



The Other Armament

The Vital Role of Satellite Communications



SATELLITE
COMMUNICATION
PRODUCTS



TABLE OF CONTENTS

Vol. 4 No. 7, November 2006

Click on the title to go directly to the story

COVER STORY

FEATURE

VIEWPOINT

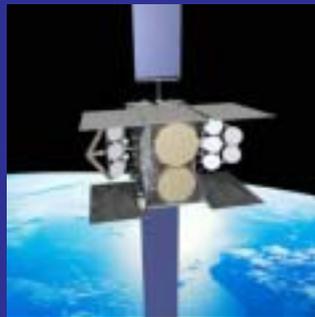
REGIONAL UPDATES



22 / Government and Military Demands on Commercial Satellites

By Claude Rosseau

It is no secret the U.S. Government (USG), especially the military, recognizes that the overall demand from users for a variety of satellite communications needs is currently not met. Will the US government continue to demand commercial capacity and services?



26 / Next Generation Military Satellite Communications Systems

By Wendy Tsien

New advances in voice, data and video delivery via transformational military satellite communications (milsatcom) systems will enable Net-Centric Operations for the deployed warfighter.



31 / How to Sell and Deal with the Military Satellite Communications Customer

by Bruce Elbert

Veteran industry consultant Bruce Elbert shows how to deal successfully with military customers.



34 / European Satellite Radio Confusion

by Chris Forrester

Would-be European broadcasters are looking at the success of Satellite Radio in North America with envy. But Europe is not North America.

EXECUTIVE SPOTLIGHT



39 / Interview with NEWTEC CEO Serge Van Herck Van Herck speaks on the prospects in the ground equipment market and other issues.

REGULAR DEPARTMENTS

3 / Notes from the Editor

4 / Calendar of Events

5 / Featured Events:
ISIS NYC '06 and PTC 07

10 / Industry News

14 / Executive Moves

17 / New Products and Services

21 / Update: Satcom on the Move

by Bernardo Schneiderman

38 / Case Study: Telenor Enables Troops to "Call Home"

41 / Vital Statistics

42 / Market Intelligence

45 / Advertisers' Index/ Stock Quotes

NOTE FROM THE EDITOR

The Military Satcom Market



In this issue we focus on the military satcom market. The military is one of the largest users of satellite products and services. As such there are high expectations as to the long-term viability of this market for the industry. This issue will answer most of the burning questions about the military market.

Our cover story, by NSR Senior Analyst Claude Rosseau explores the military market demand for commercial satellite capacity and services. It looks into the prospects of this market in the long-term. To give you an idea of what's to come as far as military satellite systems in the U.S., Wendy Tsien of the National Reconnaissance Office provides an overview of military systems currently in production. Our regular columnist, Bruce Elbert, a military veteran himself, brings his vast experience in dealing with military with his article on "How to Sell and Deal with the Military Satellite Communications Customer." Finally, we have a case study on a successful implementation of satellite technology to enable troops in Iraq to call home.

What is the size of the military market for satellite products and services? How viable is the military market in the long-term as it builds its own systems? What opportunities are there in the military market? And finally, how do you deal successfully with the military? These and other question are addressed in this comprehensive issue on a complex topic. Read on for the answers.

Virgil Labrador

Article Contributions to SatMagazine

Satmagazine accepts article contributions from the industry. We encourage contributions that deal with issues affecting the industry as opposed to company or product-specific articles. We are specifically interested in case studies, opinion (op-ed) pieces, features or market studies and trends. To submit proposals for possible articles, send a one-paragraph or less abstract of the proposed article or to obtain more information on our editorial calendar, publishing guidelines and deadlines, please send an e-mail to virgil@satnews.com

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CALENDAR OF EVENTS 2006

Oct. 31-Nov. 2, Abuja, Nigeria

2nd West Africa Satellite Communications Summit Global VSAT Forum

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Nov. 7 - 9, Houston, TX, USA

Offshore Communications 2006

Tel: 1 (772) 221 7720

Fax: 1 (772) 221 7715

Email: ipeterson@offshoresource.com

Website: www.offshorecoms.com.

Nov. 13-15, London, UK

Global MilSatCom 2006

Tel: +44 (0) 20 7827 6000

Fax: +44 (0) 20 7827 6001

Email: client_services@smi-online.co.uk

Web: www.globalmilsatcom.com

Nov. 16, London, UK

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Nov. 21-22, Moscow, Russia

NAT EXPO

Tel: +7 (495) 687-32-37, +7 (495) 687-32-77

Fax: +7 (495) 687-32-80

E-mail: info@natexpo.tv

Web: www.natexpo.tv

Nov. 20-23, Moscow, Russia

Broadband and Telecoms Russia & CIS 2006 Conference and Showcase

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Tel : + 44 (0) 20 7596 5205 / 5000

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Email : Elena.Peredelskaia@ite-exhibitions.com

Web: www.broadband-conference.com



Nov. 28, New York, NY, USA

ISCe Satellite Investment Symposium NYC '06

David Bross

Tel: +1-301-916-2236

E-mail: dbross@hfusa.com

Web: www.isis-nyc.com

November 28, New York City,

GVF Disaster and Recovery Satellite Summit

David Hartshorn

Tel. +1-202-626-6881

E:mail: david.hartshorn@gvf.org

www.gvf.org

Nov. 28, New York, NY, USA

The SSPI Future Leaders Dinner

Longbottom Communications

Tel: 1-703-534-0885 or

info@longbottomcommunications.com

Web: www.sspi.org



Nov. 29-30, New York, NY, USA

SATCON 2006

Tel.: 203-371-6322 info@jdevents.com

Website: www.satconexpo.com

Dec. 4-8, Hong Kong, China

ITU Telecom World 2006

Elizabeth Lake

Tel.: +41 22 730 6039

Fax: +41 22 730 64 44

Web: <http://www.itu.int/WORLD2006>

Dec. 5-7, Orlando, Florida, USA

Florida Space 2006

Tel.: 719.576.8000

Fax: 719.576.8801

Web: www.floridaspace.org/

FEATURED EVENT

ISCe Satellite Investment Symposium



ISIS NYC '06

November 28, 2006, New York City

With the high profile takeover of private investments firms of major satellite companies in the last few years, the investment community has given a much needed boost to the satellite industry. To fill a void in the industry for a quality conference on the investment side of the satellite business, leading industry conference organizer [Hannover Fairs USA, Inc.](#) is launching of its inaugural ISCe Satellite Investment Symposium NYC '06 (ISIS NYC '06), which will take place November 28, 2006, at co-host Jones Day's law office in midtown Manhattan, New York City.

- **Mobile Satellite Services: The Re-Infusion of Capital**
- **FSS: The Satellite Trunk Called Fixed Services**
- **Satellite Radio: A Struggling Giant or Continuing High Flyer**
- **Broadcasters and Satellite: How Long Can the Romance Last?**

ISIS NYC '06 will bring together high-profile executives in the

satellite television (DBS), satellite radio (DARS), mobile satellite (MSS), fixed satellite services (FSS), IPTV, Broadcasters, Digital TV/SyndEx

and Mobile Video sectors of the satellite industry with leading New York financiers and members of the Wall Street community.

“Given the increasing role of private equity players in the commercial satellite communications sector, the financial aspects of this great industry have taken front and center stage over the last few years,” said David Bross, chairman of ISIS NYC and the [ISCe Conference & Expo](#).

A distinguished lineup of speakers will be presenting at key sessions at ISIS NYC '06 that include:

- **DBS: 1/4 of U.S. TV Households Can't be Wrong, Or...**
- **Analysts' Corner: Cutting the Hype and Making The Grade**

November 2006

The one-day conference is not just all business, though, with opportunities for networking as well. The organizers of ISIS also encourage participants to attend the new SSPI Future Leaders

Dinner at the conclusion of ISIS at The Princeton Club in Manhattan. This annual fundraising reception and dinner is the premier social networking event of

Confirmed ISIS NYC '06 blockbuster speakers include:

 Patrick Brant CEO Loral Skynet	 Edward Horowitz CEO SES Americom	 Stephen O'Neill President Boeing Satellite Systems International Inc.
 Michael Butler Executive Director and Chief Operating Officer Inmarsat	 Pradman Kaul President and CEO Hughes	 Ron Samuel Chief Operating Officer Eutelsat Inc.
 Mary Frost CEO GlobeCast America	 John Kealey President and CEO iDirect Technologies	 Phillip L. Spector Executive Vice President and General Counsel Intelsat Holdings, Ltd.
 April Horace Equity Analyst	 Bryan McGuirk President of North American Media Solutions SES Americom	 Tom Watts Managing Director and Senior Research Analyst Cowen and Company

“Satellite Week in NYC,” featuring ISIS NYC '06 and other major industry events. This dinner will honor future leaders who are currently making a difference in our industry and an executive who is recognized for his or her success in mentoring industry professionals. ISIS NYC '06 attendees as well as SSPI and SIA members are eligible for a 10 percent discount to this dinner.

For more information on ISCe 2006 Conference and Expo contact the Conference Chairman, David Bross at +1-301-916-2236 or e-mail at: dbross@hfusa.com or go to www.isis-nyc.com **SM**

FEATURED EVENT

ISIS NYC '06 Conference Program

Moderator:

Jimmy Schaeffler, Esq., Chairman & CSO -
The Carmel Group

Panelists

Michael Palkovic, CFO - DirecTV (Invited)
Mary Frost, CEO - GlobeCast America

Analyst:

Craig Moffett, Senior Analyst for U.S. Cable and Satellite
Broadcasting - Sanford Bernstein

PROGRAM: TUESDAY, NOVEMBER 28, 2006

As of September 22, 2006; subject to change without notice.

Venue: Jones Day · 222 East 41st Street · New York, NY ·
www.jonesday.com

8:00–8:30 am ISIS NYC '06 Networking Breakfast

Sponsored by:



8:30–8:45 am Welcome Remarks and Introductions

Welcome:

Art Paredes, President and CEO, Hannover Fairs
USA, Inc.

David Gross, Chairman - ISIS NYC '06

Delbert Smith, Co-chair, ISIS NYC '06, Senior Telecommu-
nications Counsel - Jones Day

**8:45–9:45 am Satellite CEO Interview #1
“DBS: 1/4 of U.S. TV Households Can’t Be
Wrong, Or...”**

The consumer satellite business blew the socks off of the cable operators for about a decade post-1994, yet today the future presents bigger challenges. Cable is in place as the only true provider of a large scale “bundle” of telephone, video and Internet services, but the telephone companies are getting their offerings together fast. Without control over the different pieces of its own bundle, can U.S. DBS operators continue long-term subscriber gains, cash flow and Average Revenue Per Unit (ARPU) growth? How much bandwidth and resources are required to deliver the best of local and national HDTV signals into the largest percentage of American homes? What about the other advanced services? How do they resonate? What are the most topical legal and regulatory issues? What about piracy? And how far off are program access and differentiation solutions? This showcase panel promises to provide the answers.

**9:50–10:50 am Satellite Finance Session #1
“Analyst’s Corner: Cutting the Hype and Making
the Grade”**

One of the most difficult decisions that people involved in the satellite industry have to make is deciding which industry sectors and companies are going to succeed and which will fail. This decision-making process involves cutting through the hype and (on occasion) misinformation while, at the same time, taking a “best guess” as to what companies likely are to succeed. These industry analysts will offer their opinions and views on what they have learned during the past five years, where we are today and where we are likely to be in the next three years. Want to know “what’s in” and “what’s not?” They will tell you. What will be the dominant long-term satellite consumer play: telephony, video or radio? How do the FSS players fit in? What about the bundle-battle being fought within DBS today? Can satellite radio turn the financial corner and finally make money? Which metrics stick when it comes to ARPU, SAC, churn and bandwidth?

10:50–11:15 am Coffee Break

Sponsored by:



**11:15 am–12:15 pm Satellite CEO Interview #2
“Mobile Satellite Services: The Re-Infusion of
Capital”**

The mobile satellite services (MSS) market is on the verge of a breakout, as new services and technologies stimulate renewed investor interest in this once troubled sector. Mobile voice, video and data satellite services are now in

FEATURED EVENT

high demand. Go figure? Both commercial and government markets and investors are starting to seriously reconsider the MSS value proposition. Well-funded ventures such as ATC are a clear sign the MSS sector is again becoming a core financial focus. This group of MSS CEOs will explore the emerging market opportunities and determine where value truly lies within this remarkable, re-emerging sector.

Moderator:

Christopher Baugh, President - NSR

Panelists

Michael Butler, Chief Operating Officer - Inmarsat
Matthew Desch, Chairman and CEO - Iridium Satellite LLC
Alexander Good, CEO - Mobile Satellite Ventures (MSV)
Jay Monroe, Chairman and CEO - Globalstar, Inc.

12:15–1:45 pm ISIS NYC '06 Leadership Luncheon

Sponsored by



State-of-the-Industry Address:

John Kealey, President & CEO - iDirect Technologies

Keynote:

The Hon. Jonathan Adelstein, Commissioner - FCC | [FCC website](#)

Because there truly is a close connection between what Wall Street does and what Washington, D.C. says, it is most appropriate that the inaugural ISCe Satellite Investor Symposium (ISIS NYC '06) event ties the two together. This luncheon keynote interview is intended to bring a dialogue to industry and government players, both bent on building and/or protecting their turfs and constituencies. What will the FCC do with new spectrum bands, especially those trying to meld terrestrial with space-based infrastructures? What's hot on the DBS and satellite radio sides of the ledger? What has been the effect of the

Sarbanes-Oxley Act on Wall Street and its constituents? How is the FCC working vis-à-vis Congress? These are but a handful of questions and issues that will be addressed during a luncheon designed to bring government officials, Wall Street financiers and industry attendees into the same networking forum.

**1:45–2:45 pm Satellite Finance Session #2
“FSS: The Satellite Trunk Called Fixed Services”**

Lead in the United States by SES Americom, Intelsat and Loral Skynet, the Fixed Satellite Services (FSS) players have huge businesses, yet face big challenges in their drives to assure mid- and long-term financial success. How will consolidation impact customers and the industry? What new spectrum can be developed to expand resources, especially in the United States? What's the next Killer App? How does a strong business get built around services versus bandwidth? How can the government expand the access to bandwidth resources through its commitment to commercial operators? What's the role of satellites in delivering entertainment to handhelds and mobile? These and a whole fleet of additional Qs and answers promise to result from this hour-long panel session.

Moderator:

David Bross, Chairman - ISIS NYC '06

Panelists:

Edward Horowitz, CEO - SES Americom
Pradman Kaul, President and CEO - Hughes
John Kealey, President & CEO - iDirect Technologies
David McGlade, CEO - Intelsat (Invited)
Stephen T. O'Neill, President - Boeing Satellite Systems International, Inc.
Michael B. Targoff, CEO - Loral Space & Communications (Invited)

Analyst:

Armand Musey, President and Partner - Near Earth LLC

FEATURED EVENT

2:50–3:50 pm Satellite CEO Interview #3 “Satellite Radio: A Struggling Giant or Continuing High-Flyer?”

Satellite-delivered consumer services remain a darling (or potential darling) of Wall Street and the consumer electronics marketplaces. However, there are formidable competitors already in place or lurking in the shadows, each looking to challenge the status of XM Radio, Sirius Satellite Radio and WorldSpace. New devices and infrastructures, such as MP3 players and the Internet, are invading the moving vehicle. Terrestrial radio also is ramping up, offering new digital services with fewer ads—and potentially new content. What truce will be realized long term within the terrestrial radio camp? Is satellite radio really still all about subscriber growth in these early years—like it was for DBS—or is free cash flow the early metric? With home, vehicle and mobile offerings, what is the true size of the potential sat radio subscriber base? Content-wise, what's beyond Stern, Oprah, Dylan and Elvis? Will the government entertain another spectrum and/or another potential player to upset the sat radio duopoly? These and a bunch of other topics should crackle these not-to-be-missed audio bits.

Moderator:

Andy Pasztor, Senior Special Writer - The Wall Street Journal

Panelists

Mel Karmazin, CEO - Sirius Satellite Radio (Invited)

Hugh Panero, CEO - XM Satellite Radio (Invited)

Noah Samara, CEO - WorldSpace (Invited)

3:50–4:15 pm Afternoon Refreshment Break

Sponsored by



4:15–5:15 pm Satellite Finance Session #3 “Broadcasters and Satellite: How Long Can The Romance Last?”

Satellite is the backbone of the television business, and it's probably not too much of a stretch to say that television is the backbone of satellite business. They have helped each other prosper for three decades. The TV networks still rely heavily on the fixed satellite services to cover remote events and deliver programming to affiliates scattered across the nation. And TV stations count on the service to import timely syndicated shows and capture pictures of news, no matter where it happens. Now, terrestrial fiber is once again threatening to break up the partnership. To make sure that doesn't happen, FSS is promising greater flexibility, reliability, economy and capacity. Will it be enough to sate TV's ever-increasing demands? Will TV and satellite grow old together? This panel of broadcast veterans and satellite executives has the answers.

Moderator:

Harry Jessell, Editor and Publisher - TVNEWSDAY.com

Panelists:

Patrick Brant, CEO - Loral Skynet

Bryan McGuirk, President of Media Solutions - SES Americom

Robert Ross, Vice President, East Coast Operations - CBS Corp.

Ron Samuel, Chief Operating Officer - Eutelsat Inc.

Andy Setos, President, Engineering - Fox Group

Phil Spector, Executive Vice President and General Counsel - Intelsat

Analyst:

April Horace, Analyst - Hofer and Arnett Inc.

5:15 pm Adjournment

Remarks

FEATURED EVENT

**PTC 2007:
Beyond Telecom**

PTC 2007

January 14-17, 2007, Honolulu, Hawaii



The 29th Pacific Telecommunications Conference and Exhibition (PTC) will be held from January 14-17, 2007 at the Hilton Hawaiian Village in Honolulu, Hawaii. As in previous years, the conference and exhibition will attract key industry executives and decision makers from all over the Asia-Pacific and the Americas to discuss the latest trends and market opportunities in the global telecommunications market.

PTC'07, with its theme this year of "Beyond Telecom," will explore the technology, business and policy issues created by the accelerated and continued convergence of communication and entertainment services on IP.

Along with cutting edge topics and a stellar line-up of top industry speakers, exciting new programs and networking opportunities have been put in place to help attendees get the most out of the conference and the exhibition, according to conference organizers.

A new feature of PTC this year is the Mid-Pacific Marketplace (MPM). For the first time, PTC is consolidating its trade show, Planet PTC computer center, coffee lounge' session coffee breaks, conference luncheons and new business meeting modules in one dynamic space. The expanded trade show floor is envisioned to be a beehive of activity as exhibitors and conference delegates interact for several days of networking and deal-making.

For nearly thirty years, the PTC has been one of the leading conferences and exhibitions in the industry. The venue in Hawaii in January makes it an ideal start to the year in the most conducive of surroundings.

"The PTC conference is quite possibly the only conference that suffers from the fact that its weather is too perfect. There is a very strong misconception that people attend PTC simply to be in Hawaii and to do what normal people do in paradise. The truth

is that PTC is one of the hardest-working conferences in the telecommunications industry, and people that attend find it a tremendous environment for networking and business development. I believe that equally as important is its academic heritage and gathering. It draws a segment of our industry that is often overlooked at other events, but which we believe is vital to sustaining the vision and innovation that make the satellite and broadband telecommunications industries ones that have transformed the human experience in several important ways. It is also the place where we see colleagues from both North America and Asia for one of the few times in the year," said Lou Zacharilla, Director for Development for the World Teleport Association.



Among the distinguished lineup of speakers at PTC '07 include plenary session keynotes from left, Larry Keeley, President, Doblin Inc, USA; Shin Cho, Senior VP and Head of Strategy and Planning Group, SK Telecom, Korea; and Narasimhan Srinath, Executive Director, VSNL, India.

Past participants to the PTC have generally characterized the show as a "must-attend" event. "I can certainly state that PTC is on our list of "must attend" conferences. We have found it to be one of the best venues for holding meetings with senior executives from international carriers around the world. It is definitely one of the most cost-effective means for US and European companies to meet major Asian service providers. The informal setting also makes it a more pleasant venue for doing business than any other conference I regularly attend. A breakfast meeting in an oceanside outdoors cafe in Hawaii certainly beats a meeting over eggs benedict in a downtown business hotel," said Stephan Beckert, Research Director, TeleGeography Research.

Organizers are billing PTC '07 as shaping up to be the "best PTC yet." With an ideal venue, conducive surroundings for networking and deal-making and a high quality attendees from various segments of the industry--how can they be wrong?

For more information on PTC, contact Dolores Fung at phone: +1.808.941.3789, ext.120, email: ptc07@ptc.org or go to www.ptc07.org. **SM**

INDUSTRY NEWS

Boeing Wins \$1-B Contract to Build More Wideband Gapfiller Satellites

ST. LOUIS — Boeing and the U.S. Air Force MILSATCOM Systems Wing have signed a \$1.067 billion contract for up to three more Wideband Gapfiller Satellites (WGS), if all options are exercised.

Boeing said the Block II satellites will be similar to the three Block I satellites already in production. Under Block II, Boeing will add a radio frequency bypass capability designed to support airborne intelligence, surveillance and reconnaissance platforms requiring ultra-high bandwidth and data rates demanded by unmanned aerial vehicles.

In February, the Air Force authorized Boeing to begin non-recurring engineering and advanced procurement of parts for the fourth WGS satellite. Boeing anticipates Air Force authorization to proceed with full production of WGS F4 and to begin long-lead work for F5 by the end of 2006. These revolutionary, 13-kilowatt WGS satellites are based on Boeing's 702 models and are designed to provide improved communications support for America's warfighters.

Boeing said it is preparing the first WGS satellite for launch in 2007. The Block II contract calls for the launch of F4 by the first quarter of 2011 and subsequent launches every year thereafter. WGS will augment and eventually replace the DSCS currently on station.

DirecTV 9S and Optus D1 satellites Successfully Launched

KOUROU, French Guiana — Ariespace maintained its 2006 mission pace with a successful Ariane 5 flight on Oct. 13 placing two primary satellites into geostationary transfer orbit.

After an on-time liftoff from Europe's Spaceport in French Guiana, the Ariane 5 went on to deploy DirecTV 9S for U.S. digital TV service provider DirecTV, along with the Optus D1 telecommunications spacecraft for Australia's Optus.

The Oct. 13 launch occurred at 5:56 p.m. local time, providing a rare daytime view of the Ariane 5's ascent - as most missions occur after sunset. As it climbed into clear skies, the vehicle's trajectory was followed downrange by tracking cameras, providing an excellent view of its progress - including the jettison of its solid propellant boosters.



Ariane 5 climbs away from the Spaceport's ELA-3 launch zone on its evening flight. (Arianespace/CNES photo)

It was Ariespace's fourth dual-satellite Ariane 5 mission of 2006, bringing the total payload mass delivered by the workhorse launcher so far during this year to more than 31,670 kg. Overall, Ariane vehicles have orbited a combined total payload mass of over 600 metric tons.

DirecTV 9S weighed in at approximately 5,535 kg., for the Friday mission. It was the sixth satellite to be launched by Ariespace for DirecTV, Inc. The broadcast platform was built by U.S. satellite manufacturer Space Systems/Loral in Palo Alto, California.

Optus D1 was released as the second payload in Ariane 5's mission sequence. This 2,350 kg. spacecraft is to provide fixed communications and broadcasting satellite services over Australia and New Zealand for Australia's Optus. The satellite was built by Orbital Sciences Corporation in Dulles, Virginia, and is based on the company's STAR series of smaller-sized spacecraft.

Riding as a piggyback payload on the mission was Japan's LDREX-2, which is designed to validate the deployment process for a large, lightweight antenna reflector that will be used on Japan's ETS-8 engineering test satellite.

Europe's New MetOp Weather Satellite Launched, Reaches Polar Orbit



MetOp was finally launched on October 19, 2006 from the Baikonur Cosmodrome in Kazakhstan. (ESA photo)

PARIS — MetOp-A, Europe's first polar-orbiting satellite dedicated to improving weather forecasts and monitoring Earth's climate, was finally launched on Oct. 19, from the Baikonur Cosmodrome in Kazakhstan.

INDUSTRY NEWS

The Soyuz 2 launcher, on its first operational mission, lifted off at 18:28 CEST (16:28 UT) with the 4093kg spacecraft encapsulated in a new 4.1m diameter payload fairing, similar in shape and size to that of Ariane 4. The newest member of the nearly 50-year old Semyorka family of boosters, Soyuz 2 is due to be launched from French Guiana from 2008 onwards.

Some 69 minutes after launch, the Fregat upper stage released the first MetOp satellite into a circular orbit at an altitude of 837km over the Kerguelen archipelago in the South Indian Ocean.

For 28 years, Europe has been operating its famous Meteosat weather satellites in geostationary orbit. But with the launch of MetOp, the European Space Agency (ESA) said Europe will now be provided a closer view of the atmosphere from low earth orbit, delivering data that will improve global weather prediction and enhance our understanding of climate change.

Eutelsat Awards Astrium Contract to Deliver Hot Bird 10 Broadcast Satellite

PARIS, Oct. 20, 2006 — Eutelsat Communications has awarded Astrium a contract to build the Hot Bird 10 broadcast satellite which will be launched in first quarter 2009 and positioned at the Group’s 13 degrees East location.

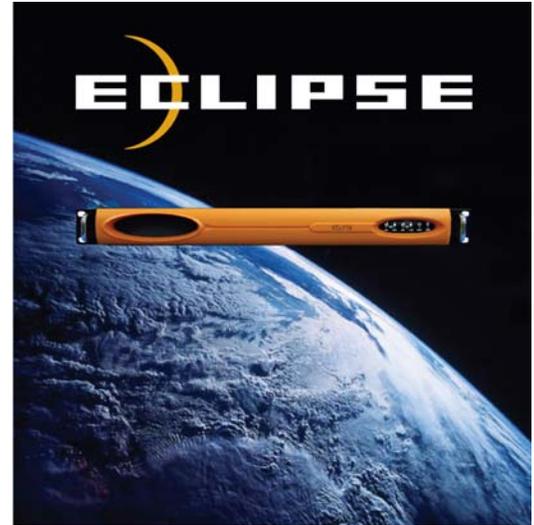
Following Hot Bird 8 and 9, Hot Bird 10 will be the third high-power broadcast satellite based on Astrium’s Eurostar E3000 platform that will be located at Eutelsat’s premium video neighborhood for cable and satellite broadcasting.

Eutelsat said the delivery of Hot Bird 10 supports the company’s objective to continue to renew capacity at its Hot Bird neighborhood, raise in-orbit redundancy and security for broadcasting clients, and increase overall flexibility across its satellite fleet. Eutelsat’s 13 degrees East neighborhood broadcasts 950 television channels and 540 radio stations to 110 million cable and satellite homes across Europe, North Africa and the Middle East.

Astrium’s Eurostar E3000 platform was selected by Eutelsat for the Hot Bird 8 satellite, which went into full commercial service this month, and Hot Bird 9 which was ordered from Astrium in May this year. With each satellite equipped with 64 high-power Ku-band transponders spanning the entire range of 102 Ku-band frequencies at 13 degrees East, they will together deliver customers exceptional levels of security and in-orbit redundancy for the development of digital entertainment services and HDTV channels, according to Eutelsat.

Global Link Productions Flyaway System Dispatched to Kona, Hawaii for Exclusive Live, Real-Time Video of Earthquake Damage

LOS ANGELES — Soon after the earthquakes hit Hawaii early Sunday, October 15, 2006, Global Link Productions president, Dan Makinster, began receiving telephone calls from the major US television networks inquiring for a



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INDUSTRY NEWS



flyaway transmission system to go to Hawaii ASAP. For the next 45 minutes, Global Link was busy making tentative logistical arrangements. As soon as Makinster received a confirmation call from CBS, he firmed up the tentative plans and headed to his office.

“Global Link crew had just three and a half hours before their first flight was scheduled to take off from SFO for Los Angeles, and onto Oahu,” said

Makinster. “Upon arrival in Los Angeles, though, we were informed that the flight to Oahu had been cancelled. Global Link logistic staff were able to find another carrier that was scheduled to leave early the next morning into Maui, and a local airline that that was still landing in Kona using smaller aircraft equipment.”

Heavy, larger aircraft were temporarily prevented from landing in Kona until the authorities could check out the runways and landing systems and restore power in Oahu. Fortunately, while designing their flyaway systems, Global Link engineers had carefully considered potential size constraints of their systems’ transportation cases. This greatly reduced the possibility of not being able to be loaded into the hull of smaller aircraft equipment’s cargo compartment openings and, in this instance, provided greater flexibility of flight options which included flying into an adjacent island (Maui) that was not as effected by the earthquake.

Arriving around noon, local time, Global Link crew immediately headed to the downtown area of Kona where they surveyed the considerable damage and determined the best location in the pouring rain. A huge palm tree provided considerable shelter from the deluge over the next three hours as CBS, Global Link’s customer for this event, began broadcasting the first live shots from the earthquake scene. From start to finish, the crew set up a high power condensed digital flyaway systems and was on the air in less than 90 minutes after arriving. The entire system fit into nine cases, all of which were transported in an Expedition rented at the airport. Although generators had been secured locally and were on standby, they were not necessary as shore power was available at all locations from which they were broadcasting.

Over the next three days, other networks were using either internet to send slow, delayed video clips of the damage or reduced to ferrying videotapes via the local airlines back to Honolulu to get the news video out. CBS was, to Makinster’s knowledge, the only network transmitting real time live images via satellite.

“We needed to provide a compact, reliable solution in order to get into the island with the local aircraft. Larger fly-away systems could have run into potential transportation issues since air traffic was limited initially,” said Makinster while reflecting on the quick trip.

Global Link sent a redundant digital system capable of broadcasting two independent A/V feeds simultaneously. The system supported CBS’ early show live as well as feeds for local stations throughout the country.

Global Link Productions provides satellite uplink and downlink services via C-band and KU-band trucks and flyaways, The company also provides full camera and production crews with all the necessary equipment to handle any live or streamed event anywhere in the world. Based in the West coast of the US (California), Global Link can provide quick service to the western US states, including Hawaii and Alaska. The company’s flyaway uplink terminals can be deployed anywhere within a satellite spacecraft’s footprint to transmit video, voice or data. Services include analog or digital transmission (in Standard Definition or High Definition), with the latest modulation capabilities to reduce bandwidth.

Makinster added, “We also have systems configurable for only data and telephony voice for immediate deployment to disaster recovery sites or emergency response situations and/or military operations throughout the world.”

For further information, please contact Global link Productions at 408-465-2787 or www.globalinktv.com.

Federal Trade Commission Clears United Launch Alliance Joint Rocket Venture

ST. LOUIS — Boeing Company and Lockheed Martin confirmed on Oct. 3 that the Federal Trade Commission (FTC) has granted anti-trust clearance to proceed toward closure of the United Launch Alliance (ULA) joint venture.

They said the clearance is subject to compliance with a consent

INDUSTRY NEWS



Above, Boeing's Delta II launch vehicle, successfully delivers to orbit a replenishment Block IIR Global Positioning System (GPS) satellite for the U.S. Air Force. (Boeing photo)

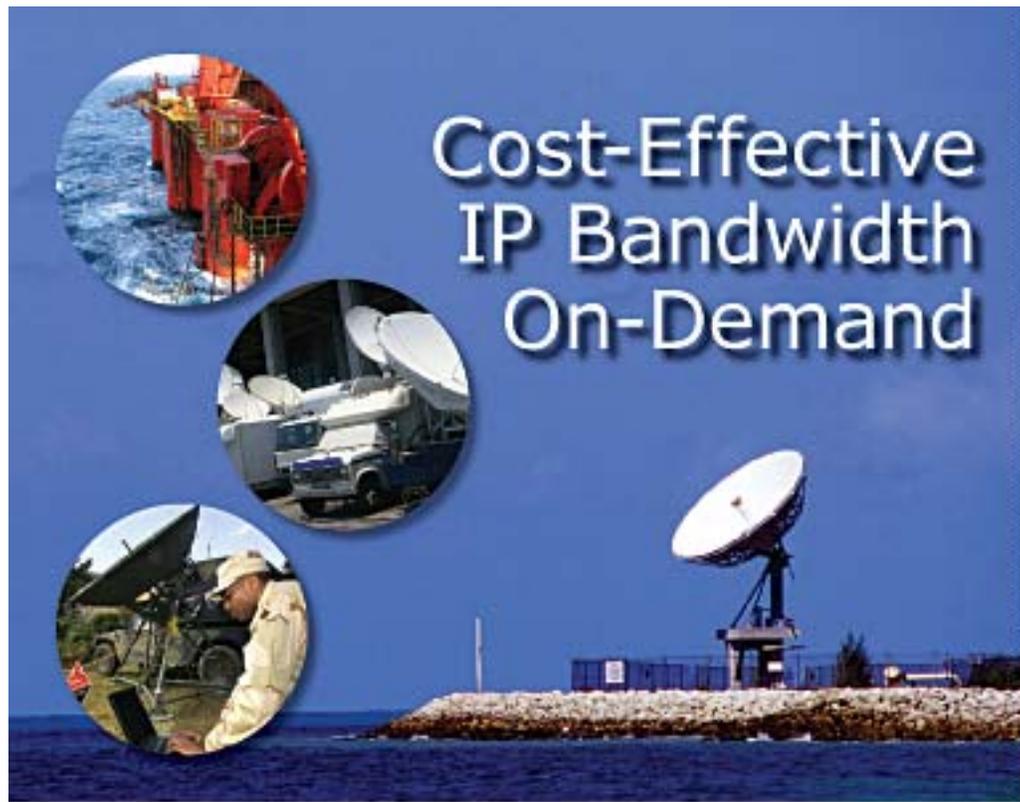
order that both parties have approved, and which will govern certain activities of the ULA, Boeing and Lockheed Martin upon closing of the transaction.

Boeing said the FTC action is the final step in the government's regulatory process and brings the ULA closer to the goal of meeting the government's need for reliable, lower-cost launch services for national security, civil and scientific payloads. The company said it expects that the remaining requirements will be successfully resolved to enable the transaction to be

completed and ULA operations to begin.

Following the closing of ULA, Boeing and Lockheed Martin have also agreed to dismiss all civil litigation against each other related to a previous competition for launches under the Air Force EELV program.

The ULA venture was first announced on May 2, 2005, as a joint venture that combines the production, engineering, test and launch operations associated with U.S. government launches of Boeing Delta and Lockheed Martin Atlas rockets. The ULA mission will be to produce cost-savings to the government by combining facilities, eliminating duplicative capabilities and streamlining rocket manufacturing and launch processing. **SM**



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EXECUTIVE MOVES

Robert Bednarek Named President and CEO of SES New Skies



Robert Bednarek

BETZDORE, Luxembourg — SES Global has named Robert Bednarek as president and CEO of SES New Skies. In his new position, Bednarek will continue to report to Romain Bausch, president and CEO of SES Global, and will remain a member of the SES executive committee.

Robert Bednarek has been with SES Global since January 2002 serving as executive vice president corporate development and as a member of the executive committee of SES Global. During this time he coordinated development of the companies' overall growth strategy, provided executive oversight of SES' regional holdings and helped launch a number of new services throughout the group.

Bednarek and his team also lead SES Global's recent acquisition of New Skies as well as its integration into the SES Group as its third infrastructure pillar, alongside SES Astra in Europe and SES Americom in North America.

Robert Bednarek joined SES Global in 2002 from satellite operator PanAmSat, where he last held the position of executive vice president and chief technology officer. Prior to joining PanAmSat, Rob was the co-founder and partner of a Washington DC based technology consulting firm specializing in technical regulatory matters pending before the Federal Communications Commission, the International Telecommunications Union and other regulatory Agencies. He previously served as deputy chief scientist for the US Corporation for Public Broadcasting (CPB)

ILS Ownership Changes; Frank McKenna Appointed President

MCLEAN, Va. — Lockheed Martin Corporation announced on Oct. 11 the completion of the sale of its interests in Lockheed Khrunichev Energia International, Inc. (LKEI) and ILS International Launch Services, Inc. (ILS) to Space Transport Inc.

The two companies had provided sales, marketing and mission management support for launches of both the Lockheed Martin-built Atlas and Khrunichev-built Proton and Angara rockets to commercial customers.

The sale was originally announced Sept. 7, 2006. Terms of the transaction were not disclosed.

With the transfer of Lockheed's shares of ILS to Space Transport Inc., the ILS board of directors has appointed Frank McKenna, 53, as the company's president. McKenna, who has more than 30 years of experience in the aerospace industry, served as ILS' vice president and deputy for the last two years, responsible for overall strategy, partnership management and customer initiatives. McKenna was also elected to the ILS board.

International Launch Services is the U.S.-Russian joint venture between Space Transport Inc. and Khrunichev State Research and Production Space Center with RSC Energia. ILS has the exclusive rights for worldwide commercial sales and mission management of satellite launches on Russia's premier vehicle, the Proton, and the future Angara vehicle. To date, there have been 43 commercial Proton launches. Currently, ILS has 11 firm missions in backlog scheduled to launch through 2008.

Despite the sale, Lockheed retains all rights related to marketing the commercial Atlas vehicle and is continuing to offer Atlas launch services to the worldwide commercial market through its subsidiary, Lockheed Martin Commercial Launch Services, Inc. (LMCLS). ILS, which no longer is affiliated with Lockheed Martin, will continue to market the Russian-built Proton and Angara launch vehicles to commercial clients.

Lockheed said David Markham will lead the LMCLS organization, which will be based in Denver, Colo. LMCLS will make the full strength of the Atlas organization and Lockheed Martin Corporation available to customers for their critical space launch missions. Markham has a 25-year career of leadership positions with Lockheed Martin. LMCLS will work closely with the Atlas program mission management and marketing functions.

L-3 Appoints Michael T. Strianese Chief Executive Officer

NEW YORK — The board of directors of L-3 Communications has appointed Michael T. Strianese as chief executive officer and president of the company. He has also been elected to L-3's board of directors.

Strianese served as interim chief executive officer and chief financial officer of L-3 since the passing of one of its founders, Frank C. Lanza, in June 2006.

EXECUTIVE MOVES



Michael T. Strianese

Robert B. Millard, L-3's non-executive chairman, said Strianese's leadership of L-3 as interim CEO over the past four months, as well as his contribution to the company's success since its inception, has earned him the board's enthusiastic support for his ability to execute the company's strategy, his management of its performance and growth, and his focus on the steps the organization is taking to build for the future.

The appointment was the conclusion of the company's previously announced search to identify a successor to its CEO position and was conducted by a special committee of L-3 directors and assisted by the executive recruitment firm Spencer Stuart.

Vicki Warker Joins Intelsat as Senior Vice President of Marketing



Vicki Warke

WASHINGTON — Intelsat has appointed Vicki Warker as the company's new senior vice president of Marketing. In this role, Warker is responsible for the company's growth initiatives and maximizing the company's performance in serving the video and network services customer groups.

In addition, she manages all product development, product management and rationalization initiatives, and customer feedback and analysis to ensure Intelsat's products and services anticipate customer needs and market demand.

Prior to joining Intelsat in mid-September, Warker served as vice president of Marketing and Products within the Sprint Business Solutions organization, where she had responsibility for product marketing, vertical marketing, pricing and offer development

for business customers. Prior to Sprint, Vicki held leadership positions at GE Global eXchange Services and Concert Communications where she served in a variety of channel management, product management and marketing capacities.

Warker holds Master of Science and Bachelor of Science degrees in Civil Engineering from the University of Maryland.



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EXECUTIVE MOVES

SES Americom Names Squadron to Lead Media Partnerships & Related Venture Investments

PRINCETON, N.J. — SES Americom, an SES Global Company, has appointed William (Bill) Squadron as senior vice president of Media Partnerships and Venture Investments. Squadron will be responsible for expanding relationships with content companies and program networks. He will report to Edward Horowitz, Americom's president and CEO, and will serve on the management committee.

Most recently as the head of IMG Media's Interactive operations in North America, Squadron oversaw rights, production and distribution of programming for the Internet, mobile and other interactive platforms. Squadron was previously Co-founder, chairman and CEO of Sportvision, which introduced numerous technical innovations to the sports programming community including the electronic first down line and the K Zone pitch tracking technologies.

In the mid-90s, Squadron

served as senior VP, Strategic Planning, at News Corporation at the time the company launched and built cable

networks FX, Fox News and TV Guide on Screen. **SM**

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NEW PRODUCTS

EchoStar Rolls out High-Speed Internet Service powered by WildBlue

ENGLEWOOD, Colo. — EchoStar Communications Corporation (NASDAQ: DISH) has launched “Dish Network High-Speed Internet powered by WildBlue,” a satellite-delivered broadband Internet service. EchoStar said its all-digital TV service is now bundled with the convenience and speed of broadband Internet access.

Dish Network High-Speed Internet powered by WildBlue is a two-way satellite service that provides an always-on, high-speed data connection. Available packages are up to 30 times faster than dial-up, so there are no similar delays accessing the Internet and no worries about busy signals or being disconnected.

“Our customers living in rural communities have endured the slower speeds of dial-up simply because they haven’t had choices when it comes to high-speed Internet service providers,” said Jim DeFranco, executive vice president at EchoStar. “With Dish Network High-Speed Internet powered by WildBlue, they now have access to affordable broadband Internet via satellite with speeds comparable to DSL or cable modem – without the need for an additional phone line.”

Dave Leonard, CEO of WildBlue, said, “We’re excited to work with a powerful distributor like EchoStar to make high-speed Internet services powered by WildBlue available to their customers across the country.”

Intelsat Incorporates Glowlink Model 8000 Geolocation Capability

LOS ALTOS, Calif. — Glowlink has announced that Intelsat has purchased the Glowlink Model 8000 Satellite Geolocation System.

“The Glowlink Model 8000 has had a positive effect on Intelsat’s network operations. It has enabled us to clear valuable capacity, thereby helping to improve the quality of our services as well as our financial returns on our network,” said Khalid Chaudhry, VP Network Operations, Intelsat.

Over the past year, Glowlink has been proud to provide Intelsat with monitoring capabilities and services that enable it to effectively and efficiently support its network operation needs, said Jeffrey Chu, Glowlink president and CEO. “This contract

extension shows Intelsat’s confidence in our products and our commitment,” he added.

Intelsat serves over 1,800 customers, including video broadcasters and telecom service providers, in over 200 countries and territories using its fleet of 51 satellites. Intelsat’s satellite network works seamlessly with its worldwide ground-based infrastructure of teleports. Intelsat continuously monitors its network to ensure the highest quality transmission services for its customers.

Iridium’s 9601 Data Modem Now Available

BETHESDA, Md. — Iridium Satellite has announced that its 9601 data modem is now approved for the U.S. Department of Defense (DoD) and other approved users through its contract with the Defense Information Systems Agency (DISA).

Based on the company’s Short Burst Data (SBD) messaging service, Iridium said this modem is already being used widely in commercial applications such as asset tracking, remote monitoring and telemetry reporting.

Iridium envisions widespread application of the 9601 data modem to meet a broad variety of requirements among users in defense, homeland security, logistics, force tracking, remote sensing and other data applications. The 9601 supports wireless, two-way data links with Iridium’s unique pole-to-pole global coverage and extremely low latency.

Iridium’s DISA contract is managed under the Enhanced Mobile Satellite Services (EMSS) Service Manager’s Office.

Iridium also announced its extensive participation in testing of Phase One of its Netted Iridium service with the U.S. Marine Corps (USMC) Warfighting Lab. The testing, called a “Limited Technical Assessment” (LTA), is projected to be completed in late October at the Naval Surface Warfare Center in Dahlgren, Virginia.

Swe-Dish Launches New Generation of HMO

STOCKHOLM — Swe-Dish Satellite Systems AB have launched a new generation of the popular HMO (Highly Mobile Office). Swe-Dish said the new generation of the HMO has enhanced security features and increased functionality, such as

NEW PRODUCTS

support for integrating UHF and VHF radio networks into its IP based infrastructure.

The HMO product family was introduced in 2003 as complement to the company's SatCom terminals. It provides a complete and integrated solution for voice, data and video communication over secured broadband satellite links. Since then, many networks based on this concept have been installed and commissioned.

Swe-Dish SatCom terminals with integrated communication solutions have successfully been deployed worldwide over the years, for example with the Swedish Rescue Service Agency in Indonesia 2004 for the Tsunami relief efforts, US Authorities during Hurricane Katrina 2005, and during a Singaporean disaster relief mission to Central Java Earthquake 2006.

Raymarine Unveils New Satellite TV System

MERRIMACK, N.H. — Raymarine unveiled its new satellite television system that will provide boaters with even greater access to high-quality satellite television while at sea. Built for larger boats, Raymarine said the 60 STV Satellite TV System showcases the groundbreaking technology introduced earlier this year with Raymarine's 45 STV.

Encased in an attractive, all-white 60cm (24") dome, the 60 STV allows boaters already equipped with Raymarine technology one consistent look while delivering strikingly crisp picture and sound.

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rich, digital quality media. On the open seas or at the dock, the 60 STV automatically identifies, acquires and tracks compatible signals from all digital video broadcast (DVB) satellites and is capable of incorporating position data from an external GPS, which improves acquisition speed and minimizes search time.

Equipped with innovative technologies such as Dynamic Beam Tilting (DBT) and Wide Range Search (WRS), the system is capable of conducting a wider range of instantaneous searches for nearby satellites and can track the desired satellite signal while in motion. Raymarine has extended its software library to allow compatibility with even more satellite service providers around the globe, and the enhanced signal reception allows for better performance in poor weather conditions.

Stellar Introduces Dual-Mode Orbcomm & GSM Product Series

DULLES, Va. — Stellar Satellite Communications Ltd., a wholly owned subsidiary of Orbcomm Inc., has introduced the DS300-D and DS400 dual-mode Orbcomm satellite and GSM communicators.

The first to be commercialized is the DS300-D, which features expansion ports that allow the addition of external GSM and Zigbee wireless modules. The DS300-D will be followed shortly by the DS400, which incorporates GSM and Zigbee wireless communication devices and a DS100 satellite subscriber communicator in a single enclosure.

The DS300-D is designed mostly for high value asset tracking while the DS400 is specifically designed for heavy equipment and fleet management applications. The DS series of satellite subscriber communicators are the result of a joint engineering and manufacturing effort between Stellar and Delphi Electronics and Safety, which continues to produce reliable and cost effective products for the Orbcomm market.

These new subscriber communicators bring together the global coverage of Orbcomm's low-earth orbit (LEO) satellite network with the higher-bandwidth capabilities of GSM cellular data networks. The dual-mode product line is an ideal choice for high-value M2M data communications applications that require ubiquitous coverage and high-throughput. Common to the line is the high reliability and low cost now associated with all Stellar products.

Delphi Launches SKYFi3, a SD Compatible MP3 Satellite Radio with Pause-Replay

TROY, Mich. — Satellite radio hardware manufacturer Delphi and XM Satellite Radio announced on Tuesday the upcoming retail introduction of the newest Delphi satellite radio receiver, the SKYFi3.

The latest successor in the SKYFi family, the SKYFi3 is 65 percent smaller, yet maintains nearly every benefit of the previous generation product, Delphi said.

In addition, SKYFi3 can also store and manage up to 10 hours of XM programming through non-removable internal memory, as well as an unlimited number of MP3 files through optional and removable Micro SD cards. Along with the largest 9 line display in its class and low-profile car dock that mounts vertically or horizontally, the SKYFi3 sets a new standard for plug-and-play systems.

Frank Ordenez, president of Delphi Product & Service Solutions, said SKYFi3 maximizes their enjoyment and subscription value offering the optimum balance of compact size, screen readability, cutting-edge content management features and portability outside the vehicle.

Trimble Introduces New GPS Survey System, Office Software and Total Station Update

MUNICH, Germany — Trimble has introduced two new products as part of its Connected Survey Site model — the Trimble(R) R6 GPS System and Trimble Business Center Software.

With GLONASS capability available through the R-Track technology Global Navigation Satellite System (GNSS) option, the Trimble R6 GPS System enables users to augment GPS and view more satellites for enhanced positioning success in challenging environments. The new Trimble Business Center Software enables users to easily import GNSS field data for processing and export to the design software of choice. In addition, the Trimble 5600 Total Station has been updated to take advantage of the latest data controller technology.

Trimble said its R6 GPS System comprises an advanced Trimble R6 GPS receiver, Trimble TSC2 or Trimble CU controller, Trimble

NEW PRODUCTS

field software, and the new Trimble Business Center office software. The R6 GPS System is an all-in-one, compact unit that features a multi-channel, multi-frequency GPS receiver, antenna, data-link radio and battery. It combines an advanced receiver, powered by a new RTK engine, with a proven system design to provide maximum accuracy and productivity.

Along with GPS capabilities, optional GLONASS augmentation enables GLONASS signals to be used for enhanced positioning, offering surveyors increased field efficiency and reduced downtime.

Alcatel Introduces My Teamwork Land Mobile Radio Conferencing and Collaboration

DALLAS — Alcatel introduced on Oct. 3 “My Teamwork” Land Mobile Radio Conferencing and Collaboration solution (LMRCC), enabling land mobile radio networks to interoperate with any telephony device on traditional, VoIP, and next generation networks.

My Teamwork LMRCC, Alcatel said, is a targeted solution for local and state government agencies and public safety first responders, and for industries with deployed field representatives, delivery personnel, or field technicians.

Alcatel, in association with Raytheon’s JPS Communications, developed My Teamwork LMRCC building on its collaboration software platform My

Teamwork and its service-oriented architecture and open APIs. The solution connects the ARA-1 Radio-to-SIP interface from Raytheon JPS Communications with Alcatel’s My Teamwork “SIP-to-the-core” software server. **SM**

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NEW PRODUCTS

Update on Antennas for Satellite On the Move Applications

by Bernardo Schneiderman

Satcom on the move (SOTM) applications has been in the demand to provide solutions for the US military to support operations in Iraq and Afghanistan and for the next generation of military satcom operations. SOTM has also been developed by some companies for the commercial market. Among those companies is the UK-based Era Technology.

This article will highlight ERA Technology (UK based company) a manufacturer of satellite antenna that is developing a new concept in SOTM antennas for commercial applications and the dialogue with Mr. Vlad Stoiljkovic, Marketing Business Contact.

ERA Technology recently started production of its second generation (G2) 3" low-profile satcom on the move antennas, according to Vlad Stoiljkovic, Marketing Business contact for ERA Technology.. A pair of G2 Rx and Tx antennas can be used for a two-way satellite communications system, or a single unit can be used with cellular backhaul.

ERA is part of the Cobham Group, and has developed the G2 antenna with its sister company TracStar Systems, based in Orlando, Florida. ERA has undertaken the complete electrical and mechanical design, while TracStar provides the tracking system.

Next year Era will start the production and launch of the third generation (G3) low-profile antenna, following a successful demonstration of the technology earlier this year. G3 is a single aperture Rx and Tx antenna. It is a dual-polarized, dual-band design, with full polarization control and re-configurability. Two versions of the product will be offered: one for the

avionics applications and one for land-based applications. Shortly after the initial launch, full military qualified products will be available.

ERA is already supplying antennas for two-way high-speed data links on board trains. Two different antenna technologies are used: already mentioned G2 design and low-profile reflectors. The antennas are used on board trains in the UK. A few demo units are also in operation as land-based demos worldwide.

ERA sees strong growth in both military and commercial markets, said Stoiljkovic. "Defence systems integrators, both in US and Europe, have shown strong interest in ERA's technology, and we plan to capture significant market-share in near future," he added.

ERA Technology is well known as a pioneer in antenna systems and has been supplying its high-performance Diamond reflector antennas for SNG and military applications for over twenty years. ERA feed systems are used the world over in professional and military applications in C, X, Ku, Ka and EHF bands. Diamond antennas have been considered as high-end products and have been used by leading military customers and system integrators across the world. The success of its Diamond range, and emerging new requirements convinced ERA to commence R&D on low-profile SOTM antennas several years ago and can now offer several different antenna



Mobile satcom terminal unit by ERA technology can be used for military applications.

technologies. This research, backed by the UK Government, the European Space Agency and substantial private venture involvement by ERA's parent company Cobham, has given ERA a world-leading technology, which includes phased arrays, reflectors and the G2, the world's thinnest full satcom on the move system.

ERA as part of Cobham Group, provides full product-life support from R&D, product development, manufacturing and certification to full logistics support (ILS).

ERA is a good example how the industry is applying the new technology with creativity to provide SOTM for commercial and consumer applications.

Bernardo Schneiderman has over 20 years of experience in satellite communications and is the President of Telematics Business consultants based in Irvine, CA. He can be contacted at bernardo@tbc-telematics.com

COVER STORY

Government and Military Demands on Commercial Satellites: U.S. Government Plays Catch-Up for Bandwidth Needs

by **Claude Rousseau**

Analyst, Satellite Communications

It is no secret the U.S. Government (USG), especially the military, recognizes that the overall demand from users for a variety of satellite communications needs is currently not met. In particular, the U.S. Department of Defense has stated in various forums that it foresees a gap in bandwidth capacity from proprietary satellites until at least the year 2020. The need to rapidly launch capacity, among others the aptly-named Wideband Gapfiller Systems (WGS) built by Boeing, is a direct result of the expected growth in this market. So what does it mean to commercial operators and vendors? Will the USG continue to demand commercial capacity and services?

For the period 2003-2012, NSR forecasts a positive answer to the questions above with demand for commercial satellite capacity in the government and military and revenues from the USG growing at double-digit rate and capturing transponder procurement in large percentage of overall totals.

The heightened awareness among



government users of the value of satellites is probably a direct effect of its high-profile in the news following the

breakdown in communications in emergency situations such as flood, hurricanes and terrorist attacks. The changing role of almost all government departments due to heightened security requirements at home and abroad resulted in deeper analysis of the ruggedness of IT and communications infrastructure to help protect and support institutions in times of crisis. The outcome has been a stronger push for increased military-civilian, inter-agency and public-private cooperation down to the systems level. In terms of

COVER STORY

procurement, it strengthened the commercial-off-the-shelf (COTS) philosophy that started in the 1990s, which led to more satellite bandwidth purchases.

Will USG Demand Continue?

But in planning upcoming satellites, can commercial operators rely on bandwidth-hungry users in, for example, the U.S. Department of Defense, to map out their investment paybacks? The oft-mentioned complaint of operators is that, while commercial systems are built with commercial customers in mind, the military are clients as well and expect services to be on par with dedicated classified networks but without “anchor-tenant” bandwidth leases.

On the other hand, can government customers be party to a commercial endeavor without compromising its open-ended public procurement policy and tie itself in to long-term leases at the detriment of a widely-varied user community? For both sides, it can become a cat-and-

mouse game with each waiting on who will take the first step.

The satellite industry is betting on serious uptake from a demanding USG customer to build and launch communi-



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COVER STORY



cations infrastructure, which is a strategy that carries a high risk potential and may have uncertain results (such as commercial X-band which has been slow to pick-up in the military market). For the government, their belief is that infrastructure will be up in the sky when and where they need it to complement or back-up their existing menu of proprietary options.

So should that be a showstopper?

One case that may prove the necessity of better public-private cooperation is the advent of unmanned aerial vehicles (UAVs). Their history is short, and their desirability has blossomed over the last ten years. Deployments of these small aircrafts, airships, helicopters, and motor gliders is expected to boom in the next ten years. They are used for military and civil applications in missions such as reconnaissance, surveillance (including border), crisis management, disaster recovery and theatre operations. There is a trend to enhance UAV operational capabilities with more sensors, imagers and cameras to feed

back real-time information to the operator, sometimes located thousands of miles away, with data and video for new rich-media applications. The UAV in these instances can use up to a full

Ku-band transponder to deliver its data at speeds exceeding 45 megabits per second. With up to 500 UAV units expected to be procured by the U.S. Military alone by the turn of the next decade, this niche is up for grabs.

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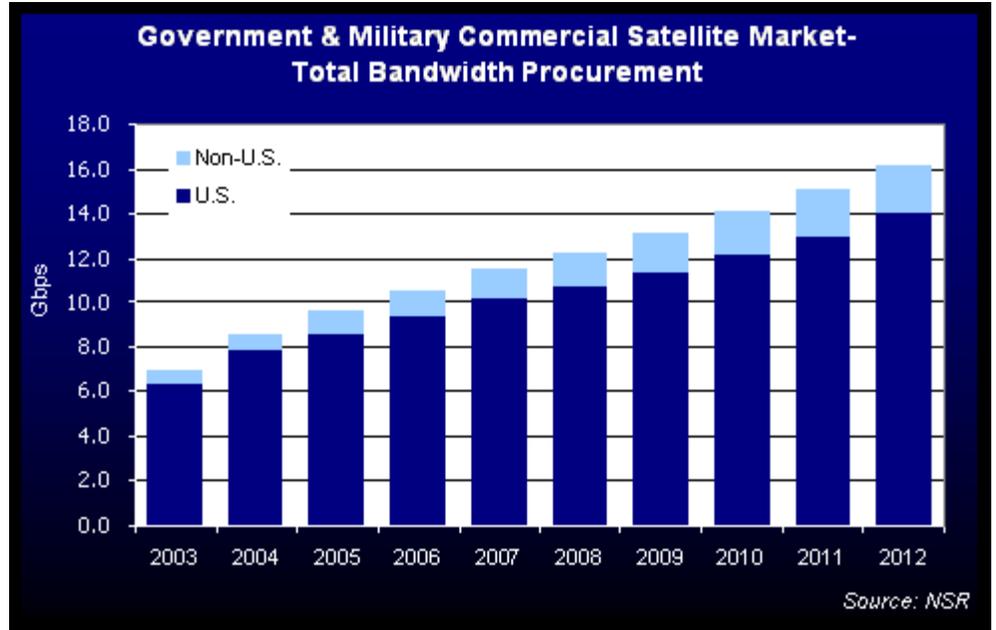
The logical solution for an operator is then to either increase the number of available Ku-band transponders or launch Ka-band or X-band payloads to provision higher transmission rates.

This leads us back to the original question for the operators: will they come if we build it? There seems to have been a chronic underestimation of the U.S. Department of Defense bandwidth needs due to new applications that come online faster than new satellite capacity can handle them. Furthermore, several delays in key military satellite communication systems, increased awareness of the unique capacity of satellites in the government markets and new initiatives such as the UAV point to a growth market for operators to tap into. NSR has forecast positive growth for the government and military markets for the period 2003-2012 even if improved compression techniques and bandwidth optimization schemes should lower the throughput. The trend towards increased resolution of UAV imaging payloads and the associated larger data volume transfers per vehicle or per mission should keep demand high.

Backing up the USG

Another factor that is to be considered is the expected five-year \$2.5 billion Satcom-II contract from the USG expected in April 2007. Many commercial solutions providers will find that it has provisions for new technologies to be added as they become available, which could represent a strong driver to implement cutting-edge services that translate into new bandwidth demand.

Furthermore, the USG is ramping up IP-based systems deployments that should help the commercial operators that are already delivering commercial IP-over-satellite.



With bandwidth problems in the military, the DoD will want to insure its high operational requirements and lease commercial transponders as back-up should its assets be stretched, lost or experience disruptions.

The U.S. Department of Homeland Security, which oversees federal emergency management, leads the latest thrust of the government and has just seen its budget increase to coordinate efforts across the U.S. for civil protection. And many witnessed how important the U.S. Military was to the recovery efforts from Hurricane Katrina last year when it took over some of the communications responsibilities of civilian agencies incapacitated by the disaster. The bandwidth used from commercial satellites may have been purchased on the spot or as part of a lease contract for a completely different purpose or simply for back-up use, but it was found to be of prime importance for such a contingency.

All signs may point to continued USG demand for commercial capacity,

albeit in differing forms over the long term. The next 12-24 months will therefore go a long way to foretelling future demand as internal military assets are deployed and contracts are awarded.

Information for this article was extracted from a recently released NSR report entitled **Government & Military Demand on Commercial Satellites, 3rd Edition**. Complete information can be found at www.nsr.com **SM**

Claude Rousseau is Analyst, Satellite Communications for NSR. He can be reached at crousseau@nsr.com



FEATURE

Next Generation Military Satellite Communications Systems

by Wendy Tsien

New advances in voice, data and video delivery via transformational military satellite communications (MILSATCOM) systems will enable Net-Centric Operations for the deployed warfighter. For Operation Iraqi Freedom, commercial satellite systems supplemented the military communications and provided the majority of the bandwidth out of the theatre. The Air Force and the Navy are working with their industrial partners in developing new protected, wideband and narrowband MILSATCOM systems that will be launched within the next five years. The next generation MILSATCOM systems will transform the current stove-piped mission specific systems into an inter-networked Global Information Grid (GIG), providing for improved situational awareness, common operating picture, persistent surveillance, command and control, reachback and logistics. According to a 12 September 2005 Congressional Budget Office (CBO) report, “under the Future Years Defense Program (FYDP), military satellite communications will compose the largest share of the major unclassified space systems.”

Protected MILSATCOM – Advanced Extremely High Frequency (AEHF)

Protected MILSATCOM systems provide survivable, nuclear-capable, anti-jam Extremely High Frequency (EHF) (44 GHz) communications for the President, strategic and tactical Department of Defense (DoD) users and our international partners. The use of

narrow beam with spread spectrum and frequency hopping allows for the anti-jam and scintillation resistant capabilities for low probability of intercept (LPI) and low probability of detection (LPD). The original survivable MILSATCOM system, MILSTAR, was first launched in 1994. Lockheed Martin was the prime contractor with TRW/Northrop Grumman providing the payload. The first two MILSTAR satellites provided secure communications at Low Data Rate (LDR) at 75–2400 bps. Flights 3 through 6 provided enhanced tactical capability with a Medium Data Rate (MDR) payload built by Boeing. Although Flight 3 did not reach orbit, the last MILSTAR, Flight 6, was successfully placed into orbit April 2003. However, MDR worldwide coverage would not be attained until the follow on system is fielded.

The follow on protected MILSATCOM system is the Advanced Extremely High Frequency (AEHF) program, which is managed by the Air Force Space and Missile Systems Center (SMC). AEHF is a cooperative program and includes international partners from Canada, United Kingdom and the Netherlands. AEHF will improve upon MILSTAR’s capabilities and provide enhanced survivable, anti-jam secure communications. The Cost Plus Award Fee (CPAF) program was first awarded in November 2001 for the first two satellites and the mission control segment that will control both AEHF and MILSTAR satellites. The third AEHF satellite was awarded in January 2006. The cross-linked satellites will operate in geosyn-



Advanced Extremely High Frequency (AEHF) satellite (graphic courtesy of Milsatcom Systems Wing)

chronous orbit providing coverage between +/- 65 degrees latitude. Lockheed Martin is the prime contractor using the A2100 satellite bus and Northrop Grumman provides the payload. AEHF will be operating at Extended Data Rate (XDR), with one AEHF satellite providing the capacity greater than the entire MILSTAR constellation. AEHF will be able to transmit Mbytes of visible image in seconds compared to the minutes it currently takes on MILSTAR. AEHF will be capable of providing 8 Mbps anti-jam protected communications compared to the MILSTAR MDR of 1.5 Mbps. AEHF will provide up to 19.2 kbps of anti-scintillation survivable communications. AEHF will also include backward compatible signaling for the LDR and MDR waveforms so the existing MILSTAR terminals will be able to use the new satellite system. In addition to the order of magnitude increase in protected communications capacity, AEHF offers a substantial increase in mission planning flexibility. Resources can be effectively traded between users

FEATURES

versus waiting on a periodic re-apportionment, as was the case with MILSTAR. Additionally, the AEHF phased array antennas will significantly increase the coverage provided with electronically-steered beams agile enough to simultaneously cover multiple points on the globe.

AEHF uses on-board signal processing to rapidly respond to a user's request to establish or modify services, providing increased flexibility to the communication planner. Each AEHF is scheduled to offer more than 400 channels that can be simultaneously controlled and shared among thousands of terminals. Access to the satellites is provided through a combination of time-agile uplink phased array antennas that allow the radio frequency (RF) beams to be steered electronically rather than mechanically as well as the more traditional gimbal-drive antennas. The system provides seven downlinks that can be steered to hundreds of locations simultaneously via a combination of downlink phased arrays and gimbal drive antennas. There are two specialized antennas that adapt automatically to counteract the effects of electronic jamming. These nulling antennas coupled with the remaining highly directional antennas, on-board processing and flexible channel-to-beam mapping will reduce jamming effects, intercept susceptibilities and provide reliable, secure communications. Each AEHF is currently costed at approximately \$580 million with the first AEHF scheduled for launch April 2008.

Wideband MILSATCOM – Wideband Gapfiller Satellites (WGS)

Wideband MILSATCOM systems provide multi-channel, high data rate broadcast and point-to-point communications for tactical and strategic users.

Users employ fixed, land-based or transportable ground terminals. In addition to supporting the DoD users, wideband MILSATCOM systems also provide support to the National Command Authorities (NCA), White House Communication Agency (WHCA), Defense Information System Network (DISN), the Diplomatic Telecommunications System (DTS) and to allied partners.

The original DoD wideband system, Defense Satellite Communication System (DSCS) I, was first launched in June 1966, providing military communications in X-band (7-8 GHz). The DSCS program went through three phases of capabilities upgrades. The DSCS III program consists of a constellation of satellites in the geostationary orbit, with the final DSCS III satellite launched in August 2003. The last four DSCS III satellites were enhanced with Service Life Extension Program (SLEP), providing over 250X the capability of DSCS I.

SMC is developing the Wideband Gapfiller Satellites (WGS) as the modernization of wideband MILSATCOM system after the DSCS III SLEP program. Boeing was selected as the prime contractor for WGS with first launch scheduled three years post contract award in 2004. A fleet of geosynchronous satellites with a design life of 14 years will provide worldwide coverage from +/- 65 degrees latitude. The original award for three satellites is now being planned for up to six WGS satellites. WGS will feature a new two-way Ka-band

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(20-21 GHz down and 30-31 GHz up) service. In addition to the Ka-band service, WGS will also operate in the X-band, making it backward compatible with both the terminals of the DSCS system and the Global Broadcast Service (GBS) payload on the UHF Follow On (UFO). The WGS will have 19 independent coverage with 10 Ka-band gimbaled antennas, 8 X-band phased array antennas allowing for flexible steering and shaping, and one X-band earth coverage receive and transmit antenna. Each WGS satellite is expected to have an end-life throughput of over 2 Gbps, providing an equivalent capability to the entire DSCS constellation currently on-orbit, servicing users at 137 Mbps. WGS was intended to leverage off Boeing's 702 satellite bus and other commercial technology, which was awarded using a commercial-like competitive acquisition Firm Fixed Price (FFP) contract in January 2001 for the first three WGS. The contract for the remaining WGS satellites was subsequently modified to a Fixed Price Incentive Fee arrangement. Although WGS has experienced manufacturing and other issues during satellite development, the program has successfully completed thermal vacuum testing in September 2006 and first flight is now scheduled for June 2007.

Narrowband MILSATCOM – Mobile User Objective System (MUOS)

Narrowband MILSATCOM system is designed for users operating at 64 kbps and below through severe environments such as double canopy foliage,



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FEATURES

inclement weather or urban terrain. Due to their larger antenna beamwidth and narrower bandwidth, narrowband satellites are more vulnerable to jamming and intercept. However, narrowband systems allow the use of smaller antennas and terminals thus increasing user mobility. The relatively low data rate system is intended for both fixed and highly mobile tactical users with compact terminal equipments.

The Navy is the lead service for narrowband Ultra High Frequency (UHF) (240-300 MHz) MILSATCOM. In 1988, the Navy's Space and Naval Warfare Systems Command (SPAWAR) Communications Satellite Program Office selected Boeing, then Hughes, as the prime contractor for the UHF Follow On (UFO). The later versions of the UFO satellites had UHF, EHF and GBS payloads onboard. The last UFO F11 was successfully launched in December 2003 and had a Digital Receiver Unit enhancement for UHF communications. In April 2006 at a Congressional hearing, Vice Admiral Kenneth W. Deutsch, Acting Deputy Chief of Naval Operations for Communication Networks, testified that UFO was the most over-subscribed MILSATCOM system, with UFO and the older LEASAT 5 satellite able to support only 80% of the narrowband tactical UHF satellite communication requirements during Operation Enduring Freedom.

Mobile User Objective System (MUOS) is the follow on MILSATCOM system to UFO, providing narrowband communications for the DoD as well as the State Department, White House, Department of Homeland Security, and their allied partners. MUOS will also provide true "communications on the move" to deployed users. MUOS is scheduled to support over thousands of accesses with almost 40 Mbps capacity compared to the UFO's hundreds of

access and 2.5 Mbps capacity. SPAWAR awarded the \$2.1 billion (B) Cost Plus Award Fee/Incentive Fee contract to prime Lockheed Martin in September 2004. MUOS will use the Lockheed A2100 bus design with one earth coverage antenna for support to legacy terminals and 16 spot beams for supporting the newer MUOS waveform. The four MUOS and one on-orbit spare will provide legacy UHF connectivity, MUOS Wideband Code Division Multiple Access (WCDMA) at UHF and a UHF to Ka feeder link. The MUOS architecture will retain the DoD investment in UHF terminals and also leverage off advances in commercial technology development. The geosynchronous satellites will serve as the equivalent 36,000 km tall cell towers and provide coverage from +/- 65 degrees latitude. MUOS is developing the WCDMA Common Air Interface (CAI) waveform and modifying the third generation (3G) Universal Mobile Terrestrial System (UMTS) to develop switched and networked ground sites. The new MUOS CAI will be compliant with the Joint Tactical Radio System (JTRS) terminals, a suite of software-defined programmable terminals based on a standard open architecture. MUOS had a successful Preliminary Design Review (PDR) in October 2005 and is scheduled for an on-orbit capability in 2010.

There have been technical challenges leading to cost growth and schedule delays in developing MILSATCOM, and other civil, national and military space programs. In the current environment of constrained funding, we must work closely with

Congress to secure the necessary resources. The new protected, wideband and narrowband systems will incorporate affordable innovative technology and provide the strategic advantage so we can "See First, Act First and Finish Decisively". The new MILSATCOM systems, and other space programs, are critical in protecting our national security, advancing our economic competitiveness and securing our homeland. **SM**

For more information:

WGS and AEHF programs <http://www.losangeles.af.mil/smc/mc>
 MUOS program <http://www.spawar.navy.mil>

Government Accountability Office (GAO) Reports:
 6 April 2006 Report (GAO-06-626T) Improvements in Space Systems Acquisitions

23 June 2005 Report (GAO-05-570R) Space System Acquisitions: Incentives and Pressures that Drive Problems Affecting Satellite and Related Acquisitions

Note:

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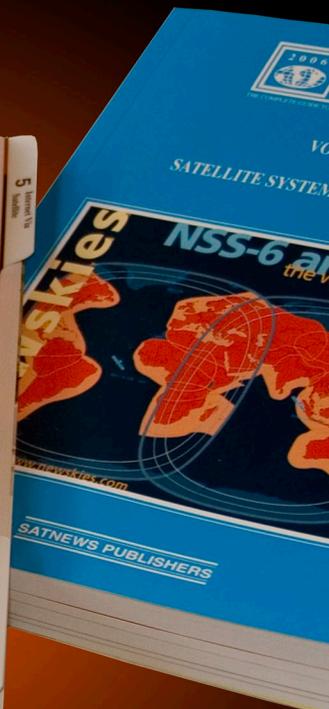
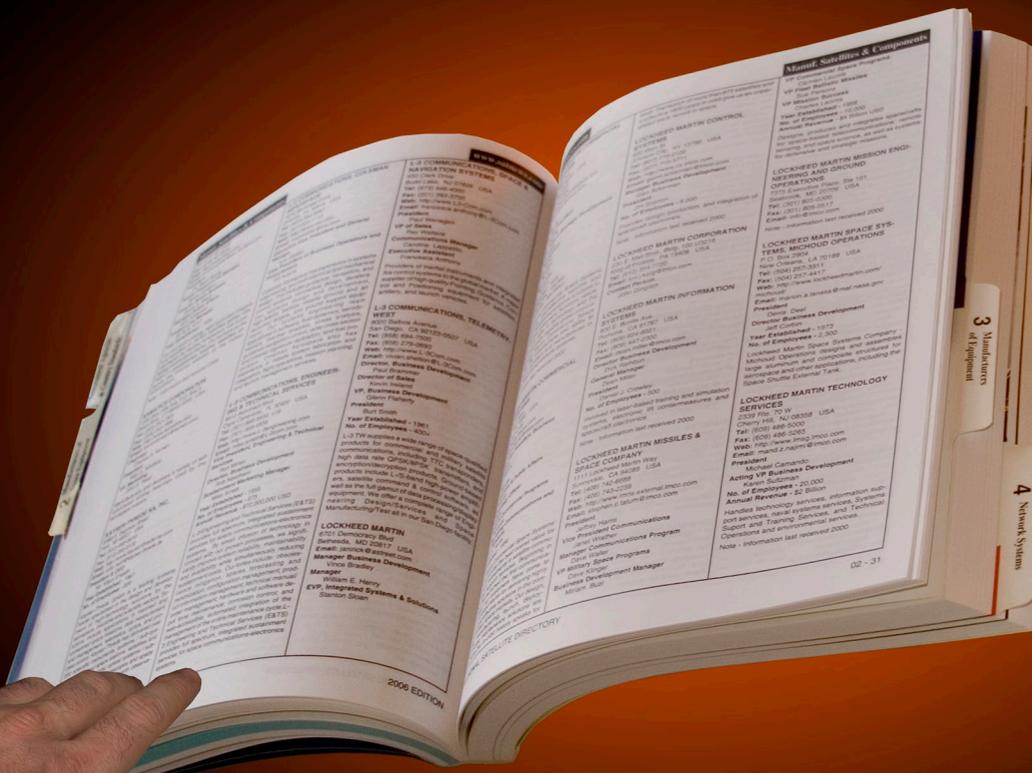
Wendy Tsien is currently employed at the National Reconnaissance Office (NRO). The views expressed here are solely the author's and do not represent those of the NRO. Wendy can be reached at wtsien@hotmail.com



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VIEWPOINT

How to Sell and Deal with the Military Satellite Communications Customer

by **Bruce R. Elbert**

President, Application Technology Strategy, Inc

The build-up of commercial satellite usage by the US military has been described by some as a revolution. Regular and special units that depended in the past on uniquely-designed government satellite systems and Mil-Spec ground equipment now are using nearly the same products and services commonly found among corporate users in major US cities and various international locations. One insider recently commented to me that the military will not get away from commercial satellite due to the huge demand for bandwidth and equipment. As a result, many suppliers find that a substantial portion of their revenues could be and, in some cases, already are coming from military organizations.

The prior record of dedicated military procurement has been mixed; some programs like DSCS and Leasat were very successful in their long runs of on-orbit performance and service to the military forces of the US and its allies. In some other instances, the US government has put forth millions of dollars over an extended period of time only to receive a modicum of capability. At the same time, the functional capability and capacity of commercial satellite systems have continuously outperformed their military counterparts, resulting in a gap in the communications/command/control means of military vs. industrial groups. This has changed dramatically now that the military has chosen to put

commercial satellite systems at the core of their architectures. This may change in years ahead as efforts like Transformational Satellite (T-Sat) communications initiative bear fruit.

Similar comments could be made with regard to non-US military usage of commercial satcom. In fact, it has been the rule that ground, naval and other elements

outside the US mantle had discovered commercial technology and services literally decades ago at a time when US operating entities relied on government-procured satellites and ground facilities.

What type of systems and applications will the military employ in the short-term?

The modern military is as different from the military of our fathers as their's was from the military of the Civil War period. Electronic systems are essential to every element of the military, some being more dependant than others. Every officer now needs to carry a lap top, as do many NCOs and enlisted personnel, and these computers require a network to support



One-the-move vehicle system (courtesy of L-3 Communications – Datron Advanced Technologies)

them. Armament platforms of all types likewise need to communicate. What we see going on is that the military is finding ways to use commercial satellite communications products and services to provide the “glue” that ties it all together.

The organizations within the military that obtain these resources and provide them to operating elements at all levels have become very savvy in what the commercial market has to offer. They attend the same satellite conferences – Satellite 2007, ISCe and SatCon – and they read the same publications. In fact, more than half of my short-course attendees are from either military communications organizations or the contractors that support them.

VIEWPOINT



MUOS spacecraft (rendering, courtesy of Lockheed Martin)

What are their specific needs in regard to satellite communications?

Much of what the US military does is centered outside the country, in places like the Middle East, South Asia and Central Europe. This does not leave out other places like Africa and South America, where requirements are likewise highly-focused and demanding. Some

of the kinds of uses include:

- Dedicated high-speed (T-1) lines provide a broadband “pipe” between remote theatre and central command
- Temporary medium-speed lines that serve a particular operation, with connections to intermediate command posts and ultimately back to a home base
- Mobile communications for field units, employing vehicles and aircraft
- Thin-route voice and low to medium-speed data connections for tactical units; included are requirements for mesh-network connectivity (“Network Centric Operations”)
- Other links that support some of the newer demands, such as UAVs and special operations teams.

As a result, the military purchaser knows pretty well what they want, and they have been very effective at getting it. The products and services fall within the familiar industry categories – satellite capacity from operators like Intelsat and SES Americom, VSAT network equipment for iDirect, ViaSat and Hughes, RF equipment such as fixed and mobile antennas from Datron, AVL and Swedish, amplifiers from CPI and MCL, application and teleport services from Dataline, Artel and GlobalSat, and systems engineering and integration services from GlobeComm Systems, Northrop Grumman and Boeing.

Much of what the military needs requires a high level of trust and confidentiality. Some commercial companies maintain separate government services units that even have the same security clearances as their military counterparts. It is a truism that once you are a member of this club, the business will easily come your way.

The building blocks used by the communicators of these users can come from the commercial off the shelf (COTS) product lines of the familiar manufacturers, and be integrated by either major defense contractors or the units themselves. In fact, the military has found that COTS equipment is as good if not better than Mil-Spec equipment.

How different it is from selling to commercial entities?

Selling your COTS solutions to the military customer is much the same as to the commercial user; and at the same time, very different. Let me address this by a point-counterpoint discussion.

Point – the military buyer uses commercial specifications to define what they want

Counterpoint – military procurement processes, embodied in the Federal Acquisition Regulations (FARs) are still cumbersome, often requiring that the supplier already be in the “club” to get the on-going business

Point – relationships matter in finding the right person within the buying organizations. This requires time and effort.

Counterpoint – military organizations are extremely complex and while you may convince the ultimate user that you have the solution, the actual buying power will be shared between several entities, some of which may not even know of the particular need.

Point – Some buyers want a complete solution while others wish to “roll their own” and save money on middle-man costs.

Counterpoint – military users typically take care of the remote site, and some have hub locations in the US and Europe. However, they often require

VIEWPOINT

“Points of Presence” in other states or countries, and so look to the service provider to bring these in when and where necessary.

I can conclude that selling to the military customer is somewhat easy, but only after you have “paid your dues”. From there, it’s still a battle for every piece of business, but at least you have your customer fighting on your side.

Is the current military demand for commercial solutions a short-term thing until the military builds up its own capabilities and own systems?

Because military requirements are so dynamic and time-critical, I don’t think we will go back to old-style extended military procurement of satellite communications. Under the new paradigm of Force Transformation, military units mix traditional structures with flexible hard-hitting teams that either lead or follow a main body. Even here, the main body may itself be a team that happens to have the right equipment and means of transportation to deploy and remain on station throughout a critical mission.

An exception to this rule is probably the new military satellite system called MUOS, for Mobile User Objective System (MUOS), an Ultra High Frequency (UHF) satellite communications system. MUOS will replace the legacy UHF Follow-On (UFO) system prior to reaching its end-of-life. MUOS also provides enhanced capabilities and will serve additional users that require greater mobility, access, capacity, and quality of service than the current UFO satellites can accommodate. As a UHF system, MUOS primarily supports mobile users (e.g. planes, ships, ground vehicles, and soldier man-pack), unprotected (i.e., not

resistant to enemy jamming), low-throughput voice and data satellite communications requirements. MUOS operates as a global cellular service provider to support the warfighter with modern cell phone-like capabilities. MUOS converts a commercial third generation (3G) Wideband Code Division Multiple Access (WCDMA) cellular phone system to a military UHF radio system using geosynchronous satellites in place of cell towers.

MUOS should achieve system initial operational capability by 2010, and will provide some excellent tactical means of voice and data communications to almost any spot on the planet. But, this system is still years away and commercial satellites must fill that particular void. Beyond that, commercial satellite

resources can provide higher-bandwidth capabilities than MUOS and the military will be in the best position to use them for a substantial part of their on-demand needs. What we have found is that the single biggest reason the military as a whole has turned to the commercial sector is that it can respond quickly by giving them the bandwidth and tools required to fight anywhere in the world.




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).
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REGIONAL UPDATE

European sat-radio confusion

by Chris Forrester

Few people doubt the huge success of satellite radio operators XM and Sirius. While there may be some concerns about profits, the net subscriber third quarter gain of 305,000 (XM) and 441,000 (Sirius) and a probable end-of-year combined total of 14.5m subscribers is impressive by any measure. And there are would-be European broadcasters looking at these numbers with envy.

But Europe is not North America. The US is a single market with English as the dominant language. Both XM and Sirius also make the point of offering plenty of Hispanic entertainment within their portfolios. It is the same with Canada, where again English dominates but where satellite has found it easy to comply with Canada's local French quotas. Perhaps even more importantly both XM and Sirius have made much of their special programming content. Exclusive access to sport, as well as Howard Stern and Oprah Winfrey are each seen as generating real customer enthusiasm and loyalty.

It would be near impossible to replicate any of these elements across Europe. There is no pan-European Howard Stern or Oprah or sports club. There are plenty of national celebrities, of course, and national sports clubs, but few that transcends borders. There are also plenty of those pesky borders, most taking you into a different linguistic zone as well as highly localised trading customs and distribution channels. There's no pan-European Best Buy, or Circuit City or even an equivalent.

There's one other major problem: Europe has dozens and dozens of very popular (critically, if not commercially) publicly funded stations from the likes of the BBC, ARD (Germany) and every other nation.

Nevertheless, and despite these obvious challenges, there are plenty of people lining up to invest the billions of dollars needed to get satellites in the air. Indeed, Paris-based Eutelsat is believed to have decided to have exercised a contract option with Alcatel-Alenia-Space to proceed with implementation of a 2 GHz MSS-band payload on the Eutelsat-W2A GEO C-band/Ku-band FSS satellite. W2A was ordered in September 2006 for delivery in 2009. The Eutelsat-W2A satellite will have up to 46 Ku-band FSS transponders and up to 10 C-band FSS transponders - so it is a big satellite, and the 2 GHz payload will mean the craft will have a giant antenna in order to focus signals back to Earth. Eutelsat will be keenly

XM radio car unit



Celso Azevedo

looking for clients to fill this new capacity.

Washington-based WorldSpace is another player with capacity firmly in place over Europe (and Africa, on AfriStar) operating in the L-Band. But WorldSpace is seen as running out of cash. Indeed, WorldSpace filed an SEC prospectus on October 17 referring to some share sales from key investors which prompted a flash note from bankers

Bear Stearn which referred to the broadcaster's debt options. The bank talked of WorldSpace's underperformance in India, for example, and that WorldSpace might have to again raise cash in the Capital markets "under difficult conditions". WorldSpace raised \$221m in an IPO in August 2005. The bank says WorldSpace has about \$140m left, which its European plans would quickly soak up.

REGIONAL UPDATE



WorldSpace’s European CEO is Benoit Chereau, and he says that the broadcaster has more than 50 people working on the upcoming launch of its Italian DARS system. Chereau says WorldSpace can manage 50-60 audio channels per major European country. He outlined WorldSpace’s plans which fall into three distinct phases. First up, a launch in Italy using AfriStar 1’s West Beam this winter (and perhaps France), to be followed - and partly satisfying what he described as a “regulatory priority” – by the launch of FM3, the current Ground Space sitting at EADS-Astrium’s Toulouse facility. However, an Astrium source suggested that FM3 needs a lot of attention, not least to its batteries which are now getting a little long in the tooth, as well as other degradable components, plus the small factor of its monthly facility fee (around •1m a month) to be resolved. Then there’s the not inconsequential launch costs to be funded. Nevertheless, Chereau stated that WorldSpace’s Phase 2 plan was to see the craft launched into orbit and services commence to France, Spain, Germany and the UK possible “by mid-2008”. Chereau stressed that WorldSpace had the cash to launch its Italian service.

Phase 3 would take place around 2010/2011 when a new high-power GEO satellite would launch covering the whole of Europe with its European beam

Europe once had a plan for satellite radio, Global Radio, based in Luxembourg, but it failed back in 2002.

Failure reasons (Applicable in 2002/2003)*
Satellite industry was in deep slump.

No market experience in S-DARS or S-DMB services anywhere in the world.

Technology unproven (satellites, user terminals etc).

Validity of subscription-based model in Europe.

Major ITU, CEPT and national regulator/ spectrum road-blocks for 1.4 GHz Global Radio HEO BSS/S-DAB system

A Perspective (Today)*
Satellite industry is robust

Positive S-DARS market experience in USA. Development of S-DMB services in Far East.

XM/Sirius S-DARS technology is proven. Japanese/Korean S-DMB technology is proven. Terrestrial T-DMB/DVB-H technology is proven.

Certain terrestrial platforms (DVB-H, T-DMB, T-DAB/IP) in Europe are demonstrating early interest in subscription-based services.

The same regulatory issues largely exist today

**Data: Europa-Max*

centred on Germany. Chereau said the transmission plan called for some 60 channels (plus 256 kb/s of data) to be transmitted using MPEG4 HE AAC+v2 encoding and compression, with ESDR as its transmission heart. The technology has already been validated, said Chereau, and the German Fraunhofer Institute (which is also backing the rival Ondas scheme) writing the specification. Repeaters for the Italian deployment have been ordered from French transmission specialists Sodielec with the first units due for delivery during Q4 this year. Receiver manufacture is also underway with technical prototypes due this year-end.

Compared to its rivals WorldSpace

has two distinct advantages: It has a satellite in place, and it has “ownership” to its L-Band frequencies, endorsed by Washington’s FCC. “In Europe the upper 12.5 MHz of spectrum is designated for use by S-DARS [he quoted the CEPT Decision EEC/(03) 02] and WorldSpace satellites have been notified for the entire 25 MHz range under a ‘first come first served’ rule”. He warns that WorldSpace Europe aimed at using the frequencies 1479.5-1492 MHz “efficiently”.

The satellite frequency plans have been in place for some time. But earlier this year the UK telecoms regulator (Ofcom) said they wanted to auction the L-band terrestrial frequencies to the

REGIONAL UPDATE

highest bidder. Ofcom, on Oct 17, said that it would postpone for the time being its planned 2007 auction of terrestrial bandwidth in the 1452-1492 MHz band, (the lower portion of the L-band), saying: "There have been important European developments relating to this band. Ofcom remains committed to releasing the spectrum to the market at the earliest feasible date, but in light of these developments now considers that this is likely to be in the second half of 2007. The [European Union's] Radio Spectrum Policy Group in its draft opinion of Mobile Multimedia felt that in 1452-1479.5MHz band the Maastricht Special Arrangement seemed unduly restrictive and should therefore be reviewed urgently to ensure that other technologies and services were not unduly precluded from use of the band."

In fact, Europe has its eyes on the bandwidth for use by the mobile telephony community for TV-to-mobiles, probably using DVB-H technology. Consequently, the news affects two distinct interest groups. Celso Azevedo, CEO at prospective DARS operation Ondas Media, speaking exclusively to us, said: "I am very pleased with Ofcom's very wise decision to postpone their process, and we hope that they will postpone it to allow for discussions with the major parties interested and a proper evaluation of the situation." While the Euro-DARS radio lobby want access to the frequencies for their planned services, David Harrison, Ofcom's 'head of broadcast and new media technology', talking to us on October 19, said the mobile satellite community was still able to access S-Band frequencies (1980-2010MHz and 2170-2200MHz) for satellite radio.

The background to the decision lies within the EU Radio Spectrum Group's CEPT (Conference of European Postal & Telecommunications Adminis-

Regulators, regulation and DARS over Europe

It is at least positive that the EC mandate to CEPT does not include the 1479.5 - 1492 MHz CEPT designated 'S-DAB' band; otherwise it might have further opened up the door for terrestrial wireless incursion into this satellite S-DAB / S-DARS band. Theoretically, the EC mandate to CEPT might open the door to reconsider the possibility of 'S-DAB' access to the frequency band 1467.5 - 1479.5 MHz planned also for T-DAB use at the CEPT 2002 Maastricht T-DAB Conference. "This is a matter which is likely to be intensively debated and lobbied by various satellite and terrestrial interests in the CEPT process. The next 9 months will be interesting," said someone close to the industry.

trations) mandate, issued on Sept 11, which talks of harmonisation within L-band, in order to allow "flexible use by a wide range of mobile multimedia technologies". As its justification it says it wants to seek harmonised uses across Europe for mobile multimedia, such as mobile TV. It stresses that while the specific aim of its initiative is to support the introduction and take-up of mobile multimedia across the EU, there is "no intention to exclude other services or technologies".

The EU has now set April 1 2007 as the date when its final report should be available. "Ofcom will take an active part in the work of CEPT to deliver this mandate," said the Ofcom Oct 17 statement. "Following consideration of this report, one possible outcome could be that [the regulators] will seek to develop an EC Decision regarding future use of the 1452-1479.5 MHz band which, if adopted, would be binding on the UK and other Member States. It is Ofcom's view that it is unlikely to be desirable to hold an auction until the European position is clearer. As a result, the earliest that the UK award of the 1452-1479.5 MHz spectrum can now take place

Some operators in the UK radio sector are expecting satellite radio to make a serious impact. UK-based Virgin Radio chief executive Fru Hazlitt says: "The US influences us enormously. An Oprah Winfrey-branded station launched on XM [in October]. I would be very surprised if satellite radio was not a significant platform here in the next five years."

is likely to be in the second half of 2007, although this may change depending on the outcome of the process," added Ofcom, formally.

Quite where all this bandwidth confusion leaves Europe's two other main DARS contenders is uncertain. Madrid-based Ondas Media claims to be still enthralled, arguing that Europe is a near-perfect market for satellite radio and predicts "very strong business case fundamentals" given that Europe had twice as many potential subscribers as

REGIONAL UPDATE



Sirius' Star Presenter Howard Stern

the USA, and that Europeans listen to more radio and watch more satellite TV than their US counterparts. Moreover, Europe's current radio programming formats "do not provide extensive variety" and that Europe's very multicultural mix aids, not hinders, the potential market. He also argued that Europeans are more in tune with products like digital TV, and paying for entertainment, than residents of the US.

Azevedo said that with his service introduction during 2009 he was predicting 380,000 European subscribers by the end of that year, growing to 7m by the end of 2012, and 36m by 2019. He said that Ondas' break-even point was estimated at 24-36 months from service launch with 4.5m subscribers, "just half that required of XM". Ondas has linked "strategically and financially" with auto specialists Delphi [currently in Chapter 11, but with a firm trading relationship with XM], and Azevedo said their expertise underlined Ondas' leadership role in European S-DARS. Their involvement, along with their firm understanding of the US market, significantly reduced the risk for Ondas.

He stated that in many meetings with European car makers (and he showed VW/Audi, BMW, Honda and Porsche logos during his presentation) they were highly enthusiastic about S-DARS, describing it as a "must have" feature. Ondas' initial strategy is to capture two high-end and two volume auto-makers with a target release date of OEMs as being the late 2009 model year.

The other vocal player is Luxembourg-domiciled Europa-Max. Kumar Singarajah, a director of

Luxembourg-based Europa-Max, says bluntly that "You really have to mess up badly for [DARS] not to work in Europe." Singarajah takes a robust view of sat-radio's prospects over Europe. Singarajah was one of the Global Radio executive team prior to its failure. He also argued that today's appetite for a pan-European radio system was much greater, and totally contrary to suggestions that Europe did not need across-border radio. However, he warned that there were too many contenders currently looking to launch, and that some "consolidation was inevitable".

Europa-Max says it has initiated its HEO filing through Luxembourg, having earlier acquired certain Global Radio

assets. Singarajah says Europa-Max is looking to raise its next round of finance next year and award its satellite contract before the end of 2007, and commence broadcasting by year-end 2009/early 2010. Europa-Max's HEO satellites would deliver 7 multiple spot-beams of content, each targeting a major European market with 25-30 radio channels plus 10 video channels. Because of beam overlap each market would actually receive far more content, around 50-90 audio channels and 20-30 video services. While the radio services would supply ample thematic audio, including proprietary channels from the likes of BBC World, CNN and so forth, he listed 11 video-based services (Music, Drama, Sports, Games, News, Movies, Soaps, Docs and others), which would make up entertainment for those in the back seats.

The satellite builders, in Europe and the US, are rubbing their hands with glee at the prospects for further orders in this sector. While WorldSpace clearly has 'first mover advantage' in that it has a satellite in orbit, Europe's other DARS players, which now include the likes of Eutelsat, should not be ignored. **SM**



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

CASE STUDY

Telenor Enables Troops to “Phone Home”

By Clay South

When Charlie Company, 1st Battalion, 36th Infantry Brigade got orders that it was returning for another tour of duty in Iraq, Specialist Bryan South’s family in New Mexico and Arizona began to think back to his first combat tour there and the difficulty he had trying to stay in touch with them. Sometimes weeks would go by without word from Bryan and his mom and dad, grandparents, and family and friends would be worried sick about him. This time, we wanted to find a way that would allow him to call or send us some messages on a more regular basis. We found our solution with Telenor Satellite Services.

After getting the go-ahead from Bryan’s First Sergeant that a satellite phone would be ok to take on the deployment, we contacted Telenor Satellite Services. We talked to Telenor and obtained an Iridium satellite phone with airtime service through Telenor. The phone arrived just before Christmas and only a few days before Bryan was to return to his unit in Germany. We fired up the phone and worked with Telenor’s Customer Care to be sure he knew how to operate the phone and established a calling plan that would work for us.

Using the Iridium satellite phone with Telenor’s service, Bryan has been able to call all of us on a very consistent basis, including when his unit was in garrison in Kuwait and now from their forward operating base in Iraq. According to Bryan, “It is very difficult to find a phone or computer to send a message when the mission permits because

everyone is trying to do the same thing. The satellite phone has been a ‘godsend’ for me and for the other guys in my unit.”

The satellite phone has become the defacto “platoon phone” as all the members of Charlie Company are able to use it to call and stay in touch with the ‘home front.’ Bryan and his buddies are able to call whenever the mission permits or when they get a chance to enjoy some very scarce ‘downtime.’

“I really appreciate having the ability to call home and talk with my family to catch up on all the news from home and to let them know I’m all right,” Bryan said. “I also have found the folks at Telenor most helpful because they are willing to go the extra mile to help all of us if we have a question or problem.” In a recent call home, Bryan said that he “really appreciates the Telenor service” and sent along a big “thanks” from all the members of the 1st Platoon of Charlie Company. **SM**



Editor’s Note: Clay South’s grandson, Bryan South, is an infantryman who enlisted in the United States Army in 2003. This is Bryan’s second deployment to Iraq.

EXECUTIVE SPOTLIGHT

Interview with Newtec CEO Serge van Herck

The Belgium-based equipment provider Newtec is quietly making waves as one of the leading proponents of the DVB-RCS standard. Flying somewhat below the radar screen, Newtec is actually an established market leader in Europe for satellite equipment products and has been aggressively expanding in other regions such as North America, Middle East, Africa and Asia. Newtec recently landed a very lucrative contract to provide its Sat3Play system for SES ASTRA's new satellite-based broadband internet service similar to the WildBlue service in the US. Newtec's CEO Serge van Herck spoke to SatMagazine Managing Editor Virgil Labrador to discuss the significance of this contract and other issues.

Excerpts of the interview:

Q. For the benefit of our readers, can you give a brief background on your company?

A. Newtec is a European –based company with its main offices in Belgium. The company was founded in 1985 but the first commercial product did not come out in the market until 1995, a DVB-S modulator which was a big success. So the first 10 years of the company was dedicated to research and development, mainly for the European Space Agency. It was only since 1995 that we started to go commercial and Newtec has been growing ever since. The first five years was focused on mainly satcom equipment such as modulators, demodulators, frequency and redundancy switches and the like. Since early 2000 we also started with systems sales –total solutions for broadband satellite networks with the introduction of 2 Way-Sat, a product based on the new DVB-RCS standard. Newtec has always been a strong contributor in the development of new standards be it DVB-S, DVB-S2, DVB-SNG or DVB-RCS and we are indeed very strong with new technology.

Q. What would say your market share in the product lines that you are active in globally?

A. In Europe, when we look at our products and systems, we are for sure a market leader. Worldwide in satcom equipments we

would be about number 3 and in systems we are somewhere around number five.

Q. So Europe is still your main source of revenue at this point?

A. It is still indeed, but as we have opened offices abroad in the US in 1997 and in Singapore in 2001, and four other offices at the start of last year and this year, we see now indeed the revenue is also increasing rapidly in other regions.

Q. Where do you see most growth in the world?

A. For us we see the biggest growth coming from Asia. Asia as we see it can be potential the biggest growth engine for the future, although at present the growth is still heavily from the US and Europe. The Middle East and Africa also is showing some promise.

Q. You have offices in Singapore and in Beijing, China, what applications have the most potential for your products in Asia?

A. Two things: the Direct-to-Home (DTH) market and what we call the Sat3Play product. We have a very cost-efficient terminal which allows broadband services for the end user.

Q. How about the US market, what applications have the most potential?

A. The growth will come from applications such as IPTV. Also the transition as we are going from DVB-S to DVB-S2 will also be an important market driver that we see across all segments of satellite communications.

Q. How are you different from other companies that also provide products that enable IPTV and Satellite Triple Play?

A. What we try to achieve is to be first in the market. Our mission is to shape the future of satellite communications. So our target is to come up with new technologies with new standards and improvements that will allow our customers to grow their business by increasing their operational effectiveness and



Newtec CEO Serge van Herck

EXECUTIVE SPOTLIGHT

reducing capital costs and expenditures. Our strongest point is that when our customers buy products from Newtec they know they have the latest and best technology available and that is how we differentiate ourselves from our competitors.

For example, in the last IBC in Amsterdam, we were the first company to demonstrate a commercial application of DVB-S2 ACM equipment for DSNG applications.

Q. You have been a pioneer in promoting the DVB-RCS standard, how's the market acceptance of this standard progressing?

A. We started with our systems line of business with DVB-RCS at the beginning of 2000, when the VSAT market at the time was dominated by some big companies who had proprietary systems and did not believe in a common standard. However, what we see now is that almost all of them have adopted the DVB-RCS standard. That shows that we have made some correct choices by developing and pushing for the DVB-RCS standard. This helped us gain market momentum and be a market leader in Europe. Although I have to admit that in other regions of the world our efforts are not big enough to achieve significant market share yet.

Q. Is the market as big as expected?

A. I think if you look at the market DVB-RCS has been accepted as a major standard. We are definitely quite happy with the acceptance and adoption of the market to DVB-RCS. However, is the market as big as we expected? I think not. So that may be the drawback. As a standard itself, we are happy the way the market has adopted to it.

Q. Are you trying to provide an end-to-end, not just the equipment?

A. Indeed some companies have decided to start a service using their equipment, like for instance HNS (Hughes Network Systems) or Gilat, but we have always considered this as something we should not do. At this point in time and it is still our intention in the future, we intend to stick to developing the equipment, providing that to customers and providing service through after-sales support. So, we are not in the business

where we would launch our own service based on our own equipment.

Q. But are you helping your clients, to plan and install and do the systems engineering for them?

A. Absolutely, that is exactly what we do, but we are not operating a service ourselves. Most of our customers are in the telecommunications industry who are buying our equipment to resell their service, so our customers are typically also service providers. So, if we become a service provider, we would be in competition with our own clients, which we wouldn't want to do.

Q. You recently launched a Satellite Triple Play product, the Sat3Play system, talk about that?

A. For us, technology-wise, it's an evolution of our DVB-RCS technology together with another standard that we helped create, the interactive television standard, which was also used by SES under a service called "SatMode." Our new Satellite Triple Play technology is a further evolution of those existing standards and is also using DVB-S2, so it makes it more efficient in the forward link.

We now have a major contract with SES ASTRA to provide for the equipment for a satellite-based interactive and low-cost broadband internet service using our Sat3Play system.

Q. When is this service going to be launched?

A. The first terminals will be up and running in January 2007 and will be available to the public February 2007 onwards. SES Global is also looking how to potentially implement this service in other regions. We also have a solution in Ku-Band and also in Ka-Band, so this can be used in other areas of the world. I think the future is really in Ka-Band where our customers can substantially reduce their costs.

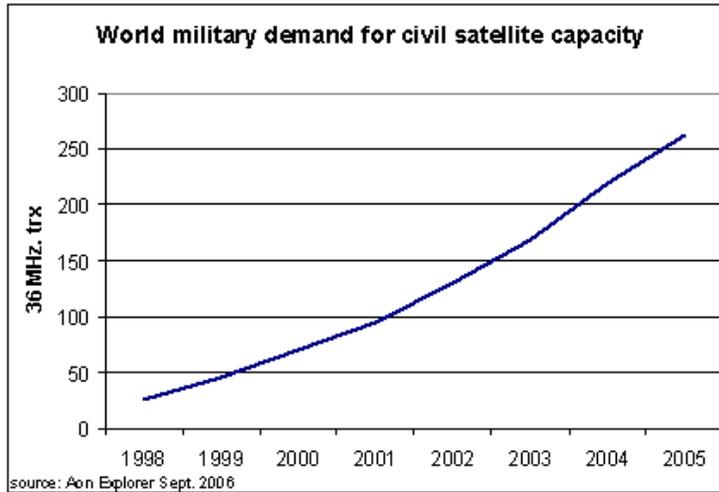
Q. Let's say we do this interview again at the end of 2007, where do you see your company at that time?

A. At that point in time, we expect that the Satellite Triple Play will have been implemented not only in Europe but in other regions of the world, perhaps, the Middle East, Africa, particularly South Africa and of course, Asia. On the DVB-S2 side, we expect to further lead the market with our modulators and demodulators. Those are two most important achievements that we expect to reach by the end of 2007. **SM**

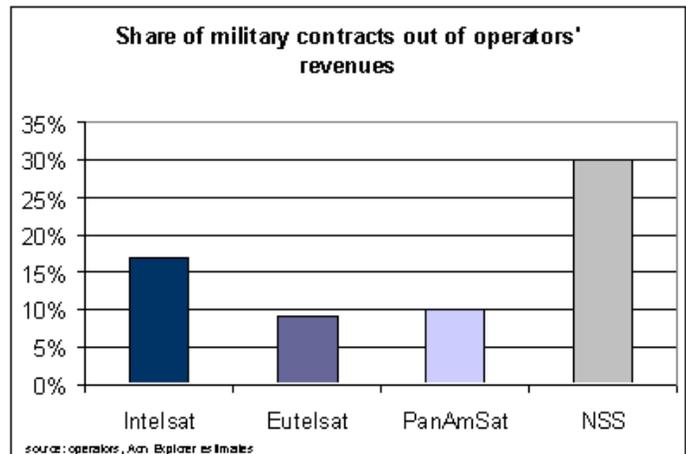
"...The growth will come from applications such as IPTV. Also the transition as we are going from DVB-S to DVB-S2 will also be an important market driver that we see across all segments of satellite communications..."

VITAL STATISTICS

Military Market Demand



- Although the DoD constantly investigates ways of reducing and contemplate different options, all reports from the DoD concludes that satellite capacity lease is the most viable option at least for the foreseeable future.
- Military/government contracts for commercial capacity is expected to continue increasing steadily in the mid term.



About Aon Explorer

Aon Explorer is the strategy consulting arm of Aon France in the aerospace and telecoms markets. Resulting from the acquisition of Vista Advisers in January 2005, Aon Explorer Strategy & Finance has developed a thorough expertise in business plans, feasibility studies, companies due-diligence both for the satellite industry and the finance community. Please contact Laurence Journez, Vice President, tel: +33 1 5875 6064, email: laurence_journez@aon.fr

MARKET INTELLIGENCE



Satellite Industry Intensifies Campaign to Counter C-Band Spectrum Threat

By David Hartshorn
Secretary General, GVF

As terrestrial wireless interests continue to deploy systems that interfere with C-band satellite services – and as moves are made to re-allocate portions of the frequency range for next-generation broadband wireless access – the satellite industry has escalated its efforts to thwart the global threat. Following a recent emergency Summit in Washington, D.C., the GVF has begun coordinating support from broadcasters, the military, and the World Bank, and has launched an international campaign involving governmental groups and approximately a dozen affiliated industry associations.

During GVF's emergency Summit in Washington, D.C. – which was entitled, "*The \$20 Billion Question: Can Satellite and Terrestrial Wireless Co-Exist in C-band?*" – a briefing was provided on how communications companies and governments throughout the world have increasingly been reporting incidents where fixed and mobile satellite services are being severely disrupted by interference from terrestrial-wireless services in the "extended" C-band frequencies of 3.4 to 3.7 GHz. It was noted that the stakes are high: If private- and public-sector organizations fail to address this trend, the satellite industry may be prevented from delivering users with fixed and mobile satellite services for voice, data and video services.

Since the International Telecommunication Union (ITU) originally allocated C-band for use by the global satellite industry, massive deployment of systems and services has been underway worldwide, and millions of users now rely upon satellites for essential communications. But the reported impact on reception of those satellite services has been dramatic, including:

- **In-band interference;**
- **Interference from unwanted emissions (outside the signal bandwidth); and**
- **Overdrive of low-noise block converters (LNB's).**

Analysis has demonstrated that exclusion zones around earth stations would be required for terrestrial wireless and satellite services to co-exist in the affected band, but technical data was provided during the Summit showing that exclusion zones around earth stations would be impractical because they would have to be large, and there would be too many to be feasible due to the millions of C-band satellite earth stations already deployed worldwide.

In related business, GVF provided an overview of an effort underway by the terrestrial wireless community to secure a global allocation from the ITU to put future mobile phone networks like IMT advanced and 4G services in "standard" C band frequencies of 3.4 – 4.2 GHz. These frequencies are a primary means by which the satellite industry provides millions of users with mission-critical communications solutions for distance learning, tele-medicine, universal access, disaster recovery, and many other vital applications.

Addressing the issue was an expert panel, each of whom provided their organization's perspective on the subject. Following are the points of view provided by each of the experts:

1) National Defense

Mr. Ralph Puckett of the **US Department of Defense (DoD)** discussed the dependence of the DoD on commercial C-band satellite systems. The DoD purchases more than \$1 billion annually in C-band satellite services. The links used by these services are employed by war fighters deployed in forward stations. Mr. Puckett said their dependence on C-band systems for communications and radiolocation is literally a matter of "life and death". Interference in these systems from an allocation to IMT services in the 3.4 – 4.2 GHz band would be profoundly detrimental to these services.

2) Broadcasting

Mr. Dick Tauber of the **World Broadcasting Union and International Satellite Operations Group (WBU-ISOG)** and **CNN** explained that worldwide, members of the North American Broadcasters Union and other members of the WBU are all gravely concerned about interference in C-band from terrestrial wireless systems. Broadcasters spend many billions of dollars per year on satellite communications. HDTV is very much dependent on the robust signal strength of C-band systems.

Mr. Tauber further explained that one of the more frustrating elements of suffering interference from Ultra Wide Band (UWB) and mobile wireless systems is the difficulty of locating the source of the interference. The mobility and ubiquity of the devices mean that they can be anywhere and therefore are difficult to isolate and combat.

MARKET INTELLIGENCE

3) Wi-Max Forum

Representing the Wi-Max Forum, Rob Kubik from **Motorola** reported that the Wi-Max Forum and GVF had initiated a dialogue that seeks to define the problem, as well as a potential solution. Meanwhile, demand for Wi-Max services is very high. For example, a large-scale Wi-Max deployment is being completed in Pakistan right now. **Clearwire** and **Sprint** are reporting demand for Wi-Max services. Mr. Kubik provided an overview of the Wi-Max Forum and its important role in facilitating global deployment of W-Max services.

4) Intelsat

Mr. Kalpak Gude of Intelsat reported that C-band is the “lifeblood” of the global satellite industry. C-band is prized for its reliability, so interference in the band is “unacceptable”. There is less margin built into C-band systems to address interference because until now, it was unnecessary: The signal was robust enough to withstand atmospheric interference and no other services were using adjacent bands in a way that posed unreasonable levels of interference. Now, however, with terrestrial wireless systems increasingly being deployed worldwide, there is a higher incidence of interference.

Moving C-band customers to Ku-band is “not an option” because it is already fully loaded with other applications. Likewise, Ka-band is not an option because of the rain-fade issues in tropical zones and the impossibility of having continental beams in Ka-band.

Mr. Gude identified one source of the regulatory problem being underreporting of the issue. That is, many foreign regulators may not be aware of the problem because receive-only antennas are not required to be licensed and therefore are not registered with the regulator. Broadcasters receiving interference should be sure to register their antennas with all local regulatory authorities and then demand protection according to the terms of their license.

5) Government Spectrum Regulatory Authority

Mr. Vorhies of NTIA and Mr. Baptista from the Inter-American Telecommunications Commission (CITEL) reported on the regulatory dialogue and process relating to this interference. Mr. Vorhies clarified that the ITU is not considering an IMT allocation in the extended C band of 3.4 – 3.650 GHz but that 3.650 – 4.5 GHz is “open for discussion”. Mr. Baptista reported that there are national inputs for the World Radio Conference – Item 1.4 – that are likely to become Inter-American Proposals to the World Radiocommunications Conference in 2007. CITEL is

carefully and critically examining the allocation of frequency bands below 6 GHz for broadband wireless services. Some countries have already identified the frequency band from 3.4 – 3.6 GHz for the deployment of BWA solutions.

6) Next Steps

In response to points raised during the Summit, several actions were identified and have since begun to be addressed by GVF, including:

- **World Bank Support:** Mr. Hartshorn reported that GVF is working with the World Bank’s Global Distance Learning Network to deliver a series of international discussion forums involving telecom regulators throughout the world to heighten awareness of the issue and to recommend successful regulatory approaches to preserve C-band satellite services. The first regional forum will be held in the Americas, and the Inter-American Telecommunications Commission (CITEL) has agreed to hold the forum jointly with GVF. The event will be staged simultaneously in up to seven nations, after which it will be multicast to governments globally. Once completed, similar forums may be held in each of the major world regions, with direct involvement from the local inter-governmental groups (e.g. EC/CEPT in Europe, WATRA/TRASA/ARICEA in Africa, APT in Asia, ATRN in the Arab Region).
- **Inter-Governmental Co-ordination:** For the Americas, GVF provided CITEL with an Information Document on the C-band issue for the consideration of last week’s PCC II meeting in Venezuela, where Gonzalo de Dios of Intelsat provided assistance. In Europe, meanwhile, GVF is co-ordinating its position with the Brussels-based Satellite Action Plan Regulatory Working Group (SAP-REG) and the European Satellite Operators Group (ESOA), which are preparing filings for the CEPT and EC. For Asia, GVF held a conference call earlier this week with the Cable and Satellite Broadcasting Association of Asia regarding tentative plans to hold a joint Summit during *ITU World* in Hong Kong in December. In addition to or instead of this event, a Summit may be held in the Middle East in conjunction with the *ITU Global Regulators Symposium*, which will be held in Dubai on 5-7 February, 2007. And in Africa, the C-band issue is a prominent part of GVF’s *West Africa Satellite Summit*, currently underway in Abuja, Nigeria, where the West African Telecom Regulators’ Assembly has endorsed the event and is participating.

MARKET INTELLIGENCE

- **Working with Existing & New Allies:** The GVF initiative – including the emergency Summit that was held in Washington, D.C. – is being co-ordinated with the Asia Pacific Satellite Communications Council, Cable and Satellite Broadcasting Association of Asia, European Satellite Operators Association, Mobile Satellite Users Association, Satellite Industry Association, Society of Satellite Professionals International, Satellite Users Interference Reduction Group, VSAT Service Association of India, and the World Teleport Association.
- **Building & Promoting Unified Global Consensus:** The GVF Regulatory Working Group is co-ordinating amongst all of the world’s satellite communications associations to develop a global industry position paper that all of the associations – as well as their individual Member companies – would disseminate to national, regional and global officials, forums, meetings, and other relevant proceedings, including next year’s critical World Radiocommunications Conference. The

first draft is nearly completed and will soon be circulated for input.

- **Wi-Max Forum Co-ordination:** During the GVF emergency Summit, Mr. Tim Hewitt, Chair of the Regulatory Working Group of the Wi-Max Forum, had pointed out the need to make a distinction between general terrestrial-wireless systems and “certified” Wi-Max systems. Mr. Hewitt’s point was that certified Wi-Max systems may have undergone testing and harmonization procedures which prevent them from causing interference. To achieve clarity on this point, Mr. Adam Edwards of SES NewSkies has offered to help organize a demonstration of a certified Wi-Max antenna and a C-band antenna to demonstrate whether interference is created.

David Hartshorn is the Secretary-General of the Global VSAT Forum (GVF). He can be reached at david.hartshorn@gvf.org For more information on the GVF go to www.gvf.org



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STOCK MONITOR

ADVERTISERS' INDEX

Company Name	Symbol	Price(Oct. 30)	52-wk Range
APT SATELLITE	ATS	1.21	1.14 - 2.10
ANDREW CORP	ANDW	9.18	7.08 - 14.25
ASIA SATELLITE TELECOMMUNICATIONS (ASIASAT)	SAT	17.35	15.91 - 19.60
BALL CORP	BLL	41.49	34.16 - 45.00
BOEING CO	BA	80.22	63.70 - 89.58
BRITISH SKY ADS CALIFORNIA	BSY	41.16	33.59 - 43.75
AMPLIFIER	CAMP	6.85	5.44 - 13.90 -
C-COM SATELLITE SYSTEMS INC.	CMLV	0.4350	0.23 - 0.56
COM DEV INTL LTD	CDV.TO	6.09	1.67 - 6.47
COMTECH TELECOM CO	CMTL	35.77	25.67 - 45.65
THE DIRECTV GROUP	DTV	22.00	13.17 - 22.05
ECHOSTAR COMMUNICATIONS	DISH	35.16	24.44 - 35.95
GLOBECOMM SYSTEMS	GCOM	9.27	5.88 - 9.70
HARRIS CORP	HRS	41.82	37.69 - 49.78
HONEYWELL INTL INC	HON	42.44	33.04 - 44.48
INTL DATACASTING CORPORATION	IDC.TO	0.1750	0.14 - 0.31
INTEGRAL SYSTEMS	ISYS	26.73	18.63 - 33.55
KVH INDS INC	KVHI	10.92	9.07 - 14.48 -
L-3 COMM HLDGS INC	LLL	81.14	66.50 - 88.50
LOCKHEED MARTIN CORP	LMT	87.03	58.88 - 89.89
NEWS CORP	NWS	21.86	14.76 - 22.04
NORSAT INTL INC	NSATF.OB	0.4450	0.30 - 1.00 -
NTL INCORPORATED	NTLI	27.07	19.99 - 31.00
ORBITAL SCIENCES CP	ORB	17.79	10.86 - 20.36
PT PASIFIK SATEL ADR	PSNRY.PK	0.0001	
QUALCOMM INC	QCOM	36.74	32.76 - 53.01
RADYNE CORPORATION	RADN	9.99	10.00 - 17.85
SIRIUS SATELLITE RADIO	SIRI	3.79	3.60 - 7.98 -
SES GLOBAL FDR	SDSFA.F	12.45	
TRIMBLE NAVIGATION	TRMB	47.06	28.55 - 52.40
WORLDSPACE INC	WRSP	3.25	1.90 - 15.10 -
VIASAT INC	VSAT	27.48	22.32 - 30.83
XM SATELLITE RADIO	XMSR	11.40	9.63 - 32.00

AAE Systems www.aaesys.com	11
ANACOM www.anacominc.com	28
AVL Technologies www.avltech.com	27
Colem www.colem.co.uk	15
COMTECH EF DATA www.comtechefdata.com	13
CPI SATCOM www.cpii.com/satcom	44
Global Link www.globalinktv.com	16
L-3 NARDA SATELLITE NETWORKS www.lnr.com	33
NEWTEC www.newtec.be	20
MITEQ www.miteq.com	cover & 18
PTC 2007 www.ptc07.org	24
Satnews Publishers www.satnews.com	30
SES AMERICOM www.ses-amicom.com	23

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