery solutions to meet NASA Enterprise needs for enhancing the communication infrastructure, and to enable next generation communication architectures beyond 2010. Come hear NASA leaders provide an update on the next-generation communication architecture project. Come hear leaders from NASA and industry will provide an in-depth look at the next-generation space communications project!

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FEATURED EVENT

NASA Space Exploration Vision: Status and Opportunities

Hosted by NASA, the NASA Far West RTTC and the California Space Authority, this exciting session will

feature potential opportunities for U.S. companies and international space stakeholders inherent in NASA's Vision for Space Exploration. Speakers include **RADM Craig E. Steidle**

USN (Ret.), NASA Associate Administrator for Exploration Systems, who will discuss a variety of missions including the return to flight of the Space Shuttle, completion of the ISS, return to the moon by 2020, space communications, and exploration of Mars and beyond.

Key NASA Technology Opportunities: Autonomy and IT, Space Communications

Ken Dozier. Executive Director – NASA Far West Regional Technology Transfer Center will lead a panel of program managers and NASA technology partnership professionals who will explore key technology opportunities in the areas of autonomy and information technology, as well as space communications. The panel will feature JPL and NASA Ames technology needs inputs and an overview of how NASA develops and manages its technology partnerships. **SM**

Sponsorships and Exhibiting Options at ISCe 2005

Promote your product or services to a senior-level audience of key decision-makers from the commercial, government and military sectors by securing one of the available sponsorship packages or exhibiting options at ISCe. For additional information, please contact Gina Lerma at (310) 410-9191 or GLerma@hfusa.com or go to www.isce.com

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- + Three-day Conference Program:
- Commercial Enterprise Solutions
- Space Enterprise & Communications
- Financial Overview / Private Investment
- MSS and FSS Applications
- Future Trends / Replacement Market
- IP-based Applications
- DoD / Government Requirements
- Military Space Ops / Integration
- TCA Future MILSATCOM Systems
- + SIA "State of the Industry" Report
- + Government Satellite Requirements (GSR) Summit
- + Product Demos / Gallery of Innovation Program
- + Exhibit Center

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

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Cablevision Sells Rainbow 1 Satellite to EchoStar for \$200 Million



BETHPAGE, N.Y., Jan. 21, 2005— Eager to unload an unprofitable venture, Cablevision Systems Corp. announced on Thursday it has entered into a definitive agreement for its subsidiary Rainbow DBS Co. LLC to sell its direct broadcast satellite and

certain other related assets to a subsidiary of EchoStar Communications Corp. for \$200 million in cash.

Under the terms of the agreement, EchoStar will acquire the Rainbow 1 satellite, located at the 61.5 degree W.L. orbital

My experience in engineering, capacity management and satellite operations has given me expertise our clients trust and rely on. You bet I'm proud of that.

I believe in Skynet.

Mark Morgan Director, Customer Operations Skynet Employee 14 years position, as well as FCC licenses to construct, launch and operate DBS services over 11 frequency channels at the 61.5 degree W.L. orbital location. The satellite includes 13 frequencies, up to 12 of which can be operated in "spot beam" mode.

In addition, EchoStar will acquire the contents of Rainbow DBS's ground facility in Black Hawk, S.D. and related assets. The transaction is subject to review by the Federal Communications Commission and other regulatory agencies.

In a statement, Cablevision said it will continue to explore strategic alternatives, including monetization, for its remaining Rainbow DBS related assets, including programming, equipment and spectrum. It added Voom will continue to provide service to its current customers during a transition period.

EchoStar III satellite, also located at 61.5 degrees West Longitude, broadcasts Dish Network TV programming to hundreds of thousands of consumers today using DBS spectrum controlled by



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February 2005

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by EchoStar at that location. EchoStar said it is assessing how the Rainbow satellite's flexibility can best be utilized to enhance Dish Network's existing service.

Cablevision's Rainbow Media Holdings LLC started the highdefinition satellite venture marketed under the brand name Voom in 2003. But the operation struggled to turn a profit and has dragged Cablevision's finances.

In November last year, Rainbow DBS ordered five geostationary telecommunications satellites from Lockheed Martin to provide direct broadcast services across the continental United States (CONUS). Cablevision then revealed it was spending about \$740 million saying the deal underscores Rainbow DBS' determination to push ahead with the Voom service in spite of continuing doubts on its costs and future viability.

Explaining the orders, Tom Dolan, CEO of Rainbow Media, said the plan was to boost VOOM satellite service and expand in March next year from its current 39 to more than 70 highdefinition channels covering the full continental U.S.

Despite that announcement, however, investors doubted how the company could raise the money. In August, Cablevision reported a 25% increase in revenue but still posted a secondquarter net loss of \$187.1 million as strong cable TV operations failed to offset investment losses and contain costs related to the launch of a satellite broadcast service Voom.

Meanwhile, reports say Cablevision Systems chairman Charles Dolan and his family may buy the Rainbow DBS satellitetelevision unit after the board decided to sell or close the business. In a memo sent to employees late Thursday, Dolan said the Rainbow staff would be retained if he buys the unit, which operates the Voom satellite-TV service.

Charles Dolan and his family opposed the sale of the business and has argued that Cablevision should continue funding Voom, according to a Wall Street Journal report.

Intelsat's Satellite Loss Isolates Pacific, Antarctic Areas

Washington, D.C., January 18, — The loss of Intelsat's IS-804 satellite has left the Pacific Island nations of Cook Islands, Western Samoa, Solomon Islands, Kiribati, Niue, Vanuatu, Tokelau, Tuvalu, Tonga and the US territory of American Samoa without communications links to other states, according to wire reports. Other countries, including New Caledonia, Tahiti, Papua New Guinea, Fiji, East Timor, Vietnam, Korea and Saipan were also affected but could plug into backup systems. New Zealand territories of Scott Base in Antarctica and Chatham Islands, 500 kilometers to the east, also lost all phone links, according to Reuters.

A wire report said many remote areas in the South Pacific remained without telephone communications to the outside world three days after the loss of IS-804. But quoting an official of Telecom New Zealand, AFP reported that communications were restored to Rarotonga in the Cook Islands, Western Samoa and the Solomon Islands through alternative satellite options. Telecom New Zealand rents capacity on the lost satellite.

Intelsat announced on Sunday IS-804 satellite experienced a sudden and unexpected electrical power system anomaly on Jan. 14 at 5:32 p.m. causing the total loss of the spacecraft.

The satellite, launched in 1997, provides telecommunications and media delivery services to customers in the South Pacific.

Launched atop a European Ariane 4 rocket on December 1997, IS-804 originally served the Indian Ocean region before being replaced by the newer IS-906 two years ago. In August 2002, Intelsat applied to relocate the satellite from 295.85 WL to 184 WL to provide telecommunications and media delivery services to customers in the South Pacific.

Only two months ago, Intelsat's Americas-7 satellite also experienced a sudden and unexpected electrical distribution anomaly, causing a temporary loss of service.

Arianespace to Launch UK's Skynet 5A and 5B Military Satcoms



Skynet 5 is the program to update the UK's military satellite communications capability for the British Ministry of Defence

EVRY, France, Jan. 5 — EADS Astrium Ltd. has chosen Arianespace to launch the British Ministry of Defense's next generation secure military telecommunications satellites, Skynet 5A and Skynet 5B.

Colin Paynter, managing firector of EADS Astrium and Jean-Yves Le Gall, CEO of Arianespace announced on January 4 the two launch contracts for the two satellites, which will be boosted into geostationary transfer orbit by Ariane 5 launchers from the Guiana Space Center, Europe's Spaceport in Kourou, French Guiana. Launches are scheduled for the second half of 2006 and the second half of 2007.

The contract, signed at the end of December 2004, also includes an option for an additional launch, according to EADS Astrium. Europe's Ariane launcher has already orbited the Skynet 4B, 4C, 4E and 4F satellites for the British Ministry of Defense.

The Skynet 5 satellites, built by EADS Astrium, will weigh approximately 4,700 kilograms at launch.

After the launch of Skynet 5A and 5B, EADS Astrium will deliver the satellites in orbit to the commercial organization Paradigm Secure Communications. Paradigm is contracted to provide secure communications services for the British armed forces, NATO and a number of other countries.

Selection of Arianespace followed an extensive and rigorous evaluation of proposals from all the major launch service providers, EADS Astrium said in a statement

Satellite Industry Pitches in Tsunami Relief Efforts

Los Angeles, CA, Jan. 18 — Support is pouring in from various quarters of the satellite industry for the relief efforts of the Tsunami disaster in South Asia which has claimed over 150,000 lives. Various satellite companies have been donating services and equipment to areas struck by the disaster as well as participated in relief efforts.

The devasting tsunami last December 26, 2004 has also highlighted the need for an early warning system that could have prevented the disaster. Satellite technology can play an important part in disaster-prevention. If an early-warning system was in place before the tsunami struck, thousands of lives may have been saved.

The U.S. government announced plans to implement a \$37.5 million Tsunami alert system through a system of bouys worldwide relayed by satellites. The system would be able to alert government agencies within minutes and even seconds of a Tsunami formation. The system will augment warning systems currently in place and will be fully operational by mid-2007.

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DMM-6 Network Moderator Modem large/expanding networks



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satellite image before (above) and after (below)



Satellite images of the one of the hardest hit cities of Banda Aceh, Indonesia before and after the tsunami disaster last December 26, 2004. Images such as these are used to assess damage and plan relief operations. (photos courtesy of Digital Globe).

One of the top priorities in the tsunami-stricken areas was to restore communications facilities. The Indian Minister for Communications and IT, Dayanidhi Maran, has directed telecommunication provider **BSNL** to install Inmarsat satellite phone links on a top priority basis in the Indian islands of Andaman and Nicobar. Transponder capacity on Insat 3E was also reserved to facilitate communication links.

Telecoms Sans Frontières (TSF), an Inmarsat-sponsored humanitarian aid organization, had satellite connections set up in Sri Lanka, northern Sumatra and the islands of the Andaman sea hard-hit by the disaster. The World Communication Center provided free Iridium

satellite phones to relief organizations providing aid to the locations devastated by the disaster.

Satellite imaging companies such as Space Imaging Inc., Digital Globe and MacDonald, Dettwiler and Associates (MDA) have made available their satellite images to help direct relief efforts and assess damage. Remote sensing satellites such as IRS-1C and 1D, Oceansat-1 and Resourcesat are being used to assess damage.

Satellite service providers like Telenor Satellite Services have pitched in the relief efforts. Telenor teamed with Global Relief Technologies LLC (GRT) of Portsmouth, NH, and the International Medical Corps (IMC) to provide an integrated support system for immediate collection and dissemination of in-the-field data and information.

Global Relief Technologies' provides an end-to-end solution combining handheld PDA (Personal Digital Assistant) survey applications for field workers, GIS mapping imagery and near real-time GPS tracking with a web-based information management center, or VNOC (Virtual Network Operations Center) for data hosting, analysis and reporting. The data are transmitted to and from the PDA via mobile satellite terminals using Telenor services. IMC, a global humanitarian relief agency headquartered in Los Angeles, has deployed a team of health care workers to Aceh, Indonesia. The team is equipped with mobile satellite terminals from Telenor and PDA's with the necessary communications software package from GRT in order to quickly coordinate relief and recovery operations.

Houston-based service provider CapRock Communications setup a teleport in Jakarta, Indonesia, making telemedicine and communications possible for doctors, nurses and many other important medical personnel working around the clock in that region.

Satellite companies also provided support to the all-star telethon and concert dubbed "Tsunami Aid: A Concert of Hope" held by the US broadcasting company NBC last Jan. 15. PanAmSat donated transponder capacity to the broadcast and XM Satellite Radio broadcasted the commercial-free event in to its national satellite radio network. Telecommunications company, SBC, underwrote the event and provided some infrastructure support including live video feeds.

Satellite phone operator Iridium donated \$500,000 worth of equipment and airtime to the International Federation of Red Cross and Red Crescent Societies.

In a letter distributed to the media, satellite communications pioneer, Arthur C. Clarke, who lives in Colombo, Sri Lanka, one of the countries hardest hit by the Tsunami, mentioned that he was alright and appealed for support to the tsunami-stricken areas. Clarke, an avid diver, has a diving station in the coastal town of Hikkaduwa and a holiday bungalow in Kahawa - both destroyed by the tsunami. Most of the diving equipment and boats were destroyed and some of his diving staff are unaccounted for as a result of the disaster.

Boeing Awards GPS III System Study Contract to Alcatel



PARIS, January 21— Boeing Integrated Defense Systems has awarded a study contract to Alcatel in the frame of the US Air Force's GPS III System Preliminary Definition phase.

Alcatel said the contract firms up last year's discussions between Boeing and Alcatel Space to develop cooperation in

February 2005

Global Navigation Satellite Systems (GNSS). The contract is the first ever agreement between the European Union and the United States industry leaders in Satellite Navigation after a EU-US high level accord signed in June 2004.

Under the contract, Alcatel Space will define the architecture of the GPS III global integrity as well as on the compatibility and interoperability with the Galileo European system. As a leader in satellite navigation systems, such as the European Prime of the EGNOS system and the Galileo integrity solution and architecture, Alcatel Space said it sees this contract as the first concrete step toward a sound and positive cooperation between Europe and the US.

Boeing and Alcatel Space support the EU-US high-level agreement on GNSS, which has been executed by the parties last June 26, 2004, the companies said in a statement. This contract confirms the long-standing relation of trust between Boeing and Alcatel Space, they added.

Boeing also reiterated its supports to the Eurely consortium, which has been formed by Alcatel, Finmeccanica, Hispasat and Aena.

ESA and Russia Forge Deal on Use of Launchers

MOSCOW, Jan 20 — European Space Agency (ESA) and Russia signed on Wednesday an agreement for long-term cooperation and partnership in the development, implementation and use of launchers.

The agreement, signed by ESA Director General, Jean-Jacques Dordain and the Head of the Russian Federal Space Agency, Anatoly Perminov, The GPS network supports U.S. military operations conducted from aircraft, ships, land vehicles and by ground personnel. Additional use includes mapping, aerial refueling and rendezvous, geodetic surveys, and search and rescue operations.

GPS provides military and civilian users three-dimensional position location data in longitude, latitude and elevation as well as precise time and velocity. The GPS constellation is operated as a 24-satellite system consisting of six planes with a minimum of four satellites per plane.

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EXECUTIVE MOVES

Comm. Martin Seen as Leading Contender to Succeed FCC Chairman Powell



Chairman

Michael K.

Powell

Washington DC, Jan. 24 — Commissioner Kevin J. Martin is widely believed to top a short list of candidates to succeed Federal Communications Commission chairman Michael K. Powell, reports say.

Before his appoint-

ment to the FCC, Kevin J. Martin worked for the Bush-Cheney transition team. At FCC, Commissioner Martin is known to sometimes clash with Powell, voting against his plan to ease local telephone network sharing rules.

Others in the short list include President Bush allies Pat Wood and Rebecca A. Klein, according to an LA Times report.

On Friday, Powell announced his resignation as FCC chairman effective on March, after serving FCC for eight year. In his letter to the President, Powell said it was time for him to pursue other opportunities. During his tenure, Powell said FCC worked to get the law right in order to stimulate innovative technology that puts more power in the hands of the American people, giving them greater choices that enrich their lives.

"The seeds of our policies are taking firm root in the marketplace and are starting to blossom. The use of cell phones, digital televisions, personal video recorders, and digital music players, is exploding. These devices are increasingly connected anytime, anywhere by a wide variety of broadband networks enabling a host of competitive services and new applications. Our children will inherit this exciting future," he said.

Dave McGlade Named Intelsat CEO



Washington, D.C., Jan. 4 — Zeus Holdings Limited has named Dave McGlade, the CEO of cellular operator O2 UK, a subsidiary of mmO2 plc, as the new CEO of

Intelsat, Ltd. The announcement comes two weeks after the U.S. Federal Communications Commission approved the proposed purchase of the satellite company for \$5 billion by Zeus Holdings Ltd., a four-member private equity consortium.

McGlade will join Intelsat upon termination of his current commitments at mmO2 plc on 31st March 2005, at which point, Conny Kullman, Intelsat's current CEO, will become chairman of the board of directors, Intelsat said in a statement.

McGlade has extensive senior executive experience in the telecommunications industry, and has for the last four years led the turnaround of O2 UK, mmO2 plc's UK cellular operation. During these four years, and in a highly competitive environment, McGlade has grown O2 UK's customer base to over 14 million with service revenues and operating profits of 1.8 billion pounds and 341 million pounds respectively in the six months to 30 September 2004.

Andrew Names New SatCom Group President

ORLAND PARK, Ill., Jan. 14—Andrew Corp., a communications equipment and systems supplier, has named Jude Panetta

group president of Satellite Communications.

Panetta, formerly vice president and general manager, RF power amplifiers, for Andrew's Base Station Subsystems Group, replaces Paul Cox, who has resigned to become president of Smiths Interconnect, a business within the specialty engineering division of UKbased Smiths Group.

In his new role with satellite communications, Panetta will oversee a product group that had fiscal 2004 sales of \$209 million and has an addressable market exceeding \$1 billion. Its products include consumer DBS (direct broadcast satellite), professional VSAT (very small aperture terminal), earth station satellite, and systems for various government and military applications. Panetta joined Andrew in June 2002 from Celiant Corporation, where he was vice president of engineering and operations.

Northrop Grumman Elects Wesley G. Bush Chief Financial Officer



LOSANGELES, Jan. 18 — Northrop Grumman Corp. announced its board of directors has elected Wesley G. Bush corporate vice president and chief financial officer, succeeding Charles H.

Noski, who has elected to leave the company to pursue other personal and professional interests. Bush is currently corporate vice president and president of the company's Space Technology sector.

Northrop said both changes will become effective upon the filing of the company's 2004 Form 10-K, which is expected to take

Executives Moves

place on or before March 15, 2005. Noski will continue to serve on the company's board of directors until his term expires in May 2005. The company is evaluating candidates to fill Bush's current position.

Bush, 43, has served as corporate vice president and president of the company's Space Technology sector since the company's December 2002 acquisition of TRW Inc. He previously served as president and chief executive officer of TRW's UK-based global Aeronautical Systems business, and also served as vice president of TRW Ventures, an organization focused on leveraging TRW's advanced technologies to create new business opportunities in commercial markets.

Tandberg Television Names New CFO

OSLO, Norway, Jan. 13 — Tandberg Television said Fraser Park has taken up the position of Chief Financial Officer (CFO) of the company.

A member of the Institute of Chartered Accountants and a former strategy consultant at McKinsey & Co, Inc., Fraser Park has spent over fifteen years in senior financial management positions in technology and manufacturing organizations and for NASDAQ and LSE listed companies. Fraser, aged 41, brings a strong track record in multinational financial strategy and will contribute significant skills to the senior Tandberg Television team.

"Fraser has a strong track record of results and I am delighted to welcome him to Tandberg Television," said Eric Cooney, president and CEO of Tandberg Television. Commenting on the departure of Tim O'Connor, Eric Cooney said as CFO since January 2002, Tim O'Connor has seen the organization through a period of aggressive restructuring and subsequent return to profitable growth. "I would like to thank Tim for his positive contributions and wish him the best in his next career step," he said.

Robert J. Gillette Named President and CEO of Honeywell Aerospace

MORRIS TOWNSHIP, N.J., Jan. 11 —



Honeywell has named Robert J. Gillette as president and CEO of the company's \$9.8 billion aerospace business while Adriane M. Brown has been named president and CEO of its \$4.3 billion

transportation systems business. Both positions report

to Chairman and CEO Dave Cote.

Gillette succeeds Robert D. Johnson, who plans to retire in January 2006. Johnson will remain with the company for one year as a non-executive chairman of Aerospace to facilitate an orderly transition. Brown, most recently vice president and general manager of Honeywell Aerospace Engine Systems & Accessories, succeeds Gillette, who had held the position of president and CEO of Honeywell's Transportation Systems business since 2001.

Honeywell chairman and CEO Dave Cote said praised Rob and Adriane for being exceptional leaders with track records of success, global experience, and strong business instincts to drive growth. Gillette has been with Honeywell since 1996 and named president and CEO of Honeywell Transportation Systems in July 2001. Under Gillette's leadership, Transportation Systems has achieved compounded annual sales and income growth rates of 8% and 22%, respectively. In his new position, Gillette will be based in Phoenix, AZ.

Loral Skynet Appoints Kevin Bailey as Sales Director

BEDMINISTER, NJ,

Jan. 24 — Loral Skynet announced the appointment of Kevin Bailey as Saels Director, in charge of the family of SkyReach global IP networking solutions.



Kevin was most recently Senior Account Manager, New Systems Sales at Verdisys and Spacenet. Inc.

Robert V. LaPenta Retires as L-3 Communications President; Michael T. Strianese Named CFO

NEW YORK, Jan. 3 — Robert V. LaPenta has decided to retire as L-3's president and chief financial officer effective April 1, 2005. LaPenta will also be leaving L-3's Board of Directors.

Executives Moves

Upon his departure, Frank C. Lanza, L-3's chairman and chief executive officer, will assume the responsibilities of president of the company during an interim period,

of L-3's senior management team who has also been integral to L-3's success and growth. "Since joining the company at its formation, he has worked with each of our operating divisions, helping them to

achieve their financial goals, and has also been an invaluable member of our mergers and acquisitions team," Lanza said. **SM**

and Michael T. Strianese will succeed LaPenta as chief financial officer. LaPenta is co-founder of L-3 and was instrumental in L-3's growth from a spin-off from Lockheed Martin with \$650 million in annualized revenues in 1997 to an S&P 500 company.

It now has an estimated \$6.8 billion in revenues in 2004 and a market capitalization of approximately \$9 billion, according to Lanza. "Bob leaves L-3 well positioned, with a world-class financial organization and a strong balance sheet that will support L-3's future growth," he added.

With 25 years of experience in finance, including 15 years in the defense industry, Strianese, 48, joined L-3 at its inception in 1997. He began as vice president - finance and controller, and was promoted to senior vice president - finance in March, 2001.

Strianese has been a longtime protege of LaPenta, having worked with him for nearly 15 years. For nearly eight years, he has been a well respected member



New Products

Wi-Fi IP VPhone - A New IP Via Satellite Solution



The Viper Networks Wi-Fi vPhone is a next generation intelligent IP Communications device which combines VoIP communications together with Wi-Fi. This WI-FI phone provides a good value added solution for satellite services providers and satellite carriers in the market place that is looking to provide to

their clients access to the PSTN.

TBC- Telematics Business Consultants jointly with Viper Networks is launching this quarter a new VOIP WI-FI solution for satellite services provider and satellite carriers. This WI-FI VOIP would give more options for clients that need to call the PSTN from IP via Satellite terminals anywhere in the world for any fix or cell phone worldwide with a pre-paid rate starting with US\$ 0.015 cents per minute. The WI-FI phone picture is similar to a cell phone and has capacity to be activated in 5 minutes in a WI-FI satellite or non-satellite environment.

Minimum System Requirements:

The services is available worldwide and if you need any further information contact TBC-Telematics Business consultants at email info@tbs-telematics.com or phone + 1-949-552-6871

Globalstar Offers Affordable Turnkey Service to Track and Monitor Assets Via Satellite

MILPITAS, Calif., Jan. 19 — Globalstar launched on Tuesday Globalstar Quick Locate Service, which enables businesses and individuals to reliably and affordably track assets that are remotely located or in areas that are not covered by traditional wireless services.

With monthly service fees as low as \$34.95, Globalstar Quick Locate provides an option for companies and individuals seeking

a reliable and cost-effective asset tracking solution. Globalstar said the service saves companies additional funds and streamlines implementation by including an easy-to-use, no-cost Web tool that enables customers to quickly view the location coordinates of the asset being tracked.

Potential applications for Globalstar Quick Locate include tracking trucks, containers, machinery and workers in the forestry, oil and gas, maritime, transportation and mining industries. Individuals or government agencies can also use Globalstar Quick Locate Service to track the position of any potentially mobile asset such as vehicles, marine vessels, or other property.

Globalstar Quick Locate Service, the company said, is derived from a process where each telemetry unit transmits each message multiple times, minimizing the chance of message failure within the coverage area.

Companies can choose between one of two Globalstarapproved telemetry units: the Guardian Sentinel, developed by Guardian Mobility Corporation, and the AXONN AXTracker, developed by AXONN, LLC. These products have been designed to automatically transmit a 9-byte message that includes GPS coordinates six times daily through the Globalstar satellite network.

Telenor-Sea Tel Forge Business Pact For Broadband Maritime Communications



OSLO, Norway, Jan. 19 – Telenor Satellite

Services, a subsidiary of Telenor of Norway have signed an agreemeent with SeaTel, a Cobham plc company, for the provision of broadband maritime communications using a combined package of Sea Tel WaveCall equipment and Telenor's Sealink broadband communications services.

Under the terms of the agreement, Telenor will provide its maritime VSAT broadband service via the company's own network of global teleport facilities. In addition, Telenor will offer around-the-clock customer support to SeaTel's WaveCall customers.

The partnership includes bundling Sea Tel's hardware, including the WaveCall 4003 antenna, with Sealink's maritime very

NEW PRODUCTS

small aperture terminal (VSAT) services, delivering broadband communications at speeds up to 2 Megabits per second. The bundled Telenor-Sea Tel maritime broadband solution enables users immediate and "always on" Internet connectivity, economical VoIP calling, and continuous access to LANs/ WANs.

"This partnership of equipment manufacturer with service provider now offers the yachting community a new and easy to use 'one-stop-shop' for maritime broadband communications in Europe and the Americas," said Pal Jensen, vice president of Telenor Satellite Services.

Telstra Launches Service Provider Solutions in the US Market

NEW YORK, NY, Jan. 19—Telstra Incorporated, a provider of advanced communications services to multinational corporations, introduced its new customizable data communications services to carriers, service providers (SPs), resellers and system integrators (SIs) in the US market.

"Telstra's unique offering provides customizable global data solutions for service providers in the US," said Arthur Weissman, director, Channel Development of Telstra Incorporated. He said the key benefit for service providers is the ability to use Telstra's network on a 'pay as you grow' basis, minimizing capital risk and operational costs by eliminating the need to build their own network.

He said another value of the Telstra Service Provider offering is that many of the services are provided by REACH, the top IP backbone operator in Asia.

According to Telstra, service providers can begin selling services and realizing revenues and profits immediately on their global data services. Telstra will provide customized service level agreements (SLAs) for these services and global technical support, 24x7, with in-country support at major destinations in the Asia Pacific region.

Sirius Satellite Licenses Digital Fountain Meta-Content Technology

FREMONT, Calif., Jan. 18 — Digital Fountain, a supplier of patented communications technology said Sirius Satellite Radio has signed a licensing agreement to use Meta-Content technology in upcoming products from Sirius. Over time, the companies said they expect that Digital Fountain



technology to be incorporated into all Sirius Satellite radio receivers.

Sirius has licensed Digital Fountain's latest generation of technology known as Raptor. Digital Fountain claims Raptor is the most advanced Forward Error Correction (FEC) technology available today from any source.

"We evaluated a number of other alternatives and believe the efficiency and reliability of Digital Fountain Raptor best meets our needs," said Terry Smith, CTO of Sirius.

According to Digital Fountain, meta-content technology, including Raptor, is useful for data and file broadcasting applications because it allows for efficient data reception even when devices receive data at random and intermittent intervals, as is often the case with automotive receivers. For example, when using meta-content technology to receive a broadcast of a file, devices need only collect any set of packets approximately equal in length to the original data package to instantly and perfectly recreate the original data. Because there is no need to worry about which packets any particular receiver collects, the data is received quickly and reassembled accurately, even amidst intermittent reception schedules and frequent broadcast interruptions.

Raptor is a patented set of coding technologies created by Michael Luby and Amin Shokrollahi, two of Digital Fountain's scientists.

The technology incorporates several unique properties that distinguish it from conventional FEC technologies. The company says Raptor codes are "rateless" meaning there is no limit on the amount of unique encoded data that can be generated. Second, the codes have the property that encoding and decoding calculation requirements are linear with respect to the size of the source data. This contrasts to conventional coding technologies where calculation requirements increase at an accelerating rate with larger size. Moreover, Raptor is extraordinarily efficient, allowing it to operate in software, even on low-power embedded processors.

XACT Communication & Kuryakyn USA Release Satellite Radio Receiver Mount for Motorcycles

NEW YORK, Jan. 17 — XACT Communication has released a satellite radio receiver mount, made specifically for recreational

NEW PRODUCTS

vehicles. Designed and distributed by Kuryakyn USA, the custom fitted bracket mount will allow motorcycle, scooter and quad enthusiasts to listen to commercial-free Sirius Satellite Radio via an XACT Stream jockey Plug + Play Satellite Radio Receiver, anywhere in the US.

The custom made bracket will fit most motorcycles on the market (including Harley-Davidson, Honda, BMW, Yamaha, Buell, Suzuki, Kawasaki and many more) and allows for several mounting options to provide the cleanest look and fit. Available in chrome and black, the mount bracket is not only aesthetically appealing, but functional and durable as Kuryakyn USA designed the bracket to hold up to vigorous road miles and inclement weather.

Motorcyclists will have the ability to listen to Sirius with their XACT Stream jockey either with FM modulation through their existing stereo or through direct helmet-headset plug-in. Kuryakyn USA also provides pre-amped speakers for additional options for music listening on a recreational vehicle. With the XACT Stream jockey satellite radio receiver, listening is not

exclusively confined to the vehicle. The receiver can be easily "plugged" into the motorcycle mount, a home stereo system or one of XACT's wide assortment of satellite radio accessories including boom boxes and the Portable Pod.

RaySat Introduces Satellite Antenna for In-Motion High Speed Internet Access and Digital TV Reception

LAS VEGAS, Jan. 10 - RaySat, Inc., a developer of mobile video receiving systems, has introduced what it claims as the world's first vehicle-based satellite antenna providing in-motion, high-speed Internet access to motorists, including emergency personnel, riding in cars, trucks, or motor homes.

The new SpeedRay 3000 is based on an enclosed low-profile, roof-mounted antenna, which turns any vehicle into a rolling "hot spot," enabling Internet access to laptops, PDAs, or other devices equipped with Wi-Fi wireless networking technology. SM

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COVER STORY Satellites and Wi-Fi

by Virgil Labrador

The "hot" thing these days are ▲ "hotspots"— Wi-Fi technology providing internet access without wires to homes and public places such as cafes, airports, hotels and even remote areas. For an industry plagued by overcapacity and sluggish demand, the bandwidthhungry wireless revolution presents a unique opportunity to create new revenue streams for satellite service providers.

Wi-Fi or wireless fidelity is really one of many emerging wireless technologies which include Wi-Max, Zigbee, Mobile-Fi and Ultrawideband. Wi-Fi operates on the unregulated radio spectrum using IEEE series of standards, 802.11. Basically, a Wi-Fi hotspot provides a wireless network access point to laptops, PDAs and cellphones within a limited coverage

area of about 300 feet radius indoors (or 2,000 feet outdoors). Through multiple hotspots, larger coverages can be provided in areas such as airports, hotels and convention centers.

Satellites can come in by providing two-way access to various locations using VSAT technology (see Satellite Wi-Fi Broadband Access Model graphic). However, hotspots do not have to use satellites exclusively to gain access to the internet--it can use DSL, cable modems and other terrestrial connections.

According to Northern Sky Research's President Christopher Baugh, satellites has the advantage in areas underserved by cable and DSL such as in rural areas and in cruise ships and other mari time use, offshore oil and gas platforms, trains and other transportation use such as in Fi hotspots in the United States today. trucking and RVs, in-flight internet access, disaster operations and the like. Wi-Fi also has the advantage over other wireless systems in the next few years, according to in smaller coverage areas.

"The reason for the success of Wi-Fi is that it's simple—it's plug and play--and it's low-cost," said Baugh. But he adds that Wi-Fi is only a component of VSAT technology and a relatively small segment thereof. "In general, it's still a nice opportunity-we see the satellite wireless technologies driving modest broadband demand, which we project to grow at an

annual rate of between 7-10 percent," he added.

There is an estimated 50,000 public Wi-The number of hotspots is projected to grow at a compounded rate of 42 percent IDC. According to research firm In-Stat/ MDR, over 54 million laptops, PDAs nd other devices equipped with Wi-Fi were sold in 2004 alone. Northern Sky Research projects the satellite wireless market (including other technologies such as Wi-Max) to reach \$7 Billion in service revenues by 2007.

It is no wonder then, that the industry is pining its hopes on Wi-Fi and other



Source: Satellite Wi-Fi Convergence report (2003) Northern Sky Research

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broadband wireless technologies to drive growth in the next few years. Surveys conducted by Northern Sky Research and Telecom Asia have consistently showed that over two-thirds or 67% percent of those surveyed agree that satellite Wi-Fi services will be a vital component of growth in the next 3-5 years.

One of the largest satellite operators in North America, SES Americom, is keenly looking into Wi-Fi and other wireless technologies. With its recent purchase of service provider Verestar's assets, SES Americom is a major player in the teleport and ground segment part of the business as well. SES Americom is a member of the Wi-Max Forum, an industry group.

"We view Wi-Fi, Wi-Max and other emerging technologies as a hybrid network solution for satellite services and a viable enhancement of satellite in certain applications. Wi-Fi, Wi-Max and other wireless technologies are going to be a key part of next-generation delivery systems, although there are still some issues to resolve such as standards and compatibility" said Steve Corda, SES AMERICOM's Vice President of Product & Service Development.

Wi-Fi vs. Wimax

With Wi-Fi's limited coverage, Wi-Max (802.16 standard) which has a reach of over 30 miles is perceived as the next generation in wireless technology. However, Wi-Max came in later than Wi-Fi and is still in a developmental stage. While, most laptop computers to be released in 2005 will have Wi-Fi cards built -in, Wi-Max cards won't be available until mid-2006.

Phil Solis, senior analyst at ABI Research said: it will be several years before Wi-Max gains any real traction in the 802.16e market. (802.16e is the mobile version of Wi-Max that will allow for portability and mobility.) "We're not looking at Wi-Max even starting to compete against Wi-Fi until 2007, when it will turn up in a few laptops. By then, Wi-Fi penetration in laptops will be almost universal."

ABI Research's findings include that Wi-Max may coexist with Wi-Fi, providing backhaul to Wi-Fi access points, and as a supplement to costly cable and DSL deployment in areas where they are not present. Underdeveloped countries and large rural regions stand to profit from Wi-Max's lower infrastructure cost, according to ABI.

What's Out There

A sampling of what's available in satellite Wi-Fi services include the following:

GLOBAL LINK Productions Inc.

Live News, Sports & Teleconferencing



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HNS' DIRECWAY Wi-Fi Access. Hughes Network Systems (HNS) which operates the largest VSAT network in the US, launched in April 2004 its DIRECWAY Wi-Fi Access service. It markets a comprehensive Hot Spot solution for the enterprise market, including restaurants, coffee shops, gas stations, convenience stores, hotels, auto dealerships, truck stops, RV parks, and marinas. HNS is drawing on the success of its DIRECWAY brand, which achieved a subscriber base of 220,000 residential and small business customers at the end of 2004.

The continent-wide reach of DIRECWAY Wi-Fi Access enables users to obtain seamless and reliable Hot Spot service to any or all franchisee, or company-owned locations in the continental US.. HNS also provides a managed solution, including all equipment, installation, and back-end support services, including customer billing and network management.

Connexion By Boeing. Boeing is marketing an in-flight broadband internet access service which uses Wi-Fi technology. The service which launched last May 2004 on selected Lufthansa flights, has signed major airlines such as Singapore Airlines, All Nippon Airways, Japan Airlines, Scandinavian Airlines and China Airlines. The services provides high-speed internet, access to corporate intranets and soon video services while on flights via satellites and Wi-Fi. The service cost between \$9.95- \$29.95 per flight, depending on the length of the flight.

Boeing's use of Wi-Fi technology gives it a decided advantage over its competitors such as Seattle, Wa-based Tenzing Communications, whose service uses Ethernet LAN connections. Connexion By Boeing can be accessed by both Ethernet LAN connection or wirelessly through Wi-Fi. Loral's SkyReach. Satellite operator Loral Skynet teamed up with hardware supplier iDirect Technologies to provide internet connections via Wi-Fi and Loral's satellite network. The service which was demonstrated last month at PTC in Hawaii, aims to deliver fixed-network backhaul over Loral's SkyReach IP service or Digital Link SCPC service to locations where base stations are located.

"The iDirect remote satellite router's ability to deliver speeds up to 18 Mbps, combined with iDirect's support for real time applications like voice and video allow us to deliver broadband connectivity that matches the quality and performance of digital terrestrial circuits. Wi-Fi will extend this service resulting in a user experience comparable to traditional landline service, supporting any end user application at a very competitive rate," said John Kealey, president and CEO of iDirect Technologies.

IPAccess Mobile Wi-Fi Solution. San Juan Capistrano, Calif.-based service provider, IP Access International came up with a creative mobile satellite solution utilizing VSAT and Wi-Fi technology. It outfitted a H2 HUMVEE vehicle with a



IP Access' Mobile Satellite Vehicle

portable satellite dish and VSAT and Wi-Fi capability for instant internet access even in remote locations. The H2 can be



Raysat's Roof-mounted Speed Ray 3000

deployed anywhere and is ideal for satellite news gathering, homeland security, disaster recovery and emergency operations.

RaySat Speed Ray 3000. Vienna, Va-based Raysat Inc. launched last month it's SpeedRay 3000 based on an enclosed, roof-mounted antenna and Wi-Fi technology which turns any vehicle into a rolling hot spot.

The innovative system provides Internet download speeds up to 2 mbps and upload speeds up to 128 kbps, shared among users in the vehicle. In addition, using technology also developed by RaySat, the SpeedRay 3000 provides moving vehicles RaySat 2-Way Internet with strong reception of digital satellite TV and music channels.

To provide continuous signal feeds, the SpeedRay 3000 uses a phased-array antenna that rotates inside its housing. Its panels constantly move up and down and back and forth, to track and maintain the satellite signal regardless of the vehicle's position relative to the satellite with which it is in communication. The Raysat 2-Way Internet system is scheduled for availability in the third quarter of 2005 and will retail for \$3,495.00. It's cost may not be currently affordable for the ordinary motorist, but like any other new technology, it should come down in the long run.

Satellites, *Stratellites*. An enterprising company, Sanswire Network, which has been providing Wi-Fi access since 1996, is planning to put up a fleet of airships called "stratellites" 65,000 feet (or about



Artist's rendering of a "Stratellite"

13 miles) in the stratosphere. The airships will act like satellites and provide two-way internet access to hotspots on the ground using Wi-Fi technology. At 13 miles above the earth the stratellites will be able to cover over 300,000 miles on the ground. Sanswire plans to put up one of these stratellites in each major metropolitan area of the U.S.

The satellites will be solar-powered to enable it to move with the earth's rotation, so that it appears to be in the same place from a vantage point on the ground, much like a geosynchronous satellite. One advantage stratellites will have over conventional satellites is that being much lower in altitude, it does not have the latency or delay that are inherent in geo satellites. They are also projected to cost at a fraction of geo satellites and are reusable.

There are many other Wi-Fi initiatives in the satellite sector. Notably in Europe, satellite operators such as Eutelsat and service providers like Globecast are also getting into the Wi-Fi market.

Will Wi-Fi Drive Satellite Demand?

As we can see, there's a lot of activity in the satellites and Wi-Fi arena and more in

Wi-Fi Standards

Wi-Fi networks operate in the unlicensed 2.4 and 5 GHz radio bands. 802.11 refers to a family of specifications for Wireless LAN (Local Area Network) developed by the IEEE (Institute of Electical and Electronic Engineers). The standards were adopted in 1997 and there are several specifications in the 802.11 family:

- **802.11** --applies to wireless LANs and provides 1 or 2 Mbps transmission in the 2.4 GHz band using either Frequency Hopping Spread Spectrum (FHSS) or Direct Sequence Spread Spectrum (DSSS)
- **802.11a** --an extension to 802.11 that applies to wirelss LANs and provides up to 54 Mbps in the 5 GHz band. 802.11a uses an orthogonal frequency division multiplex encoding scheme rather than FHSS or DSSS

•802.11b --an extension to 802.11 that applies to wireless LANs and provides 11 Mbps transmission(with a fallback to 5.5., 2 and 1 Mbps) in the 2.4 GHz band. 802.11b uses only DSSS. 802.111b was a 199 ratification to the original 802.11 standard, allowing wireless functionality comparable to Ethernet.

•802.11g --applies to wireless LANs and provides 20+ Mbps i nthe 2.4 GHz band.

Source: Satellite Wi-Fi Convergence report (2003) Northern Sky Research

the offing with other wireless technologies like Wi-Max. But what is noticeably lacking is a an uptake by enterprise users.

Northern Sky Research in its 2003 report on the Satellite Wi-Fi Convergence categorized satellite wireless services into three components: the enterprise market; VSAT-base wireless networks and services such as the aforementioned Connexion by Boeing. Northern Sky Research's Baugh told SatMagazine that theyhad to adjust their original projections of number of satellite-supported wireless hotspots from 90,000 to 50,000 in 2009. The main reason for this adjustment is the elimination of the enterprise as a possible market, since companies can pretty much install their own Wi-Fi networks without any outside help, according to Baugh.

This leaves the VSAT-based wireless market and wireless services. "There really isn't a single application or a single deployment that will create a huge surge in transponder leases, that's just not in the cards right now, " said Baugh.

Baugh reiterated that his view that satellite and wireless convergence as part of a modest growth satellite broadband

demand. Baugh finds it surprising that Wi-Fi has only registered minor growth despite the ubiquity of Wi-Fi everywhere "I think this is reflective of the limits of satellite technology --which is still a limiting hurdle," said Baugh.

Conclusion

So where will the growth in the broadband market come from?

Baugh says that there is much hope in consumer services such as the planned WildBlue broadband service in North America. However, he said that 2004 was not a very good year for consumer broadband. WildBlue postponed its launch in North America and the highly-touted broadband satellite IPSTAR in Asia has still not launched.

"Once WildBlue, DOCSIS (the twoway standard) and IPSTAR are able to succeed, and actually grow subscribers-- to some extent, you'll see that model replicated in other markets and this will drive broadband growth," said Baugh.

Virgil Labrador is Managing Editor of Satnews Publishers. Before joining



Satnews Publishers he was the marketing director for the Asia Broadcast Centre—a fullservice satellite transmission facility in Singapore. He holds a master's degree in Communications Management from the Annenberg School for Communication of the University of Southern California. He can be reached at virgil@satnews.com

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Satellite and Wi-Fi Bandwidth Integration: Cost-Effective "Last Mile" Solutions

by Thomas van der Heyden

Broadband is the mega trend in the telecom/internet/video industry today and will be for years to come. Broadband services will eventually become common and ubiquitous, reaching most offices and homes just like telephone and fax do today. In Asia- Pacific alone, the forecast is for 120 million users and US\$150 billion in revenue by the year 2010, with the critical bottleneck being the 'Last Mile'.

Of the three principal 'last mile' technologies in use today, each has its business and technical advantages and disadvantages. Mainstream: ADSL / Cable - has a huge infrastructure in place and was first in line. Fiber serves only high demand business users in the dense urban areas and is not a mass market approach to broadband. The third approach, and topic of this article, is the combination of Fixed Wireless (Broadband Wireless Access or BWA) and Satellite offering fast and flexible network implementation by incumbents or new competitive operators, addressing mass markets without the requirement for cabling entire cities, at cost savings which would be hard to ignore. Now, this same evolution in wireless 'enabling technologies' has advanced to the point where an acceptable answer, from both a technological and business perspective, to a service provider's single largest business challenge - the "Last Mile", is available, proven and cost effective.

This new implementation of technology, referred to as Wi-MAN (Wireless Metropolitan Area Network) and Wi-Max (Worldwide Interoperability for Microwave Access) which is an extended frequency version of Wi-MAN, both falling under the IEEE 802.16 banner, when implemented with a satellite based infrastructure, is a proven solution to the affordable 'first mile / last mile' issue.

Until today we have had to live with the trade-off of the relative high cost per subscriber of a dedicated satellite link, to the relatively low cost per subscriber cable and wireline offered, even considering that this option required the 'passing' of every business and home on the street, to be able to offer its services. As competition for subscribers has grown over the last ten

Over the last ten years we have seen the fast pace evolution of standards and their accompanying technology - toward a Wireless World. Personal Area Networks (PANs) made possible by BlueTooth, wireless Local Area Networks (LANs) as many of us have run into at the local coffee shop ("Hot Spots") along with the Wi-Fi (802.11) capability built into just about every laptop sold today as a standard feature.



years, it was not uncommon to see multiple cable companies wiring the same areas of a city on top of that which the telephone companies had already wired. At the same time other areas of the city, where the demand for services was not as great, no services were provided. In addition, we now find cable companies re-cabling the world, or at least the more affluent parts of it, to improve their infrastructure and service offering (bandwidth and duplex offerings), adding to the number of wires hanging on what was once referred to as a 'telephone' pole.

Today, where mobile phones and cell towers every several kilometers provided the wireless revolution of mobile telephony, the satellite/Wi-Max team will provide the same revolution in a similar network architecture, but rather than addressing the lower data rate telephony 'last mile' requirements that

cellular services provide, this new solution will provide wireless 'wide band services' bringing with it internet, telephony, subscription television, video-on-demand, and a myriad of other applications. Wi-Max towers are being built which can cover large areas with users receiving excellent broadband service as far as 1 - 20 miles from a Wi-Max tower, which in turn is interconnected to the service provider via new and improved VSAT terminals sporting DVB-S2 technology.

Satellite technology over the last five years has improved to a point where further evolutions will cost more than the possible improvement obtainable for many years to come. Cost savings through a cocktail of technologies; Multi-Spot Beam spacecraft, Digital Video Broadcast (DBV-S2), which is by no means limited to video implementa-

tions, and DVM-RCS interactive return satcom channels, are significant. DVB-S2 when evaluated alone without the other improvements in the satcom world, when implemented for broadband satellite services and compared with DVB-S, given the same C/N and symbol rate, the bit rate capacity gain is 25% -35% bringing us to within 0.7 dB to 1 dB from the Shannon Limit. It will be a while before the industry will be able to take another step as significant in improving efficiency as DBV-S2 has taken.

From a business perspective DVB-S2 will not replace DVB-S products already in the operation, including the millions of Direct Broadcast Satellite (DBS) Integrated Receiver Decoders (IRDs), but for the new services such as High Definition Television (HDTV), IP Services and Wi-Max backbone networks, it is just what the doctor ordered.

Thirty years ago specifications drove industry's implementation of technology. Fifteen years ago industry started moving faster than the international bodies which were establishing specifications could keep up and the world saw a multitude of specifications and implementations, most of which yielded products which could not work with each other without some special jig or interface box in the middle.

Today we are experiencing the best of both worlds; specifications documenting the requirements of consumers are being established by international bodies such as the ITU, EBU, IEEE and others with support from industry and at the same time



we find industry and user groups uniting to establish forums which are defining implementation and a suite of conformance tests to ensure interoperability of products manufactured by a multitude of companies. DVB-S2 and 802.16 based equipment are the products of this dual approach and as such, interoperability is high and the attending cost of implementation and maintenance is low. Wi-Max receivers will soon be sold in the US\$50 to \$100 price range. The same as a DSL modem today. This means that in addition to the population not presently served by a broadband service provider, millions of existing users could eventually move from their current Internet service providers and join a Wi-Max network for a more stable, and cost effective service offering.

APPLICATIONS

Residential and SOHO High Speed Broadband Access. Today this market segment relies on DSL/ADSL provided by the telephone company or wideband cable television operators. Quality of service depends on several variables to include the number of users at any given time and the distance from a repeater. Often, service is not affordable, nor predictable, particularly when the number of users in an area does not support competitive service providers. The alternative is often dial-up modem service, which considering the ever increasing bandwidth requirements of internet, will soon not even be a viable poor second option.

Cellular Backhaul. Often cellular backhaul is accomplished by leasing services from a wireline carrier or building up a private microwave network. In the first case the cellular operator is not in control of his entire network making service guarantees difficult and as well as being held hostage to the wire-line operator making cellular service more expensive than it need be, particularly in developing countries. In the second case, building and maintaining a private microwave network not only adds to the cost of service, but also limits the pace at which network expansion can take place for both technical and business reasons.

Wi-Fi Hot Spot Backhaul. Wi-Fi 'hot spots' are growing world wide. As they grow a natural snow balling effect will occur and the present use of DSL/ADSL will not be able to keep up with the demand.

Disaster Recovery and Emergency Services. Using a VSAT terminal coupled with a Wi-Max transmission tower, all forms of communications can be installed and available in a matter of an hour or two, providing services over areas as large as a circle 40 miles across. The recent disaster brought on by the Tsunami in Southeast Asia, and UN refugee camps are just two examples where this marriage of technologies could deliver a much needed service. The single largest problem the UN and Asian countries had in addressing the catastrophe the Tsunami created was coordination caused by the lack of effective communications.

Energy, Forestry, Mining, and Remote Services. The ability to provide fast, effective and secure communications to the energy sector, which often operates in the middle of nowhere, can now be an "off-the-shelf" product delivered within hours of when the operational requirement is defined. Service providers supporting these industries now have the tools to deliver 'any communications' the customer needs in a matter of hours, without any practical limitation to the types and amount of services required.

CURRENT STATUS

In January 2004 Intel announced a major push into Wi-Max technology that helped the standard emerge into the spotlight. They along with many others had been looking at ways to cover entire towns and cities – wirelessly. It was agreed that while an entire city could be covered with Wi-Fi hot spots, such a patchwork would be difficult to administer and would operate over too narrow a frequency range to deliver the amounts of data required. Intel came to the conclusion that Wi-Fi needed to evolve into more of a 'carrier' technology, deployed by a service provider, and needed to exploit a lot more spectrum options. Wi-Max, which operates at greater distances and over a greater range of frequencies, turned out to be ideal. The company began designing communications processors based on the Wi-Max standard and delivered the first sample chips to manufacturers in September 2004.

At the same time satellite modem manufacturers have taken on the DVB-S2 standard and both the new standard and a backward compatible versions are available on the market today. **SM**

FOR MORE INFORMATION

As you read this article, entire books were being written on these standards and their applications, and no author could hope to begin to do justice to this subject matter in a short article such as this, nor was it my goal. My hope is that I have whet your appetite just enough to have you sit down at your terminal and log on to a few web sites which provide encyclopaedic amounts of information on these topics, and which have done so for both the layman and the technologist. They include:

The Digital Video Broadcast official website: http://www.dvb.org/

The European Broadcast Union (EBU) Technical Review: <u>http://www.ebu.ch/trev_index-dab.html</u>

The IEEE Portfolio of Standards: http://standards.ieee.org/getieee802/portfolio.html

The International Telecommunications Union (ITU) Home page: http://www.itu.int/home/

The Wi-Max Forum: http://www.wimaxforum.org/home



The author, Thomas van der Heyden, is the Managing Director of Asian-Pacific

Consulting, Singapore, a consulting group providing Business Development and Investment Consulting in Satellite Communications, Information Management and Network Engineering arenas to Asian telephone companies (wireline and mobile), internet service providers, television broadcasting entities and multinational investors. Tom, one of our industry's pioneers, started out in the Advanced Satcom Projects Group of the US military 1972. Having completed his engineering and business law degrees, he has spent most of his career developing and implementing satcom systems in developing countries worldwide. His accomplishments, in addition to several patents, include building China's first voice and data networks, building Indonesia's wideband TDMA systems, writing the first FCC filing for DAB/DARS, the development of the Indonesian DBS program, and a fluency in six languages. Tom can be reached at vanderheyden thomas@asian-pacific.net

Satellite can win European HD Distribution-But is wireless the rival?

by Chris Forrester

hile Rainbow Programming's VOOM satellite high-def service goes through its subscriber nightmares, Europe's satcasters remain confident of success in 2005. They see the next few years as one where they have an exclusive opportunity to push HD television to an enthusiastic audience. The problem for almost all of Europe's terrestrial network broadcasters is one of limited bandwidth. The UK's dilemma is typical, and summed up by a high-ranking official from Britain's Office of Communications Regulation (OFCOM), the UK's version of the FCC. Andrew Sterling, OFCOM's strategy development manager, speaking at a recent Sony-organised HDTV event in London said satellite (and cable) could move much faster



than digital terrestrial television (DTT) and he praised BSkyB's satellite initiative for the UK, but "until the analogue to digital switch-over has happened, there's too little space to offer HD services. There can be no HDTV."



That Europe is split into the 720 progressive or 1080 interlaced camps is clear. The terrestrial networks want 720p for its operating efficiencies. 1080i, which most recognise delivers better images in most cases, is too high a bit-rate for terrestrial networks.

That's bad enough. But the proposed date for the UK's analogue switch-off is December 31st 2012. And even then there's no guarantee that HD might happen. Sterling warns that OFCOM's duty is to get the very price it can for freed up spectrum, and while broadcasters might be one interested party, there's no doubting there will be the usual clutch of cellular

European HDTV availability

HD1 on Cable	
France	Noos
	Numéricable
Germany	ish
	Kabel Baden Wurtenberg
Monaco	Monaco Cable
Netherlands	Stichting CAI Krimpen
	Openbare Nutsbedrijven Schiedam
	Stichting Regionale
	CAIW
HD1 on Satellite	Э

SES Astra Sirius Hellas

Other European	Pay-TV HD services
Premiere	November 1 2005
TPS Star	Autumn 2005
Canal Plus	Autumn 2005
BSkyB	Winter 2005-6
Discovery HD	"Promised"

Data: Inside Satellite

operators also enviously eyeing up capacity for as yet undreamed of services. After all, if a week is a long time in politics, then 7 or 8 years is a multitude of lifetimes in the growth of mobile telephony services, WiFi, WiderFi. 3G, 4G, DVB-H and other potential wireless-based users of the old analogue frequencies. "

The situation is the same throughout Europe, except for some of the Benelux countries where cable usage is widespread and some parts of Scandinavia, where one way or another a mix of cable and satellite gives almost universal multichannel coverage. But terrestrial faces another set of challenges, that of cross-border interference. Imagine the relative sizes: The USA (including Alaska) is some 9.3m sq km in size. Europe, including the British Isles, is generally stated to be some 10.3m sq km in area. The USA has one regulator (the FCC) to handle frequency allocations. Europe has dozens. Europe has some countries, Belgium, the Netherlands, Luxembourg, Denmark, for example, that combined (116.8m sq km) would fit into the corner of Texas (694m sq km)!

Each of these nations has to agree and then coordinate new digital frequencies with one another. This is already a tough problem for the UK, where hundreds of thousands of affluent homeowners in the South-East corner of England cannot receive the BBC's new digital channels terrestrially because of the risk of cross-border interference. Satellite is VERY popular in these regions. There are assorted upcoming frequency conferences coming up to address these significant problems, but little or no sign just yet that early solutions are in sight. "Our duty is to get the best value for the UK's limited spectrum. We will be taking a market-driven approach," said Sterling. He said an upcoming Radio Regulation Conference (in 2006) would be an opportunity for further dialogue on the matter. Sterling added: "HDTV is one very

"If a picture is worth a 1000 words, then it's worth displaying at 1080 lines!"

Dr Joe Flaherty, CBS' SVP of technology



significant technology that could make use of [some of] that capacity."

Europe's major public broadcasters are trapped by this very sort of regulation, and barely able to plan for an HD future. Typical is France, where there is real confusion over how it will implement Digital Terrestrial TV. French Prime Minister Jean-Pierre Raffarin has now formally announced the choice of MPEG-4 as the compulsory standard for all subscription and HD channels on digital terrestrial television in the country. The choice of MPEG-4 was proposed by the ministers of Economic Affairs (Hervé Gaymard), Communication (Renaud Donnedieu de Vabres) and Industry (Patrick Devedjian) and came as a major surprise, especially as the nation's broadcasting regulator (CSA) had recommended using MPEG-2, which will be employed for all free-to-air DTT transmissions. Now consumers who want both free-to-air networks and pay-TV will have to buy - as yet unavailable - dual standard receivers, and it could be argued the choice is an act of protectionism by the French consumer electronics industry

as no other country is likely to adopt a similar dual standard.

The French government argues the choice for MPEG-4 will free spectrum capacity for local services, HD transmissions and data services, as well as future broadcasts to mobiles and handheld decices. In reality the choice for dual standards will make the upgrade to pay services more difficult for early purchasers

of MPEG-2-only receivers. The free-to-air DTT services will launch in March this year.

Meanwhile, French digital TV platform TPS has informed the CSA regulator that it will start its pay TV services on DTT in May this year, and they will be in the MPEG-4 format. The announcement refers to TPS Star, its premium channel which makes TPS Star the world's first channel to be broadcast digitally in MPEG-4. TPS has said that it is calling on French manufacturers like Thomson, Sagem and ST Microelectronics to make set-top boxes that will be backward-compatible with MPEG-2. TPS says the MPEG-4 broadcasts will be in standard definition initially although the market expects HDTV transmissions to commence this autumn.

The prospects are that, as in the rest of Europe, satellite will take up the slack. France's Number 2 DTH platform TPS, available only on Eutelsat, claimed a record number of new subscriptions in December. TPS reported 66,588 new subs, double the number it won in December 2003 and taking the total at the end of

December to 1.35m. When cable sales and overseas subscriptions in other French territories are added the total comes to almost 1.7m. TPS state their "success" during 2004 was down to exclusive content on its TPS Star channel, as well as having packages available for viewers at rates as low as €1 a month. It is TPS Star that will be converted first to HDTV. As yet there's no indication as to when TF1 (which shares common owners with TPS) will go HD.

Meanwhile, rival premium service Canal Plus/Canal Satellite disclosed it gained 100,000 new subscribers last year. CEO Bertrand Meheut has again declared his desire for a merger with TPS. He called the existence of two pay TV platforms in France economically untenable, Meheut added: "Takeover or merger, we are open to all possible solutions." "For now, we are alone at the table, but I think that TPS will come around to my point of view," Meheut told a French newspaper. Canal Plus will also be the backbone of the Canal Satellite DTH/DBS service in HD.

Much the same situation exists in Germany, where Premiere is making all the HD running. Premiere is an all-digital DTH/DBS service now with some 3m subscribers, and launching its first 3 channels in MPEG4 HDTV on November 1. As yet, there's simply no word from what the German networks (public or commercial) will do about HD, although there are suggestions that Pro 7/Sat 1 will start to offer at least some HD services – but only on satellite or cable – this coming winter.

It is the same in Britain where Rupert Murdoch controlled BSkyB is now expected to start HD transmissions this autumn. The BBC has made its position abundantly clear. Andy Quested, the BBC's HD project leader says the BBC is totally committed to producing all of its output in HD by 2010. "This means everything, from prime-time to the 7 or 8 years is a multitude of lifetimes in the growth of mobile telephony services, WiFi, WiderFi. 3G, 4G, DVB-H and other wirelessbased uses...

weather forecast. However, we have no plans for HD transmission in the short to medium term." Nevertheless, he said some of the UK's special events were already being captured in HD, usually for overseas sale, and that there could well be an argument for making one-off transmissions of

events like the upcoming Winter Olympics (in Turin in early 2006), and major soccer events. "It would be silly not to cover these."



Quested explained the need to get into HD production was governed by the economics of the marketplace. While the BBC spent some £74m (\$140m) in acquiring content from overseas sources, it earned £110m (\$210m) from overseas sales, and almost all of that output was supplied in HD form. Quested's view, as a line manager, is that programming needs to be mastered in the very best form possible for eventual sale or transmission. It also seems that there's a growing recognition that the rush towards 720p, at least for Europe's major networks, is something of a red herring. With no bandwidth available until 2013 - and later in many European countries - then satellite (and in time cable, and perhaps ADSL-based service) is the only immedi-

ate route available for HD transmission.

Dr Joe Flaherty, CBS' SVP of technology, and long an advocate for the very best in transmission, makes an impressive plea for Europe to adopt the 1080-line system. He says: "If a picture is worth a 1000 words, then it's worth displaying at 1080 lines!" His warning was based on the argument that upcoming products like Blu-Ray "would give broadcast TV more than enough competition". Indeed, Flaherty wondered why broadcasters were even bothering contemplating a 720 line system. "Choose a lesser quality and you risk not selling your content." He argued that upconversion would no longer be an option for some broadcasters. And besides, he said "Broadcasters need to be aware that rival (non-broadcast) HD content is just a click away. DVB supports 1080i. Why not implement it?"

Can mobile-type wireless step into this broadcasting niche? The experts all



seem to agree that the prospects of widespread bandwidth-rich content in HDTV is a Hollywood sci-fi movie or two away just yet. But improve MPEG4 by 40%-50% in terms of bit-rate efficiencies and maybe it is best to say we would be wise not to rule anything out. Will satellite have carved out a head-start by then? We can only hope so. **SM** David Mercer from Strategy Analytics is bullish on flat-screens being a popular buy across Europe, suggesting that by 2008 Europe would be selling about 17m flat-screen units a year, with large screens (36" and over) selling at an impressive 8.2m units a year. He also said that "at least 20 million" European homes would have the ability to enjoy HD content by 2008, but his suggestion was that only some 3m would actually receive HD signals. His argument was that an increasing number of users would be viewing HD content from DVDs of one variety or another, as well as by using consumer-level HD camcorders.

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





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VIEWPOINT

In Wi-Fi Veritas – Or, Is there a Role for Satellite in Wireless Broadband?

Bruce Elbert, President, Application Technology Strategy, Inc.

The first seems to be the true form of broadband data to the PC. Although some pundits seem to think that WiFi is a complete solution; however, it's just a short-range access scheme. I'm using WiFi right now to get from my laptop to an access point upstairs. But, from there, it's a cable modem doing the job to reach the broader Internet. With satellite communications, Wi-Fi access can be combined with transmission for a complete solution where needed.

Revenue opportunities may exist through combining VSATs and Wi-Fi, but profit opportunities are less obvious. As our readers well know, more money is made if you already have customers. What good potential customers for these solutions want to do is adopt a technology or process that: (1) makes our people more efficient, (2) reduce barriers to their customers in using their services, (3) make it easier to collect money, and (4) reduce the time needed for all of the above.

The first modern wave of this was due to today's most popular telecommunications media – cell phones and the Internet. Taking to the cellphone was like taking to ice cream the first time. I'll never forget how our first infant child immediately took a liking to that product from Baskins Robins. So it is with cellphones and the mobility it gives all of us. Cellphones didn't become truly pervasive until a number of conveniences were addressed: small pocket size, coverage in all cities, ease of roaming both domestically and internationally, and cheap pricing. The Internet has gone through a similar maturing process, thanks to great companies like Cisco, Microsoft, IBM and HP. Cellphones and the Internet truly deliver the four benefits I covered in the previous paragraph.

Wireless data has recently reached a similar level of acceptance. As an adjunct professor at University of Wisconsin – Madison, I teach a graduate engineering course through the medium of the Internet. My students are working engineers around the US in literally every endeavor of technology, from Harley Davidson motorcycles to John Deere tractors, and from Kellogg's cereals to



Amgen's pharmaceuticals. The men and women in my classes, with whom I communicate daily without seeing them, regard wireless data as the essential communication medium of the times. However, getting to broadband wireless data from the far reaches of cities, states and countries continues to be a major challenge. Recently, I spoke to a technical manager at a leading maker of computer printers. He was overseeing the deployment of the company's first integrated product development database. However, he found that it makes no sense to create sophisticated databases of product design information unless every contributor on his staff as well as of their partners cannot properly access the data from wherever they happen to be. Places he mentioned include small hotels in interior cities of China.

Such gaps in broadband coverage are filled effectively by satellite technologies, notably broadband VSATs and the newest mobile data terminals from Inmarsat and Thuraya. Since the typical professional doesn't carry a VSAT in his or her luggage, we still have a "last mile" issue for broadband data. Nearly all laptops are now equipped with Wi-Fi technology with the ability to self-acquire an access point at home, at Starbucks, at Hyatt Hotels, in United Red Carpet Clubs, and potentially anywhere someone cares to meet a service need. All the local establishment need do is arrange for the VSAT with a satellite service provider and connect an inexpensive wireless access point from Linksys. But, getting this done is limited more by the economic justifica-

VIEWPOINT

tion for the VSAT and the satellite bandwidth, as well as the challenge of dealing with the regulatory obstacles in many of the 180 countries that call themselves ITU members.

The latter point was covered in the GVF Asia-Pacific Satcom Forum, held in conjunction with the PTC 2005 conference last month. Noble efforts to provide better education and vital information (including warnings of impending typhoons and tsunamis) are restrained by simple economics – places most in need of this do not even have commercial power. In places like this, high frequency single sideband radios are far from being obsolete. These areas still need our help to allow them to grab their own bootstraps to create economies that can then pay for broadband.

For the broader market, what I foresee is not so much a strategic linkage between Wi-Fi and satellite broadband, but rather the natural synergy that comes about from two technologies that complement each other. Consider that Wi-Fi is a trade name for wireless local area network (W-LAN) employing the IEEE series of standards, 802.11. Prior to Wi-Fi, LANs were all wired, and the predominant form was, again, an IEEE series of standards: 802.3, known as Ethernet. The synergy between broadband satellite communications and Ethernet is exceedingly strong, and in fact, the rapid growth of VSATs over the last five years owes much of the credit to adoption of Ethernet across the board.

If we look at cellular as the wireless counter to the PSTN, then Wi-Fi is the counter to wired LANs. Now that it has reached critical mass in corporations, governments and the laptop personal computer, Wi-Fi will, like the truth, dominate the well-meaning. How satellite communications leverages a relationship with Wi-Fi is more a case of acceptance than strategy. Put Wi-Fi out there with your VSAT network and let the users cheer.

February 2005

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.



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REGIONAL UPDATE

The Latin America Satellite Market 2005: A Hot Spot for Vendors

COLOMBIA

PERU

by Bernardo Schneiderman



The Latin American Satellite Market started 2005 with the awarding of two main projects in Brazil and Chile where both governments intends to implement Internet access using satellite technology.

Latin America during 2005 will be a good region for satellite carriers and equipment vendors. Beside these two projects, there are other planned projects to be implemented during 2005 that will bring more than 5,000 internet sites. The countries of Brazil, Argentina, Peru, Colombia and Venezuela are leading the market during the new year with a potential for more than 10,000 sites to be implemented during 2005.

BRAZIL

In Brazil the main project was awarded last week of December 2004 to Vicom (vicom was acquired by Comsat International in 2004). The project in Brazil is required to use DVB-RCS technology as part of the government requirement to adapt an open platform. The project has two main logistics to be implemented: replacement of 3,200 sites with DVB-RCS in a time frame of 150 days after the contract is signed. During this transition they are required to implement 1,200 new sites.

The new hub station will be located in Campinas, Sao Paulo State (The current CHIL satellite is Anik F1 located in the Pacific) that are located in Belo Horizonte, ARGENTINA Minas Gerais State. The satellite will be changed to a domestic Brazilian satellite located in the middle of Brazil (Amazonia-Hispamar or Estrela do Sul-Loral Skynet do Brasil). The intention of the government is to use a Brazilian domestic satellite that providess a better coverage area than any other foreign satellite in the region. The government intention in requiring the use of the DVB-RCS is to permit an open platform for future expansion of the project. The project is part of the Brazilian government program called "Electronic Government Program - Customer Services to the Citizens" known by its Portuguese initials as GSAC. The tender required that the 1,200 sites be implemented during nine months after the signing of the

contract. The government used the Bid Auction Process for this project and the lower bid was equivalent of US\$ 40 Millions. The GSAC is offering to all citizens a package of technology that include emails accounts (120,000) 300 Gbytes for web hosting of the communities beside other eight services that promote the use of the Internet for cooperation in their communities in

Knowledge Network. 22,000 computers will be connected in the GSAC Internet Network. The number of people in this project will reach 5 million

CHILE

BRAZI

BOLIVIA

The main focus of the project in Chile is to provide Internet for 667 Rural Schools serving 108,00 schoolchildren. The program was financed by the Telecommunication Development Fund

REGIONAL UPDATE

(FDT). Subtel or the Telecom secretary of the Chilean Government was the institution responsible for the tender. The lowest bidder requesting the government fund was the ones



selected by Subtel and was announced during the last week of December. The project will allocate US\$ 6 million during 24 months for the service provider implement the Internet solution in the schools in 12 Regions in Chile.

Subtel informed that seven companies were selected to provide the services stating during the first semester of 2005 are: Blue Two Chile S.A, Telefonía y Comunicaciones S.A., Informática y Tecnologías Avanzadas de Canarias (Chile) S.A (ITACA SA), Rural Telecommunication Chile S.A, Chile Wireless S.A., Electronet S.A and Bellsouth Comunicaciones S.A.

Subtel requested for this projects that all school in the rural communities need to open the access for the community outside of the school hours. The technology was not specified but the VSAT solution will be use by the majority of the companies because is the only way to provide services in the rural regions.

Beside this two projects that was awarded at the last week of 2004 and will be implemented during 2005, include the following:

Brazil – PC Connected is another government project that is planning to provide access to 7 million computers in isolated and rural areas.

Colombia – Compartel Project that is planning to implement more than 5,000 sites in rural communities

Peru – Internet for Schools is another project in development February 2005 Argentina

Internet for Schools was on hold because of the Financial Situation but will be activated during 2005. Venezuela

Is expanding

the Community Telecenter Program with more Internet for Schools during 2005.

In conclusion 2005 Latin America will be hot spot for satellite service providers looking to provide low cost terminals for Education and Low Income Communities.



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

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MARKET INTELLIGENCE

Satcoms in the Middle East *is* TV, Broadband and Everything in Between!

by Martin Jarrold Chief, International Programme Development, GVF



ABSAT 2005, to be held 8-10 March at the Dubai World Trade Centre (DWTC), will be the central 'hub' of major business deals in the Middle East cable, satellite, broadcast and communications sectors this spring. For no lesser reason, GVF has entered into a landmark partnership with the DWTC exhibition event, designed to bring valuable insights into cutting-edge broadcasting and telecommunications applications, together with analysis of the latest regulation and policy trends, appraisal of state-of-the-art technologies. and examination of successful business models, to the attention of the widest possible regional audience.

The GVF Middle East Satellite Summit – 'Satellite Communications in the Middle East: TV, Broadband and Everything in Between' - has been organised in coordination with the region's broadcasting and telecommunications sectors, and takes place on 9 March 2005. Ten per cent of GVF member organisations are located in the region, and helping to spearhead this latest GVF Middle East initiative is its new Correspondent in the region, Mohamed Youssif, Managing Director of the Lebanon-based MESAT Consultancy. Asked recently what can be done by governments and regulators in the region to allow the VSAT industry to flourish, Mr. Youssif said "One thing that could be done immediately is to allow open access without fees to the consumer, [for] Internet via satellite... There is a huge demand for such service. Even though



many countries allow the establishment of an Internet satellite hub, they do not allow the operator to sell the service locally... We have many examples of such set-ups in the region. This is a contradiction that must be corrected. If they have to, they could charge a minimal blanket license fee that the service provider can include in the monthly service fees." And he added "...one of the major elements of local economy growth is the ease of communication and access to information effectively."

Against the backdrop of broadcast satellite having silenced the sceptics,

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MARKET INTELLIGENCE

despite the entrenchment of cable, the opening session of the Summit will examine in more detail whether satellite-based solutions "stand a chance" against the roll-out of DSL and cable modem delivery systems for broadbandtype services. Later sessions will explore the Middle East residential broadband market, and also identify the means by which the satellite sector is successfully responding to the technology-agnostic priorities of the IT sector which is focused only on high-value, high-quality communications. IP and DVB continue to force a dynamic rethink of satellite service offerings and of the revenue potential they may bring, and it is in this context that content providers, to system integrators, to installers are all re-examining their traditional roles... all is up for grabs, driven by the imperatives of the balance sheet. SM



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

Summit Program Details... at a glance

OPENING GENERAL SESSION

Convergence vs. Competition: Redefining the Middle East Market

Broadcasting via satellite silenced the sceptics, despite an entrenched cable industry's best effort. Now, as residential, SME, SOHO and large-enterprise users clamour for cost-effective access to interactive services – and as DSL, cable modem and other delivery systems are rolled out – do satellite-based broadband solutions stand a chance? Join this no-holds-barred roundtable discussion to hear whether satellite players will be a complement to terrestrial service providers... or head-on competitors.

RESIDENTIAL SESSION

Home Front: The Battle for the Living Room

The Middle East is home to some of the most dynamic satellite TV markets in the world. Building upon this trend, unprecedented demand for IP-based services is driving millions of potential end users toward broadband solutions. And billions of pounds have been invested to roll out next-generation services. Attend this session to learn what the residential broadband players have to offer in the Middle East.

The Convergence of Satellite TV & Broadband in the Middle East

Even as private-sector interests vie for position in the region's high-stakes satellite TV and broadband race, governments are drafting as-yet-unseen policies that will dictate the new rules of play. This keynote luncheon presentation will examine the shape of things to come (and not to come).

ENTERPRISE SESSION

The New IT Portfolio: Satellite-Based Video, Voice and Data

IT managers are as technology agnostic as they come. Whether it's satellite, DSL, ADSL, frame relay or whatever, they just don't care - so long as it's high-value, high-quality communications. The satellite broadcasting and telecom industry is responding to this demand with diversified portfolios that offer end-to-end solutions and draw upon the relative strengths of a multitude of technologies. Here's how.

SME/SOHO/RESIDENTIAL SESSION

DVB, IP and the "New" Bottom Line

Times are changing ...fast. IP– and DVB-based platforms are increasingly being provided to SME, SOHO and residential end users of every type... and the math is changing. But at some level, profit is still profit and the fundamentals still apply. Attend this roundtable to hear how IP and DVB considerations have forced a rethink of service offerings and revenue potential.

CLOSING GENERAL SESSION

Re-Evaluating the "Value Chain"

The dot-com apocalypse is history, but its effects are still very much in evidence. The surviving companies not only continue to get leaner and meaner, but they are repositioning themselves both up and down the value chain. From content providers to system integrators to retailers to installers, all of the traditional roles are up for grabs. This closing roundtable will explore who is moving to do what, with whom, and what the implications will be.

For more information ontact: Martin Jarrold at GVF, martin.jarrold@gvf.org



STOCK MONITOR

Company Name	Symbol	Stock Price (Jan. 27)	52-wk Range
APT SATELLITE	<u>ATS</u>	1.33	1.25 - 3.01
ANDREW CORP	ANDW	13.00	9.30 - 21.67
ASIA SATELLITE TELECOMMUNICATIONS (ASIASAT)	<u>SAT</u>	18.53	15.20 - 21.20
BALL CP	<u>BLL</u>	42.33	29.375 - 45.20
BOEING CO	<u>BA</u>	50.97	38.04 - 55.48
BRITISH SKY ADS	<u>BSY</u>	42.42	33.22 - 59.24
CALAMP CORP	CAMP	7.76	5.12 - 17.20
C-COM SATELLITE SYSTEMS	<u>CMI.V</u>	0.40	0.32 - 0.60
COM DEV INTL LTD	CDV.TO	3.05	2.15 - 3.80
COMTECH TELECOM CORP	<u>CMTL</u>	33.29	14.93 - 38.44
THE DIRECTTV GROUP	<u>DTV</u>	15.23	14.70 - 18.81
ECHOSTAR COMMUNICATIONS	<u>DISH</u>	30.07	26.95 - 40.10
FREQUENCY ELECTRONICS	<u>FEI</u>	14.30	10.22 - 17.13
GILAT SATELLITE NETWORKS	GILTF	6.28	3.95 - 9.86
GLOBECOMM SYS INC	<u>GCOM</u>	6.67	4.67 - 7.58
HARRIS CORP	<u>HRS</u>	63.99	42.37 - 69.15
HONEYWELL INTL INC	HON	36.03	31.23 - 38.46
INTEGRAL SYSTEMS	<u>ISYS</u>	18.62	15.35 - 21.83
KVH INDS INC	<u>KVHI</u>	10.33	6.61 - 21.25
L-3 COMM HLDGS INC	<u>ш</u>	70.86	52.40 - 77.26
LOCKHEED MARTIN CORP.	LMT	56.40	43.10 - 61.77
NEWS CORP	<u>NWS</u>	17.65	15.305 - 19.87
NORSAT INTL INC	<u>NSATF.O</u> <u>B</u>	0.495	0.46 - 0.83
NTL INC	NTLI	66.22	46.65 - 73.79
ORBITAL SCIENCES	<u>ORB</u>	10.20	9.67 - 14.19
PEGASUS COMMUNICATIONS	<u>PGTV</u>	12.01	5.185 - 25.50
QUALCOMM INC		36.14	27.8055 - 44.99
RADYNE COMSTREAM	RADN	9.09	6.26 - 13.426
SCIENTIFIC ATLANTA	<u>SFA</u>	30.14	24.61 - 36.50

For real-time, up-to-the minute stock quotes of satellite companies go to: <u>www.satnews.com/free/finance.html</u>

Back to Contents 38

ADVERTISERS' INDEX

AAE SYSTEMS www.aaesys.com	11
COMTECH www.comtechefdata.com	13
GLOBAL LINK PRODUCTIONS www.globalinktv.com	21
GLOBECAST www.globecast.com	33
ISCe 2005 www.isce.com	8
L-3 NARDA SATELLITE NETWORKS www.lnr.com	33
LORAL SKYNET www.loralskynet.com	9
MCL www.mcl.com	16
PANAMSAT www.panamsat.com	24
SES GLOBAL www.ses-global.com	19

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