

COVER STORY

HDTV Comes to Satellite

by Howard Greenfield

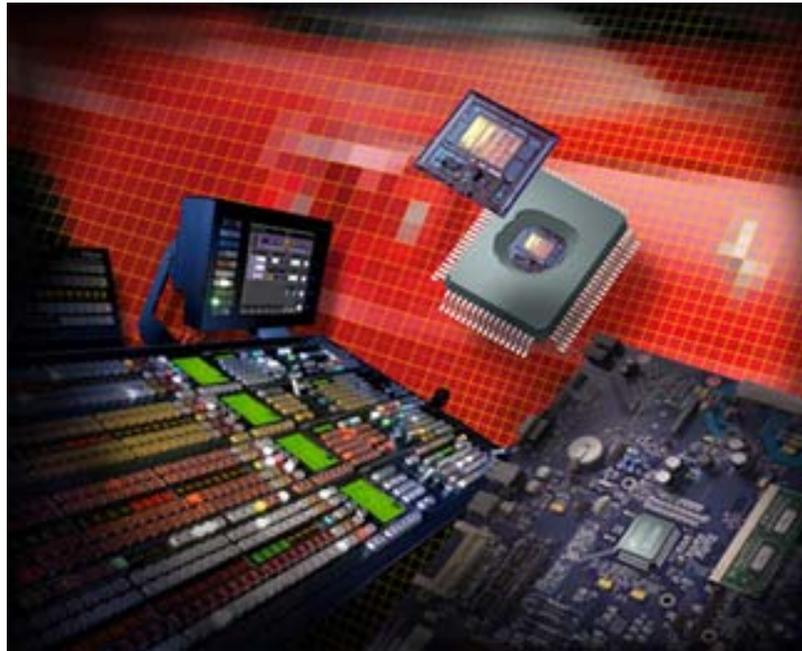
“Channels that are not thinking of converting to HD will miss the ‘Wow’ factor, and run the very real risk that operators like DirecTV or Sky will consider how and where they slot the channel.”

—Eric Cooney, CEO,
Tandberg Television,
January 2005

HDTV 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 has 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.

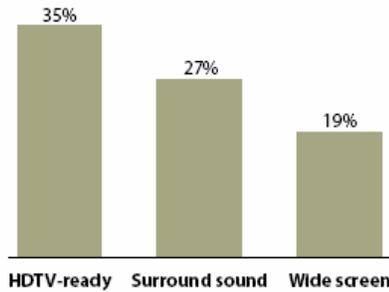
Forrester Report.

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

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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."

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).

Another Forrester View

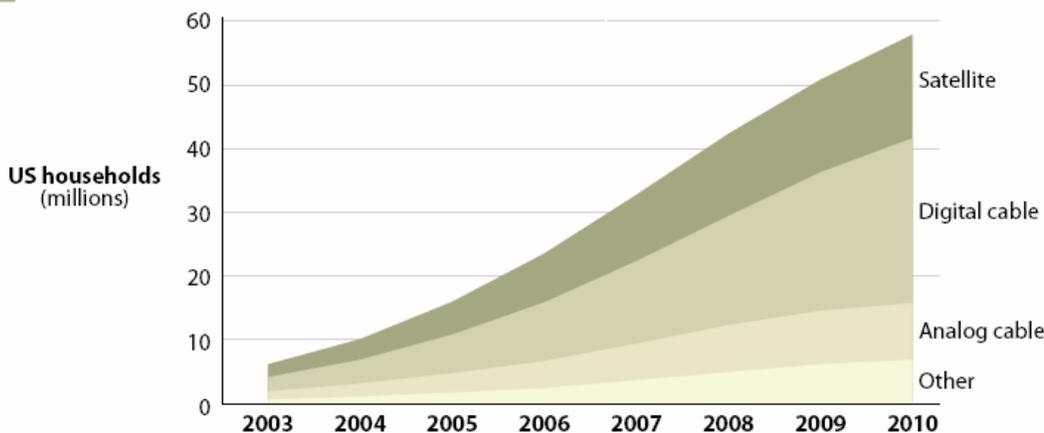
According to satellite industry expert Chris Forrester, there are solutions in sight for the HDTV throughput hurdles. Can MPEG4-AVC and DVB-S2 offset the inevitable satellite bandwidth crunch?

"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

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
Total	6.1	10.0	15.7	23.3	32.5	41.9	50.4	57.3

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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

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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!

About Howard Greenfield

Howard brings over 20 years of technology, business, and writing to a trans-Atlantic audience. Howard has held senior executive and consulting positions with world leaders such as Sun Microsystems, Informix Software, Apple Computer, British Telecom (BT), Europe Online, and others. He has served both public and private organizations in the cultural arts sector including EEMLAC (East of England Museums Libraries and Archives Council) and Octavo, founded by Adobe’s John Warnock.

Howard has a passion for the influence of technology on culture and business practices. At Sun Microsystems, Howard created the company’s first Media Lab and led co-development of projects with Xerox PARC, and Stanford University. He also worked in Apple Computer’s Advanced Technology Group on e-Learning systems.

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. For more details, go to www.go-associates.com.