MilsatMagazine.com

Satellite Communications for Net-Centric Warfare

First Quarter 2007 Vol. 1 No. 1

Opportunities and Challenges in the Military Satellite Market

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MILSATMAGAZINE

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First Quarter
Vol. 1 No. 1
April 2007

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Introducing MilsatMagazine

Satnews Publishers, the company that has brought you the International Satellite Directory for over 20 years and the internet portal, Satnews.com and the monthly e-magazine, SatMagazine, now brings you a specialized magazine focusing on a very important and pivotal market for the global satellite industry–the military satellite market. MilsatMagazine, which begins with this issue as a quarterly, is the first magazine of its kind focusing exclusively on the military satellite market with a global perspective.

It goes without saying how important the military market is to the satellite industry today. The consensus is that it's not just a short-term spike in demand due to ongoing military conflicts in the world, but indicators are clearly pointing to a long-term trend that shows a lot of potential for growth. Thus, the need for a specialized publication dealing with the special issues and requirements of this important market.

As with all of our publications, we will endeavor to give you up-to-date and accurate information that you can use to further your business or mission objectives. Our editors and contributors from all over the world will bring their wide experience and expertise to provide you with objective and accurate reporting and analysis.

In this inaugural issue, we provide an overview of the global military satellite market with specific and detailed articles on the opportunities and challenges in each of the major regions of the world--North America, Europe, Asia and Latin America. And as you have been accustomed to expect from a Satnews publication, this magazine is packed with news, new products and services information and other vital content geared specifically to the military segment of the satellite industry. Future issues will deal with various aspects of the military satellite market and how the commercial side of the industry can tap into the potential opportunities in the global military market. Our military readers will also benefit from the information provided in this magazine as it can aid in making more informed decisions as buyers and users of services and equipment provided by the commercial satellite industry.

We hope we can count on your continued patronage. As such, we welcome your comments, suggestions and even editorial contributions. Feel free to contact us and enjoy this issue and all that will follow.

Virgil Labrador

MILSATMAGAZINE.COM
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Satnews Publishers
800 Siesta Way,
Sonoma, CA 95476 USA
Phone (707) 939-9306
Fax (707) 939-9235
E-mail: design@satnews.com
Website: www.satmagazine.com

EDITORIAL

Silvano Payne
Publisher

Virgil Labrador
(virgil@satnews.com)
Managing Editor

Bernardo Schneiderman
Editor, Latin America

Peter I. Galace
Editor, Asia-Pacific

Lisa Daniels, David Mulholland
Contributing Writers

Jill Durfee
(jill@satnews.com)
Advertising Sales

Kathryn Sanderson
Subscriptions
(katryn@satnews.com)

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MilsatMagazine accepts article contributions from the industry and the military community. For more information or to submit proposals for possible articles, send a one-paragraph or less abstract of the proposed article to virgil@satnews.com

CALENDAR OF EVENTS

May 21-23, 2007
IDGA's Military Satellites 2007
Arlington, VA , USA
Contact: Dave.Barlow@idga.org
Tel. +1-416.597.4710
Web: http://www.idga.org/us/milsat

May 21-23, 2007
Mobile Satellite Users Association International Conference and Exhibition
Baltimore, MD, USA
Contact: Tara Blair / Betsy Kulick
Tel: +1-757-747-2342
E-mail: enp@ecius.net
Web: www.msua.org/msua4

Jun. 5-7, 2007
ISCe 2007: Satellite and Hybrid Network Solutions for the Entertainment and Military/Government Markets
San Diego Hilton Resort at Mission Bay, San Diego, California, USA
Contact: David Bross
Tel: +1.301.916.2236
E-mail: dbross@hfusa.com
Web: www.isce.com

July 11-12, 2007
Military Space and Satellite Systems 2007
Thistle Marble Arch Hotel, London, UK
Contact: **Yousuf Malik**
Tel: + 44 (0) 207 368 9348
Email: **yousuf.malik@iqpc.co.uk**

Aug. 21-23, 2007
LandWarNet Conference 2007
Ft. Lauderdale, FL, USA
Contact: Terry Rogers
Tel. +1-703-631-6238
E-Mail: trogers@afcea.org
Web: www.afcea.org/events

September 12-13, 2007
Network Centric Warfare 2007
Singapore
Contact: enquiry@iqpc.com.sg
Tel. +(65) 6722 9388

Oct. 29-31, 2007
MILCOM 2007 - Military Communications Conference
Gaylord Convention Center, Orlando Florida, USA
Contact: AFCEA Exhibits Department
c/o Spargo & Associates, Inc.
Tel. +1-703-631-6200 / +1-800-564-4220
E-mail: milcom@jspargo.com
Web: www.milcom.org

Nov. 28-29, 2007
Aerospace & Defense Finance Conference
New York, NY, USA
Lydia Janow
Tel.: +1-800-240-7645, +1-212-904-3225
Fax: +1-212-904-3334
E-mail: janow@aviationweek.com
Web: www.aviationweek.com/conferences

dossier

SATELLITES UNDER THREAT

Last January 11, China successfully tested an anti-satellite missile that blew up a low-orbit satellite 550 miles above the earth's surface. There are approximately 300 satellites at this altitude in the world today --- all potentially within range of the Chinese ant-satellite missile. The breakdown of these satelites that could be under threat, by country, are as follows:

Number of Satellites by Type

Country	Communications	Military	Scientific (Weather Research, etc)	SubTotal
Algeria			1	1
Argentina	4			4
Austria			1	1
Brazil			3	3
Canada			3	3
China		7	10	17
Czech Republic			1	1
Denmark			1	1
France		5	2	7
Germany		1	4	5
India	1	1	6	7
Iran	1			1
Israel		3	10	15
Japan	2	3	10	15
Multinational Satellites		2	25	27
Nigeria			2	2
Portugal	1			1
Russia	8	6	4	18
Saudi Arabia	2		2	4
South Korea			2	2
Spain	1			1
Sweden			1	1
Taiwan			8	8
Turkey			1	1
USA	99	14	44	157
Grand Total				300

Source: Union of Concerned Scientists, Time Magazine

NEWS

Skynet 5 Satellite Successfully Launched

The Atlas 5 rocket deployed a flock of military satellites into two different orbits last March 8

KOUROU, French Guiana and CAPE CANAVERAL, Fla., – An Ariane 5 ECA heavy lifter launched successfully on March 11 the geosynchronous satellites Skynet 5 and Insat 4B.

Skynet 5A, described as a groundbreaking next generation military satellite, is expected to herald a new era in secure military communications for the UK. The Skynet program will provide the next generation of UK milsatcom capability, and will meet the long haul military communications needs of international customers of Paradigm Secure Communications, owner and operator of Skynet 5A.

The year began well for both the United Launch Alliance (ULA) and Arianespace with the successful conclusion of their first launch missions. Launched within three days of each other (one in French Guyana, the other in Florida) were a ULA Atlas V launcher carrying six scientific satellites into low Earth orbit on March 8 and an Ariane 5 ECA heavy lifter on March 11 with the geosynchronous satellites Skynet 5 and Insat 4B as payloads. All eight spacecraft were successfully released into their designated orbits and control acquired over them.

Ariane 5 launched from Kourou after a one-day delay caused by a technical problem on the launch pad. For ULA, the successful launch was the first Atlas mission the company conducted for the U.S. Air Force since ULA was established in December by merging the government launch services operations of Lockheed Martin and Boeing.

At Kourou, the Ariane 5 placed Skynet 5A into GTO 27 minutes after lift-off and five minutes later released Insat 4B satellite. Insat 4B, a satellite of the Indian Space Research Organization (ISRO), will be used for direct-to-home television (DTH) broadcasting throughout the Indian subcontinent.

Skynet 5A is the first in a series of next-generation military relay satellites that will provide secure communications services for the British armed forces, NATO and a number of other countries. It will be operated for the U.K. Ministry of Defence by Paradigm Secure Communications, a commercial organization.The Atlas V deployed its first satellite, the Orbital Express, 18 minutes after launch and its last, Falconsat 3, 48 minutes later.

Orbital Express is an in-space refueling demonstration mission consisting of the Autonomous Space Transfer and Robotic Orbiter, or Astro, prototype servicing satellite and the NextSat serviceable spacecraft. The Defense Advanced Research Projects Agency (DARPA) mission will test the ability of robotic refueling and servicing satellites in space. Such a capability could extend the lives of government and commercial spacecraft.

Besides Orbital Express, the other Atlas V payloads consisted of:

MidStar 1, a 116 kilogram microsatellite built by midshipmen at the U.S. Naval Academy. It houses four experiments: the military's Internet Communications Satellite (ICSat) and Configurable Fault Tolerant Processor (CFTP) space-based computer tests, a payload called Eclipse to test electrochromic membranes in space and the Microdosimeter Instrument for the USNA Department of Aerospace Engineering under the sponsorship of the National Space Biomedical Research Institute.

STPsat 1, a 156 kilogram satellite built by AeroAstro Inc. of Ashburn, Virginia, carrying two experiments to collect atmospheric data and demonstrate spacecraft technologies. This satellite carries two complex experiments: the Spatial Heterodyne Imager for Mesospheric Radicals (SHIMMER) designed for chemical and biological agent detection and the Computerized Ionospheric Tomography Receiver in Space (CITRIS) for atmospheric electron counting and radio frequency effects

CFESat (Cibola Flight Experiment Satellite), a 159 kilogram satellite built for the Los Alamos National Laboratory by SSTL to test a series of new technologies.

NEWS

This demonstration mission will put eight technologies to the test, such as a new power system, inflatable antennas, deployable booms and a high-density Li-Ion battery pack comprised of AA batteries. The spacecraft has a supercomputer onboard to process data for refined answers rather than downlinking all raw data to Earth. And the flight computer can be reprogrammed in space. The science objectives focus on the ionosphere and the effects on communications.

FalconSat 3, a 54 kilogram satellite built by cadets at the U.S. Air Force Academy. It carries five military scientific experiments, including the Flat Plasma Spectrometer to characterize the effects of charged particles on the formation, propagation and decay of ionospheric plasma bubbles; the Plasma Local Anomalous Noise Element to identify spacecraft-induced plasma turbulence and the Micropropulsion Attitude Control System featuring a low-thrust, electric-pulsed plasma system with a thrust of 150 micro-Newtons. Technical pieces of the satellite — a shock ring to test vibration suppression and a gravity gradient boom — round out the experiments.

USAF to Fund Alternate Missile Warning Satellite

WASHINGTON DC, – The U.S. Air Force intends to award a contract in August for a missile-warning demonstration satellite that might eventually herald a new satellite fleet warning of ballistic missile launches anywhere in the world. The research satellite is to be launched into geosynchronous orbit by 2010.

The Alternative Infrared Satellite System (AIRSS) to be deployed by 2015 is to replace the existing Space Based Infrared System (SBIRS), the U.S.' planned first line of defense against ICBM launches. SBIRS is suffering from technical difficulties that led to lengthy delays and soaring costs. Uncertainty also continues to surround the fate of the restructured SBIRS program.

The first dedicated SBIRS satellite is to launch in October 2008, to be followed a year later by the second. The Air Force's $1.04 billion SBIRS budget request for 2008 includes funds for a third satellite, and the Pentagon expects to decide this summer whether it will go through with that purchase.

Lockheed Martin Space Systems is the prime contractor for SBIRS. Northrop Grumman Space Technology and General Dynamics Advanced Information Systems, however, are designing AIRSS satellite systems under contracts worth about $24 million apiece. Raytheon Co. and SAIC Corp. are developing prototype AIRSS wide-area staring sensors while Northrop Grumman Electronic Systems received a contract to study AIRSS data processing and dissemination.

SBIRS provides missile warning, missile defense, technical intelligence, and battle space situational awareness data to operational users and the intelligence community. Lockheed Martin is under contract to provide two HEO payloads and two geosynchronous (GEO) satellites as well as ground-based assets to receive and process infrared data. The SBIRS team has delivered both HEO payloads and is on schedule to launch the first GEO satellite in late 2008. The ground-based information processing segment of SBIRS became operational in 2001.

U.S. Stealth Bombers to Use EHF SatCom from Northrop Grumman

The USAF B-2 Stealth Bomber

.EL SEGUNDO, Calif., – The U.S. Air Force has approved Northrop Grumman Corporation's plan to begin formal development of a new satellite communication system for the B-2 stealth bomber that will allow the aircraft to send and receive battlefield information up to 100 times faster than today.

The Milestone B decision by the Air Force's deputy secretary for acquisition clears the way for Northrop Grumman to undertake the system development and demonstration phase of the first increment of an extremely high frequency (EHF) satellite communications program for the B-2. Northrop Grumman is the prime contractor for the B-2, the flagship of the U.S.' arsenal of long-range strike aircraft. The first increment of that program will replace the B-2's current flight

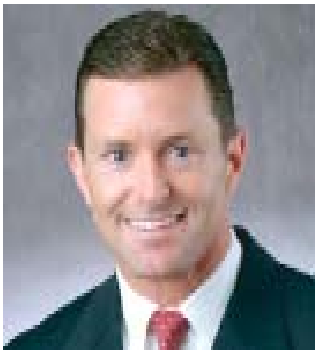
management computers with a single, integrated processing unit developed by Lockheed Martin Systems Integration.

The next increment will give the aircraft the ability to send and receive information at EHF frequencies, while the final increment will fully integrate the new EHF communications capabilities into the aircraft's controls and displays. The B-2's current satellite communications system operates at ultra high frequencies (UHF).

"Upgrading the B-2's satellite communications capabilities from UHF to EHF will be like going from a dial-up Internet connection to broadband," said Dave Mazur, vice president of long-range strike for Northrop Grumman's Integrated Systems sector. "It will allow the aircraft to use both current and future military satellite communications networks to share battlefield information with allied commanders around the world." The EHF Satcom system will also allow the B-2 to connect easily to the U.S. Department of Defense's Global Information Grid (GIG), a worldwide network of information systems, processes and personnel involved in collecting, storing, managing and disseminating information on demand to warfighters, policy makers and military support personnel. GIG is the physical manifestation of the Defense Department's doctrine of network-centric warfare. The B-2's new EHF Satcom system is the latest in a series of modernization programs that Northrop Grumman and its subcontractors have undertaken MSM

PERSONNEL CHANGES

Ballhaus Appointed President of BAE's Network Systems Business



William L. Ballhaus

RESTON, Virginia – BAE Systems has named Dr. William L. Ballhaus president of its Network Systems business. Network Systems employs 5,000 people at more than 10 major U.S. sites that include Reston; San Diego; Burlington, Massachusetts, and Wayne, New Jersey.

Network Systems combines products and capabilities in advanced communications, navigation, guidance, and information systems that previously resided in several BAE Systems units. The organization serves the U.S. intelligence, defense, and homeland security markets.

Ballhaus previously served as president of BAE Systems' National Security Solutions and Mission Solutions businesses. He joined BAE Systems in July 2003 after nine years at the Boeing Co., where he was senior vice president of system engineering with Boeing Satellite Systems.

Ballhaus earned a bachelor's degree in mechanical engineering from the University of California at Davis, and master's and doctorate degrees in aeronautics and astronautics from Stanford University. He also holds a master's degree in business administration from the Anderson Graduate School of Management at the University of California at Los Angeles.

He serves on the U.S. Geospatial Intelligence Foundation Board of Directors, is an Associate Fellow of the American Institute of Aeronautics and Astronautics, and is a British American Project Fellow.

BAE Systems is a global defense and aerospace company, with 88,000 employees worldwide, had 2006 sales that exceeded $25 billion.

MSV Appoints John Mattingly President, Satellite Services

RESTON, VA, – Mobile Satellite Ventures (MSV) announced the appointment of John Mattingly, a 20 year veteran of the satellite services industry, to the position of President, Satellite Services. Mattingly will be responsible for overall management and direction of MSV's satellite services business.

MSV is developing a hybrid satellite-terrestrial communications network, which it expects will provide wireless coverage of the United States and Canada to conventional handsets. MSV holds the first FCC license to provide hybrid satellite-terrestrial services. MSV plans to launch two satellites for coverage of the United States and Canada.

Prior to joining MSV, Mattingly served as president, Satellite Services, for Comsat Corp. and Lockheed Martin Global Telecom from 1997 to 2001, and President of Comsat International from 2001 to 2002. Mattingly was responsible for Comsat's $500 million annual revenue satellite services businesses, Comsat World Systems, Comsat Mobile Communications, Comsat General Corporation and Comsat Digital Teleport.

In addition, his responsibilities included the company's satellite system investments, Intelsat, Inmarsat and New Skies Satellites, with a market value of greater than $1 billion. Mattingly joined Comsat in 1994 and became the general manager of Comsat World Systems in 1995. Most recently, he has participated in the satellite and telecommunications industries as a private investor and management consultant to private equity firms and development stage businesses.

Mattingly was senior vice president and general manager, OrionNet, Inc., a subsidiary of Orion Network Systems from 1993 to 1994. From 1982 to 1993, he worked for American Satellite Company, which subsequently became Contel ASC, and then merged with GTE Spacenet in 1991. Mattingly holds a Bachelor of Aerospace Engineering degree from the Georgia Institute of Technology and a Master of Science (Mechanical Engineering) from George Washington University.

PERSONNEL CHANGES

Northrop Grumman Elects Wesley G. Bush President and Chief Operating Officer

Wesley G. Bush

James F. Palmer

LOS ANGELES – Northrop Grumman Corporation has elected Wesley G. Bush chief operating officer in addition to his current title of president.

The board of directors also elected James F. Palmer corporate vice president and chief financial officer, succeeding Bush as CFO. Both elections are effective March 12, 2007. Bush and Palmer will report to Ronald D. Sugar, chairman of the board and chief executive officer. This completes the search for a chief financial officer that the company announced in May 2006.

In his new role as chief operating officer, Bush will continue to work closely with Sugar, focusing on company operations. Sugar said Bush had done an outstanding job as president and chief financial officer, and that the company can leverage Bush's extensive operational talent and experience more broadly.

Bush, 45, joined Northrop Grumman in 2002 as part of the company's acquisition of TRW Inc. He joined TRW in 1987, where he held increasingly responsible technical and management positions in electronic and space systems. In 2001, he was elected president of TRW Aeronautical Systems in Birmingham, United Kingdom.

Following Northrop Grumman's acquisition of TRW, Bush was elected corporate vice president and president of the company's Space Technology sector. In 2005, he was elected corporate vice president and chief financial officer and in 2006, was elected president and chief financial officer.

Bush earned Bachelor of Science and Master of Science degrees in electrical engineering from the Massachusetts Institute of Technology.

As chief financial officer, Palmer will be responsible for the company's overall business management function and activities including the controller; treasury; contracts, pricing and supply chain; financial planning; tax; internal audit; investor relations; trust administration and investments; and financial process excellence functions. He will also provide leadership to the business management organizations within the operating sectors of the company.

Palmer joined Northrop Grumman from Visteon Corporation where he currently serves as executive vice president and chief financial officer. He joined Visteon in June 2004. He previously served from 2000 to 2004 as president of Boeing Capital Corporation, and from 1997 to 2000 as president of Boeing Shared Services.

From 1995 through 1997 he was senior vice president and chief financial officer of the McDonnell Douglas Corporation. At McDonnell Douglas, he also served as vice president and treasurer as well as vice president of business operations and CFO for military aircraft and missiles. Prior to his work at McDonnell Douglas, Palmer worked for twenty years at Ernst & Young, rising to the position of partner.

Northrop Grumman Corporation is a $30 billion defense and technology company with 122,000 employees worldwide.

Intelsat Names Shermit to Head Intelsat General Unit

Washington. DC – Intelsat has appointed William Shermit as the new president of its subsidiary Intelsat General. Intelsat General provides innovative communications solutions primarily to military and civilian government customers.

"Intelsat wanted a seasoned business executive with a proven track record to head Intelsat General, but we also wanted someone who had served in the U.S. Government and understood the needs of our government customers," said Dave McGlade, the CEO of Intelsat. "In Bill Shermit, we have the best of both worlds," Glade said.

PERSONNEL CHANGES

Shermit served 13 years at the Central Intelligence Agency, where he was responsible for a broad range of technical systems and advanced technologies. He then moved to private industry and joined BAE Systems, Inc. in 1989. He rose to become President of BAE Systems' Information Technology group.

At BAE Systems, Shermit was responsible for successfully implementing strategic and operational plans for the IT group, as well as expanding the department through organic growth and acquisitions, and he helped to grow the BAE Systems IT group to a $1 billion enterprise. His group focused particularly on network-centric infrastructures and information-sharing among the intelligence community, homeland security agencies, and the warfighter.

Shermit holds a Master's and a Bachelor's of Science degree in Electrical Engineering from Cornell University in New York.

Swedish Space Appoints New CEO Lars Persson

Lars Persson

STOCKHOLM, Sweden — Lars Persson has been appointed as the new president and CEO for Swedish Space Corporation effective February 16. Lars Persson previously served as CEO for Marratech AB and will replace Claes-Göran Borg who is going into retirement.

Lars has been very internationally active and has more than 25 years of experience from the IT and Telecom sectors. He has been CEO for France Telecom and Telenor in Sweden. He is also a member of the board in CyberCom, a consulting firm listed on the stock exchange.

"It will be most exciting and interesting to be able to contribute to the future development of a company that already is one of the world's leading companies in space technology and services," says Persson.

Swedish Space chairman of the board Olof Rydh said Lars has the capacity and experience required to successfully manage the Swedish Space. He said the conditions for continued positive progress are excellent built upon the previous efforts of retiring president and CEO Claes-Göran Borg.

Gen. Howell M. Estes III Appointed to DigitalGlobe Board of Directors

Gen. Howell M. Estes III

LONGMONT, Colo. — DigitalGlobe announced that Gen. Howell M. Estes III has been appointed to its board of directors, effective immediately. Gen. Estes will serve as a strategic guide in the defense and intelligence markets for the company as it continues its business development and growth strategy.

Gen. Estes retired from the United States Air Force in 1998 after more than 30 years of service. He most recently served as commander-in-chief of the North American Aerospace Defense Command (CINCNORAD) and the United States Space Command (CINCSPACE), and commander of the Air Force Space Command (COMAFCPC).

He holds a Bachelor of Science degree from the Air Force Academy, a Master of Arts degree in public administration from Auburn University and is a graduate of the program for senior managers in government at Harvard's JFK School of Government.

Gen. Estes currently serves as president of Howell Estes & Associates, Inc., a consulting firm to CEOs, presidents and general managers of aerospace and telecommunications companies.

He is currently chairman of the board of directors of the Federal Employee Support for CFC Charitable Giving, vice chairman of the board of trustees at The Aerospace Corporation, and president of the board of trustees of the Colorado Springs School. He also currently serves on the boards of Analytic Graphics, Inc., Master Solutions, Inc., SpaceDev Inc., the Space Foundation, and the Air Force Academy Foundation, among others. MSM

Inmarsat and Viasat Develop New Broadband GlobaL Area Network (BGAN) Terminal for Defense Sector

ViaSat Integrated BGAN Terminal (Photo courtesy of ViaSat)(note: photo saved in "new products folder as viasat_bgan_terminal.jpeg)

Satellite service provider Inmarsat and equipment manufacturer ViaSat, Inc. have announced a co-funded project to develop a new mobile satellite communications terminal for the defense sector. The collaboration will provide secure, reliable and highly mobile voice and high-speed data communications to the armed forces

.

Targeted specifically at the U.S. and NATO markets, the ViaSat Integrated Terminal will combine Inmarsat's IP-based Broadband Global Area Network (BGAN) technology with ViaSat AltaSec® IP inline encryption equipment to create a portable, ruggedized BGAN user terminal capable of uplinking IP data fully compliant with HAIPE™ version 1.3.5 Type 1 security standards. The new terminal takes advantage of ViaSat's experience supplying ruggedized equipment to tactical warfighters in the Army, Navy, Air Force, and Marines.

BGAN is the world's first mobile communications service to deliver simultaneous voice and broadband IP data to a highly portable device on a global basis. It supports mobile broadband data at speeds up to half-a-megabit per second, as well as guaranteed IP data rates up to 256kbps. Engineers from both companies have already successfully demonstrated the compatibility of using the BGAN service with ViaSat KG-250 Type-1 High Assurance Internet Protocol Encryptor Interoperability Standard (HAIPE IS) compliant encryption products over the new constellation of Inmarsat advanced broadband satellites, the Inmarsat-4s.

"We know that the BGAN capabilities are highly attractive to a variety of military users, and this agreement with ViaSat will provide enhanced hardware to maximize its potential in that sector," said Perry Melton, vice president of sales & marketing for Inmarsat.

"This terminal will combine BGAN's unprecedented levels of broadband connectivity for Communications on the Move and other high mobility requirements, with the military's needs for a hardware platform that meets the ruggedness and security needs of IP-centric, tactical users," said Phil Berry, Vice President and General Manager of Government SATCOM Systems for ViaSat. "By developing a BGAN terminal integrated with HAIPE IS security, we create a near term secure connectivity capability needed by today's warfighters," he added.

The new Inmarsat IP-based Broadband Global Area Network (BGAN) tactical terminal.received the AN/PSC-14 designation from the Department of Defense. The AN/PSC-14 is a unique combination of the affordable BGAN terminal with a High Assurance IP Encryption (HAIPE™) Type 1 security device, providing the tactical user an integrated, ruggedized satellite communications terminal for secure voice and broadband IP data.

New Dual T1 Media Converter from Stratos Enables Seamless Conversion of T1 Data Rates to Fiber Optic Cable

note: use photo in the folder called "stratos" it is a bitmap file—add photo credit saying *"photo courtesy of Stratos)*

Stratos Optical Technologies is now offering a dual channel media product that converts T1 data rates to fiber optic cable. The first product capable of integrating into the backshell of an HMA Expanded Beam bulkhead connector, the Stratos Dual T1 Media Converter is currently in use by certain elements of the U.S. armed forces.

This new product combines RJ45 interconnected T1 data with fiber optic HMA Expanded Beam technology, providing dual 1.544 Mbps data rate media conversion from copper to fiber and back for tactical communication applications. The compact converter eliminates the need for a separate fiber modem, provides a lighter weight solution, and saves valuable shelf space in military communications vehicles. By enabling the use of fiber optic transport, the Dual T1 media converter also provides protection from electromagnetic interference and signal detectability, common drawbacks of copper-

based cable.

A unique advantage of the Dual T1 media converter is the combination of high data rate capability with the performance and reliability benefits of the Expanded Beam technology pioneered by Stratos for harsh environments. The HMA version of Expanded Beam technology includes an optical lens system that provides immunity from water, mud, dust, oil and other contaminants that can damage the fiber end-face. The Stratos Expanded Beam series can be installed and repaired in the field with limited training for a rapid, real-time upgrade. The hermaphroditic design allows simple, rapid rigging and daisy chaining of deployment.

The Dual T1 Media Converter is tooled and currently available. For price and delivery information, contact Product Manager Grover Brower, gbrower@stratoslightwave.com. For price and delivery quotations for the HMA Expanded Beam series of optical connectors, contact Product Manager Dave Mullen, dmullen@stratoslightwave.com

Telenor Satellite Services to Launch Wideye SABRE™

Addvalue Wideye SABRE™ 1
(photo courtesy of Telenor Satellite Services)

Telenor Satellite Services will launch sometime in April the sub-laptop sized Addvalue Wideye SABRE™ 1—the most economical BGAN satellite terminal on the market today which will enable users to conduct simultaneous telephony and IP data communications. The Addvalue terminal's built-in user interface allows quick set-up and supports multiple data interfaces including Bluetooth, Ethernet, and RJ11. It is particularly effective for such applications as Internet access, file transfers, e-mailing with pictures and video clips, telephony, and SMS, according to Telenor..

The Addvalue terminal features include:·

- Class 1 Bluetooth connectivity up to 100m ·
- Support Bluetooth Headset profile, hand-free operation ·
- Comprehensive interfaces RJ 11 Analog PSTN
- Ethernet, and Bluetooth in one-box ·
- Ergometric design with swiveled antenna that can adjust in vertical and horizontal directions ·
- 4 different users interfaces,
  .
- IP54

The Sabre 1 kit comes with the following items in a carry bag: SABRE I Broadband Satellite Modem (inclusive of internal battery); Standard telephone handset, RJ-11; IP44 6P4C RJ11 Telephone Cord (1.8m);IP44 8P4C RJ45 Cat. 5 Network Cable (1.5m); AC/DC Power Adapter and other accessories.

ND Satcom Introduces New Portble Military Terminal

ND SatCom introduced a new, light-weight yet powerful and extremely easily deployable portable military terminal to support transmission of voice, data and video. The terminal allows for fully meshed, single hop network transmission.

MPT 1000 Terminal
(lphoto courtesy of ND Satcom)

The MPT1000 is ideally suited for out of area missions, in remote or rough terrain where low weight and rapid terminal deployment is key. The terminal is portable and stowed in two cases, allowing for easy transportation whether on foot, ATV or car.

The system can be pre-configured, hence requires no on-the-spot configuration and is up and running in under 15 minutes. The portable terminal is designed for Ku-Band

NEW PRODUCTS AND SERVICES

operation. An X-Band version is currently under development. The terminal consists of a one meter six-piece twin skinned aluminium reflector antenna, an LNB, a 4 W SSPA, a tablet PC with integrated GPS and a compass, as well as the stand alone ruggedized modem. The modem is based on ND SatCom's proven *Sky*WAN® technology which offers utmost flexibility, scalability and efficiency, and allows for data rates up to 8 Mbit/s. MF-TDMA satellite channel access is used to provide fully meshed connectivity between all network nodes and to efficiently exploit the satellite channel capacity. Resources are assigned to a user station only when needed. The integration of real-time and non-real-time services is emphasized in the *Sky*WAN® approach which is based on packet switching technology.

The MPT1000 provides an Ethernet interface which connects the user's Internet Protocol (IP) based networks and equipment.

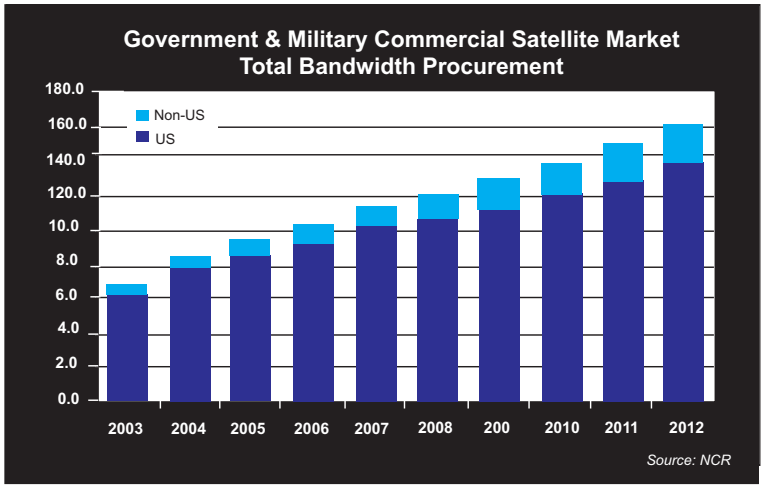
The MPT1000 fulfills the MIL-STD-810E requirements and is thus operational in almost all climatic conditions from cold to hot and from dry to humid. Due to the wide range DC power input, the system can be operated with different types of batteries available in the customer's logistic chain or directly from the transport vehicle. MSM

COVER STORY

Opportunities and Challenges in the Global Military Satellite Market

By Virgil Labrador

When the satellite industry began reeling from the downturn caused the internet and telecom busts in late 90s and early 2000s, it was looking for new market and the next "killler application" to make up for the shortfall in demand for satellite capacity and services. Post-911 security requirements and military operations in Afghanistan and Iraq provided a substantial increased in the use of commercial satellite capacity by the US military. Satellite companies began to look at the military market as a vital market and began to organize subsidiary business units focusing on this market.



The question, however, is how viableis the military market in the long-term? What it just a short-term fix to meet temporary demands as a result of the war in Iraq? Or, what about the many satellites systems that the US government is planning to launch in the long-term, will this eventually decrease its reliance on commercial satellite capacity and services?

The indicators are very strong that the military market, not just the US market but globally will only continue to grow in the long-term. Research and Markets, which tracks US Defense spending see substantial increases every year and forecasts US defense spending on Space to reach $28 Billion in 2010, from $15 Billion in 2000. More than $ 18 Billion is spent annually on the development of space systems. Research firm NSR forecasts that demand for commercial satellite capacity by the US government will enjoy double digit growth through 2012. The US Defense Information Systems Agency (DISA) which is responsible for purchasing commercial satellite capacity for the Department of Defense (DoD) has been spending between $300-350 million annually since 2003, up from less than $100 million in 2000. The US DoD is largest government procurer of commercial satellite services in the world today.

Even with the US plans to launch its own next-generation satellite systems such as the Advanced Extremely High Frequency (AEHF) and the Worldwide Gapfiller Satellite (WGS) systems, among others, to create an inter-networked Global Information Grid (GIG), the reliance on commercial satellite capacity will continue and will likely increase. This was affirmed by Maj. Gen. Roosevelt Mercer, Director of Plans and Programs of US STRATCOM, who said in the recently-concluded SAT 2007 conference in Washington, D.C. that "we will only continue to have greater reliance on commercial satellite resources. It's just not something we can do in-house in terms of the scope of our requirements."

Next Generation Military Satellite Systems

AEHF

The US is embarking on an unprecedented modernization of its military satellite (milsats) communication systems that is projected to cost a total of $100 Billion over the next 10 years according to the research firm Teal Group. As mentioned earlier, several programs are underway that will create a global network and cover a wide spectrum of communication frequencies. The programs range from "Protected" milsat systems which provide survivable, nuclear-capable, anti-jamming Advance

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Extremely High Frequency (AEHF) satellites in the 44 GHz range. To upgrade its aging MILSTAR satellite system which was first launched in 1994, the Air Force Space and Missile Systems Center (SMC) is launching the AEHF system in a joint-venture with Canada, the United Kingdom and the Netherlands. So far, three satellite contracts have been awarded at an approximately cost of $580 million per satellite with the first AEHF scheduled for launch April 2008.

WGS

Another layer of milsats are wideband systems that provide multi-channel, high data rate broadcast and point-to-point communications for tactical and strategic users. The original DoD wideband system, Defense Satellite Communication System (DSCS) I, was first launched in June 1966, providing military communications in X-band frequency. SMC is developing the Wideband Gapfiller Satellites (WGS) to upgrade the DSCS system. Boeing was selected as the prime contractor for WGS with the first launch scheduled later this year. A fleet of geosynchronous satellites will provide worldwide coverage from +/- 65 degrees latitude. The original award was for three satellites is now being planned for up to six WGS satellites.

MUOS

Narrowband milsat systems are designed for users operating at 64 kbps. Due to their larger antenna beamwidth and narrower bandwidth, narrowband satellites are more vulnerable to jamming and interception. The trade-off is narrowband systems allow the use of smaller antennas and terminals and are therefore ideally suited for communications-on-the-move applications or mobile users.

The Mobile User Objective System (MUOS) is the upgrade of the UHF Follow On (UFO) system of the Navy's Space and Naval Warfare Systems Command (SPAWAR). The MOUS will be able to provide with almost 40 Mbps capacity to thousands of users compared to the UFO's hundreds of access and 2.5 Mbps capacity. SPAWAR awarded the $2.1 billion contract to Lockheed Martin in September 2004. MUOS is scheduled for an on-orbit launch in 2010.

TacSats

The Air Force Research Laboratory (AFRL) and the Office of

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Naval Research (ONR) are spearheading a microsatellite program called "TacSats." The Tacsat uses small satellites that can be launched in a shorter time frame and will be more responsive to users on the ground. Four TacSats have been contracted out at an average cost of $50 million each including the launch. The first TacSat was originally scheduled to launch wit the SpaceX Corp.'s Falcon launcher last year but was delayed due to problems with the Falcon rocket and is rescheduled later this year.

SBRIS

The recent testing of a Chinese anti-satellite missile that downed a low-orbit satellite in China has incited renewed interest in anti-ballistic missile technology. The troubled Space-Based Infrared System (SBIRS) which was plagued by delays has spurred a search for better alternative systems for monitoring ballistic missile launches. Several alternatives are being considered including the US Air Force's Defense Support Program (DSP) missile warning system and the Alternative Infrared Satellite Systems (AERSS) program.

Initial design contracts have been awarded to General Dynamics C4 Systems and to Northrop Grumman Space Technology for the AERSS system. With perceived threats increasing to US Space and ground assets, a more reliable satellite surveillance system is definitely in the future for next - generation satellites systems being developed by the US.

What's in it for the Commercial Sector?

The US buildup in military satellite capability is largely seen as having potential spillover effects on the commercial sector. The worldwide milsat system that the US is developing will require ancillary ground systems and terminals and therein lies an opportunity. Dr. Denis Curtin, COO of Xtar, a commercial venture targeting sales of X-Band capacity for government and military users, sees, for example, a takeoff in X-band capacity leases and terminal sales once the WGS system goes up. (see Curtin interview on page 38).

The US Army has streamlined is procurement process by authorizing a $5 Billion ceiling of spending over the next five years for satellite terminals in C-, Ku-, X -and Ka-Bands under its contract vehicle called the World Wide Satellite System (WWSS) last year. The amount will certainly go to a lot of ground equipment such as small, mobile terminals for "comms-on-the-move" applications. This opens up a lot of potential for "commercial-off-the-shelf" (COTS) equipment sales for military use.

Milsat systems will also need backup capacity and may need supplemental capacity during high-demand periods such as during the conduct of military operations. This requirement would bode well for the commercial Fixed Satellite Services sector. The DoD has been improving their procurement processes for leasing commercial satellite capacity and are now starting to get longer-term leases instead of the short-term leases.

Conclusion

It's apparent that the US is taking a two-pronged approach to developing its military satellite capability—developing its own systems while continuing to use commercial satellite services either to augment, supplement or backup its primary resources. The development of the US' planned Global Information Grid will definitely present more opportunities for both provided of satellite capacity and ground equipment manufacturers alike.

As the US' AEHF program would attest, there is growing international cooperation due to the global nature of the perceived threats to security. These joint-ventures will also likely drive the development of military markets outside of the US.

As we will see from the articles in the following pages, there is a lot of opportunities in other regions of the world as well and no doubt the development of the US military satellite systems will spur other opportunities as well, globally. And that's a lot of ground to cover. MSM

Virgil Labrador is the Managing Editor of Satnews Publishers. He is responsible for all editorial activities worldwide. He edits the Daily subscription service, *Satnews Daily* and the monthly e-magazine, *SatMagazine* and the quarterly, *MilsatMagazine*. He also manages the web portal, Satnews.com. He is co-author of the book, *Heavens Fill With Commerce, a Brief History of the Satellite Communications Industry*, for which he was nominated for the Eugene Emme Science Literature award in 2005. He has worked in various capacities in the satelite industry and holds a master's in communciations mamanagement from the University of Southern California. He can be reached at virgil@satnews.com

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TIGHT BUDGETS ARE FORCING EUROPEAN COOPERATION

by David Mulholland

European militaries are struggling against razor-thin pocketbooks and national squabbles to cobble together a constellation of communications and observation satellites to provide themselves a coherent system. The challenge is twofold: trust and money.

One of the chief hurdles for the European countries to develop space assets is funding. Europe's aggregate spending on military space programs is about •500 million to •1 billion ($650 million to $1.3 billion) a year for the next 10 years. Compare that to the U.S. Air Force's 2008 budget request for $11 billion for unclassified space programs, an increase of $1.5 billion over the previous budget. Not only is the increase itself larger than all of Europe's military space budgets put together, the U.S. Air Force's unclassified space budget does not include classified programs belonging to the U.S. Air Force and other agencies, such as the National Reconnaissance Office whose budget is thought to be around $5 billion a year.

Paris believes that if Europe wants to have a working military space system, it needs to spend at least •2 billion ($2.6 billion) a year by 2012-15, but European military budgets are falling and there appears to be little political will to devote money to military space.

Artist impression of SkyNet 5 satellite.
Source: Paradigm Secure Communications

French Defense Minister Michèle Alliot-Marie has recently called for a 50 percent rise in military space spending across Europe and has proposed that Europe develop a comprehensive military space system built around mutual dependence on nationally owned satellites. She said that France should be willing to increase its military space budget to •650 million ($845 million) a year, a 50 percent increase over the current budget of •433 million ($563 million).more money is likely to prove difficult, but after years of lobbying and discussions, there appears to be some reasons for cautious optimism that space will receive a higher budget priority and that countries will begin to pool their resources.

Growing Cooperation

In the past, European countries have not acted in concert. Like aviation programs such as the Eurofighter Typhoon and the A400M, space programs are expensive. Unlike aviation, European countries have been unable to cooperate successfully. Several European countries have had a few of their own satellites, but they have primarily relied on the huge US system of satellites for most of their needs. France, however, has a serious policy issue over relying on the U.S., which has only been exacerbated by the tensions with the current administration over invading Iraq. It is this policy concern that has been behind France's strong military space program, by far the most robust in Europe.

Many in Europe have seen the wisdom of NATO countries banding together to create a full spectrum of

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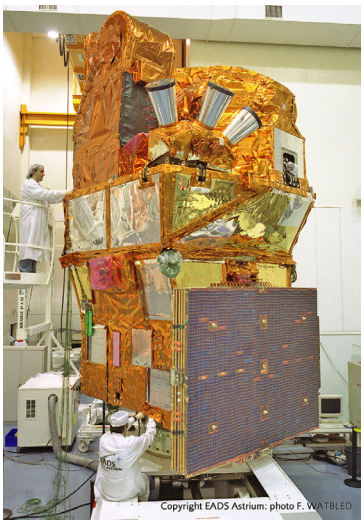

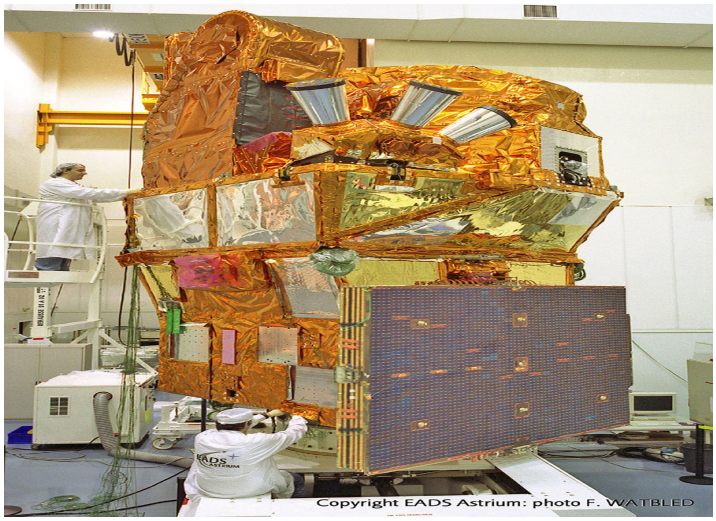

Helios II & Helios II 2
The second-generation Helios II satellites and ground segment, both provided by EADS Astrium, will ensure continuity and considerably improve performance of the Helios military reconnaissance program from 2004/2005. Weight: 4,200 kg.
Helios I was the first European military reconnaissance system, jointly funded by the French, Italian and Spanish governments, for which EADS Astrium is the prime contractor for both the satellites and the user ground segment for all three countries.The new-generation Helios II military observation satellites will ensure continuity of service, while offering a number of improved features, including: enhanced resolution, infrared capability (for nighttime observation), expanded imaging capacity, simultaneously in a number of modes, shorter image transmission times. In addition to the day/night intelligence capability (visible and infrared functions), the Helios II system will also be used for targeting, guidance, mission planning and combat damage verification. The Helios IIA satellite has been launched from Kourou, French Guyana in December 2004. The Helios IIB satellite will be ready in 2006 for a launch expected at the end of 2008.
Source: EADS

satellites for all to use. In practice, however, this has stalled over tight budgets and many countries having little to contribute. That has been changing. Germany, for instance, had no satellites until 2005 when the SAR-Lupe radar reconnaissance satellite came on-line. The country will have its own secure satellite communications in 2009 when its first SATCOMBw begins operating.

European space analysts note that there is some real progress towards cooperation with the growing realization that working together will give everyone more capability.

In December, six nations – France, Germany, Italy, Spain, Belgium and Greece – inked an agreement calling for collective development of a Multinational Space-based Imaging System (MuSIS). As with many agreements of this type, it is more of a statement of intent than a commitment to pursue a program, but it does add to a growing number of such agreements. It also allows countries to harmonize their requirements to make the eventual sharing of information and capability easier.

MuSIS follows in the wake of the Besoin Opérationelle Commun (BOC) agreement to coordinate European reconnaissance assets. BOC was signed by France, Germany, Italy, Spain, Belgium and Greece. This paves the way for the countries to share data coming from France's Helios and Pleiades optical satellites, Italy's COSMO-Skymed radar satellites and Germany's SAR-Lupe radar satellites. The six countries are to share data from these satellites. Some have questioned Spain, Belgium and Greece's involvement with the program, since they have no reconnaissance satellites and are in effect paying for access rather than trading intelligence.

Research

Britain may also join with France, Italy and Germany in acquiring reconnaissance satellites. Currently the U.K. relies on U.S. satellite intelligence. However, the country has launched a microsatellite technology demonstrator called TopSat, made by Surrey Satellite Technology Limited (LSE: SSTL). The idea is to have a constellation of small, inexpensive satellites to provide tactically useful imagery. Dr. Stuart Eves, principal engineer for military systems at SSTL, said the idea is to have 10 satellites to be able to see anywhere in the world at least once a day. The small satellites are not able to see as

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much detail as larger, more expensive satellites, but they are able to look at areas within a few hours, making them able to gather tactically significant imagery.

Eves said that Britain initially turned down an offer to participate in BOC, thinking it could rely on U.S. assets. Now the U.S. is running into funding problems for its own reconnaissance programs that may lead to gaps in U.S. coverage. This, and a desire to be seen as good Europeans, has spurred the U.K. to look more carefully at taking part in European satellite intelligence sharing programs. The vehicle to do this is TopSat so that the U.K. has something to offer. Indeed, the wide and fast coverage of a TopSat constellation would work well with French and German reconnaissance satellites by providing cueing data, essentially the peripheral vision needed to decide where to focus the high resolution sensors.

The U.K. has not committed itself to TopSat, however documents coming out of the U.K. Ministry of Defence appear increasingly pro-space, indicating growing pressure to change spending priorities.

France and Germany have been putting money into laser communications with an eye towards both intersatellite links and ground links. Germany is looking to put laser communications on its second generation SAR-Lupe satellites. The first generation uses radio-frequency intersatellite links. France has testing laser communications and has demonstrated a successful link between a satellite and an aircraft.

Public Private Partnerships

To get around the constraints of tight budgets, European countries

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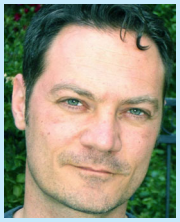
have been pursuing partnerships with industry for funding satellites. The U.K.'s SkyNet 5 program is the most significant, but it is not the only one. The SkyNet 5 communications satellites are not owned and operated by the U.K. Ministry of Defence, but rather by Paradigm Secure Communications, a U.K. subsidiary of EADS, the European Aeronautic Defence and Space Company, (DUS FRA PAR OTH: EAD). The U.K. has a 20-year contract worth about £2 billion ($3.9 billion) with Paradigm for communications services. As excess capacity was built into the SkyNet 5 satellites, the business plan has been to sell that capacity to others. The company has already signed deals with the Netherlands, Canada, Portugal and NATO.

Spain has also involved the private sector for its satellites. HISDESAT Servicios Estrategicos was set up by Hispasat to run the Xtar-Eur and Spainsat satellites. Hispasat is owned by a web of private and government-owned companies. The Royal Danish Navy has already bought some capacity from the Xtar-Eur satellite.

Some have questioned how such systems will work during wartime given that demand for satellite communications has skyrocketed on the battlefield. In Iraq, for example, 75 to 80 percent of U.S. military satellite communications are over civil satellites because the military satellites do not have enough bandwidth. If that is the case with the U.S., how will agreements such as the one with Paradigm work? Will the U.K. demand all of the satellites' capacity during contingencies? This is further complicated by the fact that the other users are likely to be fighting alongside U.K. forces, which would make depriving them of their satellite communications self-defeating as well as terribly bad manners.

Paradigm's welfare communications service in use in Afghanistan.
Source: Paradigm Secure Communications)

The risks may not be as bad as they may first seem. The European military space industry is concentrated in the hands of two European multinationals – EADS Space, a subsidiary of EADS, and Alcatel Alenia Space, a joint subsidiary of France's Alcatel-Lucent (PA: ALU) and Italy's Finmeccanica (MI: FNC). The other large-ish companies, such as Safran, BAE Systems (LSE: BA), Telespazio Holdings and ND Satcom, are primarily subcontractors to those two primes. The space industry in Europe has already consolidated supply, what the politicians are trying to do is consolidate their demand. MSM



David Mulholland has covered military affairs for more than a decade reporting on NASA and US Department of Defense for New Technology Week, the USAF for Defense News, aviation and business for Jane's Defence Weekly, and logistics as co-founder and editor of Military Logistics International. He can be reached at dmulholland100@hotmail.com.

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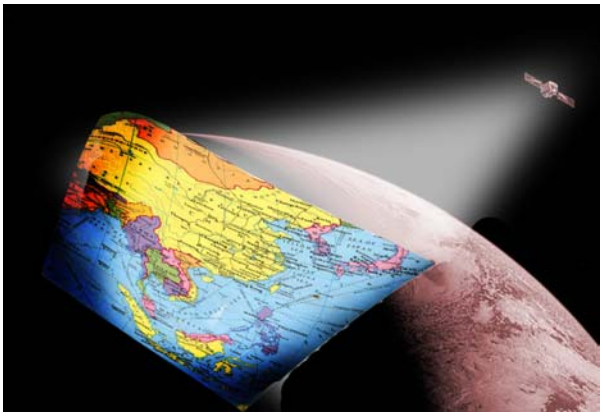
THE ASIAN MILITARY SATELLITE MARKET

by Peter I. Galace



Japan's launch of its fourth spy satellite last February and the upcoming launch of two Israeli spy satellites underscore the high level of tension at Asia's flashpoints. They also highlight the key role in national security played by Asia's relatively few military spy satellites, and by its more numerous "dual use" satellites.

Unabated security concerns are also driving the growth of Asia's defense industries, and opens the door to international firms with products leveraging satellite's advantages. Japan, China and India remain among the world's largest defense spenders, and their defense budgets are on the rise.

IGS-2B, Japan's second satellite with Synthetic Aperture Radar (SAR) capable of "seeing" through clouds and smoke, was launched by an H-2A launch vehicle from the Tanageshima launch center.

This radar spy intends to satisfy Japan's need for real time information and warning about ballistic missile launches by communist North Korea. It joins IGS-1B, another imaging radar satellite and two in-orbiphotoreconnaissance satellites (IGS-1A and -2A) also monitoring North Korea.

These four low Earth orbit spy satellites, all made in Japan by Mitsubishi Electric Corporation, cost over $2 billion. They constitute Japan's single largest defense hardware expenditure in decades, and are among the most expensive spy satellites built outside the USA.

Japan's spy satellite program was initiated after North Korea launched a ballistic missile in 1998 that flew over Japan.

Despite recent news that North Korea intends to return to the six-nation talks aimed at curbing its nascent nuclear program, Japan will push forward with launching two more improved spy satellites, thereby enhancing a satellite constellation watching over North Korea's nuclear facilities at Yongbyong and elsewhere.

The existing constellation now orbits at a speed of 29,000 kilometers per hour along different axes. The grainy quality their "high resolution" cameras, however, fall short of that available on other spy satellites such as India's dual use Technology Experiment Satellite (TES). This satellite's camera with a resolution of one-meter can tell an SUV from a pickup, and today spies on Pakistan and on NATO in Afghanistan.

As a result, Japan, intends to launch third and fourth-generation spy satellites by 2011 that will feature marked improvements over the existing fleet. These new birds will be lighter, capable of faster acquisition and have cameras so good they can tell whether a North Korean MIG jet fighter has missiles or expendable fuel tanks under its wings.

Japan's obsession with national security, and with satellites as its first line of defense, is matched in Asia only by Israel. The Jewish state counts on a single sophisticated photoreconnaissance satellite to stand watch over neighbors such as Iran and Syria.

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This lone spy sat, Ofek-5, will soon be joined by Ofek-7 and a SAR satellite called TechSAR with all-weather imaging capabilities. Both are to be orbited later this year or in early 2008. The Ofeks are high-resolution imaging satellites used solely for military intelligence purposes. India will launch Ofek-7 on one of its polar satellite launch vehicles.

Israel then intends to loft Amos-3, its third military communications satellite, making 2007-2008 the most intense years in the history of its military satellites.

By 2008, Japan and Israel should have 10 military satellites in orbit. This number does not include military-civilian, or dual use, satellites such as Israel's two Eros (Earth Remote Observation Satellite) remote sensing satellites whose major client is the Israeli Ministry of Defense.

Israel intends to upgrade the quality of its future spy sats by developing what are considered the next generation of nanosatellites (10 kg) and microsatellites (100 kg) compared to existing satellites that weigh over 1,000 kg.

These new satellites will be launched from specially configured Israeli jets in much the same way air-to-air missiles are launched. Scientists at Rafael and Israel's Armament Development Authority are examining technology to upgrade existing missiles with more powerful engines and install microsatellites in their noses. Israel expects to have these small satellites available by 2008. Israel's defense industry will build these small satellites.

No military satellites

Elsewhere in Asia, the military satellite picture remains quite different, but only because of clever word plays. China and India do not "officially" operate military spy satellites, but they do have dual use "remote sensing" and "weather" satellites that further blur the distinction between military and civilian satellites.

Japan steadfastly refuses to call its satellites spy satellites, but instead refers to them by the polite phrase, Information Gathering Satellites (IGS). Australia only rents out transponders for military use on civilian satellites such as the Optus and Defense C1 satellite.

KoreaSat 5 is South Korea's first satellite with military communications as a primary objective. It was launched into orbit in August 2006 and at last gives South Korea's military a system that offers secure critical communications. KoreaSat 5 is, however, a dual use satellite that also provides Direct-to-Home (DTH) services to thousands of paying subscribers in South Korea.

South Korea, however, has two dual use satellites in orbit and is to deploy its first SAR satellite in 2010. The in-orbit Arirang-1 and Arirang-2 keep watch over North Korea. Launched in 2006, Arirang-2 is a modern photoreconnaissance satellite with a 1 meter resolution digital camera.

The $268 million SAR satellite, Arirang-5, is to begin operations in 2010, a two-year delay caused by funding problems. The satellite's SAR can also image underground or undersea features for mineral exploration and other purposes, which is the civilian aspect of its dual use nature.

That leaves Israel as Asia's sole country that admits to operating dedicated military satellites, which can be defined as those that take high resolution pictures, eavesdrop on electronic signals, intercept radio conversations, have infrared vision, carry radar or relay communications to be used by military or national security agencies.

Asian milsats today

Asian nations with military and dual use satellites remain gripped by perceived threats to their national security from neighboring countries. Terrorism appears less of a concern to these nations than are the large armies across their borders capable of fighting a ghastly conventional war.

It is China chary wary over another war against India but bellicose against Taiwan; Japan anxious over North Korea and its

ballistic missiles; South Korea primed for a fight against North Korea; Israel seeking to ensure its existence against its Muslim neighbors; Australia casting a suspicious eye at Indonesia; India cautious of another war against Pakistan.

As the major threats faced by these countries come from conventional military forces, their response is also conventional. And any soldier worth his salt understands that if one knows his enemy as well as himself, one need not fear the result of a hundred battles.

Satellites feed the soldiers' primordial need to know the enemy by supplying intelligence and early warning.

In China's case, however, her lack of modern military satellites of any type not only blinds her, but also seems to diminish the credibility of the threat posed by her massive conventional forces.

Satellite guided weapons have demonstrated incredible accuracy in Iraq and Afghanistan and China is unfortunate in not having stockpiles of these weapons and the satellites to guide them, which the US and Taiwan applaud.

China is modernizing what surface-to-surface (SSM) missiles it has, albeit slowly. It is fielding increasing numbers of more accurate SSMs against Taiwan with guidance systems using the U.S. GPS or the Russian Glonass positioning satellites.

China now has close to a thousand SSMs aimed at Taiwan, which China considers a rogue province. China says it is strengthening its military muscle to defeat any attempt by Taiwan to declare independence.

Military analysts say the Chinese have improved the guidance system of their Dong Feng (East Wind) DF-11 and DF-15 short range ballistic missiles aimed at Taiwan. Over 250 DF-11s and DF-15s are in position against Taiwan and constitute the most numerous and newest missile types deployed. The DF-15 or M-9 is the most accurate Chinese missile, with a circular error probability of some 90 meters when GPS guided, but there are only 200 of them arrayed against Taiwan.

Not even one Hawk battery

A recent study by Taiwan's Ministry of National Defense says that a single Hawk missile defense battery can withstand an attack by up to 275 DF-15s. The report concluded that China does not have enough DF-15s to destroy even one Hawk battery. Hence, Taiwan's confidence in surviving a missile attack by China no matter how intense.

Even were all DF-15s satellite guided, thousands would be needed to overwhelm Taiwan's American supplied missile defense systems that include the more accurate Patriot PAC-2. Then China has to take into account the counter threat from American spy satellites providing targeting information for Taiwanese and U.S. missiles.

China recognizes the sad state of its offensive capability, and has increased its annual defense spending by almost 18 percent to $45 billion this year as a remedy. The budget represents the largest increase in military spending in five years. The Chinese leadership said China needed to spend more on its military to upgrade its weak armed forces and counter any Taiwanese move toward independence.

The sharp spike in military outlays follows a 15 percent budget increase in 2006 as the People's Liberation Army tries to streamline its massive ground forces and deploy new missiles, warships and aircraft. In the meantime, Taiwan remains safe from Chinese attack.

The rise of China's military fueled by its strong economy is causing continued anxiety in Japan and South Korea. Even hawkish Australia is worried. The mood in Japan is believed to be moving away from the policy against developing nuclear weapon, though largely because of the recent nuclear test by North Korea, which is subservient to China.

After double-digit increases in annual defense outlays over much of the past 15 years, China is on track to become a major military power, but not quite powerful enough to damage U.S. interests severely. Some military experts said China was actually spending up to three times more on its military than the official figure.

China's defenses are weak

It is interesting to note that one of the Communist Party's justifications for the huge jump in China's defense spending was the need to modernize China's armed forces, and the claim that China's defenses are weak. One can appreciate the accuracy of these statements when one looks at

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China's military satellites.

China's lack of satellites to guide its offensive weapons is matched by a similar sad state of its reconnaissance satellites. China currently has no spy satellite fleet as the last of its photoreconnaissance satellites switched off in 1996.

Instead, China relies on imaging intelligence bought from commercial satellite companies in the USA and Europe. And to some extent on its civilian Fengyun "weather satellites" that are suspected of being used militarily.

U.S. intelligence also believes the Ziyuan series of remote sensing satellites are really spysats with false identities as civilian Earth-monitoring systems. They said the Ziyaun satellites are secretly designated Jianbing-3, a military designation for spy satellites.

The Ziyuans could be used for planning combat missions, targeting missiles at U.S. forces in Japan or preparing aircraft strikes against Taiwan. Western military analysts also believe China's Beidou navigation system and its three satellites (the Chinese equivalent of GPS) can also provide targeting information for Chinese missiles.

In the future, however, analysts expect China to launch more high-technology space platforms, including even-higher-resolution imagery satellites, electronic signals intelligence satellites and military communications satellites.

bound to add to the growing apprehension in the West about China's deeper intentions in space exploration. China's destruction of one of its derelict Fengyun satellites using a ground launched ballistic missile last January stoked fears of China preparing space as the first battleground in any war involving the USA. The Bush administration then suspended plans to develop joint space ventures with China.

India: no milsats yet, but . . .

India does not operate a single military satellite, but will soon. What it does have, however, are some very capable remote sensing satellite whose high resolution cameras compare with the U.S.' best.

TES, built by the Indian Space Research Organization (ISRO), and its one-meter resolution camera leads India in providing high quality imagery. TES is the precursor to India's proposed first military satellite and has proven to India the value of a sharp-eyed lookout in space.

During the start of the war in Afghanistan waged by the US-led international coalition forces in 2001, TES reportedly beamed one-meter high-resolution images of troop movements and coalition armored columns to India.

The pressing need for a spy satellite was strongly driven home, however, during the gory fight against Pakistan for the Kargil region in mid-1999. In the aftermath of that bloodbath, India came to the conclusion that satellite imagery could have warned them beforehand of Pakistani incursions, and avoided the much of the bloody fighting that followed.

One Indian military analyst cuttingly noted that India was so far behind in space based military systems that it would only realize its satellites had been destroyed by China when told so by the USA.

India's fleet of dual use, photo imagery satellites include Resourcesat-1 launched in October 2003 and considered India's most sophisticated remote sensing satellite to date. There's the 2.5 meter, high-resolution Cartosat-1 satellite equipped with two cameras able to point at an object from two different angles. Another mapping satellite, Cartosat-2, which has 1-meter resolution and a 120 gigabyte storage capacity for captured images, launched in January 2007.

Military satellites in the pipeline

In September 2005, India announced that a military space-based reconnaissance system was in an advanced stage of development and is expected to be operational by 2007. To this end, the Indian military has requested an exclusively military telecommunications satellite, and satellites with high-resolution cameras. The system was to have been operational by 2005, but the defense minister said validation of technologies took more time than anticipated.

India's extensive ground-based surveillance and coordination systems linked to its remote sensing satellites, would enable the country to keep a watch on any activity in its neighborhood. India is continuing to develop a broad-based space program with indigenous launch vehicles, satellites and control facilities, all of which will also be of great assistance to its upcoming Chandrayaan Moon exploration program.

Chandrayaan will use a modified PSLV rocket to send a small probe into lunar orbit, from where it will survey the surface of the Moon in an attempt to locate resources. Other countries including the US have expressed interest in attaching their own payloads to the mission. India and China along with the USA and the EU are engaged in the "Second Moon Race" whose finish line will see man again set foot on the Moon by the next decade.

Australia and Pakistan milsats

Australia's Optus and Defence C1 satellite is a dual use satellite. It carries a mixed payload that will serve the needs of its owner, Singtel Optus Pty Ltd, and the Australian Department of Defence.

Launched in 2003, it operates on four different frequency bands: commercial services in Ku-band for Singtel Optus; and military

communications at UHF, X and Ka-bands for the Australian Department of Defence.

Optus and Defence C1 is one of the most advanced communications satellites, carrying a total of 16 antennas that provide 18 beams across Australia, New Zealand and the Asia-Pacific region, and global beams covering from India to Hawaii. The military Ka-band payload has four 33-MHz active transponders and one spare. X-band telecommunications links provided via the satellite will be used by the military for medium to high data rate one- and two-way video, as well as voice and data communications.

The Australian government said it was negotiating with the U.S. on a plan to build a military satellite communications facility on Australia's west coast.

Pakistan is forging ahead with long delayed plans to launch its first dual use satellite, Paksat-1R. It has, however, decided to achieve this aim with the help of Telesat Canada, a leading satellite operator.

Pakistan and Telesat this March signed a consulting contract in which Telesat will assist the Pakistan Space and Upper Atmosphere Research Commission (Suparco), Pakistan's

national space agency, procure and launch Paksat-1R, which will replace Paksat-1 in 2010. Pakistan has long made known its intention to have a military reconnaissance satellite because of its uneasy relationship with India.

Opportunities and Challenges

The leaders in Asia's satellite industry are also its biggest military spenders. Japan, South Korea, Israel, China and India have long been among the world's top arms buyers for decades.

And since satellites play key roles in attaining their national security objectives, the fortunes of their defense industries impact on their satellite industries, as well.

Except for China, these countries have built military-industrial complexes that tolerate foreign participation in their satellite and defense industries. As a communist state, China does not allow foreign investment or participation in its defense industries. China, however, has partnered with a few foreign countries such as France and Israel in weapons development involving technology transfers.

It is in the rapidly advancing field of information technology where much of the change sweeping Asia's satellite industry is taking place, and where business opportunities abound.

The Indian government now allows private sector participation in the defense industry at up to 100 percent for Indian companies, and with foreign direct investment permissible up to 26 percent for the manufacture of all types of defense equipment within the country.

Private companies are allowed to apply either individually or by joint ventures. Preference is given to original equipment manufacturers or design establishments and those having a good track record as suppliers.

India's civilian and dual use satellites are the domain of ISRO, which has developed, built and launched practically all of India's satellites in partnership with domestic Indian companies, and a few foreign ones.

Whether ISRO plays the key role in India's military satellites is unclear, however. Some Indian military leaders are opting for a military unit to take charge of all aspects of building, launching and maintaining military satellites.

Should this take place, India stands on the verge of creating a military satellite industry that can be a serious competitor to the U.S. and the European Union.

Japan's "old boys club" continues to dominate its satellite and defense industries. Nearly 60 percent of Japanese defense contracts were awarded to five large corporations: Mitsubishi Heavy Industries, Toshiba Corporation, Kawasaki Heavy Industries, Ishikawajima-Harima Heavy Industries Corporation and Mitsubishi Electric Corporation, builder of the IGS spy satellites. Competition for contracts has intensified as larger portions of the defense budget are allotted to procurement.

Japanese corporations are marketing mainly dual-use electronics subcomponents, vehicles, and transport and communications equipment. They also provide components for missiles and aircraft produced overseas, especially in the United States. Japan is keeping military expenditure at only 1% of GDP.

Japan's posture is a defensive one with no weapons of mass destruction, no long-range bombers, no middle or long-range missiles, no aircraft carriers and no nuclear submarines. Japan, however, has considerable conventional weapons, and wants to use its Self-Defence Forces for peacekeeping operations.

Taiwan, while having no military satellites of its own, relies on U.S. military satellites as the cornerstones of any successful defense against invasion by China. It also has two remote sensing satellites, RocSat-1 and -2.

RocSat-2 can take pictures of Earth objects as small as two meters across. The satellite orbits the earth 14 times a day, including two passes over Taiwan, at 890 kilometers altitude.

Only this March, Taiwan made headlines with its offer to rent or buy one of Israel's dual use Eros satellites, the newest of which is capable of taking sharp pictures of surface objects as small as 70 centimeters (28 inches).

Described by some military analysts as reconnaissance or spy satellites, the two in-orbit Eros satellites—Eros A and Eros B—are owned and operated by the Israeli company, ImageSat International. Taiwan is reportedly interested in the older Eros A that carries a high-resolution camera capable of discerning objects 1.8 meters across. The satellite is in low Earth orbit and carries a price tag of $300 million, according to sources. The newer Eros B can identify objects 70 centimeters across and is now used to monitor Iran's nuclear program.

Eros A, launched in December 2000, and Eros B, which became operational in June 2006, also provide imaging intelligence to the Israeli government. Each of the satellites passes over Israel and neighboring states four times a day.

Eros A has a planned lifespan of 10 years in orbit and is scheduled to remain in service until 2010, when it will be replaced by the more advanced Eros C.

Taiwan has placed its salvation in the hands of information technology (IT). Taiwan is building a national defense capability that emphasizes quality over quantity by fielding a C4ISR system in conjunction with defensive weapons. Taiwan believes the key to any successful national defense is information superiority over China.

Taiwan believes information superiority is essential since China's threats include synchronized, multi-faceted, surprise and quick attacks by the People's Liberation Army. Information warfare is expected to precede any attack. Taiwan, therefore, sees information superiority as crucial to achieving victory in combat.

The country's focus on IT as its savior is mirrored in its defense acquisitions. In the near future, Taiwan's most urgent defense requirements are the integration tasks between current platforms and weapons within and among Taiwan's armed forces. Taiwan's long-range defense plans include integrated battlefield management and C4ISR upgrades.

Taiwan has a strong private-sector industrial base. As a result of the lifting of restrictions on outsourcing contracts for military suppliers, qualified private plants for manufacturing and maintenance have been established under a competitive environment. Over 200 private firms accept contracts to develop and manufacture roughly 1,000 parts for military aircraft, missiles, avionics and armored vehicles.

The Potential for Ground Equipment Sales

Taiwan's reliance on IT, and on satellites, has led it to award ViaSat, Inc. a $12 million contract for the latter's Multifunctional Information Distribution System (MIDS) terminals, a battlefield tactical radio system.

Taiwan is purchasing 70 LVT(1) configuration terminals plus spares under the Foreign Military Sales (FMS) Program through the Space and Naval Warfare Systems Command. The order will be for the Taiwan Ministry of National Defense.

Taiwan has a large fleet of combat aircraft and ViaSat sees this initial award as an entry point for future business in Taiwan. MIDS LVT is part of a tactical radio system that collects data from many sources and

displays an electronic overview of the battlefield using secure, high capacity, jam resistant, digital data and voice.

The system is used on US Navy, US Air Force, US Army platforms and military platforms of other nations. ViaSat is one of two U.S. government-qualified manufacturers of Link-16 MIDS airborne terminals and is the only qualified manufacturer of the LVT(2) ground-based terminal.

In January 2007, Taiwan awarded Integral Systems, Inc. a sole-source contract to upgrade Taiwan 's National Space Organization's (NSPO) existing mission operations system to simultaneously operate the NSPO's new Argo satellite and RocSats-1 and -2.

The contract calls for Integral Systems to provide all of the software required to fly Argo and the two RocSats, including commanding, telemetry processing, orbit analysis, scheduling, and tracking station automation, using one single command and control system.

Despite its dual use nature, KoreaSat-5 (or Mugunghwa 5) is widely considered South Korea's first military satellite. It carries 12 military transponders and its launch is historic in that it ushered in South Korea's military satellite era.

It will also be a starting point for South Korea's military network-centric warfare capability. As can be expected from a revolutionary system, KoreaSat-5 will generate hardware and software necessary to exploit its unique capabilities.

The three Arirang satellites remain "dual use" satellites two carry high resolution cameras while the other totes an SAR system. Other Arirangs are in the pipeline.

Conclusion

Asia has the world's largest land area and population, making it potentially a huge market for almost anything, including military satellite services and hardware. However, as we have seen, there is no single Asian market, being fragmented in a number of leading countries like China, Japan, India and Israel.

Unlike in other regions of the world, like Europe, there is also very little regional military cooperation and no regional military organization exists *a la* NATO. There are also considerable regulatory hurdles and entrenched local players for anyone venturing into the various national military markets in Asia.

However, as anyone who has spent considerable time in Asia knows, there is a method to the madness and those savvy in the various ways of the diverse Asian landscape will always find it a land of opportunity.

The military satellite industry in Asia is a young creature. One might dare say that it doesn't yet exist in any Asian country, China, India and Japan included. But herein lies opportunity.

The larger Asian countries recognize the need for military satellites. Space may be the Final Frontier but it will also be the First Battleground in any future conventional war. Space, as the popular military axiom goes, is the ultimate high ground. Another classic military axiom states that holding the second highest piece of ground is no good.

Take both together and you can see the logic—and wisdom—of deploying space based military reconnaissance and communications systems. Asia's warriors realize this, too, and having more ongoing wars than the USA and Europe realize that space is just another piece of ground to be garrisoned.

With the advent of incredibly cheap nano and microsatellites, and equally cheap means of deploying these small military satellites in space, the only limiting factor to Asia's march towards the military high ground of space is the political will of national leaderships.

The soon to bloom military satellite industries in Asia will present enormous business opportunities. And in war, as in business, victory often goes to the side "that gets there the fastest with the mostest." (American Civil War Confederate General Nathan Bedford Forrest) MSM

Peter I. Galace is editorial director of Satnews Publishers. He has written extensively on the telecommunications developments in Asia for numerous publications. Currently he is associate editor of Satnews Daily and Weekly editions, and art and production editor of the International Satellite Directory and the monthly e-zine, Satmagazine. He can be reached at peter@satnews.com.

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The Latin American Military Satellite Communications Market

by Bernardo Schneiderman

The Latin American market for military satellite communications products and services has been flat for the last 20 years due to the absence of major military conflicts in the region. The only country that can be considered in a conflict mode is Colombia with its ongoing counterinsurgency operations against left-wing guerillas. Almost all the countries in Latin America that use satellite communications for military applications by contracting capacity with their domestic satellite operators, when is available or through international operators (Intelsat, SES-New Skies, Hispasat, Telesat, Loral Skynet, Eutelsat) that have more than 20 satellites covering the region with Ku- and C-Band beams. In addition, Xtar is another international operator that covers the Latin American continent with X-band satellite capacity but has not been successful in the region.

The only country in Latin America that uses dedicated transponders for military applications is Brazil. There is capacity for military use in two commercial satellites (Brasilsat series) from Star One, the Brazilian satellite operator. Each satellite has one X- Band transponder to provide services for the Brazilian Defense Government Branch.

In 2007, the potential for expansion of military and government applications is in expansion mode in the region with Argentina, Brazil and Venezuela governments implementing their own government satellites programs focusing on Government, Defense, Air Traffic Control and other social applications.

Argentina

On July 2006, Argentina's Government authorized the creation of ArSat, the national satellite company promoted by the Planning Ministry. ArSat will start to operate an interim satellite on the empty orbital position 81° W during 2007, the position having been awarded to Argentina by the International Telecommunications Union (ITU), as pointed out by the new ArSat vice-president Pablo Tognetti. Equipment will be leased from some of the International carriers as Intelsat, SES or Telesat. During 2007, a decision on how to integrate Nahuelsat, currently operating the only orbiting Argentina satellite, the Nahuel 1, into ArSat will be finalized.

The current Argentine satellite operator Nahuelsat was restructured. Its only operating satellite is Nahuel 1 with end of life

estimated for 2009. Although there are no plans to replace it, the Argentine operator wants to integrate within the new State-owned company ArSat.

The Argentinean government will launch its own satellite that would be built by the Argentine technology company INVAP and will be schedule to be launch in 2010. The budget for Arsat is around US$ 200 million base in Argentina government sources. Invap has already stated that it does not have the technical capacity to build the communications module of the satellite and is seeking a foreign provider. US firms are likely to be out of the requirement as a technical partner because the Argentine government plans to launch the satellite in China (US government will not allow US strategic technology made available on China Launch pads). Chinese firm "The Great Wall Corporation" and France's "Alcatel-Finmeccanica" has the best chance of becoming Invap's partner at this stage.

The new satellite will be equipped with C and Ku-band capacity and the application will include Government, Military and Social Applications. At this stage all the military communications via satellite in Argentina are carried by the current Nahuelsat Satellite and use SCPC equipments provided by foreign suppliers. The trend after the Arsat is implemented is to expand the use of military communications in Argentina by Navy, Military and Air Force considering the Argentine government will have a control or Gold Share of the operations.

Major Countries in Latin America with Domestic Satellite Operators

BRAZIL
Population: 188 Million
GDP: $943.6 billion (2006 est.)
Area: 8,511,965 sq km
Military Expenditure % GDP: 2.6% (2006 est.)

Domestic Satellite Carriers (# Saellites. + Planned)
- **Star One (4+2) – Band C & X + Ku**
- **Loral Skynet do Brasil (1) – Band Ku**
- **Hispamar (1) – Band Ku & C**

MEXICO
Population: 107 Million (July 2006 est.)
GDP: $741.5 billion (2006 est.)
Area: 1,972,550 sq km
Military Expenditure % GDP: 0.5 (2005 est.)

Domestic Satellite Carriers (# Saellites. + Planned)
- **Satmex (3) – Band Ku & C**

ARGENTINA
Population: 40 Million (July 2006 est.)
GDP: $210 billion (2006 est.)
Area: 2,766,890 sq km
Military Expenditure % GDP: 1.3 (2005 est.)

Domestic Satellite Carriers (# Saellites. + Planned)
- **Nahuelsat (1) - Band Ku**
- **Arsat (1 *)**

(*) New satellite to be build and launch 2009-2010

VENEZUELA
Population: 26 Million (July 2006 est.)
GDP: $ 147.9 billion (2006 est.)
Area: 912,050 sq km
Military Expenditure % GDP: 2.0 (2006 est.)

Domestic Satellite Carriers (# # Saellites. + Planned)
- **Bolivarsat (1*)**

(*) New satellite in construction to be launch 2008-2009

Brazil

Brazil is the country with largest territory in Latin America. Brazil has been using satellite for the last 20 years with the launch of the Brasilsat satellite in the 80's. The first major military satcom program was called SIVAM. The Amazon Surveillance System implemented during the 90's was created to establish a new order in the Amazon Region, through an information

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Satellite photos from the Amazon Survellance System, Brazil.

processing and collection network of satellite earth stations, building up a wide database to be shared among the governmental organizations operating in the area. The system gathers and makes available the information that enables coordinated and integrated measures to defend Brazilian territory, airspace and manage the environment, in order to support the sustainable and sovereign development of the Brazilian Amazon region. The main contractor was Raytheon from the US and Atech wa the Brazilian counterpart.

Brazil created the AEB (Brazilian Space Agency) during 1994 with the intention to develop satellite launch capability.

The launch site in Brazil is located in Alcantara and is based in Northern Coastal area of Brazil.

After some success and problems for the Brazilian rocket launch system AEB announced last February a Brazil-Ukraine space company to start operating during 2007. A joint venture company for rockets and satellites, established by Brazil and Ukraine, should begin operating later this year. The information was disclosed by the Director for Space Policy and Strategic Investments at the Brazilian Space Agency (AEB), Himilcon Carvalho. The partnership is aimed at launching rockets and satellites from the Alcantara Base, in the northeastern Brazilian state of Maranhao. The first launch should take place by 2009, according to the AEB, which clebrated its 13 years of existence last February 10th, 2007.

Brazil will make available its launch area in Alcantara and the Ukrainians will provide the launching technology. The company is expected to capture the equivalent of roughly 10% of the global satellite launching market, worth US$ 10 billion, over the next eight years, since countries that own satellites will be able to pay to use the base and the launching technology. Carvalho also said that another goal of AEB is to launch the third satellite, built in partnership with China, which will provide images of the national territory, such as deforested areas in the Amazon, for instance. “We are currently preparing our third satellite, to be launched in 2007. The satellite is being finished after a test assembly phase in the city of Sao Jose dos Campos (southeastern Brazilian state of Sao Paulo), at the National Institute for Space Research (Inpe),” he claimed.

The Brazilian government since the end of 2005 is developing the SGB (Brazil Geostationary System). Atech is the technical Brazilian company developing the overall requirement. The SGB will be instrumental to the development of the Brazilian domestic air traffic and aerospace sectors. Beside this Air Traffic Control the government is planning to expand the overall project to include 3 satellites with L, X, C and Ku-band transponders. The target is to place the first satellite into orbit in 2009. The overall program still in political discussion and is possible that the program is going to be implemented later in 2009-2010. During the first stage, Atech was responsible for the SGB feasibility project and it is now developing the specification, together with the Casimiro Montenegro Foundation, CPqD (The Center for Telecommunication Research and Development) and CTA (The Aerospace Technical Center). The satellite will meet the needs of air traffic services according to the international agreements presently in force and existing technological applications and will also be used in national security and civil defense communications purposes. The satellite will be built in such a manner as to operate jointly with other coupled devices, such as weather sensors, social applications and defense projects.

The Defense Department of Brazil implemented during the 90’s the Integrated System for Military satellite communications (SISCOMIS). The program now are already in the third phase and have the main target to interconnect all the defense areas of Navy, Military and Air Force with common satellite communications using C and X-Band frequencies and SCPC Ground technology. The main fix earth stations are located in Brasilia, Rio de Janeiro, Curitiba, Manaus, Campo Grande, Belem, Porto Alegre and Natal using C-Band. The Tactical and mobile earth station are using the X-

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Band.

The project was expanded with more sites at the end of 2006 reaching a total number of 18 stations using technology provided by Comtech Telecom (USA) in an open public bid. Comtech Telecommunications announced that its subsidiary, Comtech Systems has received $2.6 million of orders for equipment and services in support of the expansion of the Brazilian military satellite communications system (SISCOMIS). Comtech Systems will provide equipment and services to support two satellite hub stations in Brazil. Comtech Systems will also be responsible for the installation, activation and integration of the X-band satellite earth stations that will expand the existing satellite communications system. In commenting on this award, Fred Kornberg, President and Chief Executive Officer of Comtech Telecommunications, noted, “This project to upgrade the Brazilian military communications system illustrates Comtech’s diverse product base and support capabilities that include SCPC and Dynamic IP solutions.”

Brazil considering the geography and the large territory that include the Tropical Forest in the Amazon Region (the largest in the world) has the potential to expand the application with satellite military communications both for border control, disaster recovery and national defense. Additionally the government has strategic interest to expand the GSAC Project (Digital Inclusion Program). GESAC program currently cover 3,500 sites all over Brazil and is planning to expand this year for 10,000 sites. The main goal of the GSAC program is break the digital divide between the regular citizenship that do not have computer and internet access providing Telecenters equipped with a pool of services that provde a chance to any citizen to access government departments and be educated at the same time the population about the Internet and computer skills and other related applications.

The Alcantara satellite launch facility in Brazil

Venezuela

The Venezuelan Presidential Commission for the Peaceful Use of Space entered into an agreement with China during late 2005 for the manufacturing and launching of its own telecommunications satellite to be called “Simón Bolívar”. It is expected that the satellite should be place in orbit late 2008 or 2009. This project and the enactment of a law for the creation of Venezuela Space Agency are the main thrusts with regards to satellite development in Venezuela.

Venezuela contracted the Great Wall of China Industry Corporation in late 2005 to design, build and launch the satellite, according the Venezuelan Space Center. The satellite budget is estimated between US$100 and 150 million. The major goal of the Simón Bolívar, named after the South American Independence hero, is to guarantee Venezuela’s autonomy over its telecommunications. The Simón Bolívar satellite will offer internet, television, radio, low-cost telephone service, earth observation tools and a variety of projects ranging from those capabilities, such as telemedicine and tele-education. One of its key goals is to provide services and communication to remote areas that don’t have direct connections. China is handling all the work to get the satellite into space. There are currently dozens of engineers from Venezuela studying in China to handle the operation and maintenance of the satellite’s when will be place in the geostationary orbit.

Venezuelan military satellite communications at this time use the existing international satellite operators that cover the region for SCPC applications. The potential expansion of military and social application with the Simon Bolivar satellite is expected be implemented during the time frame of 2009-2010.

Mexico is another country that own domestic satellite and has using some military satellite communications for border control and defense with SCPC ground stations equipments using Satmex satellite carrier that has Mexican Government as the primary investor in the organization.

Conclusion

Overall the market for military satellite communications equipment and services in Latin America are in the initial phase of development and the potential for growth is huge. Applications like border control and protection, security surveillance and disaster recovery are among the areas that Bob Hansen, Senior VP of Comtech EF Data mentioned during an interview that will be growing in this region. Additionally he believes that military application with SCPC, Dynamics IP and satcom on the move with tri-band kits (C, Ku and X-Band) will bring more flexibility for fix and tactical applications for the military satcom market in Latin America during the next few years.

The Latin America military satellite communications market with the expansion of Brazil, Argentina and Venezuela with their existing satellites have a potential for growth in the next five years. But beside this countries like

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Peru, Ecuador, Colombia and Mexico are another group of countries that are expanding their military satcom applications to respond to their tactical and national security needs. The feedback we received from the market is that at this stage all military satcom requirements in Latin America are using standard commercial equipment that is more affordable for the government defense budgets instead of military special features equipments that are been used in more developed countries. MSM

Bernardo Schneiderman has been active in the Telecom/ Broadband Industry for the last 37 years with experience in Project Management, Business Development, Sales & Marketing. He has been working for Telecom Operators, Satellite Carriers, High Tech Equipment Manufacturers and Consulting & Engineering Services in the USA and in the International market. He worked in Latin America, Africa, Europe and in the USA as part of his professional activities. He has been Bus. Dev. Liaison for GVF – Global VSAT Forum (www.gvf.org). He is active SSPI (Society of Satellite Professional International- www.sspi.org) member supporting new Chapters. He is editor for SatMagazine for new technologies & Latin America. He is active speaker and moderator in the Telecom/ Wireless major conference in the Global Market covering new technologies and market trends. He has an MBA in Telecommunications Management and International Business from the University of San Francisco, CA, USA and BSEE in Telecom from UFRJ, Rio de Janeiro Brazil He can be reached at bernardo@tbc-telematics.com

CASE STUDY

SATELLITE COMMUNICATIONS ENABLED UNIT TO "KEEP IN TOUCH THROUGHOUT DEPLOYMENT"

By: Clay South

Late in 2006, members of Charlie Company, 1st Battalion, 36th Infantry Brigade got orders that the unit was returning for another tour of duty in Iraq. Sergeant 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. This time, however, Bryan was armed with his own Iridium satellite phone provided by 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, Telenor shipped us a phone and set up our account just before Christmas — only a few days before Bryan's unit deployed. 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.

Over the course of the next 14 months that Bryan was in Iraq, he and other members of his unit logged over 3,400 minutes staying in touch with friends and families. According to Bryan, "It was very difficult to find a phone or computer to send a message when the mission permitted because everyone was trying to do the same thing. The satellite phone was a 'godsend' for me and for the other guys in my unit."

Bryan made his satellite phone readily available for other members of his unit to use as well. He said that more than 30 members of his platoon were able to call home using the Iridium phone from Telenor. "Guys used it to make calls on holidays, birthdays, and anniversaries. We even used it to get word about family births back home," Bryan said.

Sgt. Bryan South making a satellite phone call to the US from his tank in Iraq

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.'

Bryan established a routine for calling home so that the family would be there when he called. "I was able to call mom and dad as well as both sets of grandparents just about every Sunday when I was not on patrol or on duty," Bryan told me. And speaking as his grandfather, this routine was very comforting to me.

Bryan's parents and extended family really appreciated having the ability to talk with Bryan throughout his combat deployment. It was very re-assuring to hear his voice and have him tell us that, "I'm all right." Bryan was also happy to have the family catch him up on all the news from home."I really appreciate having the ability to call home and talk with my family to catch up on all the news

CASE STUDY

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.

Now that Bryan has safely re-deployed with his unit back to Germany, he told me that; "Although satellite communications is a little more expensive than some other communications options, it was the only reliable means we had to call when our duty schedule permitted. We had the phone when we needed it and the calls always went through."

And, from my perspective as his grandfather, it was well worth the money. MSM

Editor's Note: Clay South's grandson, Bryan South, is an infantryman who enlisted in the United States Army in 2003. Bryan completed his second deployment to Iraq in February 2007.

SPOTLIGHT

Interview with Xtar COO Denis Curtin

Xtar COO Dr. Denis Curtin

Xtar LLC, a joint-venture established in 2001 between Loral Space and Communications and Spanish operator HISDESAT, which owns 56 percent and 44 percent respectively. Headquartered in Rockville, Maryland, USA, XTAR has offices in Madrid, Spain and Palo Alto, California. XTAR owns and operates the XTAR-EUR satellite, located at 29 degrees East longitude, and offers additional X-band capacity on XTAR-LANT, a payload on HISDESAT's SPAINSAT satellite located at 30 degrees West longitude. The first commercial venture to provide X-band services to government users, the XTAR satellites were designed and built to provide customized X-band communications services exclusively to U.S. and Allied governments worldwide, in support of military, diplomatic and security communications requirements. However, despite its unique niche, the going has not been easy for Xtar in trying to break into the government and military markets of Europe, Latin America and Asia. In an candid interview with MilsatMagazine Managing Editor Virgil Labrador, Xtar COO Dr. Denis Curtin, a 35-year satellite industry veteran, spoke on how they approach these markets among other issues. Excerpts of the interview:

Q. How has your business model worked out so far trying to sell commercial X-Band space to the military market?

A. Actually we do not cater exclusively to the military market, we are targeting US government and its allies, so it does not have to be military. In fact our major customer is the US Department of State. We can talk to the National Guard or Homeland Security—or anybody that is affiliated with the US government and its allies. Since our satellite covers North and South America, Europe and Africa and even Asia, that could be any of those countries in that footprint allied with the US.

So far, it's slow, because when our system was put together the goal was to sell to the US Department of Defense (DoD) because that was the biggest market. What basically happened is the war in Iraq started in 2003 and our satellite wasn't launched until 2005. So we weren't there at the time. So the US DoD leased commercial Ku-Band capacity from the major satellite operators. By our coming in later, we have to basically have to build the market for commercial X-Band , which was previously provided for free to the military by their respective governments.

…I think you have to have a long view of these things. This is not the kind of thing that happens quickly. If you look at start-ups, in general they're generally a rocky road. Start-ups are not for the faint of heart…

Q. So, at this point, what percentage of your capacity have you sold?

A. I can't really go into the details, but I can say that we have a leased a substantial amount of capacity to US Department of State and some Spanish and other overseas customers.*Do you provide ground services as well?*

A. No, what we do is provide satellite capacity and if end-to-end solution is required we work with other satellite service providers and integrators to put it all together.

Q. What type of applications are ideal for X-Band?

A. Because of the high power of our satellites, we know what types of communications services we can provide. You can basically take a legacy terminal and provide between 2-8 MB or you can use an advanced modem and provide 20-50 MB service. What we feel is our real advantage however, because of our high power, is with disadvantaged terminals which is ideal for Comms-

on-the-Move applications.

Q. What percentage of your business is between US and Europe?

A. The majority of our business now is in Europe. That's not how we envisioned it to be. What's made it difficult for us to sell until recently to the DoD is that we are not part of the contract vehicle that DISA uses to procure commercial capacity. It was only last that X-Band was included in that contract vehicle.

Q. How different is the European military market is from the US?

A. It's much smaller. The sizes of the military in individual countries in Europe are much smaller and thus their communication requirements are less. Apart from NATO, there is no centralized procurement agency like the DoD in the US, so you'll also have to go through the Ministry of Defenses of individual countries.

Q. How do you see the future for Xtar?

Well, I'm always optimistic and I'll tell you why. We have managed to put this system together relatively quickly and inexpensively. We have managed the system very closely and we have two reliable multi-year satellites. It might take us 3-5 years to build the business, a little longer that we originally thought, but I think the WGS (the Wideband Gapfiller Satellites program of the US DoD-ed.) going there will be increasing demand for X-Band and many more terminals developed. The US government have said that once the WGS system is up they will not be able to meet anywhere near the demand for X-Band capacity—they're talking about being able to meet maybe only 50 percent of the demand. So there will certainly be a market demand for X-Band capacity.

Q. Are you considering revising your business model of selling only to the government/military market?

A. Not at this time. I think you have to have a long view of these things. This is not the kind of thing that happens quickly. If you look at start-ups, in general they're generally a rocky road. Start-ups are not for the faint of heart. But if you have a good idea and you believe in that idea, then this can be a very good business. MSM

BUSINESS OPPORTUNITIES

Follows are listings of contracting opportunities with the U.S. Federal Government from the Federal Business Opportunities site. In future issues we will also feature other opportunities worldwide.

Project: Space Common Data Link (CDL) Technologies Development

Reference-Number-FA8650-07-C-4515Posting Date: Mar 26, 2007

Contracting Office : Department of the Air Force, Air Force Materiel Command, AFRL - Wright Research Site,

Description

NOTICE OF INTENT TO AWARD A SOLE SOUCE PROCUREMENT FOR a Space Common Data Link (CDL) Technologies Development program. The Air Force Research Laboratory (AFRL/IFGD) intends to initiate award discussions with the intent to make an award, based upon other than full-and-open competition, in accordance with 10 USC 2304(c)(1) as implemented by FAR 6.302-1(b)(1)(ii), to L3 Communications ? West, Salt Lake City, Utah. The overall objective of this acquisition is to develop technologies for the qualification of Common Data Link (CDL) functions and hardware for use in space satellites operating in Low Earth Orbit (LEO). This effort shall include the test/design verification of a 274 Mbps Return Link brassboard developed under a previous contract, the evaluation of the implementation of additional CDL waveforms, the evaluation of data interface requirements, the evaluation of shifting the design from a completed X-band design to Ku-band, completion of a COMSEC design and build of a brassboard, the integration and test of the Return Link brassboard and the COMSEC brassboard, and a laboratory demonstration of the integrated Return Link/COMSEC brassboard. This space CDL design shall be based on proven qualified CDL data link hardware designs. This proposed AFRL/IF effort will address the design and development of technologies using the CDL waveforms for use in LEO space orbits which can reliably transfer high value information from space platforms in LEO orbits to airborne and/or ground stations. Interested parties must identify their interest electronically to the Contracting Officer at the following address: kimberly.atkinson@wpafb.af.mil no later than 11 April 2007. Address contractual questions to Kimberly Atkinson, Contracting Officer, (937) 255-5380; direct technical questions to Jim Foshee, Program Manager, (937) 255-4947 x3404. Responses received after this due date will be considered non-responsive and will not be considered.

Contact: Kimberly Atkinson, Contracting Officer, Phone 937-255-3585, Fax 937-255-8100, Email kimberly.atkinson@wpafb.af.mil

Project: AFSCN Obscura, Mission Integration, and Network Support Sustainment (OMINS)

Solicitation Number: Reference-Number-07-26
Posted Date: Mar 23, 2007Contracting Office:

Department of the Air Force, Air Force Space Command, Space and Missile Systems Center

Description

SMC SLG/PKN, located at Peterson AFB, CO, is contemplating awarding a sustainment contract in support of Air Force Space Command?s Air Force Satellite Control Network (AFSCN), Peterson Air Force Base, Colorado. This contract requires a single provider of support for antenna obscura, mission integration, and network support. Antenna obscura is the complete horizon profile which describes visibility limitations of the antenna. Mission Integration is providing technical expertise for the areas of system integration and test, mission operational requirements, network capabilities and limitations. Network support (NS) is providing expertise and support to the Network Data management and Control (NDMC) Working Group. The NDMC-generated data includes information such as obscura values, transmit inhibit zones, antenna information, and atmospheric perturbations. The NS effort also includes providing technical support and assistance for the WEb-Based Data Analysis and ReposiTory (WEBDART), the database that houses all NDMC information. AFSCN Mission. The AFSCN is a global network of space and ground Telemetry, Tracking, and Command (TT&C) assets, mission operations, and data transfer resources that support manned and unmanned Department of Defense (DoD) and non-DoD programs, and United States (U.S.) sponsored programs of foreign governments. The space programs supported by the AFSCN are of vital national interest and require the highest possible level of support 24 hours per day, 7 days per week. The AFSCN includes, but is not limited to, a set of common resources consisting of multiple antennas at various locations worldwide, and the Operational Control Node (OCN) available to provide DoD satellite systems with mission operations support. There are 7 Remote Tracking Stations (RTS) in need of support: New Hampshire Tracking Station, New Hampshire; Thule Tracking Station, Greenland; Guam Tracking Station, Andersen AFB, Guam; Hawaii Tracking Station, Kaena Point, Hawaii; Colorado Tracking Station, Schriever AFB CO; Diego Garcia Tracking Station, British Indian Ocean Territory; Oakhanger Telemetry and Command Squadron, England; and the Operational Control Node (OCN), Schriever AFB, CO. The OCN consists of all communications (i.e., primary, alternate, and Secure Voice System [SVS]) for operations control, telemetry, and data processing for the Satellite Operations Center (SOC) located at Schriever AFB. This site functions as the primary control center for the integrated, worldwide AFSCN. Schriever AFB provides support to spacecraft during pre-launch, launch, and on-orbit activities. This

BUSINESS OPPORTUNITIES

support consists of tracking and orbit determination, acquiring and processing telemetry data to determine spacecraft health and status, receiving payload data and relaying the data to appropriate users, generating and transmitting commands, and the scheduling of RTS resources via the Electronic Schedule Dissemination (ESD) subsystem. Additional Location Changes. Because of changes in using command equipment support requirements and directives, locations may be added or removed during the period of performance for this contract. Obscura. Provide support and technical expertise related to soft and hard Obscura sustainment at above listed locations. Complete Radiation Hazard Surveys. Brief, manage, and coordinate survey activities. Integrate Electro-Magnetic Radiation Hazard Surveys with obscura data and generate graphs and plots for use by the Government using Auto CAD, excel, and other Government-furnished equipment. Provide automated obscura analysis capability (AOAC) and update and maintain the AOAC tool for all AFSCN sites. Update/maintain obscura distribution list. Security clearances and on-site security escort services for assessments and surveys are required. Mission Integration and Network Support (to include WEBDART). Provide technical expertise, to include unique AFSCN configuration and knowledge of satellite programs and users to the Command and Control, RTS, and Communications Systems user development community. Evaluate and provide technical recommendations to new and existing users of the AFSCN on operations, testing and network troubleshooting. Operate effectively at multiple levels of security. Support integration/test of new systems and capabilities by providing technical expertise on all aspects of the AFSCN. Determine network development activities that may impact or degrade mission support. Support the Government AFSCN NDMC effort. The NDMC Working Group is responsible for approving all network common database parameter and value changes (i.e. obscura values and atmospheric perturbations), coordinating the proposed changes with users, managing the change control process for network common database parameters and values, and communicating these changes to all effected users. For the WEBDART database specifically, provide technical support to the NDMC effort to include: supporting access to the Network-Common Database IAW government standards; providing technical assistance and support for database operations, queries and reports; implementing government approved data value updates, changes, and modifications; evaluating NDMC change requests for software design modifications. Directed Engineering. Contractor will conduct special engineering studies, analyses, and investigations as directed by the PCO. Program Management. Provide the support required to manage the OMINS effort and report status in the form of program management reviews and program status reviews to cover cost, schedule, and performance. Coordinate and exchange working level information with associate contractors and Government organizations to facilitate understanding of OMINS activities. The statement of capabilities (SOC) shall not exceed 10 one-sided pages in length and shall include demonstrated obscura, mission integration, and network support capability for AFSCN or similar systems. Response must be submitted by e-mail in electronic form in Microsoft Word 98 or higher or, PDF Format. All responses must conform to 8.5 by 11 inch pages, with font no smaller than 12 point. The INTENDED basic period of performance is for 1 year plus 4 one-year option years with estimated award in early 2008. The ANSTIPATED projected Request for Proposal (RFP) release date for this effort is May 2007. This synopsis is for information and planning purposes only; it does not constitute a RFP. Information herein is based on the best information available at the time of publication, is subject to revision, and is not binding on the Government. The Government will not recognize any cost associated with the submission of an SOC. Information received will be considered as market research and to identify prospective credible sources. Responses from small business and small, disadvantaged business firms are highly encouraged. Firms responding should indicate if they are a small business, a socially and economically disadvantaged business, 8(a) firms, historically black colleges or universities, and minority institutions. The applicable North American Industry Classification System (NAICS) code is 541330 ($25M). Submit all responses to synopsis to: SMC SLG/PKN, Attn: Gary Simpson, 1050 E Stewart Ave, Peterson AFB, CO 80914-2902 (e-mail: gary.simpson@peterson.af.mil) within 10 days of the posting of this synopsis. An Ombudsman has been appointed to address concerns from offerors or potential offerors. The Ombudsman does not diminish the authority of the program director or contracting officer, but communicates contractor concerns, issues, disagreements, and recommendations to the appropriate Government personnel. When requested, the Ombudsman shall maintain strict confidentiality as to the source of concern. The Ombudsman does not participate in the evaluation of proposals or in the source selection process. The Ombudsman is Mr John Wagner, SMC/DS, (310) 336-2138.

Contact:

Gary Simpson, Contract Specialist, Phone 719-556-2577, Fax 719-556-9464, Email gary.simpson@peterson.af.mil - Gary Simpson, Contract Specialist, Phone 719-556-2577, Fax 719-556-9464, Email gary.simpson@peterson.af.mil

BUSINESS OPPORTUNITIES

Project: Communications and Networking Technology
Solicitation number : ONR-BAA-07-012
Contracting Office: Department of the Navy, Office of Naval Research

Posting Date: January 24, 2007, amended March 26, 2007

Description

Communications technology that can provide seamless, robust, connectivity is at the foundation of the Sea Power 21 and FORCEnet Vision "... to have the right information, at the right place, at the right time ..." The performance of Command and Control (C2) systems and decision making at all levels of command depend critically on reliable, interoperable, survivable, secure and timely communications and networking, and the availability of high capacity multimedia (voice, data, imagery) communication networks is fundamental to nearly all Department of Navy missions. The current evolution of naval warfighting from a platform-centric to a network-centric paradigm depends on successfully meeting the implied need for significantly enhanced communications and networking capabilities, extending both to fixed shore facilities and to highly mobile air, surface, land and subsurface platforms, including the so-called "disadvantaged user", e.g., small-deck combatants, submarines, unmanned air vehicles (UAVs), dispersed ground units in radio frequency (RF) challenged environments, etc.

The goal of the Communications and Networking Program within the Office of Naval Research (ONR 312) is to support the FORCEnet vision by developing measurable advances in technology that can directly enable and enhance mission-critical connectivity among such widely dispersed naval, joint, allied and coalition forces. With an overarching emphasis on wireless terrestrial, maritime and satellite communications and networking, ONR 312 is seeking white papers for potential FY 08 Exploratory Development/Applied Research (Budget category 6.2) projects under the following focus area: Electrically small and light weight antenna technologies in the ELF/VLF (100 Hz-10 KHz) band for subsurface to surface/aerial communications. Higher radiating efficiency is required, for example, to maintain adequate Signal-to-Noise ratio in a UAV to submarine communications link, due to SWaP (size, weight and power) constraints in the tactical edge. Technologies and approaches may include, amongst others, metamaterials, active circuitry, ATL (artificial transmission line), new geometries and volumetric designs.

ONR is also receptive to highly innovative ideas in other general communications and networking areas that is not designated focus as above, but nevertheless important to Navy/Marine Corps, such as the following (these are not in any priority order): (i) Advanced modulation, coding, equalization, co-site interference mitigation, and power amplification to improve mobile wireless link performance, bandwidth efficiency and spectral containment, while reducing form-factor and energy consumption; (ii) Cognitive radios and agile frequency communications, bandwidth management; (iii) Tactical Common Data Link (TCDL) spectral efficiency improvement to Gbps operation and TCDL multipath mitigation; (iv) Fundamental issues in tactical edge MANET (Mobile Ad-hoc NETworking) involving algorithms/protocols/policies for highly efficient routing, rapid self-configuration and self organization within and across heterogeneous radio sub-nets (platform speeds up to high supersonic); (v) Robust, highly agile, networked UAVs C3 (Communications, Computation and Control) using technologies as autonomic middleware and intelligent agents. The emphasis here is on real-time collaboration between control data plane on distributed C2 platforms to meet UAV flight dynamics and missions, while simultaneously facilitating high data rate ISR (Information, Surveillance Reconnaissance) relay via directional antennas.

Contact: Santanu Das, Program Officer, Phone 703-588-1036, Email dass@onr.navy.mil

Project: Space Based Infrared System, (SBIRS) Geosynchronous Earth Orbit (GEO) satellite (GEO 3) and two additional Highly Elliptical Orbit (HEO) payloads (HEO 3&4)

Solicitation Number: 07-32

Posted Date: Mar 21, 2007

Contracting Office:
Department of the Air Force, Air Force Space Command, SMC - Space and Missiles System Center,

Description

The Space Based Infrared Systems (SBIRS) program office intends to issue a Request for Proposal (RFP) for the production of 1 additional SBIRS Geosynchronous Earth Orbit (GEO) satellite (GEO 3) and two additional Highly Elliptical Orbit (HEO) payloads (HEO 3&4). GEO 3 and HEO 3&4 are anticipated to be derivatives of the existing designs developed under the SBIRS Engineering and Manufacturing Development Contract with minimal modifications. The SBIRS program office anticipates releasing the RFP in June 2007 with a contract award in January 2008. The contract type will be cost-plus award fee and cost plus incentive fee.

The current SBIRS contractor is Lockheed Martin Space Systems Company (LMSSC), Sunnyvale, CA. It is anticipated that this effort will be awarded to LMSSC as a sole source award. (See numbered note 22)

The government's acquisition strategy is to build nearly identical replicas of the second GEO and HEO production units. However, the government recognizes minor design

BUSINESS OPPORTUNITIES

changes will be required to accommodate parts and material obsolescence, new directed specification changes, corrections to GEO 2 and HEO 2 waivers and deviations, and application of additional government specifications and standards. The government directed specification change for HEO is a new Electromagnetic Interference (EMI) performance specification. The government directed specification changes for GEO include, but are not limited, to incorporation of a secondary payload and a change to Dual Universal S-Band/SGLS.GEO 3 is intended to continue deployment of the full SBIRS High constellation. HEO 3&4 are planned as replenishments for the first two HEO payloads. The new GEO satellite and HEO payloads must integrate with the existing ground operations and maintenance support infrastructure with minimal changes.

Interested parties who believe they have the capability to perform as a prime contractor in support of this production effort must include the following information in their SOC: Personnel/Size Standard, Company Name, Mailing Address, Point of Contact and Telephone Numbers, Business Size Classification, Large, Small, or Other, and experience-specific work previously performed or being performed relevant to this follow-on effort. Small Business companies with the capability to perform this requirement are encouraged to participate. The small business size standard for this requirement is NAICS 336414 (1000 employees). If you are interested only in subcontracting opportunities please indicate clearly in your submission.The SOC shall not exceed ten pages.The government will use this SOC to determine if there is sufficient interest in the marketplace from qualified sources to attempt full and open competition. This announcement is for information and planning purposes only. It does not constitute a Request for Proposal and is not to be construed as a commitment by the government. The Government will not pay any costs associated with the submittal of information solicited herein.The SOC and all related communications that contain proprietary information should be marked as such. Verbal responses will not be accepted. Responses from small business and small, disadvantaged business firms with the capability and capacity to perform this requirement are highly encouraged. Firms responding should indicate if they are a small business, a socially and economically disadvantaged business, 8(a) firms, historically black colleges or universities, and minority institutions.

An Ombudsman has been appointed to hear concerns from offerors or potential offerors during the proposal development phase of this acquisition. The Ombudsman does not diminish the authority of the program director or Contracting Officer, but communicates contractor concerns, issues, disagreements, and recommendations to the appropriate Government personnel. When requested, the Ombudsman shall maintain strict confidentiality as to the source of the concern. The Ombudsman does not participate in the evaluation of proposals or in the source selection process. Interested parties are invited to call Mr. John Wagner. You can reach him at john.wagner@losangeles.af.mil or at (310) 653-2138.

Contact: Colleen Trickey, Contract Negotiator, Phone 310-653-4541, Fax 310-653-4150, Email colleen.trickey@losangeles.af.mil

Project: Transportable Core Electronics and Antenna Upgrade Station

Solicitation Number: TRANSPORTABLESTARR2007
Posted Date: Mar 20, 2007

Contracting Office : Department of the Air Force, Air Force Space Command

Description

SCNC/PK intends to issue a delivery order for the procurement of a Transportable Tracking Station, for the Air Force Remote Block Change (RBC) Satellite Control Network. The proposed action will be awarded to the existing contract, F04701-02-D-0006, Satellite Control Network Contract (SCNC), which is a cost-plus-award fee, indefinite delivery/indefinite quantity contract for satellite and network control services and support. The reason for this notice is because the original ordering period on the contract expired due to Government funding delays.

This effort involves the fielding of the core electronics and antenna facilities for the Transportable system for the Air Force Satellite Control Network (AFSCN). The AFSCN is the Department of Defense?s (DoD) primary network for supporting launch and early orbit operations. The AFSCN provides telemetry, tracking, and commanding capability, mission data dissemination, processing, and is one of the nation?s primary high-powered networks for emergency recovery of space vehicles.

The AFSCN currently consists of legacy Automatic Remote Tracking Stations (ARTS) and is in the middle of a modernization to state-of-the-art tracking stations known as the Remote Tracking Station (RTS) Block Change (RBC). There are 5 RBC projects currently on contract. This transportable will deploy primarily at fixed sites where legacy ARTS systems are being replaced by RBC antennas. In addition, the transportable will be required to provide factory compatibility testing for satellite programs and emergency backup at existing RTSs. The award of this delivery order is vital to ensuring uninterrupted operational capability to our AFSCN users. Delays to the modernization effort will result in the loss of satellite contacts and a decrease in ability of our commanders to

BUSINESS OPPORTUNITIES

communicate with the battlefield. This Transportable RBC will include, but not be limited to, the following deliverables:

1. Project Management
2. Project Systems Engineering
3. Configuration Management
4. Hardware Design & Development
5. Software Design & Development
6. Procurement
7. Production
8. System Integration, ssembly, checkout, and shipping
9. Test and Evaluation
10. Data & Documentation
11. Integration Logistics Support
12. Environmental E Engineering Compliance
13. Site Acquisition, Installation, and Acceptance

The value for these supplies and services is estimated at $20,000,000.

Ms. Marilyn Washington, Procuring Contracting Officer (PCO), Phone (310) 653-2072, Marilyn.washington@losangeles.af.mil. Mr. David Starr, Lead Contract Manager, Phone (310) 653-1397, Email, david.starr@losangeles.af.mil

Capt. Arlene Brown, Lead Project Officer, Phone 310-653-1410, Arlene.brown@losangeles.af.mil. Refer to the 3 attached technical documents entitled Requirements Document (RD) for the Transportable RBC?, Unique Common Requirements, and Waivers/Requirements Clarifications. The SOC package should provide a summary of capabilities and past experience with the following information: 1)

Contact: Ms. Marilyn Washington, Contracting Officer, Phone (310) 653-2072, Marilyn.washington@losangeles.af.mil.

Mr. David Starr Lead Contract Manager, Phone (310) 653-1397, Email, david.starr@losangeles.af.mil;

Capt. Arlene Brown, Lead Project Officer, Phone 310-653-1410, Arlene.brown@losangeles.af.mil.

FEATURED EVENT

ISCe 2007's Military and Government Requirements Forum

ISCE 2007

June 5-7, 2007

Hilton San Diego Resort at Mission Bay, San Diego California

ISCe will present its annual Military & Government Requirements Forum on the third day (June 7) of its highly successful conference and exposition to be held in San Diego, California from June 5-7, 2007. This forum, according to organizers, is the largest one-day event on the West Coast dedicated solely to the interplay between the commercial communications satellite industry and the military.

The Military Requirments Forum is organized for those companies that do business with the Defense Department, U.S. and foreign governments and the First Responder Community.

The forum will feature keynotes from top military leaders, exclusive general sessions and a streamlined program which promises direct access to the movers and shakers in this field. "This is an ISCe signature program," said ISCe Conference Chairman David .Bross.

One of the keynote speakers during the forum is Rear Admiral Michael C. Bachmann, Commander Space and Naval Warfare Systems Command (SPAWAR), US NAVY.

Some of the key topics to be covered in the forum include:

- DoD Commanders and Primes Address: Transitional Communications Architecture – Any Time, Any Where – Maybe!
- Homeland Security/First Responders Technology Update: Helping Those Who Help
- Intelligence And Communications – You Can't Have One Without the Other!
- Technology And The "Long War" – Looking for Answers
- Transformational Satellite Communications Mission Operations System – Show Me The Beef!

Keynote Speaker:
Rear Admiral Michael C. Bachmann,
Commander
Space and Naval Warfare Systems Command (SPAWAR), US NAVY

"This year, in my effort as chairman to make ISCe 2007 even more valuable and relevant to our attendees, I structured the conference to achieve a more `vertical format.' Rather than have to search for the military and government sessions throughout the entire conference, I concentrated them all in one day. Day 3 of the conference, June 7, will be our traditional `Military & Government Requirements Forum' which will feature top-level discussions between the purchasers of commercial satcoms services for the military and those vendors in the satellite business who sell to the military. It will be forward-looking and very valuable to the attendee whose company does business in this sector," said Bross.

"The most significant attendee benefit of ISCe 2007's Military & Government Requirements Forum is the concentration of content, personnel, speakers, attendees all gathered in one place at the same time to discuss the critical issues facing both military end users of satellite services as well as those companies that provide them. This day will be a who's who of executives from both sides," Bross added.

To avail of an early bird discount. : register before May 4, 2007. Visit www.isce.com/registration for more information. Attendance is FREE for active U.S. military (valid I.D. required) with a nominal food/beverage charge of $95.

For more information on ISCe 2007 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.isce.com

For a complete Conference program and list of events, go to www.isce.com/conference_program.

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DEFENSE * HOMELAND SECURITY * SPACE
INDEX

The SPADE Defense Index(R) was launched in cooperation with the American Stock Exchange and serves as a benchmark for the value that the markets ascribe to companies involved with defense, homeland security, and space. The Index has 57 constituents, 60% of which have space or satellite business lines including DirecTV, Echostar, XM, and Sirius.Details on the SPADE, including its calculation methodology, rules defining selection criteria, current constituents, performance, as well as our 'SPADE Investor' newsletter can be found on the www.spadeindex.com website.

Highlights for the First Quarter of 2007:

SPADE Defense Index Statistics

YTD Return: 3.02%
February Return: 0.02%
2/28/07 Close: 2170.16
Intraday All-time High*: 2277.59
Date: 23 Feb 2007

Index Performance Summary
SPADE (DXS) S&P500
2006 19.33% 13.62%
4Q06 8.79% 6.17%
3Q06 3.21% 5.17%
2Q06 [4.03%] [1.91%]
1Q06 10.65% 3.73%

YTD 2007 Laggards
1 CACI -17.70%
2 American Science -14.03%
3 SI International -13.57%
4 SRA International -11.37%
5 Stanley -10.82%
6 MTC Technologies -10.36%
7 DirecTV -9.58%
8 Ceradyne -8.67%

YTD 2007 Leading Gainers
1 OSI Systems 19.45%
2 Precision Castparts 16.08%
3 Armor Holdings 15.88%
4 SafeNet 14.66%
5 Applied Signal 14.65%
6 Viasat 14.59%
7 Ladish 12.73%
8 Argon ST 12.49%

The year started off strong driven in large part by the forthcoming release of the Department of Defense's fiscal year 2008 budget which occurred in early February and which came in pretty much where everyone had expected it to. The administration, as promised, also released their request for supplemental war funding at the same time — bringing the total for FY07 and FY08 to $300+ billion. The core DoD budget also forecasted steady growth through FY13, rising $65 billion from today's levels.

ADVERTISERS' INDEX