



# SATMAGAZINE.COM

April 2005

Worldwide Satellite Magazine

Vol. 3 No. 1

## High Definition Television



### A New Way of Seeing Satellite TV

Your Satellite Connection to the World

SES GLOBAL

# TABLE OF CONTENTS

Vol. 3 No. 1, April 2005

Click on the title to go directly to the story

## COVER STORY      FEATURES      FEATURES      VIEWPOINT



### 20 / HDTV Comes to Satellite

*By Howard Greenfield*

HDTV is coming. It's hard to pinpoint the transition line to mass adoption, but it looks like this year. This feature includes an interview with Billionaire entrepreneur and HDNet CEO Mark Cuban.



### 24 / 2005, The Year of HDTV, Again

*By Dan Freyer*

HDTV is now available to over 90 million cable subscribers in the U.S. It is also being offered via satellite. Dan Fryer examines HDTV's growth in the North American market.



### 28 / HD Generates European fever

*By Chris Forrester*

HDTV is also spreading to Europe, Chris Forrester reports.



### 33 / Hughes Aircraft Remembered

*By Bruce Elbert*

Former Hughes employee and industry veteran Bruce Elbert looks back at Hughes Aircraft Co. and its contributions to the development of the satellite communications industry.

## EXECUTIVE SPOTLIGHT



### 36 / Interview with GlobeCast North America CEO David Sprechman

After winning the Teleport Executive of the Year Award at the recent SAT 2005 show in Washington, D.C. GlobeCast CEO David Sprechman spoke to SatMagazine Managing Editor, Virgil Labrador on how he turned around the company in a difficult and challenging period.

## REGULAR DEPARTMENTS

- 3 / Note from the Editor
- 4 / Calendar of Events
- 5-6 / "Featured Event: ISCE 2005-Satellite Services for Government and Commercial Enterprise"
- 10-12 / Industry News
- 13-16 / Executives Moves
- 17-19 / New Products and Services
- 38-39 / "Market Intelligence: Kenya's Telecoms Regulation" Crisis or Continuity?
- 40 / Stock Monitor / Advertiser's Index

## NOTES FROM THE EDITOR



## Satellite Radio is Booming

**W**e focus this issue on a growing market—satellite radio. Our content almost exclusively deals with this hot market. Providing different perspectives on the subject are our regular contributors, Howard Greenfield, Chris Forrester and Bruce Elbert.

Indeed, satellite radio is booming. Just in the last year, subscriber numbers in the U.S. more than doubled from two million to over four million. Satellite radio is also the second fastest rate of adoption by consumers, achieving 1 million subscribers in less than 18 months (a feat surpassed only by DVDs). Just to give perspective on this accomplishment, when it was first introduced it took radio and TV over three years to reach a million sets— satellite radio did that in half the time.

The question on everyone's mind, though is whether satellite radio can ultimately deliver profits. The answer to the questions lies in one of the articles in this issue. So read on.

Just to give you all a heads up—we will be featuring HDTV in our April issue. HDTV along with satellite radio have been highly touted as the future of satellite services. This issue and the next should provide a lot of fodder for thought leading up to the NAB in April.

Meanwhile, the ISCe show in Long Beach, California in June is shaping up nicely. The feature on page 7 provides details of key sponsors that included leading companies of the industry such as Inmarsat, SES Americom and PanAmSat's G2 Satellite Solutions. ISCe also announced the line-up for its Keynote session on Thursday, June 2. DK Sachdev, President, SpaceTel Consultancy will be moderating the session and speakers include Dr. Gerhard Bommas, CTO – ND Satcom AG; Mark Dankberg, Chairman & CEO – ViaSat, Inc.; Mary Ann Elliott, President & CEO – Arrowhead Global Services; Carmen Lloyd, Chairman & CEO – Iridium Satellite; Dave Ryan, President – Boeing Satellite Systems and

Pascale Sourisse, Chairman & CEO - Alcatel Space. It should be a very interesting conference. So if you haven't made your plans to attend ISCe in June, you should.

*Virgil Labrador*

## 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](mailto:design@satnews.com)  
 Website: [www.satmagazine.com](http://www.satmagazine.com)

## EDITORIAL

Silvano Payne  
**Publisher**

Virgil Labrador  
**Managing Editor  
 and Editor, North America**

Chris Forrester  
**Editor, Europe, Middle East  
 and Africa**

Bernardo Schneiderman  
**Editor, Latin America**

Peter I. 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  
 ([jill@satmagazine.com](mailto:jill@satmagazine.com))  
**Advertising Sales**

Joyce Schneider  
 ([joyce@satnews.com](mailto:joyce@satnews.com))  
**Advertising Sales**

**Satnews Publishers** is the leading provider of information on the worldwide satellite industry. For more information, go to [www.satnews.com](http://www.satnews.com)

Cover Design by: Simon Payne

Copyright © 2005  
 Satnews Publishers  
 All rights reserved.

# CALENDAR OF EVENTS

## APRIL 2005

April 11-14, Istanbul, Turkey

### Caspian Telecoms 2005

Elena Peredel'skaia

Tel: +44 (0)20 7596 5205 / 5000 / Fax: +44 (0)20 7596 5208

Email: [Elena.Peredelskaia@ite-exhibitions.com](mailto:Elena.Peredelskaia@ite-exhibitions.com)

Websites: [www.ite-exhibitions.com/](http://www.ite-exhibitions.com/) [www.caspianworld.com/](http://www.caspianworld.com/)

April 16-21, Las Vegas, Nevada, U.S.A.

### NAB 2005

Tel: +1-202-595-2052 +1-888-740-4622

E-mail: [register@nab.org](mailto:register@nab.org)

Web: [www.nabshow.com](http://www.nabshow.com)

## MAY / JUNE 2005

May 31-June 2, Long Beach, CA, U.S.A.

### ISCe Conference and Expo

Gina Lerma

Tel: +1-310-410-9191 / Fax: 1-310-410-9396

E-mail: [glerma@hfusa.com](mailto:glerma@hfusa.com) Website: [www.isce.com](http://www.isce.com)

May 31-June 3, Almaty, Kazakhstan

**KITEL 2005**- 12th Kazakhstan and Central Asian International Telecoms & Computer Technologies Exhibition- 1st Kazakhstan and Central Asian Satellite, Broadband, Wireless and Broadcasting Conference and Showcase

Elena Peredel'skaia

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

Fax: +44 (0)20 7596 5208

Email: [Elena.Peredelskaia@ite-exhibitions.com](mailto:Elena.Peredelskaia@ite-exhibitions.com)

Websites: [www.ite-exhibitions.com/](http://www.ite-exhibitions.com/) [www.caspianworld.com/](http://www.caspianworld.com/)

June 14-17, Singapore

### CommunicAsia 2005

Victor Wong

Tel: (65) 6233 8662 / Fax: (65) 6835 3029

Email: [vw@sesallworld.com](mailto:vw@sesallworld.com) / Web: [www.communicasia.com](http://www.communicasia.com)

June 14-17, Singapore

### Broadcast Asia 2005

Jackson Yeoh

Tel: (65) 6233 8633 / Fax: (65) 6835 3029

Email: [jy@sesallworld.com](mailto: jy@sesallworld.com) / Web: [www.broadcast-asia.com](http://www.broadcast-asia.com)

June 23-25, Agricenter International Memphis, TN

### Satellite Expo 2005

Lee Gilliland1

Tel: -877-SAT-SHOW

E-mail: [info@satelliteexpo2005.com](mailto:info@satelliteexpo2005.com)

## SEPTEMBER 2005

September 5-9, Paris, France

### World Satellite Business Week 2005

Linda Zaiche

Tel: +33 1 49 23 75 17 / Fax: +33 1 48 05 54 39

E-mail: [zaiche@euroconsult-ec.com](mailto:zaiche@euroconsult-ec.com)

Web: [www.euroconsult-ec.com](http://www.euroconsult-ec.com)

September 8-12, Amsterdam, The Netherlands

### IBC 2005

Tel: +44 (0)20 7831 6909

Fax: +44 (0)20 7242 8907 / Email: [registration@ibc.org](mailto:registration@ibc.org)

Web: <http://www.ibc.org/>

September 21 - October 1, Vicenza, Italy

### SAT EXPO 2005

Rosalia D'Aprano

Tel: +39 0444 543133 / Email: [rdaprano@satexpo.it](mailto:rdaprano@satexpo.it)

Web: <http://www.satexpo.it/en>

## OCTOBER 2005

October 3-6, Salvador da Bahia, Brazil

### ITU Telecom Americas 2005

John Jacobs

Tel: +41 22 730 5401

Email: [itutelecom@itu.int](mailto:itutelecom@itu.int)

Web: [itu.int/AMERICAS2005/index.html](http://itu.int/AMERICAS2005/index.html)

## NOVEMBER 2005

November 1-3, Ararat Park Hyatt Hotel, Moscow, Russia

### 2nd Russia and CIS Broadband Summit and

### MITEL 2005 Exhibition

Elena Peredelskaia

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

Fax: +44 (0)20 7596 5208 (direct line)

Email: [Elena.Peredelskaia@ite-exhibitions.com](mailto:Elena.Peredelskaia@ite-exhibitions.com)

Web: <http://www.broadband-conference.com> ;

<http://www.ite-exhibitions.com>

December 2-5, World Trade Center, Istanbul, Turkey

### International Trade Fair for Satellite Communication,

### Broadcasting and TV Content

Özlem Ercan

Tel: +90.212.334 69 00

Fax: +90.212.334 69 34

E-mail: [ozlem.ercan@hfturkey.com](mailto:ozlem.ercan@hfturkey.com)

Web: [www.cebit-bcs.com](http://www.cebit-bcs.com)

## FEATURED EVENT

# Satellite Services for the Government and Commercial Enterprise

**ISCe Conference and Expo**  
May 31-June 2, 2005  
Long beach, California



**ISCe 2005, May 31 – June 2, 2005**, promises to be of great interest to everyone concerned with the state of the satellite industry as it

pertains to commercial and military/government applications. Due to a number of significant events over the last few years, changes are rapidly occurring that effect the bottom line of all satellite enterprise, regardless of the final customer. Take a look at trends that are changing the demand for satellite services, new markets created by the military and government for homeland security, and how mobility and portability of communications are enabled by satellites.

## Transforming SATCOM for the Warfighter: The Appropriate Mix of Commercial and Military Satellite Communications?



**Satellite Industry Association**

By David Cavossa, Executive Director -

ment of Defense utilized commercial satellite services for approximately 30% of

its satellite communications (SATCOM) requirements, while approximately 70% were fulfilled by military satellite communications (MILSATCOM). During Operations Enduring Freedom and Iraqi Freedom, the ratios reversed. A ranking Joint Staff officer has said that Operation Enduring Freedom was “the first time that satellite bandwidth was not a constraint.”

During his tenure, Secretary of Defense Donald Rumsfeld has placed particular interest on the role of space assets in his vision for military transformation and the DoD is currently developing an array of new MILSATCOM satellites to fulfill this vision. These new systems include the Wideband Gapfiller Satellites (WGS), the Advanced Extremely

High Frequency Satellites, the Transformational Communications Satellite (TSAT), and the Mobile User Objective System (MUOS).

But even as these new military communication satellites are deployed, the U.S. military's thirst for satellite bandwidth will only continue to expand as new weapons systems are fielded and new bandwidth hungry applications are created. Unmanned Aerial Vehicles (UAVs) such as the Predator and Global Hawk heavy users of commercial satellite bandwidth. Other bandwidth-intensive activities, such as secure video teleconferencing and encrypted command and control operations, will add to the overall increase in bandwidth demand. Such is the nature of the bandwidth beast that has been created in the DoD.



To prove this point, the Air Force reports that the demand for communications bandwidth increased by over 473% between Operations Desert Storm and Operations Enduring Freedom and Iraqi Freedom. Interestingly, the US Military is not only requiring more bandwidth but is requiring it for fewer and fewer personnel - just a hint as to the future and the DoD's goal of network-centric operations.

Once the key enablers of the MILSATCOM system are established, network-centric operations will link the war-fighters on the land, sea and air into a unified and connected force more lethal and precise than ever imagined. These future MILSATCOM systems will enable war-fighters to create the right effect, at the right time, at the right point in the battle-space, and ensure they are never in a fair fight with their less advanced, less “connected” opponents.

Considering the WGS program is expected to begin deployment in the 2006 timeframe, AEHF and MUOS in the 2008 timeframe, and TSAT after 2012, a satellite communications architecture of both MILSATCOM and commercial SATCOM will still be needed to fulfill the totality of the Defense Department's satellite communications requirements in the time period before their launch and also, to a lesser extent, following their deployment. Commercial SATCOM bandwidth was used during peak fighting in Iraq for a range of communications functions including telephony, logistics, email, internet access, and even some mission

# FEATURED EVENT

critical operations. It was perfectly positioned to take on tasks that did not require the level of security, physical protection, and encryption of MILSATCOM assets.

Given this increasing reliance on commercial satellite communications, questions have arisen regarding “how reliable is commercial SATCOM”? In recent years in response to these questions both the Administration and Congress have issued numerous reports that have taken a fresh look at the commercial SATCOM protection issues. In early 2003, the Government Accounting Office (GAO) issued a report titled “Commercial Satellite Security Should Be More Fully Addressed”, Congress also passed specific language in the 2003 Homeland Security Act stating that commercial satellite communications infrastructure should be considered “National Critical Infrastructure”



Commercial satellite protection issues were also tackled in the 2004 report of the National Security Telecommu-

nications Advisory Committee (NSTAC) Satellite Task Force Report. While attending to several of the satellite vulnerability mitigation issues that need to be addressed in the commercial satellite industry, the report also addressed the need for a better relationship/partnership between satellite industry and U.S. Government, including local, state, and national first responders, the Department of Homeland Security and more specifically the DoD.

Though the DoD must continue, and will continue, to field new and improved MILSATCOM systems to meet its increasing need for protected communications, the DoD will also continue to rely on commercial SATCOM to fill those communications needs that cannot be met

by its current and future MILSATCOM systems.

There is a great need and the importance of integrating commercial SATCOM into the DoD military satellite communications wideband and narrowband architecture. No longer is commercial SATCOM regarded as just an augmentation to MILSATCOM. Now we must make sure the rest of the DoD community, at the user level, understand this mix of MILSATCOM and commercial SATCOM options when budgeting, architecting and planning for their future communications needs.

Featured at ISCe 2005 !

## Network-Centric Operations: The Future Mix of Commercial and Military Satellite Communications

Wednesday, June 1st  
2:45 pm – 4:00 pm

The bellwether events of the last two decades have changed forever the way the Pentagon looks at commercial and military satellite communications. In recent years, the satellite industry has been working in partnership with the DoD regarding the opportunities and challenges of relying on both government and commercial satellite systems to meet important military communications objectives. This panel will explore those opportunities and challenges as the future SATCOM architecture of the Pentagon is modernized in a new strategic approach blending both commercial and military systems.

### Speakers:

- David Cavossa**, Executive Director – SIA (Moderator)
- Robert Demers**, VP, Federal Solutions - Inmarsat, Inc.
- David Helfgott**, President & CEO - Americom Government Services
- Tim Richard**, General Manager - GlobeCast Government Services Group
- Kay Sears**, SVP, Marketing & Sales - G2 Satellite Solutions.

## Future Trends and Replacement Market



By Phil McAlister, Dir., Space & Telecommunications The Futron Corporation

The satellite industry has experienced many profound changes over the last decade: the expansion of the Direct-To-Home television market, the rise and fall of the low Earth orbit telecommunications systems, and the development of the Internet as a source of demand, to name just a few.

Throughout all these changes, the heart of the industry has been the satellite itself. All the industry sectors (satellite services, launch services, ground equipment, and satellite manufacturing) are critical for the industry to maintain its viability and competitiveness. However, the satellite is the lifeblood of the industry, and the number of satellite orders (and launch orders) has become a key metric in determining the health and future prospects of the industry.

Current global analysis of the demand for GEO commercial communications satellite bandwidth for voice, video,

# FEATURED EVENT

and data service (C, Ku, and Ka Bands) indicates forecasts that bandwidth for satellite services demand is growing at a fairly healthy rate for the 2004-2012 time period. However, while the demand for bandwidth is forecast to grow at a relatively robust rate, the demand for individual spacecraft and launches is not so strong. Increased spacecraft power, longer service life, and increased number of transponders per spacecraft all work together to depress the demand for actual satellites in relation to bandwidth.

This forecast is a confirmation of many well known aspects of the current satellite market: there is no “killer app,” the current overcapacity of bandwidth will take several years to be absorbed, and the satellite market will be predominantly a replacement market for the next several years.

**Featured at ISCe 2005 !**

## Future Trends and the Replacement Market: What’s Around the Bend?”

**Thursday, June 2 • 1:30 pm – 2:45 pm**

As the result of several recent trends in the satellite industry, the replacement market has emerged as the primary driver for commercial space infrastructure sales. These trends include: the lower than expected demand for new satellite applications, the heightened awareness of the satellite operators on profitability, and recent satellite failures. This panel will explore these and other trends in the satellite industry and discuss their implication for satellite and launch vehicle manufacturers.

### Speakers:

- Phil McAlister,**  
Director, Space & Telecommunications - The Futron Corporation (Moderator)
- Clayton Mowry,**  
President, Arianespace USA
- Elon Musk,**  
President & CEO, SpaceX
- Mark Albrect,**  
President - International Launch Services
- Jim Maser,**  
President - Sea Launch Company LLC
- Patrick DeWitt,**  
President - Space Systems Loral

## Mobile Satellite Services for Commercial and Government Users



By Scott Chase, President - Mobile Satellite Users Association

Any review of industry developments related to commercial and government satellite services will yield a harvest of information about mobile applications. This turnaround in the mobile satellite services (MSS) sector has been so dramatic that industry failures and missteps of the last several years have largely been eclipsed and forgotten.

From core government and military applications around the world and most prominently in zones of regional strife and conflict, to rescue workers in South Asia communicating critical health and other information in the aftermath of the tsunami disaster, the MSS sector has rarely been so “in the news.”

For providers of mobile satellite services, this re-emergence of the marketplace has come with such vigor



that even “old pros” in the industry are hailing the rebirth of MSS as more closely resembling the emergence of a new and vibrant industry. Regulatory agencies around the world are scrambling to enable MSS, again an evolution from not-so-distant days when issues of cross-border transportability of devices and limited service mandates placed significant constraints on the growth of the marketplace. Today, consumers - be they rural, urban, national, commercial, governmental, military - demand “anywhere, anytime, to any device” mobility, and the MSS industry is obliging its proponents.



Key recent developments have included a regulatory ruling in the United States allowing the use of the Ancillary Terrestrial Component (ATC), an engineering and technical “fix” that helps to eliminate dead zones in satellite-delivered mobile services. On a more global scale, Inmarsat launched its newest satellite, Inmarsat 4F1, in mid-March on an ILS Atlas booster, thus at the same time orbiting the most powerful mobile services satellite ever built and inaugurating its next-generation satellite system. Systems such as Iridium are finding new or expanding commercial users in areas such as the air traffic control arena, others, like Thuraya, note almost routinely that they serve more than 2 billion potential users in their coverage areas.



# FEATURED EVENT

Featured at ISCe 2005!

## Mobile Satellite Services: Critical Capabilities for Commercial and Government Users

Thursday, June 2 •  
4:00 pm – 5:15 pm

A “new age” of critical mobile satellite services and applications is fueling operator innovation and customer requirements across a spectrum of needs and events. Global connectivity, and “anywhere, anytime, on-demand communications” have become essential to businesses, governments, first responders, and armed forces across the globe. Costs have come in line with capabilities, and the future of MSS has moved from the technologists and into the end-user mainstream. Don’t miss this exciting panel of government and industry leaders discussing the latest in the MSS arena!



**Speakers:**  
**Scott Chase,**  
 President - Mobile Satellite Users Association (Moderator)  
**Robert Ames,**  
 President & CEO – Satellite Users Interference Reduction Group

**Brian Hester,**  
 President - Satamatics USA  
**Bo Norton,**  
 Director, Sales – Telenor Satellite Services  
**Bob Roe,**  
 SVP, Mobile Satellite Services - Stratos Global



**ISCe 2005**  
 May 31 — June 2, 2005  
 Hyatt Regency Hotel  
 Long Beach, California

[www.isce.com](http://www.isce.com)

Satellite-based services, technologies and solutions for the commercial, consumer, civil, and military sectors!

- + Defense and Security Track
- + Government Satellite Requirements Summit
- + Space Enterprise Forum
- + Satellite Entertainment / DBS Forum
- + Welcome Cruise Reception & ISCe Awards Dinner



**BG (S) Ellen Pawlikowski**  
 Program Director, MILSATCOM JPO, Space & Missile Systems Center (SMC) – U.S. Air Force Space Command



**Lt. Gen. Robert Shea**  
 Director, C4 Systems, JCS (J-6) – U.S. Marine Corps (invited)



**Capt. Dave Porter**  
 Program Manager, Communications Satellite Program Office PMW-146 - SPAWAR



**BG Larry James**  
 Vice Commander, Space & Missile Systems Center – USAF



**RADM Tom Zelibor**  
 Director, Global Operations (J3) – U.S. Strategic Command



**BG Charles Fletcher**  
 Commander, Military Surface Deployment and Distribution Command – U.S. Army

**For sponsorship opportunities, Product Demonstration Program details, exhibit sales or conference program information, please visit [www.isce.com](http://www.isce.com) or contact Gina Lerma at [glerma@hfusa.com](mailto:glerma@hfusa.com) or +1 (310) 410-9191.**

**Early Bird Registration**  
 Available Online at: [www.isce.com](http://www.isce.com)

Organized by: Hannover Fairs USA, Inc. Co-hosted by: SIA Supporting Organizations: CALIFORNIA SPACE AUTHORITY, GVF, MSUA, SSPI, WTA



# FEATURED EVENT

## Transforming the DoD Information and Communications Infrastructure

Wednesday, June 1 •  
8:30 am – 10:00 am

Wednesday’s Plenary Session will examine changes in the DoD since 9-11, and whether there is a need for greater reliance on the inherent flexibility of the commercial provider.

**Speakers:**

- VADM David Frost**  
USN (Ret.), Former Deputy – USCINCSpace (Moderator)
- Maj. Gen. Dennis Moran**,  
Director, Information Ops, Space and Networks - U.S. Army
- Lt. Gen. Robert Shea**,  
Director, C4 Systems, JCS (J-6) - U.S. Marine Corps (Invited).

## The Enabling Factor of Network Centric Warfare (NCW)

Wednesday, June 1 •  
10:30 am – 12:00 pm

This panel will provide an overview of the programs that will be the technology enabler of NCW, the acquisition and development approaches for the programs, and the technical and programmatic challenges that are being tackled.

**Speakers:**

- Sam Porgess**,  
Vice President - Booz Allen Hamilton (Moderator)
- Brig. Gen. (S) Ellen Pawlikowski**,  
Program Director, MILSATCOM JPO, Space & Missile Systems Center (SMC)

- Dr. Ronald Jost**,  
Principal Director, S3C3 DSAD and Director of Wireless - OASD/NII
- Mike Kern, Sr.**  
System Engineer, GIG - Office of the Secretary of Defense
- John Landon**,  
Asst. Secretary of Defense, C3ISR and IT Acquisition Programs (acting) - OASD/NII
- Capt. Francis “Luke” Lukenbill**,  
Director, Acquisition and Engineering Group, Communication Systems, Acquisition and Operations – NRO.

## Future Combatant Commander’s Requirements

Thursday, June 2 •  
10:45 am – 12:15 pm

This panel will debate the requirement for global connectivity, reliance on the space medium, and clear trends in these domains that will persist over the next several years.

**Speakers:**

- VADM Lyle Bien** USN (Ret.),  
Former Deputy Commander-in-Chief, USSPACECOM (Moderator)



- Brig. Gen. Charles Fletcher, Jr.**,  
Commander, Military Surface Deployment and Distribution Command - U.S. Army
- Brig. Gen. Larry James**,  
Vice Commander, Space & Missile Systems Center – USAF
- RADM Tom Zelibor** USN,  
Director, Global Operations (J3) - U.S. Strategic Command

## SATCOM and Homeland Security: A Work in Progress

Thursday, June 2 •  
4:00 pm – 5:15 pm

This panel will examine new strategies developed by the U.S. Department of Homeland Security and the DoD regarding commercial SATCOM capabilities and requirements.

**Speakers:**

- Richard Buenneke**,  
Sr. Policy Analyst, National Security Systems Engineering - The Aerospace Corp.
- Jeffrey Glick**,  
Chief, Critical Infrastructure Protection Division, National Communications System - U.S. Department of Homeland Security
- Col. Thomas Shearer**,  
Chief, Planning Integration, NSSO - U.S. DoD.



## INDUSTRY NEWS

### Boeing Fires CEO Harry Stonecipher Over Affair



**CHICAGO, March 8, 2005**— Boeing announced on March 7 the Board of Directors asked for and received the resignation of President and CEO Harry Stonecipher on Sunday, March 6.

Concurrently, the Board has appointed CFO James A. Bell, 56, as president and CEO on an interim basis, with Board Chairman Lew

Platt assuming an expanded role in his capacity as non-executive chairman.

Boeing said the Board actions were taken following an investigation by internal and external legal counsel of the facts and circumstances surrounding a personal relationship between Stonecipher and a female executive of the company who did not report directly to him. Boeing said the board determined that his actions were inconsistent with Boeing's Code of Conduct.

"The Board concluded that the facts reflected poorly on Harry's judgment and would impair his ability to lead the company," said Platt.

But he quickly added the resignation was in no way related to the company's operational performance or financial condition, both of which remain strong. "However, the CEO must set the standard for unimpeachable professional and personal behavior, and the Board determined that this was the right and necessary decision under the circumstances," he said.

### Atlas V Launches Massive Inmarsat Satellite

**CAPE CANAVERAL AIR FORCE STATION, Fla., March 14, 2005** — An Atlas V launch vehicle carried its largest payload to date into orbit on March 11, the Inmarsat 4-F1 satellite that weighs nearly 6 metric tons (5,959 kgs/13,138 pounds).

The Lockheed Martin-built Atlas V vehicle, designated AV-004, lifted off at 4:42 p.m. EST (21:42 GMT) and placed the Inmarsat spacecraft in a supersynchronous transfer orbit 32 minutes later. Satellite controllers have confirmed that the spacecraft is functioning properly.

"This is a milestone launch for us, also, in terms of the size of the payload," said ILS President Mark Albrecht. "Inmarsat 4-F1 is one



**An Atlas 5 rocket roars from its seaside launch pad Friday, carrying into space Inmarsat 4-F1 satellite to provide broadband access to mobile electronics users worldwide. (ILS photo)**

of largest commercial communications satellites in the world, as well as the most massive satellite launched by Atlas. Yet it falls into the middle of the Atlas V capability range, demonstrating the flexibility of our design."

The spacecraft is a Eurostar E3000 model built by EADS Astrium. It is the first in a generation of satellites that will support Inmarsat's new Broadband Global Area Network (BGAN), delivering internet and intranet content and solutions, video-on-demand, videoconferencing, fax, e-mail, phone and LAN access at speeds up to

432kbit/s almost anywhere in the world. BGAN will also be compatible with third-generation cellular systems. The operating location for Inmarsat 4-F1 is 65 degrees East longitude.

### Consumer Satellite Services: Best Years are Still Ahead

**WASHINGTON, D.C., March 25, 2005** — The consensus among the panelists in one session at the SAT 2005 show in Washington, D.C. was that the "best years are still to come" for consumer satellite services. The panel dubbed "The Best Years are Still Ahead: Consumer Services via Satellite in the Next Ten Years" was chaired by Stephen Blum, President of Tellus Ventures Associates included panelists Paul Heinerscheid, President of Satlynx; Tola Murphy-Baran, Senior Vice-President, Marketing of Sirius Satellite Radio and consultants John Ovrutsky and D.K. Sachdev.

Murphy-Baran of Sirius Satellite Radio said that "young people interact today differently to the media experience." She pointed out the importance of portability and the ubiquity of wireless appliances today. She said that future lies convergence and miniturization of various portable appliances to provide the most content to consumers. Murphy-Baran said that Sirius Satellite Radio sees itself more as content provider and are looking into

## INDUSTRY NEWS

delivering that content not just to radio but other communication devices such as Personal Digital Assistants (PDAs) and cellphones.

The panel was in agreement on the unique characteristics of satellite technology to drive the future growth in consumer broadband and wireless services.

### DirecTV's Spaceway Satellite Arrives at Sea Launch Home Port

**ST. LOUIS, March 18, 2005** — Boeing [NYSE:BA] and the DirecTV Group, Inc. said on March 17 Spaceway F1 satellite has arrived at the Sea Launch home port in Long Beach, Calif. where it will undergo final preparations for a late April launch aboard a Zenit-3SL vehicle.

Built on Boeing 702 model satellite,

**DirecTV's Spaceway F1 satellite undergoes final preparations for its launch aboard a Zenit-3SL vehicle. (Boeing photo)**

Spaceway F1 is the first of two spacecraft scheduled for launch this year for DirecTV. The spacecraft includes a flexible payload with a fully steerable downlink antenna that can be reconfigured on orbit to seamlessly address market conditions.

"We look forward to working with DirecTV and Sea Launch as Spaceway F1 continues through final testing and integration with the Zenit launch vehicle," said Dave Ryan, vice president and general manager of commercial and civil satellite programs at Boeing.

Spaceway F1 is one of four Boeing-built Ka-band

satellites DirecTV has scheduled for launch over the next three years as part of a historic expansion of programming capacity. The expansion will enable DirecTV to deliver more than 1,500 local and national High Definition channels and other advanced programming services to consumers nationwide by 2007.

**AAE**  
A New Dimension in Efficient Network Solutions

**ECLIPSE**

**FEATURES:**

- Multi-Frequency TDMA
- Full Mesh, Star, or Hybrid
- Bandwidth on Demand
- Based on IP Suite
- Delivers cost-effective VoIP, Data, Video, DVB
- From 70 Kbps to 40 Mbps

**DSM-1 Remote Terminal Modem**

**DMM-2 Network Moderator Modem small/medium networks**

**DMM-6 Network Moderator Modem large/expanding networks**

**NMS**

**AAE Systems, Inc.**  
642 North Pastoria Ave.  
Sunnyvale, CA 94085 USA  
tel. 408.732.1710  
fax. 408.732.3095  
sales@aaesys.com  
www.aaesys.com

## INDUSTRY NEWS

### Gov't , Military Market for Commercial Satellite Services to Generate \$7.8 Billion in Revenue Through 2010

**ORLANDO, FL, March 16, 2005/—** From an estimated \$580.2 million revenue in 2003, government and military market for commercial satellite services is expected to reach over \$1.4 billion by 2010 yielding total revenues of close to \$7.8 billion over an eight-year period.

According to Northern Sky Research's newest market survey and forecast report, satellite communications revenue growth remains driven largely by U.S. Military demand as the Pentagon's bandwidth needs have increased substantially and will not be satisfied internally before 2020.

Because of this, reliance on commercial bandwidth will become an increasing component of military planning to include non-critical and mission-critical needs over time, NSR said. In addition, continued presence in the Middle East region, as well as homeland security initiatives, should drive demand and sustain the market within the report's forecast period.

In terms of procurement, U.S. government

entities, specifically the U.S. Military, will continue to dominate contracting of satellite communications services, accounting for 89% of overall revenue streams. Non-U.S. and non-military procurement is expected to be a relatively small percentage of the overall market through 2010. **SM**

The graphic features a blue background with a globe. At the top left is a red rectangular bar. Below it are four images: a satellite in space, a ground station dish, a satellite truck, and a control room. The MEL logo is centered, with the slogan 'Worldwide Communication Solutions!' below it. At the bottom are several pieces of communication equipment, including a rack of units and two smaller units. The MEL logo is also at the bottom center.

# EXECUTIVE MOVES

## George N. Spohn Joins Thrane & Thrane as new Vice President, Sales & Marketing

March 22, 2005 — Thrane & Thrane, Inc. has appointed George N. Spohn as the company's new Vice President, Sales & Marketing to strengthen its Virginia Beach based North American sales arm.

From a position as Assistant Vice President, Government Sales at Hughes Network Systems, Spohn joins Thrane & Thrane to expand the company's already dominant position as a supplier of Inmarsat terminals to Government as well as commercial entities across North America, Thrane & Thrane said.

"In preparation for our exciting BGAN future, we are very pleased to have a capacity such as George Spohn to help us solidify our position as the undisputed leader in the supply of Inmarsat terminals," President Henrik Nørrelykke said.

"We have strengthened our market position consistently since we took over our largest distributor LandSea Systems, in November of 2003, and we are now prepared to further accelerate our growth," Henrik said

## Peter B. Teets Resigns as Acting Secretary of Air Force and NRO director

WASHINGTON, D.C., March 21, 2005 — Peter B. Teets has resigned as Acting Secretary of the Air Force and director of the National Reconnaissance Office effective March 25. Teets came to the Air Force in December 2001 from private industry.

"Pete Teets has handled challenging assignments during an important period in history, said Secretary of Defense Donald Rumsfeld. "I thank him for his service to the department and the country, and wish him and his family the best."

Teets said he was honored to serve in President Bush's administration with a talented national security team, specifically with the terrific men and women of America's Air Force and the National Reconnaissance Office. "I'm confident we've strengthened the world's greatest Air Force to continue providing air and space dominance for the 21st century," he said.

## Martin Succeeds Powell as FCC Chairman



WASHINGTON, D.C., March 17, 2005 — President George W. Bush designated on March 16 Kevin Martin as chairman of the Federal Communications Commission,

succeeding the panel's outgoing chairman, Michael Powell.

Martin, 38, has been a commissioner since 2001. As head of the FCC, he is expected to shape the broadcast industry by completing the digital transition and switch-off of analog television service. He also takes over at a time the Internet is reshaping telecommunications with Internet-based phone service, as among the emerging issues.

During his tenure, Martin has also recognized that the satellite industry is a critical piece of our national telecommunications infrastructure and essential to meeting the President's objectives of

ensuring broadband access for all Americans by 2007.

Martin previously served as special assistant to the president for Economic Policy at the White House as well as legal adviser to Harold Furchtgott-Roth during his service as a member of the commission. He also worked as deputy general counsel on Bush's first campaign.

Martin is a former University of North Carolina student-body president and Harvard Law School graduate.

"I am deeply honored to have been designated as the next Chairman of the Federal Communications Commission, and I thank President Bush for this distinct privilege," Martin said in a statement.

"I look forward to working with the Administration, Congress, my colleagues, and the FCC's talented staff to ensure that American consumers continue to enjoy the benefits of the best communications system in the world," he added.

## Dr. Michael D. Griffin Nominated New NASA Administrator

WASHINGTON, March 14, 2005 — President George W. Bush announced on March 11 his intention to nominate Michael D. Griffin of Virginia, to be Administrator of the National Aeronautics and Space Administration.

Dr. Griffin currently serves as Space Department Head at Johns Hopkins University Applied Physics Laboratory. Prior to that, he was President and Chief Operating Officer of In-Q-Tel, Inc. He also served in several positions within Orbital Sciences Corporation, including Chief Executive Officer of Magellan Systems, Inc.

# Executives Moves

Earlier in his career, Dr. Griffin served as Chief Engineer at NASA and as Deputy for Technology at the Strategic Defense Initiative Organization. He received a bachelor's degree in Physics from Johns Hopkins University; a master's degree in Aerospace Science from Catholic University of America; a Ph.D. in Aerospace Engineering from the University of Maryland; a master's degree in Electrical Engineering from the University of Southern California; a master's degree in Applied Physics from Johns Hopkins University; and a master's degree in Business Administration.

House Majority Leader Tom DeLay (R-Texas) applauded the president's choice of Dr. Michael D. Griffin as the new NASA administrator.

"President Bush's choice for the new administrator of NASA is the right one. By choosing Dr. Griffin, President Bush has proven his ongoing commitment to implementing a bold new vision for space exploration," DeLay said.

## Jon Zellner Joins XM as Sr. Vice President, Music Programming

WASHINGTON, March 15, 2005 — XM Satellite Radio said on March 14 that Jon Zellner, former Vice President of Adult Top 40/Hot AC Programming at Infinity Broadcasting, will be joining XM to serve in the newly-created position of Senior Vice President of Music Programming.

At Infinity, Zellner oversaw Adult Top 40/Hot AC stations in 17 cities, including San Francisco, Dallas, San Jose, Orlando, and Denver. Previously, he served at Infinity as Vice President of Top 40 Programming, overseeing stations in 11 cities. He was Vice President of Programming for a four-station cluster of Infinity stations in Kansas City for eight years, as well as



operations manager and program director for two Infinity stations in Boston for one year.

During his 18-year radio industry career, Zellner has served as a senior programming executive, operations manager, music director, and on-air talent at stations across the U.S. He was named one of the "best program directors in America" by Radio Ink magazine for four consecutive years.

## Igor V. Zabolotny Appointed RSCC Deputy Director General, Head of Marketing



MOSCOW, March 17, 2005 — The Russian Satellite Communication Co. (RSCC) announced on March 16 the appointment of Igor V. Zabolotny to the Deputy Director

General in charge of marketing.

Thirty-eight year old Zabolotny graduated in 1993 at the Moscow Technical University of Communications and Informatics with major in telecommunications engineering. In 1994, he graduated from the All-Russian Institute of Industrial Property and Innovations as patent engineer.

From 1997 to 1999 he worked as the Executive Director for JSC Rostelecom and from 1999 to 2002 as the Executive Director for JSC Svyazinvest where he dealt with marketing and sales issues. From 2002 to 2004 he worked as the General Director for the JSC Dalsvyaz.

Igor V. Zabolotny is a corresponding member of the Academy of Telecommunications and Informatics. He is a member of the board of directors of JSC Dalsvyaz public corporation and JSC Acos.

## DirecTV President and CEO Mitch Stern Resigns; Chase Carey, President and CEO of DirecTV Group, Takes Over

EL SEGUNDO, Calif., March 8, 2005/— Mitch Stern, president and CEO of DirecTV, Inc. has resigned and will leave the company effective March 7.

DirecTV said Chase Carey, president and CEO of the DirecTV Group will oversee day-to-day operations of DirecTV. DirecTV added it does not intend to replace Stern, who joined the company in December 2003.

"Serving as DirecTV's president was very rewarding and I am very proud of all that we accomplished in the last year," said Stern. "DirecTV is a great success story and a fabulous business with a very promising future. While it was exciting to be part of such a dynamic organization, the time was right for me to move on."

Carey was named president and CEO of The DirecTV Group in December 2003. Under Carey's leadership, The DirecTV Group has sold its non-core assets and is focused on its satellite television businesses in the United States and Latin America. Carey serves as a director on the boards of The DirecTV Group and News Corp.

## Executives Moves

### Northrop Grumman Names Robert Burke VP, Advanced Mission Programs

REDONDO BEACH, Calif., March 7, 2005 — Northrop Grumman Corp. (NYSE:NOC) has named Robert Burke vice president, Advanced Mission Programs, a new position with overall responsibility from inception to completion for a set of restricted programs.

A 19-year veteran of the company, Burke, 41, has been a program manager at the company's Space Technology sector since 2002. Prior to that, he was the deputy



program manager for the James Webb Space Telescope as well as for the Chandra X-ray Observatory where he was responsible for all aspects of spacecraft launch and operations readiness. In addition, he served as manager of the Engineering and Operations Center within the company's Defense Systems division.

He joined Northrop Grumman in 1985 as an electrical design integration engineer. Since then, he has held a variety of

engineering and management positions of increasing scope and responsibility in both the functional and program organizations.

Burke earned a bachelor's degree in electrical engineering from the University of Notre Dame and has completed the Executive Management Program at the University of California, Los Angeles Anderson School of Management.

### Spacehab Appoints New Chief Operating Officer

HOUSTON, Texas, March 7, 2005—Spacehab, Incorporated (NASDAQ/NMS: SPAB) announced on Tuesday the



**Introducing**  
**NetLink ECP™**

**ILC's new cost-effective appliance for managing satellite networks, facilities, and equipment.**

Compact...Rugged...Low Power Consumption...the perfect solution for affordable management and monitoring of smaller satellite networks, remote environments, and mobile applications. Integrated with ILC's MaxView™ management software, the NetLink ECP appliance becomes your "all-in-one" toolset to manage everything in one GUI.

See the entire network with one solution. Simple. *Powerful.*

**NetLink ECP™.**

To download the NetLink ECP datasheet, [click here](#)




3350 Peachtree Road  
Atlanta, GA 30326  
404.504.7400

## Executives Moves

assumption of Michael E. Bain as Chief Operating Officer effective April 1, 2005.

Spacehab said the promotion and associated management changes better align the company with NASA's structure and support the company's growing commercial space access vision.

Bain, who joined Spacehab in March 1996, will be responsible for managing overall corporate operations, specifically for Spacehab Flight Services, Spacehab Government Services, and Space Commerce Development. He will help guide the company in its new pursuits, defining and implementing strategies to improve revenue and profitability.

Spacehab said additional changes in the

management team are also being implemented. After ten years of dedicated service to Spacehab, Dan A. Bland has decided that it is time to spend more time with his family and will be retiring his position as Senior Vice President, Spacehab Flight Services.

### EMS Satcom Names Candy Cunningham Sr. Account Manager to Focus on Gov't Sales

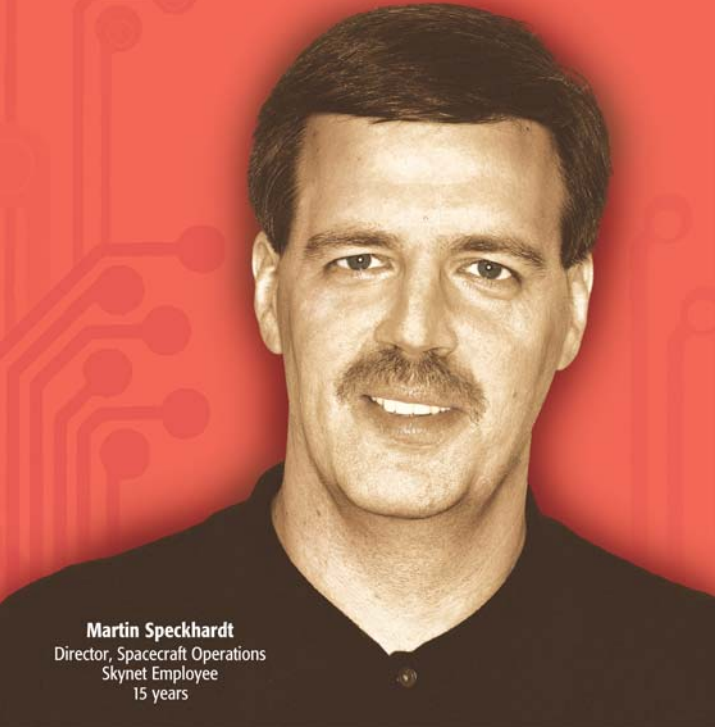
OTTAWA, Canada, March 7, 2005 — EMS Technologies, Inc. (Nasdaq – ELMG) has appointed Candy Cunningham as Senior Account Manager

for EMS's SATCOM Division. EMS said Cunningham will focus on growing the Division's government and military businesses.


Cunningham joins EMS Satcom from Thrane & Thrane. Possessing a deep knowledge of government and military communications requirements and procurement processes, she also has solid understanding of Homeland Security programs. Cunningham has nearly 20 years of experience in wireless communications and computer peripheral industry sales. She has developed effective relationships with VARs (value added resellers), systems integrators and significant industry partners that continue to serve her well. **SM**

Spacecraft Operations is serious business, so we make sure our technology and processes are the very best. It isn't just about protecting the satellites, it's about protecting our customers.

I believe in Skynet.




**Martin Speckhardt**  
Director, Spacecraft Operations  
Skynet Employee  
15 years



So do more than 400 of the world's most successful organizations.

Find out why at [www.ThinkSkynet.com](http://www.ThinkSkynet.com)



Industry pioneer since 1962,  
with a future that's brighter than ever

Call or email [info@loralskynet.com](mailto:info@loralskynet.com) today  
to put Skynet expertise and experience to work for your organization.  
HEADQUARTERS • Bedminster, NJ, USA • +1.908.470.2300

© 2005 Loral Skynet, A Loral Space & Communications Company



# New Products

## Yamaha, XM Announce First XM-Ready Receivers and Home Theater Systems



**The XM “Connect-and-Play” chip makes a wide variety of home entertainment systems capable of receiving XM Satellite Radio.**

The XM “Connect-and-Play” chip makes a wide variety of home entertainment systems capable of receiving XM Satellite Radio. BUENA PARK, Calif. and WASHINGTON, March 25, 2005/Satnews Daily/ — Yamaha Electronics Corp. and XM Satellite Radio have announced a new partnership to bring to market the first XM-Ready home entertainment products.

Yamaha said it will manufacture four new receivers and several new home-theater-in-a-box

(HTIB) systems with XM “Connect-and-Play,” a revolutionary technology designed to integrate XM into a broad range of home entertainment products. The first Yamaha XM-Ready receivers will be available at retail in early April.

Through this new technology, consumers simply plug an XM Connect-and-Play home antenna into the XM-Ready Yamaha AV receiver and activate the service to receive XM’s 150-plus digital radio channels. No additional accessories or installation are required.

Using XM’s industry-leading chipset technology as well as a new proprietary chip and signaling protocol, Yamaha said the XM Connect-and-Play antenna will be capable of receiving XM’s satellite and terrestrial signals as well as channel tuning, decoding and audio transmission. It will be the only accessory needed to get XM through an XM-Ready audio system.

“The partnership between XM and Yamaha is ushering in a new era of home entertainment innovation,” said Phil Whitworth, XM’s director of product marketing. “The inclusion of XM Connect-and-Play technology in these new products continues Yamaha’s tradition of ingenuity and excellence in home audio, while providing consumers with a simple way to enjoy XM’s award-winning service”.



## Comtech Releases Quad Satellite Demodulator and Fully Integrated Network and Capacity Management System

TEMPE, Arizona, March 23, 2005/— Comtech EF Data Corp and Comtech Vipersat Networks, Inc., subsidiaries of Comtech Telecommunications Corp., (NASDAQ: CMTL) has released a new L-Band Quad Demodulator, the CDD-564L, which fully integrates with the optional Vipersat Management System. Designed with four separate demodulators, Comtech said the CDD-564L simplifies hub site installations and gives operators an economical means of providing multiple meshed connections to and from remote locations.

Featuring the bandwidth efficient Turbo Product Coding, data rates from 7.2 kbps to 4.72 Mbps, fast acquisition plus an integrated router and IP Module, this platform delivers methods for reducing satellite communications costs, according to Comtech. Engineered for today’s IP networks, the CDD-564L maximizes satellite link efficiency with the integrated router and IP Module functionality, says Comtech.

The IP functionality can be further expanded by enabling the optional features – Header Compression, Payload Compression and 3xDES data encryption – resulting in reduced latency, increased bandwidth savings and optimized traffic over satellite links.

Packaged in a 1U chassis, this scalable platform provides receive functionality equivalent to four satellite modems. Rack space is reduced and hardware costs are significantly decreased. The CDD-564L is based on Field Programmable Gate Array (FPGA) technology and includes internal Flash memory for simplified field updates.

Both local and remote configuration and management of this product are possible via the Command Line Interface, the IP interface using Telnet, HTTP, SNMP or the Vipersat Similar to the previously announced CDM-570L Satellite Modem, the CDD-564L Quad Demodulator can be integrated with the Vipersat Management System (VMS) to provide a fully automated network and capacity management tool designed specifically for satellite networks. V.

# NEW PRODUCTS

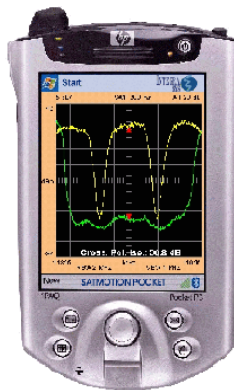
## Integrasys Awarded US Patent for Satellite Monitoring System

WASHINGTON, March 18, 2005 — Integrasys, SA said on Wednesday it has been awarded a US Patent for its satellite and terrestrial remote monitoring system using wireless handheld mobile terminals.

Integrasys said a total of 18 claims have been granted under the US Patent.

The patent, Integrasys said, reinforces the company's competitive advantage and technology leadership in satellite carrier monitoring products.

Integrasys has made a breakthrough with its low-cost two way deployment tool for VSAT alignment and commissioning known in the market as SatmotionPocket. Juan C. Sanchez, General

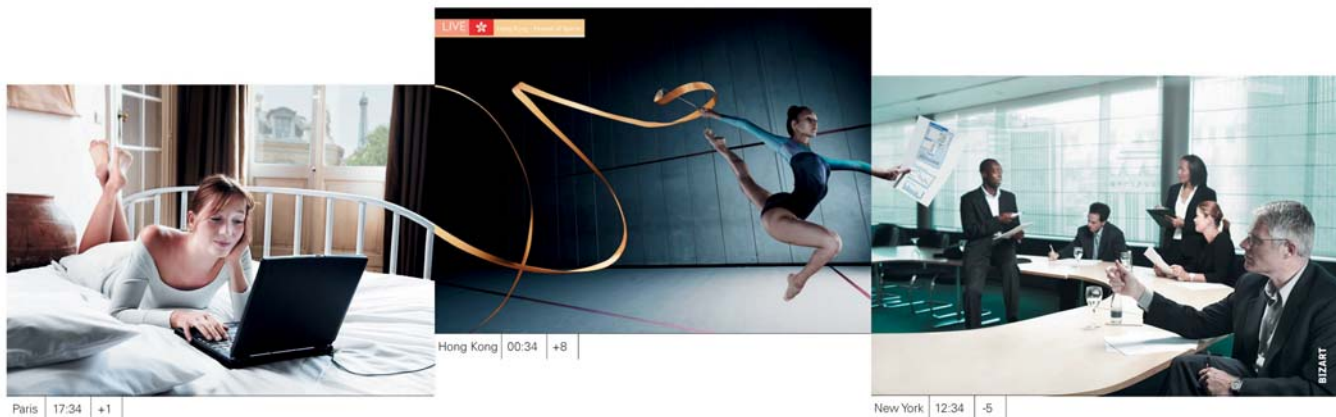


Manager, said SatmotionPocket has simplified and drastically reduced VSAT installation.

SatmotionPocket allows the control and command of a measurement instrument from a remote wireless handheld mobile terminal by obtaining dynamically the carrier trace information, in the frequency domain, by means of a wireless (cellular or satellite) communication aided by a server.

The invention provides the means for performing remote line-ups on uplinked satellite carriers, including the cross-polarization isolation measurements, from remote wireless handheld mobile terminals, such as cellular phones or handheld computers (PDA) equipped with a wireless communication transceiver such as a cellular phone or WiFi (IEEE-802.11).

## One moment. One satellite network. Infinite connections.



We make connections in the most unexpected places. Satellite services create the links that help people to do the most ordinary - and sometimes the most extraordinary - things. We really are part of the fabric of life.

[www.ses-global.com](http://www.ses-global.com)

Your Satellite Connection to the World | **SES GLOBAL**

SES GLOBAL is the leading satellite services provider worldwide and is a byword for technical excellence and quality of service. We operate through a network of regional satellite operators: SES ASTRA, SES AMERICOM, NSAB, AsiaSat, Star One, and Nahuelsat, each a leader in their respective markets, and together reaching out to 95% of the world's population via the world's largest combined satellite fleet. They are the providers of choice for satellite capacity and transmission solutions for audio-visual broadcasting, data transmission and communication networks, serving both commercial and government customers worldwide. Together we offer local expertise as well as global reach.

## NEW PRODUCTS

The invention, Integrasys said, also provides concurrent access to a common single measurement instrumentation shared, transparently, by multiple remote wireless handheld mobile terminal users for performing simultaneous and independent alignment operations on uplinked satellite carriers without coordination with the satellite control center or hub station personnel.

### Foxcom Releases 4200 Series of Low-cost Outdoor Fiber Optic Links

**PRINCETON, March 18, 2005** — Foxcom, Ltd, manufacturer of the Sat-Light line of fiberoptic links, is set to release its 4200 Series of wideband fiber optic transceivers designed for low cost outdoor operation.

The new compact outdoor fiber optic transceivers operates from 10-2200MHz and costs below \$1000 per link.



has over coax.”

“Foxcom has created a truly affordable and flexible alternative to coax, for satellite and VSAT operators across the board” said Jack Hotz, Foxcom CEO. “We believe that this will be a major breakthrough in our industry, whereby Satellite and VSAT operators will now be able to install fiber optic links at a fraction of from the many advantages that fiber

Foxcom’s newly designed compact outdoor fiber optic enclosure will allow operators to install fiberoptic links at the antenna without the need for protected and temperature controlled environments. The outdoor units will have the following notable features: 10-2200MHz of bandwidth, Bi-directional IF or L-band transmission, Protocol Transparent, Ultra Low Phase Noise Weatherproof, Lightweight and Compact. **SM**

**Unlock Operating Expense Savings**

Comtech EF Data understands your need for cost-effective and reliable satellite-based communications. By deploying our satellite modems with advanced technologies, from revolutionary forward error correction and higher order modulation to IP-centric features and Drop & Insert, we can provide you with methods of maximizing transponder utilization — the key to unlocking operating expense savings.

**COMTECH**  
EF DATA

1.480.333.2200  
sales@comtechefdata.com  
www.comtechefdata.com

## COVER STORY

# HDTV Comes to Satellite

by Howard Greenfield

**“Channels that are not thinking of converting to HD will miss the ‘Wow’ factor, and run the very real risk that operators like DirecTV or Sky will consider how and where they slot the channel.”**

—Eric Cooney, CEO,  
Tandberg Television,  
January 2005

**H**DTV is coming. It's hard to pin-point the transition line to mass adoption, but it looks like this is the year. Why 2005? The timing is right for a combination of technology, marketing, and growing customer demand. The technical bottlenecks are being addressed through advanced satellite transmission techniques and new compression capabilities of MPEG-4 AVC (Advanced Video Coding). The DVB standards group claims DVB-S2 bandwidth efficiency “is so powerful that in the course of our lifetime, we will never need to design another system”.

Likewise, affordability of the required screens, dishes, and receivers will bring adoption, as will the market psychology. Just as color made black and white TV archaic, the visual experience of HDTV outshines normal TV. Once people see HDTV they prefer it's larger, more life-like visual experience. Market demand will grow as more programming comes on-stream and as equipment prices drop.

There is no better example of HDTV growing pains than Cablevision subsid-



ary Rainbow DBS' all HD satellite service. This ambitious effort to compete with DirecTV and Dish Network has struggled to gain subscriber base (reportedly less than 30,000). During the last month there have been an amazing sequence of roller-coaster reports mapping the ups and downs of CableVision's billion dollar investment in HDTV infrastructure. The latest headlines reflect CableVision's decision to shut down the system and recoup their losses—as well as founder Charles Nolan's commitment to keep the service running on his own funds. The company's name has been the butt of an endless series of headline puns:

March 1: “Voom Goes Boom”  
(*Newsday*)

March 3: “Beating A Dead Voom To Death” (*EnGadget*)

March 8: “Voom Not Doomed Yet”  
(*MultiChannel News*)

March 15:  
“Gloom And Doom For Voom” (*Corante*)

March 18: “Feud Won't Doom Voom”  
(*Variety*)

This trade news doggerel is a good indicator of the emerging state of satellite HDTV. Cablevision made a serious investment to pioneer this new service and Chairman Nolan has been trying to revisit with sale of

Voom assets to Echostar—a sale made by his son, CEO James Nolan, who has been doubtful of Voom potential. However, Voom media is a bellwether of the growing potential of the new market. So, despite the growing pains, with a little luck, the company will revoom, er, resume its growth trajectory and signal the opening of a new era in mass satellite broadcast business.

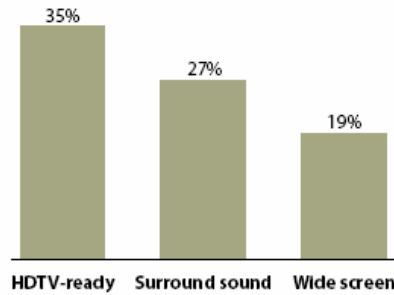
### Forrester Report.

HDTV's increased bandwidth requirements are a significant factor in rolling out services. Forrester Group argues that just as consumers “lust for the new, big flat TV sets”, growing demand for HDTV will result in 50 million HDTV homes by 2009. Their guidance is that the great bandwidth crunch will create opportunity for early-bird programmers, and a shakeout for the overflow of

# COVER STORY

### 3-3 Big picture features are on the rise

"Do you want these features on your next TV?"



Base: US households

Source: Forrester's Consumer Technographics® June 2004 North American Study

Source: Forrester Research, Inc.

channels that arrive late in the game, adding: "increasing numbers of networks will switch to HDTV, while cable and satellite providers will find half of their digital subscribers signing up for HDTV service."

Growing demand for bigger, better, TV

The public will budget for large new home entertainment displays, and it seems one in four would be willing to pay \$750 or more. As Cable benefits from the trend, Forrester indicates "satellite will have to spend mightily to meet demand". Remarking further on the side effects of HDTV *bandwidth-itis*:

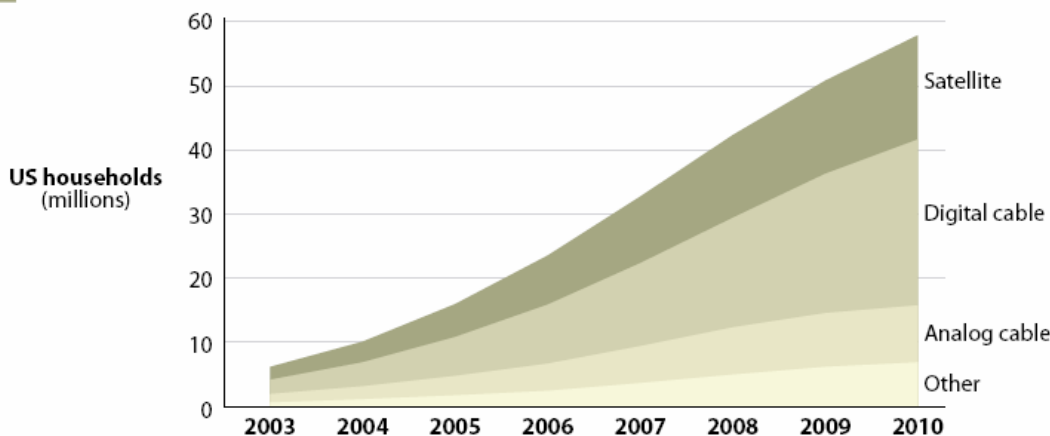
"Cable will take the lead as satellite sinks under the bandwidth load. Satellite operators already face challenges carrying local HDTV channels — DirecTV has diverted a whole satellite's worth of bandwidth to begin carrying HDTV channels in 12 local markets. As local sports channels like Fox Sports and the YES move to HDTV, satellite operators need room for dozens more. In contrast, cable needs space only for the few local channels relevant to each market. Satellite's carriage costs will increase, and cable will continue to win over a disproportionate share of HDTV homes.

Satellite will be forced to choose: Invest hundreds of millions of dollars in new satellites, develop and upgrade millions of set-top boxes to MPEG4, or give up on HDTV and settle for lower-paying, less profitable subscribers" [from "HDTV and the Coming Bandwidth Crunch" by Josh Bernoff, February 17, 2005).

Figure 4 Forecast: US HDTV Penetration, 2005 To 2010

The spreadsheet detailing this forecast is available online.

### 4-1 HDTV penetration (households with HDTV sets)



Satellite	2.0	3.2	5.1	7.6	10.3	12.8	14.4	16.1
Digital cable	2.2	3.7	6.0	9.1	12.8	16.9	21.5	25.6
Analog cable	1.3	2.0	3.0	4.2	5.7	7.3	8.3	8.8
Other	0.6	1.1	1.7	2.4	3.6	4.9	6.1	6.8
<b>Total</b>	<b>6.1</b>	<b>10.0</b>	<b>15.7</b>	<b>23.3</b>	<b>32.5</b>	<b>41.9</b>	<b>50.4</b>	<b>57.3</b>

### Another Forrester View

According to satellite industry expert Chris Forrester, there are solutions in sight for the HDTV throughput hurdles. Can MPEG4-AVC and DVB-S2 offset the inevitable satellite bandwidth crunch?

"Absolutely" says Forrester. "The consensus seems to be that from today's MPEG4/H.264 compression there's an immediate saving, sufficient to carry four full HD channels on a single

## COVER STORY



### Interview with Mark Cuban

For an insider view on industry forces, I turned to Mark Cuban with a few questions. Mr. Cuban, head of HDNet and the Dallas Mavericks, is no stranger to big broadcast deals and trends, Mark sold Broadcast.com to Yahoo! for \$6B in 1998.

**HG: What is the key consideration for satellite service providers' HDTV business model?**

**MC: That the buying decision for an HDTV is also a buying decision for content. Whoever is the strongest at the point of purchase has the best chance to get the subscriber.**

**HG: What is their biggest potential danger?**

**MC: That a competitor comes into retail and buys exclusivity. The second is that the picture is over compressed to save bandwidth. If a competitor uses the same codecs at a higher bit rate, given that HDTV is about picture quality, it could be a huge selling point of the competition.**

**HG: Why did you choose to build the first US all HDTV television network?**

**MC: I thought big media would move too slowly and that would open the door to create great networks with great content.**

**HG: How will the other networks maneuver to take advantage of increasing HDTV demand?**

**MC: Don't know**

**HG: What is the most impressive HDTV technology on the horizon?**

**MC: Picture quality of HDTV's is going to get far better.**

**HG: Forrester's Josh Bernoff says there will be a huge bandwidth crunch for Telco, Cable, Satellite providers.**

**MC: He is right. There isn't enough bandwidth for all the existing TV networks, some will die, some will stay standard definition, some will go HD. SM**

satellite transponder. Add in anticipated improvements in the compression technology, which experts like Tandberg say will come much faster than those achieved on MPEG2, and statistical multiplexing, and it seems perfectly possible that five and perhaps even six high-def channels might be carried. This matches the state of play when MPEG2 was first introduced back in 1994. Stat-mux will be very useful

## GLOBAL LINK Productions Inc.

### Live News, Sports & Teleconferencing



#### EQUIPMENT

GLOBAL LINK Productions, Inc. offers state of the art equipment in our 7 Rack fully redundant Uplink/Production trucks. Each truck is Dual path, Dual Polarity.

#### PERSONNEL

Our professional crews are ready and willing to assist you with your next event domestically or Internationally. Our camera crews have all the gear needed to make that shot look and feel just right!

**Call now for your next Booking:  
800-676-4080**

1175 Saratoga Ave., Suite 1  
San Jose, CA 95129 U.S.A.  
Tel.: (408) 465-2787/ Fax: (408) 465-2345  
• Web: [www.globalinktv.com](http://www.globalinktv.com)  
• Email: [info@globalinktv.com](mailto:info@globalinktv.com)

# COVER STORY

in balancing HD demand, offsetting the high bit-rate needed for a sports channel with the more modest demands of a movie channel.”

So, despite the alarm around bandwidth crunch, help is on the way. As Cuban reminds us, it’s just as critical to bear in mind that content and timing

will remain king. Get ready for a brave, new viewing experience: new products and programming are coming to the big screen! **SM**



Howard brings over 20 years of writing, technology, and business expertise to

various publication audiences. Howard has held senior executive positions with world leaders such as Sun Microsystems, Informix Software, Apple Computer, British Telecom (BT), Europe Online, and others. Howard has a passion for the influence of technology on culture and global business practices.

At Sun Microsystems, Howard created the company’s first Media Lab and led co-development of projects between Sun Labs, Xerox PARC, and Stanford University. He also worked in Apple Computer’s Advanced Technology Group on e-Learning.

Howard is a frequent contributor to leading industry publications, and serves on the board of Cal-IT, and BlueVoice.org, an Internet media non-profit dedicated to protecting ocean life & habitats. Howard received his Masters Degree from Stanford University and his Bachelors Degree from the University of California. To contact Howard, email him at [howard@go-associates.com](mailto:howard@go-associates.com). For more details, go to [www.go-associates.com](http://www.go-associates.com).

Mark Cuban  
Chairman, HDNet  
Owner, Dallas Mavericks

## YOUR GLOBAL SATELLITE PROVIDER



For two decades we have listened to you: our cable programmers, broadcast affiliates, direct-to-home operators, internet service providers, and telecommunications companies worldwide. Today we have enhanced our worldwide network to ensure we meet your needs with one of the largest satellite fleets, a network of teleports and fiber and terrestrial resources around the globe. Our goal is to develop better solutions to support your content delivery via:

**PanAmSat** – Number 1 provider of content for television and host of the strongest HDTV neighborhood in the world

**PASport** – Industry-leading broadcast services team

**PanAmSat on Demand** – New generation of on-demand services for data, video and voice for bandwidth on your terms

For more information on how PanAmSat can bring your business to the world anytime and virtually anywhere, visit [www.panamsat.com](http://www.panamsat.com)

+1 203 210 8069 | 20 Westport Road | Wilton, CT 06897



## FEATURE

# 2005, The “Year of HDTV”, Again Service Providers Gear Up to Meet Increasing Demand for HDTV

by Dan Freyer

**H**igh Definition Television (HD) is available to 90 million Americans via cable — up 140% vs. last year — and its available to even more by DBS. DIRECTV has announced stunning plans to use the bandwidth on its two next-gen Ka-band satellites to deliver HD signals including local broadcast stations, starting with as many as 500 channels as soon as this year. EchoStar, for its part has agreed to buy VOOOM’s HD bird for more HD bandwidth. But Kagan Media research estimated in a recent study that only 3.7 million HD cable and satellite subscribers existed in the US as of year-end 2004. While there is still consumer confusion and ignorance of the need to have not just a HD set but also an HD set-top box/decoder, billions continue to be poured into HD’s forward march.

### Glitz Aside, Its Tough on Broadcast Network Business

While that’s great news for HD set manufacturers and retailers, and for suppliers of satellite HD gear and services, broadcast networks in general are facing declining ad dollar and viewer market shares in their core business – Standard Definition TV (SD) as cable and satellite networks continue to fragment viewership.

“HDTV is all about cost with little revenue associated, so we’ve had to be as financially prudent as possible in a way that

recognizes the business hasn’t caught up with the technology”, says Rich Wolf, SVP **Telecommunications & Network Origination Services, ABC Television Network**. “But we do believe HD will be an important part of ABC’s future so what we’ve learned about HD processes and technology will help us in the future”.

“We had to build a new HD origination facilities to provide all the guts of broadcast a broadcaster has to support including HDTV distribution, routing, monitoring, and recovery systems” says ABC’s Wolf. ABC, like CBS, NBC, Fox and PBS offers prime time and special event programming in HD to its affiliates. Also on the expense side, ABC will provide all ABC affiliates with digital satellite receive gear for SD and a new digital receiver for HD as it rolls out its new digital network upgrade this year.

### ‘Taint Cheap

HD signals take from 4 to 8 times the satellite capacity as SD in practice, typically a full or half transponder. “We currently modulate approximately 45 Mbps of capacity for HD in a 36 MHz transponder on Intelsat AI-5 using a Tiernan HD system, and uplinking at C-band from ABC New York’s roof, but ABC is replacing that system with a TANDBERG solution in its upgrade program”. The WB Network has a similar approach, using TANDBERG encoding to provide a primary SD feed and a separate parallel feed. According to Larry Fischer, Director of Transmission for Warner Bros.’ Global Digital Media Xchange “For satellite capacity, we had 1.5 transponders and since we couldn’t fit everything into with HD it in prime time, we bought the other half of the transponder to allow HD in prime time this season. It’s been a real dance as we’ve grown in the last 2 years, says Fischer.

### Getting Creative

Since incremental programmer revenue from HD is minimal today outside of pay nets, broadcasters have had to get creative while meeting the mandate to offer HD.

Fox Broadcasting worked closely with hardware manufacturers to create a customized application allowing them to splice and switch between SD and HD satellite signals and station master control systems seamlessly, avoiding the need for multiple parallel transponder feeds with transponders costing from \$1-3.5M annually says Andy Setos, President, Engineering The Fox Group. Using this technology, and its existing tran-



photo courtesy of Warner Bros. Global Digital Media Xchange



## FEATURE

sponder, says they can now pass around 73 Mbps per satellite transponder, and run HD programming “in the low teens in Mbps”

Maximizing existing assets in adding HD is an idea that Warner Bros.’ Larry Fischer Director of Transmission keeps in focus. “We chose standard DVB so we can use the same MCPC SD specifications, Symbol Rate and FEC to keep the streams for HD and SD close to identical so the same uplink chains can be used”, says Fischer. Global Digital Media Xchange provides network origination and distribution for the WB Network in SD and HD, in addition to being one of the largest distributors of syndicated TV product, and broadcasting the WB100+ network to cable.



The WB’s HD signal is compressed to an ASI stream is fibered to another LA facility and uplinked at C-band to PanAmSat’s Galaxy 4R satellite. Because the WB envisioned HD from the get-go, it’s HD upgrade path for the companies’ playout center minimized capex, says Fischer.

CBS has found available surplus from Intelsat to accommodate temporary capacity surges due to HD, recently buying additional occasional use space to support the transmission of this year’s NCAA basketball. “As we expand the number of games we offer in HDTV, it is important to us to have our prime satellite provider be in a position to support these requirements, especially an event as popular as

## WINDOW SHOPPING IN LAS VEGAS – SOME NAB AGENDAS

As broadcasters gear up for NAB, we spoke with some key executives and technology experts about HD and satellites.

### ABC

Says, Rich Wolf “There have been some HD product development and availability gaps in the HD news acquisition, SNG and ENG space, and we expect this year’s NAB to fill some of those holes”

### HD Vision Broadcast

Tom Martinez, President of HD Vision Broadcast Center agrees, and will be looking at prosumer HD cameras. “I know that CNN bought 100 HD consumer camers so that wave is happening. Where HD is lacking is in the actual newsgathering environment” he says. HD Vision Broadcast Center ([www.hdvision.tv](http://www.hdvision.tv) ?) is a turnkey facility in Los Angeles that provides HD production, and satellite broadcast center HD Vision has been broadcasting live and pre-recorded HD events, like Grateful Dead concerts via satellite to digitally equipped projection systems in Regal Cinemas. Martinez will also be looking at the new technology in HD in 3D at NAB. Companies like Cobalt entertainment are developing HD systems that create a new experience in HD+36 he says

### The WB Network

Warner Bros.’ Larry Fischer says “for NAB this year, we’re interested in items for cable HD distribution for our cable channel like low cost SD upconverter systems, and stream splicing technologies. WB’s post division is looking at upgrad-

ing to HD-capability to provide HD promos”. “We’re also looking at being able to provide an HD solution to cable in the future”, says Fischer, whose division currently operates the WB100+ cable channel.

### GlobeCast

Thomas Reiss, SVP -Technology Development for GlobeCast in America has a full plate for NAB this year. “We’re looking at HD gear, DVB-S2 gear, encryption systems, asset management and products to improve our IP offerings, including IPTV Complete™”, he says. GlobeCast announced it will launch a new service, IPTV Complete, with partner Eagle Broadband that will enable over 200 channels to be delivered via a package of basic, premium and HD programming, video-on-demand, pay per view and digital music with IP multicast video content rights for distribution over fiber, DSL and other private IP networks.

### Fox

Richard M. Friedel, Executive VP and General Manager of Fox Networks Engineering and Operations says “We are always looking for new and improved ways to monitor our signals, in particular HD” he says, and Fox will be investigating new monitoring and QC technologies. Fox will be looking for graphics overlay equipment to enhance its on-screen branding, as well as for new audio mixing consoles for live productions with 5.1 audio mixing to support HD for shows like Fox NFL Sunday, The Best Damn Sports Show Period and other productions.

## FEATURE

March Madness,” said Brent Stranathan, vice president of CBS Broadcast Distribution. Most HD contribution on satellite is sports-driven Ku-band traffic. According to Intelsat’s Ken Takagi, Director of Media & Entertainment Strategy “Demand is hot for Ku now” says Takagi of domestic US transponder capacity, and he admits “In the broadcast arc we’re tight on the Ku-band side so supporting HD SNG is tough right now. It’s difficult to find capacity”. But the good news for Intelsat’s customers like CBS is that new bird IA-8 is scheduled to launch into the heart of the broadcast arc at 89 degrees W.L. in end of Q2 with 24 new Ku-band transponders that can carry HD.

### It’s Getting Better All The Time

“We’ve been working to maximize customers’ existing capacity to get more efficiency because the business imperative is to keep customers healthy so there’s more value to their business – versus quadrupling their bandwidth without the revenues to support it” says Paul Bush, VP Broadcasting and Corporate Development for Telesat Canada, whose satellite fleet is used by both Canadian and US programmers.

“Our goal is to make sure our customers are served with the latest, best and most cost-effective technology,” said Mary Frost, SVP of Sales for GlobeCast, whose company expertise in broadcast includes delivery of over 400 TV channels and over 5 million hours per year of professional TV and radio signals around the world, mainly using MPEG2 technology. GlobeCast is using MPEG2 HD encoding from TANDBERG in its SNGs, and has also working with Scientific Atlanta to offer cable distribution services using that manufacturer’s HD gear on the PanAmSat Galaxy Cable Neighborhood satellites she says “But we’re excited about the potential savings in bandwidth coming from advanced modulation like DVB-S2, and video compression improvements – be it MPEG4 or Windows Media 9”.

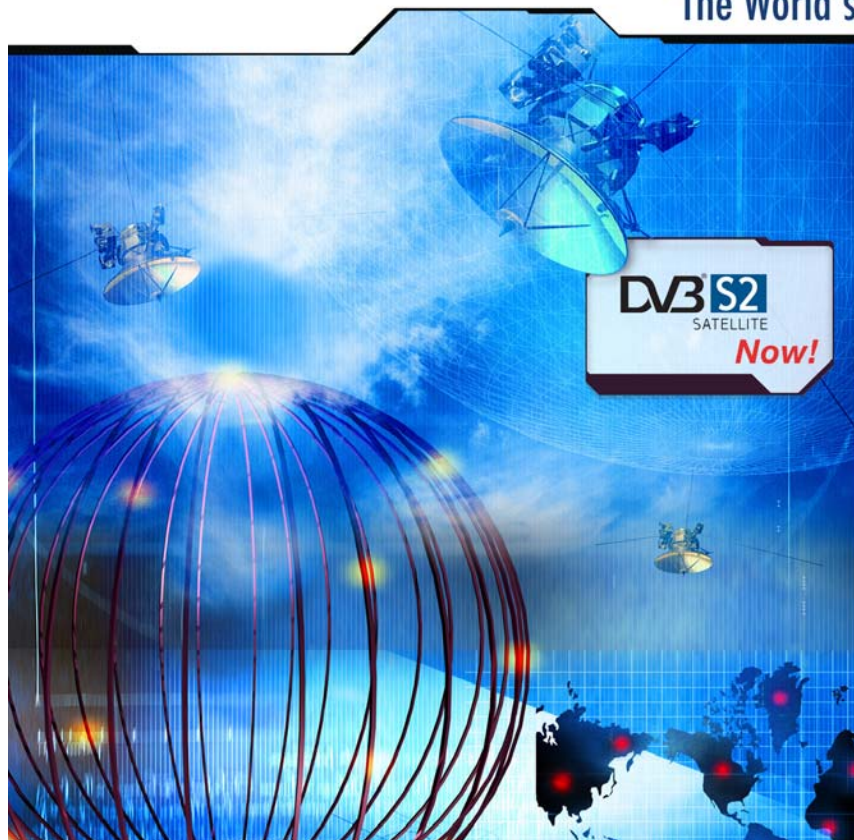
### More Bits Per Buck

The MPEG4 AVC (H.2464) and DVB S2 standards are complete, while Windows Media 9 is still just a proposed HD standard, AC-1, within SMPTE (Society of Motion Picture & Television Engineering). The DVB-S2 modulation standard will provide 30-40% more bandwidth per MHz of satellite capacity,

## ECC Introduces

**iSatLite**

## The World’s First DVB-S2 Two-Way System



At last, a DVB-S2 standards based, two-way system is now available. It's iSatLite and it's only from ECC. ECC is the first company to develop DVB-S2 technology supporting the interactive services/adaptive coding & modulation (ACM) features in the standard. iSatLite gives you the highest bandwidth efficiency solution available in the industry today.

Check these exclusive features...

- ❖ DVB-S2 Forward Link / RCS Based Turbo Code Return Link
- ❖ Wide range of supported symbol rates (0.1 to 30 Msps)
- ❖ Many modulation options (QPSK, 8PSK, 16 APSK)
- ❖ VoIP header compression (doubles network voice capacity)
- ❖ Adaptive lossless data compression (increases network data capacity by >50%)
- ❖ Lowest Cost Hub (less than half the cost of competing solutions)



info@eccincorp.com • 216.635.1610 • www.eccincorp.com

## FEATURE



**GlobeCast teleports uses Scientific Atlanta HD encoders**

to video compression. Both of these technologies are expected to hit the market this year. That would mean 9 megabits per second would be required from MPEG 4, rather than the 18 megabits per second for MPEG 2.

“Specialists may debate the engineering merits of MPEG 4 and Windows Media 9, but they are very similar in compression capacity,” says Frost. “We think that MPEG 4 is slightly better. For the same quality of signal, an MPEG 4 stream will use slightly less bandwidth than a Windows Media 9 stream, but the bottom line is we’re talking about big savings in bits per buck either way”, ABC’s Rich Wolf is in synch: “We think that the higher orders of compression will make HD more viable, be it MPEG 4, Windows Media 9 or others. We think it will enable more efficient use of transmission media for HD applications, and we hope to see a lot of that this year at NAB”

### IT’S COMING SOON

Matthew Goldman, Vice President of Technology, Compression Systems, TANDBERG Television says. “At NAB we’ll show for the first time in the Americas MPEG-4 AVC (H.264) and Windows Media 9 Series (proposed SMPTE VC-1) real-time encoders”. TANDBERG plans to come to NAB showing what it claims to be “The world’s first and only real-time WM9 HD encoder”. That on the heels of “The world’s first broadcast of AVC HD” at the Consumer Electronics Show in Las Vegas in January 2005 from DIRECTV’s LA Broadcast Center. And there’s no need to wait for the MP4 vs. WM9 proposed SMPTE VC-1 standard issue to resolve itself before deploying a new HD network, says Goldberg because “TANDBERG TV employs re-programable encoders, if a customer buys a WM9V/VC-1 encoder today, a change in VC-1 can be accommodated easily with a software upgrade”.

### DECODING THE HYPE

As cool as all this sounds – none of these big bit-for-buck

savings can happen until real receiver products are available for sale. That will not be the case at NAB or until the end of 2005 because MP4 decoder chips will not be available until then. But DIRECTV announced it will use BroadCom silicon chips starting this year in its IRDs, so the train is a-comin’ and no doubt professional MP4 IRDs will be shippable soon afterwards.

### INTEROPERABILITY – YES, THAT TOO

Standards are a must, but so then is interoperability — compatibility between HD codecs — particularly for contribution applications where multiple manufacturer’s equipment may be used in the transmission chain. To address this, the World Broadcasting Unions International Satellite Operations Group (WBU-ISOG) has started tests to ensure the global interoperability of codecs used for high-definition television (HDTV) video transmissions. The tests involve trials to investigate the interoperability of HDTV codecs - at rates between 20 and 100 megabits per second (Mbps), and are used nationally and internationally for satellite links between studios and other venues.

According to Dick Tauber, chair of the World Broadcasting Unions’ International-Satellite Operations Group. “We believe that the HDTV codec interoperability testing program is vital to the continued expansion of HDTV worldwide”. Testing is underway at Telesat’s R&D Labs. First phase of testing is complete and involved nine codec suppliers and various input source types with 720p and 1080i signals. “The results were very good from an interoperability standpoint” says Telesat’s Paul Bush, but the results will not be published until later this year..

### A SHARPER FUTURE

While of today “The biggest challenge is technical stability and reliability and human resources and training” says ABC’s Wolf, “I think we’re gaining platform stability and stability of computer systems, but training needs to be continued so that a greater base of knowledge will exist in the industry about HD”. Looking ahead says “Ultimately, we want to integrate SD and HD into one if possible to get scale economies across the entire broadcast food chain”. And who can argue with that. **SM**

Dan Freyer is Marketing Director in America for GlobeCast, the world’s leading satellite services company, operating a global network of satellite distribution platforms for broadcast and advanced content delivery. He is President of the Society of Satellite Professionals International (SSPI), Southern California. He can be reached at Daniel.freyer@globecastna.com. The views in this article are not necessarily those of GlobeCast.



## FEATURE

# HD generates European fever

by Chris Forrester

It seems last autumn's IBC in Amsterdam was the tipping point. Up until IBC there was only polite enthusiasm from Europe's broadcasters, who cited the existing high-quality PAL, SECAM and DVB (standard definition) digital signals as proof that there was no real need for anything in higher (and more expensive) definition.

Meanwhile, the viewing public seemed to be shouting "Wake Up", arguing that they were at the very same time voluntarily buying large-screen Plasma and LCD screens by the truck-load. IBC brought the two rival communities together, and with a little help from the compression specialists at outfits like Tandberg and Harmonic and the final releases of the MPEG4/H.264/AVC compression algorithms the costs suddenly didn't seem quite so steep. MPEG4 allows 4 HD channels to be carried on a single 36MHz satellite transponder, while cameras and other back-office kit were tumbling down in price.

Since then broadcasters have eagerly signed up for HD. Indeed, the first pioneering transmissions from Belgium's Euro1080 channel were already up and running at IBC, now joined by free-to-air transmissions from SES Astra of a special HD feed from Germany's Pro7 network. These are just the tip of the iceberg (see box), and even Europe's usually laggard public broadcasters have joined the HD rush, with the BBC leading the charge, of which more in a moment.

Commercial broadcasters will, however, be first on air. Amsterdam-headquartered SBS Broadcasting, the new owners of the Canal Plus brands over Scandinavia, confirmed it will launch at least one HDTV channel in September. The service will include UK Premiership soccer, "provided the HD signal is captured by BSKyB". SBS chairman Harry Sloan says Europe's landscape is changing, and fast. He quoted recent data from Jupiter Research, which predicted Europe's digitally-equipped homes would top 111m by 2008. "This is a true revolution," said Sloan, and as



Scandinavia and other markets increasingly turned to digital reception "this means we can double our TV revenues, with 75%-80% of all homes being multichannel, and with advanced interactivity, it gives us two or more sources of income. SBS' digital vision is to seek the sweet spot that's bringing these technologies together. Teens and kids already exhibit a complete understanding of a different type of behaviour when using TV. They are a new consumer, representing the entitled generation with unprecedented access to content."

BSkyB announced March 2 that its HDTV service in the UK will use the H.264-based advanced video codec, and not Microsoft's VC-1. Microsoft had been lobbying heavily to see its codec adopted by Sky. Although BSKyB has yet to license H.264 IP, Brian Sullivan, BSKyB's director of new technology, indicated it is beginning that process despite industry-wide reservations about MPEG4's licensing fees. "We will be there," said Sullivan. Sky's HD service to the consumer is still being promised for early next year, although a Sky spokesman in March admitted that HDTV tests will probably happen later this year.

BSkyB has also confirmed its high-def service will launch with a HDTV version of its increasingly popular Sky+ PVR.

# FEATURE

“Innovation and technology leadership are at the core of the Sky brand,” said COO Richard Freudenstein, speaking at the DVB World conference in Dublin. “By introducing HDTV, our ambition is to raise the bar again. We want to re-affirm that the digital satellite platform is the home of the highest-quality viewing experience available.”

“We are pretty confident that HDTV will allow Sky to re-start a conversation with many people who currently believe that pay-TV is not for them. But you wouldn’t expect us to make such a significant investment decision based on a hunch”

*Richard Freudenstein, COO BSkyB*

Freudenstein said that last year’s announcement of Sky’s entry into high-def ws of great significance and would have far-reaching consequences in the long term.” Freudenstein explained that in the first three years of Sky Digital’s [standard definition] roll-out the top driver was NOT sport or movies, good as they were, but “the biggest driver in those early years was the

better picture quality and sound quality offered by digital in comparison to analogue broadcasts.” With this theme in mind he said he was confident that Sky’s HDTV offering would appeal to viewers appreciating the best-possible image quality, and matching sound. He said he expected the UK to have 2m flat-panel and HD compatible screens installed by December 2006 (up from a reported 420,000

today), and 3m by the end of 2007. He added that by 2010 Sky was estimating that the “majority of UK households will have at least one HD screen by 2010”. Freudenstein added that he saw HDTV set sales as being an inevitable “virtuous circle” helped by fast-falling prices and the increased availability of quality HD content.

Freudenstein predicted that the 2008 Olympic Games “or even next year’s World Cup (soccer) could be the tipping point”




- RF over Fiber Transmission at Distances of over 60 Km
- Ultra Low Phase Noise Using Direct Modulation
- Optional Weatherized Outdoor Units
- Maximum Bandwidth from 10 MHz

- \* Earth Stations
- \* Teleports
- \* CATV Headends
- \* VSATS
- \* Broadcast Studios

- \* GPS
- \* Military
- \* TT&C
- \* IP Gateways



For more than 10 years Foxcom has provided Fiber Optic Interfacility Links to satellite service providers, militaries, and broadcasters worldwide. With a wide range of products and accessories covering up to 15 GHz of bandwidth, Foxcom’s IFLs set the market standard for high performance and reliability.

Please contact us at: Foxcom, Tel: 609.514.1800, Fax: 609.514.1811  
 Email: [sales@foxcom.com](mailto:sales@foxcom.com) [www.foxcom.com](http://www.foxcom.com)



**FOXCOM**  
 A DIVISION OF ONEPATH NETWORKS  
 High Performance Fiberoptic Interfacility Links

## FEATURE



for consumer demand. “After all, who would want to watch the World Cup final through the fuzz of a standard-definition set when they could see every pass and every blade of grass in pin-sharp quality? We don’t know yet whether the BBC and ITV will offer HD broadcasts next summer. But the message from Sky is that our HDTV box will be ready for them.” BSkyB also says that Thomson had won an exclusive contract to supply initial HD boxes for the UK market.

BSkyB is also on record as confirming it wants to provide a PPV special events channel in HD for rock and music concerts, sports (including motor racing and soccer). Fehervari said AlfaCam has been busy taping rock and serious music events all winter, including a ‘Beatles Reunion’ rock event in London (on Dec 2), which brought Paul McCartney and Ringo Starr back together along with the likes of Eric Clapton, and this was the sort of event perfectly tailored for PPV. He said HD2 would be releasing more information this spring (“we have to keep a few secrets on the table”). “We cannot beat [the likes of Sky or Canal Plus] so we had better join them in some sort of joint approach. Our target is to work hand-in-hand alongside them,” he added. AlfaCam is due to move into a purpose-built 110,000 sq meter Belgian facility this summer, with 6 studios and play-out for HD1 and HD2.

BSkyB’s attitude is replicated over much of Europe, with France, Germany and Italy’s pay-TV platforms all supporting HD. But there’s also support from Europe’s public broadcasters. Sweden’s SVT and Italy’s RAI are each making HD noises, but

not quite as loudly as the BBC. John Varney, the BBC’s Chief Technology Officer, says: “Our thinking has changed in that we’re now asking ourselves how soon we might launch a HD service. We may be looking at something relatively quickly.” Varney admitted there was much to be done, including absorbing 40 HD cameras just purchased from Sony, as well as copious staff training. He also admitted that the BBC’s initial HD broadcasts “might not go to many people”, but “Doing this has come about because of the change in the consumer environment. Domestic HD camcorders are now out there at £2000 and below, HD screens.... I was in [electronics retailer] Comet a week ago and they’ve already got the new Samsung 50” HD-DLP set with quite stunning images and much cheaper than a Plasma. We’re less than 18 months away from HD-DVD formats being widely available. So, 18 months from now broadcast TV is going to look like the poor relation. People will be able to shoot their holiday videos in HD, rent Hollywood movies in HD, and we won’t have a HD service.”

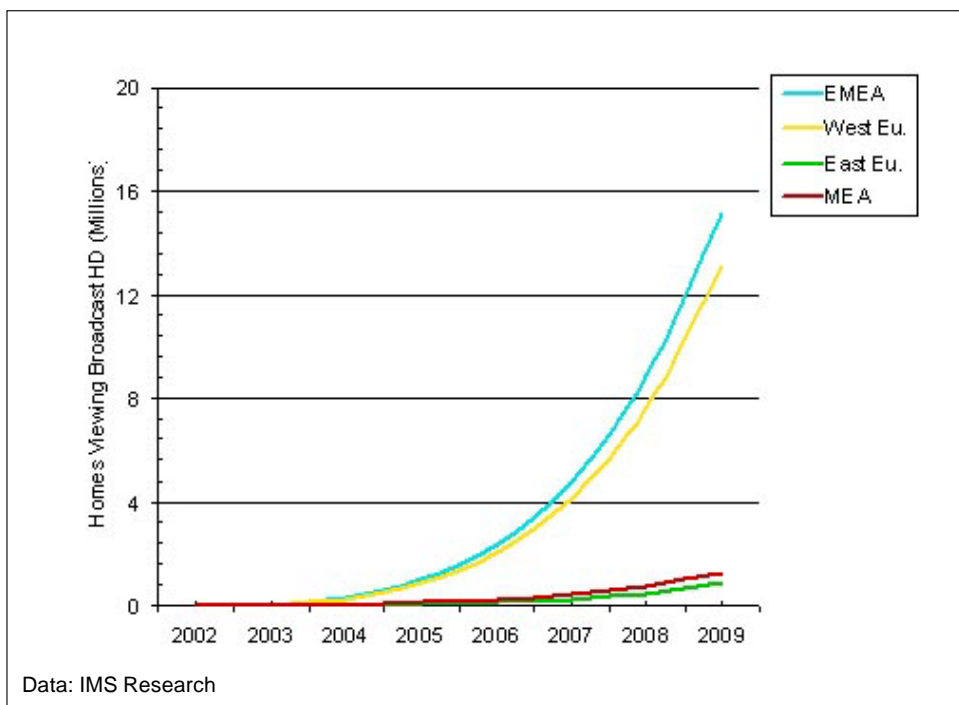
**“As a broadcaster, Sky’s preference is for progressive picture scanning. Like the European Broadcasting Union, we believe that the 720p format may offer better portrayal of rapid movement than 1080i. However, we recognise that some types of content may be better suited to 1080i. Therefore, our HDTV box will support both 720p and 1080i, enabling broadcasters to select the format that is most appropriate to their individual requirements.”**

*Richard Freudenstein, COO BSkyB*

Varney said that HD on digital terrestrial was still some way off. He said the BBC might have a few internal HD experiments on terrestrial but the over-riding message on DTT was not to confuse the viewer. “We’re looking at [HD on DTT] but I am not sure I see the sense in it. The reason is this: DTT’s success is based, in my view, on the simplicity of the digital offering to the consumer. At last people understand what digital terrestrial, and Freeview, is all about. We’ve got 5m or so boxes out there, but that leaves a long way still to go. And to suddenly say, ‘You know that platform which originally we made a total mess of as a pay-TV service, but which we’ve just got right at last, well now we’re going to muck about with it some more!’ So, bolting an HDTV service on that which nobody will be able to get, makes no sense. It makes much more sense to say ‘here’s a platform that people understand which will help the switch-over to an all-digital environment’, and instead look to supply HD on other platforms, like satellite and cable, and DSL for non-real time delivery. We also need to lobby government heavily to ensure we get spectrum return after switch-off for future HD services.”

The BBC’s HD efforts will focus entirely on satellite for the time being. “No decisions yet as to when, but we are mindful of Sky’s plans for HD and then there’s our own Freesat platform, which would be an ideal place from which to launch HD because

# FEATURE



## HDTV: Pros and Cons

### Upside

- Falling prices of flat-panel TVs
- MPEG4 reduces transmission costs
- Availability of HD programming
- Key sports events in HD
- 2<sup>nd</sup> generation STBs
- 'Must have' gizmo for early-adopters

### Downside

- Costs of new equipment
- Legacy set-top boxes
- Consumer apathy
- Lack of original content

the bandwidth is there, but no date has yet been decided.” Varney explained that despite sharing the rights (with the ITV commercial network) for next year’s upcoming soccer World Cup out of Germany, it was unlikely that the BBC could show HD signals. “More interesting is the 2008 Olympics, which has a very strong influence because it is 100% HD coverage, so we are thinking of this, and a summer of sport in HD might be a great proposal. 2008 is a key driver for all European broadcasters.”

“The important thing for us is to understand how production might be affected by HD, so we are already testing the impact on set-design, on costumes, wigs and make-up, and we are slowly ramping up our own HD output,” added Varney. “We were in Glasgow recently at a conference on HD and what was amazing was the passion for HD from those present, who were mostly independent producers. Indeed, what was perhaps a surprise was the amount of HD they were already shooting.”

And it is this shift towards high-def programming and appealing content that will drive consumer interest. By and large producers are already mastering in HD, looking to re-sale opportunities and profits from packaged sales with new HD-versions of DVD. Indeed, Europe might already have passed the natural inflection point without even recognising it. Chris Deering, president of Sony Europe says viewers are already enjoying more entertainment choice and superior picture quality, from a combination of DVD sales and ever-larger flat

## Europe’s HDTV picture

### ON AIR

- HD1 (Euro1080)
- HD2
- Pro 7

### UPCOMING

Canal Plus (France)	June 05
TPS Star (France)	Sept 05
C:MORE (Nordic)	Sept 05
Premiere (Germany)	Nov 05
Sky Italia (Italy)	Winter 2005-6
BSkyB (UK)	Winter 2005-6

Data: Inside Satellite

Data: IMS Research

screen sales. “We are in the middle of a Home Cinema explosion,” he told an industry gathering in London recently. “Audiences are changing from CRT’s to flat-panel TVs.”

David Mercer, senior analyst at Strategy Analytics, states that by 2008 there will be about 90m global homes with HDTV, which confirms this point. Mercer puts the USA at pole position

## FEATURE

with some 37m homes, Japan running a very close second and the rest of the world (excluding Europe) at some 10m. Europe will have a few million HD homes, says Mercer. But he believes content is King, and cites the USA and Japan's wholesale commitment to making original content in HD. That is not yet happening in Europe, and may present problems for consumer take-up. However, investment bankers Lehman Bros, in a report on HDTV, are also behind the 43m number, representing US homes with "big screen HDTV" installed by 2008 (it separates the 'digital TV installs' at the much larger 70.1m homes). Lehman Brothers analysts Vijay Jayant may have called it right when he said high-definition is an evolutionary, not revolutionary product given the incremental HDTV programming, costs and the content on offer.

Finally, in Europe by 2006 there will be a major promotional boost in the shape of the German-hosted World Cup soccer-fest. As to the rest, by 2008 there would be Europe's first public broadcasters throwing their hats into the HD ring helped by HD signals from the Beijing Olympic Games. And by 2010 there could well be mass-market adoption of the technology. **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](mailto:chrisforrester@compuserve.com)



**PACSAT HD INTERNATIONAL**

1.800.672.2728

AUSTIN • SEATTLE • DALLAS • SAN FRANCISCO • HOUSTON • LOS ANGELES • LAS VEGAS • PHOENIX • SACRAMENTO

We are a full-service provider, featuring HD uplink trucks, fly-away uplinks, HD & SD digital post production and studios in Sacramento, California and Austin, Texas.

### SATELLITE BROADCASTING:

#### Ku HD Uplink Trucks

- Dual path uplink trucks and vans covering the West, Southwest into Texas and beyond
- State of the art HD Encoders (Tiernan & Tandberg)
- QPSK & 8PSK
- Digital (4-2:2 & 4-2:0)
- Satellite internet access

#### Fly-Aways:

- C/Ku unit resides in London
- Ku digital-only lives stateside

### VIDEO PRODUCTION:

#### Camera Crews

- HD & SD Cameras
- Staff Photographers
- HMI Lighting

#### Studios:

- Sacramento with VVX or Ku out
- Austin with fiber out

### POST PRODUCTION:

#### Editorial

- AVID non-linear editing
- Final Cut Pro HD

#### Motion Graphics/Compositing:

- Discreet Flint Workstation
- Mac Graphics and Animation Workstations
- DVD, CD-Rom, Web Design and Authoring

#### Audio:

- ProTools Digital Audio Workstation

1629 S Street, Sacramento, CA

1.800.672.2728 +1 916.446.7890

[pacsat@pacsat.com](mailto:pacsat@pacsat.com)

[www.pacsat.com](http://www.pacsat.com)



## VIEWPOINT

# Hughes Aircraft Remembered

by Bruce Elbert  
President, Application Technology Strategy, Inc.

The successful Martin Scorsese film, *The Aviator*, documents much of the life, accomplishments, and foibles of Howard Hughes. Living in the Los Angeles area, the only evidence of Howard Hughes we see today are streets and office parks that carry his name. Howard's real contribution is hidden within the success of some of America's greatest industries – aviation, movie making, and satellite communications. Starting with the base of the oil-bit manufacturing company started by his father, Howard produced and directed several successful films, owned two airlines and, most importantly for satellites, got heavily involved with aircraft design and manufacture. There's a scene in *The Aviator* where Howard tells his business manager, Noah Dietrich, to incorporate Hughes Aircraft Company so that he could continue to build his experimental racing airplanes. That company, which recently passed into history, employed more than one hundred thousand engineers and scientists that developed the first laser, built radar systems that could locate the source of incoming mortar fire, manufactured ground-to-air and air-to-air missiles, and supplied tactical radios that could communicate under extremely difficult conditions. Thus, Hughes Aircraft provided the base to pursue Howard's vision of leadership in aerospace and defense technology.



The history Hughes Aircraft's contributions to satellite communications are marked by major technological and business innovations, recognized by the Society of Satellite Professionals International (SSPI) in its Hall of Fame. Building on Howard Hughes' innovations in high performance aircraft and the electronic systems needed in complex defense systems, a team of top technologists led by Dr. Harold A. Rosen (inducted in 1987 into the first SSPI Hall of Fame) produced the first working GEO satellite, Syncom. While the Hughes Flying Boat was the biggest aircraft that ever flew, Syncom was one of the smallest spacecraft ever launched successfully. Subsequently, COMSAT selected Dr. Rosen's team at Hughes to

build *Early Bird*, which was launched 40 years ago, in 1965.

During the ensuing years, Hughes Aircraft designed and built a series of spacecraft that performed the first soft-landing on the moon (*Surveyor*), demonstrated tactical communications to compact terminals (*Tacsat*), and established the global *INTELSAT* system covering the three ocean regions (*Intelsat IV*). At the time I joined Hughes in 1972, Hughes innovated in the creation of the first truly domestic satellite, *Anik A*, which was launched successfully my very first day on the job. I recall looking over the shoulder of Paul Sengstock, a spacecraft engineer who was reviewing live telemetry coming in from the satellite

## VIEWPOINT



*“Hughes Aircraft Co. pioneered many aviation developments as well as the first geosynchronous satellite, Syncom.”*

just after apogee injection. Paul indicated that the telemetry receiver had two different detector circuits – one designed by Dr. Rosen and the other by chief engineer Meradeth Eick. This is the kind of personal dedication and involvement that was a Hughes hallmark.

Hughes Aircraft gave us all plenty of opportunity to contribute on many levels. I was asked to head up the communications engineering of the Palapa A system for Indonesia. This occupied the better part of the 1970s (including 1975, the year of Mr. Hughes’ passing), and it was my pleasure to be on site for the launch, test and integration of an entire satellite communications system. Of course, not all of us at Hughes Aircraft were occupied with Palapa A – at the same time, Steve Dorfman and Eddy Hartenstein were busy with Pioneer Venus, which placed a satellite into the Venus orbit and injected probes into the Venusian atmosphere. Designed and built by Steve’s very dedicated team, these craft were supposed to burn up during entry but survived to hit the surface – the result of Hughes overdesign.

Toward the end of the 1970s, the head of the Space and Communications Group, Dr. Albert D. (Bud) Wheelon, had established a new direction for Hughes – that of owning and operating satellites as well as designing and integrating the systems that employ them. We had already shown that we could make satellite communications work effectively, but Dr. Wheelon had the vision

that we could excel at creating a services business as well. This is always a dicey proposition as you would be seen as competing with your own customers. Bud selected Clay T. (Tom) Whitehead (inducted this year into the SSPI Hall of Fame), a non-Hughes executive, to head the fledgling satellite services company, Hughes Communications, Inc. (HCI). Some may remember Tom for his accom-

## 30 Day Delivery on Standard C and Ku Band Up/Down Converters


30 Day Delivery is just one of the many advantages when you purchase from Narda Satellite Networks.

Building on a strong engineering heritage of more than 30 years of technology leadership, Narda Satellite Networks offers a range of dynamic solutions for end-to-end satellite communications. Up/down converters are available in the C, X, Ku, Ka/K and L bands for satellite earth station and hub needs.

For technical information, visit our website, or contact us directly for more information on our advanced and cost-effective technology.



**narda**  
satellite networks

an  communications company

435 Moreland Road • Hauppauge • NY 11788  
Phone: 631-231-1700 • Fax: 631-231-1711  
[www.lnr.com](http://www.lnr.com)

**THE NARDA SATELLITE NETWORKS ADVANTAGE**

## VIEWPOINT

plishments as head of the Office of Telecommunications Policy under President Richard Nixon, wherein the geostationary orbit was opened up to competition. As president of HCI, Tom created a new kind of Hughes company wherein business and marketing dominated. His strategy to create a Galaxy System rather than simply one star was brilliant in its simplicity and effective in its market power.

Joining Tom Whitehead were Steve Dorfman, former program manager of Pioneer Venus who eventually succeeded Tom as HCI president, and Eddy Hartenstein, the focal point of Galaxy cable services. It was my pleasure to work for Steve and Eddy during the development and growth of Galaxy to become the leader in cable TV. The HCI organization worked hard to establish Hughes as one of the two top satellite operators in terms of customers (and number one in profitability).

Steve moved on to transform the satellite manufacturing group into Hughes Space and Communications Company (HSC), streamlining operations and basing the company's future on a new class of high-powered satellites. These would later form the base of DIRECTV, another Hughes startup that was put under the able stewardship of Eddy Hartenstein. DIRECTV would eclipse HSC and HCI to become a multi-billion dollar business



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](http://www.applicationstrategy.com) / Email: [bruce@applicationstrategy.com](mailto:bruce@applicationstrategy.com)

with the first digital multi-channel television service. Steve and Eddy were also inducted into the SSPI Hall of Fame this year.

Owing to the limited space here, I cannot detail the dozens of other accomplishments that Hughes professionals made to our industry and the world. Just two of these include the venerable HS-376, the most purchased GEO satellite in history (another brainchild of Harold Rosen), and Thuraya, the first all digital processing GEO satellite that serves hand-held mobile subscribers. The hundred thousand or so of us Hughes professionals are proud to have been a part of the empire that Howard Hughes created. Many have moved on to contribute at other companies and in the government by demonstrating the Hughes brand of creative thinking and dedication to the program mission. **SM**

The **Largest Count On IT,**  
the **Smallest**  
can't afford to be without.



The *Top 5* cable companies count on the *ATCi Simulsat* for its proven quality and reliability. But, it's the cost savings, small space requirements, reduced permits, and increased overall profitability that make *Simulsat* the affordable choice for the smaller guy.



[www.atci.com](http://www.atci.com)  
480.844.8501

---

# Executive Spotlight



## Executive Spotlight

# INTRODUCING THE BIG 3 FOR HD



America's HDTV leaders have joined forces to create the first HD special events platform on PanAmSat's Galaxy 13 satellite.

Contact  
GlobeCast or  
PanAmSat Sales.



[www.globecast.com](http://www.globecast.com) | [www.panamsat.com](http://www.panamsat.com)

# MARKET INTELLIGENCE

## Kenya's Telecoms Regulation: Crisis or Continuity?

by Martin Jarrold  
Chief, International Programme Development



**W**hen Joseph Mucheru, Chairman of the Telecommunications Service Providers Association of Kenya (TESPOK) addressed the GVF *NewCom Africa* # Conference in London on 17 March, he said that he considered 7 March, 2005, to have been “one of the darkest days in Kenya’s and Africa’s communications sectors.” Mr. Mucheru’s grave pronouncement was in response to the recent action of the Kenyan Government to dissolve the Board of Directors of the Communication Commission of Kenya

Non-Governmental Organizations, and of African and other governments, sought out and identified a “considered and appropriate” response to the disbanding of the top regulatory leadership of one of the most progressive of African administrations – a move that sent shockwaves throughout the international ICT sector.

For many of the assembled stakeholders the timely publication of the Conference statement – which took place amidst a wide range of issues under discussion, providing key players involved in African telecommunications development with an opportunity to promote expanded access to Information and Communications Technologies (ICTs) throughout the Continent – would be a significant contribution to obtaining clarification on the immediate and longer-term intentions of the Kenyan Government.

“Whatever the rights and wrongs of the specific circumstances, it remains a principle of paramount importance that regulatory authorities are separate and autonomous from the operations of government” read the Conference statement. Further, it “declared that it was imperative that the established momentum towards regulatory reform and expanded competition is maintained.” The GVF has for long recognized, and applauded, the fact that the CCK has taken major strides toward



(CCK) and to relieve its Director General of his duties.

Attendees from a wide range of telecommunications sector stakeholder interests attending the New Communications Africa Conference called for a clear response on the situation from the Conference itself. The London gathering of key telecommunications executives, along with representatives of several



implementing a more liberalized telecommunications policy.

GVF is also very much aware of “the other side of the argument”, as one NewCom attendee concisely put it. The Kenya Telecommunications Investment Group (KTIG) has applauded the dissolution. KTIG alleges corrupt practices by the Board of the CCK that “had reached a level which clearly invited firm and drastic action from the Minister in charge of Information and Communication.” Angaluki Muaka, CEO of KTIG, which was involved in the tendering process for the third mobile service provider, has said, “The Minister needs to be congratulated for his bold decision.”

Whilst GVF would also applaud actions that successfully challenge the damaging effects on telecommunications development arising out of (alleged) corrupt practices – a further, and very obvious, obstacle to the very transparency advocated and sought by all stakeholder communities – these are

## MARKET INTELLIGENCE

serious allegations, and we await further information on both sides of the issue.

Again quoting the NewCom statement, in calling “upon the Government of Kenya to appoint a new Board and to resolve the status of the Director General to a publicly stated timetable” the GVF agrees with the NewCom stakeholders that it is

important to “maintain the confidence of investors both internationally and locally”. This can be achieved by the

### # NewCom Africa 2005

focused on regulatory, technology, investment & business partnerships that have proven effective for the rapid roll-out of telecom services in Africa. Held over 15-17 March 2005 at London’s Chelsea Village, the Conference was organized under the auspices of GVF. AITEC Africa and UK Event Management Partners were the event organizers.

Government of Kenya by its issuance of “a statement reiterating its commitment to the [regulatory] reform process.”

The entire international telecoms stakeholder community sincerely hopes that the Government of Kenya will move quickly to clarify its


intentions, and thus restore the confidence of the global – and particularly the African – telecommunications community.

A firm, official, and swift reassurance that reforming continuity will see-out this – hopefully temporary – crisis will be welcome news for the economy and society of Kenya and of all African nations. **SM**




Martin Jarrold is the Director, International Programs of the Global VSAT Forum. He can be reached at [martin.jarrold@gvf.org](mailto:martin.jarrold@gvf.org) For more information on the GVF go to [www.gvf.org](http://www.gvf.org)

P.O. BOX 1038 RIYADH (DIPLOMATIC QUARTER) 11431 - SAUDI ARABIA | TEL: (9661) 4820000 FAX: (9661) 4887999 | [www.arabsat.com](http://www.arabsat.com)




# HDTV via satellite only on ARABSAT

HDTV | Ad Hoc | Occasional Use | Special Events | Direct-to-Home | Digital & Analog Television Distribution



Coming Soon



عرب سات  
ARABSAT  
quality. reliability. service.

# STOCK MONITOR

Company Name	Symbol	Price	52-wk Range
(As of March 31)			
APT SATELLITE	<a href="#">ATS</a>	1.28	1.25 - 2.19
ANDREW CORP	<a href="#">ANDW</a>	11.71	9.30 - 21.67
ASIA SATELLITE TELECOMMUNICATIONS	<a href="#">SAT</a>	18.70	15.20 - 19.81
BALL CORP	<a href="#">BLL</a>	41.48	30.20 - 46.45
BOEING CO	<a href="#">BA</a>	58.46	39.70 - 58.94
BRITISH SKY ADS	<a href="#">BSY</a>	44.05	33.22 - 51.72
CALAMP CORP	<a href="#">CAMP</a>	6.08	5.12 - 15.35
C-COM SATELLITE	<a href="#">CMLV</a>	0.34	0.32 - 0.60
COM DEV INTL LTD	<a href="#">CDV.TO</a>	2.69	2.17 - 3.80
COMTECH TELECOM CORP	<a href="#">CMTL</a>	52.10	14.93 - 51.89
THE DIRECTTV GROUP	<a href="#">DTV</a>	14.42	14.21 - 18.81
ECHOSTAR COMMUNICATIONS	<a href="#">DISH</a>	29.25	26.95 - 34.91
FREQUENCY ELECTRONICS	<a href="#">FEI</a>	10.66	9.80 - 17.13
GILAT SATELLITE NETWORKS	<a href="#">GILTF</a>	6.48	3.95 - 9.86
GLOBECOMM SYS INC	<a href="#">GCOM</a>	5.95	4.67 - 7.58
HARRIS CORP	<a href="#">HRS</a>	32.65	21.18 - 35.00
HONEYWELL INTL INC	<a href="#">HON</a>	37.21	31.85 - 39.50
INTEGRAL SYSTEMS	<a href="#">ISYS</a>	22.961	5.35 - 24.70
KVH INDS INC	<a href="#">KVHI</a>	9.11	6.61 - 16.60
L-3 COMM HLDGS IN	<a href="#">LLL</a>	71.02	56.20 - 77.26
LOCKHEED MARTIN CORP	<a href="#">LMT</a>	61.06	45.03 - 61.77
NEWS CORP	<a href="#">NWS</a>	17.61	15.305 - 19.41
NORSAT INTL INC	<a href="#">NSATF.OB</a>	0.426	0.43 - 0.83
NTL INC	<a href="#">NTLI</a>	63.67	46.65 - 73.79
ORBITAL SCIENCES	<a href="#">ORB</a>	9.68	9.21 - 14.19
PEGASUS COMMUNICATIONS	<a href="#">PGTV</a>	13.28	5.185 - 20.915
QUALCOMM INC	<a href="#">QCOM</a>	36.63	30.90 - 44.99
RADYNE COMSTREAM	<a href="#">RADN</a>	8.17	6.26 - 10.45
SCIENTIFIC ATLANTA	<a href="#">SFA</a>	28.22	24.61 - 36.50
SIRIUS SATELLITE	<a href="#">SIRI</a>	5.62	2.01 - 9.43
SES GLOBAL	<a href="#">SDSFa.F</a>	9.79	6.30 - 11.10
TRIMBLE NAVIGATION	<a href="#">TRMB</a>	33.81	21.55 - 38.24
VIASAT INC	<a href="#">VSAT</a>	18.69	16.79 - 27.65
XM SATELLITE RADIO	<a href="#">XMSR</a>	31.63	20.35 - 40.89

For real-time, up-to-the minute stock quotes of satellite companies go to: [www.satnews.com/free/finance.html](http://www.satnews.com/free/finance.html)

## ADVERTISER'S INDEX

AAE System <a href="http://www.aesys.com">www.aesys.com</a>	<b>11</b>
ARABSAT <a href="http://www.arabsat.com">www.arabsat.com</a>	<b>39</b>
ATCI <a href="http://www.atci.com">www.atci.com</a>	<b>35</b>
COMTECH EF DATA <a href="http://www.comtechefdata.com">www.comtechefdata.com</a>	<b>19</b>
EEC <a href="http://www.eccinccorp.com">www.eccinccorp.com</a>	<b>26</b>
FOXCORP <a href="http://www.foxcom.com">www.foxcom.com</a>	<b>29</b>
Global Link <a href="http://www.globalinktv.com">www.globalinktv.com</a>	<b>22</b>
GLOBECAST <a href="http://www.globecast.com">www.globecast.com</a>	<b>37</b>
ILC <a href="http://www.ilc.com">www.ilc.com</a>	<b>14</b>
ISCe <a href="http://www.isce.com">www.isce.com</a>	<b>8</b>
L-3 NARDA SATELLITE NETWORKS <a href="http://www.lnr.com">www.lnr.com</a>	<b>34</b>
LORAL SKYNET <a href="http://www.loralskynet.com">www.loralskynet.com</a>	<b>16</b>
MCL <a href="http://www.mcl.com">www.mcl.com</a>	<b>12</b>
Pacsat <a href="http://www.pacsat.com">www.pacsat.com</a>	<b>32</b>
PANAMSAT <a href="http://www.panamsat.com">www.panamsat.com</a>	<b>23</b>
SES Global <a href="http://www.ses-global.com">www.ses-global.com</a>	<b>18</b>