SATMAGAZINE.COM

April 2007 | Worldwide Satellite Magazine | Vol. 5 No. 1

The Future of Satellite Broadcasting

TABLE OF CONTENTS

Vol. 5 No. 1, April 2007

Click on the title to go directly to the story

COVER STORY

19 / The Future of Broadcasting

By Howard Greenfield

The explosion of new applications and hybrid broadband models are driving the future of broadcasting.

FEATURE

23 / The Satellite Channel Wars

By Patrick French, NSR

Commercial satellite operators are scrambling to get as many video channels under their wing.

VIEWPOINT

38 / After Iraq: What's Next for the Satellite Industry?

by Alan Gottlieb

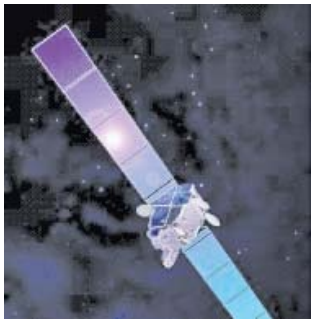
New opportunities exists in a post-Iraq War satellite industry.

41 / EXECUTIVE SPOTLIGH

Interview with Integral Systems CEO Peter Gaffney

Peter Gaffney who took over as CEO of Integral Systems from founder Steve Chamberlain speaks to SatMagazine on a variety of issues.

FEATURE



26 / Exploring the Fixed Satellite Service Market

by Bruce R. Elbert

The FSS satellite business has been marked by stable growth and profitability due to the steadily increasing demand for new applications.

REGIONAL UPDATES

30 / High-Jinks over the Middle East

by Chris Forrester

A new entrant into the market is shaking things up in the Middle Eastern satellite market.

CASE STUDY

35 / Tools for Broadcasters to Deliver Interference-free HD Content

by Bob Potter

Communications Systems Monitors (CSMs) are providing an essential tool for broadcasters wanting to deliver interference-free HD content.

REGULAR DEPARTMENTS

3 / Notes from the Editor

4 / Calendar of Events

5 / Industry News

10 / Executive Moves

15 / New Products and Services:
Update on Satellites and Wi-Fi by Bernardo Schneiderman

43 / Market Intelligence:
India's Satellite Crisis: Capacity Barriers and "Spectrum Grab"
presented by the Global VSAT Forum

46 / Stock Quotes / Advertisers' Index

NOTE FROM THE EDITOR

The Future of Broadcasting

This might be the most interesting and significant NAB in recent memory. Great changes are happening in the broadcasting industry--the transition to digital television (DTV) and hot new applications such has IPTV, mobileTV and HDTV. However, unlike in recent years where the new applications were just showing their potential, now these hot applications have had time to gestate and are making their mark in the market.

This issue focuses on the broadcasting market--long a standby of the satellite industry--the broadcast or video market has been consistently one of the top market for satellite services. The broadcast industry is now undergoing a revolutionary transition with the advent of DTV, HDTV, IPTV and Mobile TV which is changing the way we view and receive video signals and in this issue we will show how the satellite industry can benefit from these developments.

Speaking of hot new markets, the military satellite market has been growing exponentially in the last few years and has proven to be one of most vital markets for the satellite industry today. In response to this growth and the need to provide accurate and quality information on this vital market, we at Satnews Publishers launched this month the inaugural issue of MilsatMagazine--the first e-magazine exclusively focusing on the military satellite market and its relationship with the commercial satellite industry. Please be sure to check out a copy and get a free subscription at www.milsatmagazine.com

Keeping up with developments in technology is our business. So, if you haven't noticed we've redesigned our website, Satnews.com with a streamlined , more user-friendly format. We will also be introducing news features such as RSS feeds which will enable you to receive *Satnews Daily* on your cellphones or PDAs. At the NAB in Las Vegas this month, we will be introducing a new mutltimedia feature in the website called SatVideos. Watch out for all this.

See you all at NAB!

Virgil Labrador

Article Contributions to SatMagazine

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

SATMAGAZINE.COM

Published monthly by
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
Managing Editor and Editor, North America
virgil@satnews.com

Chris Forrester
Editor, Europe, Middle East and Africa

Bernardo Schneiderman
Editor, Latin America

Peter Galace
Editor, Asia-Pacific

John Puetz, Bruce Elbert
Dan Freyer, Howard Greenfield
Contributing Writers, The Americas

David Hartshorn, Martin Jarrold
Contributing Writers, Europe

Baden Woodford
Contributing Writer, Africa

Jill Durfee
Advertising Sales
jill@satnews.com

Satnews Publishers is the leading provider of information on the worldwide satellite industry. For more information, go to www.satnews.com

Cover Design by: Simon Payne

Cover photos courtesy of Samsung, Nokia, Divitel and Interlink SRL.

Calendar of Events 2007

Apr. 9-12, **National Space Symposium 2007**
Colorado Springs, CO, USA
1-800-691-4000
719-576-8000
Fax: 719-576-8801
http://www.spacesymposium.org/

Apr. 10-13, **25th AIAA International Communications Satellite Systems Conference (ICSSC-2007) "Evolution Toward a Ubiquitous Network Society"**
Coex, Seoul, KOREA
Anna Kim
APSCC secretariat
Tel: +82 2 508 4883~5
Fax: +82 2 568 8593
E-mail: info@apscc.or.krhttp://www.icssc2007.com

Apr. 11-13, **Caspian Telecoms 2007**
Istanbul, TURKEY
Elena Peredel'skaya
Tel : + 44 (0) 20 7596 5205 / 5000
Fax : + 44 (0) 20 7596 5208
E-mail : Elena.Peredelskaia@ite-exhibitions.com http://www.caspiantelecoms.com/

April 14-19, **NAB - National Association of Broadcasters**
Las Vegas Convention Center, USA
Tel: 202-429-4180 / Fax: 202-429-4180
register@nab.org
http://www.nabshow.com/

May 15-16, Prague, CZECHOSLOVAKIA
Ingrid Anusic
Tel: +44 1173 116 220 / Fax: +44 1173 116 221
E-mail: ingrida@junction-group.com
http://www.iptv-easterneurope.com

May 17-18, **Building the Broadband Economy: The Intelligent Community Forum's annual conference**
Polytechnic University, New York City
Louis Zacharilla, Co-Founder
+1-646-291-6166 (x102) or +1-212-249-0624
Fax: 212-825-0075
Rbarney@intelligentcommunity.org
http://www.intelligentcommunity.org

May 21-23, 2007, DGA's Military Satellites 2007
Arlington, VA
Dave.Barlow@idga.org
416.597.4710
http://www.idga.org/us/milsat

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

JUNE 2007

Jun. 5-7, **ISCe 2007:, Satellite and Hybrid Network Solutions for the Entertainment and Military/Government Markets**
San Diego Hilton Resort at Mission Bay,
San Diego, California
David Bross
Tel: +1.301.916.2236

INDUSTRY NEWS

Falcon 1 Reaches Space But Loses Control and is Destroyed on Re-Entry

SpaceX Falcon 1's first stage falling back toward Earth with the second stage rocket engine in the foreground. (SpaceX photo)

EL SEGUNDO, Calif. — Falcon 1 lifted off successfully but failed to reach its target orbit and most likely burned up on re-entry after a roll control problem threw it off course. The sad ending to the widely anticipated and watched (via Webcast) Falcon 1 saga, however, was declared a success by SpaceX (Space Exploration Technologies), owner and operator of Falcon 1.

SpaceX said the two-stage Falcon 1 was launched from its Omelek Island launch site at 9:10 p.m. EDT (0110 March 21 GMT), but suffered a roll control malfunction 300 kilometers above Earth before completing its flight plan.

The roll control anomaly affected control of Falcon 1's second stage booster. This loss of control threw the booster off course and sent it crashing to an unscheduled re-entry over the Pacific Ocean without completing a full orbit. The first stage parachuted onto the Pacific Ocean and is being recovered by SpaceX.

"We successfully reached space, and really retired almost all of the risk associated with the rocket," said Elon Musk, founder and CEO of SpaceX.

Despite the failure, Musk said they feel like there's really no need for an extra test flight. He noted that SpaceX launched Falcon 1 as a demonstration for the U.S. Defense Advanced Research Projects Agency (DARPA) to prove the booster's capabilities.

"The rocket business is definitely not a low-stress business, that's for sure, but I don't think I'm disappointed. In fact, I'm pretty happy."

He was buoyed by Falcon 1's lift off, its successful first-stage and payload fairing separations and the second stage ignition. He said this proved that hundreds of booster improvements incorporated into the vehicle since its first March 2006 failure were a success.

"I think it's fair to characterize this as a success and a good day," Musk said. "Not a perfect day, but a good day."

DARPA bankrolled the second Falcon 1 flight to the tune of $7 million. The primary aim of the mission was to gather flight data for the U.S. Department of Defense, which is a major customer for SpaceX's future launches. Falcon 1 payload was a 50 kilogram experimental satellite that was to have been placed into a circular 685 kilometer high orbit. The payload included an automated flight safety system, low-cost satellite communications transceiver and mechanical payload adapter ring.

"The malfunction could have been due to a range of issues, such as helium leak or a roll control jet glitch, but only a subsequent analysis will root out the cause," Musk said.

On the company website, he noted that "operationally responsive (ie fast) launch has become an increasingly important national security objective, so demonstrating rapid loading of propellents and launch in less than an hour, as well as a rapid recycle following the first engine ignition are major accomplishments."

Hanging in the balance is the fate of the third Falcon 1 mission. SpaceX is scheduled to launch the TacSat-1 military communications satellite this summer aboard another Falcon 1. This third mission will also carry a secondary payload of cremated remains, provided through Space Services Inc. Among those to be memorialized in space are Mercury astronaut Gordon Cooper and "Star Trek" actor James ("Scotty") Doohan.

A second consecutive launch failure for Falcon 1, which is championing a cheaper way of getting into space, should have been a heavy blow to SpaceX. Musk, however, said before the launch that should this second flight go awry, the company will not wait for another year before launching its third attempt.

First Launches for ULA and Arianespace are Succesful

KOUROU, French Guiana — 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

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

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, 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 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.

Engine Failure Causes Sea Explosion

The Sea Launch explosion last January 30 destroyed the NSS 8 satellite.

MOSCOW, Russia – Roscosmos, the Russian federal space agency, said the destruction of a Sea Launch Zenit-3SL last January 30 was caused by engine failure.

A massive explosion at a Pacific Ocean launch site destroyed the SES New Skies NSS 8 satellite and damaged the unmanned Odyssey launch platform. An intergovernmental Russian commission consisting of representatives from the Ukrainian and Russian space organizations and the developers of Zenit-3SL established that the engine failed after a metal particle accidentally entered the engine's pump. The commission has proposed recommendations whose implementation will provide for the continued use of Zenit-3SL.

Viktor Remishevsky, Roscosmos deputy head, said launches from the Sea Launch platform would resume this year. Established in 1995, the Sea Launch consortium is owned by the

Boeing Company, Kvaerner ASA of Oslo, Norway, SDO Yuzhnoye/PO Yuzhmash of the Ukraine and RSC-Energia of Moscow.

The company launches its vehicles from the equator, which allows rockets to carry heavier payloads than they could from other locations due to the physics of the Earth's rotation.

The January 30 failure was the second total failure for the Zenit-3SL. The first occurred on March 12, 2000 during Sea Launch's third mission when a mis-configured valve caused a pressure loss in the second stage. The launcher was unable to reach orbit and fell back to Earth, destroying an ICO mobile communications satellite.

NSS-8 was a high-powered, state-of-the-art, Ku- and C-band satellite to have been located at 57º East over the Indian Ocean. It was to provide coverage of Europe, Africa, the Middle East, the Indian sub-continent and Asia, with the intention to replace NSS-703 and bring expanded power and coverage at this optimum and well-established orbital location.

Roscosmos also announced that launches of foreign commercial satellites on the Dnepr carrier rocket from the Baikonur cosmodrome in Kazakhstan will resume on March 27 after a gap caused by a July 2006 accident. Dnepr is set to launch satellites for Egypt, Saudi Arabia and a number of other countries.

Sirius/XM Merger Again Takes Heavy Flak on Capitol Hill

WASHINGTON DC — Sirius Satellite Radio, Inc. CEO Mel Karmazin again took the heat in Washington over his

Sirius CEO Mel Karmazin

company's merger with rival XM Satellite Radio Holdings last month.

The $13 billion merger, which has yet to be approved by the Federal Communications Commission (FCC) and the Department of Justice, has come under heavy fire from both houses of Congress, consumer groups and broadcast industry associations since it creates a de facto monopoly in the satellite radio industry.

Sen. Herb Kohl (D-Wis.), chairman of the Senate's antitrust subcommittee, said the proposed merger would create a business colossus that would raise prices for listeners.

"You have every right to ask ... but it's another thing to grant you that permission to be virtually unrivaled, unchallenged in this whole area," Kohl said.

Kohl questioned Karmazin's statement that the combined company would face competition from terrestrial radio, MP3 players and Internet radio.

He also voiced concern that the combined company would raise prices in the future, particularly if it signed exclusive contracts with sports leagues or popular entertainment providers. Karmazin said he was open to regulatory oversight of price increases as a condition of the merger.

Sirius and XM were explicitly forbidden from merging when their licenses were granted a decade ago, but the companies are arguing that much has changed since then, and that the companies now face increased competition in audio entertainment from iPods and Internet radio, as well as traditional terrestrial radio.

In a new twist to its defense that the merger is not disallowed by law, Sirius and XM lawyers said in a new filing yesterday that the FCC's language that "one licensee will not be permitted to acquire control of the other remaining satellite DARS license" was nonbinding because "this language was not codified in the Code of Federal Regulations."

"It is merely a policy statement reflecting the (FCC's) view, based on the evidence available in 1997, that two satellite-radio licensees were needed to have enough competition in the audio-entertainment market. That statement does not preclude today's (FCC), recognizing a radically altered competitive environment, from finding that the proposed transaction serves the public interest."

Also during the hearing, a group of six consumer and advocacy groups asked the Senate panel to call for a tough regulatory review of the transaction, which would eliminate one of the only two competitors in the emerging satellite radio business.

The statement from Consumers Union, the Consumer Federation of America and others said that the deal would reduce competition, decrease choices for consumers and might lead to higher prices.

Karmazin, however, disagreed with Kohl's contention that Sirius and XM would have monopoly power. He contended that traditional radio stations, iPods, cellphones and Internet radio provided enough choices for listeners.

"There is all this competition," Karmazin said. "We're not talking about being a monopoly."

Hughes Signs Contract to Launch Spaceway 3

GERMANTOWN, MD — Hughes Network Systems has awarded a launch services contract to Arianespace for the launch of its next-generation Spaceway 3 satellite. The spacecraft is the world's first commercial satellite with on-board switching and will deliver broadband services throughout North America

The Ariane 5 heavy launcher will launch Spaceway 3 into geosynchronous transfer orbit from the Guiana Space Center in Kourou, French Guiana. The launch date is projected for this August.

Spaceway 3 is the first in the world to switch and route broadband traffic on board, enabling single-hop communications between satellite terminals, eliminating the requirement for traffic to be routed through a central hub earth station. The satellite's advanced antenna technology allows the dynamic formation and shaping of spot beams, enabling the flexible management of capacity and delivery of true bandwidth-on-demand services.

Spaceway 3 will operate in the globally assigned Ka-band spectrum and will deliver a wide range of new high-speed communications services for IP data and multimedia applica-

tions to North American enterprise, consumer, and government customers.

"This is a very exciting time for Hughes," said Pradman Kaul, chairman and CEO of Hughes. "With the launch of Spaceway 3, Hughes will enter a new era as a satellite system operator, augmenting our market leadership in delivering broadband satellite services worldwide. We are confident that Arianespace will provide a reliable launch service and eagerly anticipate providing new, value-added solutions to our customers in the coming months."

Modernized GPS Satellite Fleet Now Complete

KING OF PRUSSIA, PA — The eighth and final satellite in the modernized Global Positioning System Block IIR (GPS IIR-M) fleet has been delivered to the U.S. Air Force by Lockheed Martin.

The final eight spacecraft, designated Block IIR-M, were modernized to enhance operations and navigation signal performance for military and civilian GPS users around the globe. Lockheed Martin is responsible for launch and flight operations support of the GPS IIR and IIR-M satellites.

There are currently three IIR-M spacecraft in orbit, along with 12 original Block IIR satellites within the overall 30-spacecraft GPS constellation. Each satellite in the Block IIR-M series includes a modernized antenna panel that provides increased signal power to receivers on the ground; two new military signals for improved accuracy, enhanced encryption and anti-jamming capabilities for the military SM

EXECUTIVE MOVES

Orbcomm Promotes Marc Eisenberg to COO

FORT LEE, NJ – The board of directors of Orbcomm has appointed Marc Eisenberg to chief operating officer effective February 27. Eisenberg previously served as chief marketing officer, a position he held since June 2006.

Prior to this, he was the company's executive vice president of sales and marketing, a position he held from March 2002 to June 2006.

Orbcomm CEO Jerry Eisenberg said that in his role as chief marketing officer, Marc created strong relationships with large multinational corporations, OEMs (original equipment manufacturers) and aftermarket resellers, relationships that have greatly advanced the adoption of satellite-based M2M applications.

"We are looking forward to substantial contributions and continued success from him in this expanded role. These are exciting times for Orbcomm as many developments will be taking place. We are launching new satellites, upgrading and expanding our ground infrastructure, continuing to grow our VAR network and further expanding internationally into new markets. Marc will continue to apply his expertise to growing our customer base as well as the operational execution required to manage our expanding business."

Orbcomm is a global satellite data communications company that provides data communications services to customers around the world through its unique low-earth orbit (LEO) satellite network and global ground infrastructure. A diverse customer base uses Orbcomm services to track, monitor and control mobile and fixed assets, including trucks, containers, marine vessels, locomotives, heavy machinery, pipelines, oil wells, utility meters and storage tanks anywhere in the world.

Talty is Vice President of Information Superiority for Northrop Grumman

Patrick Talty

McLEAN, VA — Northrop Grumman Corporation has named Patrick Talty vice president of information superiority for the company's Information Technology (IT) sector.

As vice president of information superiority, Talty develops and directs information superiority programs including advanced terrestrial, space and wireless communications systems and quantitative business analysis.

"Pat has 15 years of intelligence community experience and has effectively developed and delivered mission-critical information systems for many government and commercial customers," said Wood Parker, president of Northrop Grumman IT's Intelligence group. "In this new role, his expertise and leadership will help our business grow and continue to influence the scope of solutions we provide to the U.S. government, military, homeland security and intelligence agencies."

Talty earned bachelor's and master's degrees from Virginia Polytechnic Institute and a master's degree from George Washington University.

Northrop Grumman Corporation is a $30 billion global defense and technology company whose 122,000 employees provide innovative systems, products, and solutions in information and services, electronics, aerospace and shipbuilding to government and commercial customers worldwide.

WildBlue Names New CFO

DENVER, CO — Mark Adolph has joined WildBlue Communications, Inc. as its new chief financial officer.

Adolph is a communications industry financial executive with over 20 years of experience in senior financial management, legal, tax and corporate strategy. He joins WildBlue from Open Range Communications, a wireless service provider, where he served as CFO and as a board member.

Prior to Open Range, Adolph was CFO and Chief Operating Officer of the venture capital firm Telecom Partners. He began his career at Touche Ross & Company, and also served as a Senior Manager for KPMG Peat Marwick.

Adolph holds a Juris doctorate degree from the University of San Diego School of Law, and a Bachelor's degree in Accounting from the University of Akron. He is a member of the American Bar Association and California Bar Association.

WildBlue CEO David Leonard said Adolph's years of experience in financial analysis, legal and tax law will be a real asset to the company as it continue to grow its business.

Pley Takes Over as Interim for Com Dev

CAMBRIDGE, Ontario — Com Dev International, Ltd chief executive officer John Keating is recovering from an unexpected surgical procedure and is to be away for some three months. Com Dev president Mike Pley will take over as CEO in the

EXECUTIVE MOVES

Mike Pley

interim.

"We have total confidence that Com Dev is in very good hands under Mike Pley's stewardship," said Keith Ainsworth, chairman of the board of directors. "One of John's strengths as a leader has been to surround himself with a very capable executive team, and Mike has been instrumental in advancing all of our major operational and strategic initiatives. Doctors are expecting John to make a full recovery, and we have assured him that this should be his only priority."

An engineer by training, Mike Pley first joined Com Dev in 1983. He has held management roles in marketing, operations, program management and business unit management, and has led Com Dev's ongoing implementation of lean management practices. Mike was promoted to president in 2001.

Scopus Appoints Eitan Koter President

Eitan Koter

TEL AVIV, Israel — Eitan Koter has been appointed president of Scopus Video Networks, a provider of digital video networking solutions. Ovadia Cohen, current vice president of marketing, was promoted to vice president, business development and marketing communications. Both report to Scopus' CEO, Dr. Yaron Simler.

Koter, former vice president of sales, is now responsible for enhancing Scopus' business operations and improving the synergy of sales and marketing. Cohen will be in charge of expanding Scopus' partnerships and defining Scopus' next-generation strategy.

Scopus develops, markets and supports digital video networking solutions that enable network operators to offer advanced video services to their subscribers. Scopus' products support digital television, HDTV, live event coverage, and content distribution. Customers include satellite, cable, and terrestrial operators, broadcasters, and telecom service providers.

Dr. Simler said the management changes are designed to further the company's strategic focus on system solutions, reinforce its growing status in the OEM market and strengthen Scopus' ability to further capitalize on the emerging opportunities stemming from market convergence.

"Eitan's proven organizational skills and drive will enable Scopus to better execute its strategic direction, while Ovadia's invaluable knowledge, as an industry veteran, will serve to further drive Scopus' growth strategy, expand strategic partnerships and develop next generation platforms," he said.

MSV Appoints John Mattingly President, Satellite Services

RESTON, VA -- Mobile Satellite Ventures (MSV) has 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.

EXECUTIVE MOVES

Dr. Jeff Ward Joins SpaceX

Dr. Jeff Ward

LOS ANGELES — Dr. Jeff Ward has been appointed vice president of Avionics, Guidance and Control of Space Exploration Technologies Corporation (SpaceX), which will test launch its Falcon 1 vehicle next week.

Dr. Ward was previously managing director and technical director of UK small-satellite maker, Surrey Satellite Technology, Ltd (SSTL), in which SpaceX holds a 10 percent equity stake. Dr. Ward has been one of the principal architects of the world's most successful small satellite program, where he managed 24 satellite missions under fixed-price contracts with customers including the U.S. Air Force and ESA. He brings to SpaceX unique insight into the technical and programmatic methods that successfully deliver affordable, reliable space projects.

This appointment broadens the SpaceX management team as the company continues to expand in response to market demand for its low-cost launch vehicles. Ward becomes responsible for the SpaceX

EXECUTIVE MOVES

engineering team developing avionics hardware and software for Falcon 1, Falcon 9 and the Dragon cargo/crew spacecraft.

SpaceX CEO Elon Musk said Ward has over 20 years experience creating new paradigms for spaceflight, developing the engineering and management solutions that routinely deliver reduced cost and increased reliability. "He is a valuable addition to the SpaceX team at a time when we are simultaneously implementing three ground-breaking development programs."

Dr. Ward himself feels that, "reliable, affordable launch vehicles are the key to a new space age. The Falcon launchers and the Dragon capsule will stimulate an unprecedented boom in commercial and governmental space activity, and it is a rare privilege to be asked to join the SpaceX team at such a critical juncture."

Dr. Ward has a bachelor's degree in computer engineering from the University of Michigan, and a doctorate in spacecraft engineering from the University of Surrey, UK.

SSPI Elects New Members and Officers

NEW YORK — The Society of Satellite Professionals International (SSPI) has elected its board of directors and appointed new officers to lead the 24 year-old nonprofit organization. New Directors elected to three-year terms on the SSPI board include Olivier Badard, vice president, Alcatel Alenia Space; Paul Bush, vice president, Telesat Canada; Clayton Mowry, president, Arianespace, Inc. and Dick Tauber, vice president, CNN News Group.

The board appointed David Bross, director of business development for Hannover Fairs USA, as its chairman, and Dom Stasi, chief technology officer of TVN Entertainment, as president. Each will serve a one-year term, after which Stasi will succeed to the chairmanship.

SSPI executive director Robert Bell said SSPI is very fortunate to attract dedicated and committed individuals like these to its Board. "Not only are they in the top ranks of the companies they represent, they each bring great experience of the industry, in all its facets, to the Board's deliberations." In addition to these directors and officers, the members of SSPI's Board include Carson Agnew; Paul M. Bobrowski, Ph.D., dean, College of Business, Auburn University; Keith Buckley; Don Flournoy, director, Institute for Telecommunications Studies, Ohio University; Ellen Hoff, president, WL Pritchard & Company LC; Barbara Jaffe, senior vice president, Home Box Office; Regina James, Catastrophe Services, State Farm Insurance Companies; Blair Marshall, manager, Satellite Services, SES Americom; D.K. Sachdev, president, Space Tel Consultancy LLC; Steven Teller, president, IOT Systems; and Richard Wolf, vice president, ABC Television Network.

Founded in 1983, SSPI is a nonprofit society that serves satellite professionals throughout their careers. The programs of the society promote the development of and access to high-quality education, help satellite professionals to advance their careers, work to increase the professionalism and professional standing of members and honor extraordinary achievement by individuals and organizations.

End II End Communications Appoints Bhatty as Rep for SE Asia and MidEast

CHARLOTTE, NC — End II End Communications has appointed Tariq Bhatty as Regional Representative for Southeast Asia and the Middle East.

End II End develops products that optimize, secure and manage wide area network, enabling enterprise applications to go where they have never gone before. Bhatty will be responsible for sales in the ASEAN nations, Pakistan and the Middle East.

A senior sales and marketing executive with 17 years of satellite industry experience, Bhatty has consulted for CITCGI on the growth of the Subic Bay Teleport in the Philippines, served as senior sales director for Globecast in Singapore and held sales and sales management positions with organizations in the UK, France and Kuwait.

Doug Triblehorn, End II End's vice president for sales said, Bhatty brings great experience and local market knowledge to their company. "The ever-increasing communication demands of national and multinational corporations in the region have created tremendous opportunities for the use of satellite. To date, enterprises have faced problems running their critical applications securely with acceptable performance, which has greatly limited the acceptance of satellite."

End II End CEO John X. Dwyer believes the company needs to educate the market and build trust among potential customers since it had brought network optimization technology to market, and was the first to make Citrix and other highly interactive applications really work over satellite.

EXECUTIVE MOVES

Space Foundation Promotes Trevino to VP Marketing

SPRINGS, CO — Frank Trevino, Jr. has been promoted to vice president, marketing and creative services of The Space Foundation effective March 1. Trevino leads the Foundation's marketing, advertising, and interactive media in support of the Space Foundation's mission "to vigorously advance civil, commercial, and national security space endeavors and inspire, enable, and propel tomorrow's explorers."

Trevino, who joined the Space Foundation in January 2006, has been integral to the management of the graphic identity of the Space Foundation and production of all collaterals contributing to the success of the organization's partner services, industry services, education products, workforce development initiatives, and space awareness activities.

A marketing and business development professional, Trevino is experienced in managing regional, national and international campaigns. Prior to joining the Space Foundation, he worked for multi-million dollar advertising firms and privately held companies, most recently BTS Team in Houston, Texas, where he directed, developed, and implemented long and short-term marketing and advertising goals and strategies. Trevino's work on various campaigns has been recognized with numerous ADDY and other communicator awards, as well as a National Silver Anvil Award nomination.

The Space Foundation is a national nonprofit organization that vigorously advances civil, commercial, and national security SM

NEW PRODUCTS

WebTech and Iridium Market Dual-Mode Cellular and Satellite Telematics Solution

LOUISVILLE, KY — WebTech Wireless Inc., a provider of location-based and fleet telematics services, and Iridium Satellite, a global provider of mobile satellite voice and data communications, have introduced a new dual-mode cellular and satellite asset tracking and management solution for the transportation industry.

WebTech's new WT1900 system incorporates Iridium's 9601 short-burst data modem, offering seamless coverage for long-haul customers. The system utilizes cellular frequencies when in range of terrestrial wireless networks and Iridium satellite links in other areas. It was developed under a Value-Added Reseller agreement with Iridium to provide an alternative solution that significantly reduces customers' telecommunication costs.

"Our collaboration with Iridium fits with our product strategy to offer viable, cost-effective telematics solutions that focuses on customer satisfaction. We are proud to deliver an industry first that highlights our technology leadership and offers considerable cost savings to customers," said Cameron Fraser, co-founder and chief technology officer, WebTech Wireless.

The new WT1900 uses signal strength or other user definable parameters to switch automatically between cellular coverage and Iridium's satellites, ensuring the least-cost routing for the data links. This provides more efficient use of technologies and cost reduction of airtime usage and fleet management services.

The solution takes advantage of significant improvements in cellular coverage and leverages Iridium's ubiquitous satellite coverage and low-latency reliable data links to provide an integrated solution for tracking and managing assets while achieving considerable cost savings for data transmission. The modularity of the system enables large fleets to mix and match their connectivity requirements for continuous monitoring of assets and improvements in the safety and security for drivers.

"WebTech's new telematics solution is yet another example of the sizeable advantage that Iridium's global coverage brings to asset tracking and management applications," said Greg Ewert, executive vice president of Iridium Satellite. "Our constellation is uniquely positioned to augment gaps in cellular coverage. The combination of cellular and satellite data links ensures seamless uninterrupted coverage wherever the vehicle goes, including remote rural areas not covered by terrestrial carriers."

WebTech Wireless (TSX VENTURE: WEW) is a global telematics, location-based services provider that develops, manufactures and delivers turnkey wireless solutions designed to improve productivity and profitability. WebTech products include wireless hardware and software services running on cellular and satellite networks, and include automatic vehicle location, mapping, reporting, vehicle maintenance, driver status, in-vehicle telemetry, messaging, in-vehicle navigation and wireless application and Internet connectivity.

Smaller and Lighter Satellite Data Modem from Globalstar

MILPITAS, Calif. — Globalstar, Inc., a provider of mobile satellite voice and data services to businesses, governments and individuals, said that simplex data integrator Axonn, Llc, is marketing a new smaller and lighter satellite data modem known as the AXTracker MMT.

The modem is a completely self-contained satellite data device designed to communicate via the Globalstar satellite simplex data network, and is capable of providing asset tracking and fleet management solutions to customers from remote regions. The completely wireless device integrates a number of innovations including the use of a smaller and lighter simplex transmitter unit. It is also equipped with a long life, easy to change battery that will provide customers with up to seven years of battery life.

The low profile design of the AXTracker MMT incorporates the use of a smaller, lighter Axonn transmitter unit plus 2.4 GHz RF connection capability, allowing it to be self-contained, and easily installed without the need for harnesses, external power or external antennas. The unit is also MET Labs certified Class 1, Division 1 Groups A, B, C, D for the US and Canada. Because it is GPS based, the device is ideal for a variety of maritime or remote asset tracking applications. It can also be used for a number of remote monitoring and alarm applications, both within and beyond the reach of traditional wireless and terrestrial infrastructure.

Globalstar chairman and CEO Jay Monroe said the AXTracker MMT is the first in a series of specifically designed, innovative, and easy to use Globalstar simplex data solutions that integrate the new Axonn STX2 Patented Satellite Transmitter Unit. He noted that MMT is not only smaller, lighter, and completely self contained, but Axonn has produced a more affordable solution that is over 15 percent less expensive to implement than the previous AXTracker product."

NEW PRODUCTS

Axonn specializes in developing technology for wireless global one-way communication and the tracking of fixed and mobile assets. The new device includes an integrated motion detector, a built in reed switch, field wake up capability and a wireless configuration tool.

Globalstar offers satellite services to commercial and recreational users in more than 120 countries around the world. The company's voice and data products include mobile and fixed satellite telephones, simplex and duplex satellite data modems and flexible service packages. Headquartered in Covington, Louisiana, Axonn has been committed to the research, development and commercialization of satellite and radio frequency-based hardware for the tracking, monitoring and management of fixed and mobile remote assets since 1985.

NSGDatacom Debuts Latest Optimization Router

CHANTILLY, VA— NSGDatacom, a provider of telecommunications solutions for carrier and enterprise applications, has launched its Netrix 2222 (Nx2222) backhaul optimization router. Designed as a fully featured telecom switching platform, the Nx2222 is an easily deployable, fully scalable solution that clients can customize to meet their exact requirements for aggregation and optimization of cellular and traditional voice backhaul circuits, including interoperability with VoIP and TDM to IP conversion applications.

NEW PRODUCTS

"The Nx2222 is a product that provides high levels of compression without service degradation," said Rich Yalen, CEO, NSGDatacom. "NSGDatacom has invested heavily in research and development of the optimization router, and our efforts have paid off with a platform that is a third of the size, has twice the capacity and sells at a lower price point than the previous generation of products."

Technological advances in processors, chips, and operating systems have enabled NSGDatacom to create a more powerful, compact (1 U high) and flexible product. As a result, the Nx2222 is ideally suited for central office needs, providing up to 2:1 compression on Abis/Ater cellular trunks and voice compression of 16:1 on PSTN trunks.

The platform supports up to 18 T1/E1, 28 Analog voice, 8 Ethernet, 2 high speed serial and 2 Gig Ethernet ports. It has 2 I/O slots with front/rear card pairs that are both hot swappable as well as dual-redundant hot swappable power supply units. It supports both 110/250V AC or 48V DC power supplies that can be mixed in one unit.

"Carrier and satellite services companies stand to benefit greatly from Nx2222 functions, especially its disaster recovery and continuity of operations capabilities," said Graham King, president and chairman, NSGDatacom. "These companies are often scrambling to ensure business continuity in the event of a circuit failure. The Nx2222 offers a cost-effective solution capable of detecting a T1/E1 failure and automatically re-routing traffic to a designated backup link over an IP connection. SM

NEW PRODUCTS

Integrating VSATs and Wi-Fi Technology

by Bernardo Schneiderman

Many cities are developing wireless internet networks or WIFI to be able to provide wireless internet for its citizens and at the same time make their cities more attractive to visitors and business. Municipal wireless internet networks are now a reality even among developing countries.

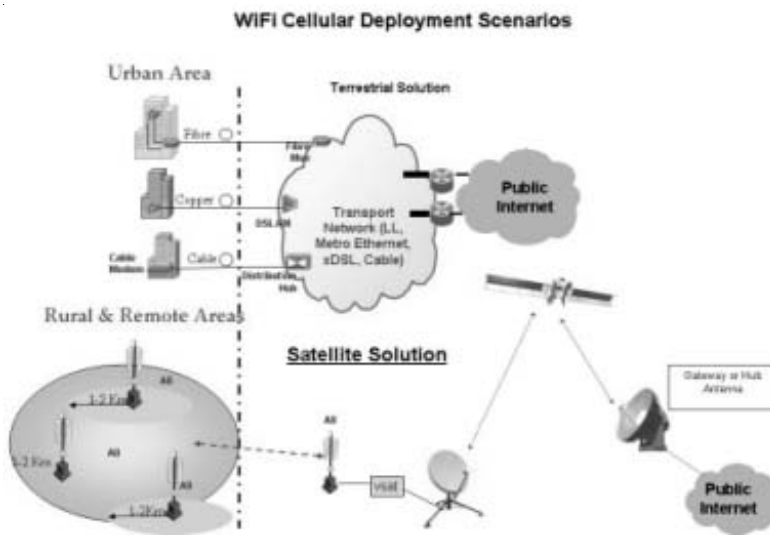
Remote and isolates cities, villages and islands around the globe are no longer isolated from the rest of the digital world. The satellite industry is very active in bridging the digital divide with VSAT technology from several main providers like Comtech EF Data, Gilat, Hughes Network Systems, iDirect, Viasat and others are using the star topology and mesh network with a mix of IP Dynamic and DAMA IP that provide bandwidth on demand for IP applications.

Integration VSAT and WIFI

The VSAT industry during the last 2 years are bringing a variety of options for cities and municipalities implementing WIFI solution using VSAT antennas that go from Fix, flyaway, Back Pack, Trailer and Mobile . At the same time the VSAT equipment vendors are bringing solution that fit any application in the remote areas with low end (256 Kbps upstream/ 1 Mbps downstream) to high End solution (10 Mbps upstream / 40 Mbps downstream) that could be integrated with Solar Panel.

City-wide Applications Enabled by City-wide WiFi

The design of the city-wide wireless broadband network to support real-time multimedia applications such as voice, streaming video, network gaming and Internet surfing for both static and mobile users is another main trends in the Global Village in Metropolitan and Remote and Rural areas. The development of client devices drives the need for a city-wide wireless network. WiFi built-in chipset becomes a standard for laptops. There will be more mobile phones coming out in the market with WiFi mode. Smart phones and Blackberry devices provide push email service through WiFi. And the portable multimedia players all come with WiFi capabilities.



The primary purpose of WiFi is for WLAN coverage with a typical line-of-sight radius of 100m which implies large number of WiFi access points is required for large area coverage. In urban or dense populated area, the WiFi coverage is spotty due to the low penetration power of WiFi signal so it is hard to achieve ubiquitous coverage. Moreover, WiFi is conventionally used to support data applications for static users, it can be challenging if it is used to support multimedia applications in moving speed with the presence of delay-sensitive traffic, and in particular the packet latency can vary largely in the air interface.

One key development in the WIFI market was launched in the market at the end of 2006 by ALTAI Technologies. The cellular architecture developed by ALTAI Technologies system is similar to a 3-layer cellular network. The A8 WIFI Cellular smart base station provides large area coverage (up to 1-2 Km in open areas or up to 500 meter in major urban cities) with wireless backhaul connecting back to the hub site where the A0 wireless bridge is used for point-to-point or point-to-multipoint connection.

Digital access in remote and village/rural areas is becoming a reality with the integration of the VSAT industry and new WIFI technologies as the one supplied by ALTAI a seamless integration with satellite IP bringing wireless solutions. SM

Bernardo Schneiderman can be reached at bernardo@tbc-telematics.com

COVER STORY

The Future of Broadcasting

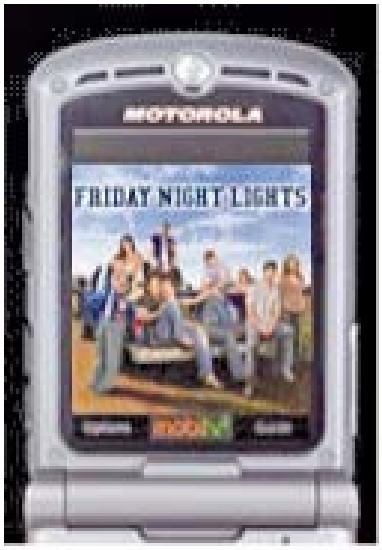
by Howard Greenfield

"We [now] have more flexibility to scale internationally, we have a solution in place that protects our proprietary technology while keeping our partners' content secure."

— Kay Johansson, MobiTV CTO on MobiTV's new satellite mobile video delivery solution

Considering the explosion of technical capabilities and hybrid broadband models that are emerging, no one can foresee exactly what the future of broadcasting holds. But what's clear is that times are changing. A tsunami of content and demand for ever-increasing bandwidth is building to a crescendo with the proliferation of HD, broadband media, and new wireless mobile applications. From the small to the sky high, the broadcast and satellite industries continue to reinvent themselves each month. A case in point is MobiTV's recent selection of satellite provider GlobeCast to centralize and secure the content management of their channel ingestion, signal encoding, and through-put over teleport, satellite, and global fiber ring infrastructure.

For a long time, industry thought leaders have waxed poetic about the promise and pay off ahead. We have been headed into a golden age of communications according to global chiefs like Rupert Murdoch. We are now seeing that industry momentum in the form of a new technology wave propelling opportunities where "content is still king – but distribution is key" according to NAB CEO David Rehr, adding that this is exactly "why broadcasters must move quickly to increase the number of distribution channels and platforms for our content."



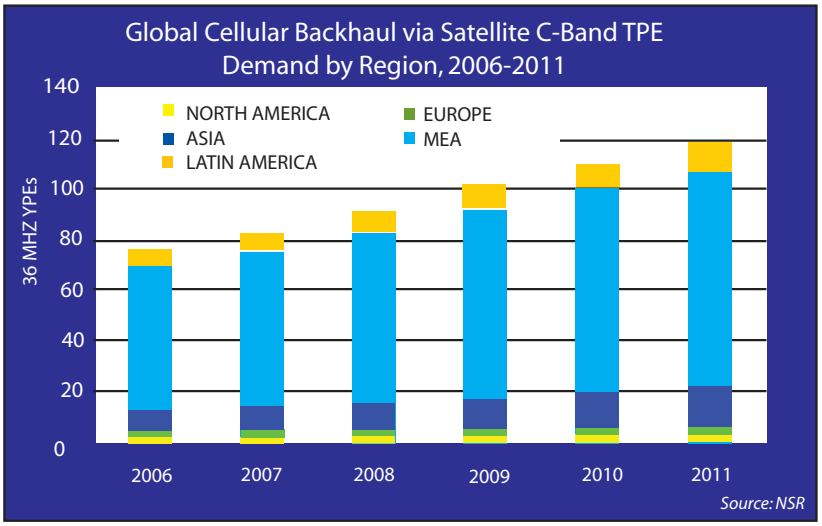
Companies such as MobiTV aims to provide real-tme TV programming to cellphones and using satellite services providers such as GlobeCast to deliver their content (photo courtesy of MobiTV)

SES Global has teamed up with former competitor Eutelsat in a venture aimed at creating a new mobile-video-broadcast-over-satellite offering. This move will foster "the development of new, innovative satellite-delivered mobile broadcast services" according to Romain Bausch, President and CEO of SES GLOBAL who believes that Satellite is the key in providing "unique and highly efficient coverage and the joint investment will therefore increase choice and convenience for consumers, content providers and service providers". Bausch sees the mobile play as a critical industry development focus that will benefit from the cost-effective pooling of resources with former adversary Eutelsat.

"It's difficult to imagine any kind of scenario where more bandwidth is not greatly valued" says Carmel Group analyst Jimmy Schaeffler who likens the situation to California real estate (you just can't have too much of it). "And it's just about as difficult for me to imagine where satellites do not continue to be a part of that" continues Schaeffler. "Look at EchoStar and DirecTV in the U.S. and SES Astra in Europe. And satellites' broadcasting capability (one to many), is especially relevant going forward."

In a new world increasingly driven by bandwidth and capacity, Satellite remains a vital pipe, and a needed alternative to terrestrial and fiber. Whether as a long-haul play or as a foundation for VSAT and smaller regional networks where Internet

COVER STORY



connectivity would otherwise not be cost-effective, Satellite hybrid networks and value added services fill the gaps of other network configurations.

It's also true, of course, that some see the down side to satellite networks that no longer prove a worthy investment as in the case of St. Louis-based financial services firm Edward Jones. Edward Jones' CIO Vinny Ferrari's has announced a $54M contract with AT&T this year to converge all their communications from hybrid to a consolidated IP network. However, on balance, consider all the current momentum indicators. Though the fate of a merged $13B Sirius and XM satellite radio duopoly remains uncertain as this article goes to press, it has been headline news all year because subscribership, impact, and technical model are strong. After many quarters of multi-billion dollar investment and incubation, it is reaching scale, and XM Satellite Radio recently announced it is being bundled with Windows Vista operating system.

A recent Satellite Monitor survey shows that 60 percent of Europe's digital homes (49 million) rely on satellites as their source of digital signals concluding that one third of European households are now digital. Satellite plays a key role in triple play voice, video, and data offerings as companies like Eagle Broadband and ANEW Broadband step up to IPTV delivery of hundreds of channels including a mix of standard definition and high-definition over set-top boxes. Another data point is the BBC which has just announced it will pull out the stops in marketing its "Freesat" service that allows consumers to watch DTH TV via satellite without subscription. According to BBC acting chairman Chitra Bharucha, the subscription-free satellite service provides another option when the public is deciding which platform to choose. And from its Randburg, South African headquarters, MultiChoice has also just announced it will begin uplinking 10 to 12 trial channels of "made for mobile" sports, entertainment, news, music to Intelsat's IS-902 satellite.

COVER STORY

ATT CTO Kris Rinne Speaks on New Media and the Cellular Phone Market

Kris Rinne is AT&T Senior Vice President or Architecture & Planning (formerly CTO of Cingular Wireless) with responsibilities for Product Development for AT&T products and services. She now plays a key role in wireless network infrastructure and device technology for new wireless products and services. Prior to joining Cingular, she was vice president-Technology Strategy for SBC Wireless, responsible for new product development and network operations support.

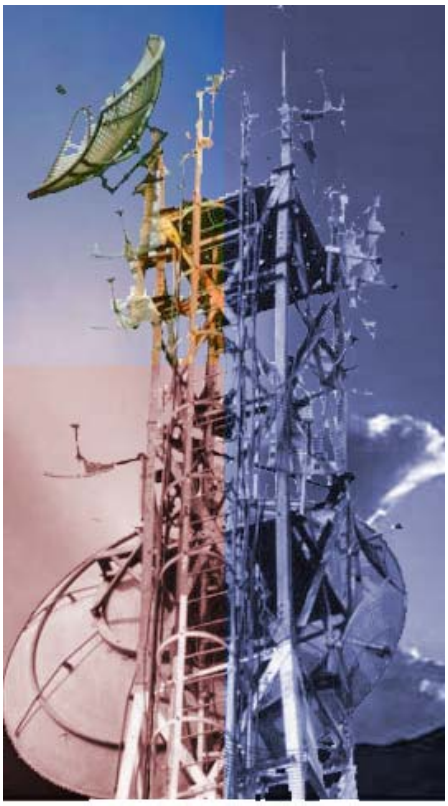
Excerpts that follow are from an interview hat took place on March 1, 2007, not long after the introduction of Apple, Inc.'s iPhone which will be offered exclusively over Cingular / AT&T service. Topics include the increasing alignment between Broadcast and Telecommunications as well as recent compelling network and device technology developments.

Greenfield: What's a telephone company doing in Broadcast, and why mobile broadcast at that?
Rinne:
As we looked at what could happen—at some of the different scenarios—we felt like broadcast was something we needed to have in our portfolio. We felt that there would be *some* content that hundreds of users would want to have access to simultaneously in specific geographic areas, and if so, broadcast is a much more efficient delivery than Unicast.

Greenfield: What was the technology decision?
Rinne:
We looked at DVB-H and MediaFlo and after technical analysis, we agreed that MediaFlo [subsidiary of Qualcomm] was the right choice for us in the near term to assure a timely market experience for delivery later in 2007 and yet still have some input and direction in terms of types of content which is delivered.

Greenfield: What are some of the challenges of the Wireless space?
Rinne:
In my view, wireless space is one of the most challenging because you've got a device with a small screen a limited processor in it that has to be mobile and has to have reasonable battery life…so, we've optimized to deliver in that environment …I just think it is a huge opportunity and thrilling in terms of what we can be capable of.

Greenfield: What is the future promise?
Rinne:
We introduced the ability for you to personalize so that you get to the sports scores that you want, or the weather for the city that you want, and you can set that up so that's the top of the menu and you can get there in two clicks instead of six.



Satellite's special niche has also become more popular in servicing global mobile telephony carriers (as a one recent industry article put it: "If You Can't Beat Them, Backhaul Them"). This is another example of satellite coming into its own as mobile means more than just voice, but media communications. More and more mobile phone users (2.5 billion users worldwide) around the world are driving a build-out of mobile telephony networks and nearly 90% of the Earth's population will be covered by mobile networks by 2010 according to Northern Sky Research.

"Cellular operators are looking at fast expansion plans and seek to extend their networks' reach using landlines, cable, fiber, microwave and satellite links to carry (or backhaul) voice and data" says Satellite Communications Analyst Claude Rousseau. "Satellite operators such as Intelsat, SES (New Skies, Astra),

COVER STORY

Shin Satellite and Eutelsat have a presence in this market but to grab market share must remain cost competitive" according to Rousseau. "Its relatively larger OPEX compared to terrestrial links is such that leased lines or microwave are the default backhaul traffic choice. NSR believes that recent end-to-end satellite backhaul solutions provide satellite an ever more cost-effective offering for mobile telephony backhaul. By increasing the number of megabits by megahertz of bandwidth, the future of cellular backhaul over satellite holds a promising growth potential in niche geographical markets such as the Middle East and Africa, Asia and Latin America."

3G, 3.5G and 4G services, WiFi and WIMAX networks also are promoting "more bandwidth-hungry applications such that backhaul services to end-users and to/from various networks will be significantly more stringent" according to Rousseau who foresees "Satellite as a key support infrastructure in backhauling media applications like digital video broadcast, mobile TV, mapping, positioning and navigation, and video-on-demand".

The future of broadcasting has been tossed up for grabs as myriad new digital IP technologies, services, and channels arrive on the scene. Moving forward, the key terms that define the future of the industry are *funding*, *technology*, and *innovation* believes Carmel Group's Jimmy Schaeffler, who adds that they can also be very challenging factors to successfully combine. "That said," says Schaeffler, "there will still be plenty of astounding developments, such as HughesNet's forthcoming Spaceway satellite launch, that will invigorate and infuse the space industry, over and over again. Overall, the future remains quite bright. It's hard not to be optimistic." SM

Howard Greenfield is a digital media industry strategist, columnist, and co-author of IPTV & Internet Video (2007). He is principal of Go Associates, a leading consultancy that develops and implements high-tech product marketing and global business development strategies. Howard has held senior management and consulting positions with Sun Microsystems, Informix Software, British Telecom, Apple Computer, and other world technology leaders. He is the creator and former manager of Sun's first Media Lab and is now a frequent contributor to industry publications. Howard completed his graduate studies at Stanford University. He may be reached at howard@go-associates.com.

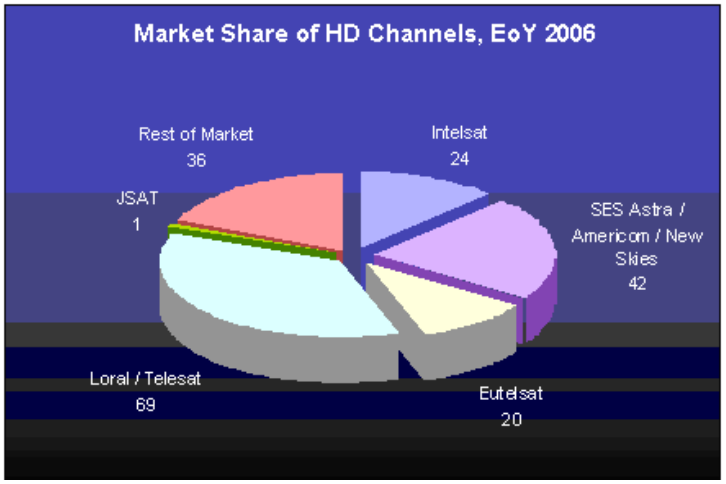
FEATURE

The Satellite Channel Wars

by Patrick French
Senior Analyst, NSR

One cannot help but notice recently that commercial satellite operators have been making an ever bigger deal about the number of video channels carried on their fleets. In January and February alone, Eutelsat issued a press release claiming the number of channels carried on its HOTBIRD neighborhood exceeded 1,000, while SES Astra countered that it had a "significant increase" in carriage of HD channels on its Astra fleet, plus added a few days later that over 2,000 channels are on its Astra and Sirius satellites. It sometimes appears that most press releases from satellite operators announce the carriage of yet another video channel or service. And it is well they should, as NSR estimates between 60% and 80% of the business for satellite operators in different regions around the world is for carriage of video programming for cable headends, analog and digital terrestrial television broadcasting, direct-to-home (DTH) services of all flavors, free-to-air broadcasting, and contribution/occasional use services.

This begs the question of just who carries the most channels on a global basis. Using end of year 2006 video channel data that is annually collected for NSR's *Global Assessment of Satellite Demand* study, NSR has been able to answer just this question for the world's top five satellite operators by revenues: Intelsat, SES Global (Astra/Americom/New Skies), Eutelsat, Loral Skynet/Telesat, and JSAT. NSR culled from its extensive database of video channels carried on all commercial satellites information on the number of standard definition (SD), high definition (HD), and analog channels carried on fully-owned satellites for each of these five commercial satellite operators and compared this data to all of the rest of the commercial satellite operators as a group. The information is for video channels broadcast on commercial C- and Ku-band capacity and excludes video channels carried on the dedicated DIRECTV and EchoStar fleets (though includes channels for EchoStar when they are broadcast on leased commercial capacity). The results are, needless to say, quite interesting.



By far, the most frequently carried video channels on commercial satellites in the world, 14,399 by NSR's count, are SD channels. As of the end of 2006, Intelsat could claim the largest share of SD channels broadcast on its commercial fleet with NSR allocating 3,301 SD channels to the operator, or 22.9% of the global total. Intelsat's lead in this category of video channel carriage should come as no surprise given the size of its fleet and the strong video heritage that came with its acquisition of PanAmSat.

Eutelsat comes in second with 2,460 SD channels (17.1%) followed by SES Astra/Americom/New Skies with 2,236 SD channels (15.5%). Loral Skynet / Telesat and JSAT take the fourth and fifth place positions with 1,040 (7.2%) and 364 (2.5%) SD channels, respectively.

Of late, the commercial satellite industry has been fixated on the emergence of HD TV. And this segment is no doubt of great importance as HD channels help cement the value of key video neighborhoods for each satellite operator and certainly aid on the capacity leasing side of the equation. Yet, NSR's data also puts HD channels in perspective compared to the overall SD market when one realizes that there were only 192 HD channels relayed globally as of the end of 2006 on commercial satellites (excluding HD channels on the dedicated satellites of the DIRECTV and EchoStar fleets as noted above).

On the HD front, it is actually Loral Skynet/Telesat in the lead position with 69 HD channels, or 35.9% of the market

FEATURES

total. This satellite operator's first place ranking is directly linked to its carriage of HD content for Canadian DTH service providers Star Choice and Bell ExpressVu with a good number of the HD channels actually being local Canadian channels broadcast to the DTH subscribers in HD format (mainly the primetime lineups).

SES Astra/Americom/New Skies is second with 42 HD channels (21.9%) as of the end of 2006. The large majority of these HD channels are from major broadcasters (e.g. National Geographic, ProSieben, Discovery, TF1), though a few are promotional content. Intelsat comes in third with 24 HD channels (12.5%) primarily for its U.S. cable headend neighborhoods, and Eutelsat had another 20 HD channels (10.4%) mainly on its HOTBIRD fleet. JSAT trailed the rest with only 1 HD channel carried on its fleet as of the end of 2006.

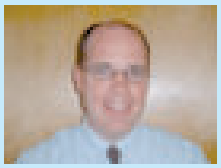
Lest one forget, there remains a considerable market for carriage of analog video channels with the majority of these channels concentrated in the U.S., Europe, and Brazil. SES Astra/Americom/New Skies carried about twice as many analog channels, or 61 (36.5%), as any other satellite operator in the world as of the end of 2006. Many of these analog channels were either for the German or U.S. markets served by Astra and Americom, respectively. Intelsat also broadcast a considerable number of analog channels, 30 as of the end of 2006 or 18.0% of the global total, primarily for U.S. cable headends and distribution for the major American networks. Eutelsat only carried 11 analog channels (6.6%) for the end of 2006, Loral Skynet/Telesat had 3 analog channels (1.8%), and JSAT had none.

Putting all SD, HD and analog

FEATURES

video content together, NSR found that Intelsat carried the largest percentage of the world's video content at 22.7%, followed by Eutelsat with 16.9%. SES Astra/Americom/New Skies took 15.8%, and if one includes SES Sirius, then the share climbs to 17.4%. Loral Skynet/ Telesat took 7.5% of all channels, and JSAT rounded out the top five with a 2.5% share.

While often passed over as the satellite industry jumps on the latest "hot" application such as cellular backhaul, managed networking services or disaster response, the simple fact is that when it comes to pure capacity leasing (and pure profits), video services form the bedrock market of the commercial satellite industry. A segment in which it can be confidently said satellite is simply the best technology when it comes to delivery of video channels to millions of TV households, growth in carriage of video content is vital for satellite operator success; therefore, tracking who is carrying what is a fair measure of an operator's standing in the overall marketplace. True, video is not the only commercial satellite market and many satellite operators profit handsomely in, for example, providing networking services or selling into segments like the government market. Nonetheless, it is probably also true that without the foundation of demand provided by video, many of these other markets segments would simply not exist because the capital investment in satellites to address these other markets alone could not be justified for the returns they generate in and of themselves. In many ways, video makes it all possible. SM



Patrick M. French is Regional Director, Europe & Senior Analyst, NSR LLC. He can be reached at pfrench@nsr.com
Information for this article was extracted from an NSR report entitled **Global Assessment of Satellite Demand, 3rd Edition.** Complete information can be found at www.nsr.com

FEATURE

Exploring the Fixed Satellite Service Market

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

The geostationary orbit continues to be home to nearly 250 communications satellites representing a substantial investment by satellite operators. The leading commercial companies that offer Fixed Satellite Service (FSS) capacity enjoy a solid business that yields good profits and even growth.

General Climate

The FSS satellite business has been marked by stability and profitability due to steadily-increasing demand for a broad range of applications. Mergers and joint ventures among FSS operators in recent years have produced a rational environment for the sale and application of capacity at C and Ku bands. North America, in particular, provides a very solid base for Intelsat, SES Americom, Telesat and Loral Skynet. In Europe, SES Astra and Eutelsat dominate and deliver what has become the primary vehicle for television distribution.

A region of strong growth is Africa, where satellite transmission is fundamental to the extension of basic voice, radio and video outside of major capitol cities. Asia has long relied on GEO satellites to fill the void in basic telecommunications infrastructure. The region still suffers from an oversupply of satellite capacity, which is an opportunity for those who can exploit these resources and employ related technologies now available on the world market. There are even new operators appearing who have taken over assets that were languishing. Asia Broadcast Satellite (ABS), is a newly formed satellite operator that acquired the LMI-1 satellite positioned at 75 Degrees East. The LMI-1 satellite, a high-powered Lockheed Martin A2100AX spacecraft, covers four continents and over 4 billion people from Europe, Asia, the Middle East, Africa and Australia. Tom Choi, CEO of ABS, says the company will acquire a second satellite to further expand their service offerings. Protostar is a startup that will initially offer trans-Asia services using what was formerly known as ChinaSat 8. Phil Father, President and CEO of ProtoStar, announced at Satellite 2007 that Protostar 1 will be launched by Arianespace during the first half of 2008.

Anticipated Continental United States (CONUS) coverage and EIRP of the Horizons 2 satellite at 74 degrees West Longitude (courtesy of JSAT International Inc.)

While 50% of all GEO FSS capacity is owned by only five companies, there remains a fairly vibrant market for national operators who focus on their domestic needs. Satellites have been launched for many nations, including China, Indonesia, India, Argentina, Brazil, Egypt, Philippines, Singapore, and others. More recently, Thai FSS operator Thaicom became a major player in Asia-Pacific by launching an end-to-end satellite service called IP-Star. This uses a combination of Ku and Ka-bands, along with low-cost VSATs, to provide broadband access through partnerships with other providers. Having created its own satellite and launch industry, Chinese manufacturers have been aggressively pursuing the international market. Venezuela and Nigeria have taken up Chinese companies on their offer to provide domestic satellites. The long term prospects for national satellite operators are somewhat uncertain as the

FEATURES

On the right is the WildBlue-1 satellite at the Space Systems/ Loral sassembly facility in Palo Alto, California where it underwent final inspection before being shipped to the launch site in Kourou, French Guiana. At left is an artist conception of the satellite in orbit. (Photos: courtesy of Sergio Maraschin, Space Systems/Loral)

respective markets may or may not sustain such investments. On the other hand, these companies typically have strong national and regional loyalties, which is attractive in the event of mergers among these and the larger operators.

Addressing Challenges

A handful of satellite failures and anomalies have forced major users to incorporate backup systems and capacity into their architectures. Overall, service reliability has been held above the 99% level, with some satellites achieving effectively 100%.

Getting new GEO satellites into orbit has been complicated by changes and events that affect the provision of launch services. Recently, Lockheed Martin sold off its interest in International Launch Services (ILS), a successful international joint venture that offered the Proton and Atlas rockets. Many satellites have been placed in orbit by this innovative organization from places not thought likely as commercial facilities. ILS is now privately owned and continues to serve the market. With regard to another successful international effort, Boeing SeaLaunch has begun to offer launches from Baikanur, Kazakhstan; SeaLaunch is recovering from the damage caused by a Zenit rocket failure on its heretofore highly successful Pacific Ocean floating platform. Arianespace, as a result, is enjoying a boost in its business, having resolved basic issues with its heavy lifting Ariane 5 rocket.

Ku band is King

The first Ku band satellites were launched in the late 1970s and early 1980s but didn't draw substantial business for many years. SBS 1, first operational in 1981, was limited to private network telecom services for major corporations (a business that failed, to be replaced by satellite news gathering and the first VSATs) and Satcom K helped NBC establish a nation-wide video distribution presence. Otherwise, C-band was the primary means of contributing and distributing TV for cable TV and most TV networks, namely CBS, ABC, PBS, HBO, Turner, and others. When Fox started up, they immediately chose the proven means of C band.

Direct-to-user services were a different story. By 1990, it was a *fait accompli* that Ku-band could directly-broadcast TV signals and provide voice and data services with adequate - if not carrier-grade - reliability. Today, Ku-band is the paramount earner among satellite assets; according to SatNews Daily, DBS' penetration into cable's market continues, currently reaching a 29% market share.

New Ku-band FSS satellites are under construction that will both increase in-orbit capacity and allow new services to be extended across a wider footprint. For example, a joint venture between Intelsat and JSAT International, the US subsidiary of leading Asian satellite operator JSAT, will soon launch Horizons 2 into 74 degrees West Longitude. This new GEO satellite from Orbital Sciences replaces the venerable SBS-6 that is well past its original mission life. Services on Horizons 2 will

FEATURES

include traditional SNG and video backhaul as well as VSAT data communications. Two unique features will give Horizons 2 greater extension into specialized markets within national defense and disaster recovery. In addition to the standard 36 MHz transponders, Horizons 2 also contains 72 MHz transponders that facilitate very high data rate information exchange and broadcast. The footprint of Horizons 2 covers Continental United States (CONUS); in addition, it has the ability to focus a beam on the eastern seaboard.

Due to the greater demand for Ku-band capacity in the US, Intelsat and JSAT International have agreed to accelerate the launch schedule and make Horizons 2 available for service in the later part of this year. Already in orbit at 127 degrees West Longitude and operating at peak performance and capacity is Horizons 1, the first satellite of this cooperative venture. Another development is the entry of Echostar, operator of the Dish Network, into the Ku-band FSS market in the US. In general, demand for Ku-band services continues to grow throughout North America and Europe on satellites operated by Intelsat, SES and Eutelsat. Applications in FSS keep evolving; broadband is the baseline, with more usage for HDTV broadcasting, SNG, remote access, disaster recovery and military applications, and enterprise content distribution.

In terms of Ku-band innovation, Tom Navasero, Executive Chairman of International Mobile Broadcasting (Singapore), is proposing to offer mobile TV to handheld S-band receivers throughout a broad Asian footprint. Rather than actually delivering the signal from an S-band satellite, IMB would use existing Ku-band satellite capacity to distribute the TV signals to head-end terminals that employ S-band rebroadcast transmitters. The current relative oversupply of satellite capacity in Asia allows entrepreneurs like Tom to offer services without major investment in space.

C band for Global Reach and High Availability

The majority of satellites are still C-band and their coverage is truly global in nature. Because the first commercial GEO satellites operated at C-band, there are many legacy systems in place that continue to deliver value for operators and users. This foundation assures that much of the C-band capacity in orbit will stay occupied. On the other hand, the inherent benefits of C-band relative to Ku- and Ka-bands will give this medium a strong future.

Among these benefits are the fact that C-band links are nearly impervious to rain attenuation and the resulting fading that impacts quality of service. This is of concern to applications that demand high reliability, such as cellular backhaul and TV distribution to local TV stations and cable systems. New applications that require high quality of service include broadband data transfer in energy development and production, manufacturing, national defense, and health care.

The other strong suit for C-band is the global coverage that comes from having so many satellites positioned throughout the geostationary orbit. Intelsat continues to dominate this field as its satellites are centered on the three ocean regions and offer broad footprints. Remote Pacific islands as well as developing countries of South America and Central Asia depend on C-band capacity to overcome a wide variety of obstacles. The larger dish required for C-band as well as spectrum sharing with terrestrial microwave are not of great concern to these customers.

Ka-Band applications such as WildBlue's broadband service in the US is gaining success. (WildBlue photo)

New Space Segment at Ka-band

Occupying the far end of the radio spectrum, Ka-band satellites are still relatively nascent as to their application in the commercial marketplace. The technology was developed 30 years ago in Japan, Italy and the US; however, commercial usage lagged somewhat. The Iridium LEO voice system was the first to exploit Ka-band commercially, although its use was limited to inter-satellite connectivity and links to the gateway earth stations. In Japan, NTT developed a Ka-band system for broadband connections between cities and remote islands. But domestic satellite services evolved in Japan primarily through Ku-band, which was applied successfully to the SkyPerfect DBS service. Recently, SkyPerfect and JSAT merged to form a single company, SkyPerfectJSAT.

Direct-to-user applications at Ka-band are growing in the US as a result of WildBlue producing a viable consumer broadband service. Now with their own satellite manufactured by Space Systems/Loral, WildBlue can aggressively compete with existing Ku-band provid-

FEATURES

ers and may take a bite out of land-based fixed line and wireless broadband offerings. Hughes Communications (formerly known as HNS) will launch a new Spaceway Ka-band satellite that will ratchet up broadband service capabilities, making VSATs even more attractive to enterprise and government customers.

Promising FSS Future

The glitter is not off the FSS rose. In fact, the investment community is again following the FSS business and major operators are finding that they can obtain the financing they need. The fact that there are two new operators in Asia who financed their satellite acquisitions testifies to the confidence in the future of basic satellite infrastructure in years to come. Furthermore, spacecraft manufacturers are enjoying an upswing in orders from existing operators even during a period when other telecom and wireless investment is stagnant. The more recent surge in new wireless capabilities and introduction of fiber-to-the-home have not significantly dulled the luster of satellite communications. SM

Bruce Elbert has over 30 years of experience in satellite communications and is the President of Application Technology Strategy, Inc., which assists satellite operators, network providers and users in the public and private sectors. He is an author and educator in these fields, having produced seven titles and conducted technical and business training around the world. During 25 years with Hughes Electronics, he directed major technical projects and led business activities in the U.S. and overseas. He is the author of The Satellite Communication Applications Handbook, second edition (Artech House, 2004).
Web site: www.applicationstrategy.com
Email: bruce@applicationstrategy.com

REGIONAL UPDATES

High-Jinks over the Middle East

By Chris Forrester

A couple of issues ago we looked at the Middle East, looking at the many challenges that face the region, not least the very real commercial battle being fought in the air between pay-TV broadcasters and free-to-air channels. We talked about NileSat carrying more than 370 channels, and rival Arabsat being almost as busy.

Indeed, this piece very much focuses on Arabsat, and a new entrant into the region that's managed to seriously upset both the local established players. Our interviews were made during March at the all-important Dubai Cable & Satellite Show, where a year ago the faces on the Arabsat stand were far from smiling.

The trouble then was that Arabsat had just a few hours before lost their beloved – and much needed - ArabSat 4A satellite (on March 1, 2006) and some members of the team found it hard to believe what had actually happened. So much effort, so much planning, so much disappointment, all – seemingly - for nothing.

This year's faces were all smiling. Badr 4, an EADS-Astrium craft, was launched flawlessly last November by ILS on a Proton-Breeze M rocket, and is working well, in a market hungry for its capacity. Part of the reason for that very hunger was the failure of NSS-8 earlier this year. A senior Arabsat source told us that never would they welcome anybody suffering a satellite loss. "For some years now some operators have dumped capacity in this region at very low prices. However, prices are now definitely changing their orientation. They are rising, and losing NSS-8 has pushed prices higher. It is a fact of life. Nobody wants to lose a satellite, believe me we know this. But despite the obvious loss the end result will be increased premiums, pressure on the launch sector and so on. It is never a good thing, but the end result is that prices are skyrocketing on C-Band over Africa. Africa is a hot territory now, especially in C-Band and next year's Badr-6 will have improved C-Band coverage over Africa, and to cover as far East as Pakistan as well as covering about 80% of the African continent."

Dubai Media City, responsible for the local TV boom

"The Arabsat road map is clear. Four new satellites are on the way, one next year. Three are under final RFP now. These satellites will help us expand South and East, from 30.5 deg East, 26 degrees and 20 degrees East."

Part of Arabsat's further buoyancy is the knowledge Arabsat 4A is being replaced on a fast-track build programme (and will be dubbed Badr-6), and to all intents and purposes it is Arabsat 4A-R, with a few minor tweaks to reflect market changes. "Demand is as strong as ever, and while the news as such is that broadcast remains strong, anything related to pure telecoms is simply booming," said our source.

But then, almost like vehicles rolling off a production line, will start appearing Arabsat's next-generation craft. "Our fifth-generation craft, now under final design prior to ordering, will

REGIONAL UPDATES

see at least one and possibly two of the three satellite equipped with comprehensive African coverage in C-Band, and with high-power. The demand is there, and it is growing. There is a major concern for us over WiMax interference terrestrially, and we know the ITU and others are working on this."

"The Arabsat road map is thus clear," he added. "Four new satellites are on the way, one next year. Three are under final RFP. These satellites will help us expand South and East, from 30.5 deg East, 26 degrees and 20 degrees East. Essentially the expansion will be on C-Band and with some Ku. By doing this we are counting on our own efforts, concentrating on our own resources, but you can assume a few announcements with other regional entities in teaming up with us. A number of regional people realise that operating a single satellite isn't sensible, or a long-term option. We have those skills, and perhaps it is smarter for these other operators to team up with us because we do not pose a threat. Perhaps we can reach a deal between private operators."

We were told that Arabsat is working in ever-increasing concentric circles. "The first circle is our own immediate region, and getting the best out of our existing assets, optimising that which we have by means of frequencies and positions. The next concentric circle, perhaps over the next 5 years, where we might expand in the same direction, and certainly towards the East where we have a natural demand from the Muslim world. This does not mean we would want to go after our own slots and put our satellites in place. Better, we think, to team up with people who do have those assets. But at the moment we are concentrating on the first circle. We

REGIONAL UPDATES

"Bitter" satellite squabble looming

For the past year or so Arabsat had rented a Eutelsat satellite (Eurobird 2) as a gap-filler while its new fleet is delivered to 26 deg East. The rental contract came to an end at the beginning of March, but the Eutelsat craft remains more or less on station, and for the past 12 months Eutelsat has been marketing capacity from this satellite, much to Arabsat's chagrin.

This fresh capacity is being sold by a "virtual" satellite operator, Noorsat (backed in part by the Saudi Arabia-based Mawared Group, which also owns the Orbit pay-TV bouquet). Noorsat has been cheekily telling anyone who would listen that they're operating from 25.8 deg E. A well-informed source says that since March 5 Eutelsat has contractually not been allowed to operate from 25.8 deg East, "and they have been told to move". We understand that lawyers are now on the case. "They have publicly advertised that they're operating at 25.8 degrees and this simply isn't the case," said one source from Dubai.

Paris-based Eutelsat say they have a right to occupy 25.5 deg, which Arabsat strongly denies: "Eutelsat's argument is that they have a right to occupy 25.5 deg on a non-interference basis. We absolutely deny that because the only Eutelsat filing they have for 25.5, which is now a very old filing, is for a totally different generation of satellites and it was with a beam that looked over Central and Eastern Europe, and not even touching our [Middle East] area. They have been told that we have no objection to their being at 25.5 deg East, provided they tilt the craft or adjust the beams to where they should be. This is now the battleground, and I think it will end bitterly, because they are very stubborn but so are we and this is our everyday business that they are taking."

Eutelsat responded by stating they are fully compliant in regard to 25.5 deg East, and that they have complete priority over their footprint. "In terms of frequency coordination the situation is very simple. EuroBird 2 is positioned at 25.5 deg East, and we wholly comply with the ITU's regulatory environment. We have priority in Europe and in all the other regions currently served by the satellite, and this includes Europe, the Middle East and North Africa. We carried out these same duties at Arabsat's request at 25.8 deg. We were compliant then, and we are completely compliant now. The footprint is no secret."

have numerous other filings, but as you know the ITU roles are complex, not only as to where you stand in a filing queue but how the power levels, beam targets and so forth are used."

Part of the local expansion opportunity comes from high-definition, and Arabsat's first signing a luxury goods shopping channel Luxe.TV on air since March, and looking sparkling in HD. "Our strategy is simple and pragmatic. Most of our customers recognise that HDTV is going to be the next big thing, and they are preparing for it. Most of them, certainly in the free-to-air transmission space, cannot see where their return on investment will initially come from. We at Arabsat see our role as stimulating demand wherever possible.

Omar Shoter, CEO of Noorsat

There is no incentive to go high-def if there's no audience, and screen and set-top box manufacturers rightly say there's no programming so why should we bother supporting the concept? We are trapped in between, and are prepared to play our part, because someone has to start."

Arabsat last November proposed to its fellow Arab States Broadcasting Union (ASBU) members, and a few other interested parties, to create a local equivalent to Europe's pioneering Euro1080 high-def channel, and start a promotional channel, called ArabHD. "This brings together these players under ASBU's chairmanship, and we will supply a couple of transponders free of charge for these demonstrations and to

REGIONAL UPDATES

seed the market. This will put HD programming on the satellite to show off the technology. This is now under discussion, and the first channel starts today (Luxe-TV), and others will follow."

Arabsat is also working with the rest of the ASBU group, and TV set and box-makers to put HDTV receivers and equipment into the market at sensible prices, "and encouraging the other major broadcasting groups, perhaps the likes of Rotana, or MBC, or Al Jazeera, to put HD material onto the satellite. The pay-TV broadcasters obviously have their own HD agendas, but we also have to supply the free-to-air market. Pay-TV will not drive this market, but if we can get these channels up, and then the retail chains start demonstrations in the corner of their showrooms then I would not be surprised for a rapid take-up which will encourage the major broadcasters, and suddenly it becomes a virtuous circle. This is our strategy, and ASBU is supporting our initiative. It is a medium-term objective, but with Badr-6 on station in 2008 we'll have enough capacity to support high-def."

Arabsat wants to position itself from last year's near-famine of capacity to next year's adequacy, and from 2009 on a surplus of regional capacity allowing it to tap into new markets. "Our focus for the time being is to generate in-orbit back-up. We have suffered in the past from the lack of back-up, and this is our absolute priority, to have 'hot' in-orbit redundancy. Our goal then is to become the HDTV hot spot for the region, and to offer full back-up across the fleet."

Noorsat: New kid on the block

Noorsat, with offices in Bahrain and Amman, started transmissions exactly one year ago, as a 'virtual' satellite operator. It uses leased capacity from Eutelsat, and currently operates three satellites near either Arabsat's 'hot' position or Nilesat's similarly 'hot' spot, serving the Middle East.

The former deputy director general of Arabsat, Omar Shoter, runs Noorsat. "As an operation we started on March 5 2006, we are just one year old. Eighteen months ago I predicted total revenues would be in the region of $20m within a year of start-up. At that time we had just 5 transponders, all of which had been pre-sold. In July last year we added another 4 transponders and on March 5th we added the final 4 transponders under this contract. The EuroBird 2 satellite, which we fly as Noorsat 1 is now all ours, with 13 transponders. We predicted $20m in revenues and we are beyond that."

Shoter says of the first batch of 9 transponders that Noorsat 1 was able to market, 8 are sold. "The new capacity, which only came to us on March 5, some 60% of it is pre-sold. We have added to our virtual fleet with another two satellites, one is shared with NileSat at 7 deg West where demand is extremely high. In reality we can barely keep up with demand, and we have to increase our ground facilities. But we have created a new platform for Europe, targeting Arab audiences in Europe with Noorsat 3. It's carrying Arabic programming. It is a fact that that some of the important hot spots over Europe don't necessarily want Arabic programming, so we have brought together a nice variety of family-orientated programming that's safe to watch. This is already successful and is working well, and to a much wider audience than we initially anticipated, even reaching Iran in the East. Even though it is 1 deg away from Nilesat it is to all intents co-located and many

REGIONAL UPDATES

Noorsat's virtual fleet

Noorsat 1 (Eurobird 2) at 25.6 deg East (co-located with ArabSat)	10.95-11.20 11.55-11.70
Noorsat 2 (Atlantic Bird 4) at 7 deg West (co-located with NileSat)	10.70-10.95
Noorsat 3 (Atlantic Bird 2) at 8 deg West	10.95-11.70 12.50-12.75

people in some locations can receive both satellites with the same dish."

Noorsat 3, between encrypted and free-to-air channels, carries about 60 channels, and this will rise to about 70 by April, the backbone of which is Orbit's pay-TV platform for its European audience. Orbit's main bouquet operates from Noorsat 1.

Shoter: "HD has been publicly announced by Orbit, and we will be the first satellite operator to carry a pay-TV platform in HD over the Middle East. And offering real HD material and not just a demonstration," added Shoter, referring to last week's announcement that ArabSat is already carrying Luxe.TV in high-def. "We have ample capacity for Orbit. They will start with one, and quickly grow."

Noorsat is also looking ahead confidently: "By our second birthday, one year from today, I hope we will have filled all of our contracted capacity and serving Arab media. We especially want to cater for the smaller broadcaster, who perhaps do not have the high budgets needed for mainstream activity. This year will also see us move into other services, including satellite-based Internet services."

Shoter says his virtual satellite operation is not so strange. "Think of the many, many satellite operators over the years who have leased capacity at one time or another. This model allowed us to cut costs, acquiring a virtual fleet without all the risks of launch. The model is working, and providing low-cost capacity for our customers. Why would we want to change this model?"

Samacom, the teleport at Dubai

"We would like to be recognised as the region's third satellite operator. We are not initiating any price wars, and have a good relationship with satellite service providers. We are dealing with these third parties as well as directly with public and private satellite broadcasters. We hope in the future that people will look at us as a one-stop shop for them, including SD, HD and internet by satellite." SM

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

CASE STUDY

Tools to Deliver Interference-free HD Content

by Bob Potter

Traditionally, broadcasters, with one carrier per transponder have had very limited use for a traditional communications system monitor (CSM) system, or carrier management system. A wall of TV screens was sufficient to tell the broadcasters that the signal quality was acceptable or not. The advent of localized programming with multi beam satellites and digital HD TV requires tools that offer a little more sophistication. However MCPC carriers still allow broadcasters to use one carrier per transponder, and the belief that this makes them immune to interference. More than once I have heard "we do not have interference on our satellites".

As services have moved into the digital age so has the traditional CSM system, and it should now be more properly viewed as an interference detection and analysis tool.

Most geostationary broadcast satellites experience some kind of interference from time to time. The impact on the operators bottom line can be linked to how quickly the interference can be detected and removed (customer satisfaction), or avoided which in turn can be directly associated with the investment in state of the art tools for interference detection, analysis and location. It may be that initially the interference is not sufficient to significantly degrade the picture quality, however understanding that the interference is present and needs to be removed before it does become a problem to picture quality will only become more essential as TV content moves to high definition formats.

With the advent of new digital technology it is now possible to quickly detect and analyze interference anywhere in

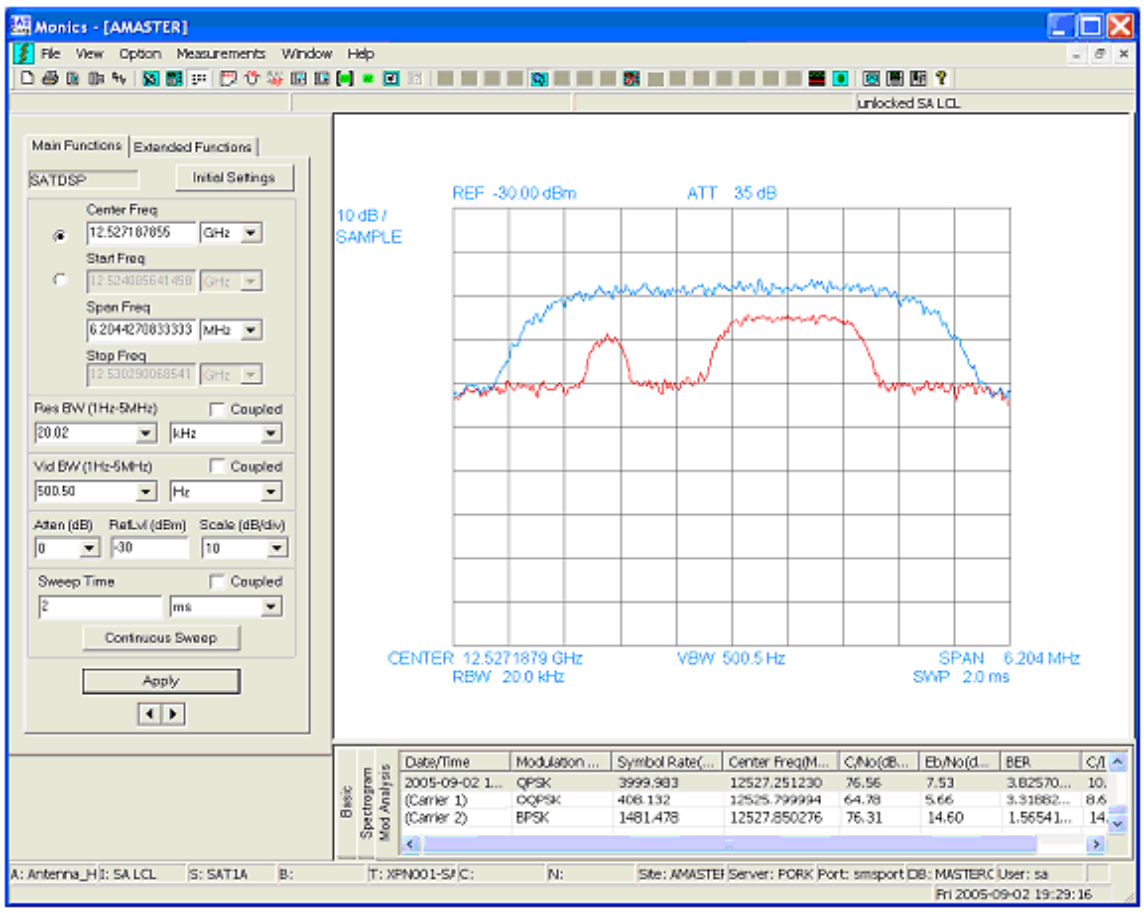


Figure 1 Analysis of Multiple Interferers

CASE STUDY

the transponder, even within the bandwidth of an MCPC carrier without having to drop the main carrier from service. Once the interference is detected and analyzed, various tools can be brought to bear to assist with quickly removing the interference form the satellite, causing minimal impact upon customer services. For example, SIURG organization determined that >90% of all interference is accidental and caused by carriers known to the satellite operator. Thus, by "fingerprinting" the interfering system characteristics and mining the satellite operators own carrier database, you can quickly resolve over 90% of all interference problems.

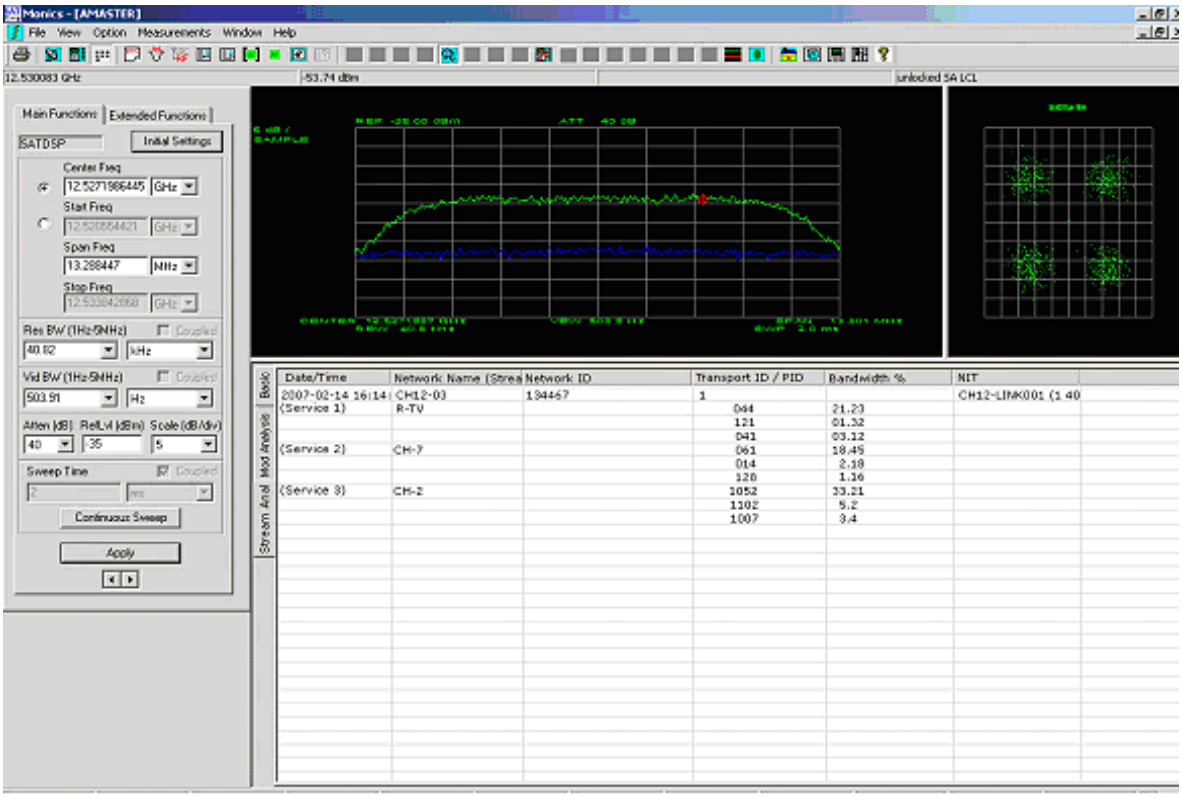


Figure 2 Analysis of Carrier and Streams

Modern CSM systems using fourth generation digital spectrum analyzers (DSA), capable of time domain measurements that allows for interference detection and analysis, including fingerprinting of interfering carriers (even ones underneath existing carriers), as well as providing the familiar look, feel and measurement capability of the traditional spectrum analyzer. Products with these advanced capabilities are currently only available from companies like SAT Corp, and their MONICS® family of products which includes SAT-DSA™, are now available which provides greater instantaneous bandwidth and instantaneous dynamic range than any other product on the market today. When combined with the latest cost effective powerful computers and Digital Signal Processing (DSP) algorithms, they provide fast spectrum measurements as well as time domain measurements.

MONICS®/SAT-DSA™ automatically recognize and measure modulation formats, recognize all carrier types in use on FSS and BSS satellites including DVB-S2 format such as 16 & 32 APSK, but also symbol or bit rate, C/No, C/I, Eb/No and FEC (supporting DVB-S and DVB-S2). In addition, using the SAT proprietary "carrier under carrier"™ analysis capability, you now have these same capabilities for detecting and recognizing (i.e. fingerprinting) interfering carriers that sit under the primary carriers.

This is achieved by digitally removing the main carrier to reveal, and the noise and interference across the entire bandwidth under the carrier, essential for one carrier per transponder operations.

MONICS® unique carrier under carrier™ display coupled with modulation analysis measurements means that it can automatically detect if interference is present within the bandwidth of an authorized carrier and analyze the interference.

Once it is known that interference exists Monics® automatically performs analysis on the interfering signal, even if it is within the bandwidth of an authorized carrier and produce modulation type, symbol rate/data rate, shaping factor and FEC as well as bandwidth, center frequency.

CASE STUDY

It is also possible to analyze multiple carriers that may be causing interference; Figure 1 shows that two carriers can easily be analyzed.

This technique can also yield other valuable information for broadcasters, for SCPC it confirms quality of service in a remote beam, confirming interference free transmissions with correct Eb/No, for MCPC, PID information, channel occupancy and channel parametrics can now be extracted, allowing broadcasters to monitor their traffic in remote beams and be assured of the quality of service. A typical display of RF analysis along with digital analysis of occupancy is shown below in figure 2.

From this display the operator can see both the RF performance and the analysis of the individual channels within the DVB carrier

Fourth generation DSAs can now extract the Network Information Table (NIT) from the DVB stream, so if another uplink station is causing interference it is possible to extract out from the NIT table the location of that particular modem.

With digital DSP techniques, the new modern CSM systems, such as Monics®/SAT-DSAT™, adds interference detection and analysis to the armory of the satellite operator / service providers. Broadcasters can now determine the level of interference under their single carrier per transponder and characterize the interference, and in most cases resolve the interference problems quickly and easily. Digital CSM systems also combine interference analysis with traffic or protocol analysis, being able to display PID and channel occupancy information and extract the network information table to confirm location of the modem. CSM systems can now provide the quality of service parameters needed to ensure delivery of HD content. SM

Bob Potter is President of SAT Corporation, Sunnyvale CA,. . Previously Mr. Potter held the position of R&D Manager with Maxon Europe Limited based in Hemel Hempstead, UK. Mr. Potter graduated from Southampton University, UK with a B.Sc.(Hons) degree in Electronic Engineering and has 20+ plus years of experience in RF System design and RF measurement techniques. He can be reached at bob@sat.com

VIEWPOINT

AFTER IRAQ: WHAT'S NEXT FOR THE SATELLITE INDUSTRY?

By Alan Gottlieb

With over 4,000 Mbps of satellite bandwidth going into Iraq and Afghanistan, the War on Terror has been a fantastic boon for the commercial satellite industry. With over 80% of war capacity coming from commercial providers, we have witnessed an unprecedented bubble of prosperity inflated by lucrative DOD contracts.

In addition to the benefits to the satellite operators themselves, minority owned and mainstream bandwidth re-sellers and equipment manufacturers have benefited from the Military's bandwidth feeding frenzy. Major mobile satellite service providers such as Inmarsat and its re-sellers have also seen usage of their services surge, inflated not only by the Military but by demands from news gathering organizations covering the War. In short, all of this business has helped buffer the industry against declines in other core satellite market sectors and masked the economic effects of the proliferation of cheap terrestrial bandwidth.

As we all know, the political winds are changing and the pressure to pull the troops out grows stronger each day. With an end to the War, a precipitous drop in satellite bandwidth services is inevitable. The question is whether the industry will do nothing but wait for High Definition Television and Streaming Media to save it, or does it initiate and pursue diversification strategies that will form a buffer against the inevitable decline in military business?

How do satellite operators and re-sellers who have been selling commodity services, whose concept of marketing is to participate in the next satellite show and whose salespeople have been mere purveyors of bandwidth living under a government funded umbrella convert itself into dynamic and competitive group of companies aggressively seeking new markets? The solution to this quandary, in my view, is a combination of learning how to identify specific business opportunities in new target markets and sell solutions.

Selling Solutions:

At the core of any diversification strategy is a shift from delivery of commodity based generic services to supplying end to end solutions. More than ever, customers want a complete solution to their communications problems, not just bandwidth. To provide such value added, satellite service providers will have to ally with systems integrators and bring aboard sales and marketing people accustomed to identifying customer need and providing a blend of communications technologies to solve specific problems. For example, resolving a problem may involve combinations of satellite, terrestrial, and WiFi or WiMax rather than satellite infrastructure alone.

Discovering New Business Opportunities

At Gottlieb and Company, we have always subscribed to the belief that a

VIEWPOINT

new market or business opportunity is defined by a specific operational need and that that such needs can only be uncovered through one on one dialogue with IT and operations management in a target vertical.

The best way to do this is to use an external market research firm to conduct interviews rather than a company's own sales personnel. Such professionals enjoy a much more open reception than sales personnel and are much more likely to obtain impartial information. Often prospects will reveal data on competition and pricing that they would never give to a salesman. Once an unmet need is discovered through the interview process, a solution can be formulated and with the prospects permission, a follow up sales call can be arranged.

If the unmet need is one that exists across an industry vertical, then the solution can be sold not only to the prospect but to other companies within the vertical. This is how a new business opportunity becomes a sale and a sale becomes a market and a market becomes a substantial contributor to a client's revenue stream.

A Few Promising New Markets

As some of you may know, Gottlieb and Company has done extensive work in seeking out new business opportunities for VSAT services. Here are a few of interest:

Cellular Backhaul Indonesia

The Indonesia market for cellular backhaul promises to be a major opportunity. With massive telecom expansion underway and plans to install 10,000 base stations in the next year and little, if any fiber connectivity available to remote locations, backhaul of cellular voice and data represents a major opportunity. In addition, Indonesian operators are just on the verge of adding value added services such as streaming media, games and other advanced services, all of which require greater bandwidth resources. PT Telkom, Telkomsel, Excelcomindo are the major players but there are other new entrants into the marketplace.

Entering the market requires good local representation and the ability to design networks that minimize bandwidth transmission requirements. Networks equipped with IP Media Gateways that allow local calls to be switched into the local PSTN instead requiring all voice to transit the Jakarta based switches combined with compression schemes will likely be the architecture of choice. As bandwidth on regional satellites is quite costly, expect operators to be extremely receptive to advanced network designs that minimize bandwidth consumption. In addition to opportunities in cellular backhaul, Indonesia, due to the geographical isolation of many communities, is a major consumer of VSAT services. Media, distribution, lumbering and financial services are all extensive users of satellite.

International Construction

Offering considerable potential, this market focuses on the provision of VSAT services to major international infrastructure projects including refineries, chemical plants, sewage and waste water treatment plants, dams and irrigation projects, etc. These projects typically require 256K to 512K links during the construction phase. Typical geographical markets include China, West Africa and the Middle East. Major Players include such firms as Bechtel, Fluor, Foster Wheeler, Black and Veitch and Parsons. Global infrastructure conferences often conducted in areas of intense infrastructural development often draw attendees from major international construction firms and offer an excellent opportunity to network for business opportunities.

Distance Learning

More and more third world countries are focusing on distance learning as a way to bolster their educational systems. Major projects are underway in Brazil and other countries. For example, UNOPAR, the University of Northern Paraná, in Brazil will provide broadband satellite services to approximately 60,000 students enrolled in its Connected Presence Teaching System (CPTS) across 252 Brazilian municipalities. UNOPAR will have 300 sites operating by the end of 2006 and plans to expand into Argentina and Paraguay. Such programs are likely to be replicated throughout the third world as governments come under increasing pressure to provide educational opportunities to their rural populations.

Oil and Gas

While provision of VSAT in the oil and Gas industry is an area of considerable interest, foreign markets in remote locations represent the best opportunities. U.S. markets are dominated by Caprock, Stratos, Petrocom, Schlumberger DMS and Sola. Firms such as MTN have attempted to

VIEWPOINT

enter these markets with very limited success. Key to understanding the difficulties in providing service to these markets is an understanding of the critical nature of the communications function in the oil and gas business.

During offshore drilling operations, critical telemetry is constantly transmitted. Information regarding pressures, mud flow, rates of penetration move across the link and any disruption of the critical telemetry can cause costly delays in the drilling operation resulting in hundreds of thousands of dollars in losses. Therefore, a provider of VSAT services to the industry must have the ability to quickly repair any communication failure. Hence having qualified personnel available to go offshore at a moments notice is critical to winning the business.

Mining

The mining industry is a small but potentially promising area. Major mining camps in remote area offer the best opportunities, and exploratory teams are most likely users of Fly Away VSAT and Inmarsat BGAN services. Key geographical areas of focus include Chile, South Africa, China and Indonesia.

For example, in Indonesia, Freeport-McMoran's Indonesia gold and copper installations on West Irian Jaya are a major consumer of bandwidth as are other remote mining camps in mineral rich areas. Key target companies include BHP, Rio Tinto, Barrick Gold, Peru Copper, Anglo American, etc. As this industry is quite small, the best access to business opportunities is through key industry trade shows.

Other Government

Government contractors need to look into specific application areas outside of the military. Of course, Homeland Security and Immigration are obvious targets. Additionally, any agency that needs to provide services to remote areas is a prime target. There has also been a lot of activity in the aviation area as the air traffic control systems in the U.S. and globally are undergoing substantial upgrades.

Conclusion

The age of easy, War related business is in sight. Satellite companies need to initiate and intensify their efforts to find and develop new markets. While new uses for satellite such as high definition television and streaming media are likely to contribute to industry growth, providers need to initiate research and build relationships with IT management in all promising markets. It is only through such relationships that new, specific applications can be discovered and exploited into significant new lines of business. SM

Alan Gottlieb is CEO and Principal Consultant, Gottlieb and Company. Mr. Gottlieb is an expert at finding new markets for VSAT services. He specializes in remote international markets and Oil and Gas, International Construction, Mining segments. Major clients include Verestar, Inmarsat, Intelsat, Sonic Telecom, Thiss Technology Singapore, the Office of Post and Telecom of French Polynesia. Mr. Gottlieb traditionally employs an innovative combination of on-site market research interviews and specialized sales techniques to produce an in-depth understanding of customer requirements and generate initial sales. He holds and MBA from Thunderbird, speaks fluent Spanish and has extensive on-site experience in Southeast Asia, Latin America and the Middle East. He is a former Audiovox, Vice President and Director for COMSAT. He can be reached at alan.gottlieb@comcast.net (website www.gottliebandcompany.com)

EXECUTIVE SPOTLIGHT

Interview with Integral CEO Peter Gaffney

Peter Gaffney took over from Lanham, Maryland -based Integral Systems CEO and founder Steve Chamberlain just under a year ago. Chamberlain had a very rough end at the company he founded 20 years ago, after being indicted on felony charges of sexual offenses involving a minor which led him to resign as chairman and CEO. Gaffney, a 20-year veteran of the company, spoke recently to SatMagazine Managing Editor Virgil Labrador on how his year has been since that transition and how his company, which specializes in ground control systems and does significant government business, has been doing since he took over. Excerpts of the interview:

Peter Gaffney

Q. How has the legal issues against your former CEO Steve Chamberlain and the surrounding publicity affected your company?

A. The biggest impact has been with our investors. When the legal issues came, our investors felt that it was time to look at other alternatives for the company. They believed that the valuation of the company was depressed based on the news surrounding Steve Chamberlain. Our investors were pushing for a more independent and professional Board of Directors, which we have accomplished since. Our investors are now quite happy wit the composition of the Board.

As far the effect on the business itself, it really had no effect at all. Steve has been backing himself out of the business for a couple of years by that time. We had a transition plan in place which we had to effect a little earlier than planned. We had in place a great management team and in 2006 our financial results just kept getting better and better. Last year we hit every financial record in terms of revenues, operating income, net income and earnings per share. We've exceed our financial goals last year by over 20 percent.

Q. To what do you attribute that growth last year?

A. I attribute it to the dedication of our employees and their ability to stay focus on our business. Steve's issues were not really were not rippling down to affect our business and our customers--it was really only effecting it at the Board of Directors and investors' level.

"... Last year we hit every financial record in terms of revenues, operating income, net income and earnings per share. We've exceed our financial goals last year by over 20 percent...." -Peter Gaffney

Q In the market today, what's your market share in the command and control systems market?

A. In the commercial market, we definitely dominate the market. We have 50-60 percent of the commercial market.

Our systems are in just about every fixed satellite operator's facility in the world. Whether it's our command and control systems, our orbit analysis or equipment monitoring and control or our signal quality monitoring system.

In the government market, we've proven ourselves to be a dominant force. We had, probably in a decade or more, the first on-time, on-budget grounds systems delivery for the Discus satellite. We followed that up a year later with transition operations with the MILSTAR satellite in 2006. The Broadband Gapfiller satellite is coming up in a few months and that will be on time as well and then the Advanced Extremely High Frequency (AEHF)

EXECUTIVE SPOTLIGHT

satellites afterwards. So, we have really hit the Air Force market with a bang.

Q What percentage of your business is commercial and what percentage is government?

A. Our business is currently 20 percent commercial and 80 percent government.

Q. Have you been dealing primarily with the government since your inception?

A. No, actually just seven years ago, in 2000, the ratio was 50-50 between our commercial and government business. And our commercial business hasn't actually shrunk during that period, it's just that our government business has really taken off since then.

Q. Was that a strategy that you purposely pursued--to go after the government market?

A. For sure. It has always been our strategy to reduce the cost of systems and bring systems to market faster and we do that with our Commercial Off-The Shelf (COTS) product. The government guys are very cost-conscious and have fairly aggressive schedule requirements, so we are able to meet that requirements by providing COTS solutions. The combination of our successes in serving the government market and their shrinking budgets will really drive more government customers to our systems.

Q Do you think the percentage of the government business will remain the same as it is in the next few years?

A. Probably. Our growth is going to come from the government market in the next few years. We'll see some growth in the commercial business, but the main growth will definitely come from the government market.

Q What applications have the most potetnial for growth into in the next few years?

A. We think that command and control is the growth area--mostly in the goverment market. Another growth area is the satellite protection system market--that detects interference and jammers. Since the goverment uses about 80 percent of its capacity from commercial sources, we see a growth area there.

SM

MARKET INTELLIGENCE

India's Satellite Crisis:
Capacity Barriers & "Spectrum Grab"

by Martin Jarrold
Chief, Iinternational Program Development
Global VSAT Forum

In 2004 the Telecommunications Regulatory Authority of India (TRAI) produced a report entitled ***"Broadband India: Recommendations on Accelerating Growth of Internet and Broadband Penetration"*** which very clearly affirmed that real growth in Internet and broadband services only occurs when a clear choice between multiple data access platforms is available to consumer and business users. In acknowledging this, the report went on to make a number of specific recommendations to the Indian Government, including that:

"An Open Sky policy should be adopted for VSAT operators, similar to what is available to ISPs… VSAT service providers should be allowed to work directly with any international satellite."

Three years on, the international satellite communications community is still eagerly awaiting the implementation of this recommendation. Re-focusing the attention of the Indian Government on the TRAI recommendations, together with coordinating a renewal of satellite industry efforts directed at ensuring that the relevant branches of the national administration are fully aware of the barriers to broadband communications penetration that has arisen from the absence of Open Skies policy implementation, is therefore of vital importance.

To further advance industry and government deliberation on this position, the GVF – together with the Cable & Satellite Broadcasting Association of Asia (CASBAA) and the VSAT Services Association of India (VSAI), the GVF's Correspondent Member in India – recently convened a joint meeting of relevant government and industry stakeholders in New Delhi, India.

Additionally, in a more recent communications industry development in India – as well as elsewhere in the world – the question of the re-allocation of C-band spectrum, which is currently used by the satellite service sector, to the terrestrial Broadband Wireless Access (e.g. WiMax) sector, has now coalesced with the Open Skies policy issue to create a situation that may be best described as an imminent and major satellite capacity "crunch" for the Indian communications market.

Many other countries and territories located in the Asia, Indian Ocean/ Pacific Ocean region and which have a domestic satellite industry – e.g. Australia, Hong Kong, Indonesia, Japan, Malaysia, Philippines, Taiwan – have adopted Open Skies policies, outnumbering the more restrictive jurisdictions – e.g. China, India, Korea, Thailand – by almost two to one. As a result the former have been able to reap significant economic benefits, with enhanced communications capabilities – i.e., VSAT networks deployment – leading to increased investment, more jobs, and growth in profits (and levels of corporate taxation!)

Currently, India's VSAT environment features eight operators and a roll-out of some 62,000 terminals. Through partial regulatory reform these operators have been able to deploy networks to support some tele-medical, distance learning and e-government application solutions, but the per capita penetration represented by even this number of VSATs places India at regional league bottom.

As pointed-up in the March 19th meeting in New Delhi, with an annual GDP rate of growth of 9 per cent, India is frequently lauded as one of the Asian region's leading economic miracles, but in the absence of growing capacity in the satellite communications sector, the economy – sooner or later – is bound to lose its momentum. This can be prevented only through the joint – or connected – strategies of (a) the implementation of Open Skies policies for satellite communications and (b) the preservation of C-band frequencies for satellite services.

These strategies need to be effected together because of the particular nature of the Indian satellite marketplace, where the aforementioned satellite capacity "crunch" will potentially deteriorate into a satellite capacity

"crisis". With this near-future prospect facing not only the satellite communications sector, but also the satellite broadcasting/DTH services sector, the meeting further renewed calls for the Government of India to optimize the regulation of satellite services to provide greater choice for users while taking "a long-term and considered approach to allocating existing satellite services' bandwidth to terrestrial wireless services such as WiMax."

Potential new entrants to India's VSAT market face many unnecessary delays in their licensing applications, which include scaling a series of multi-agency bureaucratic hurdles and, in many cases, additional official reference to national security concerns that are cited as a prime reason for the failure to implement the Open Skies recommendation from TRAI. This particular official objection is readily addressed with the counter argument that all satellite earth station up-linking can, and would, be done from within India's national borders with appropriate controls in place.

Insat, India's national satellite fleet, currently has 35 transponders in the lower extended C-band frequency range – the 3.4 GHz to 3.7 GHz range that has been subject to the WiMax "spectrum grab". This figure represents 28 per cent of Insat's in-orbit C-band payload, and if the operator's customers are finally required to vacate this capacity there will be a complete and immediate C-band capacity crisis that the other satellite spectrum capacity over India (in the Ku-band) will not be able to replace. In addition, and taking a slightly different view of the future that does not feature this "spectrum grab" problem, India's demand for C-band transponder capacity – currently growing at 6 – 7 per cent a year – will in any event outstrip available supply by 2012.

The ability of the Indian Space Research Organization (ISRO) to carry on with its current operating model will be severely hampered in this situation, and it is, therefore, unsurprising to find that the organization is in the throes of contesting the decision of the Indian Ministry of Communications to permit terrestrial Broadband Wireless Access (BWA) services to operate at the lower extended C-band frequencies. ISRO is to be applauded in its efforts, which are an essential *domestic* component of the wider international effort aimed at protecting not only the lower extended C-band, but also the entire range of the C-band frequencies which will be affected by the deployment of not only WiMax, but also of the forthcoming IMT 2000 mobile standard.

For VSAT-based communications it is Ku-band satellite capacity that is often the preferred option because of the smaller, and cheaper, ground station equipment it necessitates. However, even this option is not readily available in the Indian context where Ku-band demand already exceeds supply by nearly 40 transponders.

Thus, at the March 19th meeting, which was attended by representatives of TRAI and the Planning Commission – which reports directly to the Indian Government Cabinet – the urgent need for expansion of Indian access on a long-term basis to competitively priced international satellite communications services was repeatedly emphasized. In comments made at the meeting – and widely reported in the Indian media the day following the meeting – Mr. D.P. Vaidya, President of the VSAI, said "Today, India remains woefully under-provisioned in many areas of satellite capacity and yet we have the potential to revolutionize the public's access to new and exciting interactive media and telecommunications."

The emphasis on long-term arises from the current situation wherein ISRO's policy is to fill in capacity gaps through the unsustainable mechanism of short-term renting of transponder capacity on non-domestic satellites with footprints that cover the sub-Continent.

In the Executive Summary of his report – "India Satellite Services & Regulatory Overview – 2007 Update" – Andrew Jordan of Loft Communications states that:

"It is extremely unlikely that the presently available non-domestic Ku-band capacity would remain available for the next five years. Indeed, there are strong indications that non-domestic operators no longer intend to provide Ku-band coverage of India due to the lack of an Open Skies policy. They are not prepared to make long-term commitment to the India market, requiring hundreds of millions of dollars in investment, on the basis of short-term contracts that turn them into residual suppliers. Increasingly, more reliable markets are available elsewhere in the region."

Conclusion

Quite naturally, India has sought spectrum resources for BWA to support the continued, and enhanced, deployment of broadband-based services for the benefit of its economy and society. The GVF – in representing the capabilities of the international satellite industry – firmly believes that the adoption of an Open Skies policy will be prime facilitator of this broadband deployment, provided that the invaluable *additional* contribution to this objective to be made by BWA is achieved through the use of spectrum resources that are not now used by the very technology – satellite – that has already made a major contribution to India's communications revolution, and which could yet bring to bear existing satellite capacity to continue facilitating India's broadband roll-out *whilst alternative frequencies for BWA are being assessed* SM

.

Author's note: I am indebted to Andrew Jordan of Loft Communications for the use of his report "India Satellite Services & Regulatory Overview – 2007 Update" in the preparation of this Market Intelligence column.

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

STOCK MONITOR

Company Name	Symbol	Price (April 2)	52-wk Range
APT SATELLITE	ATS	**1.85**	1.20 - 2.60
ANDREW CORP	ANDW	**10.67**	7.08 - 12.50
ASIA SATELLITE TELECOMMUNICATIONS (ASIASAT)	SAT	**22.84**	16.00 - 23.55
BALL CORP	BLL	**46.90**	34.16 - 47.91
BOEING CO	BA	**88.83**	72.13 - 92.24
BRITISH SKY ADS	BSY	**44.88**	35.73 - 45.72
CALAMP CORP	CAMP	**8.75**	5.44 - 13.90
C-COM SATELLITE SYSTEMS INC.	CMI.V	**0.40**	0.32 - 0.56
COM DEV INTL LTD	CDV.TO	**5.79**	3.50 - 6.88
COMTECH TELECOM	CMTL	**38.69**	25.67 - 39.86
THE DIRECTV GROUP	DTV	**22.94**	15.88 26.09
ECHOSTAR COMMUNICATIONS	DISH	**43.54**	29.32 - 44.55
GILAT SATELLITE NETWORKS	GILT	**8.28**	5.85 - 10.26
GLOBECOMM SYSTEMS INC	GCOM	**10.95**	6.30 11.63
HARRIS CORP	HRS	**51.15**	37.69 - 52.93
HONEYWELL INTL INC	HON	**46.15**	35.53 - 48.50
HUGHES COMMUNICATION	HUGH	**49.03**	29.75 - 49.33
INTL DATACASTING CORPORATION	IDC.TO	**0.22**	0.15 - 0.28
INTEGRAL SYSTEMS	ISYS	**24.03**	21.42 - 33.55
KVH INDS INC	KVHI	**9.30**	9.07 - 14.48
L-3 COMM HLDGS INC	LLL	**87.81**	66.50 - 89.42
LOCKHEED MARTIN CORP	LMT	**96.93**	69.87 - 103.50
NEWS CORP	NWS	**24.76**	17.61 - 25.78
NORSAT INTL INC	NSATF.OB	**0.86**	0.30 - 0.87
ORBITAL SCIENCES	ORB	**18.75**	14.18 - 20.36
QUALCOMM INC	QCOM	**43.08**	32.76 - 53.01
RADYNE COR.	RADN	**9.16**	8.92 - 17.85
SES GLOBAL FDR	SES.F	**14.21**	10.03 - 14.90
SIRIUS SATELLITE RADIO	SIRI	**3.15**	15.92 - 26.89
TRIMBLE NAVIGATION	TRMB	**27.08**	19.56 - 28.71
WORLDSPACE INC	WRSP	**3.55**	1.90 - 7.68
VIASAT INC	VSAT	**32.96**	22.32 - 36.00
XM SATELLITE RADIO	XMSR	**12.39**	9.63 - 24.21

For real-time stock quotes go to www.satnews.com/free/finance.html

ADVERTISERS' INDEX

Advantech AMT www.advantechamt.com	**9**
AAE Systems www.aaesys.com	**14**
ANACOM www.anacominc.com	**25**
Andrew Corp. www.andrew.com www.avltech.com	**33**
AVL Technologies www.avltech.com	**37**
AVCOM of Virginia www.avcomofva.com	**20**
COMTECH EF DATA www.comtechefdata.com	**7**
Echostar Fixed Satellite Services Corp. www.echostarfixedsatellite.com	**16**
Global Link www.globalinktv.com	**12**
L-3 Narda Satellite Networks www.lnr.com	**22**
MITEQ www.miteq.com	**17**
NEWTEC www.newtec.be	**24**
RADYNE www.radn.com	**31**
SATNEWS PUBLISHERS www.satnews.com	**5 & 41**
W.B. Walton Enterprises www.de-ice.com	**29**
Wavestream www.wavestream.com	**44**