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Vendors Chip in To Advance DTV

FCC mandate spurs growth of DTV tuner market

by Claudia Kienzle

HAMILTON, N.J.

With the passing of the first deadline in the FCC's DTV tuner mandate schedule, the pace of development, production, and deployment of DTV tuner components—tuner, demodulator, and decoder—has intensified.

This induced demand has resulted in better economies of scale that could help lower prices for DTVs, as well as DTV digital-to-analog converter boxes for the nation's 70 million sets not hooked to cable or satellite.

The FCC DTV tuner mandate stipulates that all 36-inch or larger DTV sets entering the United States must have an integrated DTV tuner capable of receiving the ATSC signal over-the-air (OTA); with mid-sized 25- to 35-inch sets in full compliance by March 2006; and smaller 13- to 24-inch sets in full compliance by July 2007.

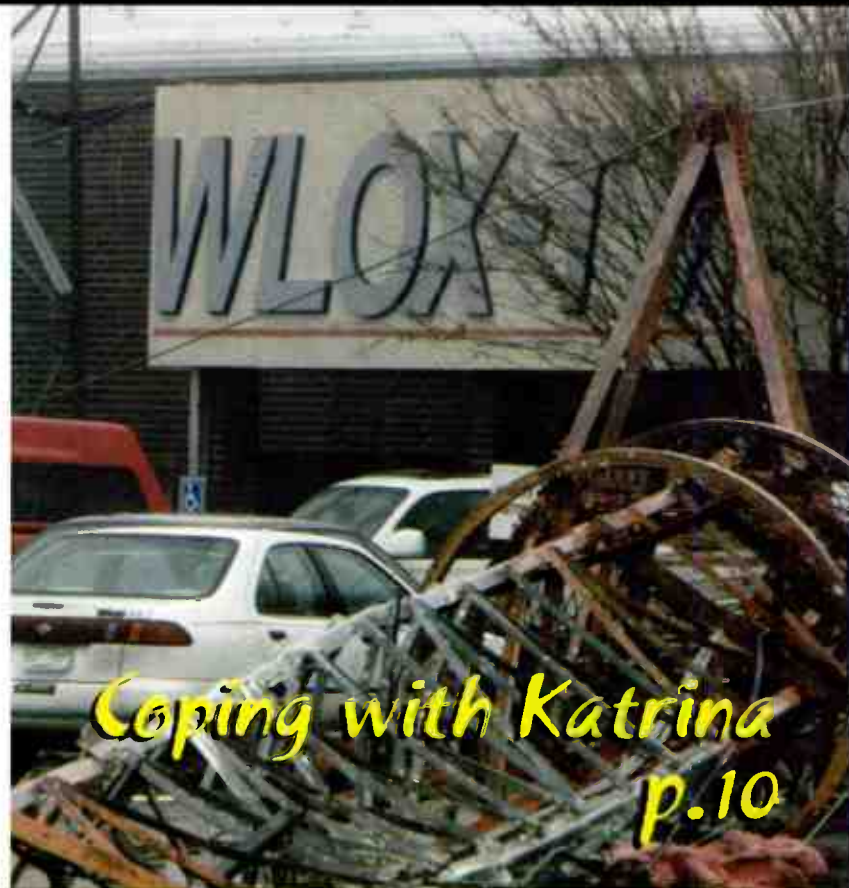
MEETING THE MANDATE

"As the FCC's DTV tuner mandate kicks in, volumes are building and prices are falling," said Michael Gittings, director of marketing for DTV products for Markham, Ontario-based ATI Technologies, Inc. "Our prices have had to fall as the market gets larger. Price pressures have been intense."

But sales have increased. "We went from selling an insignificant number of units in 2003 to selling 5 million units in 2004," he said. ATI currently has an 85-percent marketshare of the demodulator chip business and a 45-percent marketshare in the MPEG decoder business—for ATSC DTV sets. ATI just introduced the Xilleon 240, a single-chip solution that integrates 8-VSB (the ATSC reception standard), QAM demodulation and an HD/SD capable MPEG-2 video and audio decoder.

"For 35-inch and larger sets, everyone wants the best performance at any cost. This market is using our high-end NXT 2003 or Theater 314 chips," Gittings said. "For mid-sized DTVs, people still want high performance but they

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Coping with Katrina

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Harris Buys Leitch

Combined companies target \$2.4B market

by Tom Butts

MELBOURNE, FLA & TORONTO

Harris Corp. announced late last month that it plans to purchase broadcast technology provider Leitch Technology Corp. in a deal worth approximately \$450 million. Harris says it expects the transaction will be completed by November.

Harris will pay \$14 per share, but doesn't expect the acquisition to affect its 2006 earnings. In fiscal year 2007, the transaction is expected to increase earnings by 6 cents per share. Toronto-based Leitch saw its stock rise over 25 percent after the announcement. Harris stock, which has gained 60 percent over the past year, edged up slightly as well.

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CONTRIBUTING WRITERS

NAME:
Charles W. Rhodes

COLUMN:
Digital TV



While many broadcasters may wish that DTV was not about to replace analog terrestrial broadcasting, that is unrealistic. Broadcast spectrum is going to be reduced dramatically and soon. The main question now is what to do about homes that have... p. 27

NAME:
André V. Mendes

COLUMN:
Count on IT



In my last column, I described the initial stages of a five-year project designed to bring traffic and scheduling at PBS in line with the more rigorous demands of a new media world. After a lengthy phase to identify requirements and an exhaustive search for an... p. 36

NAME:
Will Workman

COLUMN:
Inside Broadband



You could see this one coming years away. Wi-Fi began its steady proliferation. Equipment costs plummeted while larger and larger hot spots began popping up in airports, coffee shops and campuses. It was only a matter of time before the notion of... p. 43



FROM THE EDITOR

The Power of Ideas

Throughout the 20-plus years of this magazine, our esteemed contributors have never minced words or held back their opinions about the state of the industry.

In this issue, in particular, several of them have raised some legitimate issues and offered practical solutions to resolve some of the most vexing roadblocks in the DTV transition.

Broadcasters, for example, have not had it easy during the DTV transition. It's an industry that has had to deal with the tremendous expense of building out digital facilities and simultaneously operating its analog plant; all while the number of over-the-air viewers steadily declines. With an industry trying to find its place and identity in an increasingly pay-TV world, Charlie Rhodes has another option to keep terrestrial broadcasting

robust and relevant in the digital era.

Charlie proposes using the terrestrial DTV signal to revive the concept of automatic emergency alarm systems, a service that has until now been restricted to radio receivers. This proposal is particularly timely in light of Congressional efforts to consider the deployment of potentially millions of low-cost converter boxes to accelerate the DTV transition and NAB/MSTV's recent RFP to the consumer electronics industry for a low-cost digital converter box.

Charlie outlines his proposal in "Poised at the Great Analog/DTV Divide" on p. 27.

Mario Orazio has a thing or three to say about the DTV transition in this issue's "Masked Engineer" column. Several months ago, Mario raised the issue of the DTV tuner mandate and

its effect on television receivers 13 inches and smaller. Mario has been stewing over this issue ever since the FCC imposed the tuner rules several years ago; in the commission's revision of the DTV tuner deadlines in June, the FCC finally addresses the issue of DTV tuners in small, portable TV receivers.

On p. 30, Mario lays out his own ideas to accelerate the transition (including freezing the DTV tuner mandate at the current 36-inch size set and up), and it might behoove the commissioners and Congress to pay attention. Are these goals achievable or too radical? Check out "It's High Time to Make DTV Work" on p. 30 and decide for yourself.

Tom Butts
Editor

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LETTERS

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

Nearly Full

Dear Editor:

In your editorial "Moving Forward," (Aug. 3), you ask that all reassess their positions as the DTV transition is "dire." Hardly. Based on technical quality, programming, product quantity and selection and sheer consumer enthusiasm, our uniquely American shift to HDTV has been spectacular.

Sure, industries quibble over which month to stop analog, whether to grant multicast parity and how many will be hurt by the end of analog broadcasting, but the fact is that consumers have embraced HDTV whether it be via cable, satellite or broadcast.

The glass is not half empty, it's bigger and nearly full.

Gary Shapiro
President

Consumer Electronics Association
Arlington, Va.

Fish or Cut Bait

Dear Editor:

After reading Frank Beacham's article in the June 22 issue ("Antenna Myths, Who's Really Watching Free TV"), I am reminded of the saying, "if you look for only the parts that support your theory, that's all you will find." I think his article is correct to a point, but not entirely accurate.

If the transition is to be made to digital then let's do it quicker; we've known it was coming for years and if people are still selling analog-only sets... too bad. However, do we need over-the-air broadcast? Do we need free TV? If the answer is no then let the government take back all the spectrum; we can get national

feeds from New York City and local feeds on cable (most do local news already).

If, however, we want free and mobile TV, then let us get it out there. Broadcasters need to be aware of the problems they are creating. My company has been in the TV business since 1953 and much has changed.

Yet there are still people who would like to get free TV that pay for it; this is due to poor reception.

The digital signals of today are really of inferior quality. Many stations do not transmit full power or even fill the grade of the old analog signals. People have asked for an easy way to get free TV, but in our area one needs an outdoor monster to get signals that don't fade in and out.

What would be beneficial is for the DTV stations to put out robust signals that could be picked up with a monopole type antenna that is multidirectional... unobtrusive and effective. If this could be the case than an option exists for free TV.

Broadcasters have missed the boat on the transition. If they had strong robust signals then most areas could get many HD signals without the compression of cable and/or satellite. Still, if they wished they could multi-stream many signals at lower resolution.

Many people have expressed a desire to drop cable or satellite for free TV, but when faced with the fact that there is no stable signal without a huge investment in a large antenna, they keep what they have and complain. Not everyone wants 500 channels. It is OK for those who do but many people on cable have that lifeline for a reason.

In summary: Crank up the signals now! If not then take the spectrum back and give both the TV analog and digital spectrums to the fire and police.

Leo C. Rotkiewicz, Jr.
President
Leo's TV & LCR Productions
S. Deerfield, Mass.



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PBS Doc Intercuts High-End HD with HDV

Coverage of Van Cliburn piano competition demonstrates HDV's versatility

by Jay Ankeney

FORT WORTH, TEXAS

On Oct. 4, when "In The Heart Of Music: The Twelfth Van Cliburn International Piano Competition" airs nationally on PBS, home viewers with HDTV sets and access to a high definition signal will be able to see the first use of Sony's new three-CCD professional HDV cameras as part of a major multicam HD production. The 90-minute documentary will include 1080i material recorded on HDCAM tape with Sony HDW-700A camcorders and Thomson LDK 6000 mk II WorldCam cameras. But it will be intercut freely with shots from Sony's HVR-Z1U HDV cameras recorded though their DXP Digital Extended Processor onto Sony's new 6mm DigitalMaster tape.

COMPLEX CUTS

"In the Heart of Music" follows four contestants out of the 147 pianists invited to perform screening recitals as they advance through the preliminary rounds that culminated in the finals of the 12th Van Cliburn International Piano Competition held June 1-5 in Bass Hall in Fort Worth, Texas.

Since those performances were projected live in standard definition to

The requirement of recording many hundreds of hours of musical performances in high definition prompted the Van Cliburn Foundation's European co-production partner, Bel Air Media of Paris, France, to specify in 2004 that they would use HDV for the behind-the-scenes segments leading up to the competition as well as for the three camera ISO recordings in HD of the grueling preliminary rounds. To make things even more complex, the standard definition multicam versions of each performance made with the downconverted outputs from the HDV cameras would have to be switched live so they could be quickly burned to the DVDs that were sold by the competition at the end of each day.

And yet Sony planned to start delivering the HVR-Z1U only two months before the competition was to begin. However, Andy Sommer, director of "In the Heart of Music," already had considerable experience with its consumer forerunner, the HDR-FX1, having used it to tape many of the screening recitals that preceded the main competition, and believed in the HDV recording format's potential. So coordinating producer Molly McBride contacted Bob Zahn, president of Broadcast Video Rentals in New York, to be the HDV technical manager for the project.

"The mandate was for the produc-

made by Stanton Video Services to add zoom and focus controls for the HVR-Z1U within the confined space of a concert hall.

To coordinate the cameras, Zahn arranged for digital slates in front of each of the three HVR-Z1Us being used in the multicam configuration, and ran their component SD video outputs through DPS 470 frame synchronizers. These compensated for the lack of external genlock that would normally time the cameras' outputs to



Filmmaker Andy Sommer shoots with a handheld Sony HDR-FX1.

the Grass Valley 110 switcher being used for the live standard definition line cut that would be burned to the daily DVDs. Needing to frame in widescreen, Zahn chose the letterbox output of the cameras to more closely match the separate HDV 1080i recordings that were going onto the Sony DigitalMaster tapes. To ensure that the audio/visual sync of the downconverted SD signal matched the HD recordings, he inserted a TC Electronics audio delay device between the live audio and the DVD recorder. Finally, Zahn incorporated an Everiz 3600D timecode generator to give the sound recordist, Tom Lazarus from Classic Sound, a sync reference for his Digidesign ICON integrated audio console system.

THE RIGHT CAMERA

Taping the preliminary rounds of the quadrennial Van Cliburn competition was augmented by HDW-700A HDCAM cameras on loan from Dallas PBS station KERA-TV, but for the final round, Belgium-based TV production services company, Alfacam, provided more than seven tons of HD equipment including Thomson LDK 6000 Worldcam cameras. Just as with the

Sony HDV cameras, the LDK 6000s' standard definition output was used for on-location presentations and DVD burning. But like the HDW-700As, the Thomson 6000s' HD signal was recorded to HDCAM tape.

The high definition tapes were sent to the Sylicone edit facility in Paris where the HDV material was fed into a Final Cut Pro 5 workstation, edited in its native format, and output to HDCAM tape. This was combined with other standard definition and film-originated material into the final master for the "In the Heart of Music" broadcast using a Discreet Smoke HD NLE. Altogether, Sylicone's post-production supervisor Marie Pierre Guillemot, technical director Jean Delduc, and editor Toby Trotter had over three terabytes of documentary and performance material to work with.

Director Sommer was impressed with the look of the Sony HDV camera's recordings. "I believe it is important to use the right camera for every situation," he said. "The HVR-Z1U actually has better low light sensitivity than many of the older HD cameras. It also features an image stabilizer and auto focus features that the bigger cameras lack."

But the crucial question was whether HDV could be intercut successfully with the other HD recordings. "Obviously for tight, detailed close-ups, the HDCAM provides higher resolution," Sommer said. "But for 80 percent of our shooting situations we found HDV was a perfectly acceptable alternative especially for the background sequences of the documentary. For example, there is a scene in which two people are walking in a garden for which we taped the master shots with HDCAM and also shot the reverse angles in HDV with both cameras fitted with half fog filters. After cutting these medium shots together and color correcting them on Sylicone's Discreet Lustre system, I could not tell the difference between the two formats."

Richard Rodzinski, president of the Van Cliburn Foundation, was executive producer of "In the Heart of Music." The project was co-produced by François Duplat and Xavier Dubois of Bel Air Media, Joe Bellotti of KERA-TV, the Van Cliburn Foundation and ARTE, (Association Relative à la Télévision Européenne). "In the Heart of Music" will also be seen throughout Europe on the Euro1080 satellite service and the French cable network Mezzo, on NHK in Japan, and released first on standard definition DVD and, ultimately, high definition disks when they become available. ■



19-year old Joyce Yang of Korea after performing with the Fort Worth Symphony during the final round of the Van Cliburn Piano Competition, June 5.

overflow audiences in nearby theaters, shown on local Texas cable access channels and streamed in real time over the Internet, it's no violation to reveal the winners were Alexander Kobrin, first place, and Joyce Yang, second. Each will receive \$20,000 checks, have been contracted for hundreds of concerts worldwide over the next three years and—fortunately for the PBS documentary—both were members of the original four contestants tracked by the production.

tion to be in 1080i which Sony's HVR-Z1U can record," Zahn said, "but those cameras do not come with the necessary external genlock and timecode inputs or remote camera control and video paint capabilities normally required in a multicam system. So we had to break some new ground."

McBride, who also served as line producer, contracted Manny Gutierrez of Good Knight Productions, Inc. to create the robotic camera heads by modifying Jimmy Jib Triangle rigs

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Baseball's New Pitch

MLB expands HD coverage, launches cell phone video streaming

by Robin Berger

LOS ANGELES

Major League Baseball demanded high definition coverage last year and got select regions to comply. This season HD coverage expanded exponentially. According to MLB, only nine teams failed to make the leap this year: the Cincinnati Reds, Cleveland Indians, Colorado Rockies, Detroit Tigers, Florida Marlins, Kansas City Royals, Los Angeles Angels at Anaheim, Pittsburgh Pirates and Washington Nationals.

Cox Communications San Diego (Padres) and NESN (Red Sox), covered 105 and 103 games respectively (see chart). And the YES Network went from zero HD games last year to 64 home games and six away games (against the Boston Red Sox and New York Mets) for the Yankees 2005 season.

Yankee Stadium's complete upgrade by June 2004 paved the way for a T-3 (DS3 45 Mbps) hookup from Verizon in early 2005. The all-HD production includes 15 Sony HDC-1500 (1080/60p multiformat) cameras plus robotic cameras (Panasonic 1080i) on the roof and backstop behind home plate, according to Ed Delaney, vice president of operations for the Yes Network.

MLB TO GO

Now that HD is taken care of, MLB is quickly moving to lucrative new media options.

MLB Advanced Media, the league's interactive media and Internet company has already built a hugely successful subscription business streaming live video from out-of-market games and selling video on an on-demand basis. MLB declined to quantify this success, but The Washington Post estimated annual revenues of "more than \$130 million from Internet game telecasts, online ticket sales and advertising."

Last season MLB became the first league to make live audio game coverage available to Sprint cell phone customers, accord-

ing to Adam Ritter, vice president of MLBAM's wireless initiative. This year, the option is also available to Cingular customers.

In addition, MLB and its tech partner, Idetic Wireless Technologies, are currently working on live video options, which they hope to have ready this season.

Jeff Annison, Idetic vice president of engineering and one of the founders of the Berkeley, Calif.-based company, said that his company is already on board with phones using the Sun Microsystems J2ME (Java 2 Platform, Micro Edition) operating system, as well as BREW and Palm OS. Applications for PocketPC and Symbian operating systems are in development.

"We have individual streams going to each one of the phones—it's not like a TV broadcast," said Annison. "Right now our initial focus is getting the best quality video to the phone. Over the next year to five years, you're going to see more interactive features, so that you can keep score, see stats, and buy your team's T-shirts or baseball caps while you're watching the game."

Idetic is probably best known for its MobiTV service, which, as advertised, turns a cell phone into a "portable TV." MLB already syndicates game highlights clips through the MobiTV package offered to Sprint and Cingular customers.

One of the partners' new initiatives is "to bring the entire game live on a mobile phone," said MLBAM's Ritter. "We're working with the carriers and location-based services so we can enforce the blackout restrictions."

Telecommunications carriers can already identify a caller's location using

their 911 services. They are moving to commercialize this capability to customers like MLB, which want to use geo-positioning services to identify customers in blacked out zones.

"We're waiting for these services to become commercially available," said Ritter, who stated the product couldn't be released until it is integrated with this feature. "We're prepared, the feeds are in place, and the applications are built."

H.264 AND 3G

In the meantime, the partners debuted the first live MLB broadcast to cell phone August 16, delivering the Toronto Blue Jays' victory over the Los Angeles Angels to Rogers Wireless' MobiTV-enabled customers throughout Canada.

"In the next couple of months you'll start to see cell phones in the U.S. market supporting H.264," said Annison. Between H.264's superior compression scheme and the concurrent rollout of 3G pipelines, he predicted a "much faster frame rate and higher quality" for 2006.

MLB also has developed a variety of programming in-house that's clip-based and expressly targeted for mobile phones.

"The clips are between one and five minutes in length," said Ritter, who referred to them as "data snacks."

Among the options available to

users are narrated highlights from any game that was played the day before ("Game-By-Game Re-caps"), or coverage focused on one player, a feature of its "Fantasy 411 Mobile" option.

The MLB's new media business has been greatly facilitated by an arrangement with its television partners wherein broadcast rights to all games revert to MLB once the game is over.

On July 25, ESPN New Media announced that it had signed an eight-year agreement with MLB granting ESPN rights to baseball video highlights on all of its new media platforms. ESPN Mobile and ESPN360 have cut-in video rights to baseball telecasts on ESPN networks, and ESPN and MLB.com share exclusive rights to sell the MLB.com subscription packages "MLB.TV" and "All Access." In addition, ESPN has the exclusive right to sell advertising associated with those packages. ■



MLB is working with Idetics to offer video streaming highlights to cell phones.

PITCHf/x Debuts

Sportvision soft-launched a new pitch-tracking special effects offering called PITCHf/x on Fox's July 12 coverage of the All Star Game.

Going beyond the company's K-Zone product, used by ESPN to track where the pitch crosses the plate, PITCHf/x tracks the ball from the pitcher's hand to the catcher's mitt. It accomplishes this by using optical tracking technology to pinpoint the ball's location along 3D coordinates.

"We can tell you how much the ball broke, its speed and the exact location—the combination of which was never known in the world of baseball," said Sportvision CEO Hank Adams. "They're all significant measures of the pitcher's art."

Knowing this information can open up endless story lines to enlighten the fans, said Adams. For instance, is a pitcher's curve ball not breaking like it did before? Or are the batters figuring it out?

Adams expects the technology to play a part some time in the post season, perhaps the World Series itself. At this writing, the company was in discussions with both Fox and ESPN.

—Robin Berger



Sportvision's PITCHf/x uses optical tracking technology to pinpoint the ball's location along 3-dimensional coordinates.

HD Baseball: 2005 Season

NETWORK/OPERATOR	TEAM	HOME	AWAY	TOTAL
Comcast Sportsnet	Cubs	30	0	30
	Orioles	47	0	47
	Phillies	43	0	43
	White Sox	47	0	47
Cox				
Communications	Padres	74	31	105
ESPN	Various	n.a.	n.a.	
FSN Northwest	Mariners	35	5	40
FSN Southwest	Astros	17	0	17
	Rangers	17	0	17
FSN North	Brewers	0	17	17
	Twins	0	17	17
NESN	Red Sox	63	40	103
Turner Sports	Braves	27	38	65
	Cubs	41	0	41
WGN	White Sox	18	0	18
YES Network	Yankees	64	6	70

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Jim Gale,
Director of Engineering, KNME



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World Radio History

Hurricane Katrina Tests Broadcasters

Gulf Coast area stations improvise in order to stay on the air

by Craig Johnston

NEW ORLEANS

Winds and water from Hurricane Katrina left a wide path of destruction in the Gulf Coast area in late August, inundating many television stations as well. However, most TV stations in the storm's path managed to stay on the air, broadcasting news reports of the devastation.

Landline and cell phone communications to much of the disaster area remained out at press time, but there were sketchy reports.

Some of the storm's highest winds battered Biloxi, Miss., but the city's WLOX stayed on the air despite losing parts of its roof over the news and sales departments. Although the station did lose an old STL tower, "we were fortunate that our [main] tower was not damaged, and our emergency generators both at the tower and at the station functioned as planned," said Jim Keelor, president and COO of owner Liberty Corp. He said all employees were reported safe.

The station's master control was operable, and news employees were able to move to hallways and other undamaged parts of the station to do their work. Keelor said the group's corporate plane made trips to Biloxi "to take in some essentials such as water, food, batteries and tarpaulins to cover the roof."

Satellite trucks from other markets were staged in Jackson and Hancock counties, where station bureaus were destroyed. A fuel truck was driven in from Texas.

As water poured through broken levees in New Orleans, it flooded stations in the low-lying city. "[At WWL] we were on the air continuously since the hurricane occurred," said Carey Hendrickson, vice president for corporate communications for owner Belo Corp.

"We were kind of hodge-podge in where we operated from," he said. "We originally had some coverage out of our television station in the French Quarter until flood water started coming in, and then we had to get out of that facility."

They were able to operate from an emergency broadcast facility at the transmitter site, located on higher ground. For a while, news operations were done in a broadcast facility at Louisiana State University and later moved to PBS station WLPB in Baton Rouge.

WDSU RELOCATES TO JACKSON

As floodwaters inundated New Orleans' WDSU, 19 of the station's employees set up shop at WAPT, its

Hearst-Argyle sister station in Jackson, Miss. A makeshift WDSU news set was constructed to give the newscasts their own identity, and the signal was sent back to the New Orleans' transmitter via satellite.



Marie Stein, a hurricane refugee from Chalmette, outside New Orleans, watches a television report on the path of Hurricane Katrina.

WDSU engineers stayed behind in New Orleans to carry equipment up to the second floor, according to Dan Milham, WDSU chief meteorologist. The station's main transmitter was under water, but a backup TV transmission facility allowed the station to continue broadcasting.

The presence of WDSU staffers in Jackson also beefed up WAPT's coverage of the hurricane aftermath, and provided familiar faces for the thousands of New Orleans residents who took shelter in Mississippi.

"Stations in the Hearst family usually end up supporting each other in an emergency such as this," said Greg Shepperd, producer for WDSU.

New Orleans' WVUE lost power to its transmitter about 9 a.m. on the day of the storm. "When we evacuated our studios, there was over a foot of standing water," said Marty Draper, vice president of engineering for owner Emmis Communications Corp. "In regards to the transmitter site, we had no visual confirmation about any status out there."

DAMAGE FEARED AT PBS STATIONS

PBS has stations throughout the hurricane-affected area, and had received sketchy or no reports from areas hardest hit. "The biggest issues were [with] WYES in New Orleans," said Edward Caleca, senior vice president of technology and operations at PBS.

"The station itself was in an area of New Orleans that would have been affected by the levee, so the best guess

is that the station will have significant damage to it, because it's probably under about five feet of water, at least, at this point."

A second station in New Orleans, WLAE, is located on higher ground, but

Caleca, when interviewed, suspected it might also have been flooded when the majority of the city was inundated with water.

PBS has seven television stations in Mississippi, and at presstime, Caleca had not heard from those in the hardest hit areas. When a public radio station in Biloxi had run low on fuel for its generator, a Good Samaritan

brought a gift of more gas to keep them on the air.

Many station employees in coastal Louisiana and Mississippi were also reported to have lost their houses to the storm.

Alabama stations that were hard hit by Hurricane Dennis in July fared better with Katrina. Because of spotty electrical utilities, many stations remained on

generator power, but there were no reports of stations being off the air.

FCC, NAB & SBE RESPOND

In the days following the disaster, the FCC approved an emergency petition from the Association of Public Television Stations (APTS) to allow public television stations to perform limited hurricane relief fundraising activities. The commission also suspended rules to allow noncommercial educational radio and TV stations in New Orleans to rebroadcast programming from commercial broadcasters to get essential information to area residents.

The FCC also extended the deadline from Sept. 7 to Sept. 28 for stations in the hurricane-affected area that were scheduled to submit certain filings and pay annual regulatory fees.

The NAB organized a campaign for the American Red Cross to provide PSAs about how to donate money for hurricane victims, and asked members to donate equipment to the television and radio stations affected by the disaster.

The SBE provided a clearinghouse on its Web site to put those who could offer assistance in touch with those who need aid. ■

Editor's note: Due to changing conditions in the region devastated by Hurricane Katrina, facts reported at presstime may not reflect situations existing when this issue of TV Technology reaches subscribers.

'Situation Abnormal,' But The Show Must Go On

NEW ORLEANS

As the WDSU news team covered the immediate aftermath of Katrina, they were unaware of whether their own station was sending out a signal. Communications were limited to landlines as cell phone networks were inaccessible. According to WDSU chief meteorologist Dan Milham, communications were "almost nonexistent."

"We do not know if we're sending out a signal from our own transmitter. We may be broadcasting... I'm not sure," he commented.

A chopper cam showed a TV tower and transmission facility under what appeared to be two feet of water. The tower showed no sign of damage. WDSU later reported that its own transmitter was under water.

A second TV transmission facility appeared to be OK. The guy wires were solid. The chopper tightly spiraled the towers, getting close shots

of as much of the structure as possible.

Milham and other WDSU anchors provided ongoing commentary over the continuous feed from the chopper, with which they apparently had no audio communications. Frustrated at times over not being able to pinpoint the location of a particular shot, Milham said, "sometimes you wish you could holler at the photographer, 'hey, take a picture of that again.' You want to get more wide shots to be able to identify landmarks, or you want to holler, 'zoom in on 1422 Frenchmen St.'"

Wearing a polo shirt and a grim expression, Milham told viewers, "If you're expecting a smooth professional broadcast, forget about it. We're just bringing you information... We're not reporting in this case. We're just reading what's been handed to us... The first order of business is human life."

Deborah McAdams

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HDTV: MAKING IT HAPPEN
World Radio History

PGA Championship Coverage Wins for CBS

Network draws on extensive experience producing golf for HDTV

by Walter Schoenknecht

SPRINGFIELD, N.J.

CBS erected a new HD production complex in the greater New York area last month—only to drive it away a mere two weeks later.

CBS Sports assembled a powerhouse collection of HD hardware to showcase golf's final premier tournament of 2005 in grand style, offering viewers HDTV pictures accompanied by 5.1 digital surround sound for its coverage of the 87th PGA Championship.

The PGA Championship, played in August at Baltusrol Golf Club in suburban Springfield, N.J., proved a testament to the new drawing power of golf. On each championship day, upwards of 35,000 fans found their way to the course, located less than 20 miles from New York City; even the three practice rounds attracted crowds of 20,000 per day.

HEAVY HD SCHEDULE

The CBS network's lineup boasts more than 30 hours per week of HD programming during its new season, and CBS Sports' contribution is a significant portion of those hours. Last year, the network's emphasis on HD was evident throughout the 2004-5 NFL football season, and this summer's coverage of the PGA Championship extended that commitment.

Golf coverage for television, however, poses very different challenges when compared to arena-based sports, including difficult terrain, long cable runs, exposure to the elements and the continual record-and-replay time shifting that day-long tournaments require. Adding the demands of HD and 5.1 surround only compounded the intricacies of broadcasting one of golf's biggest annual events.

Ken Aagaard, senior vice president of operations and production services for CBS Sports, understood exactly how big that job was. "Let me put it in perspective for you," Aagaard said. "This show is the size of a Super Bowl."

VIEW FROM THE TOP

For Aagaard and his engineering team, the key to a successful show started with the "big picture," rather than in the thousands of small details surrounding the event. "There's no magic here," Aagaard said, pointing instead to the teamwork and planning which brought cameras and sound to virtually all of Baltusrol's 7,392 yard-long Lower Course.

To cover the course, CBS used a complement of 15 Sony HDC-

900/950 1080i cameras arranged on scaffold towers, plus one on a crane-mounted aerial camera platform. Eight roving handhelds plus two movable jib cameras used RF links to reach any of three crane-mounted receivers. The tees at Baltusrol's four Par 3 holes were also fitted with point-of-view cameras.



PGA Champion Phil Mickelson on 4 misses his birdie putt during Round Three.

To provide HD switching facilities for all 31 cameras, Aagaard called in the network's big HD mobile units: the "A" truck set used for CBS' NFL coverage, NEP's SuperShooter 24; and its "B" NFL unit from CorTech, also a two-truck affair.

Other duties were alternately shared or split among a variety of other units:

Both production truck-sets were fed through CBS' "ESU" unit, responsible for acquiring, timing and shading all the RF- and fiber-delivered camera feeds before passing them on to production;

Two additional trucks managed all inbound RF signals, including wireless mics and IFBs, handheld cameras on the course, and, of course, MetLife's "Snoopy Two," the airship assigned to aerial shots; and

Two mobile editing units for promos and features produced on-site.

The production fleet was powered by a set of four trailer-sized, blimped diesel generators. "We used to use land power wherever we went, but no more," Aagaard said, citing not only improved reliability, but also the challenging of finding the massive amount of power required to run the combined mobile operation.

BEST AND BIGGEST

NEP's SuperShooter24 (SS24), built to CBS Sports' specifications, is billed as "the largest control room on the road today," and there's little about the truck to suggest otherwise. The all-HD mobile unit is actually made up of twin 53-foot "expando" trailers, with

the production control room and graphics paired together in one truck and audio sharing the second truck with tape operations.

The production space is dominated by 138 color monitors—the entire 30-foot wall of the control room—keeping all eyes focused on the game. Aagaard's PGA crew used the SS24's

Sony MVS 8000 switcher and HD DVEous to switch the CBS on-air feed, with a clean feed routed both to Turner Broadcasting's nearby truck and to a handful of international broadcasters also located in the TV

compound.

The production truck also housed the graphics department, which consisted of three Pinnacle Deko HD character generators, used primarily for simple live elements such as lower thirds, plus an SGI-based Peak Everest system for more elaborate 3D elements for the leader boards. Aagaard noted that the SGI Onyx and Everest software are due to be replaced with a Vizrt Windows-based box this Fall.

AUDIO BREAKS OUT

During a tour, Aagaard said that the proposal to split the customary pairing of audio and production into separate trucks initially met with resistance. Directors, he said, liked knowing that the mixer was near at hand. "I asked them why they wanted to keep audio in the same truck," Aagaard said, "and all they could say was, 'So I can see if he's still sitting there!'"

Aagaard prevailed, and the result was an audio space considered luxurious by truck standards—one big enough to accommodate a Calrec Alpha 5.1 digital audio console as well as a full complement of audio processing gear. Given the network's commitment to providing 5.1 surround sound alongside its HD programming, the investment of space is positioned to pay off. With full Genelec 5.1 monitoring, dual AES and analog 128x128 routers, and the 86-fader Calrec at its center, the SS24's audio complement far outstrips many land-based installations.

The main Calrec 5.1 surround mixer handled only the final broadcast

mix, with submixes farmed out to additional audio control rooms in adjacent trucks: one managed the front nine holes of the course, another the back nine, and yet another, the talent mics. Out on the links, stationary shotgun mics were stationed at key tees and holes, and nine RF parabolics added the whacks, whooshes, oohs and aahs that create a real-life golf ambience.

RIGGED FOR REPLAY

At the right-hand end of the second truck, a half-dozen production staffers sat recording play at various holes around the course, even though the day's live coverage had not yet begun. "This is the tape truck," said Aagaard, catching himself in mid-sentence: in fact, there wasn't a tape transport to be found in the compound. On board SS24, a fleet of EVS HD disk recorders did the job, both for slo-mo and archival recording, without benefit of VTRs.

Surrounded by brand new, up-to-the-minute HD and digital broadcast technology, Aagaard turned at last and introduced "Flipper." A battered, former NMT trailer, Flipper arguably provides the glue that holds the network's road shows together.

If not for a small audio control room in one end of the box, Flipper would be completely devoid of circuitry, and easily mistaken for a storage trailer. But CBS techs use Flipper to stage key gear for rapid deployment at each new location, carefully packing key cables and comm gear, for instance, noting maintenance problems, and preparing for the next CBS Sports assignment. Aagaard boasted that Flipper's crew could pack, assess and pull out mere hours after each telecast ended, arriving first on the scene at the next location and laying the groundwork for another successful broadcast.

WINNING THE GAME

CBS Sports' two week visit to Springfield, NJ netted the network a 30 percent increase in viewership over last year's PGA Championship coverage, and many credit the tough, prestigious Baltusrol course or top-rated golf pros like Tiger Woods, Phil Mickelson and Vijay Singh for the broadcast's undeniable success.

For Ken Aagaard, however, success means coordinating all the trucks, cameras, technicians, signals and logistics necessary to present world-class HD and 5.1 surround coverage of a premier golf event. Difficult? Unbelievably. But in Aagaard's own words, "There's no magic here." Just hard work. ■

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Chips

CONTINUED FROM PAGE 1

want cost savings since they have to build cheaper sets. That's where we're seeing a lot of interest in our Xileon 240 because its integrated design eliminates the need for two separate chips, making it more cost effective."

ATI is also targeting the Xileon 240 and Theater 311 VSB receiver for small-sized DTVs, D/A converter boxes and no-frills, NDCR (non-digital cable ready) applications. "Both chips have been included in our customers' proposals submitted in response to MSTV's RFQ for a terrestrial digital-to-analog set-top converter box," Gittings said. "MSTV sees the need for low-cost OTA receivers for analog sets and they are serving as a catalyst to get that market moving, and we are ready to supply chips for it."

PROMOTING ATSC

Korea-based LG Electronics, which acquired the patent on 8-VSB when it purchased Zenith in 1999, is another major player in the DTV chip market. John Taylor, vice president of public affairs for LG Electronics USA agrees with Gittings' assessment.

"The FCC DTV tuner mandate is driving down the cost of DTV tuners as the economies of scale take hold and as the volume ramps up in the industry," Taylor said. "Our company believes that by 2007, the cost of a DTV tuner will only be \$40 more than an analog tuner, and by the end of this decade, costs will be comparable."

LG's fifth-generation DTV demodulator chip has been integrated into all LG and Zenith brand DTVs, including direct and rear-view integrated HDTVs manufactured this year. In fact, Taylor explained, all of LG's large-screen plasma, LCD, DLP, and CRT TV receivers sold in the United States are now built around this chipset. "LG5" is widely regarded by broadcasters as a breakthrough single-chip demodulator that has been proven to eliminate multipath distortion that adversely affects reception with a simple indoor antenna," Taylor said.

As part of its development efforts on sixth-generation VSB chipsets, LG is working on new lower-cost DTV tuner approaches that can be used for DTV digital-to-analog converter boxes, as well as small screen DTVs.

"Existing analog sets will need converter boxes to receive those ATSC signals sent OTA when analog broadcasting ceases in the 2009 timeframe," said Taylor. "Regardless of the outcome of the debate on Capitol Hill about how best to subsidize low-income consumers that need these devices, there will be a sizeable market for D-to-A converters to help complete the DTV transition."

Currently, the ATSC broadcast standard is employed in the United States,

Canada, Mexico and South Korea. However, Taylor said, "other countries in the Western Hemisphere are watching DTV developments here in the U.S. closely as they decide whether or



The Micronas DRX-H chip is the first DTV chip on the market to incorporate technology from LINX Electronics, which it acquired in 2004.

not to adopt the ATSC standard. A drop in DTV prices, and the availability of low-cost converter boxes, will be of particular interest to poorer Latin American countries. So the increased performance of DTV tuner chips coupled with a drop in prices could favorably impact their decisions to choose ATSC."

TUNING IN TO DTV

There are three main components that comprise a DTV receiver: the tuner, which converts the off-air radio frequency signal to intermediate frequency; the demodulator, a chip-based processor that converts that IF signal to digital and outputs an MPEG transport stream; and the MPEG decoder, which translates that transport stream to outputs that will drive the display and sound cards.

In addition to ATI and LG, other DTV chip suppliers include Micronas, Zoran, Broadcom, and STMicroelectronics.

However, in the tuner IC (integrated circuit) category, Microtune is a leading supplier and pioneer of the single-chip tuner IC, which replaces "module" tuners. Module tuners, which have been used extensively for more than three decades, consist of hundreds of small components.

"Our tuners require only a relatively small number of external components, and while discrete modules may require 15-20 minutes of manual test and alignment, designs based on our ICs require no alignment whatsoever. As a result, our module partners are able to achieve much higher factory throughput using a much simpler supply chain and fewer manual operations," said Greg Zancewicz, director of broadband marketing for Microtune, in Plano, Texas.

"To date, we've shipped over 20 million silicon tuners, serving many markets, including DTV in the U.S., DVB-T [Europe and Asia], cable modems, and cable set-top boxes. We

have seen a modest increase in demand due to the DTV tuner mandate, but our customers are benefiting from the scale of our participation in these other markets."

In a very competitive marketplace, Microtune has struck partnerships with Toshiba and Samsung, which have integrated Microtune tuners in their DTV sets. Samsung's point of deployment (POD) network interface module (NIM) now contains the Microtune MicroTuner MT2121 single-chip tuner and MT1110 broadband amplifier.

"By adopting Microtune's silicon tuning technology as our core RF components, we are providing a very small, highly integrated, and low-power POD NIM that can streamline high-volume DTV production," said Chang Kap Nam, research and development group leader, Samsung Electro-Mechanics. "As the migration to DTV accelerates in the U.S., we expect a surge in demand for POD NIM integrated modules that meet FCC regulatory requirements and that deliver exceptional off-air and cable TV performance."

Microtune is also planning to enter the U.S. market for DTV converter boxes, and is developing specialized tuner chips specifically for this pure 8-VSB application.

DTV SEES NO GHOSTS

Zurich, Switzerland-based Micronas just announced DRX-H, its family of next-generation multistandard 8-VSB/QAM/QPSK/NTSC demodulator products targeting DTVs, set-top boxes, multimedia PCs, DVD recorders, PVRs, and more. DRX-H is based on proprietary PrimeD technology (developed by LINX Electronics which was acquired by Micronas in May 2004) that combines multiple echoes to create a single, stronger signal, resulting in enhanced overall reception quality.

"When the transmitter signal is blocked, chances are there'll be one or more ghosts that can be equal in strength to the main signal," said Richard Citta, chief scientist at Micronas in Chicago. "We've done testing in places like downtown Chicago where it's like a billiard game, and we have found situations where there's 100-percent ghosting [delays of the main signal]. If you filtered that out, you'd have no picture at all," said Citta. "Our technology is designed to handle full 100 percent or 0 dB [dynamic ghosts] signal conditions. It can discern the ghost from the main signal, process it, and combine them so that you end up with one good signal."

The Micronas DRX-H demodulator technology was tested by Communications Research Center (CRC), in Ottawa, Canada. When asked why chip vendors take their technology to Canada, Citta explained that CRC is a very high-quality laboratory, funded by the Canadian government, which can test products with total objectivity. "Since the ATTC in

Washington, D.C. closed, there is no longer a testing center here in the U.S.," Citta said. "Maintaining a highly accurate test bed is very expensive and CRC is set up to handle it, so vendors from the U.S. and Europe take their systems to be tested there."

PASSING THE TEST

Over the last 12 months, CRC has tested most of the next-generation demodulation chips from a variety of vendors and has found significant improvement in multipath performance compared to previous generations according to said Yiyan Wu, principal research scientist for CRC.

"We test the chips to determine if they meet the specifications on DTV receiver guidelines set forth in ATSC document A74. We also perform other tests to stress out the receivers to determine to what extent they exceed the A74 guidelines and what their upward limit is for performance," he said.

Testing is made more challenging by the fact that most vendors have adopted a "3-in-1" design that integrates VSB, QAM, and analog on a single chip, to ensure cable plug-and-play capability.

"While the demodulation chips we tested were magnitudes better than their predecessors, there is still room for further improvement with respect to multipath distortion," Wu said. "And there is room for improvement in tuners with respect to adjacent channel rejection capability. The tuner and demodulation chip play a significant role in determining how well any DTV will work."

According to Wu, there is considerable confusion in the marketplace. First, he said, "while the FCC has mandated that DTV tuners be integrated into DTV sets, there is confusion over the definition of DTV tuner. It's not one thing. It's two components: the RF tuner, which is an analog process; and the 8-VSB demodulation chip, which is digital."

"While many of the DTV makers have their own DTV tuner factories, their own tuner components are not necessarily being built into their brand of DTVs. DTV receivers often consist of components from several third-party vendors, and once the DTV is assembled, it's difficult to know which components are actually in it. Tuner chip makers themselves can't necessarily tell you which generation technology was used to make a particular chip even if you have the serial numbers and manufacture dates for the parts.

"And despite the great strides in DTV chip performance, the consumer rarely gets to compare the off-air picture quality on competing brand DTVs since consumer electronics stores feed the DTVs signals from DVD, cable, or satellite," Wu said. "DTV retailers and consumers have virtually no way to know which generation DTV tuner chips were 'stuffed in the box' and which ones would give them the best off-air reception." ■

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Newsrooms Bid Adieu to Sneakernet

Today's designs reflect workflow considerations

by Craig Johnston

SEATTLE

With apologies to the PR folks, every third press release from NAB2005 relating to television news products had the word "workflow" in it several times. "Workflow" has been the buzzword d'jour this year.

Vendors promising workflow improvements include those selling new media acquisition systems, server-based editing systems, newsroom and news automation systems.

Newsrooms wanting to achieve improvements to their workflow can't rely on technology itself; redesigning the newsroom itself is part of the equation. **TV Technology** talked with system integrators and technology vendors to find out what this means for the newsroom of tomorrow.

IT'S THE FIBER

Improvements in newsroom workflow can lead to gains in either or both of two categories: efficiencies and cost savings on the one hand, and

competitive advantages leading to increased revenue on the other.

"If you walk into a [newly designed] newsroom, in general you're not going to see them look all that much different than they've always looked," said Jeff Muhleman, vice president of sales and contracts for Digital Systems Technology (DST). "You have the assignment desk, you have the reporters sitting in all the same spots, the anchors have their offices, the weather person has his space.

"What all those people have at their fingertips now, and this is an efficiency, is more tools. They may have browse video. They have access to the Internet, and they have the ability to look at their past scripts."

In fact, the best way to sport a newly redesigned newsroom is in the type of wire it uses. "There's much less reliance on BNC cable, regular base-band video," said Johnathon Howard, principal product designer and manager of broadcast design for Avid Broadcast.

"There's a much bigger emphasis on an IT network, so an Ethernet net-

work in a facility has become much more important than it ever had. More and more, data as video is coming over that network as well, which is a good thing.

"It gives people simultaneous access like they've never had before. Late breaking video can now be touched by everyone in the newsroom over the network rather than as base-band video through the router."

Mike Parker, director of technology development for AP's ENPS, said the automation in ingest systems bring real life workflow improvements.

"The ingest systems are automatically notifying everybody else in the newsroom that material is available and has arrived," he said. "Because it's a file-based system you have more than one copy available, you no



Today's newsrooms can be redesigned so that essential functions don't necessarily have to be adjacent.

longer have people running into the newsroom saying 'hey, can I get that from you, can I use this now?'"

At the other end of the chain are workflow changes in play-to-air facilities. "Once you put the server in, the two people who ran down with a bunch of tapes under their arm, and kept putting them in and pulling them out of VTRs is gone," said Muhleman. "And it's immaterial where the actual play-out server is because

DESIGN, PAGE 22

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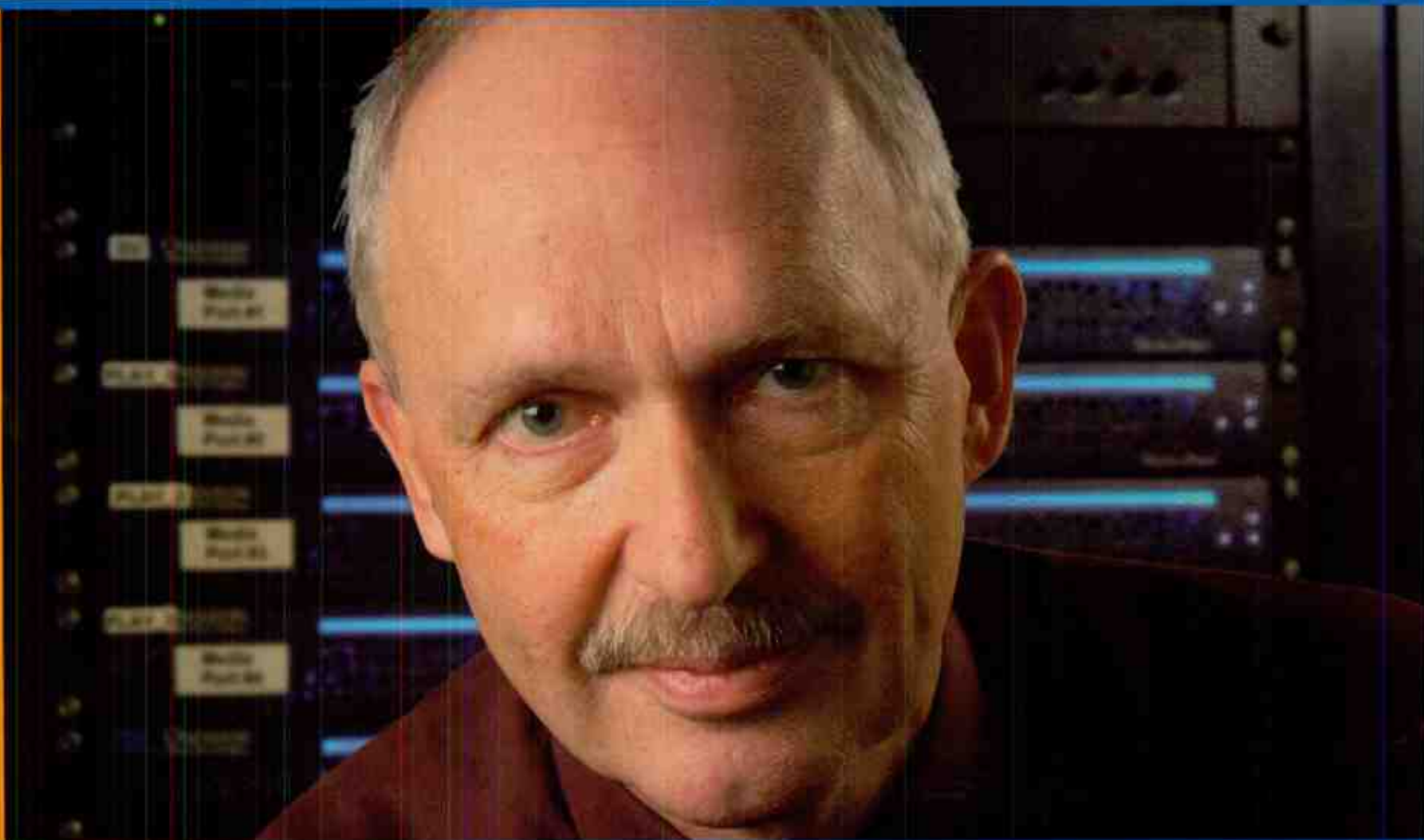
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Vice President
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Harris

CONTINUED FROM PAGE 1

END TO END

The acquisition represents one of the biggest mergers to date in the broadcast technology industry as manufacturers attempt to consolidate to provide "end to end" solutions in the DTV transition. Harris is traditionally known as a provider of broadcast transmission and automation products, although the company has recently increased its focus on asset management and other software-based technology. Leitch is famous for its master control, server and signal processing and distribution products, but has also been branching out. Over the past year-and-a-half, Leitch has purchased two companies that complement its product line: Pottstown, Penn.-based test and measurement company Videotek in 2004, and fellow Canadian graphics provider Inscribe Corp. earlier this year. Harris acquired broadcast automation provider Encoda for \$340 million a year ago.

The Leitch acquisition makes Harris the broadcast behemoth, expanding its market potential from serving a \$500 million TV sector to a \$2.4 billion market, with 3-4 percent annual growth, according to Brian R. Roub, chief financial officer for Harris Corp. Leitch has approximately 850 employees worldwide and serves more than 3,000 customers in 100 countries. Harris' broadcast division, which has announced recent layoffs and is moving production from the U.K. to establish a single transmitter manufacturing plant in Quincy, Ill., has about 1,700 employees worldwide. Broadcast revenues in its most recent quarter were \$114 million, up from \$89.1 million for the same quarter a year ago.

The deal comes on the heels of another large industry acquisition, Avid's recently completed purchase of Pinnacle Systems. In contrast to that transaction, which represented the takeover of one

video-editing powerhouse over a competitor, the Harris-Leitch merger will result in a combined company with complementary product lines.

"We don't have any product offerings that overlap with Leitch," said Jeremy C. Wensinger, president of Harris Broadcast Communications Division. "We believe this is a very exciting merger between two complementary companies," added Roub.

Wensinger said that Leitch's management team, headed by former Grass Valley chief Tim Thorsteinson, was also an important factor in the deal. Since coming onboard as president and CEO of the company 18 months ago, Thorsteinson has slashed costs and increased the company's focus on new products and acquisitions. The result has sweetened Leitch's bottom line: pro forma operating income excluding restructuring charges increased from a loss of US\$14 million in fiscal 2004 to a profit of US\$7 million in fiscal 2005, which ended April 30.

"What Tim and his team have been able to do is demonstrate that the products that they have designed and developed are paying off," Wensinger said. "They're seeing good revenue growth, they're seeing good margin expansion and this team is being rewarded in the last year; you saw with their stock price moving, that the market is seeing that."

Thorsteinson, for his part, said that Leitch's size has prevented it from effectively competing in the broadcast marketplace.

"I've believed for a while, and have been pretty public about the fact that it's very difficult to be a \$217 million global enterprise attacking the worldwide broadcast market," he said. "Whether we rolled up other companies or somebody acquired us was probably inevitable to hit the operating model we're talking about and invest in the R&D and service and support we have. Although we weren't looking for this to happen, once we started talking, it became pretty clear that there's a great strategic fit in the business and we thought it was a pretty good time to do it."

OUTSIDE THE TRANSMISSION BOX

As the industry's largest broadcast transmission provider, Harris' broadcast communications division has seen its revenues ebb and flow since the DTV transition got underway approximately seven years ago. Harris benefited greatly as broadcasters built out their digital broadcasting transmission facilities to comply with FCC deadlines (and expects to see increased business as the radio industry transitions to digital). However, as the pace of digital transmitter purchases has slowed, Harris Broadcast has been attempting to broaden its product focus. Wensinger says such prevailing opinions about Harris' outlook simplify the situation and that the digital transmitter business remains healthy.

"In terms of full power and channel selection, we believe there's about another 40 percent to go in the U.S. in terms of transmission," Wensinger said. "Even though [broadcasters] are transmitting digital, they're not transmitting at the right power level or are at the final channel selection."

Harris executives characterize the Leitch acquisition as a vote of confidence that the worldwide digital media market

will see a healthy expansion for the foreseeable future, and that the larger company will be well positioned to take advantage of increased efficiencies brought about by digital technology that will expand beyond broadcasting and into cable, satellite, telco and the Internet.

"Digital content and HD broadcasting together are changing the nature of the global broadcast industry landscape," said Roub. "Broadcasters have already made significant investments in DTV transmission capability. Now they are making significant investments in the hardware and software systems to manage and distribute their content and their HD signals through a variety of delivery alternatives, including over-the-air, cable, satellite and telephony. This will drive very attractive market growth in the range of 10-12 percent, first in the U.S. and then in the international markets."

MC MARKET GROWTH

Harris sees growth potential in the digitization of master control facilities, which also made Leitch an attractive acquisition.

"The digital media and infrastructure products provided by Leitch address large, fast growing markets," said Roub. "The underlying driver for this market growth in the broadcast segment is the conversion to HD master control and HD production studios by networks and broadcast stations."

Roub pegs the average cost of an HD master control system at approximately \$1.3 million and about \$3.3 million for a typical HD production studio. With the addition of the Leitch product line, Harris expects to be able to provide about 60 percent of the gear, or around \$2.7 million per typical installation.

"The current estimated penetration [in the U.S.], is only about 45 percent for HD master control and only about 10 percent for HD production studios," he said. "There is clearly a lot of market growth ahead of us as customers continue to move down the line of conversion."

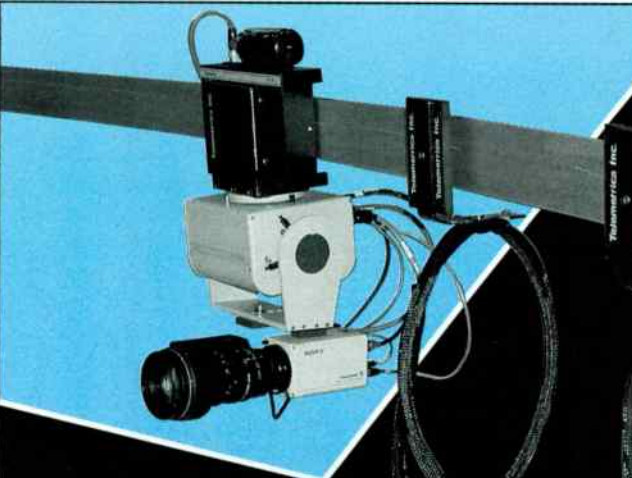
Roub adds that the Leitch purchase not only expands its addressable market, it increases Harris' revenue growth potential into adjacent sectors. While Leitch's target market has been the traditional broadcaster, Harris' most profitable customer is the U.S. government, and Harris Corp. CEO Howard Lance expects the company will quickly integrate and market the Leitch product line to this market as well as growing corporate and education sectors.

"I see opportunities for Harris to introduce Leitch products as part of the broader digital media solutions into our government base of customers, as well," Lance said. "Harris has some niches in other businesses—the enterprise space outside of broadcast—so I see both of those offering upside opportunities for the company. If you think today about the volume of digital media that the U.S. government is dealing with in DoD and Homeland Security, for example, it's becoming quite significant."

Because of the lack of redundant products, Harris Corp. executives said they don't expect many layoffs.

"There are some public-company related costs and opportunities in the general administrative area for taking advantage of our larger scale," said Lance. "There's not a large amount of overlap so we don't expect a large amount of redundancies to result."

As for the Leitch name, Lance said that while Harris expects to see some "co-branding," for the time being, the Leitch brand "has value and we will look very closely at that before making any changes." ■



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by Michael Hanish

GUILFORD, VT.

The old proverb, "The more things change, the more they stay the same," tells only part of the story for nonlinear editing these days. For editors making the move to working in any of the high-definition formats, editing will still be editing, and storytelling will still be the art it is, but there will be quite a number of new technical and workflow considerations to keep in mind in order to do the job at hand.

The constraints of space and the rapid rush of technological advancements won't permit an exhaustive discussion of all the angles of all the issues, but a few will follow (in no particular order), with a framework for continuing to think about them as things develop and change (and stay the same).

MONITORING

Monitoring issues are one of the constants, but not insurmountable. All HD is in 16:9 aspect ratio, but that is not the only consideration for setting up accurate output monitoring. The monitor needs to handle the increased pixel count, motion, and accurate color space. And one of the thorniest parts of the monitoring issue is the cost of HD CRT monitors, somewhere in the arm and a leg range.

There are alternatives. One of the most popular and cost-effective solutions is a box such as the BlackMagic Design HDLink, which will convert an

Making the Move to HD Editing

Pay attention to monitoring, storage and aspect ratio issues

HD-SDI signal to the DVI used by several LCD computer monitors, most notably the Apple 30-inch Cinema Display. In this configuration, the Cinema Display will do a 1:1 pixel mapping of the HD signal, and while the motion might not be perfect, it's not bad, the colors are quite good, resolution is up to the task, and the price doesn't approach a small municipality's annual budget.

STORAGE

Storage, both in terms of amount and speed, is another major budgetary concern. Depending on the format you are working in, capture requirements range from around 150 Mbps for 720p (8-bit compressed) to around 250 Mbps for 1080i uncompressed, the details of which can be found in the specifications of your particular NLE.

It is important to remember when configuring your system, that these figures are for raw data rates; actual throughput, playing back the streams, requires about 35 percent more than that. For this reason, most NLEs specify the highest speeds of Ultra SCSI or Fibre Channel raids (RAID 0 and RAID 5 configurations), from manufacturers such as Rourke Data, Medea, Huge, and Apple (XServe).

A relatively new and lower cost development comes in the form of SATA RAID, available fully configured or as kits (controller card and enclosures that you can populate with drives) from VARs such as ProMax. These arrays can sustain compressed HD rates, but are only RAID 0 (no redundancy) at present.

Size matters in storage as well. Most NLE configurations start their specs at 1 TB of storage, which, depending on the kinds of projects that pass through the system, can be the tip of the iceberg. On average, with variances for different compressors, NTSC 8-bit 1080i HD requires about 450 GB per hour, 10-bit 1080i

requires about 600 GB per hour (PAL requires about 15 percent less space). Add to those requirements roughly 200 GB per hour if your work requires alpha channel for compositing. Suddenly, if your work involves any kind of longer-form video, a terabyte looks like chump change.

At these sizes, archiving and

One technique that many editors of longer form video are using to conserve space requirements is to work in SD, 16:9 of course, and, when the piece is finalized, redigitize to HD resolution. Not only does this reduce storage requirements, it relaxes the system throughput required of the storage system and CPU, allowing for



Most editing for HD television programs still involves protecting for 4:3 aspect ratio.

backup become real concerns as well. Drives die, projects must be revisited and revised later; there are all sorts of reasons for needing to back up the media as well as the project files. For data security, RAID 5 striping is highly recommended. This mode uses parts of the physical drives in the array for mirroring to maintain data backups; if a drive fails, the array can be rebuilt rather painlessly with a minimum of data loss (as opposed to RAID 0, wherein data is written across all drives, and when one fails, the entire array is usually totally corrupted).

Needless to say, most archiving methods are impractical for the large amounts of data that comprise HD projects. With FireWire drives becoming so large and inexpensive, many project editors are using them in hot-swappable enclosures for data backup and retrieval. Look to manufacturers like WiebeTech and Granite Digital for solutions.

better playback, more layers/streams, and better and more stable performance in general. This is a part of the feature set of most NLEs, and can be easily accomplished as long as the source tapes are accurately time code-locked to the control mechanism of the NLE.

PROTECTING FOR 4:3

Another very important consideration in HD production in the immediate future, from the editor's viewpoint, is protecting the image for 4:3 SD output. In a perfect world, the transition to HD would be accompanied by the simultaneous delivery to all viewers of full resolution HDTV sets. Until that day arrives, we have to plan for the fact that a sizeable number of viewers will be seeing our HD, 16:9 productions within the confines of SD 4:3 monitors. Planning for 4:3 protection should start with image acquisition, making sure the DP frames the shots with a 4:3 crop in mind. Protection continues with making sure graphics and titles are within the 4:3 safe area.

It is far easier and cheaper to pay attention to these details, as much as possible, earlier in the production rather than later. In short, and in spite of the marketing hype, the move to HD is evolution rather than revolution. ■

Michael Hanish reviews production gear for TV Technology and runs Free Lunch, a video/audio/multimedia production house a few miles outside Guilford, Vt.

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Design

CONTINUED FROM PAGE 16

play-out is handled through your news production control."

Old rules about which functions had to be close to each other may be immaterial in the modern newsroom, said National Teleconsultants vice president Ed Hobson.

"It may be that we have a show that's in an entirely different building, but the play-out role, the electronic files and all, are on a server somewhere and it doesn't matter that they're not adjacent."

The newsroom of today and the newsroom of the future promises desktop editing, where, labor agreements permitting, anyone can cut together a news story. Does this mean

a newsroom is designed without dedicated edit bays? Those we talked to suggested there would be fewer dedicated edit bays, but no one suggested they would disappear entirely.

"I think you will still have the dedicated edit bays for several reasons," said Parker. "One, for more sophisticated edits you just need more space, and that means bigger monitors with more desktop space."

He listed tasks like audio correction and sweetening as well as video correction as jobs better done in a dedicated edit bay. And as more editing happens on the desktop, it can become a noisier environment, requiring headsets be used to monitor audio.

"When somebody really needs to concentrate, either as an individual or a small team, [it] can probably be accomplished better in a room designed for people to sit down and collaborate on something."

Still, reporters, writers and producers having desktop access to the video, pulling cuts ahead of time can pay dividends, said Howard.

"What we see happening a lot is people are more productive upstream, so editors have much more time to focus on what they do best, which is basically finesse and make their packages look first grade."

LOOK BEFORE YOU LEAP

While equipment vendors might understandably disagree, system integrators warn against picking a technology before a deeper look into what needs to be accomplished.

"People get wowed by the technology solution without getting anybody to tell them what question it's answering," said DST's Muhleman. "If you want to talk about efficiency, and changes to workflow, you have to ask the right question first, otherwise you're just adding a new technology."

Scott Griffin, director of engineering for The Systems Group (TSG), laid out the basic path for designing workflow into a newsroom. "When creating workflow, you set out to understand fully what the output of the facility is, what the deliverable is."

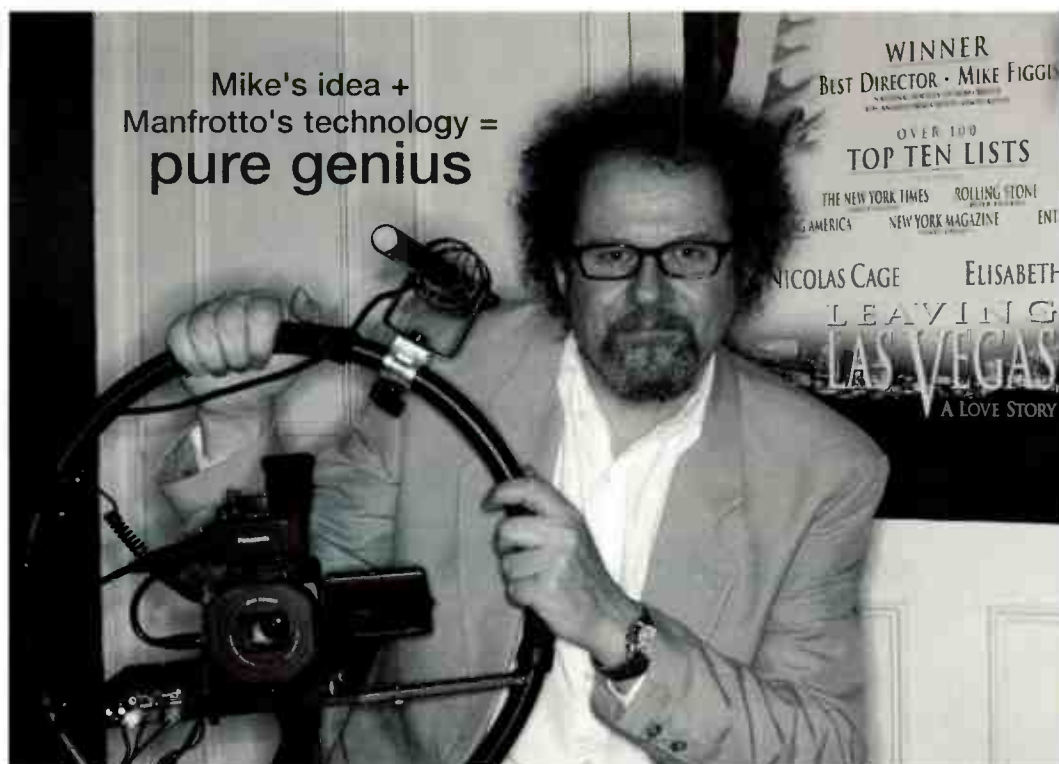
He said from there he works back to two other factors: staffing expectations and operational preferences, and finally to a draft budget.

"Then depending upon whether the client's jaw hits the floor or everything is taken in stride, you can either finish on the first or second iteration, or you have to go deeper."

Hobson said the investigation that goes on in a newsroom design can point to duplication of efforts.

"You may have these silos in an organization, or people who are working very hard on their specific program, and they may not be aware what else is going on in the building," he said. "This could be work that's being duplicated, with a loss of time and money there."

TSG's Griffin pointed to three realities in redesigning a newsroom. "What's possible by technology is not necessarily what's possible in the labor environment. What's possible by technology is not necessarily what's possible in a budget perspective. What's also possible from a technology perspective is not necessarily a slam dunk for a given operation." ■



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Switchers: One-Stop Production Shops

Digital turns switchers into all-in-one devices

by Mary C. Gruszka

NEW YORK

When is a video production switcher not only a video switcher? When it's a DVE, DDR, still store, frame sync, proc amp, format converter, color corrector, editor, machine controller, camera control unit, robotic camera controller, monitor wall interface, and coffee maker, (just kidding about the coffee maker; everyone knows that you shouldn't have beverages anywhere near the switchers).

What is true is that video switchers, aided by advances in electronics with field programmable gate arrays and digital signal processors, are internalizing functions and features that formerly could only be provided by external devices, and at the same time

For-A VPS-700 Ginga 1M/E SD switcher is that it contains up to 16 frame syncs built-in (with the 16-input version).

"You can adjust the video level and clip function for each of the inputs," said Ken Truong, technical manager, for the Cypress, Calif.-based company.

The VPS-700 comes with six keyers, and can be outfitted with an optional 2D DVE for every input as well as six channels of 3D DVE. The switcher also includes a combiner function to mix the multi-DVE window images.

"Two still stores are standard," Truong said. "There is a USB port for importing graphics, or you can capture pictures from one of the switcher outputs. With the built-in frame store, you can freeze any of the inputs and store the image to use as a still."

The switcher is housed in a 2 RU



WSPF-TV staff Bergis Petsch (l) and Shay Brumbaugh direct a St. Petersburg, Fla. city meeting from the station's new digital control room, using the new For-A Hanabi HVS-1000HS HD/SD video switcher.

are becoming smaller, lighter, and less power consumptive.

"Features like DVE are now becoming internal in the switcher," said Jeff Moore, vice president of marketing and sales for Ross Video in Iroquois, Ontario. "Having the DVE internal to each M/E gives operators a great deal of flexibility and allows them to get a more sophisticated look on-air."

The Ross Synergy 4 MD digital production switcher has a four-channel HD DVE (called Squeeze & Tease WARP) and four channels of still store on each M/E (mix/effects bus), Moore said. In addition the switcher has three global still stores.

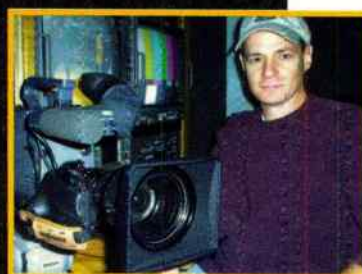
One of main features of the new

frame. "We have other switchers with DVE built-in, but never before have we had a switcher with up to 16 frame syncs, 16 proc amps and clip, and up to six channels of 3D DVE built-in," Truong said. "With the 16-channel board, you get 32 DVEs built in if all the [optional] boards are installed."

For-A also makes the HVS-1000HS 1 M/E HD/SD switcher available in two versions—HVS-1000EOU for editing and in-studio and the HVS-1000LOU for live production. One DVE card is standard and an optional DVE card can be installed. For SD, each card provides two channels of DVE, while for HD, one DVE channel.

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"Our clients love the quality, and our operators have found the 26X Thales Angenieux lenses great for handheld camera work because they deliver the extra range we want for sports coverage while providing that extra degree of mobility," concluded Mr. Fain.

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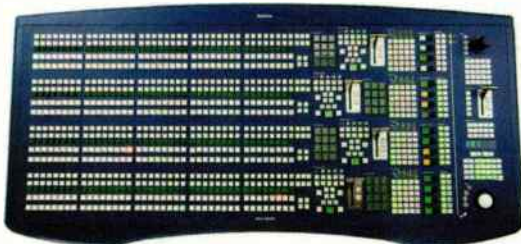
Switchers

CONTINUED FROM PAGE 23

SIDE FLAGS

The Sony MVS8000A switcher can use up to eight channels of internal or external 3D DME (the Sony term for digital effects) that includes video and key channels.

Paul Greene, product manager, live production systems for Sony Electronics said that it can be a challenge to work with 4:3 in a 16:9 world. A feature of the MVS8000A



Snell & Wilcox introduced its Kahuna SD/HD switcher at NAB2005

called "side flags," "allows 4:3 to be seamlessly used in 16:9," Greene said. "It adds side flags as part of the image beyond 4:3, and it does this without

tying up other effects generators."

The side picture material can be used for ads, promos, credits, additional shots for a sporting event, and can include graphics and live video.

As a new option, the switcher can be turned into a linear editor.

"You can create a show live to tape or live to air, and then post it later with the [switcher's] edit system," Greene said. "The benefits of the linear world, is that you don't have to digitize everything to just change a cut." The switcher as editor can also support up to 16 channels of audio, according to Greene.

Examples of applications include adding iso camera feeds or archival material into the DVD version of a concert video, or to enhance a production after the live feed, as for the Olympics.

With the Snell & Wilcox Kahuna line of digital video production

switchers, "we've really focused on integrating features in the switcher," said John Shike, vice president of marketing and channel management

for Snell & Wilcox.

Kahuna includes four re-size engines per M/E. "With the re-size engine, a TD can adjust the aspect ratio of any source," Shike said. Kahuna offers an option of up to two 3D twin-channel DVEs, and incorporates a color corrector.

"It's remarkable on how much capability you have on a single M/E," said Ken Schneider, program manager for Kahuna. "There's a full 2D DVE on every M/E and up to four frame stores."

Kahuna can store clips within the switcher. "It gives the switcher the capability of doing animated wipes, like between replays and the live game," Schneider said. "In Kahuna Clip Transition, the animation resides in the switcher and it automatically syncs the clip with the wipe. It helps the TD especially in the sporting world by lessening the setup time and allowing them to do complex effects on the fly."

Mark Narveson, director of product marketing for live production solutions at Grass Valley predicts even more animation graphics being used in production, and the need for layering effects within the switcher itself.



Grass Valley has released a new, larger 8 RU Kayak HD chassis and has added more M/E capabilities.

"We provide the unique capability of an internal animation-capable still store," he said. The internal logo generator can do rotating logos.

Grass Valley makes the Kalypso and Zodiac switchers and the new Kayak HD in 1, 1.5 or 2 M/E configurations. The company announced at IBC a 2.5 and 3 M/E version of the Kayak HD.

The Ikegami HSS-300 multi-format production switcher offers two-channel simple DVE or an optional two-channel 3D DVE for each M/E.

The Echolab Nova1932x SD 2.5 M/E switcher includes two dynamically assigned DVEs and two DVE

SWITCHERS, PAGE 26

Switchers Ready for HD Transition

SD now, HD later? No problem. Switcher manufacturers are helping customers get the most out of their video switcher investment.

Snell & Wilcox is "seeing an interest by customers in embracing digital in both SD and HD," Shike said. "Most people can't afford to make the complete transition all at one time. Most people do it piece by piece and don't want to lose the functionality of equipment they bought a year ago."

To this end, Snell & Wilcox developed the Kahuna line of switcher products. "The Kahuna product line is able to integrate both SD and HD sources and create outputs as necessary in SD or HD or simultaneously SD and HD," Shike said. "We have the technology [called Format Fusion] to do that without requiring external conversion, so customers can continue to use SD equipment that they have as they move to HD. Also, since Kahuna outputs SD and HD, it makes it easy to switch a dual channel show."

Prices have been dropping enough that, "customers who budgeted for an SD product are now buying a multi-definition production switcher," Moore said. "A lot of them will leap to HD while others will start in SD and over the lifespan of their switcher go to HD."

Moore said that the Ross Video Synergy "works in all popular formats that customers would want, and sells for the same as an SD production switcher sold for a couple of years ago." The customer selects one of these formats as the operating format.

To handle video in other formats, Ross Video has built in "smart conversion," which acts like tielines, Moore said, to automatically switch in an external converter via the aux bus. "This allows for shared resources," Moore said, where converters are not dedicated to a particular source.

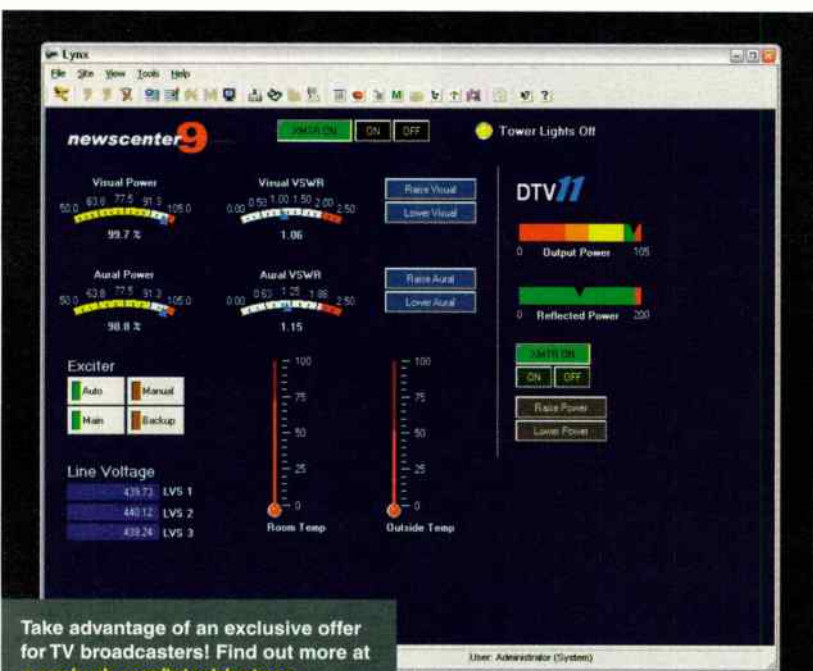
And if a customer wants to shift from SD to HD, the HD features are already built-in. "We ship our product HD-capable right out of the box," Moore said.

One of the newer switchers in the Sony lineup is the MFS2000, that comes in a 1 M/E or 1.5 M/E version. "The MFS2000 is multi-format from its inception, but it is available in an SD configuration only," Greene said. "It has the HD capabilities, but they are disabled by software. When a customer wants to upgrade to HD, they would buy a software key to unlock the HD capability."

Mary C. Gruszka



The SD-only MFS2000 upgrades to HD by unlocking a software key.



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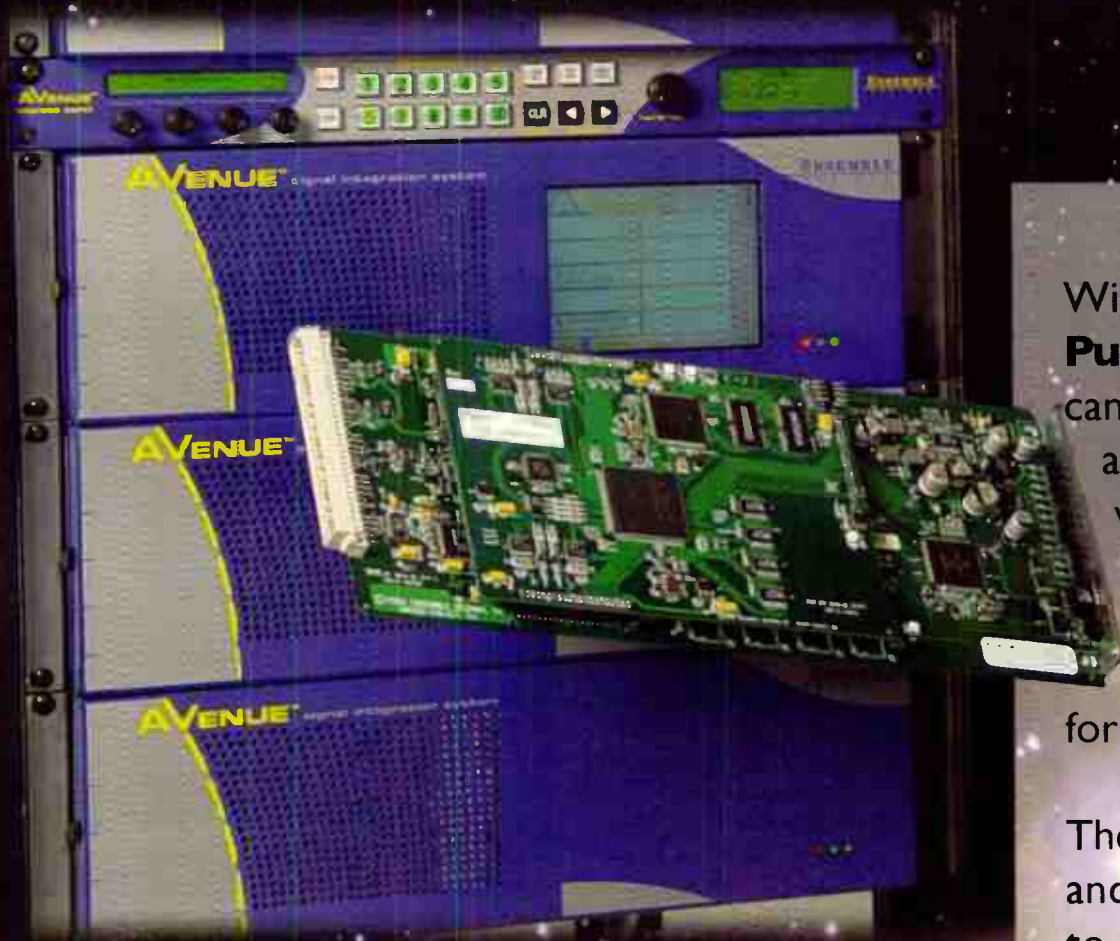
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Switchers

CONTINUED FROM PAGE 24

border color generators.

"We're coming out with a new internal multichannel 3D DVE, but what makes the feature unique is that we can't have to send our customers a new circuit board," said John Antretter, president of Billerica, Mass.-

based EchoLab. "The chassis is not hardware-centered; it's one big semiconductor so we can add a very robust feature set at a very low cost. [To add features such as DVEs], other companies would have to send you a new circuit board, but because of our architecture, you can just download the new feature. And because of the lower cost, we're bringing broadcast-quality switching to other markets

such as the government and educational sectors."

OUTSIDE THE BOX

Even as more processing and effects functions become an internal part of the video switcher, greater connectivity to the outside world adds even more power to these products.

Grass Valley will soon have avail-

able its Newton control system for installation inside the Kalypso and Zodiac switchers.

"Newton is the control system for our modular products," Narveson said. "With it we put the control parameters in the realm of the TD to make changes in [such modular products as] aspect ratio converters or SD/HD converters."

Grass Valley is starting to integrate camera control within the switcher as well, and demonstrated this function at NAB2005 and IBC.

"We are looking at these kinds of efficiencies to make our products work better," Narveson said. "In some cases you don't need a dedicated control panel for shading. The TD can do the entire shading at the switcher."

Ross Video Synergy switchers include interfaces for video servers that let the TD "read into the server to get the clip list and play the clip from the switcher," Moore said. Other interfaces include the Telemetrics camera robotics system, Yamaha audio mixer, and the Chyron Aprisa still store. "We control character generators like the Chyron Inscribe. The TD can call up the template and put in text, all from the production switcher," Moore said.

Synergy switchers operate on Linux and incorporate networking capability. "It's easy to drop graphics into the system," Moore said. "And it's nice for clients, as there is not an ongoing license fee and we have access to the source code to make sure it works right."

RESOURCE SHARING

The Sony MVS system can control a variety of external devices like DDRs, VTRs, or ESAM-II audio consoles.

The Snell & Wilcox Kahuna can build machine control from macros, which can be recorded to any button on the switcher, Schneider said. External control extends to routing switchers to allow Kahuna to read in router mnemonics.

Snell recently announced that it has worked with PESA Switching Systems to develop an interface linking the PESA 3500PRO router control and the Kahuna. The interface streamlines operations by allowing the TD in the production control room to access any input of PESA's Cheetah multirate video router directly from the Kahuna control surface.

All the new built-in functions of today's video switchers can only add to the complexity of already complex yet creative functions. "We provide the TD with a lot of capability, but it is important to make the process easy," Shike said.

And as Grass Valley's Narveson said, "it's not just the features, but the user interface that lets the TD switch effects with confidence." ■

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TUNING IN

Gary Arlen

How Many Tuner Enforcers Does It Take?

Let me know if you see an FCC enforcement sleuth lurking around your neighborhood electronics retail store, probing for contra-band TV sets without the mandated digital TV tuners. Or if you're hanging around the docks where TV receivers

http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-121A1.doc.

Inquiries to the FCC generated predictable platitudes about having "a number of avenues available" to go after manufacturers or importers who do not comply with the rules. But

20 percent of showroom floor samples included the necessary DTV reception capability.

Retailers and wholesalers say they are merely moving products through the distribution pipelines. Their warehouses of existing stock do not fall

the reality emerges.

"While we understand the general scope of the new requirement, CBP and FCC have not finalized how this particular requirement, and the actual technical specifications will be enforced for imported televisions," according to a customs office statement. "The agencies will be exploring these regulatory options in the near future."

This confession came nearly a month after the rules took effect. Admittedly, the customs agents, who are now part of the Department of Homeland Security, have had other priorities to confront since 2002, when the tuner mandate rules began to evolve.

(By the way, when you're dealing with the customs office, the bureaucracy has many layers. It's not just CBP, but the Office of Field Operations within the Office of Trade Compliance and Facilitation, which is part of CPB, which is part of DHS. No wonder it took a week to get a reply.)

Meanwhile, back at the FCC Enforcement Bureau, which is charged with making sure that TV set manufactur-

ers comply with the rules, a spokesman said the agency already has the tools to handle compliance. Again, there's a quick transition to vague bureaucratese to describe possible actions against those who resist. The FCC said it may start by "issuing citations before assessing fines" if or when its video cops identify companies that are not complying with the tuner mandate.

To be fair, TV set makers seem to be fulfilling their end of the bargain, with DTV tuners built into the sets as required. But the major manufacturers

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"... CBP and FCC have not finalized how this particular requirement, and the actual technical specifications will be enforced for imported televisions."

—U.S. Customs and Border Protection

are brought ashore, maybe you'll spot federal customs agents poking through shipping crates to make sure all the ATSC tuners are where they should be.

Naaah. Probably not.

After the angst and legal skirmishes about an accelerated timetable for DTV tuners in TV sets of specific sizes, the process comes down to "What's in that box?" As it turns out, enforcement plans for the tuner mandate are still very murky, months after the latest rules took effect. In fact, the FCC's ruling (its June modification of the tuner mandate deadlines) has nothing specific to say about enforcement or penalties:

there's nothing specific about prohibitions or penalties.

One FCC official informally acknowledged that he was "pleasantly surprised" that electronics dealers have been putting DTV tuner-equipped sets on their shelves.

Of course, since the regulations do not apply to retailers, there is no simple way to monitor whether half of mid-size TV sets and all large-screen sets entering the distribution chain include built-in DTV tuners as required.

Several informal surveys in late July—nearly a month after the mandate took effect—indicated that barely

under the FCC's DTV mandate.

Meanwhile, the enforcers over at U.S. Customs and Border Protection are also still trying to figure out how to protect America from TV sets that lack DTV tuners.

It took a week for a customs spokesperson to find an answer to my question about the agency's enforcement of the tuner mandate rule. Again, the reply started with a collegial acknowledgement that, "CBP and FCC (sic) work very closely on a number of issues related to the importation of FCC regulated items."

But then, in well-honed officialese,



DIGITAL TV

Charles W. Rhodes

Poised at the Great Analog/DTV Divide

While many broadcasters may wish that DTV was not about to replace analog terrestrial broadcasting, that is unrealistic. Broadcast spectrum is going to be reduced dramatically and soon. The main question now is what to do about homes that have neither CATV or DBS service. Those homes can only be reached by terrestrial broadcast signals.

MSTV and NAB are now requesting proposals for a set-top converter to allow analog receivers to continue to provide free over-the-air television

service by transcoding DTV signals into NTSC signals on an RF carrier. I believe they hope to demonstrate that this is commercially feasible at a cost of around \$50. As this converter offers the consumer no new service, it will have to be subsidized by taxpayers. At the \$50 level, some think this may be a politically acceptable compromise. The plan is to subsidize up to 10 million such converters for households with incomes less than twice the official poverty level. The potential market for these converters

is sure to attract the attention of manufacturers. If this effort by MSTV and NAB proves that \$50 is possible by 2008, such a program will probably proceed and by 2009, there will be no longer any need for analog terrestrial broadcasting.

The public has not been told that the end of analog terrestrial broadcasting is only a few years away. In fact, about 20 million analog TV sets per year are being bought by consumers who haven't heard that these sets will cease to function unless they

have CATV or DBS service. The problem is that for the public, there is no perceived benefit to buy a DTV receiver unless it provides large, widescreen high-definition pictures. This is why there are so few DTV converters on the market.

Our DTV system transmits almost 20 million bits of data per second. Using only a tiny fraction of this capacity, emergency alarms could be sounded and emergency information provided to the communities served by terrestrial TV stations automatically. Automatic emergency alarm transmission systems have been around for half-a-century but until now, they all depended on a radio receiver being turned on and at a reasonable volume to receive the alarm.

With the introduction of terrestrial DTV broadcasting, the receiver can monitor incoming data for emergency

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Tuner

CONTINUED FROM PAGE 27

recognize market uncertainty when they see it. Many set makers are adopting what they consider an appropriate posture. Although largely undocumented at this early stage, manufacturers are shipping more monitors without any tuners. Using an escape clause in

the FCC rules, the manufacturers can opt to leave out analog tuners, and therefore not be compelled to install digital tuners into TV sets—giving customers a lower price and forcing them to use their cable or satellite receivers to pick up transmitted video.

Although electronics industry lobbyists are trying not to gloat about the enforcement imbroglio, they quietly point out that they had warned the

FCC that there would be problems with the accelerated tuner mandate timetable. The requirement that 50 percent of sets with 25- to 36-inch screens must have a DTV tuner as of July 1, 2005, was considered particularly onerous since it was expected to be hard to tally shipments.

That's why set makers wanted to compromise on a March 1, 2006, date for all mid-sized sets.

The government's methodology for gauging DTV tuner compliance is also still a point of contention. Electronics companies had sought a formula based on the number of models that included DTV tuners rather than the universe of all TV sets. For example, when the FCC adopted its V-chip requirement, the introductory phase was measured by the number of models that included the feature, no matter how many sets of that particular model actually sold.

With DTV tuners, the measure is based on all TV sets—a more challenging barrier since manufacturers cannot predict which models will sell well.

Maybe the video police will have their enforcement prospects under better control when the next wave of DTV tuner mandates kick in. All mid-size sets must have DTV tuners by March. The FCC's latest proposed rulemaking (which accompanied the June regulations) suggests that all sets larger than 13 inches must have a DTV tuner by Dec. 31, 2006, which was scooped up from the original date of June 30, 2007.

Luckily for the DTV enforcers, they won't have to go hunting for the tiniest TV sets (with screens smaller than 13 inches). Or maybe they will. Small sets (including handheld receivers that you might take into a sports event) were exempt from the DTV tuner rules. But the latest round of rulemaking opens the possibility that those sets, too, must have built-in DTV reception, despite claims that other technologies (such as mobile video streaming) are better suited for portable, small-screen TVs.

CRACKDOWN COMING?

FCC officials were characteristically vague about how they will make sure that Americans aren't misled into buying new TV sets that don't have DTV tuners. Various bureaucrats told me they will "conduct investigations" and look at advertising, Web sites and other promotional vehicles to determine whether TV sets include the mandated DTV capabilities.

But they were quite guarded about whether their plans have been approved by—or will need the blessing of—FCC Chairman Kevin Martin.

Meanwhile, the deadline shifts impose other burdens on set makers, who are about to begin final designs for their 2006 holiday season products. Claiming they need 12- to 16-month lead times, the manufacturers are demanding clarity about the DTV tuner timetables.

The video cops on this case not only lack clarity. For now, they seem to be inspired by the visions of Mack Sennett and the competence of Inspector Jacques Clouseau. ■

Gary Arlen, president of Arlen Communications Inc., Bethesda, Md., has faced off against the video police for nearly three decades. He can be reached at GArlen@columnist.com.



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THE MASKED ENGINEER

Mario Orazio

It's High Time to Make DTV Work

You might not have noticed that summer's over. Congress is back in session, and it's time to knuckle down and complete the DTV transition.

To figure out how, our elected legislators hold hearings. Folks representing most commercial interests are

invited to be "witnesses." They spout off. They are questioned. They are ignored. Methinks legislators must consider them more witless than witness, and the feeling's probably mutual.

So I figure it's my patriotic duty to provide a road map to the end of the

transition. There are a bazillion places to start, but I'm a stickler for safety first, last, and in between, so I'll begin there.

Try as I might, I can't come up with any reason why 700 MHz is the ideal frequency for public-safety radios. Yes, it's probably better than 18 GHz, but why is it better than 200 to 400 MHz, where there ain't any TV stations to displace—TV stations that deliver critical public safety info when there are hurricanes, floods, tornados, and other stuff like that there?

Folks pushing the public safety reason to shut down analog TV talk about 9/11, but if I read the reports correctly, the communications failures on that day weren't attributed to frequency use. But I ain't the world's greatest expert on such matters, so I'll grant that some team of mad scientists working in a fake ivory tower somewhere has decided that TV channels 63, 64, 68, and 69 are the most ideal for public-safety communications.

Okay. Public safety radio has been sharing TV spectrum for a long time. Why can't they continue to do so? There are somewhere around 50 analog TV allocations on those four channels out of around 1,750 analog TV stations nationwide. So, for public safety, I favor the Senate version of

last year's Intelligence Reform (good name) bill. If public safety officials in a market request that those channels be vacated in their market, so be it. If they don't, that's okay, too. Maybe the Lowry, S.D. fire department will decide it doesn't really need TV Channel 68.

I've got a plan for the few stations that might be displaced, too. There are a bunch more allocations than stations on air. So we squeeze any stations forced off the air by public safety into those, and the government pays the costs of new transmitters, antennas, installation, and promotion. It'll cost a heck of a lot less than the billions they were proposing for DTV "adapters" for consumers.

Next, broadcasters want cable and satellite carriage of full multicasts. Cable and satellite say they ain't got the bandwidth. Satellite, at least until they get all the spot beams working, just might be right. But for both cable and satellite, there ain't any bandwidth difference between a station carrying HD and one multicasting. So, if they're willing to carry the HD, they've got enough bandwidth for the multicasting.

Methinks the real issue is competition. If a CBS station multicasts MTV, Nickelodeon, and Showtime and an ABC station multicasts ESPN programming, well then cable and satellite might lose some business. So here's my plan.

A cable or satellite op able to carry a station's HD will have to carry, under the same must-carry/retransmission consent rules that currently apply to analog stations, any free-to-view multicasts that do not duplicate other cable/satellite programming being carried at the time of the agreement. For pay-to-view programming, broadcasters will have to pay a percentage of gross receipts from the payments. For duplicated cable/satellite programming, they've got to negotiate carriage, and there's no cap on what cable/satellite ops get to charge.

As for analog/digital duplicate carriage, that won't apply to satellite at all (which is already all-digital). For cable ops, if they're carrying any channels both analog and digital, then they have to do the same for broadcasts, but they don't need to carry any multicasts in analog form (on account of that, for sure, eats up bandwidth).

MILK FROM A NOSE

That gets me to receivers. If it were up to me, I wouldn't have had any "tuner mandate," but there's no use crying about milk already squirted from a nose, so, for sets 36 inches and up, let's keep it.

But, to make things meaningful, let's add some receiver standards. If we're going to have adjacent-chan-

DTV, PAGE 34

Folks pushing the public safety reason to shut down analog TV talk about 9/11, but if I read the reports correctly, the communications failures on that day weren't attributed to frequency use.



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Divide

CONTINUED FROM PAGE 27

alarms on a 24/7 basis. Only a small portion of the receiver needs power to do this—probably no more than an electric clock. When an alarm is broadcast locally, the receiver could emit an sound and automatically turn on the display electronics. A family so awakened would see the nature of the emergency on their TV screen and see or hear instructions on what to do. Most of that infrastructure is already in place; what is missing is the continuous monitoring and auto alarm feature.

These features could be incorporated into the taxpayer-subsidized DTV converter box that may soon be distributed nationwide. If 10 million homes were so equipped, the public would demand that retail DTV receivers offer this feature. Therefore, in less than a

on-screen, and could be heard if the volume were not muted. The only cost element would be the audible and visual alarm—a large red LED on the converter. To make this work, the ATSC should assign packet headers for emergency messages. In that way, all manufacturers can incorporate software to activate the alarms when emergency headers are detected.

In a slightly more elaborate implementation, when an emergency message header is detected by the converter, software embedded in it prompts it to search for the same emergency message header on the other local channels.

If the converter finds more than one station is transmitting this emergency message header, it then sounds the alarm. In this way, a glitch in one station will not cause false alarms. The converter would use a majority vote logic routine to verify that a real emergency

With the introduction of terrestrial DTV broadcasting, the receiver can monitor incoming data for emergency alarms on a 24/7 basis.

decade, nearly every home would have automatic emergency message alarm and monitoring, justifying the subsidization of these first 10 million converters. This is a case where the technology has arrived at exactly the time it will be most needed.

This idea of an automatic monitoring system is not new. Before World War II, RCA designed and manufactured a special Cold Cathode Relay, the 0A4-G, which could react to a burst of RF power fed through the power line to close a relay to turn on radios etc.

Today we can do much more. We can put appropriate emergency messages on the screen of every home in the local community where it is needed, and we can do it in less than a decade. Surely this justifies the subsidization of the first such receivers to be mass produced. Here is an opportunity for broadcasters to get behind a program that inherently depends on their unique position in the community.

Here is how I visualize it: The DTV converter is always on and always tuned to a local DTV channel. That said, it must be decoding the DTV datastream to downconvert the audio and video data for existing NTSC receivers, should such receivers be on. When an emergency alert packet header is received, perhaps four or five times consecutively, the converter circuitry activates audible and visual alarms.

It would not turn on the NTSC receiver; the emergency header would alert people to turn on their TV set. The emergency message would appear

header is being transmitted by more than one local station, preventing broadcasters from sounding false alarms.

If broadcasters adopted this concept, I believe that receiver manufacturers would design them to automatically turn on in the event of receiving emergency headers on more than one channel. Let's see where this leads. Even those homes having a legacy DTV receiver would likely buy converters so second and third sets could receive programming after the "sunset of NTSC."

Thus, legacy receiver homes would have this public service available to them. Homes served by a CATV system would receive the emergency header and thus those homes would also receive this public service, unless the CATV system deletes such message headers—an unthinkable action.

Americans buy approximately 20 million TV receivers a year. The average life of a TV set is said to be eight years. Thus, within a decade, nearly every family could have this public service.

I hope this idea is taken seriously by broadcasters, and that they petition the ATSC to allot certain emergency data headers. Broadcasters are the only ones who can offer this vital public service. I hope my readers will take this up with station management. ■

Charlie Rhodes is a consultant in the field of television broadcast technologies and planning. He can be reached via e-mail at charleswrhodes@worldnet.att.net.



SBE REPORT

Dane E. Ericksen

Television BAS Regulatory Update

It has been busy times at the FCC when it comes to TV Broadcast Auxiliary Service issues. Here's an update of recent developments that will likely have an impact on your TV BAS operations.

A July 29, 2005 public notice from the Wireless Telecommunications Bureau provided guidance on licensing procedures for 2 GHz TV BAS stations transitioning from the old band plan (with six 17-MHz analog channels and one 18-MHz analog channel) to the new band plan (with seven 12-MHz digital channels). By way of review, Nextel Corp. has 31.5 months from the Jan. 21, 2005, effective date of the Report & Order (WT Docket 02-55) to complete the transition.

The transition will be in two stages, with stage one being completed no later than 19.5 months from the effective date, and stage two being completed no later than 31.5 months from the effective date. TV BAS operations at 2 GHz, as well as Cable Television Relay Service

and Local Television Transmission Service stations will be transitioned in market clusters so that interrelated markets will be converted together.

Nextel has established eight regions in the United States to accomplish this. For a map of these regions, visit www.2ghzrelocation.com/plugin/template/broadcast1/Plan%20and%20Schedule.

The transition will involve three steps:

- Operate on the old channel plan with existing wide analog channels,
- Operate on the old channel plan with new digital and narrower channels ("narrow in place"), and
- Operate on the new channel plan with narrower digital channels.

Because of these steps, normal Universal Licensing Service (ULS) procedures would require multiple license modifications, which would additionally have to be carefully timed. To avoid this, the WTB has adopted special provisions for 2 GHz TV BAS stations that will apply during

the transition period.

Each 2 GHz TV BAS licensee will still be required to file FCC Form 601 to document and obtain authority to

operate with any of the authorized parameters (analog and/or digital, wide and/or narrow channels). This "any combination" authority will terminate after the transition to the new band plan. It is critical that a 2 GHz TV BAS licensee file a certification of completion of construction (FCC Form 601, Schedule K) to let the commission know when conversion is completed. This filing must occur within 18 months of the license grant date.

There may be exceptions to the above-described "any combination"

It appears that a golden opportunity to update all 2 GHz TV pickup licenses to also show the locations and heights of associated ENG receive-only sites is going to be missed.

What a shame.

transition from the old to the new band plan, and from analog to digital operation. This filing should be done as soon as possible.

However, only a single Form 601 filing will be required for the first three steps. During the transition period, the commission will permit licensees who have filed a transition Form 601 to

authority. TV BAS licensees operating within 56.3 kilometers (35 miles) of international borders may require prior coordination with the neighboring administration, and are not eligible for the automatic conditional authority provision of new Section 74.25 of the FCC Rules (adopted by the ET Docket

BAS, PAGE 40

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FOCUS ON EDITING

Jay Ankeney

Avid Rolls Out Native HDV Editing

Earlier this month at IBC, Avid announced new versions of software that will enable editing HDV in its native format. Although a shipping HDV editing product from Avid was notably absent at NAB2005 while several other edit system manufacturers were loudly touting their native HDV editing capabilities, Avid executives repeatedly told me they were "waiting until we got it right."

Now with the release of software Version 2.2 for Avid Media Composer Adrenaline HD and Version 5.2 for Avid Xpress Pro systems, the edit system responsible for posting more than 90 percent of all edited primetime television programming, has entered the native HDV editing arena. We got one of the first looks at how they are doing it.

Avid demonstrated HDV editing at four booths during NAB2005 and has been giving previews of cutting native HDV at road shows and regional exhibitions all year. But the company



A screen shot from new versions of Avid Media Composer and Xpress Pro for HDV showing multicamera, multiformat editing.

wanted to work out all the bugs before releasing its final software to the public.

"While to most customers, HDV is a new format, to Avid editors, it needs to be treated with the real-time flexibility we have always handled other formats," said Tim Wilson, senior product marketing manager for Avid Technology. "One of the foundations of

Avid-style editing is the ability to deal with both multiple formats and multiple resolutions in the same sequence, so the ability to handle SD and HD on the same timeline when incorporating HDV is critical."

The new software does not require HDV to be transcoded to the

timeline's base resolution or into a proprietary intermediary format for editing. The resulting efficiency is staying native without disrupting the original I-, B-, P-frame MPEG-2 sequence.

"The monkey in the wrench is that HDV uses long-GOP [group of pictures] recording, which is fundamentally different from the notion of

cutting on the open frame since its information is derived over a period of time and extracted from frames of lesser size," Wilson said. "So with these two very different approaches to media, it is not shocking that most other NLEs can't deal with both kinds of video at the same time. In addition, our software will be able to natively post both the Sony interlaced version of HDV and the 24p recording that JVC calls ProHD."

HOW IT WORKS

So let's look under the hood. First, transfer the transport stream of the recorded HDV into the Avid Xpress Pro or Media Composer Adrenaline HD system via FireWire, and then do a real-time inverse multiplex to separate out the audio and video. The elementary video stream is laid onto the hard drive and the sound is decompressed from the MPEG-1 (48 kHz, 16-bit) audio recording on the tape.

During editing, the I-B-P sequence of each cut is put onto the timeline and then, as Patrick McLean, senior product manager for Avid Xpress products explained, the magic begins.

"We bring it in under the general moniker of 'open timeline' so we can mix and match resolutions," he said. "The key to this is our new DNxHD mastering quality codec for HD, and it

HDV PAGE 42

DTV

CONTINUED FROM PAGE 30

nel DTV stations in a single market, let's have receivers that can select one from another. I nominate

Charlie Rhodes for receiver-standards czar.

Below 36 inches, though, let's dump the mandate. A list I check sometimes shows 25-inch TVs advertised for under \$100, and I've already ranted here about 5-inch sets going for \$15 includ-

ing shipping. Methinks there are enough TVs 36 inches and up sold to drive development of receiver circuits. Let's not double the price of TVs for unsuspecting consumers.

Speaking of unsuspecting consumers, part of my plan, if it wasn't

obvious from the beginning, is eliminating any "hard" date for shutting off analog TV. There's a good reason folks use that word "hard" to describe it. But someday those stations will be shut down, and most consumers ain't got a clue it's going to happen.

So, as emperor of the DTV transition, I hereby ordain a label on every single device with an analog TV tuner, but no digital reception, starting six months from now, explaining to consumers that there will come a day when that tuner will cease to function and an "adapter" will be needed at extra cost.

I ain't done. It will be illegal for anyone to call a TV "digital" that doesn't have any more digital circuitry in it than a nondigital TV. And it will also be illegal to call a TV "HDTV" if its screen doesn't have a 16:9 aspect ratio. Those edicts will also become effective in six months on account of I'm a benevolent despot.

As for the wireless industry, which wants the rest of 700 MHz vacated, I urge them to follow in Qualcomm's footsteps and pay analog broadcasters to go off the air. Okay? Is everybody happy? ■

Mario Orazio is the pseudonym of a well-known television engineer who wishes to remain anonymous. E-mail him at Mario_Orazio@imaspub.com.

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COUNT ON IT

André V. Mendes

Garbage In...Considering Content Quality Control

In my last column, I described the initial stages of a five-year project designed to bring traffic and scheduling at PBS in line with the more rigorous demands of a new media world. After a lengthy phase to identify requirements and an exhaustive search for an off-the-shelf package, we came to the painful conclusion that no such package existed and we would be better off writing our new system from scratch.

ONE BYTE AT A TIME

Anybody who has ever managed complex software development will tell you the best way to negotiate such a large project is to break it into smaller chunks. Introduce changes gradually while you continue to monitor, balance and incorporate developing factors such as industry changes, technological advances and of course, evolving budgetary realities.

With that in mind, we started our development. After much discussion (read "arguing") with our lead consultants about platforms, we made our first set of critical "no going back" decisions and settled on a combination of Windows servers, MS SQL database back-end and the .NET development environment.

I am still amazed at how otherwise intelligent people continue to believe

old tales about these platforms even in the presence of massive amounts of information to the contrary. But that's material for another column.

Next we had to decide which portion of the system to tackle first. Since one of the project tenets entailed the

and, if properly implemented and used, it enables the automation of the majority of the downstream processes at PBS and, later in the sequence of events, at our member stations.

This brings us to this column's title and one of my biggest pet peeves. A

An enormous number of people in broadcasting believe it is impossible to get content producers to create content that is technically within specifications, delivered in a timely manner and coherent with its own metadata.

creation of a metadata-driven workflow and the use of best practices from supply chain methodologies, we started at the beginning of the content cycle with a system we called "Orion," which appropriately enough means "the breaking forth of light."

This portion of the project focused on the acquisition of program metadata from our producers via a Web interface accessible from our corporate Intranet. It gathers data on upcoming programs

hundred out of 100 people will tell you that the ending to "garbage in" is indeed "garbage out." Yet an enormous number of people in broadcasting believe it is impossible to get content producers to create content that is technically within specifications, delivered in a timely manner and coherent with its own metadata.

While this might be true in a tape-based and real-time environment where you must quality-check every

step, it becomes absolutely anathema in a server-based digital file handling and distribution environment.

Lest we forget, the same exact process evolution and reliance on upstream quality control has taken place in every single manufacturing environment throughout the land. Imagine, if you will, a General Motors auto assembly plant that has to check every component of an automobile provided by a third party before it sends it to dealers; or a Mitsubishi factory stopped in its tracks because the tire manufacturer is late on this week's delivery. In these days of razor thin margins and global competition, these



companies would be hard-pressed to remain viable.

I would like to believe that these immensely creative people that produce such amazing content would indeed appreciate the elegance associated with the entirely automated workflow that this accuracy would enable. Maybe I am naive, but I am convinced that when given the proper tools and education about the substantial efficiencies that their initial and relatively minor effort will bring to bear, producers and distributors will respond in-kind, embrace the concepts and ultimately make them work.

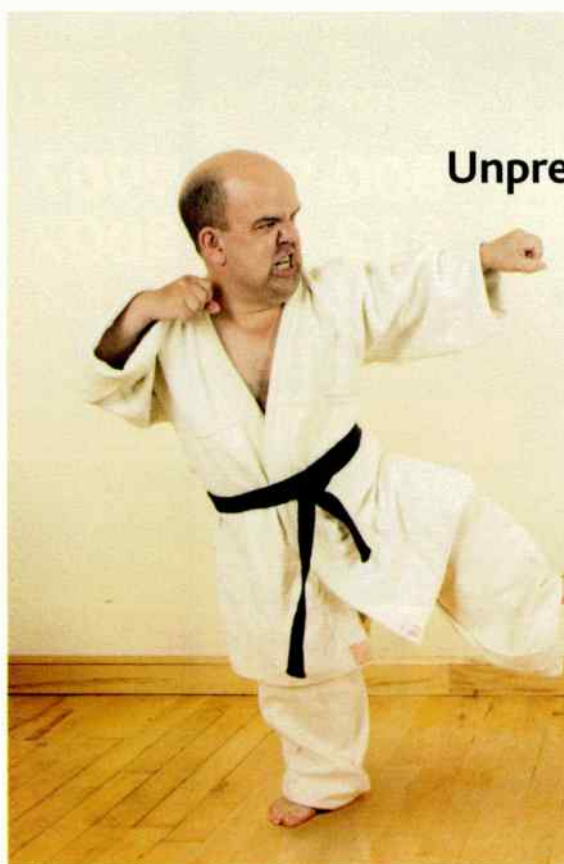
So, after a couple years of development, testing and training, we launched the first iteration of Orion. Although it opened to mixed reviews, over time and with the implementation of user suggestions, Orion became the initial entry point for PBS-distributed, program-related information.

As we prepare to go live with the next iteration of Orion, the stakes will increase again. We are asking content producers to enter frame-accurate metadata and complete distribution rights information, and to have closed captions ready.

Only time will tell if we can get to our ultimate goal, but I can assure you that we are going to continually drive this quest for overall supply chain efficiency throughout our system.

Count on IT!

André V. Mendes is the Chief Technology Integration Officer for PBS, based in Alexandria, Va. He can be reached c/o TV Technology.



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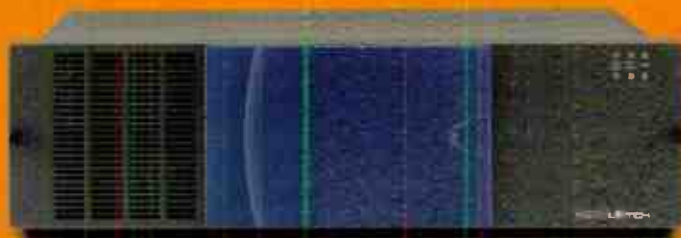
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THE BIG PICTURE

Frank Beacham

Seeing the Forest Beyond the Trees

To fully understand the broad implications of any new technology, it's important to see the forest—not just the trees. That's common sense, one might think, until it comes down to trying to separate the forest from the tree people.

In the first 20 years of television's analog-to-digital transition, the tree people—usually with something to sell or a status quo to maintain—have tried to block a clear view of the forest. Along the way, their delusions have sold the equivalent of several Brooklyn Bridges.

Yet, there have been a few visionaries along the way who resisted the distractions and brought genuine clarity to where this transition is headed. One bastion of "forestry" was the Media Lab at the Massachusetts Institute of Technology.

A decade ago, when the Media Lab was the epicenter of research into futuristic digital television technology, it was the target of ridicule by many

traditional broadcasters. The vision of the lab's leaders, men such as Nicholas Negroponte and Andrew Lippman, was written off as naive pie-in-the-sky.

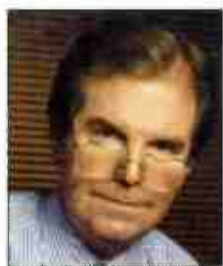
Time, however, has been on the side of these bold thinkers. Their "paperback movie" became the DVD, the most successful digital video technology in the world. And now, their predictions about personalized media are rapidly coming true. The people of the Media Lab "got it" long before most of us even learned to use a Web browser.

MOBILE MEDIA

The "forest," in essence, allows the personal access and use of any media on demand, anywhere, anytime. As it applies to television, it means the viewer can watch and interact with any

program of choice at any moment on a wide range of devices.

The end game—fully personalized, on-demand media—was a clear, articu-



Nicholas Negroponte, founding chairman of the MIT Media Lab

"None of us really goes home at night and agonizes with our spouses about picture quality. We agonize about programming."

—Nicholas Negroponte

lated vision. It's wasn't pie in the sky after all. The difficulty has come in implementing it on a wide scale.

Finally, we are well on the way to implementing this vision, though there are still no shortage of wannabe gatekeepers who would like to control the menu of our media choices. The good

news is they will probably lose.

The winners—not necessarily any of today's brand name players—will provide a reliable pipeline with low-cost bandwidth that will serve any content offering to anyone who desires it. That pipeline will probably consist of some networked combination of fiber and wireless technology.

Forget the concept of channels, primetime, or sweeps. All of it will eventually fade away. In a world of endless bandwidth and universal access, the kid who makes a personal

desktop video in his bedroom should have equal distribution opportunities to corporations such as Time Warner and Viacom.

Back in 1993, I interviewed Nicholas Negroponte, the Media Lab founder, for this publication. That was the era when John Malone's "500 chan-

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nels" and Al Gore's "information super-highway" were being bandied about at media events.

Forget this hype, Negroponte told the readers of *TV Technology*, all the viewer wants is the right television program at the right moment.

"You don't want 500 channels in your home. You really want one channel in your home," he said. "You just want it to be the right channel. I want to see the lines on that highway rotated 90 degrees so that I don't receive 500 channels, but I receive a single channel in 1/500th the amount of time.

"Zooming down that pipe will be a little packet with my name on it," Negroponte continued. "It will come out like personalized packaged media I can play at my leisure in my VCR. This is very different from radiating 500 channels."

Those words were spoken in 1993. No one talked about IPTV back then. In fact, most of us were yet to use the Internet in a serious way. Negroponte's ideas were fresh and radical. But his predictions didn't end there.

This idea of receiving personalized on-demand media "assumes a receiver that has sufficient memory and intelligence to absorb these packets," Negroponte observed. Again, bingo, that receiver—when streaming media was announced two years later—would become the personal computer.

Yet, as I look back over Negroponte's predictions, it's uncanny how accurate he was in naming who would first deliver his vision to American homes. It would be a telephone company, he predicted—specifically Bell Atlantic, the company now known as Verizon.

Last year, Verizon became the first American company to begin an ambitious project to wire its customers with fiber-optic cable. Later this year, it expects to begin delivering telephony, high-speed Internet and video-on-demand to subscribers. Back in 1993, Negroponte termed this video delivery concept "thin-wire television."

The telco will deliver "a single channel of video-on-demand," Negroponte predicted. "That interests me much more than 500 channels because I know that at the server end, there could be not 500 but 10,000 programs. Now, if you took the cable strategy, you could radiate all 10,000 and you choose just one. That's silly. I'm going to choose the one at the transmitter and then tell Bell Atlantic—or whoever the provider is—to deliver it to me now in real time and literally on demand."

It's also interesting to note Negroponte's predictions about HDTV. In the larger digital media scenario, he saw HD as a secondary technology. "None of us really goes home at night and agonizes with our spouses about picture quality. We agonize about programming," he observed.

Where HDTV does appeal, he sug-

gested, is for special events—such as big sports contests—when a high-resolution image is desirable. For this extra resolution, viewers might pay a premium.

"You might pay-per-view, per bit. Say you have a 3,000-line display at home and a big sporting event is coming up on Sunday afternoon. A lot of friends are coming over to watch. In this case, you might want to pay more to receive

more bits for a higher resolution picture of the sporting event. But it's unclear to me that you would want to pay more... when watching the news."

Finally, Negroponte predicted the demise of the traditional TV set and set-top box, predicting open architecture display systems that could be configured to the media choices of the end user.

"The advice I'd offer is to stay tuned to the general purpose computing

environment," he said. "Your TV set is very likely to have an IBM or Apple logo on it, and you'll find that the general purpose computing environment will be very friendly to video and audio. Some of the special purpose equipment that we've been accustomed to is going to lose its significance." ■

Frank Beacham is a New York City-based writer and producer.

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BAS

CONTINUED FROM PAGE 33

01-75 rulemaking to update and harmonize the Part 74 BAS rules with the commission's Part 101 Private Operational Fixed Service rules).

Other exceptions to automatic conditional authority are operations near a radio quiet zone and applications requesting a rule waiver.

In this writer's view, the July 29 public notice has a giant missing step, namely, to allow TV pickup station licensees filing Form 601 applications to document their eventual new digital operation, and to document the location(s) and height(s) of ENG central receive sites. The SBE first proposed this modification to the ULS in July 2001. When the Nov. 13, 2002, ET 01-75 Report & Order ruled this request as "outside the

scope of the rulemaking," SBE filed a Petition for Partial Reconsideration in April 2003.

In October 2003, the commission re-affirmed its original decision, but invited the SBE to submit a petition for rulemaking or to work informally with the WTB staff to get the ULS changed to allow broadcasters to amend TV pickup licenses to show the locations and heights of ENG receive-only sites. Because of the

other services on bands adjacent to the 2 GHz TV BAS, such as Personal Communication Service (PCS), Advanced Wireless Service (AWS) and Nextel base stations, many with equivalent isotropic radiated powers of up to 1,600 watts, it is imperative that data on the geographic location and heights of ENG receive-only sites be available in the ULS be geographically searchable by interested parties.

For example, a PCS operator should be able to go into the ULS and search a given radius around a specified set of geographic coordinates, to see if there is an ENG receive-only site close to a planned PCS base station. If so, an alternative PCS base station site could be chosen, or, if that is not practical, mitigation measures such as special filters and brute force overload tolerant preamplifiers could be retrofitted to the ENG central receiver prior to the PCS site commencing operation.

Unfortunately, the SBE's informal efforts to convince the FCC to modify the ULS have gotten nowhere. Apparently, the issue is one of costs associated with modifying the ULS software. But this writer has to ask what part of "universal" doesn't the FCC understand? If BAS licensees are forced to use a one-form-fits-all system (as opposed to the prior, BAS-specific Form 313), then it would seem that the commission has a responsibility to ensure that the form really is "universal." So it appears that a golden opportunity to update all 2 GHz TV pickup licenses to also show the locations and heights of associated ENG receive-only sites is going to be missed. What a shame.

GLOBALSTAR

Globalstar has filed applications to implement its MSS ATC operations in the 10 largest cities in the United States. That operation will be at 2,487.5 to 2,493 MHz, which will be co-channelled with grandfathered TV BAS Channel A10 at 2,483.5 to 2,500 MHz.

These are mutually exclusive uses. TV pickup operations on Channel A10 and MSS ATC base stations cannot operate in the same area at the same time. SBE has filed informal objections to these applications on the grounds that they are premature, and that MSS ATC must not be allowed to commence until Channel A10 TV BAS licensees have been relocated to a non-co-channel band.

SBE has a pending Petition for Reconsideration to IB Docket 02-364 that proposes a solution—one that would also solve the Channel A10 conflict with newly created BRS Channel 1 at 2,496 to 2,502 MHz. For a copy of the SBE proposal, visit www.sbe.org. ■

Dane E. Ericksen, P.E., CSTRE, CBNT, is chairman of the SBE FCC Liaison Committee and of the ATSC TSG/S3 Specialist Group on Digital ENG.

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HDV

CONTINUED FROM PAGE 34

really compliments HDV during the editing process. If we tried rendering effects or adding titles using the HDV codec, the results would not look very good. But DNxHD can run at different data rates from 145 Mbps to 220 Mbps, the same as uncompressed standard-definition video. So by using DNxHD as the codec we can not only add graphics and effects to HDV cleanly, but also distribute mastering quality HD over a network designed for SD."

To ensure a frame-accurate edit from clip one to clip two, while clip one is playing, the new Avid software decodes the I-B-P sequence of clip two in the background. That way, when the cut point is reached, the system has all the information necessary to display clip two starting at the chosen frame, regardless of where that point lands in the I-B-P cadence.

"If you want to cut on a B-frame, for example, we essentially pre-roll clip two, decoding it from the last I-frame to baseband video," McLean said. "Once the editing process has been completed, we rebuild the whole sequence on the timeline in the format the user requests, and this will take some rendering upon output."

Although the new Avid software can combine different resolutions on the same timeline, different frame rates are still a challenge. You cannot put a native 24p clip on a 30i timeline.

Still, McLean assures us the system can edit the JVC 24p format in a 24 fps project, and Avid demonstrated that ability at the JVC booth at NAB2005. It

to a standard HD format such as Sony HDCAM, or Panasonic D-5 or DVCPRO HD. McLean speculated that a third option on the horizon is the next-generation blue-laser optical media, the HD DVD and Blu-ray discs.

"Neither of those is fully formalized yet, but this should kick in early next year," he said. "HDV authoring on

with the Sundance Film Festival in Park City, Utah.

Benjamin is cutting HDV on a 3.2 GHz single processor Hewlett-Packard platform, and said his system edits the HD recordings with the same speed he's accustomed to with standard DV.

"Avid has integrated the features very well into the expected Avid editing processes," he said. "We're using the same Sony HVR-Z1U that we shot with to load material into the edit system, and the software's deck control over FireWire has worked flawlessly.

You just have to remember to bypass the Mojo accelerator on the Xpress Pro when capturing, the same as you would have to when loading DVCPRO HD. However, during editing, Mojo downconverts my output to SD on the fly, so my director can simultaneously see the footage on a standard-definition monitor while I view the high-definition sequences on my computer screen."

So the long-awaited native HDV editing from Avid has arrived, and it is already in the hands of working editors. Expect more news on the HDV front between now and NAB2006. ■

Jay Ankeney is a freelance editor and post-production consultant based in Los Angeles. Write him at 220 39th St. (upper), Manhattan Beach, Calif. 90266 or at JayAnkeney@aol.com.

"By using DNxHD as the codec, we can not only add graphics and effects to HDV cleanly, but also distribute mastering quality HD over a network designed for SD."

—Patrick McLean, Avid

also supports 1080i/60 and 1080i/50, 720p/60, 720p/29.97 (the first-generation of HDV from JVC) and 720p/23.976, the format for the new JVC GY-HD100U ProHD camcorder.

However, there is currently no widely available workflow to distribute HDV. You could record your edited program onto an HDV deck like the JVC BR-HD50U, but the most common approach is to output from a Media Composer Adrenaline HD running Version 2.2 software via HD/SDI

blue-laser discs may offer significant possibilities for distributing HDV-originated material in the not-so-distant future."

Out in Hollywood, David Benjamin is using Version 5.2 in his Avid Xpress Pro system to cut the indie feature "Team Extreme," directed by Jeff Burkett, about radical roller skaters and skateboarders. It's scheduled to be shown on the Fuel cable network and at next year's X-Dance Action Sports Film Festival that runs concurrently

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Municipalities Become Broadband Battleground

You could see this one coming years away. Wi-Fi began its steady proliferation. Equipment costs plummeted while larger and larger hot spots began popping up in airports, coffee shops and campuses. It was only a matter of time before the notion of scaling up to a citywide service-built credibility.

Now, municipalities across the United States, from Philadelphia and San Francisco to LaFayette, La., have begun announcing plans for low-cost or free Wi-Fi networks. Some proponents are touting economic boosts while others see a powerful tool to address the digital divide that shackles poverty-stricken areas.

Meanwhile, cable and DSL providers are using size and legislative clout to fight the competitive public network threat. These companies aren't just getting bigger—Verizon is completing its \$6.7 billion link-up with MCI while SBC gobbles up AT&T for \$16 billion—they're also uniting in powerful lobbying efforts that steamroll local grassroots campaigns for low-cost or free service.

The controversy pits the principle of egalitarian information access against the mantras of free enterprise. Its resolution could define our nation's socioeconomic structure for decades to come.

There are now 14 states where municipal networks have been banned or curbed, to the delight of local phone and cable providers, whose PR operatives are touting "safeguards" (an Orwellian term if there ever was one) that include preventing cities from using taxpayer money to fund networks, requiring a public vote before construction (a great opportunity to bias the vote with an expensive ad campaign), and forcing equal tax burdens on city-owned networks.

Even without the lobbying, the legal field has tilted in favor of the private interests. Last year, the U.S. Supreme Court ruled that states have the right to pass laws restricting or prohibiting cities and towns from building telecommunications networks that compete with private firms.

Now the legal struggle has climaxed with two competing bills in Congress. The Community Broadband Act of 2005, proposed by Sens. John McCain (R-Ariz.) and Frank Lautenberg (D-N.J.), would guarantee municipalities the right to build telecommunication networks. Opposing it is a bill by Rep. Pete Sessions (R-Texas) prohibiting cities from operating communications networks that com-

pete against private companies. That Sessions is a former SBC execu-

tive, and that the cable and telcos are pouring millions into lobbying efforts

at the federal, state and community levels, simply stinks.

If we put aside misguided utopianism as well as revulsion towards corporate lobbying, the arguments on both sides warrant serious consideration. Because metropolitan Wi-Fi networks are in their infancy, questions dominate this debate.

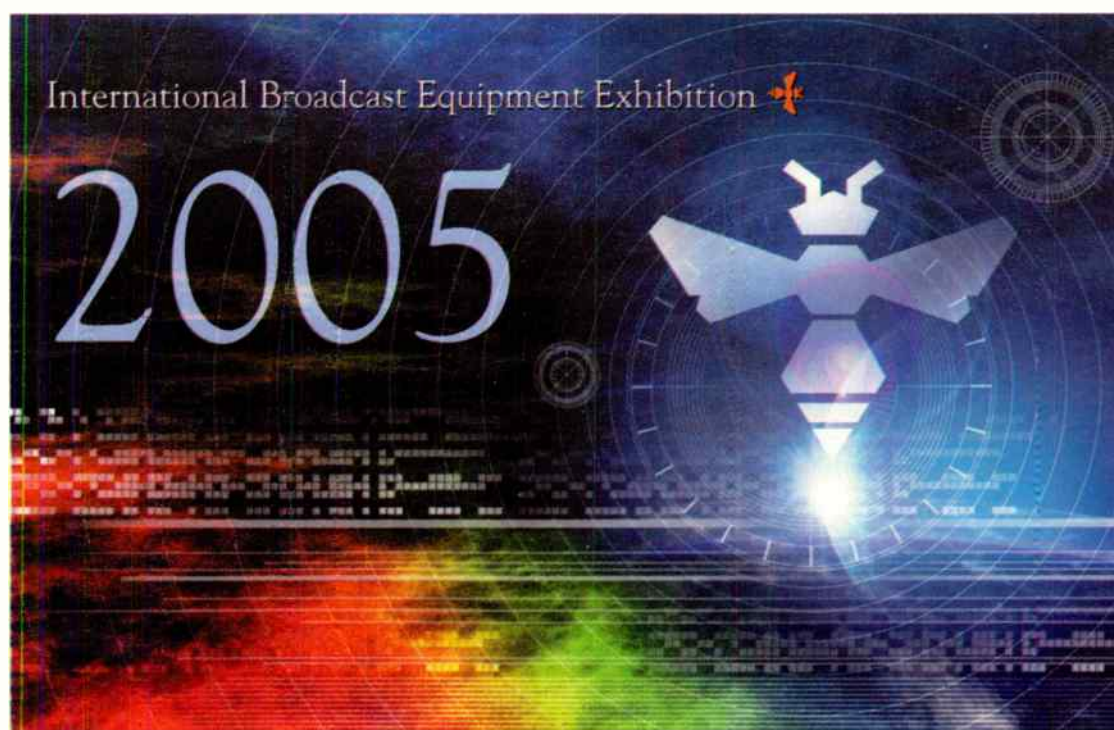
Interference is the primary concern raised by technology experts. Municipal

BATTLEGROUND PAGE 44

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- Satellite Broadcasting Systems ● Virtual Systems
- CG Production Systems ● DVD Systems
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- Multiplex Broadcasting Systems ● Others

Battleground

CONTINUED FROM PAGE 43

Wi-Fi relies on unregulated 2.4 MHz spectrum typically used by a range of other devices, from portable phones to microwaves, as well as Wi-Fi networks run by homes, businesses and universities. Interference can severely degrade performance by causing dropped packets, which increases error rates and puts greater strain on routers.

Whether Philadelphia, the first major public network to launch, can overcome interference and other technological issues, including network security, remains to be seen.

WILL IT COST TOO MUCH?

At \$20 to \$25 per home passed, Wi-Fi rollouts seem reasonably priced. Philadelphia, with just over a half-million households, figures its total project cost at \$10 million to 15 million. Compared to hundreds of millions to build a publicly funded ballpark with dubious economic and social benefits, this seems like a great deal.

But critics point out that launching a network is the easy part. Operating it effectively, protecting it from security threats, bandwidth hogs and interference handicaps, will cost money and require expertise municipalities simply don't have.

The digital divide is very real. Philadelphia city officials point out that 75 to 85 percent of their minority and low-income areas don't subscribe to broadband, and the vast majority of those polled cite cost as the primary reason.

These officials estimate that the \$10 million spent on the project could generate up to \$2 million in savings on telecommunications bills, which could be tabbed for other social programs.



But legal and economic experts debate whether a more effective way to reach disadvantaged city residents would be to rely on "consumer demand pull" by handing out vouchers that could be spent on broadband.

Other cities, such as Lafayette, La., in which voters recently pushed for-

ward with a network, cite the need to reinforce an information infrastructure to stimulate jobs. Backers also say city services themselves will become more efficient as they take advantage of broadband connections.

THE RIGHT TO BUILD?

This rekindled public-versus-private debate has festered throughout our nation's history.

Is the movement of information

**Because metro
Wi-Fi networks
are in their
infancy,
questions
dominate this
debate.**

through a tug-of-war in the early 19th century until it became the first major federal bureaucracy, which was run so efficiently it was the envy of the globe. Now it's facing steep competition from overnight delivery services.

Which leads to the final question:

CAN WE COMPROMISE?

What's lacking in most of the ongoing scenarios is cooperation between public and private sectors. While this may appear to be insurmountable—critics say there's just too much incentive for cities to legislatively favor their network over private competitors—there are some proposals by which cities will invest in the infrastructure and companies will run the network at a reasonable profit.

My sense is that in a fair democracy, the vast majority of U.S. citizens would favor allowing municipalities to chart their own broadband course, private enterprise be damned. Cable and telephone companies spent decades with veritable monopolies generating ill will.

If we lived in a fair democracy, this would surely come home to roost. But I'm not sure we do or it will. ■

Will Workman is a former senior editor of Cable World magazine and editor of MediaView, a monthly newsletter for the Asian cable industry. You can reach Will at wworkman@aol.com.



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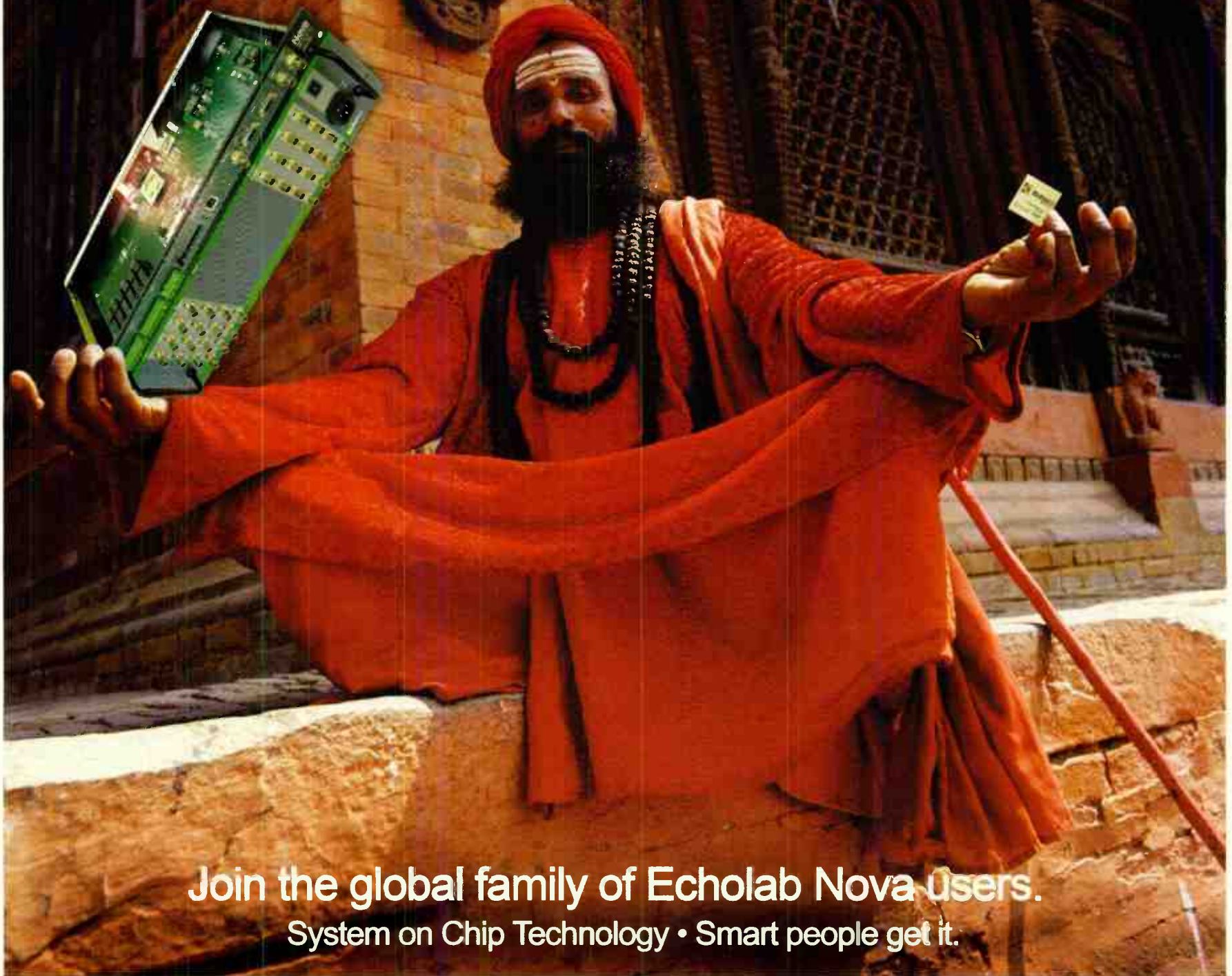
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USER REPORT

KWCH-TV Goes Tapeless With Panasonic P2

by Dennis Decker
Chief Photographer
Todd Crane
Information Technologist
KWCH

WICHITA, KAN.

CBS affiliate KWCH-TV has been using the Panasonic DVCPRO P2 series solid-state memory format since the beginning of the year. The station, owned by Media General, is presently more than halfway through converting newsgathering operations at its 19 television news-producing stations to DVCPRO P2.

PLANNING FOR P2

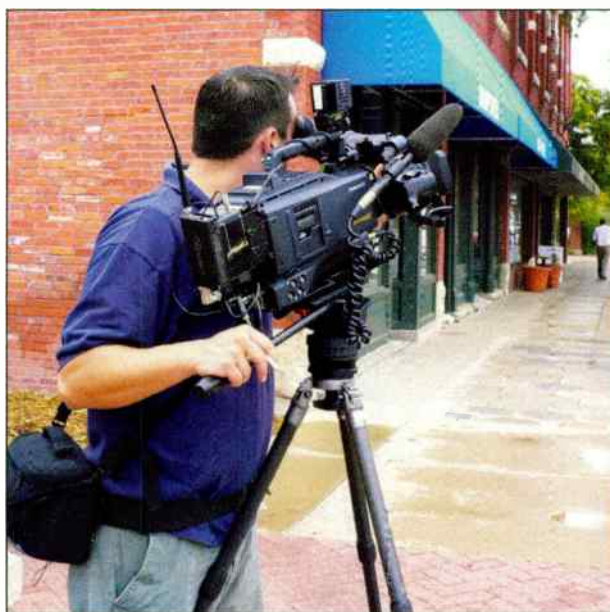
Ten years ago, we discussed a plan to go tapeless, and we were willing to wait until technology caught up with our needs. The roadblock to "the tapeless television station" had been field acquisition, but with P2, Panasonic presented us with the realization of a genuine tapeless operation over the short term.

The total elimination of any moving parts was the main reason Media General chose P2, since our fundamental engineering philosophy is "the fewer moving parts, the better." At KWCH, each of our 12 photographers is equipped with an AJ-SPX800 camera. We started putting the cameras on the street in February over the course of one-and-a-half weeks. Overall, we had a fairly easy migration, with the biggest challenge getting the photographers to adapt from shooting (endless) tape to managing a restricted amount of media space. We discovered that by sending them out with about an hour of DVCPRO25 capacity (two each, 4 GB and 2 GB cards), we "inspired" them to learn to manage the available card space.

They quickly learned to manipulate the media to their advantage, compress the amount of material they shot, manage creatively and do more in-camera editing as they shot. In fact, within a short time, we assessed that each photographer was shooting about 35 minutes of material on a normal day, which left him with a 25-minute "cushion." We've even shot some half-hour specials with the P2 cameras.

We like the P2's image quality and enjoy the advantages of a wholly digital system, notably in the speed of editing. The ability to manipulate the video on a timeline in the camera, together with the elimination of batch digitizing, chops 10 or more minutes off your edit. Also, being able to go straight to air with no image degradation has resulted in up to a ten-fold improvement in our on-air quality.

With that said, we are excited to take delivery of a dozen Panasonic ultra-rugged AJ-PCS060 portable 60 GB drives—one for each photographer. The 1.4-pound P2 store fills a need we'd voiced, namely getting the material we've shot off the camera and into a holding device independent of the camera.



Photojournalist George Taylor of KWCH-TV shoots with the Panasonic P2.

The P2 store replaces the need for a multitude of media, as the drive holds the contents of up to 15 (4 GB) cards. It's key to facilitating such routine news assignments and sporting events. Moreover, a photojournalist can connect a P2-compatible edit system to the P2 store's USB 2.0 port for instant access to content. We can make that content available to others at the station while retaining the media in the

store drive. This is the product that will make the entire P2 system truly versatile, more practical and a bigger success because it addresses the real needs of users in the field.

For two days in July, KWCH had the opportunity to test the storage drive. We put the AJ-PCS060 through all its tasks—actually, we tried to break it and couldn't! At the station, we fed 45 to 50 cards into the device, and tested the speed of transfer, which was very solid. P2 store did everything that Panasonic said it would—reformatting cards and the hard drive without being connected to a PC and providing programmable automatic shutoff, rechargeable battery operation and so on.

KWCH is now a fully tapeless facility, from acquisition straight through to play-out. P2 material is edited on Thomson GVG Vibrant Newsedit NLE systems, which we also use for play-out to air. ■

Dennis Decker is the chief photography at KWCH-TV and Todd Crane is the station's information technologist and can be reached at ddecker@kwch.com and tcrane@kwch.com, respectively. The opinions expressed are the authors' alone.

For more information contact Panasonic at 201-348-7000 or visit www.panasonic.com/broadcast.

USER REPORT

B&A Makes Big Plays With JVC

by Robert Koch
Owner
B & A Video Productions

PHOENIX

As a one-person video production company, I videotape and produce videos for local high school and Pop Warner football sporting events. I started out by creating a video highlights tape for my son's little league baseball team in 1994 and grew this hobby into a business.

As business started to quickly pick up, I needed a professional camera

and editing deck that had the features necessary for all my taping and editing requirements.

When it came to shooting video for the local football teams, I needed a system that could break up offensive and defensive plays during a game in real time, as well as provide high quality video at an affordable price to my clients. I found JVC's GY-DV5000 camera, DR-DV5000 recording system and BR-DV3000U recorder to be perfect for my needs.

LITTLE LEAGUE, BIG PLAYS

I pride myself on the quality of video that I produce for clients, so

video quality was a major concern. Additionally, I was looking for a tapeless system and a camera that accepted both mini and full-size digital tapes, and the GY-DV5000 had those features. I also needed a complete system because I was converting my studio from analog to digital.

Using the DR-DV5000U recording system eliminates time spent fast forwarding tapes and missing any offensive or defensive plays during a game. I use the "record" and "pause" button on the recorder to put a sequence of offensive plays in a file. When possession changes, I stop recording on the

JVC, PAGE 50

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USER REPORT

Sony XDCAM Takes KWTX Into Digital Era

by Larry Brown
Chief Engineer
KWTX

WACO, TEXAS

KWTX-TV's move to digital ENG using the Sony XDCAM Professional Disc camcorders and decks marked the completion of our transition to an end-to-end digital production environment. The nine XDCAM PWD-510 camcorders and nine PDW-1500 decks that were put in place recently have not only helped us retire our aging fleet of Betacam SP and Betacam SX equipment, but they've also helped our 35-person news department realize major advancements in image quality, economy and efficiency.

We are now able to produce our one-hour morning show plus another two-and-a-half hours of local programming daily in a much more

streamlined manner. The workflow made possible by the XDCAM system lets us leverage our resources more effectively to deliver a better product to our viewers.

DIGITAL MIGRATION

We have also strengthened our competitive edge in this market in terms of getting footage captured, edited and on the air before anybody else.

After migrating to a server-based editing environment last year, the XDCAM system was an obvious choice. Right out-of-the-box, the PWD-510 camcorders delivered a much cleaner picture recording with the DVCAM codec onto the Sony Professional Disc media. The dropouts that we'd learned to live with when working with tape disappeared.

The PWD-510 camcorders, with their tremendous flexibility, allowed



XDCAM has strengthened KWTX's ENG capabilities, according to Chief Engineer Larry Brown.

us to customize user profiles to create a signature "look" for KWTX. Because the profiles save to Memory Stick media, it is easy to set all the cameras identically for uniformity. Besides the basic profile, we have created several other profiles with certain shutter speeds or progressive scan shooting, so we're ready for various situations. This lets us be flexible, yet consistent when capturing subjects in the field. And the improved imaging on the front end has noticeably lifted the quality of our newscasts.

KWTX operates out of two offices, with the main bureau in Waco and a satellite operation in Killeen, Texas. The two trucks that cover this territory are equipped with XDCAM PDW-1500 decks feeding laptops over an iLINK (IEEE-1394) interface to our desktop video editing system.

Each of our photographers is assigned five Sony Professional Discs with their PWD-510 camcorders. That's enough storage to rotate through whatever they need to capture before placing it on the server. It takes about 30 seconds to reformat the discs and be ready to go. The camcorder's "loop," "cache" or "recording buffer" captures up to 10 seconds of audio and video so we never have to worry about missing a shot or soundbite. The discs can be used over and over, without degradation, and don't have the same problems associated with tape—transport issues and grit contamination. The PWD-510s have not had any problems coping with the hot and dusty Central Texas climate.

After settling on our look with the user profiles, the transition was easy for our team of nine shooters. Since integrating the PDW-1500 decks into our server environment, ingest has been simplified and ingest time has been reduced tremendously. Aside from speed, the biggest change is that reporters don't let tapes accumulate on their desks anymore. They pick and choose their footage and then place it on the server. The overall effect is that our workflow is streamlined. Content gets in play fast and stays in play. You don't shuffle around the tape library trying to track down things.

KWTX's success with the XDCAM system has been a proving ground for our parent company, Gray Television Group. Using the system for ENG is the way of the future. The quality, efficiency and robustness is a tremendous advance from working with tape.

Every step of the way—from imaging and ingest to editing and play-out—is improved. Several of our sister stations are following suit including KBTX in Bryan, Texas, KXII in Sherman, Texas, WVLT in Knoxville, Tenn. and KKCO in Grand Junction, Colo., with more to follow soon. ■

Larry Brown is the chief engineer for KWTX and can be reached at larry.brown@kwtx.com. The author's opinions expressed above are the author's alone.

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An affordable complement to the LDK 6000 mk II Worldcam, the LDK 4000 features low power consumption and Emmy Award winning and patented dynamic pixel management (HD-DPM) image-sensor technology.

For more information, contact Grass Valley at 503-526-8200 or visit www.thomsongrassvalley.com.

The Hitachi SK-3010P camera is for HD and SD field and studio production applications requiring multiformat capabilities.

The camera is available with natively scanned HDTV 1080i or 720p, interline transfer and 2/3-inch CCDs. Outputs are SD digital and analog.

The company also offers a half-rack 2 RU base station model designed for SD video signal facilities.

A 6-inch high-resolution color LCD viewfinder model VFL6HD is offered with an EFP configuration, which modernizes the complete camera system.

Standardized SMPTE311M cables and connectors are used throughout, providing multiple sources of acquisition.

For more information, contact Hitachi at 516-682-4429 or visit www.hdal.com.

The QR-JVC 7/14 HDV Gold Mount was developed by Anton/Bauer and JVC for the new JVC GY-HD100U HDV camcorder and helps offset front-heaviness of the GY-HD100U.

Designed for RealTime interface with the full range of Anton/Bauer batteries—the Dionic 90 is recommended—the Gold Mount includes a PowerTap, useful for powering camera-mounted fill lights, wireless receivers, video hard disk recorders and other accessories.

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USER REPORT

Frezzi Lights Up the Outdoors

by Carl Mrozek

Owner
Eagle Eye Media

BUFFALO, N.Y.

As the principal/owner of Eagle Eye Media, which specializes in wildlife and the outdoors, and as a regional correspondent for TV news organizations and networks, I shoot under a full gamut of weather and lighting conditions. I often have to switch from one type of assignment to another on short notice, which requires me to mix and match lenses, audio and lighting gear.

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LESS HEAT, MORE EFFICIENT

Although I have a selection of fairly compact AC lights, including Totas, the addition of stands, extension cords and power strips makes for a heavy bag of gear that can take plenty of

lamp of the same wattage and generates far less heat. This big edge in efficiency is a key reason I turned to the Frezzi compact camera-mounted HMI for basic ENG and EFP field lighting, especially when shooting solo.



Cameraman Carl Mrozek finds Frezzi HMIs generate far less heat than tungsten lamps.

time to deploy. A simpler alternative is a DC-powered on-camera light.

Unfortunately, ample on-camera tungsten lighting radically reduces battery life and requires packing extra batteries. Moreover, tungsten lamps take time to cool and pack. On the other hand, an HMI throws out at least four times the amount of light as a tungsten

Frezzi offers a full line of portable DC-powered HMIs, ranging from a new 400 W Super Sun Gun HMI capable of illuminating the recesses of cathedrals and music halls, to 10 W Micro Sun Gun HMIs geared for 1/3-inch CCD and smaller DV camcorders. I selected a lower-wattage option, the compact 18 W MA-18,

when I discovered that the otherwise identical but higher wattage MA-24 was not compatible with my DSR 570W camera.

Nevertheless, the MA-18 seemed adequate for most home and office interiors without severely taxing the camera battery.

Although I never intended the MA-18 to displace my much higher wattage portable AC lighting kit, it often does. That's because of its impressive performance in dark, expansive interiors, including a large "romantically lit" banquet room, a huge dance hall and an even more cavernous, dim ballroom with triple ceilings and even for interviewing pedestrians on dark city streets.

The MA-18 delivers about the same illumination as a 100 W tungsten lamp. In all cases, the MA-18 enabled me to shoot without exceeding zero dB gain. Equally important, it projected light far enough to preclude color balance problems despite a mixture of tungsten-dominated ambient light, while enabling me to exploit the overall ambient illumination level. ■

Carl Mrozek is the owner of Eagle Eye Media and can be reached at eagleeye1@adelphia.net.

For more information, contact Frezzi at 973-427-1160 or visit www.frezzi.com.

JVC

CONTINUED FROM PAGE 46

DR-DV5000U, which creates a video file. Throughout the game, I alternate between offense and defense, creating one file each time possession changes.

Back at my studio, I connect the hard drive via FireWire from my DR-DV5000U to my Avid editing system, which allows me to quickly drag and drop every other file into the editing system. By creating separate files for offensive and defensive plays, I am able to record just offensive plays directly to a DVD without having to do any editing. I also do the same for defensive plays. This system

is a real time saver and allows me to provide a valuable service to the coaches; to duplicate this feature, my competitors must spend many hours breaking down video before creating a DVD or recording to a VHS tape.



Robert Koch uses the JVC GY-DV5000 camera, DR-DV5000 recording system to shoot football games.

I rely on the DV recording system and use it as a backup for the digital videotape in critical shoots. I used

this feature once when I encountered a bad DV tape. I was taping a graduation ceremony and didn't know I had a bad DV tape until I was editing for the final product. I was unable to use the footage at the end of the DV tape (the last 10 minutes). The tape quality was destroyed, but the DR-DV5000U hard drive saved me. I used the footage from the hard drive recording system to replace the bad footage on the DV tape.

I've been using JVC cameras for 15 years, and find them to be extremely reliable and durable. I need equipment that can withstand weather elements and as well as the hits taken from running around out in the field shooting sporting event after sporting event. ■

Robert Koch is the owner of B & A Video Productions and can be reached at raknm_koch@msn.com.

For more information contact JVC at 973-317-5000 or visit www.jvc.com/pro.

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USER REPORT

Fujinon Gets Good News for WFLA

by Paul Lamison
Chief Photojournalist
WFLA-TV

TAMPA/ST. PETERSBURG, FLA.

As a photojournalist for NBC affiliate WFLA-TV, I don't get a lot of advance notice about where I'll be sent or what I'll cover. It's often "run and gun," and I shoot everything from dimly lit interiors to bright exteriors, in all types of weather conditions.

NO FRILLS

One thing we don't have to think much about is the Fujinon A18x7.6BERM lens we use on our Panasonic P2 cameras. That's because this is a good, solid basic lens, without a lot of frills—just what we need for ENG-style shooting. Last year, we purchased six of them, and we liked them so much, we bought nine more.

Having shot news for more than 17 years, I've worked with many types

and brands of lenses. This Fujinon lens allows me to capture the picture exactly the way I see it. You know as soon as your shot is in focus, and the focus always looks very sharp when the pictures air on television.

Perhaps the most important feature of this lens is versatility. While it's a compact, lightweight lens, it's got full-featured zoom capability that lets you go from very wide to very tight on a shot. Since we work in a variety of situations, it's very important to have a lens that can handle whatever we need to do, no matter how fast we have to move.

ZOOMING IN

At a news conference, I may not be able to get in close on the person speaking so I need a good zoom. But later that night, I might ride along in a police car where I need to have a wide lens to get the shot. I also covered a Buccaneers' football camp where I made full use of the zoom lens.

While there's no image stabilization on this particular lens, there are several

features that support smooth, steady operation. The pre-sets on the zoom let us set the start and end point. You start it, move your hand away, and it automatically does a perfectly smooth zoom that looks great on TV. Without this feature—zooming in with your hand and going in really tight on the shot—if your body shakes even the slightest bit, this instability can be evident on TV.

This Fujinon lens offers predetermined and pre-set zoom speeds and a programmable zoom that's especially useful for shooting documents and photographs, or in precarious situations where our footing isn't stable.

Also, with zoom limits, we can ensure that a servo zoom doesn't go past a certain point resulting in a shot that's too tight. This feature is only available on our newer lenses.

The Fujinon lens also handles lighting transitions perfectly, with good reproduction and zero lens flares. Recently, I covered the story of an 11-year-old girl who is a very good golfer, and I went from shooting out on the golf course to shooting in a darker setting inside the family's apartment. It lets in more light since it's a wider lens, making lighting easier. Because of this, users don't have to overlight to compensate for the lens, and you capture the scene with greater realism.



NewsChannel 8 Chief Photojournalist Paul Lamison shoots a live interview before the Tampa Bay Buccaneers-Tennessee Titans pre-season NFL game using a Fujinon A18x7.6BERM lens.

WFLA can transmit a live feed back to the studio from our seven ENG trucks and two satellite trucks. We also have Grass Valley NewsEdit nonlinear editing systems in the studio as well as the companion laptop editors, both of which accept images from the P2 solid state card in the Panasonic cameras.

When I covered the hurricanes, I took great pains to protect the lens, covering it with rain gear and shooting from inside my car or buildings to keep it out of the direct rain.

We use Fujinon lenses exclusively on our ENG cameras in a variety of conditions. While we rely on them, we don't have to worry about them. They're on our cameras, and they work. ■

Paul Lamison is the chief photojournalist at WFLA-TV. The opinions expressed above are the author's alone.

For more information contact Fujinon at 973-633-5600 or visit www.fujinon.com.

BUYERS BRIEF

Canon has expanded its HD line of ENG/EFP lenses with the HJ17ex7.6B, a smaller, lighter version of the Canon HJ17ex7.7B HD lens.

The HJ17ex7.6B has a focal length range from 7.6 millimeters to 130 millimeters and weighs 3.5 pounds.

Canon also offers a switchable aspect ratio (16:9/4:3) version of the lens with the "Crossover" option.

The Canon line of ENG/EFP portable lenses for HD includes six other third-generation lenses—the HJ40x telephoto series, the wide-angle HJ11ex4.7B, the telephoto HJ22ex7.6B and the HJ21ex7.5B, a lens specially designed not to breathe, for EFP and studio applications.

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USER REPORT

PAG USA Powers KRON-TV

by Ken Lombardi
News Operations Manager
KRON-TV

SAN FRANCISCO

As the news operations manager of KRON-TV—owned by Young Broadcasting—I help produce the station's nine hours of news per day. We have more locally produced shows than anyone else in our market. The problem of doing this much television is that it puts a tremendous amount of wear and tear on the equipment, and also a lot of extra work on the crew. My employees are working on constant deadlines. They cannot afford to have any of their equipment go down. Imagine shoot-



PAG batteries attach to a regular three-prong mount, eliminating retrofits.

ing a story and then having your batteries go dead two minutes to air.

POWERED UP

When we started doing more newscasts, one of the major complaints I would get from my camera operators is that the cameras needed batteries that would last longer but weigh less. The trim packs took care of the weight issue but did not address the extent of camera usage.

Looking for an alternative, we decided to give PAG batteries a try. The batteries worked well for us. Lightweight and long lasting, the batteries attach to a regular three-prong mount, eliminating retrofits. We started with the L75s and now use the L95s. The chargers have several different charging modes and can also drain the batteries completely before giving them a full charge, eliminating any

chance of developing a memory. We have been using this type of battery for more than three years. The only caution I would issue is that when using a headlight on the camera, it cannot be more than 20 watts. I have many crews out early in the morning and late at night, and this has not been a problem. Dependability and durability helps keep nine daily hours of news going and going. ■

Ken Lombardi is the news operations manager at KRON-TV and can be reached at lombardi@kron.com. The opinions expressed are the author's alone.

For more information, contact PAG USA at 818-760-8265 or visit www.pagusa.com.

USER REPORT

K5600 Lights Up Sunrise Video

by Joe LoMonaco
Freelance DP
Sunrise Video Productions

MIAMI

As a freelance director of photography and owner of Sunrise Video Productions, my clients include many of the network news magazine shows, including ABC's "20/20" and "Primetime Live," NBC's "Dateline" and CBS' "60 Minutes." Being in sunny Florida, clients prefer to

keep their production outdoors as much as possible. That prompted me to find an HMI light that was easily transportable, could be plugged into standard house power and have enough punch to work in the Florida light. I found that perfect light with the K5600 Joker 800 W HMI light.

COMPACT, LIGHTWEIGHT

I was struck on how compact and lightweight the shipping case was. Because we often travel to Latin America and other locations around the world, this case would make it easy for the airlines without any complaints about the weight of the shipping case. It also makes this powerful light easy to transport in my van from location to location in Florida. Besides its compact shipping size, it's also very lightweight, no more backbreaking ballast to lug around on the production.

The K5600 Joker 800 HMI is also very versatile, with an assortment of lenses to choose from and the option of using a Chimera Softbank for a softer look. I own two Joker 800s and use them all the time, even indoors. With a chimera, the light stays cool and produces a beautiful look. I recently had a high-definition production with golfer Greg Norman in front of a green screen; I was able to light the 12-by-12-foot green screen with the two Joker 800s and Chimera Softbanks.

I then lit Norman with some other soft daylight sources to give the client the look they wanted and keep the studio cool. I always like to experiment, and I have an upcoming five-camera roundtable discussion that I want to light using a Joker 800 with a large Chimera Pancake Lantern, and fly it in over the table as the main light source; I think it can be a beautiful soft look for this roundtable. For me, the Joker 800 has become a tool I can't live without. It

is a lightweight, versatile, a very complimentary source of light and most of all, reliable. ■

Joe LoMonaco is a freelance director of photography at Sunrise Video Productions and can be reached at joe@svpmiami.com.

For more information, contact K5600 at 818-762-5756 or visit www.k5600.com.



Sunrise Video Productions uses the K5600 Joker in the studio and on the road.

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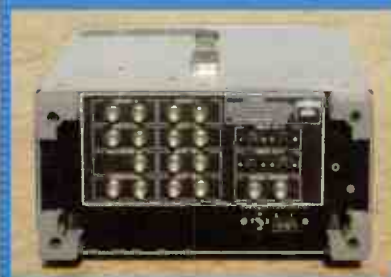
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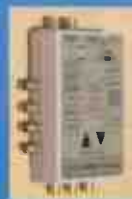
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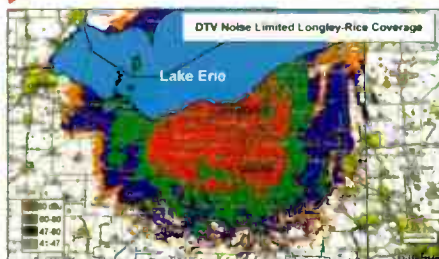


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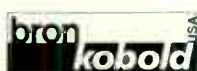
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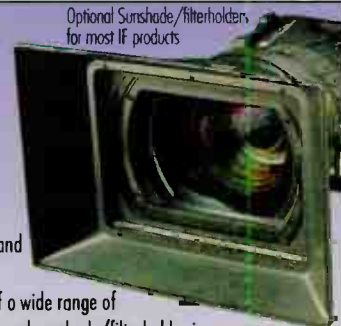
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USER REPORT

Focus Streamlines Vacation Channel

by Gary Leach

Producer

The Vacation Channel

BRANSON, MO.

As a producer, videographer and writer for the Vacation Channel, I have more than 22 years of experience in the video production and newsgathering industry.

Since 1989, The Vacation Channel has helped residents and visitors of Ozark Mountain Country make vacation-planning decisions based on local programs that strive to ensure everyone has fun. Vacation Channel programming provides information presented from the visitor's point of view in a concise and entertaining format that repeats throughout the day.

BETTER WORKFLOW

Our production team needed a way to increase the productivity of weekly

program production. They wanted a different, more efficient workflow model that would allow them to forgo the digitization of video from tape. We required equipment that could reduce turnaround time and production cost. The Focus Enhancements FireStore DR-DV5000 has enabled us to revamp our workflow into a streamlined, all-digital production that allows us to get the work done on time and within budget.

We chose Focus Enhancements FireStore DR-DV5000 for several reasons. We wanted a tapeless device that worked with our JVC cameras; the fact the DR-DV5000 was completely compatible with our JVC camera was a big selling point. The recorder is also compatible with Panasonic, Sony, Ikegami and Canon camcorders.



Videographer Gary Leach streamlines workflow with the Focus Enhancements FireStore DR-DV5000.

In addition, we needed a solution that would mount directly to our cameras. We also needed a tapeless acquisition device that would work with our Avid DV NLE. The FireStore DR-DV5000 did all of this and more.

The versatile recorder accepts several types of DTE file formats, including Pinnacle AVI, 24p QuickTime and 24p AVI Type 2b, which gives us a lot

of options when shooting. FireStore DR-DV5000 has performed marvelously. For example, we use the DR-DV5000 to shoot "The Fishin' Magazine Television Series," a fishing show that runs on Fox Sports Midwest. The cameras and hard drives are bounced around in bass boats and used in various lake conditions. The durability of the DR-DV5000 is a tremendous advantage. Also, because the DR-DV5000's retro cache record holds up to 10 seconds of video, this enables us to never miss a shot. This is a great product and we look forward to what the future brings. ■

Gary Leach is a producer/videographer for the Vacation Channel and can be reached at garyleach@tvcbbranson.com. The opinions expressed above are the author's alone.

For more information, contact Focus Enhancements at 408-866-8300 or visit www.focusinfo.com.



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BUYERS BRIEFS

The Digi-Lux by Cool-Lux is a small dimmable on-camera professional video light. The light's dimming system holds the Kelvin temperature within the plus-minus range of the camera's requirements automatically and free of noise. The Digi-Lux operates from 14.4 V, 13.2 V and 12 V batteries.

Adapter cables are available, including 4-pin XLR; and brick taps for Anion Bauer and Sony systems.

For more information contact Cool-Lux at 805-988-3088 or visit www.cool-lux.com.

The Reporter 400D by Sachtler is a mains-powered open face daylight luminaire. It features a resin-filled igniter circuit that is protected against humidity and a safety switch that cuts off operation if the reflector is removed or if the safety glass breaks.

The portable, compact Reporter 400D weighs less than 5 pounds.

For more information contact Sachtler at 516-867-4900 or visit www.sachtler.com.

The Camplex PRO-X1 coax/triax system can be used for live multicamera studios productions to create live, remote multicam shots in the field at a distance of up to 3,000 feet between camcorder and control center. The PRO-X1 uses a 75 ohm coax cable between its control center and the cam-

era adapter. The system may be interfaced to a variety of intercom systems or used in a "stand-alone" mode.

For more information contact Camplex at 620-342-7743 or visit www.camplex.com.

The 4Bank Mega DMX by Kino Flo includes a fixture, mounting plate, extension cable and ballast.

The 8-foot fixture is 97.25 inches long and 13 inches wide and weighs less than 20 pounds. The 6-foot fixture is nearly 75 inches long, 13 inches wide and weighs approximately 16 pounds. Ballast specifications include an output frequency of 25 kHz and features 4-1/off-lamp switching.

For more information contact Kino Flo at 818-767-6528 or visit www.kinoflo.com.

The Endura E-10 batteries by IDX come with a PowerLink system that allows two batteries to be stacked together for an extra boost of power.

Endura E-10 batteries output up to 198 Wh of power. The Five-LED array displays a quick and precise indication for the remaining battery capacity. The Endura Digi-View feature—only available in E-7 and E-10 batteries—displays battery capacity in the camera viewfinder of many new cameras.

For more information contact IDX at 310-891-2800 or visit www.idx.tv.

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USER REPORT

Wexler Links with Canobeam

by Joel Ordesky
Vice President of Technology
Wexler

BURBANK, CALIF.

Known throughout the television industry as a pioneer of new broadcast technologies, Wexler offers broadcast IT solutions, engineering and design services, and a full range of video, audio and post-production equipment used to generate, capture and edit media content.

Wexler is constantly evaluating new broadcast technologies to add to its rental inventory. One such technology is the Canon Broadcast & Communications Canobeam DT-50/SDI digital video transmission system.

WIRELESS TRANSMISSION

The demand for high-bandwidth wireless transmission systems that can support both HDTV and SDTV digital video formats (HD-SDI and SDI) is skyrocketing. Canobeam sets up quickly and provides a broadcast-quality wireless alternative to microwave transmission for applica-

tions where wired cable connections are not feasible, such as in sports or live special events. The Canobeam uses Free Space Optics (FSO), a wireless, light-based data-transmission technology that's free from RF interference, interception and frequency coordination or permitting concerns.

The Canobeam DT-50/SDI—or the DT-50/HD-SDI model—with direct line-of-sight, can bidirectionally transmit one channel of full bandwidth SDI digital video (or HD-SDI video) up to 1.24 miles. The Canobeam also features an auto-tracking feature that compensates for vibrations in the transmit and receive units caused by wind, weather or other factors.

The addition of the Canobeam DT-50/SDI to the Wexler rental inventory came in handy recently when the CBS reality series "The Cut" needed to establish a video link from a contestant's house to the production offices, more than a block away in midtown Manhattan. The Wexler Technical Engineering and Design department frequently does very complex video microwave installation and coordina-

tion, but the challenges faced in transmitting microwave in RF-heavy midtown Manhattan prompted the choice of the Canobeam FSO alternative.



The Canon Canobeam is a wireless alternative to microwave transmission solutions.

The Wexler team integrated a pair of Canobeam DT-50/SDI units into a solution that allowed digital transmission of multiple camera feeds—tied with synchronized digital audio and timecode—from building to building.

Canobeam is used by broadcast companies to transmit digital video

and other data between buildings for morning news broadcasts and for other data-networking tasks. Using it as a rental, however, particularly on a multicamera reality show, is something that hadn't been done before. Working with the production, Wexler engineered integrated a multiscreen display with multichannel digital audio. The final product allowed for transmission of both multicamera and synchronized AES audio feeds into a single SDI stream.

Staying ahead of the technology curve is something our clients rely on. Having the right solution is what makes Wexler the leading broadcast rental provider. The Canon Canobeam DT-50/SDI is one such solution, its FSO-based transmission technology a welcome alternative in special cases to RF microwave.

Joel Ordesky is the vice president of technology for Wexler and can be reached at jordesky@wexler.tv. The opinions expressed are the author's alone.

For more information contact Wexler at 818-846-9381 or visit at www.wexler.tv.

USER REPORT

KNXV-TV Shoots With Ikegami Editcam3

by Ryan Steward
Chief Engineer, KNXV-TV

PHOENIX

Being first on-air is crucial in TV news, and for KNXV-TV, speed means using the latest in tapeless nonlinear digital newsgathering technology. Our station recently converted its entire facility to Avid NLE with a Unity shared storage system, and we have also added digital newsgathering with the purchase of 19 Ikegami DNS-33W Editcam3 camcorders.

REAL-TIME SAVER

We want to load video into our news edit system at faster than real time. For us, putting Editcam files directly into our Avids and editing right off disk is a huge time-saver.

We also changed the way we edited in our live trucks. Instead of editing linear tape-to-tape, we installed Avid Xpress Pro laptop editors in the

trucks. Now we can pop the Ikegami FieldPaks out of the Editcams, stick them in the docking stations, and have our files instantly appear since Editcam video is already in the Avid format. We can edit the video and get it on air quickly and easily.

Our entire plant is Avid-based. We have 15 Avid workstations in the building and just added eight more for the live trucks and our satellite truck. Having all of our video in native Avid format is great; it goes right into our system easily.

Our shooters like the Editcams; the touch panel LCD allows them to get to all their menus by poking around with their fingers. And reporters can almost edit on the side of the camera using this display. They can look at the video on the touch panel, mark the right clips, and create a playlist—all while being driven back to the station. When they get to where they can edit, they can just peel off that playlist and go.

I've always liked the nice, sharp-

looking pictures that Ikegami cameras make. And Ikegami has provided us with set-up files that we load into the Editcams so our photographers can tweak the look to their pre-set. They can make the contrast stand out a little more, bring up the skin detail, brighten certain colors like red and blue, and make the images really pop. Our shooters like the Editcam's elec-



KNXV-TV recently switched to an all-Avid facility with Ikegami Editcam3.

tronic color-correction feature. If they want to warm something up or cool something off they can do that quickly and easily on-site, depending on what they're shooting. And although the Editcam's FieldPaks are nonlinear, they have a familiar form factor: Shooters can almost treat them like tape cassettes, but they can carry fewer of them because they have more record time than tapes.

The Ikegami Editcam performs at the speed of breaking news. We get our stories out more quickly because we use the nonlinear Editcam3 to shoot them and nonlinear Avids to edit them. We are very comfortable with picking Ikegami as our new format for the future.

Ryan Steward is the chief engineer at KNXV-TV and can be reached at rsteward@abc15.com. The opinions expressed above are the author's alone.

For more information contact Ikegami at 800-368-9171 or visit www.ikegami.com.

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Frezzi Energy Systems 800-345-1030 www.frezzi.com	BP-14MHEG	NiMH	3-button Anton/Bauer or Sony V-mount	14.4 V, 9 Ah; 140 W	5.5x4.4x3.1 inches; 5.5 pounds	Frezzi M-series	-10C to +40C	Rebuildable; energy gauge showing percentage of capacity remaining; rugged rubberized aluminum casing	\$595
IDX Technology 310-891-2800 www.idx.tv	Endura E-10	Li-Ion	IDX V-mount	14.8 V, 6.6 Ah, 98 Wh	3.4x5.6x1.97 inches; 1.75 pounds	Endura VL-2Plus; Endura VL-4S; Endura VL-4S VAL-4S, VAL-4Si	-20C to +50C	PowerLink, 5 LED load-capacity status display, digital data data protocol, suport Digi-View and digital BMS	\$495
Jadoo Power Systems 916-608-9044 www.jadoodpower.com	NAB II	Hydrogen fuel cell	3-button Anton/Bauer	14.4 V 130 Wh	4.2x4.5x7.2 inches 6.7 pounds	Jadoo Fillpoint	-1C to -49C	AccuStat information interface, Two year replacement warranty, PlusPower expansion option, Hot-swap capability	Call for quote
PAG USA 818-760-8265 www.pagusa.com	9360 PAG L95 Time Battery	Li-Ion	Sony V-mount compatible	14.8V: 6.5 Ah; 95 Wh	5.1x3.4x2 1.67 pounds	Sony charger or PAG All-Chemistry charger	+10C to +40C	Pushbutton power and time display; high/low charge facility can be set by user	Call for quote
Sony 201-930-7866 www.sony.com/professional	BPM100	NiMH	Sony	14.4 V, 98 Wh	Size N/A; 1,540g	Sony BCM50	N/A	Original equipment for many Sony cameras and VCRs; built-in LED capacity indicator	\$630

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The **Model SDI-313** is a **Universal Transcoder** that converts any analog video format (525/625 lines 50/60 fields/sec) to SDI as well as to any other analog format having the same scanning rates. It also converts a SDI input to any corresponding analog format. List price \$1495.

The **Model SDI-333** is a **Universal Analog to SDI Converter**. It converts any analog format (NTSC or PAL scan rates) to SDI. List price \$895.

Other SDI products from Xintekvideo include the **SDI-1 SDI to NTSC Converter** (\$295), the **SDI-3 Analog to SDI Converter** (\$345), the **SDI-10 Noise Reducer** (\$1295), the **SDI-110 Professional SDI to Analog Converter** (\$895), the **SDI-310 NTSC to SDI Converter** (\$995), the **SDI-330 Components to SDI Converter/Noise Reducer** (\$1395), the **VP-3000 Pre-Compression Processor with SDI output** (\$2995).

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USER	Troy Fain TL Mobile 417-877-0025	Gary Demos Independent Cameraman N/A	John Salzwedel Token Creek 608-238-7575
WHAT MODEL(S) DO YOU HAVE?	26x HR/HD	26x HR/HD	26x HR/HD
HOW IS IT USED?	College sports, entertainment	For telephoto shots	Sports applications
HAS IT PERFORMED AS EXPECTED?	Yes	Yes	Yes
WHAT FEATURES DO YOU LIKE THE MOST?	It's a long throw for a handheld cam, which is great for sports	Small and lightweight	Lightweight
WHAT FEATURES DO YOU LIKE THE LEAST?	It's a little heavy	Lacks electro-optic stabilization	None
HOW LONG HAS IT BEEN IN SERVICE?	One-and-a-half years	Three months	Three years
HAVE YOU HAD ANY EXCESSIVE MAINTENANCE PROBLEMS?	Zoom locked up during a football game. Angenieux fixed it immediately.	No	None
HOW WOULD YOU RATE THE MANUFACTURER'S SERVICE/SUPPORT?	Excellent	Good	Good
WHERE WAS THE EQUIPMENT OBTAINED?	Direct from company	Direct from company	Direct from company
WHAT WAS THE DECIDING FACTOR FOR YOUR PURCHASE?	Price, quality and the 26x itself	Lightweight and small	Availability, good tech support

For more information, contact Thales Angenieux at 373-812-3858 or visit www.angenieux.com

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50	Bittree, Inc.	www.bittree.com	11	Miranda Technologies	www.miranda.com
22	Bogen Imaging	www.bogenimaging.com	51	O'Connor Engineering Laboratories	www.ocon.com
30	Boland Communications	www.bolandcom.com	17	Omneon Video Networks	www.omneon.com
55	Broadcast Software Solutions	www.broadcastsoftware.tv	2	Panasonic Broadcast & TV Systems	www.panasonic.com/broadcast
55	Bron Kobold USA	www.bron-kobold-usa.com	36	Quartz Electronics	www.quartzuk.com
24	Burk Technology	www.burk.com	67	RF Central LLC	www.rfcentral.com
39	Canare Corp of America	www.canare.com	26	Ross Video LTD.	www.rossvideo.com
5	Canon - Broadcast Equip. Division	www.canonbroadcast.com	57	Sachtler Corp. Of America	www.sachtlerusa.com
41	CEA	www.cesweb.org	15	Sony Broadcast & Professional Group	www.sony.com
55	Century Precision Optics	www.centuryoptics.com	9	Sony Broadcast & Professional Group	www.sony.com
55	Cobalt Digital	www.cobaltdigital.com	40	Ste-Man Inc.	www.ste-man.com
20	Computer Modules - DVEO Division	www.dveo.com	54	StreamBox	www.streambox.com
54	Compuvideo Co., Ltd.	www.compuvideo.com	52	Studio Exchange	www.studio-exchange.com
54	Eartec	www.eartec.com	28	Sundance Digital	www.sundancedigital.com
45	ECHOLAB	www.echolab.com	16	TBC Consoles	www.tbconsoles.com
54	Electronics Research, Inc.	www.eriinc.com	18	Telemetrics Inc.	www.telemetricsinc.com
25	Ensemble Designs	www.ensembledesigns.com	21	Thomson/Grass Valley	www.thomsongrassvalley.com
53	ESE	www.esa-web.com	55	Torpey Time	www.torpeytime.com
38	For-A Corporation	www.for-a.com	54	V-Soft Communications	www.v-soft.com
44	Frezolini Electronics	www.frezzi.com	49	Ward-Beck Systems	www.ward-beck.com
13	Fujinon	www.fujinon.com	68	Wheatstone Corporation	www.wheatstone.com
47	Hitachi Denshi America, Ltd.	www.hitachidenshi.com	1	Wohler Technologies	www.wohler.com
48	IDX System Technology	www.idx.tv	60	Xintekvideo, Inc.	www.xintekvideo.com

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TV TECH BUSINESS

LIN, Journal and Gray Split Emmis Stations

INDIANAPOLIS

Emmis Communications Corp. signed agreements to sell nine of its 16 television stations in three transactions last month.

For a sum of \$260 million, LIN TV Corp. took WALA and WBPG in the Mobile, Ala./Pensacola, Fla. market; WTHI in Terre Haute, Ind.; WLUK in Green Bay, Wis.; and KRQE in Albuquerque, N.M., plus regional satellite stations. Journal Communications agreed to buy WFTX in Fort Myers, Fla.; KMTV in Omaha, Neb.; and KGUN in Tucson, Ariz. for \$235 million. Gray Television agreed to buy WSAZ in Huntington/Charleston, W.V., for \$186 million.

The nine sold stations represented 53 percent of Emmis TV station operating income for the fiscal year that ended Feb. 28, 2005, according to the company.

"We announced in early May that we were exploring strategic alternatives for our Television Group, so that we could focus on lowering debt and positioning ourselves for growth," said Emmis Chairman and CEO Jeff Smulyan. "We continue to move forward on discussions relating to the remaining seven stations and will make additional announcements as appropriate." The remaining stations are in Orlando, Fla.; New Orleans; Portland, Ore.; Topeka and Wichita, Kan.; and Honolulu. ■

LSI Logic Unveils Reorganization

MILPITAS, CALIF.

LSI Logic Corp. reorganized in mid-August with the formation of four major business groups and several executive appointments.

The four new groups are as follows:

The Custom Solutions Group will encompass the company's ASIC (application-specific integrated circuits) and design services; the Consumer Products Group will provide consumer digital media processing products; the Storage Components Group will focus on stor-

age; and the LSI Logic RAID Storage Adapter division will be folded into its subsidiary, Engenio Information Technologies.

Jeff Richardson will serve as the general manager and executive vice president of the Custom Solutions Group. The Consumer Products Group will be directed by Umesh Padval, who will serve as general manager and executive vice president. Bill Wuertz becomes general manager and senior vice president of the Storage Components Group, and Phil Bullinger, who formerly ran the RAID Storage Adapter division becomes general manager and senior vice president of Engenio.

LSI Logic reported Q2 net income of \$25 million or 6 cents per diluted share on revenues of \$481 million. ■

SeaChange Reports Preliminary Q2 '06 Results

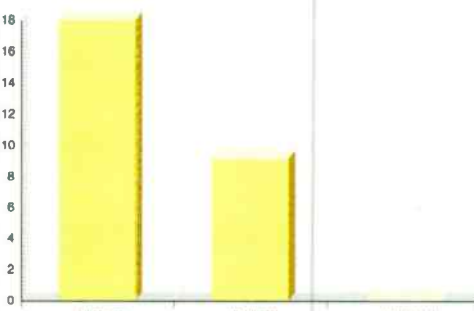
MAYNARD, MASS.

SeaChange International reported preliminary results for Q2 of fiscal 2006, pending appropriate accounting for an \$8.3 million investment. The server maker posted preliminary revenues of \$26.2 million, a 39 percent decrease compared to \$43 million from the same period a year ago; and a net loss of \$6.6 million, or 23 cents per diluted share, versus net income of \$3.3 million, or 12 cents per diluted share, for Q2 '05.

During the quarter, SeaChange invested \$8.3 million in Casa Systems Inc. for a 19.8 percent piece of the company. The results were deemed preliminary while SeaChange figured out how to treat the Casa investment. Should the company have to use the equity method, it could end up having to take an operations write-off charge in research and development, and to amortize other intangibles for the quarter. In its Q2 release, SeaChange said that when the Casa investment charge is settled, final results would be released.

Those final results were still expected to show a downturn in revenue compared to last year, reflecting a slowdown in the market for video-on-demand systems. ■

WIN-LOSE RATIO



To have your company listed, contact Deborah McAdams at dmcadams@imaspub.com.

TOP ADVANCERS BROADCAST STOCKS (Aug. 12 - Aug. 26)

Liberty +27.72%
Young +20.50%

TOP DECLINERS BROADCAST STOCKS (Aug. 12 - Aug. 26)

Gray -12.24%
Entravision -6.31%

TOP ADVANCERS TV STOCKS (Aug. 12 - Aug. 26)

Tektronix -7.66%
Leitch -6.75%

TOP DECLINERS TV STOCKS (Aug. 12 - Aug. 26)

SeaChange -18.05%
Avid -9.00%

TV Tech STOCKS as of August 26

Company Name	52-Week Range	August 12	August 26	% Change
Avid	36.54 - 68.35	40.13	36.52	-9.00%
Belden	17.65 - 24.59	21.58	20.17	-6.53%
Ciprico	3.23 - 4.90	3.82	4	4.71%
Harmonic	4.25 - 12.40	5.37	5.66	5.40%
Harris	23.46 - 38.18	36.51	37.2	1.89%
Leitch	6.72 - 11.50	9.78	10.44	6.75%
LSI Logic	4.01 - 10.75	9.14	9.63	5.36%
Sci. Atlanta	24.61 - 39.23	36.16	36.71	1.52%
SeaChange	5.60 - 19.75	7.09	5.81	-18.05%
Tektronix	20.97 - 34.39	23.51	25.31	7.66%

Broadcast STOCKS as of August 26

Company Name	52-Week Range	August 12	August 26	% Change
Acme	3.30 - 7.45	3.91	3.93	0.51%
Belo	21.65 - 26.45	24.14	24.45	1.28%
Emmis	15.29 - 24.18	21.37	23.41	9.55%
Entravision	7.08 - 9.50	8.24	7.72	-6.31%
Fisher	42.56 - 52.60	45.7	47.44	3.81%
Gray	10.58 - 15.74	13.24	11.62	-12.24%
Hearst Argyle	23.73 - 26.48	26.04	25.86	-0.69%
Nexstar	4.52 - 9.56	5.55	5.3	-4.50%
Lin TV	13.68 - 20.70	14.46	14.5	0.28%
Paxon	0.48 - 2.15	0.62	0.6	-3.23%
Sinclair	6.12 - 9.57	9.36	9.43	0.75%
Liberty	34.32 - 46.91	37.2	47.51	27.72%
Univision	25.00 - 34.55	27.03	26.4	-2.33%
Young	3.15 - 13.00	4	4.82	20.50%
Tribune	34.53 - 44.32	38.42	37.42	-2.60%
Meredith	44.51 - 54.57	49.22	49.5	0.57%
EW Scripps	44.73 - 52.91	49.96	49.97	0.02%

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World Radio History

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