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VOLUME 21, NO. 23 • DECEMBER 10, 2003

WHAT'S INSIDE

NEWS

DBS gets aggressive with HDTV, DVRs

• page 20



FEATURES

Watch what you say

• page 28



BUYERS GUIDE

Station automation & asset management

• page 34



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NASA Picks Up Hollywood's Methods

Columbia crash leads to lab revamp

by Craig Johnston

SEATTLE

Hollywood has a long history of borrowing storylines from the space program, Buck Rogers through Apollo 13 and beyond. In a turnabout, NASA is leaning heavily on Hollywood technology for its "Return to Space" program.

Until recently, NASA monitored each launch using 16mm,

35mm and 70mm film, collected by 70 cameras, and analyzed on a projector screen. Critical frames were enlarged on a flatbed scanner for closer analysis.

The Columbia space shuttle accident last February sparked the need to more closely evaluate film footage of that and prior shuttle launches to identify what led to the shuttle's disintegration during reentry. Prior to Columbia's flight, NASA had been discussing an upgrade of its image viewing

NASA, PAGE 10



High-resolution images of space shuttle launches captured on film and transferred onto video for analysis.

License Fees Hamper Tech Launch

Doubt over costs delay deployment of advanced MPEG

by Deborah D. McAdams

WASHINGTON

A license fee structure proposed last month for advanced MPEG contained a red flag for users who don't hold a piece of the patent. If adopted, the fee structure could give Microsoft a leg up in the abstruse realm of video compression algorithms, aka codecs.

The proposal, put forth by patent licensing firm MPEG LA, called for usage fees in addition to one-time royalties for H.264/MPEG-4 Part 10, or AVC. One source estimated the usage fee alone would cost broadcasters around \$10 million a year.

AVC represents the most recent, and some say the most efficient, advance in MPEG technology. The current industry standard, MPEG-2, allows broadcasters to squeeze a high-

definition signal through a 19 Mbps pipe. Sources familiar with AVC said that in many cases, it's twice as efficient as MPEG-2.

While AVC will not likely supplant MPEG-2 as the standard for primary broadcast video, sources said, AVC's improvement makes it attractive for cable and DBS operators, DVD makers, and E-VSB. (E-VSB potentially allows for over-the-air delivery of an SD signal alongside an HD signal.)

MPEG LA's fee proposal was

not a total surprise. The licensing body previously set forth a similar fee structure for MPEG-4 Visual—an improvement over MPEG-2, but one not nearly as efficient as AVC.

"In terms of compressing TV, it didn't offer a compelling improvement to performance, so no one adopted it," a source familiar with the algorithm said.

Not all of the 120 or so AVC patent holders agree on a usage

FEES, PAGE 15

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Panasonic ideas for life

IN THIS ISSUE

NEWS

- 1 NASA Employs Hollywood Methods**
Columbia crash leads to lab revamp
- 1 License Fees Hamper Tech Launch**
Doubt over costs delay deployment of advanced MPEG
- 8 Thirteen/WNET Revamps for Efficiency**
Harris' NetVX, ReCon help NYC Public broadcaster improve monitoring
- 10 Peter Pan Flies on MediaNet**
Far-flung post production houses share editing duties via fiber
- 12 SMPTE: IT in TV Does More With Less**
Networking technology becomes ubiquitous
- 14 CES: More Than Consumer Electronics**
Techies of every ilk will head to Vegas in January
- 16 Testing Asset Management**
WGBH's hands-on demo facility helps ease reservations
- 17 Thomson Grass Valley Scores**
Manufacturer tapped for ESPN's HD production architecture
- 18 KRMU: Digital TV From the Ground Up**
Colorado to get nation's first new-built DTV station
- 20 DBS Gets Aggressive on HDTV, DVRs**
Satellite operators challenge cable for value-added services

- 21 Camcorder Spawns New HD Format**
Japanese companies collaborate on HDV

- 22 They'd Rather Switch Than Fight**
Customers seek switchers with everything

- 24 Digital Journal: DTV Homesteading**
Video today, multiple data streams tomorrow

FEATURES

- 26 Whose Vision Is It Anyway?**
Let There Be Lighting, *Andy Ciddor*

- 28 Paying For What You Say**
Regulatory Review, *Barry Umansky*

- 30 DialNorm 101**
Inside Audio, *Dave Moulton*

- 32 Cash for Trash**
Inside Production, *Walter Schoenknecht*

BUYERS GUIDE

- 34 User Reports - Station Automation & Asset Management**
Omnibus, DNF Controls, Leightronix, Florical, Pro-Bel, MicroFirst, Blueline Technology, Harris, Encoda

- 39 Reference Guide**
Newsroom Automation, Traffic & Billing

- 40 Company Profile**
Proximity Corporation

- 44 Focus on Box**
Digital Transaction Group

EQUIPMENT

- 31, 38, 42 Product Showcase**

- 46-48 Classifieds**

P.22

The latest in production switchers

P.32

Hope for the packrat?

P.34

Station Automation and Asset Management

P.10

Peter Pan



CONTRIBUTING WRITERS

NAME:
Andy Ciddor

COLUMN:
Let There Be Lighting



OK, I am prepared to acknowledge that television production is a collaborative process (I originally wrote collaborative art form, but I was worried about sounding too pretentious). Indeed, I find it very stimulating and rewarding to work with others toward...Page 26

NAME:
Barry Umansky

COLUMN:
Regulatory Review



In recent months, television broadcasters again have been given fair warning by the Federal Communications Commission as to the importance of rule compliance—and the sanctions that may be imposed for broadcasters' regulatory lapses. One of these...Page 28

NAME:
Dave Moulton

COLUMN:
Inside Audio



Here's the deal. Alert readers know we've got audio levels problems in TV land. I've written about it, and so have lots of others. The problem is simple and obvious—audio levels vary widely from channel to channel and from time to time on any given channel, thereby...Page 30

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TV Technology (ISSN 0887-1701) is published semi-monthly by IMAS Publishing (USA) Inc. 5827 Columbia Pike, Third Floor, Falls Church VA 22041. Phone: 703-998-7600. FAX: 703-918-2966. The international edition is published monthly along with the month's second domestic edition. Periodicals postage paid at Falls Church VA 22041 and additional mailing offices. POSTMASTER: Send address changes to TV Technology, P.O. Box 1214, Falls Church VA 22041. Copyright 2003 by IMAS Publishing (USA) Inc. All rights reserved. For reprints contact the author and TV Technology.

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FROM THE EDITOR

2003: A Digital Odyssey



The digital transition caught some serious air in 2003. By the end of September, about 2.5 million DTV units had been shipped to retailers, and in September alone, more than a half million units were shipped, according to the CEA. At that rate, the association anticipates that a total of 4.3 million sets will be sold in 2003, almost as many as were sold in the first five years of the transition.

At the end of 2002, less than 750 broadcasters had completed the transition to digital. Nearly 400 have signed on since then, bringing the total to more than 1,100 as of early December, according to the NAB.

Cable and satellite made aggressive moves into HD, launching new hi-def channels and using HD to attract new customers. The recent launch of VOOH, the satellite industry's first dedicated hi-def service, suggested that HD is a vital part of the future of DBS.

Plug-and-play and the tuner man-

date made it onto the books in 2003, promising more consistency on the consumer side, while approval of the broadcast flag gave the creative community the protection it demanded.

In a defining moment for the integration of IT with broadcast, Sony and Panasonic shook things up at the NAB with the introduction of the industry's first tapeless, IT-based production systems.

In all, 2003 was quite possibly the most significant 12 months yet for the transition, yet the question of how media ownership regulations would alter the future of broadcast remained. At presstime, a compromise was struck in Congress to set ownership levels at 39 percent. I'm not convinced the issue has been put to rest. Look for more haggling and legal challenges in 2004.

Spectrum issues will also consume Congress and regulators; the federal government will continue to put pressure on broadcasters to give up

spectrum earlier rather than later; look for possible efforts to revise the rules requiring broadcasters to return spectrum after the 85 percent market penetration has been met.

* * *

We like to think that we have some of the most talented writers in the industry, and when one of them is recognized for their expertise, it just re-affirms that belief. Karl Paulsen, vice president of engineering at Azcar USA and Azcar Technologies, and author of the monthly "Media Server Technology" column, was recently named a SMPTE Fellow, an honor most befitting his achievements in the field of media storage. Congratulations, Karl!

Tom Butts
Editor

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LETTERS

Send to Editor, TV Technology at e-mail tvtech@imaspub.com

Audio Damage Control

Dear Mario:

I enjoy your articles and appreciate your pointing out that the emperor (Digital/HDTV) often has no clothes (or at best the clothes have a lot of holes in them).

The whole issue of sound and the quality of the audio that accompanies TV could keep you busy for months. It seems to be beyond the technological capability of my cable company just to get stereo to my set on a regular basis much less multichannel digital Dolby surround sound. You would think that in this age of x.1 (where x seems to be approaching infinity) multichannel hardware that somebody would get the message that sound is something a lot of people care about. The evidence, alas does not often support this. And the movie makers can't seem to get it right either.

We baby boomers have subjected our ears to a lot of abuse over the years and it's my perception that most modern movies have the same problem: I can't hear the dialogue but the car crashes and explosions wake up my next door neighbors.

John Applebee
Altamonte Springs, Fla.

Mario Responds:
Amen!

Your pal,
Mario

Down Memory Lighting Lane

Dear Andy Ciddor:

It was nice to read your article on the early memory lighting controllers ("Moving Right Along," Oct. 10).

One of (and I believe the first) really affordable \$2,995 memory lighting controllers was the DataCue designed and manufactured by a company called Marketronics. It was based on the 6502 processor that originally debuted in the KIM1 computer, a single PC board computer for the hobbyist. The DataCue was capable of driving up to 64 analog control channels and lived in a portable suitcase.

The next generation was the MicroStar which enjoyed being used by about one-third of every college and university in the country in the early 80's.

The Apple IIe went by the wayside when IBM came out with their PC which spawned the new product, ProStar, also manufactured by WestStar, which had dual split crossfades, proportionate patching and an optional submaster console which supported 18 manual handles and dual manual split crossfades.

The DataCue was sold to Teatronics and the MicroStar and ProStar to Dove Systems.

I was the designer of the operating interfaces for the DataCue, MicroStar and ProStar and the owner of Marketronics and WestStar.

Today I am the owner of Teatronics.

Jim Joffee
Santa Margarita, Calif.

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Thorsteinson Takes Helm at Leitch

TORONTO

Tim Thorsteinson, long-time leader of the Grass Valley Group, has taken the reins of Toronto-based Leitch Technology. Leitch went public with Thorsteinson's appointment as president and CEO just three days before he started the job on Nov. 24.

Leitch Chairman David Chaikof made it very clear that Thorsteinson's job is to pull off a turnaround.

"We are excited that we can now move forward to execute the plan to return Leitch to its historical levels of profitability," he said.

Leitch revenues dropped precipitously this year. It finished its Q1 in July with a \$5.1 million loss on revenues of \$37.5 million, which were down 20 percent from the previous year. Q4 revenues

were likewise down 20 percent from last year. Consequently, former CEO Margaret Craig stepped down last summer, and the chief executive search began.

Thorsteinson, a psychology major

married to an electrical engineer, already packs a potent turnaround in his portfolio. He ushered a stagnating Grass Valley Group, then owned by Tektronix, into profitability just two years after taking over in 1997. He emerged as one of the more straight-forward executives in the business, sharing hard figures with journalists, something of a rarity for

CEOs. Thorsteinson came to the insular Group after starting at Tektronix in the human resources department. He remained at the head of GVG through its spin-off and ultimate sale to Thomson. He will relocate to Toronto, where Leitch's shareholder meeting was scheduled to take place Dec. 8.



Tim Thorsteinson

Thorsteinson was replaced at Thomson by Jean-Marc Hoffer, who was vice president of European sales with GVG before Thomson bought it. Post-acquisition, Hoffer ran the R&D marketing teams working on broadcast products.

Transitions

DISH Gets Dirty

LITTLETON, COLO.

DBS operators typically roll out aggressive ad campaigns for the holidays, usually involving deep discounts or some sort of tchotchkes. EchoStar's DISH Network took a different tack this year, opting instead to depict cable as an insatiable pig.

DISH said its campaign "asks consumers to stop feeding the cable pig through television, radio and print ads that are cleverly designed and with good humor," although such humor traditionally escapes parties characterized as pigs.

At www.StopFeedingThePig.com, surfers are treated to a slideshow featuring a pink porker chowing down on cash and wearing a T-Shirt that says, simply, "Cable Co." "Last year," the ad goes, "the average monthly cable bill increased more than five times the ration of inflation. Excessive? We think it's piggish. Stop

feeding the cable pig your money."

Cable operators and DBS providers have, for years, loosed volleys at one another in ads, but the oinker takes the rivalry into the mud. DISH said thousands of retailers would be receiving ad support during the campaign, although there was no mention of live hogs.



The DISH Santa may have been too strapped for cash this year to offer tchotchkes for Christmas. The DISH hog campaign was launched just days after EchoStar reported Q3 results that fell far short of analysts' expectations, i.e., net revenue of 7 cents a share versus expectations of 15 cents. EchoStar stock subsequently took a pounding on Wall Street that dropped share prices by roughly \$4, which would normally be a bad thing, except that it comes at a time when the company is buying back \$1 billion worth of its own shares.

Campaigns

Affiliates Unveil Multicast Feeds

NEW YORK

With the debate over digital must-carry reaching fever pitch late last month, networks began to float ideas of just how they would fill bits. ABC shopped a localized news service to its affiliates, while NBC affiliates welcomed the concept of a localized weather service.

"A survey we just completed shows that 92 percent of affiliates have a strong interest in the concept," said Roger Ogden, president and general manager of Denver's KUSA-TV and NBC Affiliate Board chairman.

NBC was also looking at a children's channel as a second digital service to offer affiliates, according to published reports.

Networks rarely unveil new products in press leaks, but MSOs have long criticized broadcasters for demanding must-carry for nonexistent services. Yet as the FCC proceeded toward a ruling on digital must-carry, broadcasters began to put services on the table, with the caveat that launching those services would be contingent upon digital must-carry.

Multicast



OWNERSHIP, MUST-CARRY & MERGERS, OH MY!

The bipartisan agreement to hold the national audience reach cap at 35 percent lasted five days.

Senate Republican leaders and Bush administration officials trumped the day-old agreement by rank-and-file lawmakers, raising the lid to 39 percent. The move was described as a "compromise" between the 45-percent limit issued by the FCC last June and the previous cap of 35 percent. Thirty-nine percent also happens to be the national audience-reach of stations owned by Viacom and by Fox.

The cap legislation was attached to a spending bill for funding government agencies, which Congress needed to pass before adjourning for the year.

Sen. Fritz Hollings, (D-S.C.) a proponent of the 35-percent lid, scolded the press for even calling the maneuver a "compromise."

"The Republicans went into a closet, met with themselves, and announced a 'compromise.'"

The NAB, up to its eyeballs in the digital must-carry fight, backed away from its call to keep the lid at 35 percent.

"NAB supports the compromise

39-percent national television ownership cap ... While a 35-percent cap would have been preferable, we recognize the political realities surrounding this issue," said NAB President and CEO Eddie Fritts.

The House was expected to vote on the bill Dec. 8.

As for granting must-carry on the basis of bits, the concept appeared to be gaining ground in early November, when Commissioner Kathleen Abernathy rhetorically asked a room full of reporters, "What are the economics of multicasting if you don't get must-carry?"

Such were the utterances that launched a bombardment of objections from cable executives. By late November, certain adoption of digital must-carry was supplanted by the News Corp./DirecTV merger.

On Nov. 17, the FCC restarted the clock on News Corp.'s proposed merger with Hughes Electronics, parent company of DirecTV. The clock was stopped Oct. 10 to give the agency more time to review details. News Corp. previously pledged to sink \$1 billion into DirecTV and add scads of HD channels and local programming, if the deal were allowed to go through before the end of the year.

Federal Frequency

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Thirteen/WNET Revamps for Efficiency

Harris' NetVX, ReCon help NYC Public broadcaster improve monitoring

by Claudia Kienzle

NEW YORK

Motivated by the need for more efficient, integrated operations and asset management between their two stations, Thirteen/WNET, the PBS station in Manhattan, and its sister station WLIW on Long Island have installed modular Harris automation and networking solutions.

Among the Harris products are the NetVX, combining the functionality of 14 discrete devices into a single video compression/technology solution for transporting video, audio, data over ATM and IP networks; and ReCon, a remote control and distributed transmitter site management system. Also installed was a high-capacity ADIC LTO robotic datatape system to serve as a centralized program repository and archive.

RESOURCE CONSERVATION

"The benefits of this substantial upgrade are operational cost-savings and the ability to re-allocate valuable assets, such as human resources, that can be better utilized in other critical areas of the operation" said Frank Graybill, chief engineer for Thirteen/WNET, in New York, NY. "We're also able to eliminate redundant efforts by both stations, such as handling and storing the same programs—like 'Great Performances' and 'Nova'—including recording them onto two separate tapes and servers, and storing them in separate archival systems."

In January 2003, WNET's parent company, Educational Broadcasting Corporation, acquired WLIW, then merged the two stations' administrative and operational departments for more streamlined efficiency. Compelled by today's economic realities, including the high capital costs of the DTV transition, Graybill said this move was especially critical to them since they rely upon viewer contributions and consequently have tight budgets.

With Harris' ReCon installed at the four transmitter sites associated with WNET and WLIW, this PC-driven remote monitoring tool enables WNET and WLIW technicians to tend to all the transmitter sites via IP networks, with remote control over transmitters, tower lights, HVAC, security, and more, from a central location.

The four tower sites are: WNET's NTSC transmitter broadcasting on

Channel 13 from the Empire State Building; WNET's low-power DTV transmitter broadcasting on Channel 61-DT from their NYC studios; WNET's redundant transmitter in Alpine, N.J.; and the WLIW transmitter on Long Island, broadcasting NTSC on Channel 21 and DTV on Channel 22. Both DTV operations carry the PBS HD feed, the analog simulcast and diverse new services, such as the PBS Kids channel. However, while some of the programming is the same, the stations are independently programmed to maintain distinctive local identities and branding.

For Thirteen/WNET, Graybill said ReCon's appeal boiled down to its connectivity options, including IP and modem connections, as well as the ability to customize the system for the unique needs of the WNET/WLIW operations.

VIRTUAL OPERATIONS

NetVX, which serves as the primary STL (studio-to-transmitter) link to the WLIW facility, allows the transport of SDTV, DTV and HDTV video, as well as network data, over a single 45 Mbps DS3 (Verizon) circuit. NetVX also forms a bidirectional bridge between the WNET and WLIW servers, so that programming can be delivered to air.



Harris' NetVX

Net VX also serves as a return path for WLIW's live studio signal—such as its live fund-raising shows—to be sent back to WNET's master control center. Other than live studio feeds, such as fund-raising programs, all of WLIW's programming originates from the centralized New York City master control facility.

With NetVX in place, the stations' two servers function as one virtual server even though 30 miles separate them.



WNET Master Control Operator Jim Falzon.

"This solution integrates all services between Manhattan and Long Island including real-time NTSC and ATSC, non real-time file transfers and remote control and management over one facility, better enabling management of bandwidth and eliminating separate, individual facilities for voice, video and data," said John Delay, director, DTV studio products, for Harris Corp.'s Broadcast

"We've also set up a central repository for the growing volume of programming owned by WNET and WLIW. To do this, we're now using a 200 TB ADIC LTO datatape library that robotically restores archival programs onto the program servers when the traffic and automation systems request it," said Graybill.

Since the WNET program server, a nine-TV SeaChange, has comparatively limited capacity, current shows tend to reside there for only eight to 12 weeks before moving back to the LTO nearline archive, in an automated way completely transparent to the operator.

BROADCAST/IT HYBRID

"There is no doubt that broadcast and IT technologies are intersecting," Delay explained. "Single purpose network technologies are migrating to shared IT infrastructures, such as Ethernet/IP. We are in a transition, so operators must deal with a mixture of existing video formats and routing technologies with new, sometimes complex IT services. NetVX acts as a bridge between both worlds and shields the operators from the underlying complexities."

When viewers turn on WNET and WLIW, Graybill said, "They are unaware of the extensive and dramatic changes that our two stations have undergone to meet the demands of DTV and remain competitive in the marketplace. But the fact that the upgrade has been so transparent to them says that we continue to succeed in our longstanding goal to deliver the highest quality television viewing experience possible." ■

Communications Division.

"Once video and network resources have been defined in the configuration, the operator simply selects the source and destination to create a cross-connect—something they already do when routing video and audio within their plants," Delay added. "NetVX can replace numerous, discrete technology devices and service islands with one highly integrated, flexible, scalable technology platform."

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World Radio History

Peter Pan Flies on MediaNet

Far-flung post production houses share editing duties via fiber

by Jay Ankeney

HOLLYWOOD

One of most extraordinary aspects of the latest film version of "Peter Pan" is how J. M. Barrie's perpetual youth has been criss-crossing the West Coast for the last few years—not by plane, nor the unfettered will to fly, but via fiber optics.

On Christmas day, Universal Pictures, Columbia Pictures and Revolution Studios will release a brand new version of J. M. Barrie's classic, "Peter Pan." For the first time since Herbert Brenon's 1924 version, this new production will be live action and Peter will be played by a real boy, 13-year-old Jeremy Sumpter.

In production for almost five years, the film was shot in Sydney, Australia, and posted at Revolution Studios in

west Los Angeles by editor Garth Craven. But since the visual effects work was completed nearly 390 miles north at George Lucas' Industrial Light and Magic in San Rafael, Calif., director P. J. Hogan and producers Lucy Fisher

and Douglas Wick would have needed a ton of pixie dust to be physically present for all aspects of the production. So they contracted with MediaNet Communications to move their images on a secure high-speed fiber-optic network.



Jeremy Sumpter as Peter Pan

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MediaNet owns and manages a dual OC-48 (2.4 Gbps) backbone in Los Angeles for high-speed delivery of pre-digitized files for video collaboration and review of digital dailies and edit system dailies. But for "Peter Pan," MediaNet put in a specific DS-3 (45 Mbps) connection to ILM's facilities in San Rafael from their main trunk line running from Los Angeles to Vancouver, B.C., so no matter where Hogan was, he could interact with the visual effects team at Industrial Light and Magic through MediaNet's special Live Video Collaboration and Conferencing service.

"We've been doing what we call 'transmissions' ever since 'Jurassic Park' in 1993, often using a switched DS-3 service," said Gary Meyer, chief engineer of video engineering at ILM. "But this required setting up specific connections for each work area on every lot. Now the video feed from MediaNet can be

PETER, PAGE 12

NASA

CONTINUED FROM PAGE 1

facility with SGI of Mountain View, Calif. The failed Columbia mission led to a call for immediate action.

NASA wanted the highest resolution and fidelity possible, uncompressed, with the ability to view multiple images, synchronized, in real-time, in multiple locations. Though NASA's dream system did not exist as a whole, most of its elements were already at work in the entertainment community.

"Within about 10 days we put the design together, figured out the workflow and basically presented the whole thing to NASA," said Kevin Smith, systems engineer at SGI.

The engine of the revamped Visualization Analysis Lab in Kennedy Space Center is a 12-processor SGI Onyx 3800 supercomputer with 36 TB of high-speed storage. Film is transferred to video using an Imagica XE film scanner, which can yield a super-high definition resolution of 4,000 lines by 4,000 lines (4K).

The next shuttle launch is scheduled for no earlier than next September, but the lab is already hard at work.

"They're presently digitizing a lot of 35mm films ... we have to answer certain questions that the External Tank Project Office has," said Pete Rosado, senior system engineer at Kennedy Space Center.

Rosado said NASA relies on film as

an acquisition medium for two reasons. The first is resolution.

"The data we can get out of video cameras is not as much as we can get out of the 35mm," he said.

Frame speed is another issue.

"Right now, the plan is that we're going to run the 35mm at no less than 100 frames per second," said Rosado, noting that some of the cameras run at 200 fps. As for current high-speed video technology, Rosado said resolution and color do not remain stable.

SUPER HI-RES

After the film is transferred onto high-resolution, uncompressed video, playing it back in realtime at high frame rates uses a lot of bandwidth. The SGI system is capable of accessing data at 2 GBps, serving the high frame rate video to 7 x 7-foot SGI Reality Center Insight DLP displays.

For closer, single frame analysis, non-realtime 4K images are served off an SGI Octane2 visual workstation to be viewed on superhigh-resolution IBM T221 flat-panel monitors. The files are manipulated using InteractiveFX Piranha HD software, which SGI's Smith terms the "utility knife" of digital film production.

"It gives people the ability to cut, transcode and play out in real-time, film frames in a computer," he said. "All of the color space manipulation, various imaging capabilities, converting the color space of the imagery, and transcoding to other image formats or other kind of output devices can be

done with Piranha HD."

The capability of viewing from multiple angles at the same time is critical, said NASA's Rosado, because objects flying across the screen during launch that are suddenly hidden from one view can be picked up from another.

Another advantage of working in the digital domain, said Smith, is the ability to manipulate the color-space of the video, which reveals things never seen before in the images.

"Putting things in different color environments, like bringing up the red gun, bringing down the green, changing the color-space, is something a human can't do without help," he said.

This kind of video manipulation is not only being applied to the final Columbia mission images, but to film transfers from previous missions, yielding new information to the analysts.

Another piece of software popular to the Hollywood production community also plays a critical role at the Visualization Analysis Lab. The same CORRECT film restoration software from MTI Film that is used to remove scratches and restore old films has a similar role for NASA.

The problem is determining whether a small spec is a scratch, mar or other damage to the film itself, or an object of interest. Smith said the MTI operator applies "mathematical algorithms to the imagery to ascertain what it actually is that they're looking at."

Though NASA relies on film for image acquisition during launch, video

acquisition has played a part. Many of the film cameras have video taps where NTSC feeds have been recorded on VTRs for viewing and analysis before the film reels are processed and available for screening.

With increased emphasis on careful analysis of potential launch damage as soon as possible after the spacecraft leaves the pad, NASA says there is a role for high-definition video acquisition.

"We plan on getting some HD cameras for the return to flight, download all those videos into the Onyx, and all three centers (Kennedy, Marshall and Johnson space centers) are going to be involved in the quick review," Rosado said.

That presents a problem NASA has yet to solve—finding a way to distribute that massive amount of data quickly across the country.

"It's a massive amount of data on the server, and trying to transmit that is going to be a big headache," he said, but NASA does have the better part of a year before this capability will be needed.

Reflecting on the NASA project, Smith noted, "our first two customers for SGI were NASA and the Walt Disney Company."

He said while the company was building imaging and 3D systems for feature films 20 years ago, "the government was taking the same technology and applying it in different ways to create aircraft, to create understanding of the universe, that sort of stuff." ■

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SMPTE: IT in TV Does More With Less

Networking technology becoming ubiquitous

by Andrew Morris

NEW YORK

The increasing use of IT technology in television was a hot potato at last month's conference of the Society of Motion Picture and Television Engineers at the New York Hilton. Al Kovalick of Pinnacle Systems summed up the ramifications.

"Journalists editing and producers creating content is something that many people thought would never happen," he said.

Several engineering executives shared how their operations have implemented IT into television. Ira Goldstone, vice president of engineering at Tribune Broadcasting, said "Tribune's migration to IT-based solutions is a drive to more economically produce product. The goal is to build, share, and multipurpose content."

Chris Hutchins, director of editorial technology, discussed Tribune's use of Web-based control of broadcast facilities.

"Technology has moved functions to the desktop. Sixty-five percent of graphics are generated at the desktop and 80 percent of editing is now done at the desktop."

At these stations, a journalist or producer can view graphics at the desktop, control the video router, ingest a feed and even control the prompter from the desktop.

Over the Tribune wide area network a newsworthy fire in Los Angeles can be transferred to another station via FTP (File Transfer Protocol).

"A user can drag and drop content over the network," said Hitchens. "You no longer have to pick up the phone and try to get a station to feed content to you."

Richard Westcott, NBC vice president of station technology discussed the creation of a centralized facility in Fort Worth, Texas that serves the graphics needs of 14 NBC-owned stations and 15 Telemundo-owned stations. (See "NBC Builds Global Graphics System," Aug. 6, 2003).

In the 4,200-square-foot Fort Worth facility, artists are outfitted with PCs powered by dual Intel Xenon processors and loaded with the Adobe Suite of products supplemented with

appropriate plug-ins. Westcott offered an example of the efficiency of this centralized operation.

"Take an over-the-shoulder of President Bush. You create it once instead of 14 times. All-in-all, the cost of building video is unbelievably cheap," Westcott said.

VIDEO TRANSFER

At PBS, the use of IT centers on a file transfer model of video distribution that will likely distribute files in non-real time after its current satellite leases end in 2006.

Thomas Edwards, senior manager of Interconnection Engineering at PBS discussed PBS' Next Generation Interconnect System (NGIS), said that to achieve this model, PBS is looking at using higher order modulation to move data faster over the same transponder bandwidth. (see "PBS, Omneon Develop Distribution Prototype," Jan. 22, 2003).

"We want to exploit public television's existing investment in big dishes," Edwards said.

A prototype project will test

16QAM 3/4 modulation with sufficient forward error correction to withstand a 20-minute outage.

"The goal is to not do packet retransmission," Edwards said.

Time Warner Cable's News Group consolidated its storage with IT technology. Prior to developing this infrastructure "we had decentralized storage, decentralized newsroom production and decentralized graphics," said Chris Lemire, director of technology for the group.

Lemire said that Time Warner's goal is to implement a fully integrated news production desktop. To accomplish that goal, the group is now deploying "complete open-architected systems based on network, standard TCP/IP, Ethernet and/or UDP protocols," he said.

On the news acquisition side, Mark Brown, CTO of SignaSys weighed in with an example of video coming out of Iraq. Brown said ABC O&O KTRK in Houston, Texas used SignaSys' system last March to transmit a live feed from Iraq. The quality of the feed transmitted using store-and-forward was better than the live feed, but Brown said that live quality would improve with the implementation of the Windows Media 9 codec. ■



Al Kovalick

Peter

CONTINUED FROM PAGE 10

accessed by several users at various locations simultaneously."

MediaNet transmits what Meyer calls "mastering quality" standard-definition video utilizing proprietary encryption that takes significantly less time to process than other security systems intended to deliver over open Internet protocol. In these days of video piracy, Meyer says MediaNet's closed system gives people a "warm, cozy feeling" about the security of the images being seen in screening rooms or viewing stations anywhere in the world.

"Once we have installed a calibrated monitor in one of these rooms, the director can interact with the video using a Wacom [graphics] tablet overlay," Meyer explains. "That lets him collaborate with the effects artists as if they were in the same facility."

This real-time interaction had a dramatic effect on the final look of the visual wizardry in the new "Peter Pan."

"We'd have transmission conferences with director Hogan at least twice a week," said Steve Braggs ("Minority Report") the computer graphics supervisor at ILM, "and the availability of

this interaction helped the team headed by visual effects supervisor Scott Farrar and animation supervisor Jenn Emberly mold the special effects to suit his vision."

Braggs' computer artists can access the full spectrum of special effects technologies, including Alias' Maya, Pixar's RenderMan, Softimage 3-D and ILM's own proprietary compositing software called Comptime. Even though this is the first modern live-action portrayal of the Peter Pan story, key parts of the adventure depend on advanced digital effects for realism.

For example, in the opening act when Tinker Bell (Ludivine Sagnier) flies into the Darling family's nursery to help Peter find his lost shadow, Hogan in Los Angeles and Braggs in San Rafael were able to view the same footage simultaneously despite their physical separation.

SIMULTANEOUS EDITS

"Hogan wanted her to fly into one of the open drawers and we discussed whether her flight path should include a loop or not," Braggs said. "He wanted her to be more whimsical and it was only because we could bounce ideas off each other interactively in real time that Tinker Bell's performance became

more believable."

Later, during the climactic battle between Peter and Captain Hook (Jason Isaacs, who also plays Mr. Darling) flying through the clouds over Hook's pirate ship, the director was



Ludivine Sagnier as Tinker Bell in "Peter Pan"

able to give specific direction to the effects creation.

"Because we were looking at the same footage in different screening rooms over MediaNet, Hogan would ask us to bring Peter closer to camera or make Hook's flight more dynamic," Braggs tells us. "We simply could not have done that through a telephone conversation."

Ever since Gloria Borders, head of post production at Revolution Studios,

first contacted MediaNet in August 2002, the company has rapidly expanded the services available to ILM.

"At first they wanted digital dailies," said Herb Dow, vice president of sales and marketing for MediaNet Communications, "and then they added review capabilities for the effects work. Now that we have become ILM's pipeline of choice, MediaNet has been involved with six other high end effects projects including last summer's 'Pirates of the Caribbean,' next year's mammoth monster fest, 'Van Helsing,' currently being shot in Europe by Universal, and the

upcoming third installment of the Harry Potter saga. By combining wireless, free space optics, RF and dedicated fiber connections, we feel MediaNet can tailor itself to any client's needs."

Upon completion of "Peter Pan," ILM's Meyer said that "Industrial Light and Magic is a for-hire service provider, and when we need connectivity to our clients we now have a professional vendor who can provide it." ■

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CES: More than Consumer Electronics

Techies of every ilk will head to Vegas in January

by Gary Arlen

LAS VEGAS

When the 2004 Consumer Electronics Show opens Jan. 8-11, virtual tents will expand over 23 specialized pavilions—ranging from HDTV and home networks to mobile telematics and storage technologies. Video and home theater systems—once among the centerpieces of CES—are now merely high-visibility elements in a digital bazaar that is expected to attract at least 115,000 people, about the same-sized crowd as in 2003, according to the CEA.

The product range, in turn, lures hordes of attendees from beyond CES's original cadre of electronics manufacturers, wholesalers and retailers. Cable TV executives show up—this year in pack-like troops organized by CableLabs and CTAM—on the prowl for deals, including ones relating to the plug-and-play agreement that the FCC recently blessed. The cable moguls will also be fleshing out plans for their industry's move into the retail market, as underscored by recent broadband collaborative deals with Office Depot, Best Buy and Staples.

Satellite TV, with its HDTV jump on cable, is also high on CES's agenda. The show will feature a face-off among the three DBS chiefs: Eddy Hartenstein of DirecTV, Charlie Ergen of EchoStar and Charles Dolan of the newly launched VOOOM.

Digital video recorders and similar

media center devices will be on display from dozens of manufacturers, extending far beyond TiVo, ReplayTV and earliest pioneers. Several vendors are expected to unveil micro-drives built into TVs, paving the way for integrated TV/DVR sets.

GOO GOO G'JOOB

Meanwhile, one of the largest CE makers acknowledged the looming demise of the videocassette recorder business, pointing out that his company would only show two standalone VCRs

laptops and PDAs on college campuses is attracting academic purchasing officers to look in on the education/productivity tools on display.

Hollywood has been showing up in greater numbers at CES in recent years, especially studio technology executives who are trying to foresee the ways in which their output will be viewed on big and small screens and via an expanding array of storage and transmission devices. Predictably, Texas Instruments and its DLP technology, plus Kodak's expanding Organic Light Emitting

Diode (OLED) products—now named "Nu-Vue"—will be on display, in larger and brighter configurations.

And reflecting the legislative/regulatory implications of the CE industry—on everything from trade policy to

Internet telephony—CES typically attracts more than a hundred federal, state and local public officials. It's hard to gauge how the FCC's recent travel cutback may affect the Washington contingent at this year's event.

On the global scene, the top government technology officials from

France, Germany and South Korea will be touring the CES floor.

The 100-plus conference sessions, on topics ranging from copyright policy to digital TV installation procedures, account for some of the throngs at the Las Vegas tradeshow.

Also pulling crowds who want to do face-time with digital notables are the daily keynote sessions, featuring top executives from an array of allied industries, including Microsoft Chairman Bill Gates; Paul Orellini, president and CEO of Intel; Carly Fiorina, chairman and CEO of Hewlett Packard; Gary Forsee, chairman and CEO of Sprint; Ivan Seidenberg, CEO of Verizon and Fumio Ohtsubo, president, Panasonic AVC Networks, and senior managing director, Matsushita.

GIZMOS OF TOMORROW

CES throngs come to see and play with gizmos, not just to hear visionary pep talks about the industries on display. While the 1.1 million square feet of trade floor exhibits would seemingly fulfill most of these hands-on desires, the best viewing will inevitably be in the hotel suites and private exhibit rooms around town. During the past few years, specialty chip-makers such as TransMeta, Cirrus Logic and dozens of other microprocessor companies have showcased their components to manufacturers seeking to put advanced features into their future devices. Getting invited into the suites, or more importantly into the backrooms where the "best stuff" is revealed, is the hottest ticket in Vegas.

With a month to go before CES, handicappers are cautious about equipment debuts. Leading contenders include voice-recognition and voice-activation, designed for phone and remote control products, according to industry sources.

On the business front, China will be one of the most-discussed topics, both as an emerging consumer of CE devices and as a competitive supplier. One insider noted the "palpable panic" among Japanese and Korean mainstays, fraught with fear about what's coming next in HDTV or other products from China, a country that has already produced the \$29 DVD player, thus altering the economics of the global hardware bazaar.

Closer to home, there's considerable anticipation about what the Media Lab from the Massachusetts Institute of Technology will display. MIT's much-lauded Media Lab has signed up for its first-ever booth at CES, and lots of visitors are wondering what the visionaries will show off. ■



Crowds filled the halls at CES 2003.

at CES, but will have seven DVD models, plus a variety of combination DVD+DVR, TV+DVD and combo DVD/VCR/TV devices.

CES has revived its videogame presence, thanks to the direction in which Sony PlayStation and Microsoft Xbox are taking that sector. The growth of


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Fees

CONTINUED FROM PAGE 1

fee. MPEG-2 generates an estimated \$300 million a year on one-time royalty fees alone. A firm in competition with MPEG LA, VIA Licensing, previously proposed a royalty structure for AVC that included no usage fees. Sources indicate that a major manufacturer among the patent holders is demanding a usage fee, hence the proposal from MPEG LA.

Rob Koenen, president of the MPEG Industry Forum, said the proposed AVC license fees were an improvement over

that may have a bearing on WM9. Another is that it only indemnifies users for the dime royalty, so if a successful patent suit were brought to bear, users would be out right alongside Microsoft.

The usage fees proposed by MPEG LA would kick in Jan. 1, 2006, and cost 2 cents per title for each PPV, VOD and video download longer than 12 minutes. Subscription video delivered by DBS, cable or Internet would be priced

according to the size of the system up to \$100,000 for anything above 1 million subscribers.

For broadcasters, the AVC fees would start at \$10,000 a year, per market, in markets with more than 100,000 households. Internet broadcast fees are waived through 2010, after which they parallel over-the-air fees. Usage fees then cap at \$3.5 million for 2006-07; \$4.25 million for 2008-09; and \$5 million in

2010, when initial licenses expire.

In the meantime, China has licensed codecs developed by Clifton Park, N.Y.-based On2 for its new hi-def AV recording and playback standard, Enhanced Versatile Disk. On2 receives \$1 million for the use of its codecs and a \$2 royalty on each EVD player manufactured, compared to patent fees of around \$13.80 for currently manufactured DVD players, Dow Jones reports. ■

**"...The jury is still out
on whether the
improvements are
sufficient to enable
widespread adoption.
The debate has just
started."**

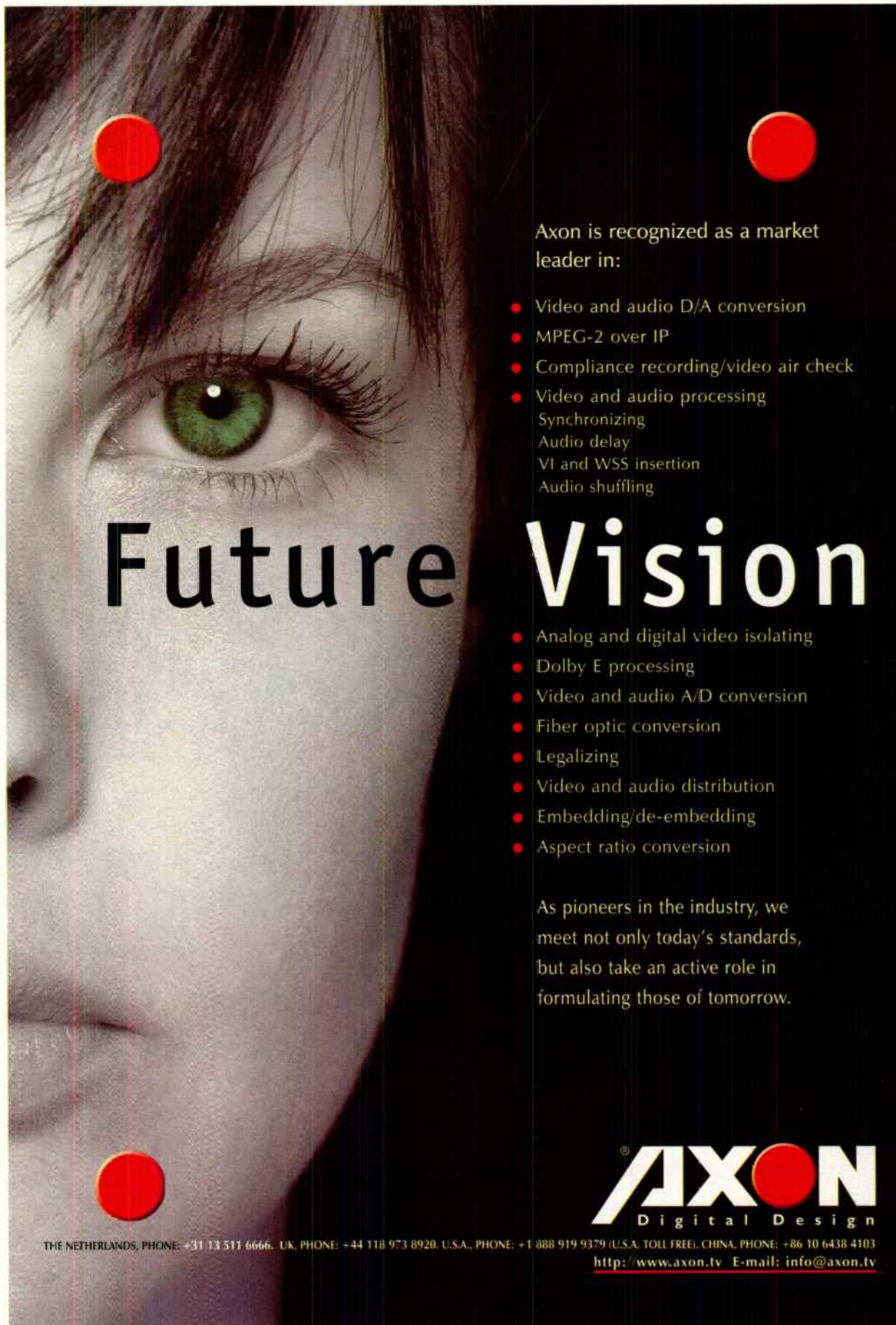
**—Rob Koenen, MPEG
Industry Forum**

MPEG-4s, "but it depends on which proposed pool you're looking at, VIA Licensing's or MPEG LA's, and the jury is still out on whether the improvements are sufficient to enable widespread adoption. The debate has just started."

Originally dubbed "AVC," the codec subsequently known as H.264 was under consideration by the Advanced Television Standards Committee as a standard for E-VSB, several sources confirmed. However, because license fees had not been determined, approval languished.

In the interim, Microsoft opened the specification for WM9. Opening a spec generally leads to wider adoption of a given technology, but it also allows competitors to design and profit from compatible products. Microsoft releases are traditionally proprietary, hence the company's stranglehold on the browser business. However, opening the WM9 spec placed the technology in a position to be adopted as a standard, which would give it far greater distribution than were it to remain proprietary.

The WM9 license fee consists primarily of a 10-cent royalty on encoders and decoders, (capped at \$1 million a year), compared to 20 cents under MPEG LA's proposal for AVC. However, while licensing WM9 does not require usage fees, there are issues that don't leave the MPEG LA proposal dead in the water. One is that it requires users to cross-license any part of their own intellectual property



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Testing Asset Management

WGBH's hands-on demo facility helps ease reservations

by Susan Ashworth

BOSTON

With all the fanfare of an auto show, a new digital asset management demonstration center opened in Boston last month, a first-of-its-kind test facility designed to ease anxiety about the technology.

"It can serve as a testing ground [for stations] before they put a final system into production," said Pallavi Shah with Sun Microsystems, who played a primary role in setting up the new center at Boston public TV station WGBH.

TOUGH PATH

While asset management has been a big buzz phrase in the industry over the last few years, the technology has been considered by some as unwieldy, expensive and hard to implement.

"Digital asset management has been a volatile space for some time," said Mike Barros, vice president of business development, Artesia Technologies. "For this system to be up and working sends a stabilizing message to the marketplace."

The new asset management center will show media businesses how to build systems, manage digital assets better and create new revenue streams from content, the companies said.

"We had a number of disparate databases we wanted to pull together, and so we started to look at different technologies available to manage data and file structures," said Dave MacCarn, WGBH chief technologist and asset management architect.

From its headquarters here, WGBH creates Web programming, home video productions and nearly a third of the primetime and online programming that airs on PBS, MacCarn said.

"When looking at the transition from analog to digital, we began to ask how we would handle all the physical and digital items, and how we would tie them all together," he said.

The subsequent "iForce Solution Center" has a reference architecture that can expand across various departments to manage media from ingest to playout. The center teamed with Sun Microsystems to install the company's Digital Asset Management Reference Architec-

ture. Sun and WGBH then worked with Sony and Artesia Technologies, which provided its enterprise asset management technology.

Once material is ingested, the Artesia asset management system allows users to recognize different file types, herd data into the right location, load metadata fields and find and search for files within the system.

Additional equipment was installed from Apple, Harris, Telestream, Virage and Thomson Grass Valley, though equipment selections are flexible. A primary purpose of the Boston iForce center is to show that asset management technology is ready for use.

"iForce allows customers to customize their asset management scenario, without setting up their own environ-



Dave MacCarn, WGBH chief technologist and asset management architect, oversees a digital media demonstration.

ment from scratch," Barros said.

Other PBS member stations, such as WNET New York and Milwaukee Public Television, are implementing similar asset management systems at their facilities as well.

Asset management technology received another boost earlier this year from the founding of the Global Society for Asset Management, an independent trade and professional organization whose members include Sun Microsystems and Artesia. ■

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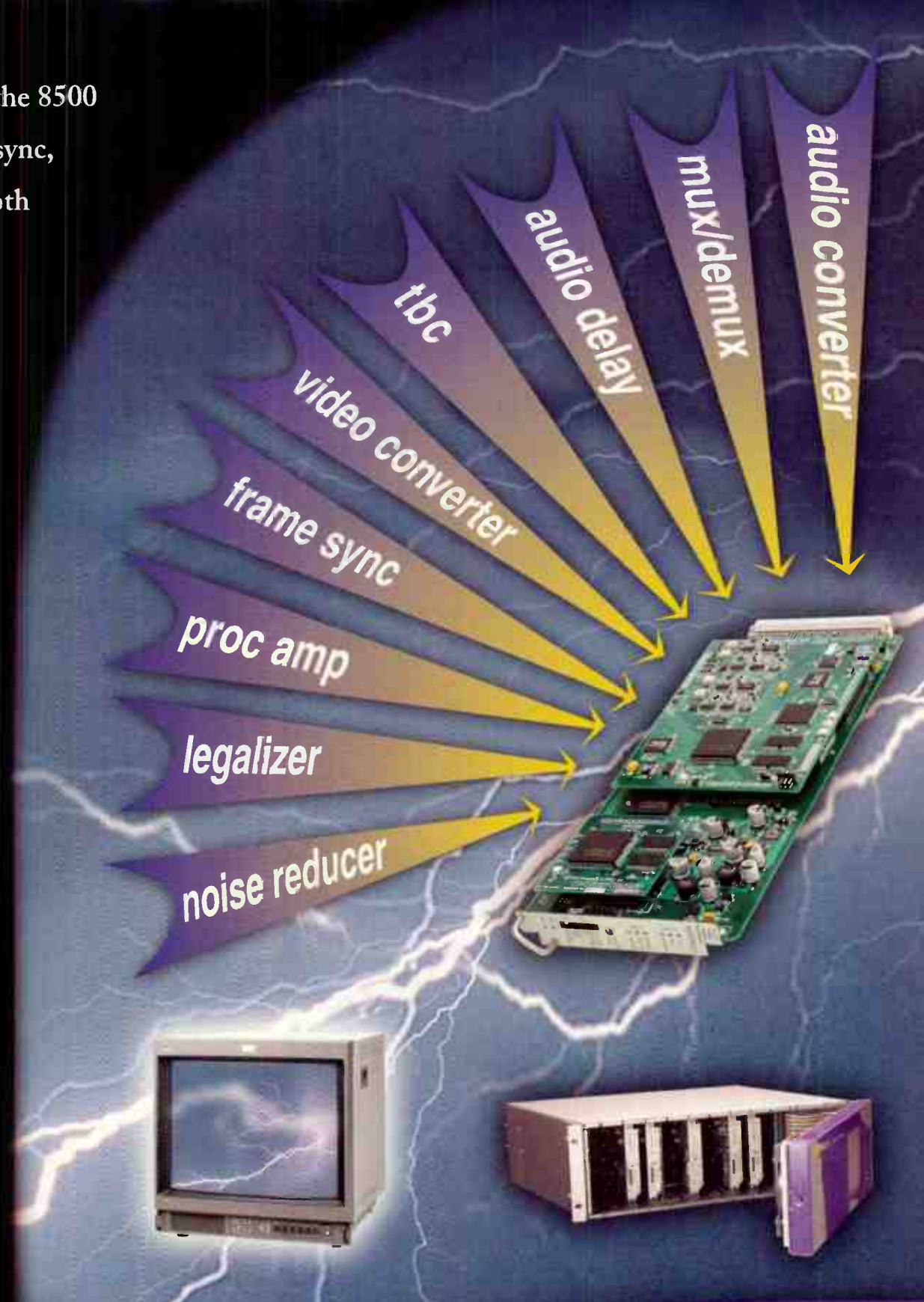
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DBS Gets Agressive on HDTV, DVRs

Satellite operators challenge cable for value-added services

by Peter J. Brown

LITTLETON, COLO. & EL SEGUNDO, CALIF.

DBS operators have made it clear they intend to stay ahead of cable when it comes to DVRs and HDTV.

"In areas where cable TV is available, about one of every three HDTV homes has DBS [compared to one out of every six homes that subscribe to DBS overall]," said Bruce Leichtman, president of New Hampshire-based Leichtman Research Group.

Of the 21 million satellite subscribers in the United States, DirecTV has 12 million, with 500,000 DVRs deployed; EchoStar's DISH network has 9 million subscribers; 1 million with DVRs.

Cable collectively has 73 million subscribers, while cable HD service is available to 60 million homes. The actual number of households subscribing to cable HD or DVR service is not available.

As for programming, DirecTV's HD package features ESPN HD, Discovery HD Theater, HDNet and HDNet Movies, along with PPV movies, HBO and Showtime HD in premium packages.

EchoStar offers the same selection, plus around six HD PPV movies and CBS in HD in the 17 markets where the network owns and operates stations. DirecTV does not yet carry regular network fare in HD, but it does have a deal with CBS Sports to carry each of the network's 17 NFL primary regular season games in 1080i.

The latest DBS arrival, Rainbow's VOOM, is also pushing an ambitious HD agenda with the goal of offering 39 HD channels next year.

In the coming months, EchoStar plans to offer

will add HDTV via this same satellite at 105 degrees West. EchoStar also has a deal for capacity on SES Americom's soon-to-be launched AMC-15 in the same orbital slot.

EchoStar will be serving 95 markets with local-into-local service by early December. DirecTV currently serves 64 markets, according to a DirecTV spokesperson, and plans to add 41 markets next year. Despite much talk of HD local-into-local via DBS satellite, neither has a firm timetable as to when this might happen.

"The marginal benefit of HDTV today is overstated a bit for local channels, although it might be a magnificent opportunity for anyone with some idle capacity lying around," says Christopher Baugh, president of Florida-based Northern Sky Research.

There has been a noticeable shift recently. An intense advertising campaign by DBS companies now highlights the availability of off-air local HD reception. Best Buy, for example, featured a Samsung Digital DirecTV HD receiver for \$599 with a free \$299 HDTV off-air antenna and installation in a November weekend newspaper stuffer.

According to Lumpkin, all future DISH HD STB's will feature a built-in off-air DTV tuner. The DISH 811 HD STB, which has a standalone price of \$399 or a monthly lease fee of \$5, incorporates off-air program scheduling data directly into its on-screen programming guide.

Aside from the HD offerings, the real driver for DBS is the DVR, and the fact that HD DVRs are about to appear.

"While HDTV appears to be the logical next step, the DVR is the more important play right now in terms of adding value," says Baugh.

The DISH Player DVR 921, which becomes available this month and will list for \$999, includes a 250 GB hard drive for 25 hours of HD recording or up to 180 hours of SDTV recording. It comes with DVI connectors and a single HD tuner and dual SDTV tuners for pix-in-pix SDTV, a Lumpkin said.

DirecTV's HD DVR will be an extension of TiVo. Equipped with High-Definition Multimedia Interface (HDMI) connectors and High-bandwidth Digital Content Protection (HDCP), the outputs on the DirecTV HD DVR will be configured for 480i, 480p, 720p, or 1080i formats. Like the DISH Player DVR 921, it will feature a 250 GB hard disk drive, allowing for off-air ATSC

recording. Customers are urged to install a triple LNB dish antenna with dual satellite inputs with the DirecTV HD DVR.

For its holiday blitz, DirecTV bundled an DirecTV HD system for \$200 with a Samsung HD set, offered only at Circuit City through Jan. 31.

EchoStar has also teamed up with Thomson to offer two new HDTV sets, including a 34-inch CRT and a 40-inch, rear-projection unit. For the holidays, EchoStar will offer DISH 811, consisting of the dish, installation and one of these HDTVs for \$1,499. Another \$500 gets a DISH Player DVR 921.

DirecTV intends to introduce similar bundled HD offerings in the near future, a spokesman said.

CARVING OUT BANDWIDTH

Expanding the HD offerings also means expanding capacity. Besides tapping additional Ku-Band satellite capacity—DirecTV's recent FCC filings mention accessing foreign satellites, although a DirecTV spokesperson could not provide details. Both DBS players are considering a potential role for Ka-Band.

Converting from MPEG-2 to H.264 (MPEG-4, Part 10) is one possible way to move vast amounts of programming over existing satellite transponders, although the huge installed base of MPEG-2 set-tops makes this difficult at best.

The new DVB-S2 standard is another important variable, considering that it has the potential to boost capacity by 30 to 35 percent. To fulfill its promise, DVB-S2 will probably require 8PSK modulation (versus QPSK) along with a new forward error correction (FEC) technique based on low-density parity check codes (LDPC). The jury is out as to whether LDPC codes will succeed as compared to several new advanced turbo-coding techniques. LDPC, however, has the support of Hughes Network Systems, DirecTV's parent company.

VA VA VA ...

And what of VOOM? Launched in mid-October, Cablevision's VOOM generated considerable buzz. However, the sheer scope of the project has left analysts speculating about its viability, and possibly Voom executives as well. When queried about its technology, Cablevision executives declined to respond.

Leichtman said that VOOM will have little impact in the short run because it is aimed at a high-end audience.

"We project 33 million HDTV households by 2007. If VOOM can get 10 or even just five percent of these households, this will constitute a viable business, but again, they face a lot of challenges reaching out to high-end customers." ■



DISH Network's new 40-inch rear-projection HD monitor

up to 50 HDTV channels via the new Super Dish, according to company spokesman Marc Lumpkin. The Super Dish can combine feeds from leased capacity at 105 degrees West, along with feeds from EchoStar satellites at 110 and 119 degrees West.

EchoStar is using the SES Americom AMC-2 satellite for local-into-local, and

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Camcorder Spawns New HD Format

Japanese companies collaborate on HDV for consumer market

by Robin Berger

TOKYO

JVC's introduction of the \$3,500 GR-HD1 camcorder last March sparked debate about whether or not HD production can be affordable for the little guy, and now four top consumer electronics manufacturers are working to ensure that the choice to go HD is economical and easy to use.

On Sept. 30, Canon, Sharp, Sony and Victor Company of Japan (JVC) introduced specifications to record and play back high-definition video on a digital video (DV) cassette tape.

The intended market includes "low-end broadcast and production" professionals, the "high-end consumer market" and "peripherals—non-linear devices and software supplied," according to Sony spokesman Aki Shimizu.

Editing software providers Adobe Systems, Canopus Co., KDDI R&D Laboratories, Sony Pictures Digital Networks and Ulead Systems Inc.

have already lined up to acknowledge support.

"Improvements in signal-processing technology, the expansion of HD broadcasting, and sales of HD recorders [including D-VHS/Blu-ray Disc] have enriched customer enjoyment of HD video," Shimizu insisted. "We believe that this would be the optimal timing for the proposal of a high-definition recording format for personal video."

Alternative reasons behind the timing include JVC's release of the GR-HD1 camcorder, which, according to the buzz, didn't go down well with its rivals. The HD1 leap-frogged the competition by boasting the ability to record hi-def MPEG-2 video at 720p, 30 frames per second, onto a standard MiniDV cassette.

Word has it that JVC's rivals, led by Sony, raised the bar for the specs—most notably by accommodating 1080i resolution—as payback. But despite the announcement's effect of relegat-

ing the perception of the HD1 as a "flavor" or "subset" of what is ultimately going to be called HDV, it's still the only product on the market that's even close.



JVC's GR-HD1 is bringing a new HD format to the consumer market.

The companies would not go on the record about forthcoming products, let alone timetables or price-points.

Absent from all the hoopla is Matsushita's Panasonic division.

"The bottom line is if you want real

HD performance that will stand up to production and distribution, you have to pay the price for it," said Panasonic's vice president of marketing, Stuart English. "Neither the AG-DVX100 [Panasonic's sub-\$4,000 24p camcorder], nor certainly the single rep-

resentative of the HDV format

seen to date, come close

to the performance of

a leading HD cam-

corder such as

the Panasonic

Varicam, and

any suggestion

they do is very

ill-informed."

Dave Trescot,

director of digital video

products for Adobe agrees that

the announcement "doesn't suddenly

mean that, hey, I can replace my

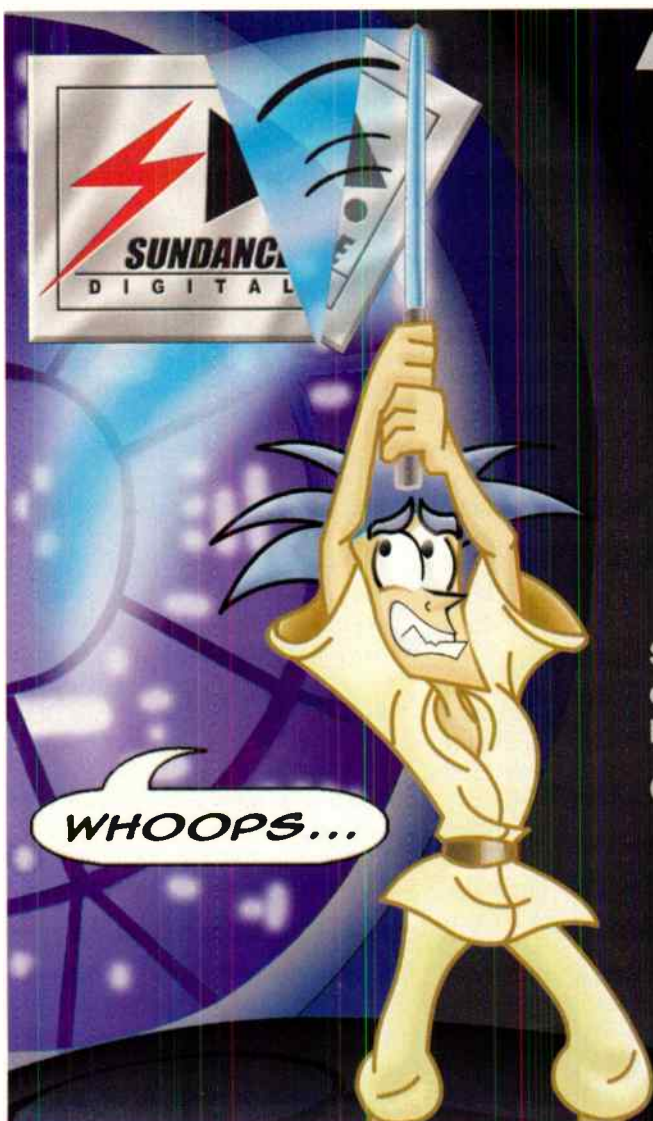
\$70,000 hi-def camera with a \$2,000

hi-def camera."

BETTER THAN SD

HDV is very compressed and may not have the color range of a profes-

HDV, PAGE 22



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They'd Rather Switch Than Fight

Customers seek switchers with everything

by Craig Johnston

SEATTLE

Production switchers are the linchpins of multicamera video production, and the manufacturers that develop them are being guided by the technological and workflow changes confronting their customers.

Steve Kang, a product manager for Pinnacle Systems production equipment, summed up the situation.

"...everybody's asking for everything," he said.

On the one hand, high-definition video production, now or in the very near future, necessitates HD-capable products. And digital technology allows digital video effects devices, which used to be separate "black box" units, to be built on a single chip.

On the other hand, the need to do ever more production with ever fewer crew members means more tasks have to be within control of the

production switcher's operator, the technical director.

Fortunately, digital technology's rapid advances have allowed switcher makers to meet these customer demands.

"The trend lately has been to have more control and more effects capability within the production switcher itself," said Mark Narveson, Grass Valley Group product marketing manager for production switchers. He said where individual crew members used to control VTRs, stills stores and other equipment, "...the trend is to automate that, have more things under control, more things inside the box of the production switcher itself."

Responding to the demand for a high-end HD switcher, Grass Valley introduced the Kalypso HD, capable of up to 90 inputs with native support for 720p and 1080i production,



CNBC is using Sony's MVS-800 switcher in its new digital plant.

as well as standard definition.

While Grass Valley is a familiar name in production switchers, thanks to its acquisition by Thomson nearly two years ago, the GVG nameplate will now grace former Thomson, Bosch, BTS and Philips switcher products.

"We're going to be developing product as a coordinated, cohesive

team, from Weiterstadt, Germany and Grass Valley, Nevada City, Calif.," said Narveson.

Sony Electronics has traditionally been a stronger performer in the post-production switcher market, said Peter DiIorio, live production systems senior product manager, Broadcast and Production Systems Division of Sony Electronics. When the company focused on building a new production

switcher, they asked customers what they wanted that would enhance their live production capabilities.

"That's how we ended up with the modular control panel," said DiIorio.

He pointed out that typically, a switcher's control panel is cast in stone and you have to live with it. With Sony's new design, "you can

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HDV

CONTINUED FROM PAGE 21

sional system, but the image still surpasses standard DV video, Trescot said.

He expected a lot of the pros who buy into the HDV format to produce industrial video for projectors and monitors, and electronic signage for plasma and LCD displays in airports and other facilities.

Curtis Palmer, senior vice president and CTO for Sony Pictures Digital Networks indicated that the lower price-points could also boost the number of documentaries and corporate presentations shot in HD. And Travis White, Ulead Systems product manager for video editing software saw the format's potential for independent features and marketing pieces.

They also noted the added benefit of using the better resolution for future-proofing content, creating special effects and improving the tape's overall look.

"You have better opportunities for color correction, noise reduction filters, the ability to key out a sharp edge on your subject matter while putting [the subject] on some other kind of background," said White.

What makes the HDV proposition interesting to edit software companies is "it makes it possible to edit high definition on a laptop," said

Trescot. "We will ultimately be able to support HDV natively inside Premiere Pro if the standard becomes dominant."

In the meantime, Adobe is relying on its partners, who are already showing and shipping plug-ins that allow Premiere Pro to edit the HDV format.

"One of these, Cineform, has a plug-in for Premiere Pro that allows you to capture, edit, add effects and export HDV content," Trescot said. "JVC is doing a roadshow around HDV editing and Cineform is one of the companies that's showcasing."

(The Nov. 26 issue of *TV Technology* includes a review of the Cineform Aspect HD, a plug-in for editing HDV on Adobe premiere 6.5.)

Ulead is "shooting for the end of this year or January to have an HDV offering for customers," said White. "How it will be offered is under discussion; at what price points. It would be a separate update that would bring MediaStudio Pro up to 7.1 or 7.3, it wouldn't be a point 5," which indicates significant new feature enhancements.

Canopus' CEO Hiro Yamada said his company is waiting for the Japanese manufacturers to release their cameras before scheduling an upgrade for its Edius software; he is hopeful that will be by the end of next year. Sony Pictures Digital Networks would not comment at all on future products, schedules or price-points. ■

move around the different modules and basically configure both the size and the layout to the way you want it."

Coupled with ease of operation, flexible programmable functions and true continuity across the complete line of one to four M/E configurations, Dilorio said the Sony switcher family was designed to make a customer's upgrade path a no-brainer.

"The other thing that customers were looking for was an upgrade path to high-def, or multiformat for that matter," said Dilorio.

The result has been a new switcher family featuring the DVS 9000 and MVS 8000.

"The control panel configuration for both is the same, so when somebody sits down in front of one of our switchers, they don't really know whether it's standard-def or high-def until they start looking at their monitor displays"

FORMAT AGILITY

Snell & Wilcox was one of the dominant players in the standards conversion equipment market when the need for high-definition switcher products came along.

"When we introduced our first product in 1998, we were able to process all the HD standards then," said John Carter, Snell & Wilcox product manager, switchers.

Since the company's switchers already had format agility, Carter said customers focused on "...more inputs to the switcher products, familiar control surface and easy integration into an environment, specifically production." Snell's HD3060 is a high-definition switcher with 64 inputs, expandable up to 128.

"None of our switchers go away

from a traditional layout of a switcher product, the way the buttons are, the way the transition area is, the way that we can bring on various DVE effects," said Carter. "You could look at one of our switchers and you could drive it blindfolded to a certain extent."

Ross Video Ltd. has found its customers asking for more effects capability, a migration path to HD, and a cost effective product.

"We do a two-channel DVE with warp and page turns, theater effects, lighting effects, everything you can imagine, inside a board about the size of a cigarette pack," said David Ross, company president and switcher product manager.

He finds few customers looking to do HD production today.

"Most people are looking for the lowest possible price solution for the SD they're taking to air today," said Ross, "but they are really concerned

equipment, including robotic cameras, stores, VTRs, as well as audio and video servers.

"What that does for you is it allows you to do two things," said Ross. "[You can] cut cleaner shows, because there's less communication required in the newsroom because it's all automated, and it allows you to do shows with a reduced staff if you want to. That can pay for the switcher in a year."

When Pinnacle Systems launched its PDS 6000 and 9000 line of switchers, it targeted medium-market news stations said Kang. Customers told them they wanted the switchers to integrate with other Pinnacle products. The result: the "i" version.

"In the 'i' version," said Kang, "we expanded the functionality to allow it to talk with the Thunder Clip and Still Servers and the Deko character generators." The "i" version utilized Windows networking allows the switchers to control those devices.

Pinnacle has found a ready market for the switchers at college production systems and event producers.

"I don't know if it's because we have nine DVEs built in," said Kang. "I think that's a huge factor for events because they like all the splashy effects and transitions, and the cool warps and crazy stuff that you generally don't see on news."

FOR-A's Eastern Regional Manager Hiro Tanoue said the television stations and other live production venues using FOR-A's switcher equipment are looking for



FOR-A introduced its compact Hanabi HVS-1000HS production switcher at InterBEE last month.

that a year from now they might have to start all over again if they have to go HD."

Ross also found that the company could save customers' operating costs by building its Synergy switchers to interface with all newsroom



Jan Pritzl, coordinator of technical TV facilities for Milwaukee Public Television, at a Snell & Wilcox HD1010 switcher.

format flexibility.

"Multiformat is one of the frequently asked questions, from analog domain to SDI and possibly upgradable to high definition," said Tanoue. "They want something future-proof."

As a result, any model in FOR-A's HVS-3000S line can be upgraded to HD by changing out some internal boards.

Tanoue finds FOR-A's customers are also concerned about the size of the electronics back in the rack. For one of FOR-A's typical 28 input products, with four stillstores, "the mainframe is three rack units high."

He compared that with a competitor's similar product that takes up 11 rack units.

At InterBEE in Tokyo last month, FOR-A expanded its Hanabi switcher line with the introduction of the Hanabi HVS-1000HS, a 2RU, one M/E version of the two M/E Hanabi 3000HS digital HD or SD switcher. Two versions are available for different applications: the HVS-1000EQU targets editing and in-studio applications while the HVS1000LOU is designed for IB and live production. ■

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DIGITAL JOURNAL

Bill Hayes

DTV Homesteading

Video today, multiple data streams tomorrow

by Bill Hayes

JOHNSTON, IOWA

This year's ninth annual Iowa DTV Symposium, sponsored by Iowa Public Television, was our most successful yet, with over 400 people from all over the country attending. The growth was attributed to a couple of elements.

First, the focus of the program, on both the technical and content sides, is practical implementation of DTV technologies in the real world. Second, we look at the entire DTV process from creation to consumer, recognizing that the entire system has to be properly implemented. Failure to do so in any area can result in the content not reaching consumers, at a time when consumers seem to be embracing DTV.

As of July, the Consumer Electronics Association predicted that 2003 factory-to-dealer sales of DTV products would exceed that of analog products by roughly \$400 million. This would mark the first time that DTV sales have exceeded analog. Even though it's not yet an HD resource, DVDs were the original driving force behind DTV display purchases. Now, however, satellite and cable, which collectively serve between 70 and 80 percent of U.S. homes, are beginning to offer true HDTV content. The big attractions under the tent here are sporting events and feature films.

Yet one trend that continues is

consumer frustration over the complexity of hardware and confusion in the DTV alphabet soup. HDTV, EDTV, SDTV, 1080i, 720p, 480i, and on and on it goes. Will cable carry HD content originating from local stations? Will the local stations ever produce their own HD content at all? What about satellite?

There is a huge educational void between the consumer and the suppliers regarding all of this, and the point of contact is most likely a relatively untrained consumer product sales rep on the floor of a large retail store, who, by the way, will probably not be at that job for more than a year before moving on. Most of those stores sell DBS hardware and services as well as DTV hardware, so it's in their best interest to have a DBS system installed at the store for demonstrations.

Many don't have a terrestrial antenna installed since very few of their customers are interested or willing to install an outdoor antenna.

Even if they do, the lion's share of the customers are in the stores during the daytime when most broadcast stations are not running HD content, and upconverted analog looks pretty poor when compared to digital SD or true HD. So consumers' exposure to terrestrial HDTV can be pretty limited.

RECON MAN

About once a quarter, I go out to a few of the local super stores, play consumer and ask about DTV. I started doing this more than five years ago and a lot has

changed in that time. There is a marked increase in the familiarity and accuracy of the information coming from the store sales reps regarding the basic concepts of DTV. With the advent of satellite-delivered HD content, there are some sales people who can discern the improvement between HD and DVD content.



John Orlando, NAB's chief lobbyist at the Iowa DTV Symposium.

The gap is most pronounced between the cable and local television station connection, and that's frequently the deal killer for the consumer.

Hardware prices will drop based on volume, just like with DVD players. True HD displays are available and according to information presented by the CEA at the November SMPTE conference, the average price is near \$1,400. At the Iowa DTV Symposium, Maryann Baldwin from Magid Research presented data that indicated the consumer buying point is about \$882. Although there is still a gap, it is narrowing rapidly.

So where does this leave terrestrial broadcasters? The landscape is changing

rapidly with the introduction of HD content from satellite, cable and very soon from affordable DVDs. The special edition of "Terminator 2" includes a second DVD with a Windows Media 9 compressed HD version of the movie. In the not too distant future, the FCC and/or Congress will have to act to resolve cable carriage, and the best minds seem to indicate that there will be a must-carry provision of some sort, but it will probably be for a station's primary stream only. The strategy that I have suggested is that we initiate full-time HD and use all of our bandwidth for our primary stream. The multicast and data-cast applications are interesting ideas and there will eventually be business plans to support them, but only if there is cable bandwidth to carry them.

Think of it as a homestead plan to acquire the real estate with the idea that eventually you'll be able to modify the structure to meet later needs.

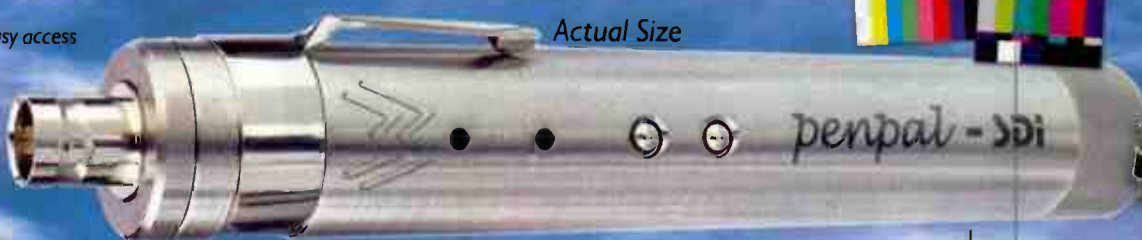
In his keynote address at the Iowa DTV symposium, NAB's lead lobbyist, John Orlando, spoke about the need to have cable as a serious partner in the DTV transition. The recent agreement between the parties concerned regarding the plug-and-play capability of DTV sets was a good start. However, cable continues to remain inflexible regarding carriage of the DTV signal. It is critical that cable carry both the analog and digital signals. According to Orlando, after the transition, cable must carry the full bandwidth of the DTV stations.

"All free bits must flow!" he said. To listen to Orlando's complete keynote address or to see and hear any of the session material, it can all be found at <http://www.iptv.org/dtv/2003/>. ■

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LET THERE BE LIGHTING

Andy Ciddor

Whose Vision Is It Anyway?

OK, I am prepared to acknowledge that television production is a collaborative process (I originally wrote collaborative art form, but I was worried about sounding too pretentious). Indeed, I find it very stimulating and rewarding to work with others toward realizing a shared vision. Sometimes it's hard work to find any sense of a vision in the amazing trade-ins being offered at Honest Dave's Used Autos, or the 10th season of a slowly declining game show. Nevertheless, almost every production represents an opportunity for its production team to continually refine its vision, no matter how imperceptibly.

Yes, I'm the guy who moves the softlights on the news set by two inches on Saturdays and Mondays because the weekend anchor wears glasses. On low-budget shoot-and-run drama, I celebrate when the tal-

ent completely blows a line, because I can tweak the look just a



little bit further, while they regain their composure for the next take. I

even take perverse pride in making the most beautifully lit zero-budget, zero-talent commercials out there on Honest Dave's auto lot. But all of this takes collaboration and some-

get in there ahead of time and sell them on the idea. Directors, producers, the creative people from the ad agency, and especially the clients are usually easy to convince, provided that what you're trying to achieve appears to be in their interest as well. There are however, two distinct groups of people who may fail completely to understand the notion of working collaboratively: set designers and vision controllers.

I have always found production designers to be a slightly strange subspecies of humanity. Please

Almost every production represents an opportunity for its production team to continually refine its vision.

times quite a lot of persuasion from my colleagues.

If what I do is going to make it even slightly harder for the boom swinger or the camera operator, or the dolly grip, I find I really have to

don't get me wrong here. I have been friends with quite a few designers since I started out lighting high school musicals, an interest that led to my original lighting

VISION, PAGE 29

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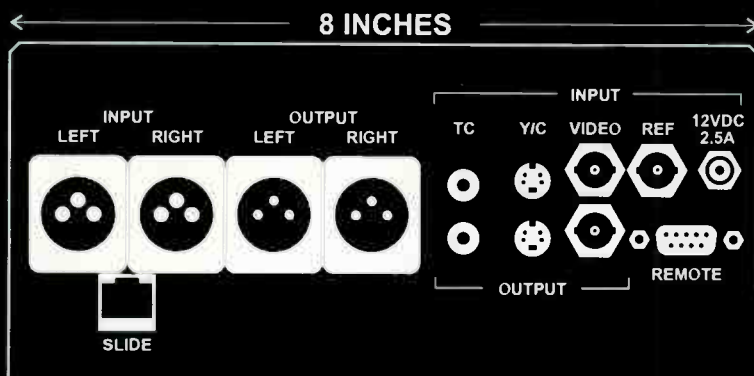
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REGULATORY REVIEW

Barry Umansky

Paying for What You Say

In recent weeks, television broadcasters again have been given fair warning by the Federal Communications Commission as to the importance of rule compliance and the sanctions that may be imposed for broadcasters' regulatory lapses. One of these "heads-up" warnings involved broadcasters' honesty in the license renewal process; another dealt with another FCC "hot button" issue—broadcast indecency—but this time in the context of a "live" TV broadcast, as opposed to the usual context of radio personalities' bad boy banter. In each case, the decision hinged on "what was said"—in one case on an FCC application form; in the other "on the air."

RENEWALS ARE AROUND THE CORNER

By the middle of next year, TV stations will begin the process of renewing their licenses; the radio renewal process already is underway. Yes, your eight-year TV licenses are heading toward their expiration date. The three-year process of TV renewal applications' evaluation is conducted, as always, on a regional basis, with application deadlines set for stations licensed to cities in particular state groupings. The first state grouping includes Maryland, Virginia, West Virginia and the District of Columbia; TV stations there file for renewal by June 1, 2004.

So, now is the time for you again to gain that "license renewal mindset," start the review of station documents and consult your communications lawyer about "next steps." On the renewal application form, you'll be asked a series of questions about how well your station complied with FCC regulations during the license term. What you say in response to those questions will lead to consequences—some happy, some not so happy.

'FESS'-ING UP

The FCC has given TV renewal applicants a preview of what lies ahead. The Commission ruled that 28 radio stations that had been completely honest when filling out their license renewal applications, by confessing that they had failed to fully comply with the FCC's public inspection file rules, will have to pay a fine. In a marked change from its past treatment of broadcast renewal applications, the FCC has issued Notices of Apparent Liability and fines of

\$3,000 each against licensees who answered "No" in response to the question on the renewal application requiring a certification that all documentation required by FCC Rule Section 73.3526 (the FCC public file rule) had been placed in the station's public inspection file "at the appropriate times."

Most of the licensees confessed that they had failed to place quarterly issues/programs lists, annual employment reports or ownership reports in their public inspection files precisely when they were due to be placed in the file. Although the licensees explained in their renewal



applications that they had either put the document in their public file as soon as the error was discovered, or tried to the extent possible to recreate (but not backdate!) and submit material that should have been prepared earlier and then placed in the public file, the FCC's Media Bureau still slammed the broadcasters with the hefty fines.

The FCC's Media Bureau Chief W. Kenneth Ferree said, "Our decision to fine these stations reflects the seriousness of the violations, and it is consistent with FCC Chairman Michael K. Powell's initiative to promote and protect localism in broadcasting." Further stressing the importance of compliance with the commission's rules, Ferree added, "Make no mistake about it—the FCC will not tolerate less than diligent efforts to ensure the accuracy and timeliness... of the information placed in the public file."

HONESTY IS THE BEST POLICY

Although the \$3,000 fines may seem harsh, failing to answer each question honestly on the license renewal application form could result in much harsher sanctions if the FCC discovers a less-than-truthful answer.

The FCC has little patience for licensees who intentionally make misrepresentations to the commission—something that could prompt the FCC to question whether the licensee has the sufficient character to remain a licensee. In fact, as students of FCC enforcement already know, on those occasions when the commission has imposed major sanctions against a broadcaster, almost invariably it was due not to the initial infraction but because of broadcaster misrepresentation or nondisclosure of relevant facts.

Some of the broadcasters facing these recent fines plan to appeal.

The complaints focus on the response of the performer Bono when it was announced that the band U2 won the Golden Globe for the "Best Original Song-Movie" category.

Others believe that the FCC's action might actually encourage other broadcasters to be less than honest when informing the commission whether they fully complied with the public inspection file rules. However, the latter course is, in your authors' view, a far too dangerous one. We recommend you answer each question on the license renewal application honestly, and carefully review the application with your attorney before filing it with the FCC.

GOLDEN GLOBE GAFF

In another enforcement matter, the FCC has ruled on a group of 234 complaints, filed against about 90 television stations that aired the "live" broadcast of the 2003 "Golden Globe Awards." The complaints focus on the response of the performer Bono when it was announced that the band U2 won the Golden Globe for the "Best Original Song-Movie" category. Bono's exclamation was "This is really, really, f—ing brilliant."

The complaints, filed by "Parents Television Council" and certain supporters of the organization, alleged that the Bono statement was either obscene or indecent. The chief of the FCC's Enforcement Bureau ruled that

it was neither.

First, the bureau said that the commission's past "indecency" findings involve at least two fundamental determinations: (1) that the material alleged to be indecent falls within the subject matter scope of the FCC's indecency definition (the material must describe or depict sexual or excretory organs or activities), and (2) the broadcast must be patently offensive as measured by contemporary community standards for the broadcast medium.

The bureau noted that the material aired during the "Golden Globe Awards" program does not describe or depict sexual or excretory activities and organs. It went on to note that the word "f—ing" may be crude and offensive, but in the context of Bono's exclamation, it did not describe sexual or excretory organs or activities. Rather, said the bureau, the performer used the word as an adjective or expletive to emphasize an exclamation. Rejecting the "obscenity" charge

for similar reasons, the bureau then pointed out that the commission often has found that offensive language used as an insult, rather than as a description of sexual or excretory activity or organs, is not within the scope of the prohibition of indecent program content.

So, this time TV stations dodged the indecency bullet due to the "part of speech" of the "f-word." But, a different result might have taken place if the stations aired language where the word was used differently—as often has been the case with radio DJs' use of the word and the resulting hefty indecency fines.

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Vision

CONTINUED FROM PAGE 26

career in the theater and later a move into television. It's just that I've met too many designers who believe that lighting exists either (a) to illuminate every detail of their gorgeous set and/or (b) to correct the color of the sets and costumes when the director complains that they look nothing like the sketches or the model.

TOTAL IMMERSION

I really enjoy becoming immersed in creative collaboration with the director and other members of the design team. It makes my days on the set fly by, as I attempt to add my touches to a process that began weeks or months before in a design meeting. As the last ones to make an input into the images, we lighting directors/ directors of photography bear the final burden of fulfilling the expectations of the entire design team as well, almost the final burden.

When shooting electronically, there is of course another stage in the process of getting that image

onto a recording medium: that ever-shrinking box of optics and electronics that captures the image. With developments in electronics, that camera has been getting progressively more transparent to the photographic process. It has become smaller, lighter, more sensitive, more adjustable, more automatic, more stable and more reliable, but in the end the box is still being driven by the camera operator and the vision controller. This is the point in the process where we need to apply the most skill if our vision for the pictures is going to survive.

Automating almost any process is a recipe for mediocrity. When it comes to the use of auto-iris, auto-gain, and yes, even auto-white balance in production cameras, this borders on travesty. These functions are, of course, the very backbone of ENG for news, current affairs and most recently reality television, but they have no place in other forms of production. I fully comprehend why an ENG camera operator must be able to switch on the dreaded "zebra," line up the shot and follow the story as it unfolds in the viewfinder, but that is the antithesis of the designed, confined and

rehearsed nature of most television production.

DARK THOUGHTS

Much of my concern in this area stems from my proclivity for darkness in my pictures. I have been very fortunate to work with some directors and production designers who understood, and even relished, having parts of a scene four f-stops below the engineering department's version of an acceptable exposure. I find it very tiring on-location dealing with EFP camera operators who only run on "auto-everything" and in the studio, re-educating vision controllers who leave the camera irises set to automatic during rehearsals and then "compensate for the bad lighting" when it comes to the take.

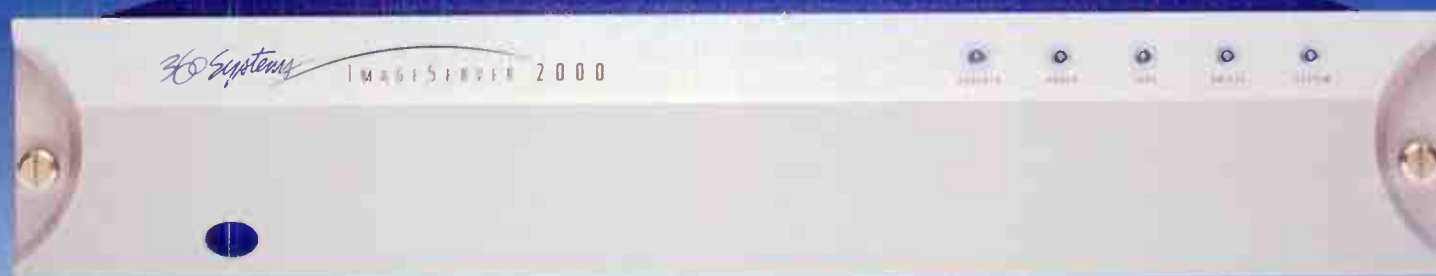
My current pinup directors of photography are Dennis Smith, for his establishment of the often moody images in "The Practice," and (I hesitate to say this in refined company) Marvin V. Rush, for the richness, and dare I suggest truthfulness, of his work in "Enterprise," the current series of Star Trek prequels. I see the broad acceptance of the images in these and other con-

temporary productions, as a sign of the decline in the engineering mindset that claimed the need for apertures of f-11 at -3dB gain to keep the pictures at acceptable quality. Although I dislike signal noise as much as anyone, I claim for us the right to have some parts of our images lurking just above picture blanking.

Perhaps I should point out that I am talking about dramatic production here, not bright and cheerful styles still mandatory for furniture commercials, game shows and awards presentations. In my defense I should confess that at one stage of my life, I was burdened with the nickname of "Captain Kilowatt," a comment of the scale of my outside broadcast lighting for awards presentations, beauty pageants and musical spectacles. I simply want the right to use darkness when it's appropriate, not to compel others to follow me into the darkness.

Andy Ciddor has been involved in lighting for more than three decades as a practitioner, teacher and writer. You can reach him via e-mail c/o TV Technology.

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INSIDE AUDIO

Dave Moulton

DialNorm 101

Here's the deal. Alert readers know we've got audio levels problems in TV land. I've written about it, and so have lots of others. The problem is simple and obvious—audio levels vary widely from channel to channel and from time to time on any given channel, thereby unduly annoying viewers. There's more, but this is the gist of it.

How bad is the problem? I informally measured an 18 dB range over 100 channels from my friendly local cable provider (Charter Communications). Michael Guthrie of Harmonic, Inc., has measured a +/- 15 dB range. Jeffrey Riedmiller, Steve Lyman and Charles Robinson of Dolby Laboratories have measured a 16 dB range.

I think a 3 dB range would be excellent performance and 6 dB would be satisfactory, so, the ranges I've cited are, by comparison, really quite bad. Jeffrey Riedmiller thinks they are getting worse (since digital and analog services often co-exist on today's cable systems). Michael Guthrie thinks they may converge sometime in the indefinite future.

To the extent that audio matters in television, complaints about unsatisfactory loudness top the list of concerns. Why do we have this problem? The problem is at once complex and simple. It's complex in that we have a wide array of different sources, as well as a complicated and multifaceted delivery system. It's simple in that the goal—to get the loudness of all dialogue levels to sound approximately equal in the listeners' homes—is actually a fairly simple and straightforward task.

And here's where Dolby Labs enters the scene—with metadata, specifically the control signal called dialnorm (which stands for dialog normalization—you know all this, right?). Dialnorm makes it possible for us to fairly easily achieve consistent dialogue levels at the outputs of decoders. All we've got to do, collectively speaking, is understand the process, make the correct moves, and it's done. Voila!

HERE'S THE STRAIGHT SKINNY

So, what are those correct moves? What are we supposed to do? Equally important, what are we *not* supposed to do? What can each of us do, in our audio work, to get

these things right?

First, think about actual dialogue level—that's the ongoing average level of people talking on (and off) screen. According to the Dolby specification for metadata, the target level for such dialogue within digital broadcasts is -31 dBFS Leq(A) for a decoder operating in Line mode and -20 dBFS Leq(A) for a decoder operating in RF mode. Meanwhile, the target dialogue level for analog NTSC television broadcasts is -17 dB below 100 percent modulation (25 kHz peak deviation)—don't worry, for the moment, about this apparent discrepancy—we'll talk about it next month. The reasoning behind such a target level is solid, and we won't discuss it here.

The approved way to measure such a level is, first off, to make a so-called Leq measurement (which is a power-based history of level, integrated over time) of the dialogue, A-weighted. If you don't have the gear to do an Leq measurement, you're going to have to estimate the ongoing A-weighted average (*not* peak) level while the talent is talking and nothing else is drowning them out. Got that? Measure the dialogue level, but not the gunshots or the car crash. What could be simpler?

Let's suppose the dialogue level you measure turns out to be -19 dBFS LeqA (which is 12 dB above the target level of -31 dBFS when the decoder is operating in Line mode). When this is encoded into Dolby Digital (AC-3), you simply enter a dialnorm value of -19 dBFS into the encoder. Assuming nobody changes that value as it travels down the distribution path (and cable headends have no method to do this), when the Dolby Digital (AC-3) is decoded at the set-top box for the consumer, the dialnorm value of -19 dBFS will instruct the set-top box to attenuate the signal by 12 dB, to -31 dBFS (our target dialogue level for Line mode operation). Voila, your dialogue is at the "correct" level, which is to say that it will be at the *same level* as everybody else's dialogue, at least those who also measured their dialogue levels correctly and then entered that value into the dialnorm setting.

Now, when Dolby ships one of its encoders (such as the DP569), the "default" dialnorm setting is -27 dBFS. Interestingly, when Jeffrey

Riedmiller and his associates at Dolby did a study of dialnorm settings provided by various digital services available in the San Francisco bay area, they found that *all* the 13 digital services they studied had an indicated dialnorm value of -27 dBFS, while only *one* of the services had an *actual* dialogue level of -27 dBFS. This suggests, quite convincingly, that we are all just leaving our dialnorm settings in the default position.

And that, campers, is what *not* to do. Don't just leave the dialnorm setting at the default level in the

our beloved consumer. It's bad enough if you don't measure your dialogue level; it's even worse if you ignore the default dialogue level that came in the encoder and *sets the level* for the consumer.

Taking the earlier example, if your dialogue is actually -19 dBFS Leq(A) and the dialnorm setting is left at the default -27 dBFS, then at the set-top box outputs the signal will be attenuated by 4 dB and your dialogue will be at -23 dBFS Leq(A), 8 dB above the target level.

Does this make sense? Do you begin to get the idea?

HERE'S THE TOOL YOU NEED

So how do you cope with this? You need a way to measure dialogue level (preferably one that does LeqA). It would help if you also had a device that could tell you what the dialnorm value is for an existing digital Dolby Digital (AC-3) signal;



Dolby's LM100

forlorn hope that if you don't touch it, it won't bite you! Let me try to explain why.

In the good old analog days, when we made a tape recording, we usually indicated on the tape box the reference level used to record, as in "+3 dB re 250 nanoWebers/meter fluxivity." Remember those days? When somebody else received the tape, they read the box legend and, if they were really alert, set their levels accordingly, so that a "+3 re 250 nanoWebers/meter" level would generate a 0 VU meter deflection on their tape deck. Fine and dandy.

Now, imagine a tape box that comes pre-stamped: "+3 dB re 250 nanoWebers/meter fluxivity." Suppose you record at your beloved 185 nanoWebers/meter (oh, the nostalgia of it all!), and stuff it in the box and send it off, blithely ignoring the printed legend. Well, your tape is gonna play back 6 dB too soft (185 nanoWebers/meter is 3 dB below 250 nanoWebers/meter, which is 3 dB below the box reference).

In our brave new world, we're no longer using sine waves calibrated to mysterious magnetic fluxivities (just what is a nanoWeber, exactly?). Instead, we're using measured dialogue level calibrated to a "target level." Further, that box legend of old is now an automated control signal that sets the *decoded dialogue level* at the set-top box outputs for

that allows you to compare this value with the actual (i.e., measured) dialogue level to verify whether or not they are in agreement with each other. This is especially true if you are involved in a pass-through operation such as a cable headend.

Dolby makes just such a box, called the LM100. Among its features is an algorithm that identifies speech, as opposed to other content, and switches the Leq measurement on and off so that only speech is being measured. It will measure the LeqA of any digital (i.e., Dolby Digital (AC-3), Dolby E or two-channel PCM) or analog signal (baseband or RF), and it will also read the dialnorm value for any digital Dolby Digital (AC-3) or Dolby E signal. It will even generate an alarm, should you desire this, when the dialnorm and the measured LeqA of the audio diverge. Cool!

Next month we'll explore the mysteries of the set-top box a little more fully and talk about how you need to think about RF and line modes, as well as Dynamic Range Control.

Thanks for listening.

Dave Moulton would like to thank Jeffrey Riedmiller of Dolby Laboratories for his assistance with this article. You can complain to Dave about anything at his Web site, www.moultonlabs.com.

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INSIDE PRODUCTION **Walter Schoenknecht**

Cash for Trash

Technical folks, and TV techies in particular, have become accustomed to finding that their beloved, state-of-the-art equipment has become, on any given day, completely and utterly worthless.

It's a classic hardware problem. Just like the apocryphal new car which loses 99 percent of its value as it leaves the showroom, television and sound production equipment is notorious for its overnight auto-depreciation. Car owners plunge into deep denial when told that their "babies"—hand-waxed and awash in Armor All—are worth more in the scrap yard than on the road. And it's not substantially different for the owner of a vintage Ikegami camera or aging U-Matic player.

Of course, there's no sense in trying to sell old equipment when the values fall through the floor... might as well just keep it. Need a part for my old one-inch machine? No problem; I kept its twin when it died. How about

a PC power supply or keyboard? I've probably got a dozen. And if 500 MB hard drives ever makes a big comeback, well, we've got it covered.

In my own case, this techie-retentive syndrome is compounded by a



congenital defect, inherited from my maternal grandfather. Old Hugh was an inveterate collector of nothing in particular, and nothing was too old, too useless or too broken to be ware-

housed in the old garage behind his house. For a kid, a walk through his garage was like a trip to the toy store; boxes of skeleton keys, cast-off bar-room signs, a vase or souvenir ashtray given to him by a customer whose house he'd wallpapered—man, if I had

and boxes of stuff I've saved and salvaged; I've got one shelf just for old muffin fans. But who in their right minds would take some of this trash off our hands?

Well, funny you should ask.

SAYING GOODBYE

A couple of years ago, we finally bit the bullet around here and completely reworked our little audio suite. We abandoned our obsolete Studer Dvaxis workstation in favor of Steinberg's amazing Nuendo package, and put in a tiny-but-powerful digital mixer to feed the system. We also rearranged the layout, bought a Middle Atlantic

I've got boxes and boxes of stuff I've saved and salvaged; I've got one shelf just for old muffin fans. But who in their right minds would take some of this trash off our hands?

it all now, I'd be an Ebay millionaire.

Hey, wait... are you thinking what I'm thinking? Maybe if we sell our old audio and video junk, we'll be rich! Or at least have a little extra cash for beer and pork rinds. I've got boxes

studio console and sponge-painted the walls.

That left us to dispose of a huge pile of Formica cabinetry and our old analog audio console. The Automated Processes, Inc. (API) mixer had actu-

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ally been cobbled together from the assorted remains of two old mix desks I'd been able to buy for \$200 each; I'd mixed and matched EQ modules, compressor/limiters and faders to make a fairly functional system. By now, though, capacitors that dated back, in some cases, to 1973 had begun to dry out and fail, and various other ailments had surfaced. AES and SPDIF signals were now at the center of our universe, and the analog board had become, in essence, one big monitor selector. Time to lay the old beast to rest.

Somewhere deep in the recesses of the brain, I suspected that there were still some aficionados out there who prized this old analog flotsam and jetsam. In fact, there's been a significant number of studios designing and building analog front-ends for their studios. I remembered how well-regarded this equipment had become in its heyday... after all, an API console was the heart and soul of the mythical Record Plant Black Truck remote unit. And I was right.

ANALOG ANTIQUES

Turns out that there's a substantial market in old API components. An hour of Web searches turned up a dozen people selling used API microphone preamps, equalizers and compressor/limiters, and the prices were astonishing. With the right pedigree, a single EQ module might fetch in excess of \$1,000. Bingo.

As I tentatively e-mailed some of the players, I noticed a trend; several were only interested in cherry-picking, in grabbing those few high-ticket tidbits they could turn around in a flash. Not that this was unreasonable, mind you; I'd gladly have taken a little cash and tossed the rest in the dumpster. I could sell to one of these folks, or I could venture onto Ebay myself, dribbling out one or two units at a time, and hoping I got my price. It sounded like a great retirement project, but I'm not that patient.

And then I heard from Dan Alexander. One of my e-mail "ticklers" had reached a truly unique individual, one whose specialty had become the acquisition and resale of vintage analog audio equipment—AKG and Neumann mics, Neve and API consoles and Pultec filter sets. Once the owner of a major San Francisco studio, Dan has worked with what he loves—vintage audio gear—since 1977, actively buying and selling through his Web site (www.danalexandraudio.com). Dan is arguably at the center of the vintage analog universe, and the fates had brought me to him.

BACK TO THE DUMPSTER

Dan's response came by phone. His laid-back California style was strained by an obvious urgency, exhorting me to get back into the dumpster to

retrieve the console frame I'd discarded as worthless. I complied. I carefully catalogued it all, right down to the spare lamps and extender boards. We soon agreed on a price for the whole lot, plus a few other golden oldies we had lying around. I've since learned that my old API 1604 will soon debut as the star performer in an audio remote truck.

In theory, I might have made more

if I'd been willing to sell off key pieces one-by-one over time, but I can't imagine having been successful at it, and I could never have afforded the time. More important than convenience, though, was the notion that every part I'd kept and salvaged—filler plates and trim screws and cue amps—was going to be passed on to folks who would treasure them, make them work, and use them. That's not

just a sappy, sentimental response; it's the techie's code of honor, the same infuriating ethic which prevents us from throwing out a perfectly good muffin fan.

Walter Schoenknecht is a partner at Midnight Media Group Inc., a New York-area digital production facility. You can reach him via e-mail at walter@mmgi.tv.

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Automation and Asset Management

USER REPORT

OmniBus Links News Operation at KOMO

by Mark Simonson
Director of Television Engineering
KOMO-TV

SEATTLE

The motto of KOMO is "First for Local News," and that really has driven our station in areas as diverse as engineering, sales, operations and news. Everyone here understands that goal, and pursuing and implementing cutting-edge broadcast technologies is always part of the plan.

Our launch of HDTV broadcasting was just one more step we took to maintain our position at the forefront of television news production and delivery. After this initial foray into HD, we decided we wanted to establish an all-digital, HD-friendly facility that worked in a 16:9 format from field acquisition through to news and commercials.

We built a new facility right next door to our old plant and spent a year training our staff on how to use our new systems. It was a huge undertaking and there wasn't a single person who didn't have to learn a new way of doing his or her job. In fact, the transition was so dramatic that we built temporary technology labs to help employees get accustomed to the changes in equipment and workflow.

We brought our new OmniBus automation system online in September 2000, about two months after we made the move. This was an ambitious project, not only for KOMO, but also for the vendors whose systems we selected for our broadcast center.

ALL-DIGITAL NEWS

For the foundation of our news production system, we selected the Inspiration System, which consists of two Quantel Clipbox Power servers with six edit seats on each, a Quantel Clipbox Studio, AP's ENPS newsroom computer system and—the glue that holds it all together—an OmniBus automation and asset management system. Of all the companies we reviewed, we found that these three really shared our vision of all-digital news production.

One critical role the OmniBus system plays in KOMO's news production is handling news ingest as material comes in from the field, typically on Beta SX tape. Six ingest stations handle all dubs coming into the facility, moving video from VTRs to shared storage on the Quantel Clipbox Power servers, while simultaneously making a low-res clone available to newsroom desktops via our browse server. The OmniBus Columbus handles all the dubs and ingest requirements.

Though the clips and their clones are separate pieces, their source timecodes are maintained on both the browse server and on the Clipbox Power server. OmniBus was one of the few companies to provide a browse solution that could integrate with the server for frame-accurate browsing.

In addition to managing ingest, the OmniBus system links our ENPS and Quantel server systems together for news playout. OmniBus' News Control application controls four channels of playout rundown from ENPS. Users can view clips in ENPS and drag the appropriate clip into a news item, which is updated automatically in the News Control rundown via two-way, real-time communication.

ELIMINATED ERRORS

This drag-and-drop system has effectively eliminated problems caused by type errors. It's much easier for newsroom staff to select the right

clip for playout when they don't need to enter an exact filename or slug manually. What's more, it doesn't matter where a clip is in the system; it's always readily available.

Another feature of the OmniBus system that has helped us streamline our production processes is Transfer Manager, which enables high-speed network transfers between the two Clipbox Power servers, each capable of storing 100 hours of material. Normally this transfer would take about 30 minutes, clogging up our server ports; Transfer Manager moves media at about six times video rate, or in just five minutes.

After clips are played to air, News Control sends a message to OmniBus' Archive Manager application, which in turn archives the material to the facility's tape archive. Because the clip information and timecode are preserved during the archiving process, operators can manage tape from a single point. To recall file video for playout, an editor simply uses the OmniBus user interface to query the database, which then uses timecode information to cue tape to the correct point.

This tightly integrated workflow has helped KOMO bring a better



KOMO news staffers Chad Ross (l), Darrien Tegman and Wayne White (r) review the NewsControl rundown list.

news product to our viewers. We're able to turn stories around very quickly and get material to air much faster, and we've also found that with the OmniBus system it is much easier for us to repurpose content.

Bringing this project together was a learning process for everyone involved, on every level. Now that we've become accustomed to it, we're already thinking of new ways to use our facility and equipment, new plateaus we can reach. For us, it's just a beginning. ■

Mark Simonson has been an engineer at KOMO since 1974. He can be reached at marks@komotv.com. The opinions expressed above are the author's alone.

For more information, contact OmniBus Systems at 303-237-4868 or visit www.omnibus.tv.

BUYERS BRIEF

Crispin's NewsPlayX is a live news playback system that works in conjunction with most news automation systems including Avid's iNews, Avstar and a MOS interface with AP's ENPS.

The NewsPlayX system translates rundown and executes playback while controlling video servers, switchers, tape machines and many other devices. NewsPlayX maps the

news system rundown to different server channels to allow back-to-back video transition overlapping and supports simultaneous playback of mirrored video servers for redundancy.

Producers can make last minute rundown changes effortlessly and the live changes are automatically reflected on the playlist. As part of the Crispin System2000/3000 automation line, NewsPlayX can

archive stories immediately and stores copies on the server for a few days after air. The system then clears stories from the server a few days after last use. NewsPlayX also records news feeds from affiliate feed services directly onto the station's video servers.

For more information, contact Crispin Corp. at 919-845-7744 or visit www.crispincorp.com.

USER REPORT

DNF Takes the Stand at Court TV

by Joe Schwinghammer
Vice President of Engineering
Court TV

NEW YORK

Over the past five years, Court TV has firmly established its identity as "The Investigation Channel." In addition to adopting the image of a thumbprint as part of our logo, we have added to our programming lineup to include not only coverage of high-profile trials but also popular dramas that focus on crime and the courtroom, as well as original investigative series and documentaries.

As we incorporated these programs into our primetime programming, ratings increased significantly. Also over this time period, our subscriber base grew from 30 million to 80 million.

With this transformation into an investigation and entertainment network—and tremendous success with viewers—we decided it was time to

focus on building a more reliable and robust infrastructure for the archiving, management and playout of Court TV programming.

AT THE HEART

At the heart of the archive system is EMC's Avalon IDM software running on a Sun Microsystems V880 server, backed by a ADIC Scaler 10K robotic archive. The V880 is directly connected to 5 TB of spinning disk cache and policies established within Avalon determine whether files reside on the disk cache or are migrated to the 10K.

Our automation and asset management functions are now managed through a fully redundant Sundance Digital FastBreak automation system. The Sundance system consists of an Air



Court TV's control room includes backup automation controllers from DNF Controls.

Station and a ListSync station for both our East Coast and West Coast feeds.

Any log change on the Air Station is immediately reflected on the ListSync station without additional operator intervention. Each of these stations drives discrete server channels on our three mirrored Thomson

GVG Profile XP video servers.

As a third layer of backup, we use a 3040P/DLO controller from DNF Controls. Through a Sundance translator, we are able to push a FastBreak automation log to the 3040P/DLO. The 3040 then runs concurrently with Sundance, driving yet other server port. If problems are encountered with the automation system, or if we are simply performing software updates, the DNF box is set to playout content independently.

DRIVING FORCE

A driving force behind our operations center upgrade was to build in redundancy. The beauty of using DNF's controller with the Sundance

DNF, PAGE 49

SHOOT

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USER REPORT

Home Depot Builds on Leightronix

by Bruce Covey
Chief Engineer
Home Depot TV

ATLANTA

In May 2002, Home Depot Television (HDTV) upgraded its 1,400-site satellite "occasional use" network to two full-time channels. To accomplish this change, we upgraded our automation capabilities to gain control of ingest and playout of multiple-language materials.

Home Depot's HDTV is a training and educational tool that reaches more than 300,000 associates in the U.S., Canada and Puerto Rico. This system combines automated graphics with an Associated Press news crawl and a live video squeezeback for associate news and merchandising information. We perform off-air recordings of news reports and multicamera recordings for studio production.

The info channel broadcasts 24 hours a day, seven days a week in breakrooms at Home Depot stores,

and is interrupted for live programs and/or replays as listed in the monthly HDTV Guide. Instead of a traditional on-air automation system, we needed a very sophisticated and flexible event controller and the Leightronix TCD I/P was the perfect solution for our needs.

Our TCD I/P controls a four-channel Leitch VR445 server, three RS-422 VTRs and a Fast Forward Omega Deck, all connected using the Leightronix Plus Bus interface. The TCD I/P controls multiple VCRs and DVD players via the Pro Bus and a Pesa Cougar routing switcher through a serial connection.

KEEPING IT SYNCHRONIZED

We added a Leitch CSD-5300 interface to maintain exact synchronization with our master time system. Additionally, a Plus Bus-controlled serial interface is used for GPI control of our VertigoXMedia ProductX and Pinnacle StreamFactory II systems.

The Leightronix TCD I/P controls



Bruce Covey uses a Leightronix TCD I/P to maintain a tight on-air schedule.

a dedicated VR445 output channel for the info channel. The remaining channels of the VR445 interrupt this feed for an ad hoc program schedule that averages 50 hours per month. The TCD I/P allows us to maintain a tight and accurate on-air presentation.

The integration with the server and source/destination name integration with the routing switcher make programming schedules a breeze. Unlike a traditional event controller, the 16

script engines of the TCD I/P allow simultaneous event scripts to execute independently of one another.

We can create and transfer new schedules into the system without interrupting scripts currently in execution. Additionally, the system offers powerful remote management and logging features.

Since installation, the new system has satisfied all our operational needs without a hitch. The integration between the products in our system helped us create a powerful satellite network to keep our associates trained and informed. ■

Bruce Covey has been the chief engineer of Home Depot Television for 11 years. Prior experience includes four years with WATL in Atlanta and nine years of military service. Bruce can be reached at bruce_covey@homedepot.com. The opinions expressed above are the author's alone.

For more information, contact Leightronix at 517-694-8000 or visit www.leightronix.com.

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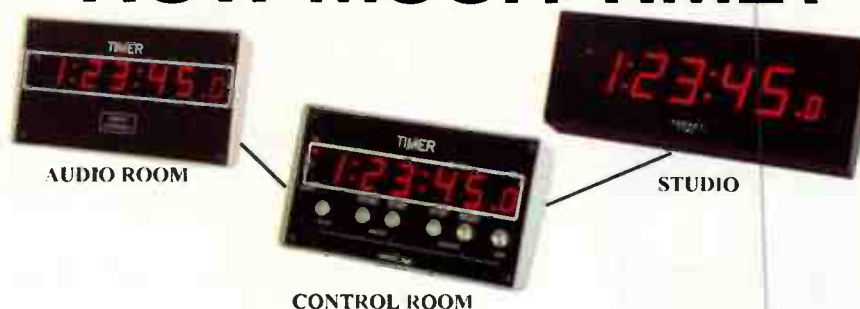
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Encoda Systems (BMS) 303-237-4000 www.encodasystems.com	BMS	Both	AS/400, Windows, Citrix	LAN/WAN	TVScan; Maxagrid; most automation software and hardware	Unlimited	Electronic contracting; single station; consolidated ops; sales; program management	Depends on configuration
Encoda Systems (Paradigm) 303-237-4000 www.encodasystems.com	Paradigm	Both	AS/400, Windows and Citrix	LAN/WAN	RCS Selector; J.D. Edwards; most automation hardware & software; Nielsen	Unlimited	Enterprise media mgmt.; centralized ops; sales; program/content mgmt.; electronic contracting	Depends on configuration
GI-AD (ADPlanner LE) 212-779-2580 www.gi-ad.com	ADPlanner LE	Single channels	Windows 2000 NT and XP	Internet and Intranet	Quick Books Pro; Microsoft Office; XML open interface	Unlimited	99 strips per chnl; five billing zones; billing per spot or time; multi-taping; monthly plans	\$5,000
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Summit Software Systems 970-385-4411 www.summitsoftware.com	N/A	Both	Windows, DOS, Linux stand-alone or networked	Windows, Novell or Linux Servers	TVScan, Maxagrid; Spotdata; interfaces with most automation systems	Virtually unlimited	Real-time scheduling & inventory reporting; runs multiple TV, radio and cable operations	Call for pricing
VCI 413-272-7200 www.vci-solutions.com	STARS II+	Both	Windows NT	Ethernet LAN/WAN	OneDomain; Peter Storer; inVision; Deal Maker; Maxagrid; all types of automation	No defined limit	Centralcasting & multi-channel ops.; seamless sales, traffic and accounting workflow	Call for pricing

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MANUFACTURER	MODEL	CAPACITY	PLATFORM	NUMBER OF SEATS	TYPE OF NETWORK	MACHINE CONTROL	SPECIAL FEATURES	PRICE
Associated Press 202-736-1100 www.enps.com	ENPS	Depends on computer	Windows	More than 12,000	LAN/WAN; dialup	Third party and custom control	Supports 64 high-speed newswire feeds; multi-language support; up to 100 locations	Call for pricing
Avid Technology 978-640-3272 www.avid.com	Unity for News	7.3 TB per system	Windows and Mac	More than 200 at 25 Mbps	Fibre Channel; Ethernet	Supports OmniBus automation	Supports all Avid editing products; repurposes video for Web streaming	Call for pricing
Quantel 203-972-3199 www.quantel.com	generationQ/ sQServer	Up to 600 hrs per server at 25 Mbps	Win2000/ proprietary	Unlimited	Gigabit Ethernet; Fast Ethernet	Controlled by other devices	Scalability; open standards; compatible with all Quantel products	Starts at \$250,000 for complete system

BUYERS BRIEF

Parkervision's CR400 is part of its PVTV News digital system equipment line for networks and local broadcast stations, enabling back-to-back transitions with up to six "upstream" key layers on a shot to three key layers on the second shot.

The rackmount system features software that streamlines the user interface for single operator control and automation functionality, and improves timeline management. Other highlights include 56 video and key inputs, 48 analog or AES/EBU digital audio inputs, RAID III backup and a 10/100-network hub for communications and integration.

For more information, contact Parkervision at 904-737-1367 or visit www.parkervision.com.

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USER REPORT

Florical Anchors Emmis Centralcasting

by Joe Addalia

Director of Engineering

Emmis Communications Centralcasting

ORLANDO, FLA.

Emmis Communications Centralcasting Facility 1 is a master control facility for five Emmis television stations: WKCF (Orlando), WFTX (Fort Myers, Fla.), WVUE (New Orleans), WALA (Mobile, Ala.) and WBPB (Gulf Shores, Ala.).

As the primary control point for these stations, the facility required a robust automation system and we chose Florical for the Emmis brand of centralcasting. Emmis Centralcasting is a full playout model that sends the complete SD and HD program streams including news, network, syndication, and all interstitials to the stations ready for transmission. This leaves the stations free to concentrate on content and revenue (news and sales).

The traffic departments are located at the stations and are at the center of the operation. The integration between the Florical automation system and our Encoda traffic system has been the mechanism by which the two distance-separated departments can function as one.

NOT JUST A HANDSHAKE

Early on in the process it was evident that the interface between the two systems was more than just a handshake. Files move continually among the hub and stations across the WAN to support the on-air signal, including purge lists, dub lists, logs, as-run logs and user reports.

Through this file exchange, the traffic departments gain complete control of the on-air feed and are able to schedule the automation to within one-second accuracy. This single capability has produced tremendous control over the stations' commercial inventory, as well as upgraded the on-air look of all the stations.

The Florical automation system controls two 16-channel Grass Valley MAN systems, five Grass Valley M2100 switchers, five Leitch Logomotion units, five 360 Systems Digicarts, a Grass Valley SMS-7000 router and several Sony Betacam SX machines, to name the major devices. Control is distributed across 25 Dell 2550 computers that make up the Florical system. The distributed processing is the strongest part of the system, as it minimizes downtime and makes maintenance easy.

Another highlight of our facility's automation system is its ability to switch emergency bypass switchers and take control of the signal at each station to air standby servers. This system is dubbed the Secondary Playout System and it allows for the recovery of the station in the event of a disaster at the hub or with the WAN.

This kind of advanced feature set is what attracted Emmis to Florical and we have many ideas for future improvements and features in our automation system. Something we recently implemented was control of all archives and restorations from our Masstech MassStore System, under the direction of the Florical system.

Emmis Communications has

found Florical to be more of a partner than simply a vendor, a relationship that ultimately helps both companies. ■

Joe Addalia is the director of engineering for Emmis Communications Centralcasting. He was the design engineer behind the Emmis Centralcasting model and is also responsible for the implementation of centralcasting systems and facility operations. He can be reached at jaddalia@emmis.com.



Emmis uses Florical automation to control five stations in a centralcasting system.

For more information, contact Florical at 352-372-8326 or visit www.florical.com.

COMPANY PROFILE

Proximity Manages Assets

by Bob Kovacs

Proximity Corporation formed in 1997 in Sydney, Australia, and the next year boldly moved its headquarters to New York to be closer to the heart of its business.

This was an interesting gamble, even for the go-go 1990s, as the company landed on these shores with just one good customer and dreams to improve the storage, recall and use of broadcast-quality video. Now with a growing international team of employees, Proximity has an Emmy award in its portfolio and continues to work with broadcasters to streamline managing media assets in fast-paced on-air situations.

"We focus very closely on broadcast applications, with some work in post production," said Luke Tristram, president and CEO of Proximity Corporation.

The company's first product was Xenomax, which handles the transfer of proprietary graphics formats between different manufacturer's products. If you have a Chyron graphic, for example, and need to move it into your Quantel Paintbox, Xenomax transfers between the various graphics formats.

The logical extension of that was Xenostore, which adds the ability to store, search and retrieve graphics, working with Xenomax to put the material into whatever format is needed.

"You can search across multiple systems, which is a powerful way to locate content," Tristram said. "Because [our system has] an integrated conversion engine, you can just transfer media onto your Paintbox or Profile or wherever it needs to go."

NEXT CHALLENGE

Treating video content in the same manner was the next challenge and the company responded with Xenomotion, which works similar to Xenomax but supports various digital video formats. Xenomotion converts among the major flavors of MPEG and DV, at data rates up to 50 Mbps.

Like Xenomax, Xenomotion also works with proprietary video formats used by Quantel and Grass Valley's Profile, and then makes the files visible through a content "catalog" that enables browsing for video and audio clips.

The company's latest product is Xenotrack, which lets content users request media on a system that then searches and distributes through Xenostore and Xenomotion. In this way, Xenotrack helps manage the workflow in a busy production environment (such as news), creating a format-agnostic means for users to search and recall the content they need.

"We have folks using [Xenotrack] to make the process of managing creative services requests and pub-

lishing content more efficient," Tristram said.

EARLY CUSTOMERS

NBC was one of the big early customers for Proximity and the network has Proximity systems installed at its headquarters in Rockefeller Center and at its new Art House graphics centralization project in Texas. Other major customers include Belo, Tribune, CNN and Fox News, and Proximity's products are installed in more than 150 facilities worldwide.

In a news environment, Proximity currently interfaces with the Associated Press ENPS and Avid iNews automation systems.

"Everything is tightly integrated for a newsroom," Tristram said. "You can browse media that's stored in Xenostore from within the newsroom and you can drag-and-drop content from our catalog into [proprietary graphics] templates and enter requests for new content from within the newsroom system. And it's all linked with the on-air run-down."

Tristram promises a new product announcement for NAB2004 but won't divulge much about what it might be. Meanwhile, the company has been growing steadily during the recent slow economy and continues to reach into markets worldwide, although 60 percent of its business is in North America. ■

USER REPORT

Turner Points Toward Pro-Bel Compass

by Ron Tarasoff

Vice President for Broadcast,
Technology and Engineering
Turner Entertainment Networks

ATLANTA

Turner Broadcasting is undoubtedly best known for the global success of CNN. However, Turner Broadcasting's operations include TBS Superstation, TNT, Cartoon Network and Turner Classic Movies, as well as Turner South and Boomerang.

We are a key supplier of programming for the cable industry and as part of a recent process of moving all of the Turner Entertainment Networks to a new 198,000-square-foot facility, we had the opportunity to rebuild our automation and asset-management systems. The automation system is tremendously important to our operations, but we were mindful of the need to tie the individual network automation systems into the central cache where all files are stored.

The challenge was to keep the actual network playback servers isolated from each other, yet link them to the central cache to allow files to be ingested once and played back many times across all the networks when needed. This required some changes to the existing automation infrastructure to accommodate our plans for a central system based on a file transfer concept. To accomplish this, we selected Pro-Bel for both the automation and key aspects of the asset management.

We chose Pro-Bel's Compass automation system for the main playback. Our system has the Super Duo option, which allows two complete

broadcast transmission systems to be mirrored. It also benefits from single terminal control, with schedule edits and system status replicated in real time for mirroring.

We also deployed an extensive Pro-Bel MAPP system for asset management across many channels with centralized archiving.

There were several key factors that were important to us. First, we looked for companies whose products most closely matched our technological needs. Second, we wanted a willing-

ness to make necessary changes to allow the entire system to work as one unit, despite the required isolation.

Last was a requirement that those involved have significant experience working well with the many other suppliers of equipment for our system. The importance of this should not be underestimated with a facility of this complexity. We could not afford any finger pointing when technical issues arose.

Our confidence was rewarded. Of course, technical issues did arise, but

instead of finger pointing, those involved worked well together to solve issues as they arose. ■

Ron Tarasoff is the vice president of broadcast, technology and engineering for Turner Entertainment Networks. He can be reached at ron.tarasoff@turner.com. The opinions expressed above are the author's alone.

For more information, contact Pro-Bel at 631-549-5159 or visit www.pro-bel.com.

USER REPORT

MicroFirst Grows With WLVT

by Paul Keller

Director of Engineering
WLVT

BETHLEHEM, PA.

WLVT has been using the MicroFirst Digital Automation System (DAS) since 2000 and it handles multicast programming and a growing recording schedule.

All DAS workstations have full functionality, no matter where they are on the network. I can make a VPN connection from home, then view and control the running schedules.

The MicroFirst DAS makes all resources available to all schedules. There is no need to restrict a device to a particular function and the system provides extensive conflict checking for a host of alarm conditions.

We normally run three schedules:

analog, digital and record. The record schedule is used for incoming and outgoing network feeds, and schedules can be built far in advance and still edited at the last second.

A feature that we find particularly useful is when we brand one of our DTV services as the default schedule. This service is a network feed that is the same format every day.

If the DAS does not find a schedule for a particular date, it determines if a default schedule has been established. If it finds one then that schedule runs, saving us the from creating routines for regularly scheduled network programming.

INTUITIVE OPERATION

The DAS machine control program has an intuitive GUI. The server dubbing screen docks the VTR and server control panels with the ability to enter a cue point or grab one from the tape. A nice touch

for loading those program segments is the dialog box that pops up to tell you that the dub is finished.

One really neat feature is the ability to create a duplicate clip, which is a video sequence that is based on an existing server clip but differs in name and start-and-end points.

MicroFirst is a great company to work with and many of the product's features came from suggestions by the users. The result is a package of hardware and software that is built from the ground up for real-time, mission-critical operation. MicroFirst's products certainly have exceeded our expectations. ■

Paul Keller is director of engineering for WLVT and he can be reached at paulk@wlvt.org. The opinions expressed above are the author's alone.

For more information, contact MicroFirst at 201-651-9300 or visit www.microfirst.com.



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BUYERS BRIEFS

The Associated Press recently released ENPS 4.0, which includes dozens of new features for TV news automation. Among the new capabilities of the system are improved keyboard navigation for rundowns,

planners and story items; improvements to assignment planning; reuse of most-recently used rundowns and planners; color changes that improve at-a-glance production status; XML formatting for exported fields; sepa-

rate outbound message queues for each MOS device; and lower-third video display of election data from ENPS Stats.

For more information, contact the Associated Press at 202-736-1100 or visit www.enps.com.

BUF Technology's Spot Server Management system is a compact controller for video servers. Clip names

are visible on backlit pushbuttons and clips are loaded for playback on up to eight server channels. Playback is started by button push or GPI contact closure, and multiple channel rolls are always in frame-accurate synchronization. Spot can operate stand-alone or with a remote processor.

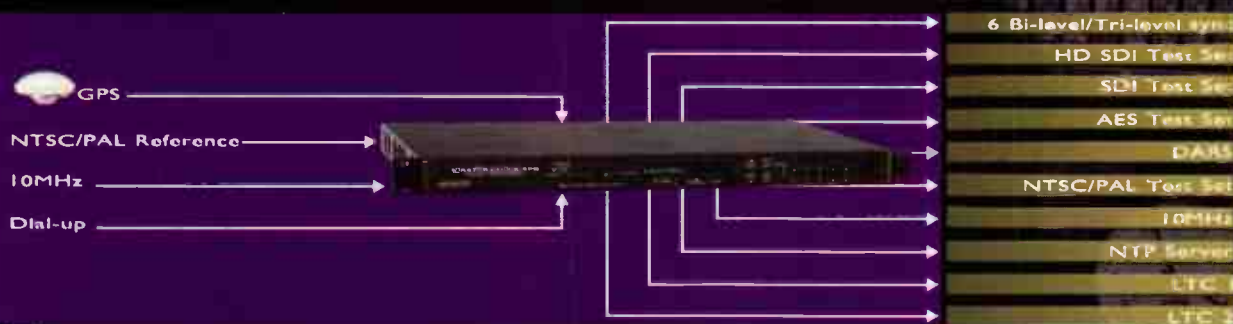
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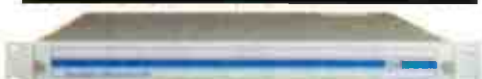
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USER REPORT

Harris Automates HBO's Channels

by Elmer Musser

Vice President, Broadcast Engineering
HBO

HAUPPAUGE, N.Y.

When working for a company like HBO and its many divisions, you quickly learn that a well-built, reliable tool is valuable. That is why after many years, HBO continues to use and upgrade our Harris' ADC-100 automation systems.

After comparing several systems, we decided the ADC-100 was the best automation product for our needs and requirements. Even today, several years after purchasing our first ADC-100, we still believe that this system continues to be the best path for us.

Harris ADC servers control all the equipment in our master control room, including master control switchers, routers, video servers, VTRs, cart machines, logo generators/inserters and MPEG/DVB systems. The system provides a direct connection to all broadcast devices in our facility and eliminates the need for costly PCs or interface boxes.

CONTROLS 60 DEVICES

A single Harris device server controls up to 60 devices and 16 playlists. With this system, a single VTR can support multiple channels. And best of all, the system gives us the ability to change transmission and playlists even when the system is on-air.

At HBO, we use ADCs to fully automate all our linear layouts. All our movie channels, including HBO Family, HBO Zone, HBO 2 and several other HBO entities rely on the ADC-100. We also use an ADC for HBO on Demand, our channel that allows viewers to watch HBO original programming, movies and events at whatever time they choose. We use the ADC to catalog, ingest and play-out the programming selected for these digital broadcasts.

As you know, there is nothing more urgent than an on-air problem; with the ADC-100, we know we have a complete system that is reliable and performs well. In fact, each of our ADC-100s performs as well now as when they were first installed. We are so pleased with the results, we currently have 14 ADC-100s and plan to add more systems next year.

An added bonus of using the ADC-100 is that we have become well versed in the installation of the equipment. Initially, Harris played a key role in installing

our first few ADCs, assisting us when we needed the help. We now have enough training and hands-on experience to install the system on our own.

Now that we have installed so many additional systems, we no longer need any assistance. But if an issue does arise where we would need

help, I know Harris will be there to back us up and assist us.

We know that with the ADC-100, we are receiving reliability and quality. The ADC-100 is a complete system that met our needs many years ago and continues to be our top choice for automation today. ■

Elmer Musser is the vice president of broadcast engineering for HBO. He can be reached at elmer.musser@hbo.com. The opinions expressed above are the author's alone.

For more information, contact Harris at 513-459-3400 or visit www.broadcast.harris.com.

USER REPORT

Blueline Manages Dallas Cable

by Bennie J. Wilcox, Jr.

Manager of Cable Systems
City of Dallas

DALLAS

With a sprawling cable TV origination system that spans Dallas, we needed automation that was easy for people with a wide range of skills to use and had the flexibility we needed.

I shopped around before deciding on Blueline Technology's Stationmaster Media Management System, mostly because of its user interface—its appearance seemed simple and logical.

Is it simple? Nothing about automation is simple. There are a lot of calculations needed to put the puzzle together, including time-of-day, length-of-clips, the source of the

stored clips and operator prompts.

We schedule every day's playlist, which often means that we have to record something or transfer from one format to another. We have only one or two people per location doing all the work and two of our locations run four channels each—that's a lot to keep up with but our Blueline system keeps us on the air.

IT'S A COMPUTER

Is it trouble free? No—it's a computer! Some of our problems were self-induced and some were not; however, at least I get a real person when I call after business hours.

Tech support is one Blueline's strongest attributes. The company dials into our systems when we have problems and shows us what we are doing wrong. If there is an issue with the software, Blueline resolves it as

quickly as possible.

We are also pleased with the work that our systems integrator, Burst Communications, did to get our automation system working. Burst and Blueline listened to our requirements and delivered a system that gets the job done.

The Blueline Stationmaster Media Management System works for us and I expect it to only get better. If I had it do over again, I would make the same choice. ■

Bennie J. Wilcox, Jr. is the manager of cable systems for the city of Dallas. He can be reached at bwilcox@pbw.ci.dallas.tx.us. The opinions expressed above are the author's alone.

For more information, contact Blueline Technology at 972-353-2583 or visit www.bluelinetech.com.

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KEY FEATURES.....

- Multichannel automation
- Integrated media asset management
- Configurable timeline window
- Intelligent error management to workaround failures



USER	Kevin Washburn C-SPAN 202-737-3220	Greg Hopper Atlantic Video 202-408-0900	Bob LeClaire WFXB 843-828-4300	Rob Harrison Young Broadcasting 517-367-2174
WHAT MODEL(S) DO YOU HAVE?	Fastrack	Fastrack	Airo Version 9	Airo
HOW IS IT USED?	Tape and media prep	Post production	Commercial playback	Program playback and ingest
HAS IT PERFORMED AS EXPECTED?	Yes, once initial problems were fixed	No; had to make adjustments	Yes	Yes
WHAT FEATURES DO YOU LIKE THE MOST?	Both linear and nonlinear editing	Lets us "repunch" shows	Can backup tape without disturbing rest of system	Ease of use; modular design
WHAT FEATURES DO YOU LIKE THE LEAST?	None	Different from other editors	Too early to tell	No specific problems
HOW LONG HAS IT BEEN IN SERVICE?	15 months	N/A	Just under a month	Seven years (from Odetics)
HAVE YOU HAD ANY EXCESSIVE MAINTENANCE PROBLEMS?	Initial problem with data transfer between SANs fixed by Editware	Initial software adjustment, otherwise fine	No	No
HOW WOULD YOU RATE THE MANUFACTURER'S SERVICE/SUPPORT?	Great	Very good	Excellent	Better since becoming DTG
WHERE WAS THE EQUIPMENT OBTAINED?	Manufacturer	Not sure	Manufacturer	Manufacturer
WHAT WAS THE DECIDING FACTOR FOR YOUR PURCHASE?	Only system that edits long-GOP files	Not in decision chain	Former client of Odetics Broadcast (now Digital Transaction Group)	Familiarity with product line

For more information, contact Digital Transaction Group at 512-837-3737 or visit www.dtgtv.com.

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- How PBS affiliates are using the efficiency and speed of IT to manage and distribute digital programming;
- How NBC is maximizing its coverage of the Olympics through digitization;
- How to sort through the hype and find out what really works.

BUYERS BRIEF

Automation systems from **Encoda Systems** can integrate facilities from one to more than 1,000 channels and provide an uninterrupted flow of information between traffic, material management, and on-air automation. These systems work with a variety of broadcast hardware and provide a seamless transfer of schedules and as-run logs with traffic systems via a local area network.

Encoda's dual-redundant architecture ensures transmissions will not be interrupted by computer failure. The company's material preparation systems can stand alone or integrate with the full automation system. The D-Series Automation line provides remote playback management for a group of stations, while still giving individual local stations the ability to take over. All breakaways are achieved with frame accuracy.

For more information, contact Encoda Systems at 303-237-4000 or visit <http://www.encoda-automation.com/index.htm>

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Symetrix 628 digital processor, \$575; Valley People dynamite, \$350; Shure FP-42 audio mixer, \$525; ORBON 622A, 1 chnl EQ, \$325; Neumann U87i, EA87 Elastic Suspension and Wind, \$1200; Sony MPX-2900 21x4 audio mixer, \$2000. 203-322-3000.

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Ampex ACR-25 2" cart spot plyrs, (2), BO; spare decks for Ampex 225 Spot Cart system, have several decks as removed from working 225 avail, BO. L White, WYLE-TV, 256-381-2600.

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Videotek ADA-16 1-input, 6-output audio distribution amp, like new, \$75; Sigma ADA 110 10-output audio distribution amp w/manual, \$125; Belden 8769 audio snake wire, 19 individ. pairs ea. foil shielded, 120', \$80; Alpha audio snake wire, 15 individ foil shielded pairs, 70', \$60; Shure A268 new rack mount for M267 mixer; Audio Transformer 2503, 600 ohm primary, 3-600 ohm secondaries, \$20; Spotmaster AD1B 5-output audio distribution amp, \$50. A Ross, 425-775-8853.

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Triax adapters; Ikegami TA-79, several avail, condition unknown, also several long lengths of Triax cable, looks to be ok, BO. L White, WYLE-TV, 256-381-2600.

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I'm Andrew Maisner, founder of TV Pro Gear. The picture above is me at the Jamison Whiskey Distillery in Ireland where I got my Phd. in

Whiskey Tasting. You may be asking yourself, "what does this have to do with used video equipment?" The answer is not much.

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Nagra IV-STC, genuine Nagra (Kudelski) stereo timecode rcd, xint cond, complete w/7" lid, 2 Universal preamps, handle, Nagra line-in cable, Lemo timecode out cable, etc, also will toss in a genuine Kudelski ATN & a Kangaroo bag, complete w/ accessory pocket, \$4000; (2) Sennheiser MKE2 lavalier mics w/TAS5 connectors for Lectrosonics, \$150/ea; Sony ECM-50 w/4-pin Lemo connector, windscreen, original case, \$50; Sony ECM-50 w/o connector, just wires, windscreen, original case, \$35; Sela 2880BT 4-input mixer w/ASC modifications for built-in slate mic & tone gen, comes w/mounting brackets and cables for both Nagra 4.2 & Nagra IV-STC, \$450; (3) 4-pin Lemo female connectors, can be used to make extension cables for lvs used on Vega xmtrs, \$15/ea or \$40/all; Sennheiser MKH 815T shotgun mic in original factory case, \$500. 818-597-8855 or soundmixer@prodigy.net.

RCA TK-28 Film Chain w/TP-66 & TP-77 projectors, condition unknown, BO. L White, WYLE-TV, 256-381-2600.

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Panasonic AG-RT600RTL real time lapse rcd, xint cond, \$275/BO. M Schulze, 619-698-4336.

Sony BVW-65, \$3500; Sony BVW-70, \$6500. 203-322-3000.

Ampex AVR 1 quad video rcd, fair to gd complete machine avail, will consider all reasonable offers; Ampx VPR-2's w/TBC-2, several available from parts only cond to complete machines that were working when removed from service, BO. L White, WYLE-TV, 256-381-2600.

Sony VO-9800 3/4SP, like new, very lw hrs, \$1200; JVC BR-S622U S-VHS source rcd, like new, 600 head hrs, \$895; JVC KM-1600 Y/C switcher & SEG, like new, \$495; Panasonic AU-62H M2 source deck, new heads, like new, \$1195. B Glusic, 541-488-9363.

HELP WANTED

Chief Engineer KVRV-TV; FOX: Exp. with UHF and VHF full power transmitters. Duties include repair and maintenance of all broadcast equipment including DVC Pro, Avid, Ross, microwave and translators. Send Resume to: P.O. Box 9115, Fargo, ND 58106. EOE.

TWIN CITIES PUBLIC TELEVISION: Engineering Manager Responsibilities include managing engineering installation and maintenance personnel, system support, operational budgets and capital projects for the TPT production and master control facilities. The successful candidate will possess the following: technical degree, 5 years experience in Engineering management and experience in server-based non-linear editing/broadcast automation systems, union staff, planning, project, budget management, and technical training. We seek an individual with proven management ability that is results-oriented, has strong project management skills, exceptional interpersonal, written and verbal communication skills and the ability to build and maintain relationships that will contribute to the success of TPT! Send cover letter with salary expectations and resume by January 2, 2004 to: Box Number 474-4; TPT/Twin Cities Public Television; 172 E. Fourth Street; St. Paul, MN 55101; E-mail to: hr@tpt.org, fax to: 651-229-1408 or apply online at www.tpt.org; An Equal Opportunity Employer/AAP.

Assistant Chief Engineer: KFOR-TV/DT, is currently reviewing applications and resumes for consideration for the position of Assistant Chief Engineer. The Assistant Chief Engineer is a hands on engineering position with departmental management responsibilities over technical operations, maintenance, building facilities and information systems. The ideal candidate will have a minimum 10 years experience in all phases of broadcast and local news engineering. Candidate must be motivated, able to trouble shoot problems, manage people, produce results, and work flexible and varied hours. Send resume, salary requirements, and references to: KFOR-TV, VP, Director Engineering and Operations, 444 East Britton Road, Oklahoma City, OK 73114. No Calls Please. EOE.

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Sony BVW-70 PAL	7,000	Sony PVM-8044Q	700
Sony PVW-2800	6,500	Barco CVM-3051	990
Sony UVW-1800	5,500	Scopes	
Cameras		Tek 1720 or 1730	1,000
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Sony UVW-100	3,000	Tek 1740 Wfm/Vec	2,000
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DNF

CONTINUED FROM PAGE 35

automation system is that the 30+0P/DLO is an affordable and simple system that has tight integration and dependable backup operation with FastBreak.

When I first saw DNF's 30+0P/DLO at NAB and realized that we could incorporate another layer of redundancy for around \$10,000, I knew we had to have it. Installation was seamless and since going online five months ago, it has pretty much worked without a hitch. We just push the Sundance automation log over to the DNF unit and it plays the list back in tandem with the Air Station.

The changes we have made to our facility truly do reflect Court TV's overall success as a network. When visitors walk into our operations center, they're impressed. It makes a statement.

And with DNF Controls backing up our playout, I know we're secure. ■

Joe Schwinghammer is vice president of engineering at Court TV. He can be reached at schwingj@courttv.com. The opinions expressed above are the author's alone.

For more information, contact DNF Controls at 818-898-3380 or visit www.dnfcontrols.com.

BUYERS BRIEFS

Autocue's QScript newsroom computer interface works with Avid's iNews, AP's ENPS and Autocue's own QNews system.

QScript is based on a touch-screen or tablet PC and has a wireless connection so it can be carried anywhere within a news department. It mirrors the newsroom system rundown and is continuously updated to any changes, including adds, deletes, updates, reorders and floats. The touch-screen shows two separate script pages and allows rapid navigation around the pages as well as the entire rundown. A set of user-defined soft function keys (or icons) provide access to a range of functions.

A stylus can be used to highlight and change script text and insert handwritten instructions and annotations using either text recognition or pre-assigned stamps. Notations saved on a script are visible to any other user of the QScript system and on the prompter. If a QNews system is used in the station, then the script

text changes can be fed back to the system to be viewed by all users, including handwritten notations.

Although initially focused on control room operations, QScript also operates as a standard client to all QSeries systems. It is designed to interface to all other newsroom systems, but within a QSeries environment, all normal integrated functions are available. QScript is also available within a prompt-only package.

For more information, contact Autocue at 800-293-0118 or visit www.autocue.co.uk.

The MassStore system from Masstech Group is an end-to-end archive and asset management system for broadcast and content management applications. The system interfaces with existing station automation systems, video servers and archives, while providing an advanced asset management core for single- and multichannel environments.

All material within a facility, whether on video servers, data

libraries, or even on media storage shelves, is constantly tracked by MassStore and made available for playout automatically as needed. The system can be expanded to hold more than 100,000 hours of nonlinear audio/video storage.

For more information, contact Masstech at 651-688-3653 or visit www.masstechgroup.com.

Newstore from Spencer Technologies was designed for live news production and includes a dual-channel video server with DVE and linear keyer in each channel. With Newstore, clips can be organized and cued, then brought into the production system with its squeeze-backs and OTS graphics.

Newstore has a touchscreen interface for quick learning and navigation, and the system can be networked using its Fast Ethernet port.

For more information, contact Spencer Technologies at 818-771-1850 or visit www.spencertech.com.

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11	Blackmagic Design	www.blackmagic-design.com	36	Proximity Corporation	www.proximitygroup.com
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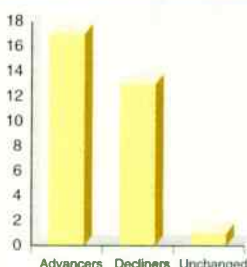
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TV TECH STOCK INDEX

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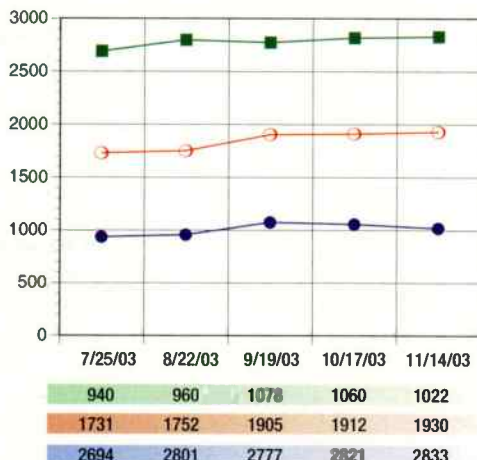
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Avid -6.38%

TV TECH TREND

TV TECH AVG. NASDAQ COMPOSITE BROADCAST AVG.



TV Tech STOCKS as of Nov. 14

Company Name	52-Week Range	Oct. 31	Nov. 14	% Change
Avid	16.76 - 59.77	51.75	48.45	-6.38%
Belden	10.50 - 20.32	18.75	19.49	3.95%
Ciprico	3.10 - 6.81	5.08	5.29	4.13%
Harmonic	2.10 - 9.35	7.75	8.59	10.84%
Harris	24.09 - 39.73	37.22	36.88	-0.91%
Leitch	N/A	3.41	3.41	0.00%
LSI Logic	3.78 - 12.90	9.24	9.8	6.06%
Media 100	0.60 - 1.70	0.78	0.83	6.41%
ParkerVision	4.08 - 12.50	10.35	9.93	-4.06%
Pinnacle Systems	6.60 - 14.95	6.95	8.55	23.02%
S-A	10.99 - 37.45	29.6	28.25	-4.56%
SeaChange	5.10 - 16.85	15.45	13.19	-14.63%
Storage Tech	17.64 - 27.99	24.1	25.62	6.31%
Tektronix	15.65 - 27.07	25.67	25.84	0.66%

COMPANY FOCUS

Chyron Sells Pro-Bel; Kramer Buys Sierra Video

MELVILLE, NY & GRASS VALLEY, CALIF.

In an effort to reduce its debt load, Chyron, Corp. has sold its Pro-Bel automation and signal distribution business to Oval Limited, which is jointly owned by members of the Pro-Bel management team and LDC, the venture capital arm of Lloyds TSB Group.

Net proceeds of the sale will come to approximately \$12 million after payment of Pro-Bel's obligations. Chyron CEO Michael Wellesley-Wesley said the sale will allow the company to focus on its core TV graphics equipment.

"Chyron is now able to focus 100 percent on our core competency."

— Michael Wellesley-Wesley, Chyron CEO

The sale was announced just before Chyron reported Q3 2003 revenues of \$3.7 million, a 22 percent drop compared to \$4.8 million in revenues for the same period in 2002. The company had a net loss of \$1.5 million, or \$.04 per share, compared to 2002's third quarter net loss of \$.2 million, or \$.01 per share. Higher gross margins of 54 percent and lower operating expenses helped offset the effect of 2003's lower revenues, with the company reporting a nine-month operating profit of \$0.6 million.

Chyron president Michael Wellesley-Wesley attributed the lower revenues to a soft broadcast equipment market.

"The performance of Chyron's graphics business in the third quarter was lower than

expected, in part due to what we believe to have been lower spending by the broadcast industry in the U.S. in the third quarter. While we expect demand to pick up in the U.S. market, the near-term outlook for our international business remains challenging due to depressed economic conditions in the major European economies," he said.

In other acquisition news, Israeli-based Kramer Electronics acquired Grass Valley, Calif.-based Sierra Video Systems for an undisclosed amount. Sierra Video Systems manufactures and distributes video and audio routing switchers for the professional AV, broadcast, government and presentation markets, while Kramer manufactures analog and digital audio, video and computer accessories for those markets, as well as home theater and security markets. The two companies are no strangers to each other.

"This acquisition is the next logical step to the very successful strategic alliance that Sierra and Kramer announced more than two years ago," said Eric Berliner, president of Sierra Video. "I am very excited about this merger of two very dynamic and well-known brands in the ProAV, presentation and broadcast industries."

Company officials note that the merger is expected to boost Kramer's line of video products including high-end routing switchers, while allowing Sierra Video access to Kramer's extensive worldwide sales channels.

A spokeswoman for Kramer Electronics said the purchase of Sierra Video would not result in any operational changes for Kramer. The new company will retain Sierra Video Systems President Eric Berliner, and will operate as Sierra Video Systems, a subsidiary of Kramer Electronics US. Business will continue from the company's headquarters in Grass Valley, Calif.

—Kelly Brooks

Broadcast STOCKS as of Nov. 14

Company Name	52-Week Range	Oct. 31	Nov. 14	% Change
Acme	5.35 - 9.14	8.33	8.25	-0.96%
Belo	18.72 - 27.70	27.26	27.12	-0.51%
Emmis	14.84 - 24.86	22.35	21.7	-2.91%
Entravision	5.20 - 12.00	9.57	10.6	10.76%
Fisher	39.50 - 58.17	47.8	48.72	1.92%
Granite	1.40 - 3.70	2.109	1.67	-20.82%
Gray	8.62 - 14.90	12.72	12.89	1.34%
Hearst Argyle	19.50 - 26.03	24.21	24.88	2.77%
Lin TV	19.45 - 26.55	22.55	22.71	0.71%
Paxson	1.91 - 6.99	5.17	5.51	6.58%
Sinclair	7.68 - 14.16	11.63	10.95	-5.85%
Liberty	35.85 - 45.30	44.55	43.2	-3.03%
Univision	21.83 - 38.64	33.95	34.38	1.27%
Young	10.27 - 25.54	20.09	18.64	-7.22%
Tribune	41.60 - 50.24	49.05	47.7	-2.75%
Meredith	36.91 - 50.32	48.52	49.45	1.92%
EW Scripps	73.90 - 95.15	92.91	93.24	0.36%

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OverDrive™

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- Fewer staff**
- Less staff training**
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- Immediately air breaking events**
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