



Opportunities in the European Satellite Market

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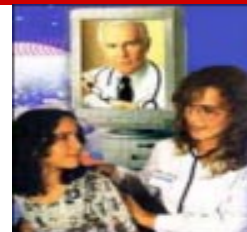
Europe has been a testing ground for many years for internet via satellite with numerous companies on the frontier including British Telecom (UK), Eutelsat (France), Europe Online (Luxembourg), and Tiscali (Italy).



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(by the Global VSAT Forum)

NOTE FROM THE EDITOR-Europe, Middle East and Africa

Don't Ignore Radio



There's one element of satellite-delivered entertainment that's often overlooked. Radio. Even though the industry is watching closely how the US-based pay-radio services of XM and Sirius progress - and their clones in Japan and Europe - the ignored element is ordinary DTH radio delivered in digital from satellite. Most satellite platforms already deliver hundreds of radio stations and a recent UK

study has proved what those broadcasters already know: people like listening to radio through a TV set.

Britain is not unusual in that Sky offer 80 free radio stations, plus another 40 Music Choice pay-radio channels as well as 20-odd music-based video channels. The UK's official audience measurement company RAJAR, in their August data, say 62% of multichannel households listen to radio from their TV set every week. Taking the whole of the UK, the RAJAR study says radio listening via the TV has risen steadily over the past year helped by the growth of digital TV (from 13% to 20%). It means that Capital Radio, normally only available in the London region, is seeing its listening figures boosted by one third helped by satellite's nationwide coverage. Other stations have seen similar spectacular results.

The RAJAR data also shows that Internet-listening is on the up, but this skews towards 15-25 year-olds. But of the near-20% that listen through the TV set, the RAJAR study shows that the proportion in each age group, gender split, or social category only varies very slightly between 58% and 67%. In other words radio-via-TV almost perfectly represents the typical UK listening audience.

Rupert Steele, head of Research at OPUS (a UK media sales business) has a theory why listening to radio-via-TV is so popular, and puts it down to the lack of radio sets in the living room. It seems that while users listen to radio in the kitchen, bedroom and even the bathroom, we don't have sets in the main family room! Another answer might be that more homes have dedicated home cinema stereo or surround-sound systems, where the Digi-box is already plumbed into the Hi-Fi system. A third option is that digi-boxes have easy-to-use EPGs, that list the stations in an obvious manner and that there is no tuning of dials or complicated buttons to press. Finally, the supply of radio stations to 'out of region' listeners cannot be ignored.

And the broadcast stations find the whole system very cheap to access. There's a modest uplink cost and space segment to buy, but the whole cost is well below \$100,000 p/a. That might sound expensive, but in the UK it works out at less than 2 Cents per annum per home! And in the UK, radio broadcasters know that by the end of 2004 they'll have another 1m homes (8m in total) able to listen in, lowering the cost even further.

My advice to satellite platforms: Don't ignore radio. Viewers love it.

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

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Satnews Publishers is the
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industry. For more informa-
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CALENDAR OF EVENTS

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September 16-19 London, UK **COMSYS VSAT 2003 Conference**

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September 18-23 Shanghai, China **CeBIT Asia**

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OCTOBER

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October 2-4 Vicenza Fair, Italy **SatExpo 2003**

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October 12-18 Geneva, Switzerland **ITU Telecom World 2003**

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October 15-17 Mumbai, India **Satellite & Cable TV India Trade Show 2003**

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October 23-26 Istanbul, Turkey **CeBIT Broadcast, Cable and Satellite Eurasia**

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October 28-30 Beijing, China **China Satellite 2003**

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INDUSTRY NEWS

Rare Medium Group, Inc. Acquires Verestar and ESP; Changes Name to "SkyTerra Communications, Inc."

Rare Medium Group, Inc. announced that it has executed definitive agreements to acquire satellite service provider, Verestar and engineering company Electronic System Products, Inc. ("ESP") and will change its name to SkyTerra Communications, Inc.

Through a newly formed subsidiary, the Company will acquire approximately 67% (on a fully diluted basis) of the outstanding equity of Verestar, Inc. from its current owner, American Tower Corporation (ATC). Verestar is a provider of integrated satellite and fiber services to government organizations, multi-national corporations, broadcasters and communications companies. Headquartered in Fairfax, Virginia, Verestar currently is expected to generate over \$130 million of annual revenues in 2003.

Concurrent with execution of the definitive purchase agreement, Rare Medium agreed to purchase a \$2.5 million senior secured note. Closing of the transaction is subject to Verestar achieving certain concessions from its satellite and terrestrial vendors, approval by the Federal Communications Commission and other customary closing conditions. At closing the Company will provide nominal consideration to the existing owner of Verestar in exchange for its equity interest.

ESP is a 30-person engineering and product development firm,

headquartered in Atlanta, Georgia. Among their recent accomplishments, ESP's engineers created the patent pending, in-


vehicle system for IQStat, Inc., an Atlanta based-privately held company that measures radio listening habits and transmits the
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INDUSTRY NEWS

data over a national wireless communication network to IQStat's operations center. IQ Stat intends to market the aggregated data to broadcasters and advertisers to allow real-time tracking of consumer behavior. The Company independently acquired approximately 5% of IQStat during the second quarter of 2003. ESP also holds 16% of IQStat, raising the Company's total stake in IQStat to 21% of the outstanding equity.

Two European HDTV Channels Imminent

There are no European high-def channels as yet, but Antwerp-based facilities house AlfaCam says it is about to change that. On Sept 13 tests will start building up to a full launch on January 1 of two HD channels, according to Celia Groothedde of Euro1080. She says two channels will be broadcast, the first, The 'Main Channel' will broadcast at least 4 hours a day of HD material (sports, concerts, cultural events) to homes. Already in the planning stage are the annual New Year's Day concert from Vienna, the Eurovision Song Contest and next year's Athens Olympic Games. The second service, the 'Event Channel', will distribute live and 'as live' sports events, concerts and the like to suitably equipped cinemas. Satellite platform SES Astra is being used for signal distribution and some of the channel's material will come from an exchange pool with other HDTV channels around the world.

Euro1080 says part of its strategy is to supply the domestic channel into small venues like sports bars, hotel chains, restaurants, conference

centers, airports, and other public places. They say during the start-up phase these small venues can play a very important role to support the roll-out of the channel, to make viewers familiar with HD and to stimulate the sales of HD equipment. On the 'Event' channel, Euro1080 say that they'll cover Europe's 2004 Championship Soccer matches and beam events into cinemas. AlfaCam's HDTV team, in an earlier test, transmitted the European Championship qualifying soccer match Denmark vs Norway in Copenhagen in June. The game was captured on 19 HD cameras and the HD signal fed live into Danish and Norwegian cinemas.

ILS Proton to Launch Malaysian Satellite MEASAT-3



International Launch Services (ILS) signed a contract with Binariang Satellite Systems Sdn. Bhd. to launch the MEASAT-3 satellite in 2005. Financial details were not disclosed.

The mission will use the Russian-built Proton rocket with a Breeze M upper stage to place the satellite at 91.5 degrees East longitude to serve Malaysia, Southeast and Central Asia, Africa, the Middle East, Eastern Europe and Australia. ILS, the world's leading launch provider, is a U.S.-Russian joint venture that markets and manages the commercial launch missions for the Proton vehicle, built by Khrunichev State

Research and Production Space Center, as well as for the American Atlas rocket, built by Lockheed Martin Corp.

MEASAT-3 is a Boeing 601 model, similar to nine satellites for other operators that have flown on Proton. Binariang is the sole licensed commercial satellite operator in Malaysia. The company pioneered the development of high-powered Ku-band direct-to-home services into Southeast Asia in 1996.

DISH Network Reaches 9 Million Customer Milestone



EchoStar Communications Corporation announced that its DISH Network, passed the 9 million customer milestone, making it one of America's fastest growing satellite subscription television service. DISH Network's low-price, all-digital product continues to attract growing numbers of customers at a rate unmatched by any other satellite or cable company in the nation.

"The American viewing public demands a low price, great customer service, and a quality product along with a variety of programming options, and that is what we deliver to them," said Charles Ergen, Chairman and Chief Executive Officer of EchoStar.

DISH Network reached 1 million subscribers in December 1997 and passed the 8 million milestone less than 10 months ago. **SM**

EXECUTIVE MOVES

Simon Duffy named New NTL CEO; Barclay Knapp to Step Down



Simon Duffy

He will replace Barclay Knapp, who co-founded NTL in 1993.

Duffy, joined NTL last April. He was former finance director of mobile phone group Orange SA and worked with brewer Guinness, music group EMI and Internet firm World Online.

NTL reported an increase in second-quarter group revenue to 551.3 million pounds (\$886 million), six million ahead of its own forecast, while adding 40,000 net customers. It also said it is pursuing further financing alternatives to cut its interest payments. Debt now stands at \$6 billion, compared with a market capitalization of \$2 billion. NTL underwent major restructuring after filing for Bankruptcy protection last year.

Barclay Knapp said, "Now is the right time for me to step down as CEO. As the Q2 financial results demonstrate, the Company is back on track and delivering a strong operational performance. I have experienced real highs and lows during my 10 years at NTL and I remain as passionate as ever about the future of cable in the UK. Over the past few months I have been

working closely with Simon and I know that he is now ready for the top job."

Simon Duffy added, "I am hugely excited about the challenges ahead. NTL is a great company with enormous untapped potential. I intend to ensure that we deliver it."

Norsat Appoints New CEO

The Board of Directors of Canadian equipment manufacturer, Norsat International Inc. announced the appointment of Cameron Hunter to the position of President, CEO and Director of Norsat, effective immediately. Mr. Hunter had been a Vice President at Norsat.

Former CEO, Yutaka Ueda has announced his decision to return to Tokyo, Japan and will continue to work on a contract basis with Norsat to develop the Japanese market. He has also resigned his positions as an officer and director of the company.

With 11 years of international marketing and sales experience in the wireless, telecommunications and satellite sectors, Hunter joined Norsat in January 2003. Previously, he held several positions in Sky Stream Networks in Hong Kong. He has additional telecommunications experience as regional sales manager for the Harris Microwave Communications Division in Italy and Indonesia and as operations manager for Nortel Networks in Vietnam. He has a Bachelors degree in political studies from Queen University and a post-graduate diploma from the Asia Pacific Management Cooperative at Capilano College.

Mary Frost Appointed as Senior Vice President of Sales, GlobeCast America

Mary Frost has been appointed as Senior Vice President of Sales at GlobeCast America.

Frost has over 18 years of experience in the broadcast industry including news, telecommunications, broadcast operations and engineering and general management in Disney/ABC and WNET/Channel Thirteen. She has sales, marketing and consulting experience as General Manager for Price Waterhouse Coopers and North American Regional General Manager of ICO Global Communications. Most recently, Mary served as President of NewMedia Technology, Inc. and CSI, Inc.

Orbital Names Leo Millstein Senior Vice President and General Counsel

Leo Millstein has been named Senior Vice President, General Counsel and Corporate Secretary of the Dulles, VA-based Orbital Sciences Corporation. Millstein has over 20 years of combined experience in the satellite industry at INTELSAT and COMSAT. In addition, Millstein has served as a Partner at Dryer, Ellis, Joseph & Mills, a Washington, DC-based law firm and, most recently, as General Counsel of MERANT, plc, an information technology company. **SM**



Leo Millstein

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COVER STORY

US Programmers: Now Franchising Via Satellite in Europe

By Dan Freyer

With over 211 million TV homes, 64 million of which are cable homes, it is easy to understand why Europe has attracted so many American broadcasters to venture across the pond. By comparison to Europe, the US alone has 70 million cable subscribers and just over 20 million satellite homes. Europeans are huge consumers of US content and have an appreciation for American programming.

American broadcasters who have successfully made the transatlantic hop with multiple European channels include Turner Networks, QVC, Bloomberg, Viacom's MTV, VH1 and Nickelodeon networks, Discovery Networks, Playboy, and Hallmark Channel to name a few. As the cost of channel uplink and satellite distribution has declined with digital compression, the reduced barriers to entry have allowed many new European networks to launch in recent years.

Open Skies and Local Skies

Unlike the US today, where a programmer needs to negotiate carriage with an Echostar (8.8 millions subscribers) or DIRECTV (11.56 million subscribers) in order to reach mainstream DTH viewers, in Europe it's possible for a new channel to simply lease uplink and satellite transmission services and directly access a substantial home viewer audience. But it's an



photo courtesy of GlobeCast

GlobeCast's teleport in the UK uplinks Turner, Viacom, Discovery and other American network signals to European satellites.

audience spread across thirty countries, each with its unique viewer tastes, market and regulations. In addition, desirable satellite subscribers are aggregated in key countries on specific domestic DTH platforms, or "bouquets", like BSkyB in the UK, Digital Plus in Spain, Sky Italia in Italy, France's TPS and Canal Plus, and so on.

Hot Birds

Top satellite options for Pan European signals are the Eutelsat HOTBIRD fleet of co-located spacecraft at 13° East, and SES-Astra's Astra fleet co-located at 19° E. Both orbital locations are geared to making it easy for millions of DTH antennas across Europe to receive hundreds of radio & TV channels via a single rooftop dish.

HOTBIRD at 13° East reaches 95

Million homes across Europe, North Africa and the Middle East, boasting a community of over 1500 radio and TV services reaching a measured audience of 65 million cable homes and 30 million DTH homes and more than 2 million hotel rooms. Launching a new channel on this location offers access to 77% of cable and satellite homes in Western, Central and Eastern Europe, and 99% cable head-end penetration.

The Astra 19.2° East location offers an attractive reach of over 85 million European cable and satellite homes, or 78% penetration of that total market. It hits 65% of satellite homes and accesses 83% of cable subscribers.

A "Who's Who" of American brand channels can be found as analog and digital primary distribution signals at these orbital locations.

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COVER STORY

Numerous “primary” feed signals are used by these programmers to reach Europe’s cable systems, as well as the broadcast centers of national DTH bouquets like TPS France, Sky Italia, Digital Plus, and others.

For instance, Turner Networks’ CNN International is uplinked to HOTBIRD-6 in a digital multiplex at Brookman’s Park, UK operated by GlobeCast. This particular GlobeCast multiplex service carries the major European news channels, including CNN International’s Europe feed, BBC World, Euronews and Arab News Network reaching virtually every cable headend in Europe.

Bloomberg TV also uses Hotbird-6, broadcasting a five-channel multiplex of channels for European cable and DTH platforms.

On the other hand, Viacom, Inc., distributes all of its MTV and VHI channels on its transponder on the Astra 2A satellite at 28.2° E, also using a GlobeCast uplink from London.

While they may be the best, HOTBIRD at 13°E and Astra 19.2° locations are not the only distribution options. For example, Discovery channel feeds to European cable markets from its playout facilities in the UK, but its cable signals are uplinked by GlobeCast to the SIRIUS-1 spacecraft, which offered lower rates on transponders when it first launched.

DTH Platforms: The UK is First Port of Call

With no language barrier and cultural ties, it’s perhaps not surprising that American TV fare

Selected American Channels in Europe UK Satellite Channels

Animal Planet	Discovery Travel	MTV
Bravo	Discovery Wings	MTV2
Boomerang	Disney Channel	National Geographic
Cartoon Network	Disney Playhouse	Nickelodeon
Cartoon Network +	Disney Toons	Nick Junior
Bloomberg TV	E! Entertainment	Nick Toons
CNBC	Fox Kids	Paramount Comedy
Discovery Civilizations	Hallmark	Sci Fi Channel
Discovery Health	History Channel	Biography Channel
Discovery Home	MTV Classic	The Box
Discovery Kids	MTV Dance	Turner Classic Movies
Discovery Science	MTV Hits	VHI

has a strong foothold in the UK. How strong? In a recent sample of the UK’s TV channels tracked by BARB for a July week this year, some 42 of 100 non-BSkyB channels were American brands. These “American” channels captured over 17% of total weekly viewing share, or the equivalent of 41% of the total cable and satellite-viewing share. The UK’s Sky DTH is a key distribution platform for many American-brand channels.

For satellite channels, the UK market is somewhat straightforward in that there’s a single provider of satellite DTH services. The Sky bouquet, reaches an estimated 6.7 million Sky Digital homes and potentially 3.2 million cable subscribers, plus some 1 million or so Digital Terrestrial Television viewers. All Sky channels are digitally encrypted for reception only via Sky’s set top receivers, including the free-to-air channels in Sky’s basic package for subscribers. All of the major North American programmers in the UK are on the Sky platform.

Becoming part of the Sky Bouquet doesn’t mean that as a channel you need to buy satellite capacity and uplink from BSkyB. Programmers can choose from a number of UK-based satellite and uplink companies that offer digital services on the 28.2° East satellites. They can then arrange for the Sky Electronic Program Guide (EPG) listing as a separate transaction with BSkyB.

The Astra 2A, 2B and 2D satellites co-located at 28.2°East formed the first satellite fleet used by Sky until three years ago when the new Eutelsat EUROBIRD satellite was co-located at the same orbital slot, providing more transponder capacity for new Sky channels — all receivable by the same DTH dishes. The launch of EUROBIRD opened the marketplace up because transponder space on Astra at 28.2° East had been very expensive, while EUROBIRD introduced competition, new space inventory and more affordable rates. Soon a large number of new smaller company channels joined the Sky lineup.

FEATURES

All broadcasters need a license from the ITC (Independent Television Commission) or equivalent for uplinking from the UK. The license process typically takes several months and can be longer if the content is politically or culturally controversial. For example adult entertainment, or religious channels that may directly solicit money pledges from viewers may be denied.

Being available on the satellite is useless if viewers cannot find your channel. The Sky system provides an EPG listing for each channel, which is based on programming genre categories, e.g. news, sports, niche, etc. EPG listings are regulated by the government, as is the tariff for being listed. It runs some £75,000 per year for free-to-air channels. Pay-Per-View channels pay more, plus a £1.50 per subscriber. Pay channels can either use Sky's subscription management and consumer call center for authorizations, activations and billing, or they can outsource that function to other companies, who typically charge a per-subscriber monthly fee for the service.

Satellite services providers can assist a new programmer in managing or facilitating the technical arrangements for delivery of EPG materials to the BSkyB origination center.

For example, GlobeCast has been the contractor of choice for a number of channels in the Sky package to provide uplink and space segment. In order to include the EPG data in its uplink multiplex at the GlobeCast Brookman's Park Teleport, GlobeCast houses a Sky Adaptation Hub there that is remotely operated by BSkyB. This system outputs a

American Cable Channels on European DTH Packages

UPC Direct, Eastern Europe, 19.2E

MTV
Hallmark
HBO Hungary
HBO Czechia
Animal Planet
Discovery
Fox Kids
Turner Classic Movies
Cartoon Network
National Geographic Channel
ESPN Classic Sports Europe

Cyfra+ for Poland on Hotbird

Discovery
MTV
Fox Kids
CNN International Europe
HBO Polksa
MTV Classic
Animal Planet
Hallmark
HBO 2
CNBC Europe
Discovery Science
Discovery Civilization
Discovery Travel & Adventure 7

Polsat on Hotbird

Discovery Europe
CNN
Animal Planet
Playboy UK
Turner Classic Movies
Fox Kids
Travel Channel
Discovery Civilization
Discovery Science

TPS on Hotbird, France

Boomerang

Source: Lyngsat.com

Spain Digital+ on 19.2

Fox News
Nat Geo
Discovery
Disney
Nickelodeon
Paramount Comedy
Fox Kids
Toon Disney
Fox Espana
CNN+

CanalSatellite at 19.2

Disney
National Geographic
Playboy France
Bloomberg France
Fox Kids
Toon Disney
Disney Playhouse

Digitaal Satelliet on Astra 1G/1H at 19.2°E, Netherlands

CNBC Europe
National Geo
Discovery
Animal Planet
Hallmark
Turner Classic Movies
Cartoon Network
Nickelodeon
Fox Kids

Germany, Premiere on 19.2

Discovery
Fox Kids
MGM

FEATURES

video program stream with the EPG and subscription authorization information adapted in into a single transport stream, which feeds GlobeCast's multiplex uplink

When in Rome....

Negotiation of local DTH carriage terms, fees, EPG placement and technical integration to meet the requirements of a specific DTH bouquet can be complex, time-consuming and perplexing for a US-based business with limited European presence. Programmers should look for in-Europe satellite transmission partners that offer in-country offices, with strong local contacts and experience to facilitate negotiations for distribution on specific DTH bouquets and platforms in the UK, Spain, Italy, France, Germany and elsewhere, depending on the programmer's target markets.

This edge gained by working with the right satellite service providers who offer experience, market connections and relationships can be a big benefit to your successful launch and distribution in Europe.

Setting up Shop

For American programmers considering European channel expansion, it's obviously critical to understand unique viewer tastes. What may work in the UK, without any language conversion could be far from the mark in France. With transatlantic fiber rates between London or Paris, and New York or Los Angeles as low as domestic US cross-country rates, US-based networks can cost-effectively originate European feeds in the US and then deliver them via fiber to

European uplinks. This is the case for instance with Los Angeles-based E! Entertainment, which sends two feeds to Europe. European interstitials, time-delays and spots can be inserted via remotely controlled or monitored automation systems. As the European revenue stream builds, increased local presence may be warranted.

The UK has been a popular place for Americans to start and base operations, with no language barriers, good infrastructure and long a competitive market for satellite, uplink and playout facilities readily available near London. For example, Bloomberg decided to operate its own playback and origination facilities in England, where it creates unique channels for France, Italy, Germany and of course the UK. Bloomberg's playback is fed to the GlobeCast uplink near London. Viacom uplinks its MTV networks from outside of London, as do Discovery and Turner networks. Turner recently launched a new version of its Boomerang on the French TPS package, but given its existing UK operations elected to originate the signal in the UK, relying on GlobeCast to fiber the signal to Paris for uplinking on its joint platform

with TPS on HOTBIRD.

To sum up..

Europe offers opportunities - not only for subscription and pay channel distribution, but also in emerging revenue opportunities like interactive services. Although satellite distribution and technical infrastructure decisions do play a part in a channels' success, programming to meet the needs of specific European viewer and market segments is obviously the critical success factor. To help focus your resources on programming and marketing, American programmers planning European channels can look for satellite service providers who offer proven technical expertise, "one-stop-shopping" for prime European and international satellite and uplink and fiber facilities, and service quality track records. In-country contacts and expertise, and the ability to help gain DTH platform carriage in Europe should be offered and available. Customer service in both the US and Europe, an understanding of both the European environment and your business "Stateside", and facilities and assets to link the two should be the standard you expect in satellite service providers to help make your channel a success. **SM**



Dan Freyer is Director of Sales for GlobeCast, a global leader in satellite transmission services for professional broadcast, enterprise multimedia and Internet content delivery. Prior to GlobeCast, he has helped leading satellite companies like Intelsat, PanAmSat, Hughes and TRW grow their revenues and markets since 1989 in various sales, marketing and business development management positions. He has helped numerous cable, broadcast, Internet and VSAT users deploy satellite networks in the US and overseas. He has served as a Board member and Vice President of the Society of Satellite Professionals International, and is a partner in Westwood Media Group in Los Angeles. Email questions/comments to: daniel.freyer@globecastna.com

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Will Satellite Deliver Mass Market Internet to Europe?

by Howard Greenfield

Broadband over satellite has always been compelling. The ability to deliver interactive

Internet connectivity to any location, across any border, is a tremendous cultural and commercial opportunity.

Though the Financial Times reported last month that Europe's largest satellite provider was beginning a new billion dollar broadband initiative, it may be that in reality companies are taking a much more measured approach. Why should they tread lightly? The market is there, the business opportunity is significant. It seems like there is no reason to wait. Or is there?

Europe has been a testing ground for many years now with numerous companies on the frontier including British Telecom (UK), Eutelsat (France), Europe Online (Luxembourg), and Tiscali (Italy). While the offerings have been persuasive, technical hurdles and new concepts for consumers to grasp have resulted in a slow start. Likewise, set up of satellite dishes, interface cards, the new service orientation curve have been factors. And beneath that experience are even further infrastructure issues.

For instance, DVB developed to support MPEG-2 data packets must carry TCP/IP traffic at high speeds. As DC Palter points out in his introduction to the dilemma (Satellites & the Internet), the dominance of the Internet TCP/IP has forced the satellite technical community to "understand and overcome the performance limitations of TCP/IP when running over satellite in order to be able to design a satellite-based IP network which can take best advantage of expensive satellite bandwidth". Palter points out how long delay, high bit error, and asymmetric bandwidth conditions typical of satellite networks complicate satellite deployment of TCP/IP. Also, satellite bandwidth typically scales better for

unicast to groups, but the Internet is a two-way, interactive, multicast medium.

Nonetheless, the market is too big for this to stand in the way. In the UK alone it is estimated by some that nearly 10 million homes and 400,000 businesses do not have access to DSL or cable. Andrew Pindar, is the UK's *e-envoy* reporting directly to the Prime Minister. Speaking this winter in *computing* he argues the price needs to drop to "a price not much different to DSL". A single BT Business Satellite product user has had to pay around £899 (Euro price here)

in start-up costs, then £59.99 (Euro price here) a month. Making such services affordable is significant: "I want to see these products because they will do away with the biggest issue, which is getting broadband to rural communities to preserve jobs." Pindar himself lives in the country far from any DSL exchange: "there aren't 300 users in the area. What I would like to see is satellite products that are affordable."

*The market is there,
the business
opportunity is
significant. It seems
like there is no
reason to wait.
Or is there?*

The attractive business concept is evident when you do the numbers. There are tremendous number of homes and businesses in Europe that will not be covered by DSL for some time to come. As SES' Yves Feltes puts it, there are approximately seven million households, and another million small and medium sized businesses, in the largest European markets (France, Germany, Italy, Spain, UK) "that will never be economically connected to terrestrial services . . . Satellite is the natural gap filler for this digital divide between rural and more diversely populated urban areas."

Given all this change, what is the shape of things to come. As this story goes to press the Arianespace Ariane 5G rocket is about to launch Eutelsat's e-Bird, announced as the world's first custom-crafted internet satellite. Touted as the new "jewel" of the Eutelsat fleet, at 33° east position, it carries 20 Ku band transponders that will serve four large

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areas in Europe. Eutelsat will be able to upgrade IP broadband services at will, in the markets where it is most active.

However, due to delays in this special three-satellite rocket launch, we'll have to wait to see what kind of results are delivered. Services and pricing are bound to progress. As the e-envoy says: "It is the end of the beginning. I think we will now see demand ramp up and, as it does, the economics will be transformed." **SM**

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Howard Greenfield is principal of Go Associates Consulting Partners (www.go-associates.com), a leading consultancy that develops and implements high-tech product marketing and business development strategies. He has held leadership roles in Fortune 1000 and some of Silicon Valley's top companies including Sun Microsystems, Informix Software, General Foods/Kraft, University of California, Apple Computer and was VP, Product Marketing at Obvious Technology and Softface, Inc.. Mr. Greenfield is a frequent contributor to leading industry publications, and serves on the board of BlueVoice, a non-profit organization dedicated to ocean life and habitat. He was educated at the University of California, and Stanford University, where he received a Masters Degree in Interactive Technology. Howard can be contacted at howard@go-associates.com.

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Set Top PVRs: “A Long-Term Opportunity”

by Chris Forrester

To date, sales of Personal Video Recorders (PVRs) and set-top have been modest. Two weeks ago Tivo's share price plunged almost 9% when DirecTV said its adoption of Tivo technology wasn't taking off quite as well as they had hoped. Roxanne Austin, DirecTV's COO, said the company's earlier targets for DVRs were “quite aggressive.” She also said that considering the rate of customer adoption in the first half of the year the initial projections are “very challenging.”

Tivo itself, during its quarterly conference call in May, said it expected to gain a total of 65,000 to 80,000 subscribers in the second quarter and 450,000 to 600,000 subscriptions by the end of its fiscal year, ending Jan. 31, 2004. The company said about half of the new customers would come from DirecTV. One US-based analyst cut back his forecasts for Tivo subscribers, suggesting only 638,000 new subs for this year, in place of 765,000. Hughes say they estimate that 300,000 new customers would take up Tivo in addition to 250,000-300,000 of its existing customers. Hughes gained 181,000 net new customers in the second quarter, of which less than 10% subscribed to the PVR box. Tivo, as a stand alone option, can be bought for \$249 plus a monthly \$12.95 fee.

This is a market, but it's modest, and by any measure a softer adoption than once predicted. Tivo holds its AGM on Aug 6 and releases its next set of numbers on Aug 26. It's Q1 numbers (to April 30) showed 703,000 total subs, including 79,000 net new additions during the



BSkyB set top box

quarter. Tivo launched back in 1999 and has seen off more than a few rivals in the meantime.

Tivo's only other market was the UK, and it pulled out of Britain back in February (although its few existing subscribers continue to be maintained by BSkyB). Sales in the UK of BSkyB's own Sky+ box are also modest, at about 106,000 units. In July Echostar's Charlie Ergen in his on-screen dealer chat told viewers that Echostar would shortly begin charging a monthly

subscription fee for its PVRs (see box).

Meanwhile BSkyB is currently in the middle of some heavy on-screen promotional activity for Sky+ and in July investment bankers Morgan Stanley took a closer look at what they think could be alternative marketing/support scenarios for PVR's generally. The question senior analyst Sarah Simon asks is whether Sky (or any other sat-platform) will have to make significant set-top investments in the future? One factor in her equation is whether Sky's competition (cable or DSL) roll out a widespread VOD deployment. Should this happen, says Morgan Stanley, “then we do believe the pressure on Sky to more aggressively roll out PVRs would increase.” She suggests this timetable is unlikely much before 2005-2006.

The Echostar PVR fee plan*

DiSH ‘Everything Package’ (\$74.99/mo.) = no monthly fee for PVR
DiSH ‘AT 150’/‘AT 100’ channel bundles = \$4.98 monthly fee for PVR
DiSH ‘AT 50’ = \$9.99 monthly charge for PVR

*For DiSH model 510 PVR (100 hrs of programming)

Data: Bear Stearns

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However - and this is the key portion of her study – she suggests that PVRs could be a value-generating opportunity for BSkyB, adding “as was the switch from analogue to digital”. While recognising that currently the product is too expensive and would need subsidising if Sky were to reach a meaningful penetration, the bankers say this would result in Sky staying more than capable of addressing any future competition from a pure VOD offering. Besides, she says: “mass penetration of PVRs would also lead to an increase in ARPU, and would ultimately add value.”

Morgan Stanley say they believe Sky is currently making “a small loss” in Year 1 when they sell a PVR, before taking into account marketing costs. They base their calculations on a typical first year model of 6 months ‘ownership’ by the subscriber and based on Sky’s monthly gross sub of £10, which represents a 65% gross margin (on a selling price of £249/\$390 and token £1 for installation). “We estimate,” says the bank, “that Sky loses £27 per PVR sold, excluding marketing.” But thereafter, they say, the service should be “highly profitable”.

Moreover, every PVR rolled out has a implied value to Sky of at least £238. “But,” asks Morgan Stanley, “if the economics of PVR’s are so good, then why doesn’t Sky push the product more heavily?” In fairness, we may be seeing this very push now. But the bank provides the probable answer, saying “In order to achieve mass penetration we think Sky would either have to subsidise more heavily the box+install, and/or reduce the

PVR economics for Sky+

Cost of box/LNB	£235	(company guidance)
Cost of installation	£75	(company guidance)
Current customer fee	£250	as of July 1 2003
Net subsidy	£60	

monthly charge.” The bank argues that if Sky were to drop the cost of box+install, to – say - £100/\$158, then this would represent an additional subsidy of £150 and an aggregate subsidy of £210, and pushing Sky’s loss per customer for the first year to an unpalatable £237/\$376. The bank, however, suggests that even with this degree of subsidy there would still be tangible value to Sky.

Sky has made similar investments in the past, notably over the introduction of Sky Digital. When it launched Sky Digital the cost of the box to each consumer, without a subsidy in place, would have been around £400 (\$633) per box. Sky took an after tax provision of £315m (\$500m) on the free box launch in order to implement this strategy. But Morgan Stanley remind readers that this was done when Sky’s overall revenue was much smaller than today. A similar subsidy today, say of 700,000 customers or 10% of the subscriber base, at £100 per sub, would cost a negative hit to pre-tax

earnings of some £166m. Sky migrated 1.5m analogue subs to digital in a single year, and the bank report says it might be worth thinking of this methodology as a means of moving from a luxury, low-penetration model, to a mass-market product.

Morgan Stanley say they don’t think Sky will adopt this strategy just yet, preferring to concentrate on “milking short-term cash-flow rather than investing in new products that will hit short-term earnings.” Sky is currently experimenting with varied pricing strategies for Sky+. Nevertheless, when one includes rental/leasing models being used by some manufacturers (notably Canalsatellite’s Pilotime PVR model) the market should no longer look at PVRs as a single sales model. **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

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VSAT4D in India

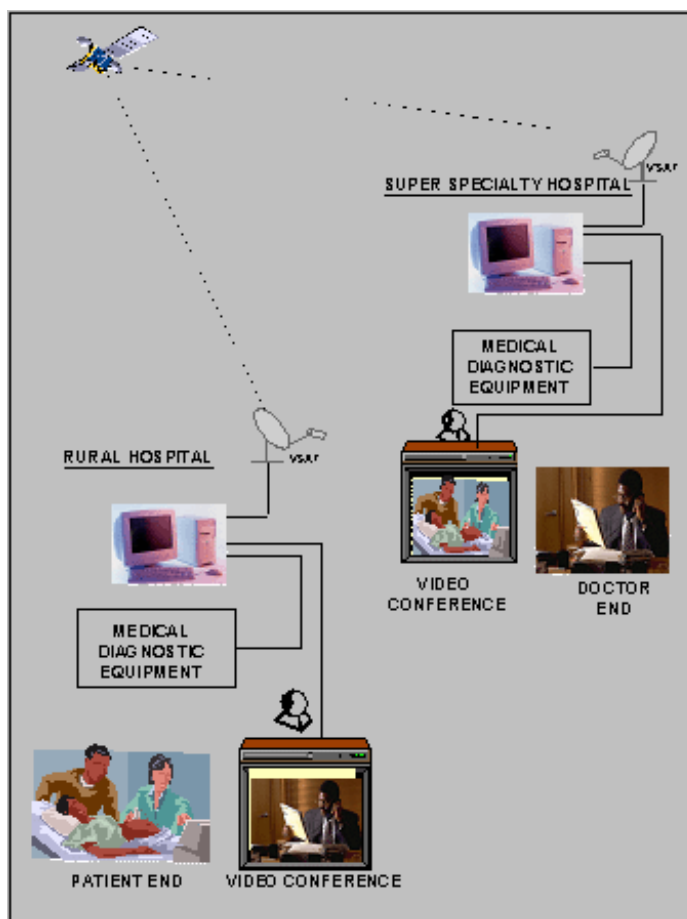
India's ISRO Deploys VSAT's in Progressive "IC4TD" Telemedicine Projects

By Stuart Browne

VSAT based satellite communications networks are being used to further telemedicine and other Information and Communication Technology for Development or ICT4D projects in many countries around the world. ICT4D, the hot new buzzword with the "development sector", looks to bridge the so called "digital divide" and bring "the Net" out to rural villages in underdeveloped countries. Broadband VSAT networks offering high speed data, video and voice as TCP/IP apps deployed in IC4TD projects or what I've dubbed - "VSAT4D", may be the ideal platform to bring the doctor to the patient, the school to the student and the government to the people.

I've had a keen interest in tele-education and tele-medicine via satellite since my days as a satellite network planner for the State of Alaska – where a number of tele-educational and telemedicine networks were pioneered in the 1970's. In those days, we thought we were "Hot Shots" deploying DEC e-mail into rural villages at 300 bps. via the RCA F1 satellite. Back then a 4.5 meter C-band antenna was considered "small"...compared to an Intelsat A Station anyway, but when compared to a modern Ku-band 1.2 meter VSAT, wow ...now that's progress !

Today, telemedicine applications are logically high on the list of ICT4D



projects, and Internet based networks clearly enable tele-health services with TCP/IP based apps being widely deployed worldwide. Typically, telemedicine involves one or more doctors who are engaged with a patient in a remote clinic undertaking medical diagnosis, consultation between doctors or physician assistants and training of medical workers using telecommunications links. In the

less developed and poorer parts of the world, remote radiological (X-ray and CAT) and hemodynamic monitoring (reading a patients vital signs) becomes even more vital where the lack of access to quality medical services often results in a plethora of health problems and disease. On a recent trip to Bangalore, India I learned that the India Government has recognized the benefits of telemedicine and is

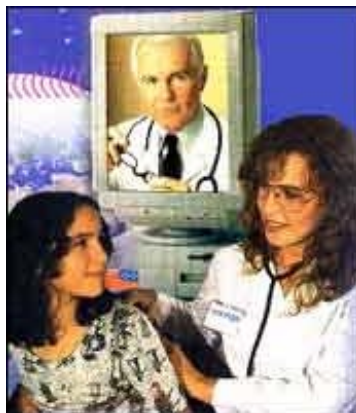
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using VSAT4D in projects aimed at serving rural citizens.

The Indian Space Research Organization (ISRO), the Indian government agency responsible for the highly successful INSAT series of domestic satellite that ISRO designs, constructs and launches, is one of the pioneering organizations to use VSAT networks for telemedicine applications. Village clinics, regional hospitals and major city training hospitals from the Andaman/Nicobar islands to the remote Himalayan cities of Leh and Ladak, to the war zone of Jammu and Kashmir, are all being brought "online" to medical services via INSAT satellite. Believe me these places are remote and not that easy to reach. My old friend Wing Commander BG. Bhalla, currently the Director of the VSAT Association of India, has told me several tales about his days with the Indian Air Force flying prop driven cargo planes into Leh and Ladak, and landing or taking off at full throttle on an "uphill" short runway shrouded in clouds. Now there's a real "Hot Shot". When BG was "flying the hump" I was often stuck out in the Alaska "bush", tweaking what we called "Bush Earth Stations" to get a steady dial-tone out of Juneau (double-hop). In some ways getting out to an Alaskan Bush Village was a lot like flying into Ladak, "white knuckles" and well... hairy! The State of Alaska and the Federal Government put telemedicine projects in place quickly soon after the Alaskan Satellite Network came online in 1975. The most memorable project was the evening "Doctor Call" between village Physician Assistants and the Indian Health

Service in Anchorage...(not to be confused with the Indian Health Service in New Delhi), where all 125 Bush earth stations SCPC channels were "bridged" at the RCA Alascom gateway station in Eagle River. It was very effective as the PA's could all learn from others experiences via the nightly audio teleconference. These days because of Bandwidth compression, turbo product codes and QoS a two-way video conference can use even less transponder bandwidth into



antennas three times smaller. That's more progress.

India, along with producing the largest number of babies in the world, also has the largest number of children with heart disease with 18% of Indians over the age of 30 being diabetic. Medical experts believe that the only way to deal with these troubling issues is to place a cardiologist, diabetologist and neonatologist in every Indian village. This is certainly a huge challenge with more than 500,000 villages currently underserved by plain old telephone services. That's where VSAT networks can bridge the digital divide and quickly and cost-effectively deploy connectivity

to a village. ISRO believes that since more than 95% of illness do not require a "hands on" operation, specialty care can be provided using telemedicine services via satellite. Since disease management is based mainly on a patients health history, and the patients associated images and fluid analysis, this data can be captured on low-cost PC's and then transmitted from the village VSAT to regional analysis by specialists. Currently, ISRO's Telemedicine Network connects 19 remote locations and has serviced more than 5000 heart patients since its inception 15 months ago. In another ISRO network in Karnataka state, a telemedicine network links 27 district hospitals to primary health centers serving farmers across the state, with most of the network expenses paid for by health insurance. In the state of Andhra Pradesh. The APNET, a joint project between the state government, ISRO and Bharat Electronics (a large Indian government communications equipment manufacturer), uses the INSAT-3B satellite and Ku-band space segment to broadcast video and data to 400 receive-only VSAT's located at schools, colleges, government agencies and health care facilities. APNET is currently being used primarily for tele-education applications and is looking to upgrade to a broadband 2-way VSAT network of up to 2000 terminals for internet access, voIP and videoconferencing. In addition to the telemedicine projects, India has an many ICT4D or community information center projects underway including private-sector initiatives like Drishtee; government-to-citizen initiatives like the Bhoomi project, which has computerized 20 million land

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records; and the deployment of community information centers by Indian agriculture business giant ITC.

India, a country of great diversity and natural wealth has long suffered from the burdens of over population, poverty and an under developed transportation and telecom infrastructure. VSAT4D – Broadband VSAT's running Internet based telecom and broadcast apps, really seems to be a viable tool to narrow the digital divide and bring needed medical and educational services to India's huge rural population. Now if only all those VSAT's going into all these remote villages could be installed virtually, those young installers and pilots could avoid all those "hairy, white knuckle, uphill" landings...but for sure the stories wouldn't be nearly as interesting. **SM**



Hawaii based - Stu Browne has more than 28 years in satellite communications as a network engineer, planner and developer. He has been involved with VSAT networks since the early 1980's and has worked in Alaska, Europe, Africa, the Middle East and across Asia developing telephony, transactional data and broadband solutions for telco's, governments and enterprises. He is the Editor-Asia-Pacific of SatMagazine and is currently the Vice President and Managing Director, Asia-Pacific Region for iDirect Technologies Inc., a US manufacturer of broadband VSAT network systems headquartered in Reston, Virginia. He can be reached at: sbrowne@idirect.net



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From Aerial to Dish – How Satellites Changed the Very Nature of Broadcasting

By Bruce Elbert
President, Application Technology Strategy, Inc.



When it comes to television, more is definitely better. DIRECTV pioneered the 100+ programming package and caused a revolution in our channel changing habits. But, this didn't just happen on December 13, 1993 (ten years ago), with the launch of DBS 1. It started in 1901 when Marconi demonstrated radio transmission across the Atlantic, evolved through the first AM and TV broadcasts, and reached the space age when Syncom 3 extended coverage to North America of the 1965 Tokyo Olympiad. The 30 meter dishes required to receive the Ali-Fraser prizefight in 1971 dwarfed the 3 meter TV receive-only reflectors that first appeared in India with the early SITE experiments by NASA's ATS-6 satellite. These first home dishes, made of chicken wire and miscellaneous local components, clearly demonstrated that satellite TV had a compelling future. BskyB launched the first successful DBS network over Astra 1, proving that smaller Ku dishes – and attractive new programming – are keys to success. Our icon is now that under-a-meter

dish that is visible throughout much of the developed world. It is appearing in developing countries as well, where more and more people own or have access to TV sets and have the necessary electric power to run them.

On the Asian front, Japan was first to launch a "true" DBS satellite that complies with the WARC 77 BSS assignment. NHK's pioneering two channel service in the 1980s paved the way in the 1990s for a digital multi-channel package on JSAT's satellites through sister company, Sky PerfecTV. Satellite-delivered TV is so ubiquitous on the Asian continent, we find it in small villages in China and even available on the streets of a liberated Baghdad. This is possible because satellite operators like AsiaSat, JSAT, SES, Eutelsat and Arabsat make transponders available at reasonable cost, and our industry has established powerful standards in MPEG 2 and DVB-S. Channels with regional and even local content in non-western languages are proliferating. In developed countries, programming formats also evolve

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as viewer tastes and needs change. Formats like Home and Garden Television, Fine Living and The Food Network literally address our tastes.

These activities point up that there is a developing business case for satellite programming and the diffusion of the technology to achieve penetration measured in billions. I think the sustainability of addressing these mass markets (which may not provide the same margins as in developed countries) is essential to ensuring the long-term viability of satellite technology. Companies should commit to serving these markets by entrepreneurial efforts and not just to government sponsored initiatives. By doing so, we counter one of the burgeoning problems affecting the industry in the developing countries—video piracy. The challenge of the “digital divide” is similarly being addressed in such remote regions, as we discuss in the recent issue of the *On-line Journal of Space Communication* (<http://satjournal.tcom.ohiou.edu/issue5/main.html>). If satellite video technology is ubiquitous and universally accessible then literally the sky is the limit and who knows what other impact it may have on not just broadcasting but society as a whole.

Watching satellite TV is *de rigueur* for those in the West who want to know what’s going on in the world as well as in their own backyards. Availability of digital cable in US and European markets assures subscribers that they may obtain the same satellite channel mix as enjoyed by home dish owners. Those same local channels in the Middle East, Asia and Central Europe are delivered in the US to our iconic dish through the auspices of GlobeCast’s innovative service, WorldTV. It’s a rather wonderful story of how our medium has changed this TV world forever. **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. Web site: www.applicationstrategy.com Email: bruce@applicationstrategy.com

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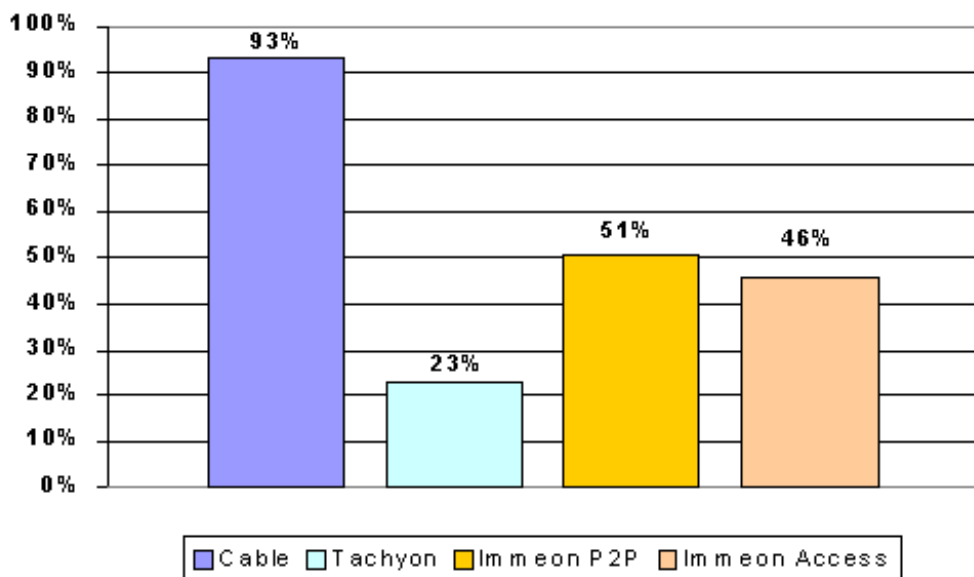
Bringing VPNs and Broadband Satellite Connections Together

By John Puetz

A virtual private network (VPN) allows users to communicate and access information securely over the public Internet or other non-private IP-based networks. VPNs provide virtually seamless and secure connectivity that is akin to a private network, yet at a fraction of the cost by taking advantage of existing low-cost and widely available Internet connections.

VPNs provide secure end-end virtual connections or “tunnels” by encrypting the IP data payload (e.g., email, files, etc.). The encryption/decryption and other administrative functions (authentication and access control) occur at each end of the connection. These functions add additional overhead data requirements to the primary data connection, thereby requiring more packets to be transferred between end-points.

Because of the longer end-to-end transmission transit times over satellite connections (e.g., 500 msec vs. 5 to 30 msec for terrestrial wire/fiber services), TCP/IP performance enhancement features are built into many broadband VSAT terminals to enhance throughput and minimize the additional transit time effects for guaranteed delivery IP protocols like TCP. The effectiveness of these IP accelerators can be dramatic in increasing throughput (refer to www.mwc.cc/bb-sat-dec00.htm and



www.mentat.com/skyx/whitepaper.html). Standalone IP accelerators are available from several different companies (Mentat: www.mentat.com and ViaSat: www.viasat.com) for implementing satcom networks that don't have integrated acceleration.

Some data encryption techniques like IPSec (IP Security) operate at layer 3 (the network layer) and encrypt IP and TCP headers along with user data as a payload within the IPSec packets. Thus, the encrypted TCP header information is no longer “visible” to the TCP accelerator and throughput wanes considerably as presented in a 10-page white paper I published last

year (available at http://www.mwc.cc/BB_WhitePaper_Intro.htm). In the paper I compared the performance of a number of satellite broadband services for SOHO/SME environments along with cable and DSL. As part of the evaluation I ran a basic VPN test using an IPSec-based appliance and compared throughput efficiencies. The results were dramatic as illustrated in the graph below. Other tests performed by DirecWay indicate a similar performance hit of 50 to 70 percent (also discussed in the white paper).

Fortunately, there are a number of 3rd party solutions that enable IPSec and satellite connections to operate

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Company	Web Address	Comments
V-ONE Corp.	www.vone.com	Most mature product, fielded in late 2001; white paper on website
Encore Networks	www.encorenetworks.com	Bandit launched in 2003; white paper on website
Ground Control	www.groundcontrol.com	IG-VPN launched in 2003; white paper on website
Skycasters	www.skycasters.com	SuperVPN available only with their DirecWay-based service

seamlessly together at full speed throughput speeds. These companies are highlighted below. Also several broadband VSAT equipment providers have either implemented solutions are implementing appliances that provide seamless IPSec support.

More recently, Secure Sockets Layer (SSL) has gained in popularity and a growing number of hardware appliances and application suites are available from companies like F5 Networks, Netscaler, Redline Networks, etc. Because SSL works at layer 4, it does not required specialized acceleration appliances (see www.pcmag.com).

VPNs and other advanced networking applications are actively being worked within the satellite and networking industries. An example of broad interest and industry support is the recent IEE sponsored conference in London this past June dealing with advanced networking over satellite that included VPNs, MPLS and DRM delivered services (see <http://www.iee.org/Events/e11jun03.cfm>).

Networking over satellite has

matured considerably over the past three to five years. And it will continue to evolve and become more sophisticated. Stay tuned for more breaking details in the months ahead. **SM**



John Puetz is president of MasterWorks Communications (www.mwc.cc), a business and technical consulting services firm specializing in satellite communications. He can be reached at +1.760.723-8897 or by email at john@mwc.cc.

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VIEWPOINT

DOD SATCOM Procurement: Time for a Change



By David Helfgott

More often than you can imagine, a satellite operator gets a call from someone in the Defense (DOD) that goes something like this: I need a gigahertz of bandwidth in 48 hours, for one year. Can you help?

Being a responsive and patriotic service provider in an industry with its share of challenges, the answer is invariably yes.

Is having a very large customer buying short time on the spot market good for business? Yes (and no.) Is it good for the taxpayer? Not really. Is there room for process improvement in the system that serves the DOD user-community, which has both short and long term needs, often with quick implementation and turnaround requirements? Absolutely.

What's At Stake

Leading satellite operators and the Satellite Industry Association (SIA) are eagerly awaiting a report from the General Accounting Office (GAO) on how the U.S. Department of Defense buys communications services from the commercial satellite industry.

The expected recommendations from the GAO, the investigative arm of Congress, will carry great weight as the industry is seeking to reform DOD's service-leasing paradigm with the biggest players in the commercial satellite industry. What's at stake? About \$300+ million per year in aggregate SATCOM services/requirements, making DOD easily the satellite communications industry's biggest customer.

Ultimately, what industry would like to see at the end of the legislative road is an improved partnership with DOD, in which multiyear service leases are more the rule than the exception that they are today (i.e. something more akin to what we find in the media industry). Procurement reform will allow the military to achieve a predictable supply of mission critical, lower cost satellite capacity and services. The fixed

satellite service operators, who seek market-predictability, would derive a more consistent revenue stream with less uncertainty, especially important when planning for high capacity, long lead-time future satellite assets. Effectively this would create a win – win, for industry and DOD.

Focus, Focus, Focus

There seems to be a growing consensus, from retired Army General Tommy Franks, and the newly appointed US Army CIO, Lt. Gen Steve Boutelle, to the satellite industry analyst firm, Futron, that Congress should require the DOD to buy bandwidth in multiyear increments, rather than the 6- or 12-month increments that have become all too common inside the Pentagon.

Before leaving the military service for private life, General Franks on July 9, conveyed to the Senate Armed Services Committee a few lessons learned from his experience leading the war with Iraq. Among them, General Franks said, "human intelligence and communications bandwidth also represent areas where we're going to be required...to focus effort in the future."

The new US Army CIO, Lt. Gen Steve Boutelle, has also been quoted recently in Federal Computer Week as saying his goals included, "developing a coherent satellite acquisition program" which would support future combat systems such as the Warfighter Information Network-Tactical (WIN -T) initiative.

Futron was even more direct, saying in a recent report that DOD "purchases capacity like a small-time customer," even though it is clearly the commercial satellite industry's largest customer.

Underscoring the need for procurement reform is the sheer volume of bandwidth the Pentagon has purchased in recent years, and the prospect for that trend to continue indefinitely.

The Defense Information Services Agency (DISA), which procures a large portion of the military's commercial satellite communication's requirements through the

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annually renewed Defense Working Capital Fund (DWCF), leased over 650% more satellite capacity in the war on terrorism than it did in the 1991 Persian Gulf War. During the recent Iraq war a staggering 80% of satellite communications were provided by the private sector.

What's driving increased reliance on commercial satellite communications are the accelerating bandwidth requirements of the DOD's network-centric warfare (NCW) policy and the organization of its entire communications network into what's known as the Global Information Grid (GIG).

To demonstrate the extent of this expanding bandwidth-requirement, just one Unmanned Aerial Vehicle (UAV), uses an entire 36 MHz satellite transponder to accomplish its mission. Commanders spent hundreds of man-hours in satellite videoconferences between Qatar and the Pentagon, sharing not only video images and voice, but data and applications in real-time. And military planners are calling for soldiers, pilots and ships to be networked to distant command centers, all generating and sharing information.

All told, the U.S. DOD consumed an unprecedented 3-gigahertz of bandwidth during the recent Iraq war, which is equivalent to three entire commercial satellites. The conflicts and operations of the future will consume even more bandwidth, as the military becomes more reliant on technology to gain efficiencies and sustain strategic advantage.

The Well Will Run Dry

Running the Army, Navy, Air Force or Marine Corps is considerably more operationally complex than running a cable TV network. But when CNN or another network buys satellite services, it has the discipline to plot out what it will need, based on projected growth, and buys 10 or 15-year blocks at a time, ensuring both access to critical satellite capacity and a negotiated lower cost. No satellite provider has lost commercial business (to my knowledge), to accommodate an unplanned request when a government buyer needed spot time. Yet, it is often necessary for satellite operators to adjust current customers to accommodate a government request. Fortunately, service operations have not been effected and the capacity has been available. But that well may run dry someday. Futron estimates that the military's demand for commercial satellite communications will outstrip supply by 2011 and some

estimates say it will occur much sooner.

Rather than face the unwelcome dilemma of having to choose between customers, AGS in conjunction with other players in the market, is leading the satellite industry to make recommendations to the Bush Administration on how to improve DOD satellite procurement policy.

Recommendations to the DOD

In recent meetings with OSD, DISA and the OMB, the satellite industry has compiled a list of recommendations for consideration. Key among them are:

- Clearly define satellite capacity requirement forecasts, on at least an annual basis.
- Adopt Federal procurement vehicles/processes, supported by approved congressional "line item" funding, to encourage long term, multiyear leasing of satellite capacity from U.S. satellite operators; (e.g. like the capital lease, end-of-life structure of some long-term fiber capacity programs).
- Institute direct procurement for commercial satellite capacity and services, that minimizes the use (and cost) of unnecessary third-party intermediaries. Designate and adequately fund a central DOD program office to have primary responsibility for acquiring commercial satellite communications.
- Develop better evaluation processes to avoid "directed" procurements and unnecessary limits on industry COTS solutions.
- DOD should acquire and operate its own satellite communications systems only when capabilities and capacity are not securely, reliably and cost-effectively offered by the private sector.

AGS firmly believes that process improvements in the long-standing partnership between DOD and the commercial satellite communications industry will encourage lower costs and better service for the Pentagon and greater value for the taxpayers. And, satellite procurement reform will inevitably help stabilize private industry during difficult economic times. We therefore believe that procurement reform is necessary and in the best interests of both our industry and the nation at large. **SM**

David Helfgott is the President and CEO of AMERICOM GOVERNMENT SERVICES, Inc. (AGS). AGS is a wholly-owned subsidiary of SES AMERICOM, with a 30-year heritage of serving the government market.

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implementation enables the support of Internet Protocol (IP) applications such as File Transfer, Mailing, Web access, IP Video or Voice over IP. Optional TCP/IP acceleration ensures the high speed video file transfer.

Using a second demodulator card per SkyWAN® node, Flexible Multicast Channel Assignment (FMCA) can be provided. This mode significantly increases the station receive capacity as well the network capacity usage in case of a multicast session across multiple channels.

GigaSat to Introduce First 3.7 metre Flyaway Antenna System at IBC 2003



GigaSat Ltd. will introduce the world's first 3.7 metre flyaway satellite newsgathering antenna system at the International Broadcasting Convention (IBC) 2003. The new FA-370 3.7 metre antenna is a compact ultra high gain antenna which can be easily deployed by one person with no tools in less than 30 minutes.

The FA-370 is ideal for any rapid deployment remote broadband communications requirement such as MCPC digital video, multiple SCPC transmission and broadband data. Major news stories, sporting events, emergency restoration and secure government/military communications are obvious applications. All major components of the antenna are made from state-of-the-art materials, including the multi segmented reflector, integrated 3 axis mount and flight case system which are all moulded from carbon fiber. The 3.7m diameter reflector can allow an uplink power previously unachievable from a true flyaway earth station. GigaSat's high precision manufacturing process ensures excellent surface accuracy on the dish and guarantees no deformation, even after

NEW PRODUCTS AND SERVICES

being assembled hundreds of times. Full compliance with all satellite operator specifications is guaranteed.

GigaSat understand the difficulties faced by operators in the field and this is reflected in the attention to detail found in the FA-370 antenna. Each FA-370 antenna has a four piece segmented feed arm which allows operation at C, X, Ku and DBS frequencies. Band changes are achieved simply by clipping the relevant feed cartridge into position. Vernier adjustments with clear scales are included for all three axis including fine and course adjustment for elevation and in common with all FA series antennas the FA-370 has a full 0 to 90 degree elevation capability. The FA-370 can be fully motorised, and when combined with the GigaSat STC-100 antenna controller it can automatically acquire and track, even inclined orbit satellites. The FA-370 system stows in only five lightweight flight cases and can easily be carried as excess baggage on commercial flights, weighing in at under 300 kg.

ViaSat Immeon Satellite Network Services Now Offers Shared Hub or Managed Network Services

Immeon, the satellite services business operated by ViaSat Inc., is offering a wider range of networking services than ever before for customers who don't want to operate their own networks. In addition to its well-known bandwidth-on-demand connections and Access shared-hub services, Immeon has grown to include managed network services for private customer networks. ViaSat provides Immeon services from its network operations and customer service center in Carlsbad with a service area that includes the United States plus portions of Canada and the Caribbean.

Customers are using Immeon high-speed data and voice services for mission-critical applications, such as retail operations, business continuity, disaster recovery, network capacity augmentation, connections to remote or temporary locations, and satellite newsgathering. With Immeon services, there is no need to maintain dedicated satellite circuits, but instead users can pay for broadband as needed, based on monthly usage and data rate requirements. Or customers can choose a plan that gives them always-on connections. With satellite's wide area coverage, cost is independent of the length of the connection and virtually any location in North America is within reach.. **SM**

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MARKET INTELLIGENCE

Presented by the Global VSAT Forum

IRAN

By Martin Jarrold
Chief, International Programme
Development, GVF

Iran is one of a number of Western and Central Asian countries that cause satellite

sales executives to salivate at the prospects offered by a largely untapped communications market.

Appreciation of the nature of those prospects rests on an understanding of the capriciousness of domestic policy and regulatory shifts which continue to affect Iran's Internet and satellite communications markets. The Iranian communications market is growing rapidly. The potential is for it to get very much larger, both because of domestic demand, and the urgent requirements of cross-border solutions for regional connectivity. We know this because the GVF has its local eyes and ears in our Iran-based members, one of which, the Iran ISP Association represents many other individual commercial ventures bringing Internet access to Iran's private and public sectors. An Understanding of local market conditions is also aided by a report from UK consultant DTT. *'Middle East Satellite Communications'*¹ is original, comprehensive, and extensive regional research, and the Iran chapter is essential reference.

Yet, although Iran was a relative latecomer to the Internet, the liberalising policy impact of the reformers at the beginning of the decade was such that private sector companies were permitted to become ISPs. With web and mail servers often located beyond the domestic reach of conservatives, the new commercial

service providers showed their sensitivity to the dynamics of policy change by, for example, coping with rulings that sought (in that oh so familiar way) to protect the sinecure of the incumbent telco, TCI.

But, stimulating such rulings was not *either* antipathy towards the evils of western web pornography *or* the need to protect the profits of a less than fully efficient telco, but a combination of the two, the precise emphasis depending on the cyclical predominance of conservative and reformist zeal.

Business Middle East, part of the Economist Intelligence Unit, reported that, in mid-May 2001, some 450 Internet cafés were temporarily closed down. Closed on the grounds of lacking permits to operate, all offered satellite broadband access, which was initially taken to suggest that the closures were inspired by censorship. However, according to the report, there may also have been commercial motives associated with potential future revenue streams into TCI.

The Iranian diaspora generates a great deal of voice traffic – a revenue stream jealously guarded by TCI. Incursions into the telco business model charging US\$1-a-minute by private ISPs offering satellite Voice over IP (VoIP) at US\$0.06-a-minute were bound to provoke a commercially orientated reaction.


Iran's cultural conservatives do not encourage satellite antennas. Yet in another reflection of the dynamics of the conservative vs. reformist balance of power, the actual implementation of prohibitions on

one-way antennas has been tempered by the liberalising agenda of a progressive President Khatami looking to enhance media freedom. The big question is how likely are the liberal elements in Iranian society likely to extend the parameters of their efforts to modernise and diversify the domestic economy. Eighty per cent of export revenues come from oil and gas; the terrestrial communications infrastructure is ageing; an inefficient high-tech sector lacks investment. Will we see relaxation of the rules affecting two-way satellite systems?

Statements from successive Communications Ministers strongly suggest that two-way satellite-based Internet access for the mass consumer market will remain unlawful. However, it is unlikely that the door to two-way Internet in Iran will remain completely closed to corporate interests, providing niche market opportunities for new players in the ISP market. It is exactly these service offerings that the GVF/Iran ISP Association *Middle East Satellite Summit* on October 1-2 (see box) will address.

NOTES

¹Middle East Satellite

Communications. DTT Consulting Ltd, 58 St John's Street, Winchester, Hampshire SO23 0HF, UK. 

GVF is organizing the **Middle East Satellite Summit**, to be held in Tehran, Iran on 1-2 October 2003. This Summit is jointly organised by the Global VSAT Forum and the Iran ISP Association. For further details go to www.gvf.org or contact helen.jameson@gvf.org