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WHAT'S INSIDE

NTIA Issues D2A Specs

All households qualify

by Deborah D. McAdams

WASHINGTON

On the next New Year's Day, every household in the country will be eligible for a federal subsidy. That's the day that people can start requesting coupons good toward the devices that will allow analog TVs to work with digital signals.

After an initial pot of money is exhausted, only those households relying exclusively on over-the-air television will qualify for a second wave of funds. In this way, the National Telecommunications and Information Administration hopes to avert a situation where people are left entirely without TV reception.

"We shifted the focus of this second group of money so no one loses TV service," said John Kneuer, NTIA assistant secretary for

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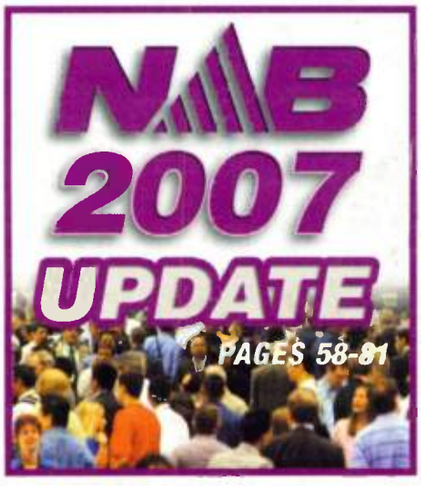

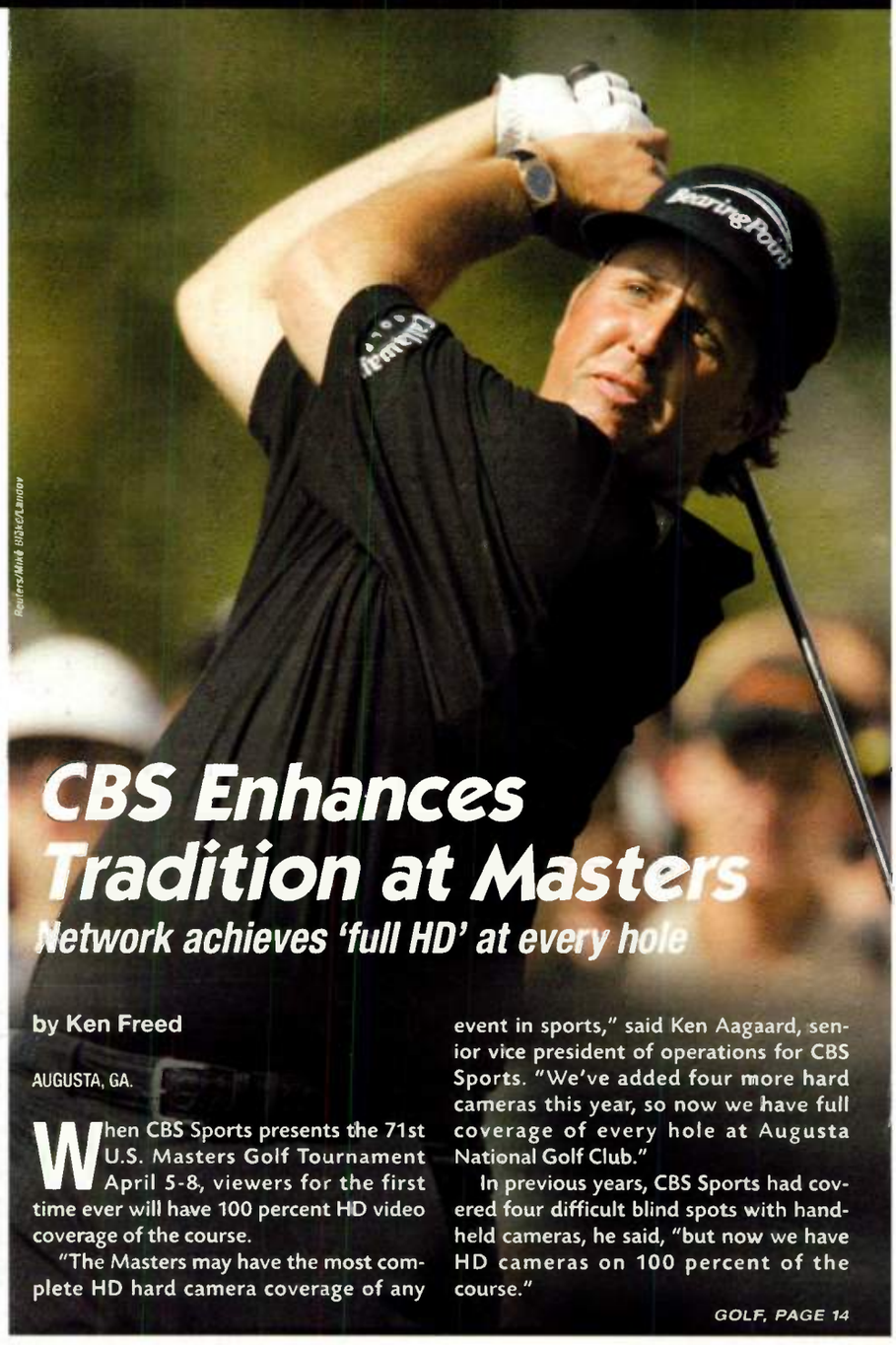

CBS Enhances Tradition at Masters

Network achieves 'full HD' at every hole

by Ken Freed

AUGUSTA, GA.

When CBS Sports presents the 71st U.S. Masters Golf Tournament April 5-8, viewers for the first time ever will have 100 percent HD video coverage of the course.

"The Masters may have the most complete HD hard camera coverage of any event in sports," said Ken Aagaard, senior vice president of operations for CBS Sports. "We've added four more hard cameras this year, so now we have full coverage of every hole at Augusta National Golf Club."

In previous years, CBS Sports had covered four difficult blind spots with handheld cameras, he said, "but now we have HD cameras on 100 percent of the course."

GOLF, PAGE 14

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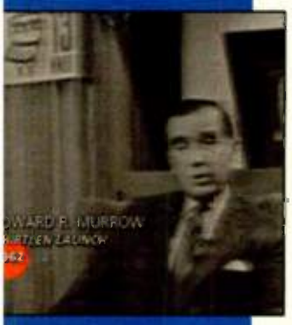

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ON THE COVER: Phil Mickelson, 2006 Masters golf champion, tees off on the 10th hole during first round play in the 2006 Masters golf tournament at the Augusta National Country Club in Augusta, GA, April 6, 2006.

BUYERS GUIDE

EQUIPMENT

SPECIAL REPORT

BAS Update

NAB2007 UPDATE

FROM THE MANAGING EDITOR

Ain't We Got Fun?

There's Washington, D.C... and there's the rest of the country. Washington is where nonexistent money can be spent; where golf games in Scotland are integral to one's duties; and where people talk about Scooter Libby like he matters. It is a place where the millions of people across the country who receive television with rabbit ears are presumed to be Web savvy.

Just about every organization with a stake in the DTV transition has a Web site about it. That should help, since there were only 11.5 billion publicly indexed Web sites as of January 2005, meaning there are now more Web pages than carbon atoms and celebrities combined.

But hey, you can find anything on the Internet, right? I know where, outside of normal working hours, to find talking refrigerator magnets I can arrange on a smear of strawberry jam. So it stands to reason that you can find anything on the Internet. As long as you have a computer... hooked up to the Internet... that you use.

Let's say you do, and that habitual texting hasn't destroyed ur abilty to spl. How would you learn about the DTV transition from the Web if you didn't already know it was going on? What degree of boredom could drive an otherwise sane person to spontaneously Google "DTV transition?" Where but Washington and Las Vegas do you even hear the word "transition?"

No, there's only one way that everyone effected by the digital transition will find out about it, and that will occur on the day a whole lot of TVs don't work anymore. It will be interesting to watch Washington blame Web lackeys.

On a far, far less cheeky note, **TV Technology** welcomes 25-year broadcast industry veteran Mark Turner as the new author of Count on IT. In his inaugural contribution on p. 84, Turner talks about hitting the NAB show floor.

"IT or not," he says, "it never hurts to be aware of technologies that impact broadcasting."

Touché.

Deborah D. McAdams
Managing Editor
dmcadams@imaspub.com

LETTERS

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

Delay the Shutoff

Dear Editor:

Regarding the DTV transition; I'm an above average consumer. I jumped on the bandwagon a few years ago with two $400 DTV receivers (which are now obsolete technically). I really enjoy them and I know the technology is superior, (although transmitter power is up for debate!).

In general, I really don't understand the "rush" to shut off the analog system. What I mean is, shouldn't this be consumer driven? Consumers are being rushed into buying new and quite expensive TVs, while regular TVs are disappearing off the shelves. I truly support the DTV transition, however I do not support the 2009 transition date. A more realistic idea to me would be 2015. This DTV and "HDTV" "revolution" seems to assume that average consumers *care* and want this as quickly as possible and will pay for it. I'm not sure it should be such a high priority in the overall scheme of things. Although HDTV may seem impressive, I consider it "a solution to a non-existent problem."

Mike Rupertus
Philadelphia

Invasion of the Wannabes

Dear Frank Beacham:

I just wanted to say how much I enjoy your column in **TV Technology**. Concerning your article "Corporations Co-opt Citizen Journalism" (Feb. 7), do you think that the idea of "citizen journalism" will become just another fad and will in a short time fizzle out? Before long the citizen journalist will realize that in order to gain more "recognition" and keep up with the "competition" their tapes (discs) will need to be edited. This means an edit system, not to mention editing skills... which all adds up to more time—no more instant success at the press of the button.

The sad part of this is that in the meantime a lot of good, talented professionals most likely will suffer. I don't know what it is about our profession (mine being industrial video) but it seems that it is constantly being undermined by the instant wannbees.

Thanks again for sharing your thoughts.

Grayson Mattingly
Irvington, Va.

Frank responds:

Yes, I think what is being termed "citizen journalism" on television is a fad and will eventually be seen for what it really is—a way for some so-called news organizations to acquire free programming under the guise of being more democratic and opening their airwaves to "the voice of the people."

Skilled reporters—the ones who really know how to tell stories in a compelling way—have been a vanishing breed for a long time now. This trend of using unpaid, unskilled people to "report" will speed the decline. Just as a word processor never made a writer, or a camera never made a photographer, giving on-air access to anyone off the street won't make a "reporter."

That said, the true democratization of media is coming fast and it's from the Internet. In an era when anyone can have a channel, the old media gatekeepers are falling and those with talent and skills have greater opportunity now than ever before. Perhaps the good news with the "citizen journalism" trend is that it will backfire on second-rate news organizations and speed their demise, while pushing the genuine talent to new opportunities.

Let's not kid ourselves, Grayson. We're in the midst of a titanic shift in electronic media and the "citizen journalism" fad is merely a diversion along the way to more profound changes ahead.

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Telephone: (703) 998-7600
Editorial fax: (703) 820-3245
e-mail: tvtech@imaspub.com
Online: www.tvtechnology.com

The staff can be contacted at the phone extensions listed or via e-mail using first initial, last name @imaspub.com

Publisher: Eric Trabb 732-845-0004
Associate Publisher: Marlene Lane ext. 128

Editor: Tom Butts ext. 122
Managing Editor: Deborah D. McAdams ext. 177
Technology Editor: James E. O'Neal ext. 150
Associate Editor: Melissa Sullivan ext. 149

News Correspondents: Susan Ashworth, Robin Berger, Ken Freed, Mary Gruszka, Craig Johnston, Claudia Kienzle, John Merli and Sanjay Talwani

Production Director: Davis White ext. 132
Publication Coordinator: Carolina Schierholz ext. 125
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Circulation Manager: Kwentin Keenan ext. 108

President: Stevan B. Dana ext. 110
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Editorial Director: T. Carter Ross ext. 120

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ABS Completes TVW Facility Upgrade

SEATTLE

Systems integration firm Advanced Broadcast Solutions has completed the facility design and equipment implementation for TVW, Washington State's public affairs network.

TVW a non-profit, cable television service headquartered in Olympia, Wash., recently moved into the upgraded 15,000 square foot building where it can now provide increased Web streaming capability, multiple channel transmission, video-on-demand service, new methods of signal distribution and nonlinear editing.

TVW Production facility

ABS designed and implemented TVW's new technical operations center, which consists of a technical center with television equipment, as well as a streaming media center, IT, fiber network and telephony equipment; a 580-square-foot room for production and master control, with three separate areas for production and one for master control; three rooms on the second floor with nonlinear editing suites; a 1,850 square-foot studio on the first floor; and an audio production room.

"Our goal was to design a technical operation free from error-plagued or cumbersome tasks and one in which all technical employees can understand the data and workflow," said Mark Siegel, president of Advanced Broadcast Solutions. "Our aim was to provide TVW with a properly scaled facility with inherent room for growth."

ABS' role included working with TVW and its architect to determine the proper location and footprint of the technical center and control room. ABS also advised the architect regarding electrical and HVAC loading and design requirements, wire routing, sound abatement, lighting in the control room, and specialized treatment for ceilings, walls and floors. ABS was also responsible for working with the construction firm to ensure a smooth transition from the previous facility to the new location.

Equipment installed at the new TVW Media Center includes Evertz conversion, fiber connectivity products and MVPT Multi-Image Display and Monitoring; Grass Valley Concerto Series router, Maestro master control system, Kayak digital production switchers; Omneon Spectrum video servers; and a Sundance Digital Titan automation system.

Upgrade

'Planet Earth' Given VOD Screening

SILVER SPRING, MD.

Although Discovery HD's 11-hour series "Planet Earth" didn't officially debut until Sunday, March 25, a little help from Comcast made it possible for Discovery to offer a preview look at one episode in HD as video-on-demand fare March 16.

The VOD-previewed "Forests" episode of the series was also accompanied by some special features and sneak peeks of the 10 other upcoming episodes.

Discovery HD previewed 'Planet Earth' on VOD prior to its broadcast on the channel's primetime lineup.

The high definition production took nearly five years to complete and is a co-production of the BBC. It has already aired in the U.K. The series began its U.S. run on March 25, with episodes running on five consecutive Sunday evenings on Discovery HD and Discovery Channel (SD). The project deployed more than 70 producers and camera operators to more than 200 locations globally with the common idea to capture "living natural history" in HD detail.

Prior to post-production, several hundred hours of tape had been generated, depicting scenes in the wild rarely, if ever, seen by humans—due to the ability of photographers to shoot from unobtrusive aerial vantage points through long focal length provided by Cineflex heligimbal. This is a gyro-stabilized aerial camera platform.

VOD

Revised Franchise Rules Favor Telcos

WASHINGTON

The full FCC order on video franchising was released in March, nearly three months after it was approved in a 3-2 vote. The rules were aimed at helping telcos break into the video delivery game in the name of competition with cable and satellite distributors.

The order limits the power of local franchise authorities, which FCC Chairman Kevin Martin said was necessary because LFAs regularly overstep their purview.

"The record collected by the commission in this proceeding cited instances where LFAs sat on applications for more than a year or required extraordinary in-kind contributions such as the building of public swimming pools and recreation centers," Martin said in his statement after the vote.

He went on to cite escalating cable rates as evidence that more competition was needed in the video marketplace.

As expected, the FCC order gives LFAs a set amount of time to cut an agreement with applicants. A 90-day window was set up for franchise applicants that already have access to public rights-of-way, as most telcos do. New entrants with no rights-of-way access get a six-month window. The order also enjoins LFAs from build-out requirements—providing service to every household in a given community. Under most video franchise agreements, cable operators are required to serve all homes. Additionally, the order limits the way LFAs impose franchise fees.

The statutory cap on franchise fees is five percent of video revenues, but the FCC said it found municipalities tacking on attorney fees, consultancy fees and "large acceptance fees." This, the FCC determined prohibited.

The order will not pre-empt state legislation. By the end of last year, Texas, Virginia, Indiana, Kansas, Oklahoma, Connecticut, South Carolina, North Carolina, New Jersey, California and Michigan had passed video franchise laws. The legislation arose as telcos lobbied Capitol Hill for nationwide regulations. Last year's telecom reform package containing such a nationwide item came to a screeching halt in the Senate.

Each state has slightly different regulations, something the telcos wanted to avoid because they are still required to negotiate with LFAs, although they just won't have to build swimming pools.

Neither does the FCC order relieve telcos from dealing with LFAs, but it does provide certainty that a deal will get done.

Verizon chief marketing officer, Marilyn O'Connell, said, "This decision removes obstacles to the continued aggressive rollout of our all-fiber-optic network and our FiOS TV service. It would be difficult to invest so much into broadband and video deployment without common-sense decisions like this one."

Municipalities have resisted state and national franchise reform because they lose a measure of control in their own communities. In December, when the order was approved, the LFA lobby vowed to fight it. Libby Beaty, executive director of the National Association of Telecommunications Officers and Advisors, said the FCC scrooged local governments "when they changed the agency from a regulatory to a legislative body."

NATOA held a policy seminar in early March, where FCC Commissioner Jonathan Adelstein delivered the keynote. He and his fellow Democrat on the commission, Michael Copps, voted against the order. Adelstein said it exceeded FCC authority.

"I cannot support this order because the FCC is a regulatory agency, not a legislative body," he said after the vote. "In my years working on Capitol Hill, I learned enough to know that this is legislation disguised as regulation."

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Goddard Space Flight Center Adds HD

GREENBELT, MD.

NASA's Goddard Space Flight Center (GSFC) has added live high-definition television capability with the addition of a For-A Hanabi switcher. Goddard is the first of 10 NASA centers to add HD.

The switcher has been operational since last fall and was first used as part of the new high definition production chain at GSFC during a press conference in which NASA announced plans for a fifth service-related mission to the Hubble Space Telescope.

The For-A HVS-3800HS switcher control unit installed in a Goddard Space Flight Center control room

"Given that the Hubble is so important, we wanted to be able to announce this in HD for historical purposes," said Patrick Kennedy, television production manager at Goddard.

The HVS-3800HS switcher selected has 16 inputs and 16 outputs, and can be configured for up to five main units or control panels, allowing setups at remote access points. As the GSFC has several locations that are used to host press conferences, this multiple access feature eliminates the need to use the mobile television unit that was previously employed for such coverage.

Upgrade

New Hampshire Public TV Automates

DURHAM, N.H.

Sundance Digital Inc. is in the process of installing a three-channel Titan automation system at the New Hampshire Public Television (NHPTV) station WENH-TV here.

The system is part of a master control upgrade at the station, and will drive a high capacity Omneon Spectrum Media Server system, video tape transports, satellite receivers, as well as a Miranda PresStation master control switcher with Imagestores.

"Now that we are overhauling our master control and expanding our capacity, it made sense to make the step up to the company's highly-scalable Titan package," said Brian Sheppard, NHPTV director of technology. "We are a long-time customer of Sundance Digital and the support has been wonderful."

Capable of controlling hundreds of channels, the Titan automation system being installed at WENH-TV also included TitanSync auto-failover redundancy and the "PBS Edition" of Sundance's Intelli-Sat for managing the intake and recording of satellite-delivered programming.

Automation

Amazon Partners with TiVo

ALVISO, CALIF.

Amazon.com, Inc. has teamed with TiVo Inc. to make the Amazon Unbox available to more than 1.5 million TiVo broadband-ready subscribers.

The Amazon Unbox service provides viewers with an easy means for renting or purchasing both movies and television shows.

The companies are offering $15 in free TV offerings and movie downloads to those who subscribe to the service by April 30, 2007.

"TiVo is putting more power and choice than ever before in the hands of consumers as the first and only DVR company to offer direct movie downloads to the TV where subscribers can experience them from the comfort of their living room, on the largest screen in their homes, where the experience of watching movies is best," said Tara Maitra, GM and vice president of Content Services at TiVo.

Amazon launched Unbox last September. The download service provides customers with thousands of hours of video content from more than 30 networks and studios from around the world. Both current and archived programming selections are available with the Unbox service.

Delivery

Raycom Media Installs Volicon

BURLINGTON, MASS.

Volicon, a supplier of media recording, monitoring, streaming and monitoring systems, recently announced that Raycom Media had completed the installation of Volicon Observer systems at 30 of its television operations.

Raycom has also added a Volicon Observer Central Monitoring System, which will provide monitoring of all of the group's stations at any time via the Internet. This is the first such system to be deployed.

The Volicon Observer user display

"Corporate officers and outside consultants can easily view all of our stations and get directly involved without each station having to go through the expense and effort of sending tapes, DVDs, or video clips," said Dave Folsom, Raycom vice president of technology and CTO. "Observer gives us powerful new tools for improving our business at both the group and station level. We use the Observer Central Monitoring system to provide station group executives and consultants with immediate and comprehensive access to all of Raycom's broadcast stations."

Individual stations are using their Volicon Observer systems as FCC-approved sources of program backup and logging and to offer proof as needed for any compliance or advertiser inquiries. The systems can generate technical alerts to flag potential problems and targeted closed-caption keywords. They also provide for the exportation of video clips and archiving of content.

Monitoring

Frost & Sullivan Honors Snell's Kahuna

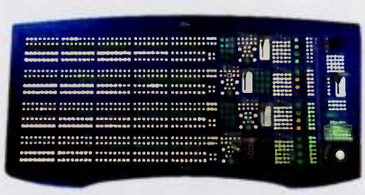
BURBANK, CALIF.

Snell & Wilcox's Kahuna SD/HD production switcher is the recipient of the Frost & Sullivan Market Penetration Award for 2006.

The award is presented annually to the company demonstrating "strategic excellence in product innovation, marketing and sales strategies" resulting in the largest gain in market share over a period of two to three years.

Frost & Sullivan selected Snell & Wilcox on the basis of interviews with market participants, end user studies and other research. Frost & Sullivan called the Kahuna switcher one of the most technologically sophisticated products on the market.

"The Kahuna production switcher's outstanding functionality and technical innovations have clearly hit a sweet spot in the global market, enabling Snell & Wilcox to achieve remarkable penetration in a highly competitive market space," said Mukul Krishna, global manager of the digital media practice for Frost & Sullivan. "Our research shows its advanced feature set, combined with Snell & Wilcox's outstanding commitment to customer service, has enabled the company to capture significant market share and become a major player in the worldwide production switcher market."



The Snell & Wilcox Kahuna multiformat switcher

This is the second year in a row for Frost & Sullivan to honor a Snell & Wilcox product. In 2005 the company received the Worldwide Technology Leadership Award in Production Switchers.

The Kahuna is the first switcher to integrate SD and HD inputs on the same control panel and within a common mainframe.

Awards

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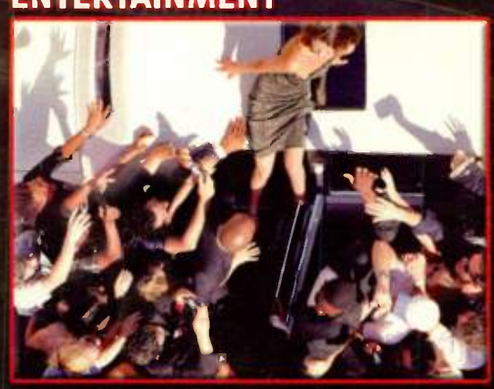

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Broadcasters Move Ahead on Mobile

Networks detail their strategies

by Robin Berger

LOS ANGELES

Broadcasters are on board to offer 24-hour TV programming and other perks for fans on the go. But their strategies differ regarding the right corporate structure for delivering these mobile initiatives.

CBS, for example, recently announced the creation of CBS Mobile within its CBS Interactive division, in tandem with the launch of its CBS Mobile Store, new wallpaper and video alert options, and hints of upcoming WAP sites.

The rationale for creating the new entity was two-fold, said its helmsman, Cyriac Roeding, executive vice president of CBS Mobile.

"Our business simply reached the critical mass that makes it useful to have a whole division," Roeding said. "And the range of responsibility has increased substantially."

CBS Mobile employed 20 people and was planning to hire another 25 at press time. Roeding said the division was looking at WiFi, mesh network and billboard options. And it was excited about the launch of its new 24-hour television option for cell phones.

"It's 24 hours, seven days a week, streaming and live, with MediaFLO by Qualcomm, in cooperation with Verizon Wireless," he said. "It's the first time you can watch hours of television on your cell phone—nonstop programming, a live 24 hour stream."

Qualcomm's MediaFLO is also contracted to stream mobile television services for NBC, ESPN, Fox and MTV over two carriers: Verizon (soft-launched to 20 cities on March 1) and AT&T's Cingular wireless service (later this year). Trials are also being conducted with Altel and T-Mobile.

MediaFLO's one-to-many approach is completely different from the point-to-point variety offered by services streaming video using existing cellular networks.

Regarding the base lineup with Verizon and Cingular, "we have five content partners that represent eight services on our lineup," said Dan Novak, vice president of programming and advertising for MediaFLO USA. "They send us a signal, just like they would send it to a cable or satellite distributor, and then we take their feeds, aggregate them, and distribute them to our customers over the MediaFLO network."

MediaFLO USA's operations center services mobile initiatives for CBS, ESPN, Fox, MTV and NBC.

Like CBS, NBC Universal also recently launched a new division targeting alternative digital services, naming Jean-Briac Perrette president of its new Digital Distribution division last December. The division oversees "sales and distribution of all NBC content to wireless and emerging platforms, and product and platform development related to wireless, electronic sell-through, video-on-demand, interactive TV," Perrette said.

He said his centralized group simplifies and better coordinates the development and marketing of these products and brands.

Perrette recently announced the creation of three subordinate groups to spearhead the company's digital distribution efforts: Digital Platforms, Wireless Platforms, and Digital Sales.

Salil Dalvi, who was promoted from vice president of Digital Media to general manager, Wireless Platforms, said the MediaFLO deal "is one of the largest scale projects that we have." But, he added, "we have a full-scale operation that actually produces short-form programming for Verizon, Sprint, Cingular and MobiTV, generating real revenue for the company."

As for NBC's arrangement with MediaFLO, the options are currently commercial-free, with time-shifted programming replacing ads from the core feeds. However, Dalvi expected "a full commercial operation in place, roughly between summer and fall of this year."

In a related development, NBCU announced last month that MobiTV, a mobile video service available on most cell phone providers, will carry certain NBC primetime programs as well as programming from NBCU cable channels Bravo, Sci-Fi, and USA Network as well as Telemundo. The programs are expected to be available by this summer.

NEWS CORP & JAMSTER

Earlier this year, News Corp. formally charged a newly organized company called Jamba with running its mobile entertainment initiative in 30 territories worldwide.

Until then, Jamba was best known for its "off-deck" (regardless of carrier) delivery of mobile entertainment via its "Jamster" platform brand in the United States and the Jamba brand globally. Initially conceived in Berlin, Germany in 2000 as a start-up portal for mobile Internet content, in 2004, Jamba was acquired as a wholly owned subsidiary by VeriSign, a Mountain View, Calif.-based operator of intelligent infrastructure services.

News Corp bought a controlling interest in Jamba last September. Four months later, it merged Jamba with its Fox Mobile Entertainment division.

Lucy Hood, formerly president of Fox Mobile Entertainment, and now CEO of Jamba, said that News Corp. "is placing greater emphasis on mobile because it can generate new revenue streams."

Jamba's first product, launched about a week after it officially became a company, was Mobisodes on Jamba. The "Simple Life" offering, first debuted in Germany, marked the first time episodes for mobile TV were available off deck.

ABC does not have a separate mobile division according to Albert Cheng, executive vice president of digital media for Disney-ABC Television Group. And, he said, the network has no plans to spin off a separate mobile division.

Verizon offers MediaFLO on Samsung's SCH-u620 in soft launch markets.

"The deals and product are managed by Disney-ABC Television Group's Digital Media team," he said. "Programming and scheduling for our digital platforms is done in conjunction with our network programming and scheduling departments."

Cheng said that the chosen structure supports ABC's "branded multi-platform ecosystem" philosophy.

"The network is now defined as something that reaches across all platforms, so content, programming, scheduling and marketing need to be cohesive and done with existing functions," he said. "We essentially need to work across all these platforms to connect our viewers to the programs."

Cheng believes that creating a separate group invites the tendency to be out of sync with network programming and marketing, as well as the propensity to over-invest. He did,

MOBILE, PAGE 12

MediaFLO Looks Overseas

Qualcomm's MediaFLO initiative started out as a research and development project. About a year ago, it was formally separated into two groups, according to Omar Javaid, vice president of global development, strategy, marketing & operations for mobile technologies.

"The service operator in the U.S. is a wholly owned subsidiary of Qualcomm called MediaFLO USA Inc.," Javaid said. "MediaFLO Technologies is a separate division within Qualcomm."

MediaFLO Technologies supplies technology to MediaFLO USA for its stateside ventures. It also has deals with companies in the U.K., Japan and Taiwan.

Last year BSkyB tested MediaFLO technology using "forum factor accurate" devices (non-branded cell phones) in the UHF spectrum with two broadcast network infrastructure providers: National Grid Wireless in Manchester, and Arquiva in Cambridge.

"Both trials reaffirmed what we've been saying about MediaFLO technology capabilities, channel changing time, etc.," Javaid said, citing the 4.5 dB link advantage MediaFLO was reported to have had over rival technology DVB-H. "You can either roll out a network with 50 percent fewer transmitters, or offer twice the amount of services, at the same spectrum and same power, all things being equal."

MediaFLO Technologies also has two separate ventures to develop networks in Japan. One is with Japan's second largest mobile network, KDDI; the other is with telecommunications and media giant Softbank Corp. And in March, MediaFLO Technologies announced its third Asian deal with China Network Systems and Taiwan Television.

Robin Berger

Dish, ESPN Team Up For NASCAR

Innovative 'tech trailer' to highlight multimedia production

by Ken Freed

DENVER

NASCAR fans, start your engines! In February, EchoStar's Dish Network and ESPN inked a multi-year, multimedia deal for NASCAR carriage on ESPN.

The agreement calls for Denver-based Dish Network to build a mobile production trailer for NASCAR coverage while binding the direct broadcast satellite service as the first ESPN advertiser to implement a graphical icon strategy across all media platforms offering NASCAR events.

Dish Network icons will appear in all NASCAR races on ABC, ESPN, ESPN2 and ESPN Deportes. The Dish brand will be promoted though ESPN audio, ESPN Magazine, the weekly ESPN SportsCenter NASCAR report, customized promotions on ESPN.com. Dish branding will even extend to local radio remotes by ESPN partners.

The custom-built HD Dish Network technology trailer, dubbed "ESPN's Dish Tech Center," will travel to all 10 of ESPN's Nextel Cup races on ESPN and ABC, plus all of the Busch Series races shown on ESPN2. The mobile unit further will be used for Internet content production and other non-TV media platforms.

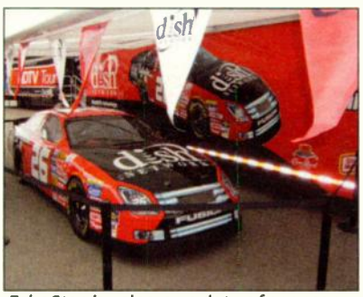
"Our agreement with ESPN helps us capitalize on our visible sponsorship of the Roush racing team and expand our relationship with NASCAR fans as a top pay-TV provider that offers choice programming and services such as cutting-edge DVR technology," said Carl Vogel, president and vice chairman of EchoStar.

"The icon strategy and our joint development of the tech trailer are examples of creating innovative ways to help better explain the sport to both current NASCAR fans and new ones," said Ed Erhardt, president of ESPN Customer Marketing and Sales.

ESPN chose EchoStar, said Rob Temple, vice president for NASCAR, College Sports and Outdoors at ESPN Marketing and Sales, "because we were looking for a technology sponsor with innovative goals for our icon strategy. This is one of the most significant innovative sponsorships we've ever developed with our coverage for the sport."

He added that the tech truck will be ready this summer, "and it will greatly enhance our story telling."

"We had the perfect storm here," said Bobby Billman, senior vice president for marketing at EchoStar. "We'd been doing our due diligence around customer retention, looking at customer interest in NASCAR in general, and when our team started talking to ESPN about NASCAR, everything came together to create a strong opportunity to communicate our value proposition and gather more customers through our satellite network's affinity for motor sports."



EchoStar is using a variety of sponsorship arrangements to attract race fans.

"We would not have been as attracted to the deal if it had just been for TV media," he said, 'but an integrated icon strategy with all ESPN vehicles makes a lot of sense for us." During NASCAR race broadcasts, for example, the Dish Network logo will appear as part of the graphical overlay, and the icon will be integrated into the NASCAR and ESPN Web sites, perhaps as a clickable button.

Billman seemed to take special delight in the fact that the Dish icon will grace all NASCAR races carried by ESPN on cable. "Branding cable content with our satellite service logo is a really beautiful thing, and it's another upside for us, because it tells our future customers who are on cable today what kind of HD programming we can offer to them," he said.

Construction of the Dish Tech Center has already begun, and the mobile studio will be deployed at races starting this month. One of the many uses, Billman said, could be to bring up the in-car camera and talk about the driver restrain system on Turn Three or what the driver sees when pulling into the pit.

"So this is much more than a media buy," Billman said. "This is a fully integrated approach to associate Dish with technology in the minds of the NASCAR audience.

This association is why Dish sponsors the Roush racing team, he added, noting that the Dish-emblazoned car won a March 5 race. "That's a powerful statement about the Dish Network," he said. "We want to convey that we are a technology leader." ■

EVS Supports ESPN's NASCAR Coverage

BRISTOL, CONN.

ESPN has introduced several new features to its live coverage of NASCAR races this season including all-HD in-car cameras, enhanced on-screen race information, and robotic cameras, all enhanced by a new workflow system led by EVS Broadcast Equipment.

The EVS IP Director production tools and server-based digital asset workflow systems allow each race's complete program, plus three additional ISOs chosen on-site, all highlight/melt clips, and field logs that create all metatags, to be published from ESPN's onsite production hubs to EVS servers and databases located in ESPN's third party, post-production facility at Bluefoot Entertainment in West Hartford, Conn.

There, ESPN's feature producers can repurpose these digital archives for further programming and other uses. The IP Directors not only facilitate the transfer of over 20 hours of HD material onto 3-4 hard disks, they also provide program logs that make it easy for editors to browse, search and select specific material.

A graphics operator works behind the scenes at ESPN's coverage of the Daytona 500.

Bexel Broadcast Services advised and supported Bluefoot's integration of a four-channel EVS XT[2] HD video server, EVS X-File digital archive server, and several IP Director workstations. Bexel is a division of The Vitec Group, a U.K.-based broadcast manufacturer and service provider.

Tom Butts

Mobile

CONTINUED FROM PAGE 10

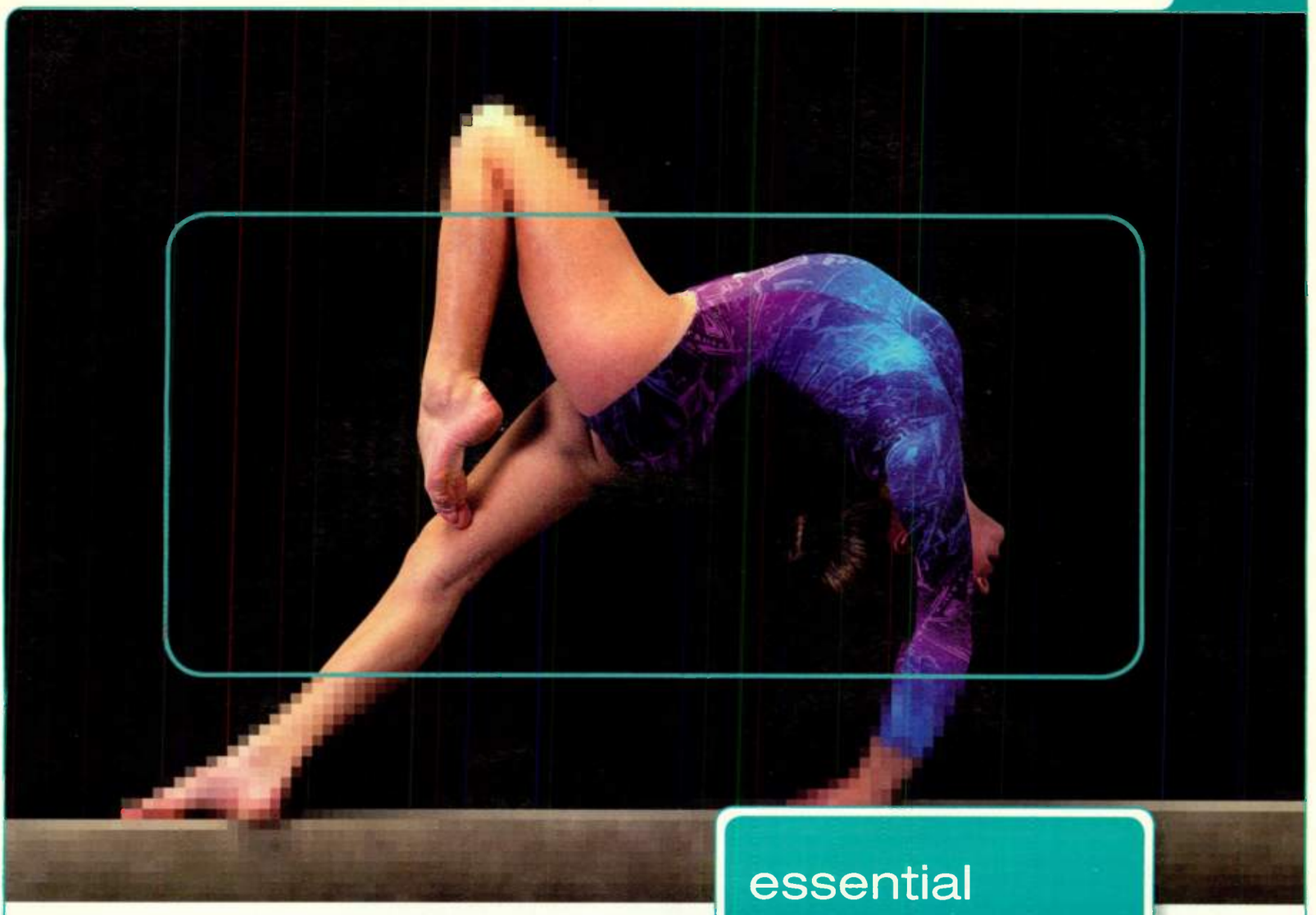
however, concede, that under the ABC setup, "we might underestimate the amount of work required to support this platform individually."

Another network, ION Media Networks (formerly PAX), recently announced the creation of Open Mobile Ventures Corp. (OMVION), a business unit dedicated to the research and development of portable, mobile and out-of-home transmission technology using over-the-air digital TV spectrum.

""We wanted to give this long range R&D effort a name and a brand and a platform identity, particularly since we're taking it on the road and sharing it with other broadcasters," said ION CEO Brandon Burgess. "The grand scheme is to build a pipe—to develop technology and standards for mobile purposes."

MediaFLO transmitter sites in Chicago (L) and New York transmit multimedia content directly to MediaFLO-enabled handsets.

OMVION has already set up a DTV test center in Tampa to prototype and develop mobile DTV and single frequency distributed networking technologies. It plans to also have sites in New York City and Washington, D.C. ■



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Golf

CONTINUED FROM PAGE 1

Aagaard added, "The Masters in HD is breathtaking. HD lets us see all the contours of the course, and the greens are spectacular in HD. Once you've seen The Masters in HD, you'll never want to watch it any other way."

HARD WIRED

CBS Sports began broadcasting the Masters with a mix of HD and SD in 2001 and 2002. Since 2003, the network has covered the event only in HD.

Of 58 total HD cameras on the course in 2007, Aagaard said, 38 will be hard wired into fixed positions on the 18-hole course. The remainder will be handheld cameras plus a few mounted on mobile jibs and several assigned to a studio for special reports on Thursday and Friday nights, a first this year.

CBS Sports will bring in four trucks for the Masters. The front nine holes are being covered by the NEP SS24HD Supershooter, comprised of two 53-foot double expando trailers.

NEP Broadcasting Vice President Errol Foremaster said the SS24 features "one of the largest control rooms on the road today" with 138 color monitors, a Sony MVS 8000 switcher with internal DVE and Accom HD DVEous, EVS HD Live Slo Motion Disc Recorders, and up to eight VTRs recording video from Sony HDC/900/950 cameras with Canon 100:1 lenses. The SS24 also carries a Calrec Alpha 5.1 Digital Audio Console.

Covering the back nine is the D12 truck from National Mobile Television (NMT). "The D12 was built to our specs with Sony cameras and switchers," said Aagaard.

Comprised of three 53-foot double expandos, the D12 features advanced characteristics from the D11, which debuted at NAB last year.

"There are many bells and whistles designed into the truck," said John Kemps, vice president of engineering for NMT.

The D12 is equipped with a Sony MVS 8000 HD switcher, Calrec Alpha Digital and Sigma Audio Consoles, Sony HDC-1000 Fiber HD Cameras, 101x1 Lens, EVS LSM XT HD, EVS Spot Box, DVW-A500, Sony SRW 5500, Panasonic DVCPRO 1700, Sony DME 8000 and 9000, and Vizrt HD graphics.

Two other trucks support the entire production, said Aagaard. The 53-foot triple expando Corplex Platinum serves as a control room with extra support space. It features Sony HDC-1500 cameras with Fujinon and Canon lenses, according to spokesman Steve West for Corplex in Northfield, Ill.

In the control room is a Grass Valley Kalypso switcher, Accom DVEous MX, EVS HD LSM XT VDR, EVS XFile Digital Archive Station, three Sony HDW-M2000 HDCAM recorders, a Sony DVW-A500 Digital Betacam recorder, five DNF ST-300 slow-motion recorders, and a Calrec Alpha 100 digital audio console with full surround mixing. The Platinum's B-Unit with lift gate offers an expanded graphics area.

The fourth 53-foot single-width HD truck is the F&F Productions' GTX-12 with a dozen Ikigami HDK 79EC cameras and a Panasonic HD-ENG cam, both mounting Fujinon lenses, plus two HDL-40S IFE Robotics Cameras, and Hitachi CCD clock cameras.

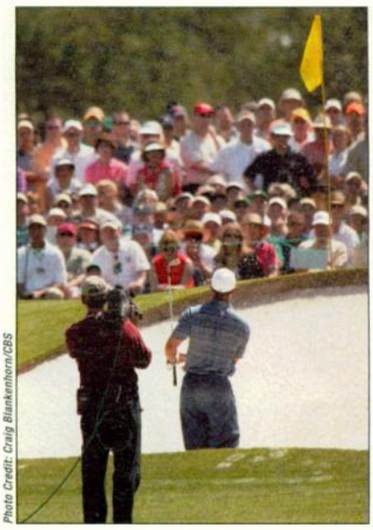


Photo Credit: Craig Blankenhorn/CBS

Tiger Woods aims for the green at a recent Masters.

The GTX-12 control room has a Grass Valley Kalypso switcher, DVEous MX, EVS HD Spot Box XT, Chyron Duet LEX system, and a Yamaha PM 1D digital audio board, according to Bill McKechney, vice president of engineering for F&F Productions in Clearwater, Fla.

Except for the Ikegami cameras from the GTX-12, "we're shooting everything with the Sony cameras," Aagaard said. "While we are not mixing the cameras on the same hole, both deliver quality images, so we could mix them and the viewer would never know."

Viewers also will never see a camera cable on the course, he said. "All the cables are buried underground, including where we have the four new hard cameras, and everything is fiber."

Telecast Fiber Systems provides the fiber to shoot the Masters, according to Joe Commare, vice president of marketing and international sales for the Worcester, Mass.-based company.

"Since all the fiber for CBS Sports at Augusta National is already installed, all they have to do at each camera position is fit the camera operator with a harness belt that has a stinger cable going to an optical beam connector on the ground inside a tupperware container," Commare said. "That stinger cable can be up to 100 feet long, so they can move cameras around on the greens or tees. The camera is connected to the SHED [SMPTE Hybrid Elimination Device], which links it to a production truck."

On some courses, Commare said, CBS is using a new wireless SHED, "but because Augusta has so many hills and trees, line-of sight is impossible so our Telecast fiber system is their only option."

Aagaard noted that CBS Sports has been working with Augusta National

GOLF, PAGE 16

Play Along with the Masters

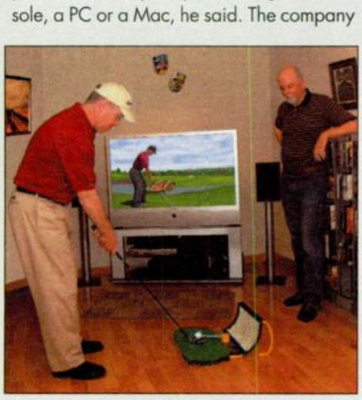
TORONTO,

Think you can drive a golf ball as far as Tiger Woods? How about landing a chip shot on the green like Fred Couples or sinking a long putt like Phil Mickelson?

Thanks to the new Golf Launchpad video simulation game from Electric Spin Corp of Toronto, all golfers now can use their own clubs to compete head-to-head to with the top players in the game.

Golf Launchpad is a portable system, about two by three feet in size, that consists of a green mat, a regulation golf ball on a short tether, and a sturdy net (triggered by the Bernnoulli effect) that silently flips down onto the mat when the ball is hit. According to Electric Spin CEO Anees Munschi, "The only sound you hear is the club hitting the ball, just as you'd hear out on the golf course."

Optical sensors within the mat pick up the club speed, path and angle for each stroke, Munschi explained, and this works whether the ball is hit with a wood, an iron or a putter. This data is then displayed on a screen as video that depicts the swing and the trajectory. The $250 system is compatible with any major video game console, a PC or a Mac, he said. The company also has teamed up with NewsCorp's NDS to producer a version for cable and satellite set-top boxes.



The Launchpad video simulation game uses optical sensors to pick up the club speed, path and angle for each stroke. Just make sure the club is far enough away from that expensive flatscreen.

"The Golf Launchpad on the set-top box lets you play live against the pros at Kapalua or any PGA tournament," Munschi said. "The experience is completely seamless. So long as you have room to swing your club like you normally do, the Launchpad will accurately show you where you ball would go."

And even if your ceiling is too low to swing a wood, he noted, you can tell the system you are using a wood while really using an iron, and the Launchpad will compensate.

"If you have a room large enough for a big screen TV," he said, "you can use any club in your bag, just like on the course."

Munschi called Golf Launchpad "the ultimate interactive video experience. Why just watch when you can play along?"

Ken Freed

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DIGITAL JOURNAL
Bill Hayes

Closing the Loop
Getting IPTV ready for routing HD

JOHNSTON, IOWA

At Iowa Public Television, we have just entered the final phases of digital conversion. In past Digital Journals I have highlighted many of our transmission system construction projects, the thought processes that have gone into our planning as well as some of our successes and failures as we have made the conversion.

Among the first projects undertaken was the conversion of our acquisition gear from Betacam to HDCAM. Although part of our overall strategic plan, the timing of these projects was driven more by situations and the availability of funds. In other words, we were making the purchases with money that was not used in converting our transmitter facilities but needed to be spent before a year-end deadline.

Now that our transmission projects are pretty close to finished and the remainder of our funding is available, our focus is now on closing the loop and converting our facility for high-definition production.

The contract for design and integration of our HD production facilities will be handled by TV Magic, and I will be writing more about that project over the next year. In this column I want to focus on the replacement of one key component of our system, the audio/video router system. IPTV currently has a Utah Scientific AVS1 router.

The system has a video matrix that is 90 inputs-by-70 outputs. It has three levels of analog audio with two matrices that are 70 squared and a third matrix of analog audio that is 60x40. The entire router is integrated with our Utah master control switcher and TAS automation.

In discussing our router needs, a great deal of consideration was given to how we manage the migration from a composite analog facility to a fully digital facility. We initially considered a complete retrofit of the existing system with a new router; however the design becomes complex and convoluted when trying to determine quantity and types of inputs and outputs.

The retrofit plan also hit snags based on the unforeseen delays in implementing our master control system and as a result, our existing analog master control with its associated automation is still operational and we are not yet sure when that will change.

Extenuating circumstances like these can be whatever you make of them.

In our case the delay made us stop and consider the new router as an augmentation of the existing system that would then be integrated into the new automation when the master control system was completed. Since that design required the new digital router to work with the existing analog router we decided that we would add a Utah Scientific digital router to our facility.

A Utah Scientific 400/288RHD router will distribute hi-def video within Iowa Public Television's new HD facility.

Before I go too deeply into the design and composition of the router I would like to touch on what I consider some of the best features of the Utah Scientific products. Their products work reliably out of the box, they support their products for a long time and they don't require an annual maintenance agreement. Anyone who has been reading my column knows that this last item is a particular sore spot for me.

As a customer, I am very tired of purchasing products that were not ready for market and then being told I need to pay some significant percentage of the purchase price to get all of the fixes necessary just to make the product do what I was told it would do when it was purchased. It is refreshing to work with a vendor that delivers and stands behind their product without feeling the need to charge additional fees.

Let me get off my soapbox and talk a

LOOP, PAGE 46

Golf

CONTINUED FROM PAGE 14

for 50 years, "so we've evolved coverage of the Masters in close cooperation with them, such as where to place the camera platforms. It's an ongoing process."

Despite the advanced digital gear, Aagaard said CBS and Augusta agreed to keep coverage fairly traditional.

"We have instant playback with EVS and slow-motion capabilities, but there's nothing fancy in our video presentation," he said. "We're not using any gimmicks like cameras inside the cup or digitally tracking the ball in flight. We never do that at the Masters."

Within the traditions of the Masters, constant improvement in coverage is the goal, he said. "The Masters is one of the most prestigious events in all of sports, and we pay a lot of attention to it here at CBS Sports."

A new tradition for the Masters is its presence online.

"Once per hour before broadcast coverage starts each day, we'll stream broadcasts on the official Web site, Masters.org, and on CBS.Sportsline.com," Aagaard said.

During play, starting at 10:30 a.m. (EST), CBS Sports will maintain a live stream from the 11th, 12th and 13th holes, also known as "Amen Corner." The term came from an old jazz recording "Shouting at Amen Corner," and its usage in Augusta was coined in 1958 by Sports Illustrated writer Herbert Warren to describe the first major victory by Arnold Palmer.

Like last year, CBS Sports will cover Amen Corner with a separate announcer and special graphics. ■

TV Broadcast and Satellite

Engineers: How to Avoid Going Off Air Unexpectedly

You can easily protect your on-air feed and be sure to be on-air at all times with an Avenue Protection Switch. Simply feed your primary on-air feed and your secondary, back up signal into the Avenue protection switch. If the primary should fail, the secondary signal will take over.

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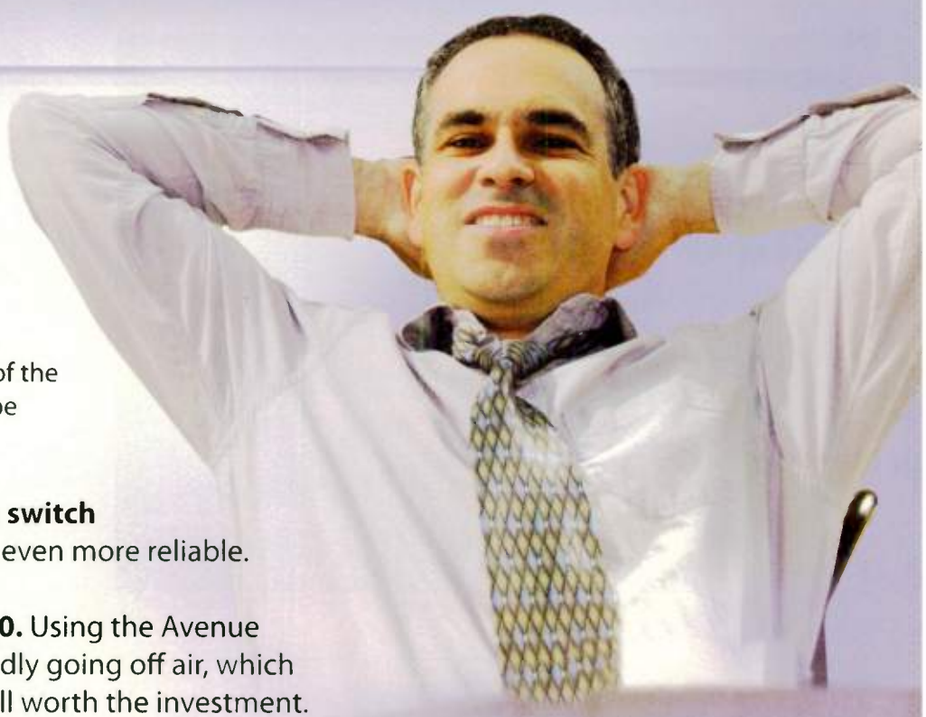

You can use the **sophisticated detection system** to your advantage by adjusting the switch's parameters for *your* facility's needs. For example, the black detection system allows you to set both the threshold and the percentage of non-black pixels. But that's not all, you can also determine the portion of the picture to be considered. This allows a corner bug to be either included or excluded in the detection process.

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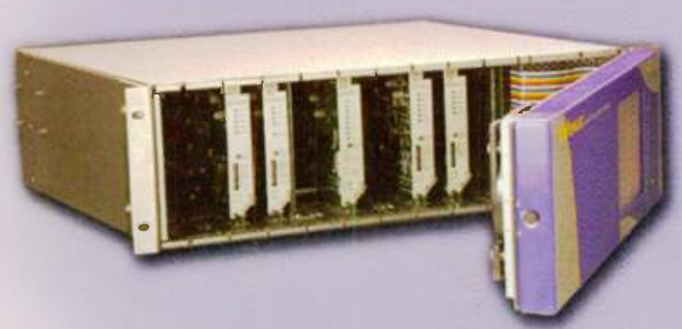

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Signal Processing and Infrastructure – That's All We Do

Putting BXF to Work

Vendors take the Broadcast Exchange Format to NAB2007

by Robin Berger

LOS ANGELES

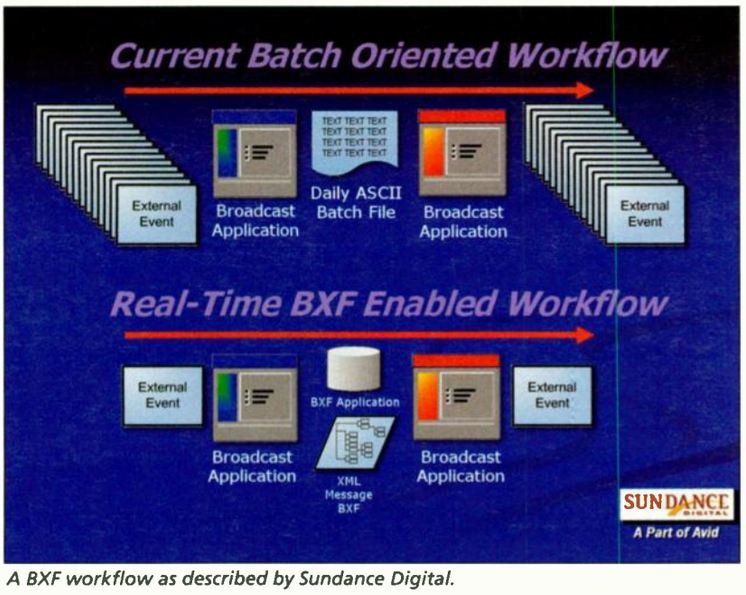
Proponents of the Broadcast Exchange Format are convinced it will soon become SMPTE standard 2010. Covering data exchange for air and satellite schedules, as-run logs, and content, they see it as a unique meld of diverse expertise and IT technologies.

"The standard describes a very comprehensive XML schema and the procedures to generate messages and pass them to attached systems," said Rick Stora, product manager for Sundance Digital in Irving, Texas.

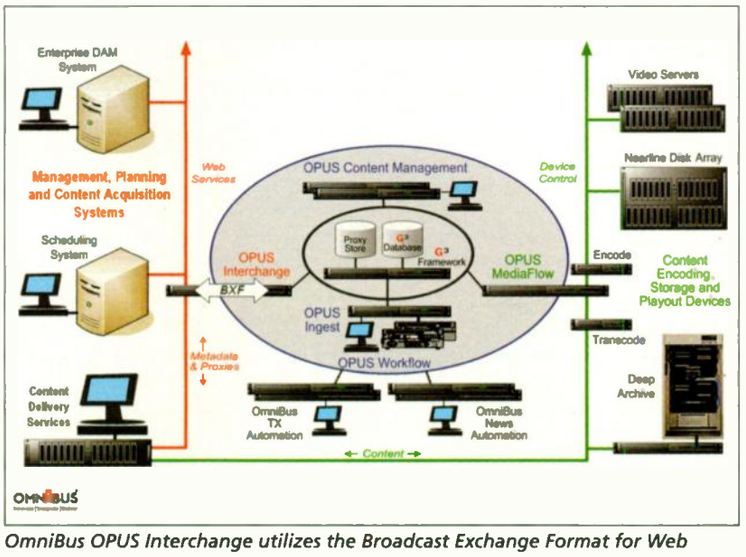
But the best part for vendors is BXF's promise to standardize interface points so that they can spend less time developing and maintaining customized interfaces, said Howard Twine, product manager for Pro-Bel's Morpheus media management solution.

"We wholeheartedly support BXF, and look forward to implementing it when it has been fully ratified and adopted," Twine said.

"The standard describes a very comprehensive XML schema and the procedures to generate messages and pass them to attached systems,"
—Rick Stora, Sundance Digital



A BXF workflow as described by Sundance Digital.



OmniBus OPUS Interchange utilizes the Broadcast Exchange Format for Web services communication between its automation systems and adjacent DAM, scheduling and content delivery systems.

SELLING BXF

John Wadle, vice president of technology for OmniBus Systems, a Leicestershire, England-based developer of broadcast automation systems thinks selling the benefits of BXF to the broadcast industry could be a challenge.

"Initially, I don't see a direct benefit to the broadcast industry other than to possibly make our products easier to install by eliminating incompatibilities between systems," he said. "If and when broadcasters start to see the benefits of the transactional model, where they can make changes to the schedule during the day and sell commercial ads at the last minute, the protocol is there to support that."

So far, he said, broadcasters are reluctant to relinquish the separation between the business and operational sides of their broadcasts that is needed to buy into this option.

"People in operations don't want people outside of their particular area to make changes to the schedule that might result in an error on air," Wadle said. Although BXF, itself wouldn't preclude this possibility, he said a BXF-enabled interface between traffic and automation solution providers could enable the building of a system with adequate safeguards.

At press time, OmniBus was implementing a BXF-enhanced Colossus system at a large U.S. customer that had, in fact, broken ranks with the industry consensus, he said. At NAB2007, OmniBus planned to describe how BXF works in its Opus Product line, although, Wadle said, it would "not be demonstrating it per se."

Rick Stora, product manager, Sundance Digital.

BUSINESS SYSTEM

Contrary to Wadle's assessment, Shawn Maynard, vice president and general manager at Florical Systems in Gainesville, Fla., says broadcasters have demanded a transactional option for years. Last year, Maynard came to Florical from NBC, where he was the director of operations for the network's TV stations and learned firsthand that, "the business system has to improve greatly."

He said BXF can make this happen by creating a commodity-type traffic system to optimize rates for air time.

"You don't have to send down a full schedule to the on-air automation system," Maynard said. "You can send down a skeleton and populate it as you get higher rates for spots."

He said that the networks already have this luxury, citing NBC's use of its Genesis system; local stations do not. And, he said, managing billable time will only get harder after the digital deadline, when a station could go from hosting a one channel broadcast to potentially five DTV signals.

At press time, Maynard said Florical had implemented BXF into its AirBoss automation products and was "feverishly reaching out to different traffic companies to form partnerships" for a joint solution.

Until then, Florical planned to take a stop-gap transitional bridge (from traditional traffic interfaces to BXF) to the show. It will demonstrate how this product "creates a close relationship between the Sales Business System and the On-Air Automation System to reduce the opportunity for errors and increase operational efficiencies."

LOOKING AHEAD

MicroFirst, a Mayfield, N.J.

BXF, PAGE 20

Blackmagicdesign

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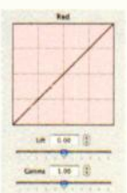

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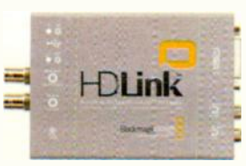

HDLink

US$445

The Drawn Together image is courtesy of Comedy Partners.
The Aviator image is courtesy of Miramax, Warner Bros. and theBasement.

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BXF

CONTINUED FROM PAGE 18

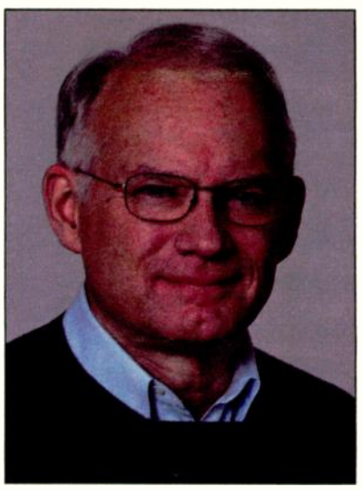
automation company, has begun using XML structures in its Digital Automation System-Near Line Storage (DAS-NLS) management solution in advance of BXF's codification, according to Jerry Berger, vice president and general manager.

"All data—static, real time and command/control—can be accessed and modified by third parties via our DAS-NLS protocol," Berger said. "On a forward looking basis, MicroFirst already 'ported' this connection-based protocol to XML packets."

MicroFirst planned to demo its new DAS-NLS at NAB2007, showing just how the solution can exchange metadata with third party systems.

Harris incorporated BXF into its H-Class-compliant applications that include ADC100 Automation, D-Series Automation, Invenio Digital Asset Management, Vision Scheduling, Broadcast Master, Paradigm, and BMS, according to Chuck Koscis, systems engineering manager, integration services for Harris Software Systems. BXF is also implemented in OSi-Traffic.

At NAB2007, he said, Harris will demonstrate how the BXF-enhanced H-Class Scheduling and D-Series Automation systems automatically transmit log changes made in the traffic application to the automation system. Changes made to the schedule are tracked and audited using the tools on the H-Class Platform, eliminating the need for manual reconciliation.



John Wadle, vice president of technology for OmniBus Systems

"People in operations don't want people outside of their particular area to make changes to the schedule that might result in an error on air."

—John Wadle, OmniBus Systems

Crispin, a Raleigh, N.C. developer of broadcast automation systems, will demo its System 2000 with a BXF interface to Myers Information Systems' ProTrack.

"The system will be installed at WGCU, a PBS station in Fort Myers, Fla.," said Rodney Mood, Crispin's chief technology officer. "The first phase rollout will include playlist functionality."

It will replace manual operations previously used to exchange files between traffic and automation systems, Mood said. ■

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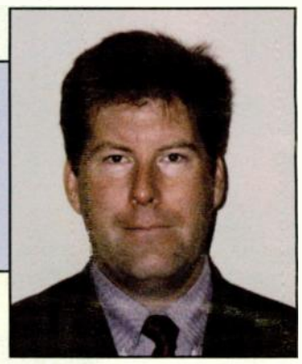
New Standard Targets Media Management

SMPTE's BXF proposal close to ratification

Making its way up the SMPTE chain is a standard to facilitate the exchange of data between systems to improve program management, traffic, automation and content distribution. Designated the broadcast exchange format, the standard is targeted for ratification by October. TV Technology spoke about BXF and its implications with Chris Lennon, director of integration and standards for Harris Software Systems, who chairs the working group, S22-10.



Chris Lennon, director, integration and standards, Harris Software Systems

by Robin Berger

COLORADO SPRINGS, COLO.

TV TECHNOLOGY: How did you champion the development of BXF?
LENNON: I have been heavily involved in the integration of broadcast systems for over 15 years, and have lived with the mess that proprietary, batch file-based interfaces have created.

Within Harris alone, we have to support well over 100 interface protocols today under the specific area that BXF is intended to cover. Our partners—and even our competitors—all agreed that the situation was untenable. To support broadcasters' requirements moving forward, standardization was needed.

This is the way I positioned [BXF] both with SMPTE and with companies and individuals who we later recruited to help with the effort. I first proposed the formation of this group within SMPTE in June 2004, at the quarterly Technical Committee meetings in Milwaukee. SMPTE has been very supportive of this activity right from the start.

TV TECHNOLOGY: How widespread is industry support for BXF?
LENNON: Since the group's origin, participants have come and gone, but we've had a total of 175 people from over 100 organizations involved.

TV TECHNOLOGY: What notable features are in the SMPTE standard draft?
LENNON: We purposely set the scope as tight as we could, to ensure that the document and schema produced would be focused.

The basic goal of creating a single standardized replacement for the myriad interfaces in place today for Schedule (playlist), as-run, dub order, and purge list exchanges is the foundation of the document. However, the group was very forward-thinking, and was sure to include support for functionality that goes well beyond what can be done today.

I'm really pleased we have been able to include support for dynamic messaging between systems, integration with content delivery systems, general extensibility, and a greatly extended set of data elements systems can exchange.

TV TECHNOLOGY: How will BXF impact broadcast industry equipment?
LENNON: You can expect a dramatic impact on broadcast systems as a direct result of BXF, [which] allows systems that formerly existed as islands of functionality to interoperate at a far more sophisticated level.

For instance, using BXF, far more control of the on-air operation can be moved out of the master control suite and into traffic. While some shudder at that thought, it's where our customers tell us they want to go, and it puts the decisionmaking back where it belongs: with the systems and users that have the information to make those decisions.

I am also very hopeful that BXF will tie content distribution systems into automation, traffic, and program management systems at a much deeper level than you see today. It only makes sense when you think about broadcasters' desire to manage their schedule right up until airtime.

TV TECHNOLOGY: Will prototype BXF-enabled gear show up at NAB2007?
LENNON: I expect to see several demonstrations of the power of this technology at the show this year. It's been great to see detailed feedback to the S22-10 group from companies who are clearly implementing BXF in their products right now, and I take that as a strong indicator of the work that they are putting into implementing this today.

I can tell you that Harris will be showing the power of dynamic schedule updating, enabled by BXF, with its scheduling and automation systems.

TV TECHNOLOGY: How will BX products affect the efficiency of the broadcast industry?
LENNON: BXF allows applications to exchange information about content, schedules, and as-run delivery in a near real-time manner. This replaces the traditional once-per-day file transfer processes of traditional systems.

Content data is shared via BXF between sales, scheduling, asset management, and automation systems, eliminating the need for duplicate data entry and promoting data integrity across systems.

Broadcast schedule changes are propagated between sales, scheduling, and automation, minimizing the impact of last minute schedule changes as well as allowing for the management of media preparation activities to take place sooner.

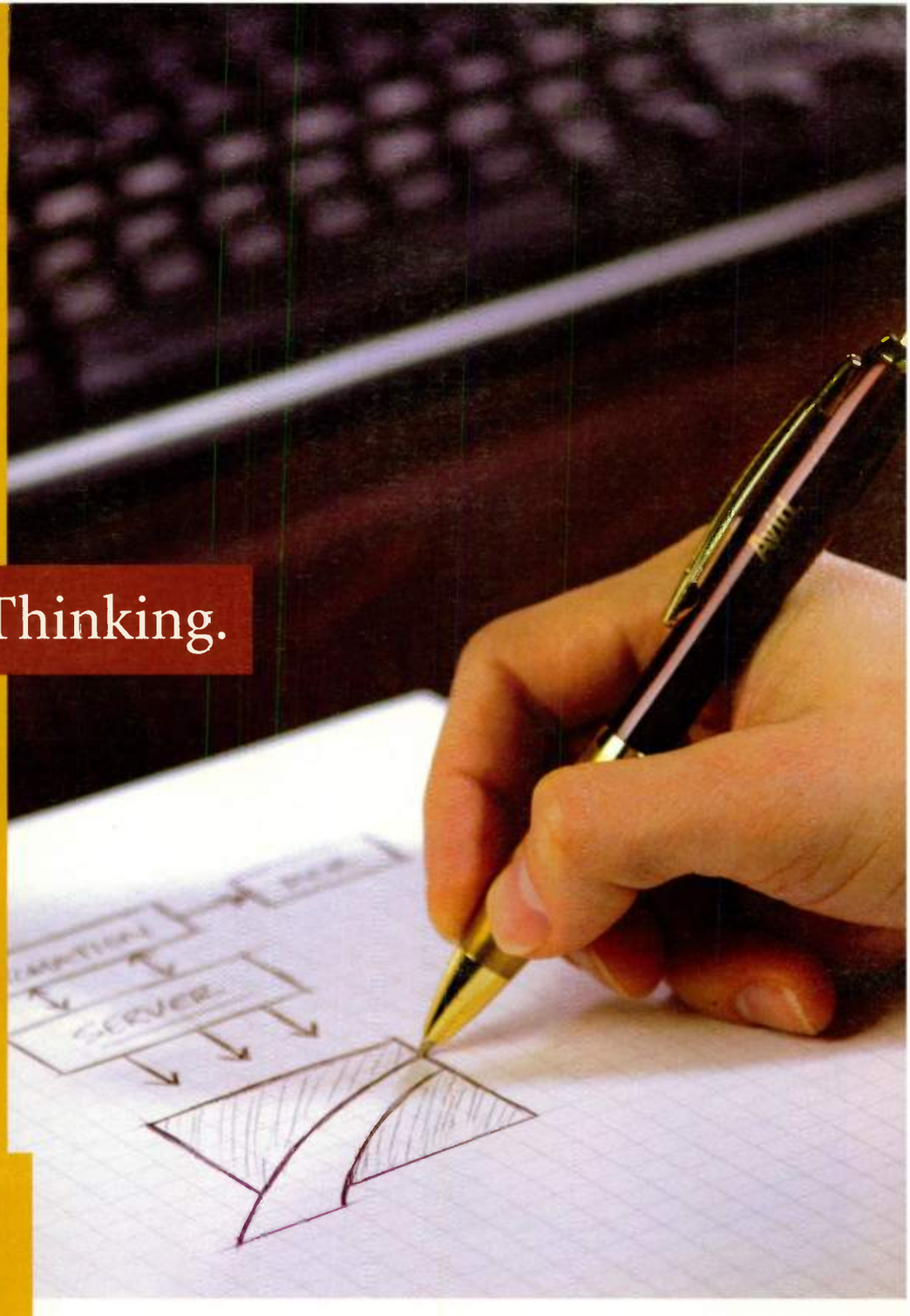
As-run data is communicated near real-time from automation to sales, allowing for timely management of the sales and billing process.

TV TECHNOLOGY: What new services might BXF-infused equipment enable?
LENNON: I can certainly see BXF enabling systems to support nontraditional sources of revenue. It is the hope of the group that BXF will prove suitable to enabling nonlinear delivery of content to consumers, as we did try to keep that requirement in mind when working on it.

As things have developed and word has spread, it has been very interesting to see people and companies emerge and tell me that the work we're doing could have applicability to areas that were never envisioned originally.

TV TECHNOLOGY: What is the timetable for ratification of the BXF standard?
LENNON: We have just emerged from the first round of balloting of BXF as a Final Committee Draft within SMPTE's S22 Television Systems Technology Committee. It appears likely that at least one more ballot will be required before publication of SMPTE-2021 as a standard. I'm hopeful that we can get the comments sorted out and the document through the SMPTE process in the next few months.

TV TECHNOLOGY: What are the sticking points, if any, in gaining consensus for this standard?
LENNON: I don't see any specific sticking points right now, but the main task at hand is to ensure that we have processed and addressed all of the comments... from interested parties, and that the output of that process is the best document we can put forward to the industry. ■



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Smooth 2 GHz Transitions Reported

Sprint Nextel gives progress report to FCC

by Michael Degitz
Vice President, Global Development and Spectrum Management
Sprint Nextel

RESTON, VA.

The transition of broadcast auxiliary service (BAS) licensees in the 1.9-2.1 GHz band continues to make significant progress thanks to stepped-up cooperation between all parties. On March 7, Sprint Nextel reported to the FCC that the transition has been initiated with fully 100 percent of all eligible BAS licensees, and 80 percent of licensees have equipment inventories that have been completed and verified.

Michael Degitz

Stop by the Sprint Nextel booth at NAB2007 to discuss the latest developments in the 2 GHz transition.

While a great deal of work remains to be done, this is progress worth celebrating. In the past year, nearly all of the legal obstacles to 2.0 GHz reconfiguration have been resolved, and we are moving forward together—Sprint Nextel, broadcast licensees and equipment vendors—to transition the BAS bands without delay or undue disruption to licensee operations.

In fact, broadcast stations that have completed their transitions are reporting smooth operations. For example, KAUZ-TV in Wichita Falls, Texas completed its transition on Feb. 16, and is already benefiting from the new equipment.

"When I went to the initial kickoff meeting in Dallas, I was skeptical that this transition would go smoothly," said Tony Guess, chief engineer at KUAZ. "But everyone has gone above and beyond to get the install done, with a solution that was functional and easy-to-use."

Perhaps most importantly, the 2.0 GHz transition has led to dramatic improvements in KAUZ's news-gathering capabilities, as camera crews are able to get shots out of places where they've never been able to reach before.

"We're doing two or three live shots per day, where we once did one or two a week," Guess said. "It's even improved the mood of our newsroom teams. I think stations in all markets, no matter what their size, will benefit from this transition."

A number of Sprint Nextel representatives will be on hand at NAB2007 in Las Vegas this month, and we look forward to talking with you about success stories like KAUZ. I will also be on hand to give a presentation on what we need to do to keep up the momentum on this important initiative.

While you're there, I encourage you to reach out to one of us with thoughts about the process so far, or questions about how you can make progress at your station and in your markets.

You may have heard that Sprint Nextel has chosen Azcar Technologies, Inc. to continue the operator training program for all eligible licensees for the 2 GHz relocation project, (see related story below, "Azcar Launches BAS Training Via Satellite"). This training, which is based on a live, "distance-learning" model, will help broadcasters navigate the complexities of the spectrum relocation and understand the new equipment that is currently under installation around the country. Here are some key things you should know about the training:

A live instructor will beat a central location delivering the training content, which will be delivered to each station live, via Ku-band satellite.

The training objective is to highlight what stations need to know about operating in the post-transition band plan, including the differences between old analog and new digital equipment.

A return audio (and video) channel will be available to transmit questions from the class participants back to the trainer via the Internet.

Azcar will coordinate with stations regarding their radio and control system manufacturers so that station training can be geared as best as possible toward the equipment that the station is actually purchasing.

If you have any questions about Azcar or the upcoming training session for your station, please contact your regional Sprint Nextel Project Manager.

ENGINEER AWARDED

Finally, I hope you'll join me in congratulating Cindy Hutter-Cavell, director of broadcast engineering for Sprint Nextel, who was recently named 2007 Outstanding Female Broadcast Engineer by American Women in Radio and Television and the Society of Broadcast Engineers.

This award is given to an individual who embodies both the value and the values women bring to the field of broadcast engineering. Cindy leads one of the teams working on the 2.0 GHz spectrum relocation, and I can testify that this honor is well-deserved. It's also another indicator of the high caliber of all the folks Sprint Nextel has working to make this transition project go quickly and smoothly, a true win-win for all parties.

Cindy Hutter-Cavell, director of broadcast engineering for Sprint Nextel.

For more information on the 2GHz BAS relocation, visit our Web site: *www.2GHzRelocation.com*. ■

The 'Missing Link' to HD

Microwave companies anticipate strong demand at NAB2007

by Craig Johnston

SEATTLE

Manufacturers of microwave equipment for the 2 GHz relocation of broadcast auxiliary service (BAS) licensees agree that three years is a long time.

The 2 GHz relocation became law with the FCC's report and order issued July 1, 2004, mandating that Nextel Communications relocate those licensees within 31.5 months. The agreement between Nextel and the federal government called for Nextel to replace, one-for-one, the licensees' analog 2 GHz microwave equipment with more efficient digital models that would allow those licensees to squeeze into narrower, 12 MHz channels.

As for changes since the relocation was made official, you can start with Nextel itself being merged into Sprint, which closed just over a year after the FCC's R&O. But the new entity is still obligated to pay the bill, so the merger doesn't affect the equipment manufacturers.

Instead, it is TV technology's incessant march forward—in this case toward newscasts in high definition—that has the microwave equipment manufacturers in a pickle. All six microwave equipment makers contacted by **TV Technology** for this story said that broadcasters are showing interest in high-definition microwave, if not for use immediately, then in the near future.

That sets up a collision course of sorts with the conditions of the 2 GHz relocation equipment swap.

"Sprint Nextel's making it clear that they're only compensating for direct functionality replacement," said Robert Bauer, director of marketing and sales for Broadcast Microwave Services in Poway, Calif.

LINK, PAGE 26

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Link

CONTINUED FROM PAGE 24

"So that's standard definition analog to standard definition digital."

Those broadcasters who want to do their live shots in HD or are being forced to by competitors, don't want to be left with microwave equipment with only an SD application.

"[For] most customers, one of their key decisionmaking points is the ability to upgrade to HD," said Mike Payne, vice president, marketing and business development for North Billerica, Mass.-based Microwave Radio Communications. "Whether they're going to do it this year or not, they want to make sure the gear they're buying is going to be compatible with HD."

UPGRADE OPTIONS

As a result, all six of the equipment makers have strategies for satisfying broadcasters' appetite for HD, or at least a path to HD, in products they will be showing at NAB. All have HD-ready offerings, though these require a buy-up from the Sprint Nextel direct equipment swap arrangement.

Much of the SD-capable equipment can carry HD via ASI interfaces on transmitters and receivers to allow use of external HD encoders and decoders.

Some microwave equipment internal encoders and decoders can be upgraded via hardware or software modifications. Broadcasters participating in the 2 GHz Relocation equipment swap should keep in mind that many of these offerings involve additional cash to either buy up to HD equipment now, or pay the cost of the upgrade at some time in the future.

"We're going to be showing HD integrated into all of our products," said John Dulany, director of sales and marketing for Nucomm in Hackettstown, N.J. The company's ChannelMaster portable and van-mounted transmitters and receivers will have HD encoders integrated into the units.

Nucomm ChannelMaster Tx

The Sprint Nextel swap does not cover the entire cost of an HD-capable ChannelMaster, according to Dulany, but those who take delivery of an SD unit can pay to have the transmitter upgraded to HD at a later date.

MRC will show its PTX-PRO portable microwave transmitter which can also be installed in an ENG van or aircraft. The PTX-PRO can transmit either analog or digital signals. Delivered in a standard definition configuration in a 2 GHz relocation swap, it is also upgradeable to HD.

"We can do that with a software key," MRC's Payne said. "It's very attractive to people because they can buy the radio and the hardware platform is not changed as we go to HD. It's always a challenge to take equipment out of the field and send it back to the factory."

Another manufacturer with a popular portable microwave radio being specified in 2 GHz relocation swaps is RF Central, with its PHT Portable High Power Transmitter radio.

RF Central PHT Portable High Power Transmitter radio

"You could jump in a rental car, throw a mag-mount on the roof with an omni antenna on it, and you could be on the air," said Jim Malone, chief technology officer at RF Central in Carlisle, Pa.

Though the 2 GHz relocation swap will net a station an SD version of PHT in exchange for an analog transmitter, for an additional fee the broadcaster can take delivery of an HD version, or upgrade the unit to HD at a later date.

For the 2 GHz relocation swap, BMS provides the TCII Truck-Coder transmitter and CRS-DCII Central Receiver, which are capable of operating in analog and digital.

The MRC PTX-PRO

"The TruckCoder and all of our COFDM products feature an ASI input and ASI output at the receive end," said BMS' Bauer.

The company also has a full line of HD-ready microwave equipment, including a new portable HD microwave transmitter, and the CT2200HDV transmitter that is designed specifically to interface with HDV-ENG cameras.

Global Microwave Systems (GMS) is attacking the challenge of delivering high-definition microwave capability by incorporating the H.264 Advanced Video Coding codec into its Messenger II Series of radios.

"The big advantage [with AVC] would be that people could go to high definition and basically have the same RF performance as they do today with MPEG-2 compression," said Sam Nasiri, president of GMS.

At presstime, GMS had not submitted Messenger II to Sprint Nextel to establish whether analog gear could be directly swapped for it, but Nasiri said he expects there to be an upcharge for it. The company's MPEG-2 SD-capable Messenger does

The Moseley Associates Event HD 2200 ENG Link

qualify for direct swap, and can be updated to H.264 HD capability later.

If the key to being able to deliver high definition across a microwave path is bandwidth, Sunil Naik, director of engineering at Moseley Associates in Santa Barbara, Calif. said he will show plenty of it at NAB with the company's Event HD-2200 ENG Link.

"With the Goodyear blimp we did some tests with NASCAR where we were running 38 Mbps, and next, we're going to try 50 Mbps," he said.

Moseley does not include internal encoders and decoders in its transmitters and receivers. Since the Event HD-2200 does not include an encoder, broadcasters doing a direct Sprint Nextel analog to digital radio swap will also receive an external SD encoder as part of the deal. They can pay an upcharge and receive an HD encoder.

ALTERNATE MODULATION

Moseley is the one microwave equipment maker whose ENG microwave radios do not utilize COFDM modulation. However, in order to pass higher data-rate HD, some of the other microwave equipment makers are now looking to non-COFDM modulation as an alternative.

Agile transmitters and receivers will be shown at NAB, capable of switching between COFDM and other modulation schemes. The manufacturers note that in situations where the signal path does not require the robustness of COFDM, the other modulation schemes can yield significantly higher throughput.

Not only can that extra bandwidth be used to pass a less compressed, and presumably higher quality live or recorded video feed back to the news studios in real time, but several manufacturers will show prototypes or product-ready models of equipment capable of shoehorning file-based video, or other data such as scripts or Internet connectivity, into excess bandwidth while not interrupting the main video signal.

For those stations participating in the 2 GHz gear swap, here's a final thought when deciding whether to buy-up to HD-capable gear now or go the upgrade route when the need for HD microwave actually arrives. According to one microwave equipment maker, it could save cash to do an SD swap now and an HD upgrade later.

"Conceivably by the end of this year, certainly by the middle part of next year, it'll cost less to make the HD card than it costs now to make the SD," said RF Central's Malone. ■

While You're Up There...

Your tower is fair game during 2 GHz relocation work

by Craig Johnston

SOMERSET, N.J.

Along with Sprint Nextel's obligation to swap new digital microwave equipment for broadcasters' legacy analog microwave gear, the company also is on the hook for one more part of the process: They also have to pay to have the new equipment installed.

A significant amount of that new equipment will be installed on towers, an expensive process due in part to the need to rig towers to safely install the equipment. A broadcaster who thinks ahead could realize considerable savings and also take proactive measures to ensure their system operates at optimal efficiency.

TYING UP LOOSE ENDS

This isn't to say Sprint Nextel is going to pay for the extra work on the tower. Broadcasters need to pay for any extra work out of their own pockets. But since the crew is on site, the hoist and other rigging is in place, the cost of the extra work can be relatively small when done at this time.

"Say it takes you four hours to rig the tower with a ginpole, and 30-minutes to hoist up a [new 2 GHz] antenna," said John Alexis, director of business development at Somerset, N.J.-based DSI RF Systems Inc., one of the systems integrators who BAS licensees will be contracting for such installation work.

"While you're already set up, if you have some control cable or RF cable that's not looking too great or is acting up, you can go ahead and swap that out since you already have the tower rigged."

DSI's president Tim Carroll agrees. "It may take one or two days to do the BAS project. You could spend extra time working on your seven gig system, or whatever else might need to be done on the tower, and save some rigging time, and more specifically mobilization time that goes with that."

Alexis said that during the tower equipment verifications that DSI did for Sprint Nextel, the crews often noted temporary installations that could be addressed when the crew is on site to install the new system.

"Maybe they had a bad storm come through and they lost their transmission line, and in an effort to getting back on air as quickly as possible, they tied-off the new transmission line with rope to the tower," he said. "Some of these things were temporarily rigged, maybe it was done two, three, four years ago, and no one ever got around to tying up those loose ends."

While they're on the tower, the crew could be looking for simple wear-and-tear.

"Another thing is looking at the condition of the antenna mounts," Alexis said. "Particularly in areas where there is high humidity and salt air where corrosion takes it toll." Even if it's not time to replace it, he suggests documenting and photographing their condition.

Carroll also pointed to tower cameras as a candidate for some work while the 2 GHz crew is up there.

"If you have a tower camera up there where perhaps the pan/tilt or some other function is not working properly, while you have the tower rigged you can hoist up a new pan/tilt head, enclosure or some other component, or you can hoist that down, fix it, and hoist it back up. Or simply just clean the windshield on the enclosure and wipe away the spider webs."

A station looking to install an HD tower camera some day could pick this time to put it in place, or at the very least do some measuring to find out if the new camera mount will fit.

Tower space is a valuable commodity, and over time many stations have had tower-tenants come and go. Alexis suggested this could be a good time to see what, exactly, is up there.

"Take a look and see what's still in use and what's not," he said. "Over time, antennas and transmission lines get left in place. This would be a good opportunity to take some steps to clean up the tower and account for what is up there."

Not all of the digital 2 GHz equipment installations take place off the ground. In addition to microwave gear that will be installed in news vehicles, there will be new equipment going into the infrastructure at the TV studios themselves.

"You could clean up a lot of your cabling and your equipment racks, both at your control points and at the remote sites," said Carroll. "You may have old equipment, or old cabling that over time needs to be dressed in, or you may want to track down what you have in there. While you're changing equipment out, putting new connectors in there, you may want to dress that up as well." ■

John Frercks of DSI RF Systems installs a 2/7 GHz system on a rooftop tower in Manhattan.

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BAS Update

Azcar Launches BAS Training

Distance learning program offers two-hour training sessions

by Craig Johnston

CANONSBURG, PA.

In order for Sprint Nextel to acquire a small slice of spectrum in the 2 GHz band, part of the multibillion dollar price tag includes the company's obligation to make broadcasters, who have to squeeze into narrower 2 GHz broadcast auxiliary service channels, whole. Toward that end, Sprint Nextel is replacing stations' 2 GHz analog microwave equipment with digital gear.

A lesser-known part of making broadcasters whole has been the training of their microwave operators in the very different techniques of digital microwave operation. The training program was originally envisioned as six roving crews, hopping from market to market, giving hands-on training to each relocating stations.

The contract for this training was recently awarded to Azcar, a Markham, Ontario-based systems integrator, with U.S. headquarters in Canonsburg. The regimen has been restructured into a satellite-based training system that began operation March 1.

Each two-hour training session is dedicated to a single station's operators, with return audio from the station to the Pittsburgh studio where the training originates. While digital microwave operation, especially at the receive station, is markedly different from tuning in an analog microwave shot, David Otey, who was recently brought on as general manager of training systems for Azcar, said a station's microwave operators shouldn't feel like they're starting all over.

"I think we need to teach them that what they know about their job still has value," he said. "They need not fear that suddenly their skills are going to become obsolete because the analog equipment they're familiar with is being replaced with digital equipment."

The reason for operator trepidation is the very different set of techniques for judging the strength of a microwave shots that digital microwave requires. A weakening analog microwave signal starts to show degradation in the video signal itself, in the form of noise.

A digital microwave signal that is degrading maintains a perfect video picture in the monitor until it either disappears altogether or freeze frames, the so-called "cliff effect."

So like a pilot flying in the clouds, the microwave operator has to rely on instruments.

"In the analog microwave world, operators are taught that when the instruments say one thing and the quality of the picture says another, believe the picture," Otey said. "With digital microwave, you have to believe the instruments.

"So we need to explain enough of the

AZCAR, PAGE 36

Heather Marko, a member of the Azcar training team, leads a BAS training seminar.

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A Piece of the 2 GHz BAS Pie

SBE's BAS transition point man discusses progress

Dane Ericksen, Chairman, SBE FCC Liaison Committee

Dane Ericksen, P.E., CSRTE, 8-VSB, CBNT, ranks among the most knowledgeable engineers in the country on the 2 GHz of broadcast auxiliary service spectrum.A senior engineer with the radio and television engineering consulting firm Hammett & Edison, Inc. near San Francisco, Ericksen sits on the board of directors for the Society of Broadcast Engineers. He's chaired the FCC Liaison Committee of SBE since 1987, and since January 2005, he's chaired the ATSC TSG/S3 Specialist Group on Digital ENG, which deals with private communications between DTV stations and their associated D-ENG crews.

Ericksen is the "go-to guy" on BAS matters for broadcasters nationwide. As a sampling of his insights, Ericksen described three categories of FCC dockets relating the BAS transition that are separate from the Sprint-Nextel deal. His remarks offer a penetrating glimpse into the primal challenges facing the 2 GHz transition.

by Ken Freed

SAN FRANCISCO

TV TECHNOLOGY: What is your role in the FCC filings on the 2 GHz transition?

ERICKSEN: As chairman of the SBE's FCC Liaison Committee, which is one of several standing committees named in the SBE bylaws, I'm responsible for all national-level FCC filings by the SBE.

TV TECHNOLOGY: How many of these filings have been related to the 2 GHz transition?

ERICKSEN: There's been about a dozen regulatory filings so far and these are posted on th SBE Web site [www.sbe.org]. They're related to four FCC dockets:

ET 00-258 is a 2000 Office of Engineering and Technology Bureau docket dealing with DoD uplinks being moved into the 2 GHz TV BAS band.

WT 02-55 is the 2002 Wireless Telecommunications Bureau docket dealing with the Sprint-Nextel rulemaking on the 2 GHz TV BAS transition.

WT 04-356 is a 2004 WTB docket about service rules for 3G 2 GHz AWS [Advanced Wireless Service] stations that operate in the 2 GHz band; this includes 2,110-2,120 MHz, which is just above the top of the 2,025-2,110 MHz TV BAS band.

And the last is IB 02-364, a 2002 International Bureau docket that deals with MSS ATC [Mobile Satellite Service Ancillary Terrestrial Component], which stems from the reality that MSS satellite phones often do not work in urban canyons or high-rise buildings.

TV TECHNOLOGY: Our readers know about the Sprint-Nextel docket, so let's focus on the other three, starting with ET 00-258. My understanding is that the goal was to make more spectrum available for DoD communications. What's the core issue here with the DoD?

ERICKSEN: The core issue is that up to 11 DoD tracking, telemetry and command satellite uplink stations now operating in the 1.8 GHz federal government Space Ground Link System band are being modified to include the 2,025 to 2,110 MHz TV BAS band. The DoD microwave uplink beam at up to 110 dBm EIRP has the potential to "leak" co-channel energy that interferes with ENG operations by broadcasters.

What makes this especially difficult is that many of the 11 DoD uplink stations are not out in the boondocks. They are in major urban areas like Los Angeles, which is the number two TV market for ENG use in the U.S. after New York, or maybe L.A. is number one now. Other DoD uplink stations are in markets like San Francisco, Albuquerque, Denver, Orlando, and Boston; these are all TV markets with heavy ENG use.

TV TECHNOLOGY: Are broadcasters protesting?

ERICKSEN: The ET 00-258 rulemaking is a done deal. The decision on whether to let DoD into the 2 GHz BAS band has been made. SBE fought it; NAB fought it; MSTV fought it. We told the FCC this would be a train wreck, but DoD insisted they needed more spectrum for vital military operations. Ultimately, broadcasters lost the fight.

The good news is that DoD transmissions in the BAS band have not started yet. There have been meetings between SBE and DoD to figure out how to engineer our way around the interference. It's a difficult challenge, although one possible solution includes adding shrouds to the DoD uplink dishes to

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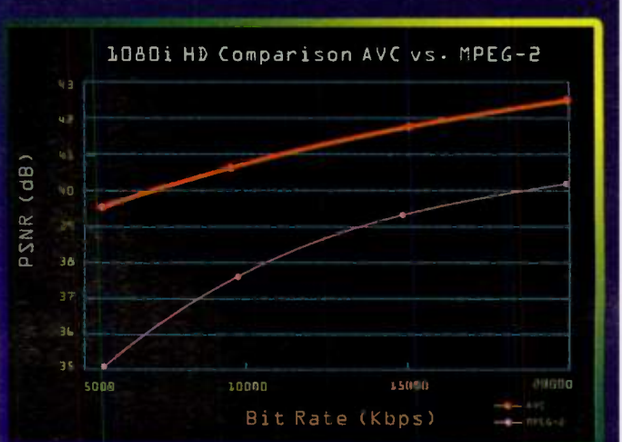

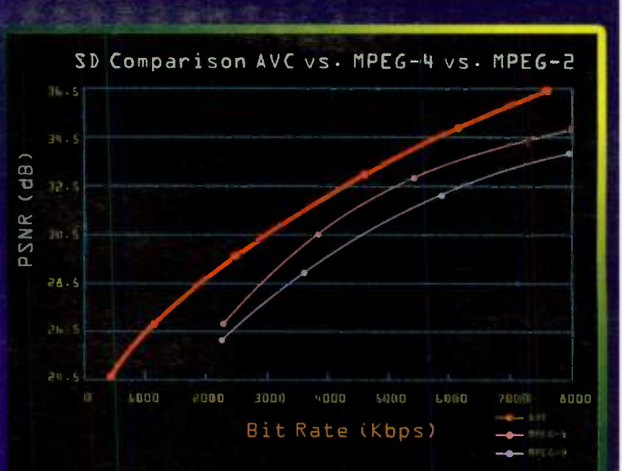

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reduce their level of side-lobe leakage.

Before this comes to a head, DoD has to build and launch satellites capable of operating in the 2,205-2,110 MHz band, and that's probably at least five years on. So, there's time to negotiate and adopt mitigation protocols that will minimize the interference to ENG operations.

TV TECHNOLOGY: What's WT docket 04-356 about?

ERICKSEN: One AWS auction winner, T-Mobile, is building base stations in New York and Chicago that are already interfering with ENG operations. For instance, WABC-TV has essentially lost the use of one of its ENG sites due to interference from T-Mobile's contractor, Ericsson, when it fired up a preliminary universe of 49 AWS base stations in the Brooklyn area.

If any news event happens in the areas covered by that ENG site, WABC-TV cannot do a live feed from there unless the AWS base stations shut down. Since the Ericsson operation is pursuant to an Experimental Special Temporary Authority, WC9XSK, that operation is secondary to licensed TV Pickup stations.

But when the T-Mobile NYC system finally gets turned on, pursuant to T-Mobile's AWS license, WQGB263, that operation will then be co-primary with TV BAS operations. And since the T-Mobile system for New York City will have about 300 cells when it's completed, this means that essentially all of the ENG-RO sites used by the New York City TV stations will be at risk of interference.

TV TECHNOLOGY: What's the solution?

ERICKSEN: This issue is pretty serious, and it's still very much under discussion between New York City broadcasters and T-Mobile. The interference is already happening there, and interference in Chicago is pending, so this is definitely a work in progress. In the WT 04-356 rulemaking, SBE suggested that AWS stations needed to improve the suppression of their out-of-band-emissions, but so far T-Mobile and Ericsson have been less than enthusiastic about a tighter emission mask.

TV TECHNOLOGY: Then let's finish by talking about IB 02-364 and BAS overlapping with satellite phone services in urban areas.

ERICKSEN: The issue here is that Globalstar, an MSS entity, discovered that their mobile satellite phone service doesn't work very well in urban canyons or from inside of high-rise buildings. MSS relies on a constellation of low-earth orbit satellites that take 15 to 30 minutes to cross from horizon to horizon, and you need clear line-of-sight to one of the satellites from wherever you are at any given moment to stay connected to the network.

It's like the GPS satellites—you need a constellation of satellites to ensure coverage. The MMS phone system does not work in urban canyons because the buildings block the signal. The signal also has difficulty reaching the satellites from inside of steel and concrete buildings, which can significantly attenuate a 2 GHz signal. This is generally not a problem in rural areas, though.

Within dense urban centers, where getting a signal up to a low-earth orbit satellite 100 miles overhead is often not possible, to ensure ubiquitous service requires an ancillary terrestrial base station that is within a few miles of the MSS phone, just like with a standard cell phone, where base stations are typically no more than two to three miles apart. GlobalStar wants to build ATC [Ancillary Terrestrial Component] base stations in major cities like New York, so they can offer full coverage to their customers.

TV TECHNOLOGY: How is that an issue for broadcasters?

ERICKSEN: Because TV BAS Channel A10 was re-allocated to MSS about 20 years ago, but existing TV BAS licensees were indefinitely grandfathered on a co-primary basis. There is therefore no sunset date for broadcasters' grandfathered use of A10, and because those grandfathered operations are co-primary with MSS, the earlier-in-time and grandfathered A10 stations have protected status.

There are around 100 grandfathered TV BAS A10 licenses nationwide, of which about 90 are mobile TV Pickup stations. A TV Pickup license authorizes an unlimited number of transmitters, which could be mounted on ENG trucks, helicopters or fixed wing aircraft, all with grandfather rights for TV BAS Channel A10. The other 10 licenses are fixed point-to-point stations, and they are undoubtedly important to their individual license holders, too.

TV TECHNOLOGY: If the spectrum is safely allocated, what's the issue here?

ERICKSEN: The International Bureau first thought that there were no grandfathered left. When SBE pointed out that this was not the case, and that there were in fact about 100 such grandfathered licenses, IB then decided it nevertheless would not be a frequency sharing problem if it let GlobalStar build 2,487.5-2,493 MHz MSS ATC base stations in metro areas.

The reality is that this will cause huge problems for TV stations in at least seven major urban markets still using A10 on a grandfathered basis; these stations have been very careful not to lose their grandfather rights by inadvertently letting their grandfathered A10 licenses expire.

TV TECHNOLOGY: Now that's a fundamental conflict. Where does this stand?

ERICKSEN: Globalstar says it's going to deploy MSS ATC base stations, but in its FCC filings, SBE has argued that Globalstar cannot do that until it first relocates all of the grandfathered A10 BAS operations, since the TV stations were there first.

So, IB Docket 02-364 is about Globalstar relocating the three 2.5 GHz TV BAS channels from 17/16.5 MHz-wide analog channels to 12 MHZ-wide digital channels, just like what Sprint-Nextel is doing for the 2 GHz TV BAS band. The difference is that unlike Sprint-Nextel, Globalstar has not stepped up to pay for any new gear. There's no funding deal in place here.

TV TECHNOLOGY: And what's the solution?

ERICKSEN: The solution is very simple, actually, and it's almost free. Sprint-Nextel has agreed to purchase frequency-agile transmitters for the 2 GHz TV BAS channels [Channels A1 to A7]. These transmitters already have a built-in synthesizer that also enables them to operate on the A8, A9 and A10 channels at 2.5 GHz.

So new 2 GHz digital ENG radios are inherently also capable of operating with digital modulation on re-farmed 2.5 GHz TV BAS channels. The incremental cost is essentially zero. Unfortunately, IB has so far not adopted this SBE proposal.

TV TECHNOLOGY: Thanks. So, how would you summarize the situation?

ERICKSEN: There's an old Chinese curse: May you live in interesting times. With everyone wanting a piece of 2 GHz spectrum, these certainly are interesting times for 2 GHz TV BAS operations. ■

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The 'Tip of the Iceberg'

Hidden gems await broadcast archivists

by James O'Neal

BLOOMFIELD HILLS, MICH.

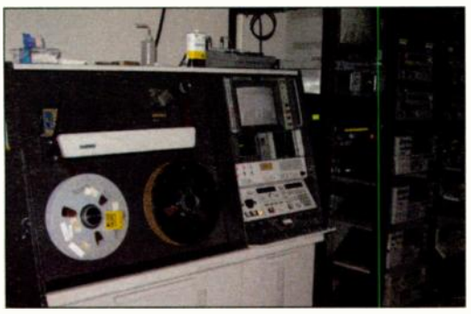
Walter Media Works here specializes in the transfer, preservation and cataloging of news footage for television stations. Chief Engineer Zen Losin says archival business is very steady.

"We have one client with footage going back to 1956," he said. "Of course stuff this early is all on film, as they didn't have videotape recording then."

Losin described some of the film footage he's worked with as "quite interesting."

"We're doing news footage and when you go through the archives of a station that's been around for a long time, you find all sorts of things," said Losin. "We've transferred a lot of footage about the flying saucer sightings down at Hillsdale [Mich.] back in the '60s. We have interviews with all of the witnesses and footage from the police investigating the incident.

"Since we're located near Detroit, there's a world of Walter Reuther footage. We also have about five hours of Jimmy Hoffa material," Losin said. "I unearthed a Coretta Scott King documentary from around 1975 that nobody knew about. It was unlabeled and mixed in with a collection of other tapes."



This AVR-3, the last of the quad VTRs produced by Ampex, is needed to play back "Super High Band" recordings at Vidipax.

TRACKING DOWN

Identifying a piece of footage or discovering a show is sometimes only the tip of the iceberg according to Losin.

"You run into all sorts of things. I found a 1980 Merv Griffin Show," Losin said. "I finally was able to contact Merv's people and they were really glad to learn of the discovery, as it was a show that they didn't have. It's not just grunt work. It's also locating the rightful owners and letting them know what you've got."

Losin comes from a broadcasting background and saw the market for out-of-house archiving develop some time ago. Many U.S. television stations have been around for half a century or longer, and film and tape archival materials have been accumulating practically since their first day

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Azcar

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principals behind the digital system, not in highly technical terms, but just enough that people can have the confidence that 'I can use that information [from the instruments] the same way that I could use the amount of noise I could perceive in the picture with analog microwave gear.'"

Microwave equipment manufacturers have supplied Azcar with some of their new digital microwave gear so that operators viewing the training are looking at equipment that's identical or similar to what they will be using.

Troll Systems and N Systems have supplied Azcar with remote control equipment because some or all of the actual signal monitoring is done on the remote control console. Each of those remote control makers has a different way of displaying that monitoring information.

Digital microwave signal characteristics are measured with two basic devices: a spectrum monitor and a signal quality metric that the microwave receiver provides. Each receiver manufacturer's signal quality metric is unique, but they all use a number of the received signal's properties to yield signal quality as a number or bar graph.

The spectrum monitor not only allows the operator to view the characteristics of his own signal, but to see other signals as well that might be interfering with the signal he's receiving. The training shows operators how to use both measurements in conjunction with one another.

"In doing that, you're getting an indication whether things are heading toward that digital cliff or away from it," Otey said, "and you can get that indication while you're a comfortable distance from it." Thus the operator is aware of a signal degradation and can take action before the audience (or the news director) ever see an indication of a problem in the video itself.

KCEN-TV, the NBC affiliate in the Waco/Killeen/Temple, Texas market, was one of the stations that received training from Azcar right after the March 1 launch

"None of our folks have worked with digital microwave before," said the station's chief engineer, Dan Archer.

"We have just now started to receive some of that equipment, so it was advantageous for us to actually see the exact equipment being demonstrated," he said.

The crew at PBS member station WTTW-TV in Chicago came to the training sessions with a mixture of digital microwave experience.

"Some of our guys have some digital microwave experience, some of them not, so it was a good, sound, fundamental session," said Ron Yergovich, vice president of engineering for WTTW.

As a public television station, WTTW is not tasked with the same level of microwave use as an affiliate doing nightly newscasts, Yergovich said.

"[The training] was actually more complicated than what we would do here. The things they showed us, however, were very accurate to what would happen in a real life environment."

Azcar has allotted time to do at least two of the two-hour sessions per station to allow a station to split its operators between them and allow the station's 24/7 ENG microwave needs to be met. Azcar will also send each station a DVD copy of at least one of its training sessions.

Those stations that want to get a head start on the training are also invited to audit another station's session by downlinking the unencrypted satellite feed. (The unencrypted satellite feed won't allow for viewers to ask questions.) For more information, visit *www.azcartraining.com*.■

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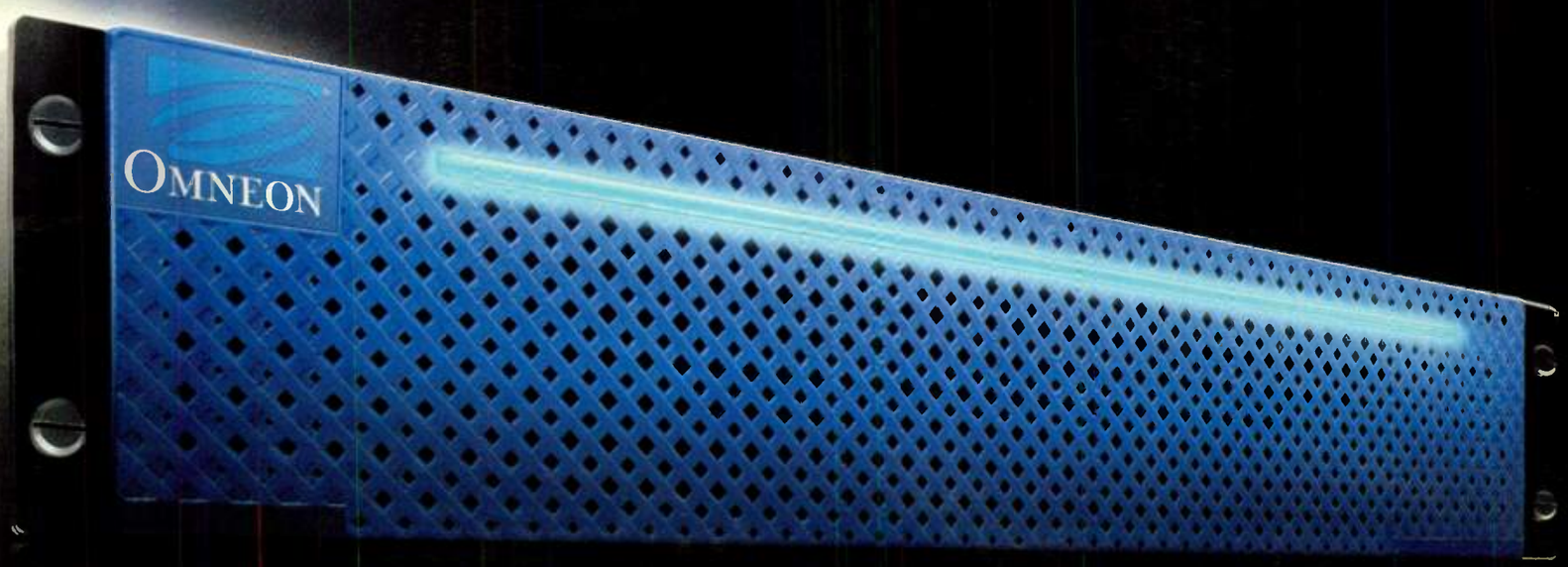

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Iceberg

CONTINUED FROM PAGE 36

of operation.

"People spend their careers with these stations keeping track of footage and when they leave or retire, the material is sometimes just put away and forgotten about," said Losin. "Nowadays stations have dwindling staffs and just don't have resources to deal with it."

Losin estimates that his company has transferred 600 to 700 hours of content in the two years that they've been in business.

When asked about problems he's run into in archiving, Losin said that the worst ones are associated with 3/4-inch U-matic tapes.

"We see these going back to around 1976," said Losin. "The early stuff is really tough to work with. These tapes have deteriorated-colors have even shifted a bit. It's definitely a challenge with some of them. You have to clean the heads every five minutes.

"Another thing we see are constantly changing levels and color balance. You have to ride gain constantly," Losin said. "This is something you really can't do with an automated system."

This is part of a lineup of machines at Vidipax needed to accommodate the ever-growing number of formats.

Losin says that his company works with 16mm film and 3/4-inch and quad tape and transfers most content to DVDs as data files. Metadata, if it exists at all, is usually in the form of index cards accompanying film and tape. Such written information is scanned and is included with the content data files.

"Once we've done this, then you're able to do a search to find what you're looking for," Losin said. "You can see everything on the desktop then."

Asked about lessons learned in his work or advice for others, Losin said "don't do it yourself! If you do, be prepared to spend a lot of time doing dirty grunt work. It's not glamorous. When you're going through tapes that have sitting around for 30 or 35 years it can get filthy. Fortunately, most of the material itself is protected in boxes. You've also got to deal with repairing masking tape splices in reels of film.

"You're also going to have to maintain a lot of obsolete equipment and keep a parts inventory of often hard to find components. They are not making RTL chips anymore."

"The storage of archival materials to high-quality digital files will... preserve image quality to the maximum level that it can be."

—Rob Schuman, Vidipax

AUDIO AND VIDEO

Another firm—Vidipax in Long Island City, N.Y.—has been doing both audio and video recovery since 1990. According to company estimates, around 150,000 content program hours are being processed per year.

Rob Schuman, director of strategic planning for Vidipax, says that they can handle a multiplicity of audio and video formats and have an operation geared for "disaster recovery" if it's needed. There's even an 800 number for emergency restoration help.

"Our job is to rescue this stuff before it becomes unrecoverable," Schuman said. "Our people are very good at video forensics; they try to pull out everything possible that's there in these old video recordings."

Schuman says that although they handle very large amounts of videotape and film, the company also specializes in recovery and archiving of audio materials of virtually sort.

And it's not just news organizations and television networks that use the recovered recordings. Schuman said that the market is shifting to Internet monetization of niche content video.

"There's now a huge amount of video distribution on the Web; owners of video materials have found that they don't need to offer their collections to broadcasters for repurposing," Schuman said. "They can distribute it very readily through these developing markets. There are certainly enough advertising dollars going to these Web video sites to change the whole financial picture for people owning video."

Schuman says that their business could be best described as "digital remastering."

"If you can get it down to ones and zeros, you can process it as you want to," Schuman said. "The storage of archival materials to high-quality digital files will stop deterioration and will preserve image quality to the maximum level that it can be."

He notes that even though the technology to recover and enhance material keeps getting better and better, the content recovery technicians at Vidipax are not the arbiters of such enhancement technology.

"In general, we let the client decide on what sort of correction or enhancement they want," Schuman said.

Gail Clarke, president of Vidipax, says there's not much in the way of video formats that they can't handle.

"Most every format is represented," Clarke said. "I believe the number is up around 68 now. For one of these, we even purchased a half-inch PAL machine from the Vatican."

Asked about memorable video content that had been moved through Vidipax, Clarke recalled several.

"We once did a transfer of some footage from the University of Virginia. There was a cat which had been born with wings," she said. "We transferred the Nixon-Khrushchev 'kitchen debate' from July of 1959 tape, and most of the Nixon Presidential Library material. We've handled a lot of home video from celebrities, including Jimmie Hendrix, and we've also had the Zapruder JFK assassination film here."

IT'S A SECRET

Vidipax has another distinction. Its technicians have U.S. government top-secret security clearances.

Schuman said that the company has been archiving intelligence-related material for the government for some time. However, other than to say that work is of a sensitive nature, he is not at liberty to speak about this part of the operation.

However, it's no secret that the company is actively working for several government agencies. They have a GSA schedule number for deliverables and even have some special format two-inch video machines to accommodate NASA nonstandard video transfers when needed. ■

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APTS Helps Create 'American Archive'

Association urges Congressional funding to save PBS treasures

by Mark R. Smith

WASHINGTON

If you want to know why the establishment of an "American Archive" is essential to preserving the history of PBS, check out the promotional DVD that was recently created by the Association of Public Television Stations.

Those old '60s-era clips of CBS-TV news legend Edward R. Murrow welcoming WNDT to the airwaves, an early clip of Fred Rogers with X the Owl and the Beatles performing "All You Need Is Love" during the world's first global telecast quickly make the point.

The problem is that videotape that was used to acquire such treasures dries out and the oxide particles that store the information can literally drop off. So the degrading footage of a speech by President John F. Kennedy that was also included in the DVD underscores the fact that irreplaceable content could be lost forever—unless action is taken.

Today, the APTS is leading the charge for an "American Archive," a proposed digital library of PBS content. With the help of organizations like Thirteen/WNET and WGBH (which have always accounted for approximately 2/3 of the programming on PBS), the association is urging Congress to help fund the project that would determine the correct technical parameters to create a digital archive to preserve old footage, as well as new digital content that was created for the Internet and other avenues.

TALE OF THE TAPE

"The amount of content in the PBS universe is vast," said APTS President and CEO John Lawson, "and we don't have a handle on how much is out there yet."

The stations "still throw out videotape," Lawson said, noting one station in the South that allegedly tossed 40 years' worth of videotape into a landfill. Others haven't indiscriminately discarded their videotape, but haven't stored it properly, either.

"Some small stations store video in the hallway. So even if it has been kept, you don't know how well it's been kept," he said, noting storage in a fireproof vault protected by Haylon gas as one appropriate avenue.

But questions about preservation are just the first issue. The next concerns the digitizing and "metataging" of content to make it searchable and retrievable.

"We're still figuring out how to do that," Lawson said, noting that APTS is also involved in a pilot project with the Library of Congress (LOC), Thirteen/WNET and WGBH called "Preserving Digital Public Television" (PDPT) to explore various techniques for preserving video.

Lawson pointed out that since 2001, Congress has been providing funding for the digital conversion of the physical infrastructure of PBS stations by 2009. He thinks that infusion could provide the right lead-in to establish the American Archive.

"We're nearing the end of the conversion and asking Congress to allow us to repurpose more funding to invest in virtual infrastructure," he said. For fiscal 2008, APTS is requesting $40 million that will be geared toward finishing that part of the job.

"But, over time, the larger percentage of those funds could be invested in the American Archive," Lawson said. "We see this as an opportunity to start partnerships with universities, museums and libraries. There could be public-private partnerships as well."

Much of the historic programming held by public broadcasters is in danger of being lost unless the material is properly digitized, catalogued and stored for future access.

The PDPT (which has been underway since September 2004) is being funded by the LOC's National Digital Information Infrastructure and Preservation Program (NDIIPP) grant. The project encompasses input from divisions of New York University, PBS, the LOC, Thirteen/WNET and WGBH, as well as eight other partners (*www.ptvdigitalarchive.org/partners*).

GETTING TECHNICAL

Dave MacCarn, chief technologist at WGBH in Boston, has been involved in preservation issues for 15 years. He said "getting the relevant players in the room" is a major undertaking in itself.

"What we need to figure out," MacCarn said, "is how to package digital information, aside from getting audio and video on tape," noting that Avid's open media framework (OMF) was instrumental in the early part of the process, as it evolved into the advanced authoring format (AAF).

"Today, we have a SMPTE-approved standard called the MXF (or Material Exchange Format, a data structure intended to allow for interoperability between broadcast and postproduction platforms) that was built after working with the AAF framework," he said.

APTS, PAGE 42

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APTS

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But there are different issues to deal with archiving in MXF, he said, like encoding.

"For example, if content comes in as Windows Media and I retrieve it years later, how would the decoder know what Windows Media was?" MacCarn asked.

Another concerns the fact that MXF is based on a coding format called "Key Length Value" (KLV). The key is like a keyword, the length concerns the data, and the value is the actual data, MacCarn said. "That question concerns who holds the key.

"If someone else eventually wants to access the file, they will have to know how to open the file, but with what keys? There needs to be an international registry to refer to if the information is not in your own library," he said. "That question is being researched by the Global Digital Format Registry at the Harvard University Library now."

Other issues concern how to store files and what a trusted repository for digital files would be. "And how long will it last?" MacCarn said. "A regular computer hard drive is a mechanical as well as an electrical device, so taking that route would include issues over the long term."

MAKING PROGRESS

While questions about MXF exist, PBS is due to move to a file-based distribution system rather than a real-time system via satellite and the network has developed what it calls MXF-Application Specific PBS (or ASPBS), according to Ken Devine, vice president and CTO with Thirteen/WNET.

"PBS is pretty far along in getting that adopted, so that format will work with the servers of all major manufacturers," Devine said. "So we started with that and will stay within that container with the audio and video content that will now include preservation data."

That will happen as soon as any new television program is produced. The preservation data will encompass the business, legal and technical information that will be required in the future.

"The amount of content in the PBS universe is vast, and we don't have a handle on how much is out there yet."
—John Lawson, APTS

"We're figuring out how to do that now and make it automatic," Devine said. "Getting humans to handle that part of the workflow is the real problem because they are not used to handling the details," adding that it is not being done elsewhere in the broadcast industry due to a lack of financial return.

But he sounds confident that, despite the hurdles, the PDPT project will evolve into the PBS archive, expand the project to other stations and producers, and eventually make it accessible to the press and the public.

"The initial access that we envision, considering copyright issues, will be through the LOC. The Congressional Reading Room and Presidential Libraries may be included at some point."

For now, Devine said, they want to focus on preserving multimedia and video content that only appears on the Web, then all of the content that has ever aired on PBS.

Then the decades of content will be saved and accessible to the people who can benefit from it most.

"We are creating a loop," Devine said, "that has never been there before." ■

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Library of Congress Digitizes

SAMMA system uses Motion JPEG 2000 to preserve video assets

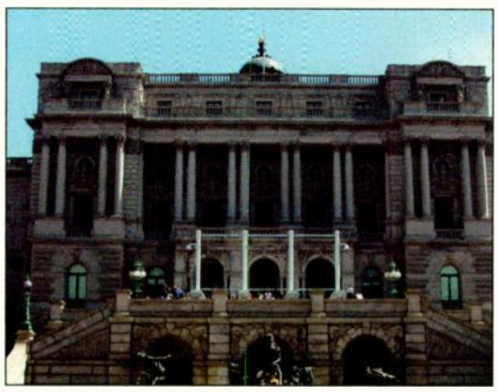
by James E. O'Neal

NEW YORK

Archival migration is traditionally a long drawn-out process. Once the material to be preserved is located, cleaned up, and notes taken, it has to be played back (usually in real time) and then the copy carefully checked for faithfulness to the original before anything else can happen.

Bland McCartha, vice president of business development for SAMMA Systems, says that his company has found a better way.

SAMMA is now delivering a device to make video archiving a little less painful and a lot more productive. The first machine is now in use at the U.S. Library of Congress and will be joined by a number of additional SAMMA systems in operating around the clock to reduce some of the backlog of videotape that has been piling up there for decades.



SAMMA Systems' first automated archiving system is being used by the Library of Congress.

ARCHIVING 24/7

"Our technology is quite different from anything else out there," said McCartha. "We use a robotics system that migrates multiple simultaneous streams 24 hours per day with no time out for breaks."

SAMMA's system is designed to make short work of cleaning and migrating videocassettes to digital files, as well as automatically appending these files with metadata.

"The only involvement of people is basically in the prepping, loading and unloading of cassettes," McCartha said. "Prepping just takes a few seconds of a person's time. Someone visually inspects the cassette and affixes a barcode identifier. It's all automatic from there.

"The barcoded tapes are loaded—perhaps a batch of 50 at a time-into the robotic mechanism. The robot then cleans each one and plays it. It's also monitoring the playback, looking for any problems. If something is detected that would create problems, the system takes appropriate action such as cleaning the heads. Typically around 95 percent of the tapes in a given collection can be automatically migrated to a new archival storage format."

McCartha said that it takes just a single person to operate the company's archival system and that person doesn't even have to be a full time employee.

DEUS EX MACHINA

"The person needs to be there only to initially check the cassettes for mechanical damage, internal mold or mildew, or other obvious problems," McCartha said. "The machine does the rest. In the cleaning process, it's looking at the amount of dirt that comes off the tape onto the cleaning tissue.

"This automatically determines if more than one cleaning pass is needed or if there is a severe oxide shedding problem. If things are too bad, it won't allow the tape to be placed into the playback deck.

"After cleaning, it's looking at things that an operator would normally monitor-video, audio and RF levels. It makes a decision as to the overall quality of the tape. This is done automatically in real time."

MILLIONS OF TAPES

McCartha said that it took about five years to develop his company's robotic archiving device. A 10-person team created it.

"The whole system was designed around Library of Congress requirements," said McCartha. "There are millions of tapes in their collection. With just one of the formats involved, it was projected that it would have taken 85 years or more to archive using the conventional human-intensive process."

Automated archiving was not that easy to develop, according to McCartha.

"There were a lot of bases that had to be covered. One of these was the tape cleaning element. Those [cleaning machines] on the market are designed for the recycling of tape—not cleaning of important archival tapes. We had to design this ourselves. There are considerations too with time base correction. The older tapes were recorded on machines that were not as stable as modern VTRs. We had to develop a TBC with a very wide window to handle tape of all vintages. All known video standards had to be accommodated too-NTSC, PAL and SECAM," McCartha said.

The Library of Congress required SAMMA to develop a lossless compression product too, according to McCartha.

"We did an analysis and decided to use Motion JPEG 2000," he said. "Then we had to design and build a card for this. The bit rate is variable, depending upon the picture content. We're looking at about a 3:1 compression ratio for mathematically lossless compression."

McCartha is skeptical about the use of recoding archival video onto an optical disc.

"There's a myth that this is a good technology for archiving," he said. "The truth is that any plastic disc with glues is an awful product for archiving, as you can't be sure how long it's going to last. People are already seeing optical archival products degrading. A much better way is with digital data tape such as LTO or DLT."

HOLOGRAPHIC DISC

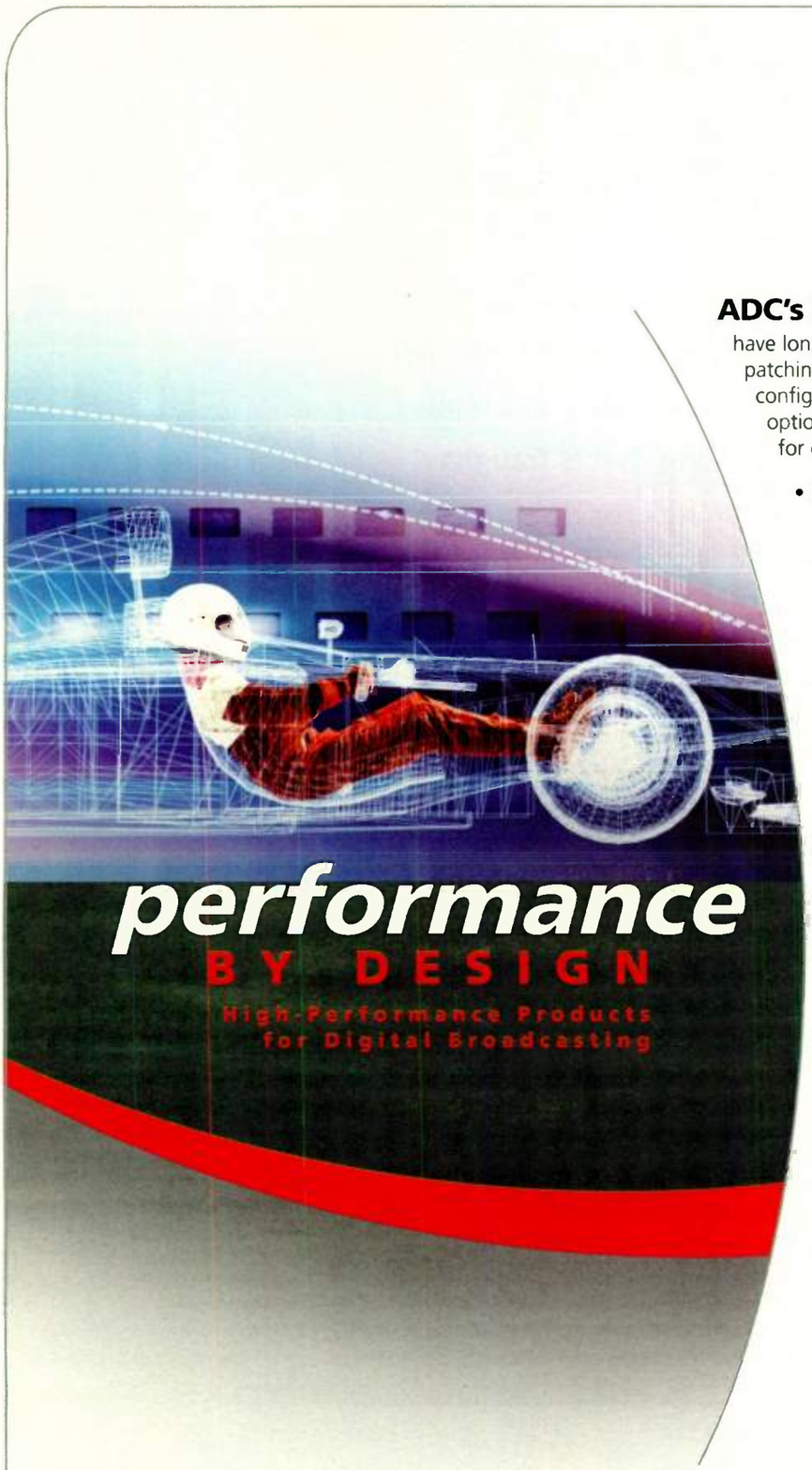
McCartha noted that there may be one possible exception.

"There is a new holographic disc from InPhase Technologies," he said. "This technology has been under development since the early 1990s. They will be delivering product in the third quarter of this year. This is a polymer media and they record holographically on the inside, not the surface. Capacity is 300 GB and the read/write speed is 20 Mbps."

Regardless of the migrating storage media, McCartha says that archiving should start now, rather than later.

"There are two issues to consider in migrating from videotape to digital files," he said. "One of these is tape degradation. This happens with age. The other is format obsolescence.

"When there are no vintage machines available to play the tapes, then there is no way to recover their content. Our job is to make migration cheap and easy enough so that the millions of hours of existing content can be saved from oblivion." ■



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ADC

Loop

CONTINUED FROM PAGE 16

little more about the router.

The new router will consist of a model 400/288RHD frame loaded with 144-squared, high-definition inputs and outputs. It will have an associated model 400/288RAES frame fully loaded for 288 squared AES audio inputs as well as a 64 port bidirectional data router for machine control.

ROOM TO GROW

As configured, the HD frame has sufficient capacity to meet all of our current and foreseen future needs but still allows us room to add HD video capacity if the need arises. I am generally skeptical of planning that includes adding additional cards to a frame in this day and age as my experience has been that it is hard to add components like cards to hardware that is more than a couple of years old.

However, our experience with Utah has been just the opposite and since we have still been able to get cards for our existing analog router that is approaching 20 years old, I believe we are safe here. Since the I/O cards are can handle virtually any data rate needed, this greatly simplifies the design criteria and allows us to program the router for cross conversion, up/down conversion and A/D-D/A conversion based on the sources and destinations requirements.

The management of the paths, tie-line and ancillary conversion hardware is handled by the router so in essence, our oldest VTR can be tied to our newest server and vice versa. As older equipment is phased out and replaced with new digital systems, the I/O is reprogrammed and the routing management updated.

Audio was actually a tougher call for us. We examined virtually every idea from doing discreet audio routing through fully embedded. After running through the current and proposed future workflow of our facility we decided against embedding and opted for AES routing.

We believe this approach offers the best flexibility, since the layers of AES audio can be assigned dynamically based on needs. When working with archive content that may be coming from type C or Beta-based masters, simple stereo can be handled with a single AES feed, whereas some of our more challenging multitrack music programs may require significantly more AES pairs.

Again, based on our workflow and the source/destination configuration programming within the router, this can be accomplished more easily than working in the embedded domain.

Anyone who has ever had to do a router replacement to an active facility can tell you that it is a hair-raising and high stress undertaking that is fraught with opportunities for disaster.

We are very aware that our choice regarding audio will require us to be very careful on how we maintain audio/video synchronization. During his presentation at last October's Iowa Public Television DTV Symposium, Steve Smith, president of Broadcast Technology Consultants in Cleveland, S.C., advised attendees that, when designing the plant, make sure you don't make the problem any worse than it is. That will certainly be one of the challenges that we work though with TV Magic as we build out our production facility and finalize our master control design.

I'd like to briefly mention the ancillary hardware that we have incorporated into the router system. For up/down/cross conversion we selected the Harris X75HD. Two of these units will be installed. For A/D and D/A conversion we selected Ensemble Designs 5330/6330 and 8500/8510 respectively. There are 10 of each system incorporated into the system plan. The price, performance and size factor made the Ensemble Designs hardware the best choice.

In planning out this project, one of the real benefits we see in the augmentation route is that we can get the lion's share of the system installation done with little or no disruption of our current operation in either production or master control.

Anyone who has ever had to do a router replacement to an active facility can tell you that it is a hair-raising and high stress undertaking that is fraught with opportunities for disaster. We believe that our methodology and selection will allow us to add the capabilities afforded to us by the DTV conversion while to the end users it will appear as a minor upgrade to the capabilities of an existing system.

Bill Hayes is the director of engineering for Iowa Public Television.

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NBA All-Stars: A Hi-Def, High-Profile Event

Innovative HD coverage makes Turner Sports production shine

by Claudia Kienzle

LAS VEGAS

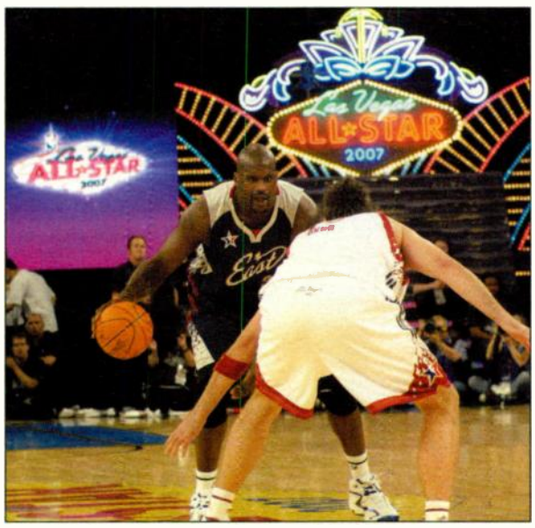
Turner Sports harnessed an impressive array of 1080/60i HD video technology enhanced by 5.1 channel surround sound to produce live primetime coverage of the NBA All-Star weekend, Feb. 16-18, in Las Vegas, for Turner Network Television.

The weekend saw a host of related events at the Thomas & Mack Center, including the T-Mobile Rookie Challenge and Youth Jam, on Friday, Feb. 16; NBA All-Star Saturday Night featuring the Sprite Slam Dunk; and the All-Star Game on Sunday.

"NBA All-Star Weekend is a really big, high-profile event—with more cache than the NBA finals. It's the NBA's equivalent of the Super Bowl," said Tom Sahara, senior director of technical operations for Turner Sports, a division of Time Warner, in Atlanta that produces sports programming for TNT and TBS. "It's a huge celebration featuring legendary NBA Hall of Famers, NBA star players, exciting game action, as well as performances by top entertainers.

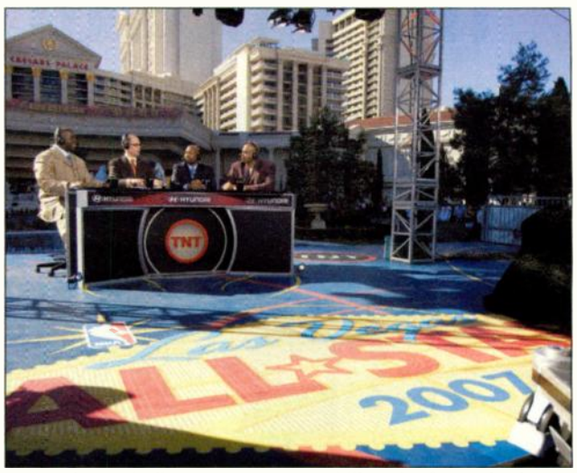
Sahara says Turner Sports "pushes the envelope" when it comes to providing the utmost in live televised coverage of the NBA All-Star Weekend.

"On a square footage basis, we had more HD trucks and cameras than were used for this past Super Bowl," Sahara said. "While they had over 60 cameras to cover the football field at the Super Bowl, we had 30 cameras just to cover a 90-by-50-foot court."



Xinhua/Landov

The East's Shaquille O'Neal (L) drives the ball during the 2007 NBA All-Star Game.



Turner Sports built a remote set straddling the fountains in front of Caesars Palace for its "Inside the NBA" commentators, Ernie Johnson, Kenny Smith, Charles Barkley, Reggie Miller and Magic Johnson.

This was the fifth consecutive year that Turner Sports produced a live NBA All-Star Game telecast in primetime, and the 23rd year of providing NBA All-Star Game coverage.

A week prior to the All-Star Weekend, Turner Sports and the NBA collaborated to solve a problem unique to the Thomas & Mack Center. Since it's an older college arena, the facility wasn't cabled to handle an event of the magnitude of the NBA All-Star Game, so a cable crew was brought in to run all of the fiber-optic, triax, coax and DT12 audio cables that the HDTV production required.

"The cable crew laid over 97 miles of cable in five days," Sahara said. "There were some areas where they identified feedthrough points in order to run cables from the lower to upper floors. At the end of the event, it took 10 hours to take all of the cable out."

All in all, Sahara counted 11 mobile units in the truck compound, with seven of those devoted to Turner Sports' live HDTV telecast. Include C-units and supply trucks parked in the lot across the street, and the fleet swelled to 18 in all.

The HD mobile units were provided by Pittsburgh-based NEP, including NEP SS25 A and B units; NEP SS24 A and B units; SS18 A and B units; SS14; and NEP's ESU transmission truck. (Sahara said that the truck compound also hosted NHK Japan's K2 HD truck which was there to cover the basketball games as well since basketball is very big in Japan.)

Bexel provided its BBS1 edit truck and CP Communications supplied its submix audio trailer where all of the on-court effects mics were mixed down to a surround-compatible effects mix for distribution to all of the TV trucks in the compound.

To carry uncompressed HD video signals between the Thomas & Mack Center and the Mandalay Bay Convention Center, site of the "Jam Session," NBATV—which provided hi-def coverage of the event—used Harris Corp.'s OPTO+ fiber optic transmission solution to deliver footage to NBATV's distributors.

The Jam Session hosted an interac-

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NBA

CONTINUED FROM PAGE 48

tive fan experience that included a celebrity game, the first ever D League All-Star game, the Legends Breakfast, autograph stages, as well as team practices for the All-Star game. NBATV built a set and field production facility to host and produce these events, which took place on a basketball court setup outside The Mandalay Bay.

The Harris OPTO+ fiber-optic solution is comprised of Harris' coarse wave division multiplexer modular products, along with the Harris CCS Navigator control and monitoring application running remotely over an IP network. Path redundancy was provided by the OPTO+ wideband optical splitter and protection switch for greater reliability.

To provide communications between four venues, NBA Entertainment contracted Wireless First, a Mt. Vernon, N.Y. provider of wireless communications systems, to install an Artist Intercom matrix from Riedel Communications.

Turner Sports deployed 28 HD cameras, many of which were Thomson LDK 6000 cameras carried on the NEP trucks. These Thomson cameras were equipped with a full complement of Canon HD lenses including two 100x and six 86x powerful HD zoom lenses. Also in use was a CableCam, provided by CableCam USA in Philadelphia, that captured beauty shots as it rolled along on a cable above the court.

"Our production also made use of HD wireless cameras extensively," Sahara said. Aerial Video Systems of Burbank supplied the Link HD Wireless HD camera systems that were used to cover the on-court action, according to Sahara.

"These cameras enhance our coverage, but there are occasionally technical issues that result if ENG broadcasters covering the events cause interference on our wireless HD camera's RF frequency," he said.

An HD-equipped helicopter provided by Pictorvision captured stunning aerial views of the Caesars Palace host set and Las Vegas, Sahara said.

Other key pieces of gear carried by the NEP trucks included Calrec digital audio mixers, including the Alpha, which were used to produce the 5.1 channel surround sound; an Avid Deko and Quantel Paintbox HD for graphics; and a wide array of EVS XT-HD 4- and 6-channel servers.

REMOTE SITES

While most of the NBA All-Star Weekend events took place at the Thomas & Mack Center, Turner Sports also built a remote set straddling the fountains in front of Caesars Palace for its "Inside the NBA" commentators, Ernie Johnson, Kenny Smith, Charles Barkley, Reggie Miller, and Magic Johnson.

A second remote site was situated at the Mix Lounge, high atop the hotel at The Mandalay Bay to position an HD "virtual cam" overlooking the Las Vegas Strip.

A beauty shot captured from the virtual cam was composited in a production studio located on the 64th floor of Mandalay Bay to create graphics for the telecast. The HD video served as dramatic background for overlaying the NBA All-Star logo, sponsor logos, as well as show opens that included video overlays.

"Uncompressed HD camera feeds from both Caesars Palace and Mandalay Bay sites were also backhauled to Turner's production trucks at the Thomas & Mack arena over fiber-optic cable using our Media Links MD6000 video transport solution," said Brian DeLorme, senior engineer for Media Links, Inc., in Milford, Conn.

"Our transmission network provided OC-92 bandwidth [10 Gbps], more than sufficient for two bidirectional uncompressed HD signals from each location," DeLorme said. "What's innovative about the MD6000 is that it enabled us to supply Turner with uncompressed HD video to work with back at the production trucks." ■

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NBA All-Stars Go 3D

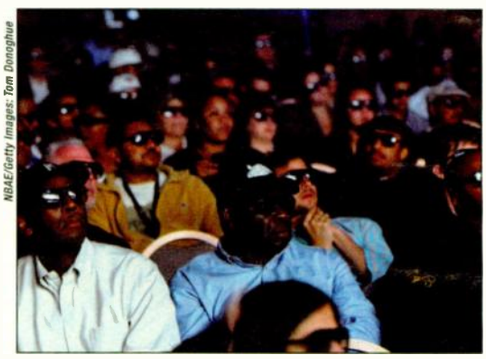
Event marks first live 3D broadcast in HD

by Claudia Kienzle

LAS VEGAS

At Mandalay Bay, a few miles away from Thomas & Mack Center, a crowd of 1,000 VIPs attended an invitation-only live 3D HD screening, with 7.1 channel surround sound, of the NBA All-Star games held Saturday and Sunday nights (Feb. 17 and 18, 2007).

In one room, 800 people wearing special 3D glasses viewed the games in 4K resolution, (equivalent to 65mm film), on 47-foot diagonal cinema screens; while the other 200 stood in an overflow room wearing 3D glasses to view the 4K images projected onto a smaller 30-foot diagonal screen. In both rooms at Mandalay Bay, the game was projected onto the screens using Sony's SXRD 4K digital projectors.



NBAE/Getty Images: Tom Donoghue

Hundreds of VIPs at Mandalay Bay wore special glasses to view the NBA All-Star action in 3D HD.

TRUE REALITY TV

"People who witnessed the presentation told us that they felt it was breathtaking, jaw-dropping beautiful imagery," said John Kaloukian, director for Sony's professional video display division, in Park Ridge, N.J. "They had great seats with a 3D HD view of the game as if they were there in the arena. But they also had 3D HD instant replays, game clocks, and scores boxes as if they were watching it on TV; making it the best of both worlds.

"This was the first-ever, live 3D HD broadcast. NBA Entertainment, which produced the event for the NBA, asked us to furnish key pieces of technology including the SXRD 4K digital cinema projectors, with two units stacked together to enable the 3D HD stereoscopic effect to work."

These were used in conjunction with SRW-1 (HDCAM-SR) two-channel tape recorders.

CUSTOM CAMERAS

The 3D HD camera technology—utilized in Sony HDC-F950 cameras—was custom-designed by Pace Technologies in Burbank, Calif., a partnership between Vince Pace and James Cameron.

"Pace modified Sony cameras that have a fiber-extended optical block to create special camera rigs to hold the two camera optics and lenses easily for handheld as well as fixed camera positions," said Steve Stubelt, director of sales and marketing, Sony Solutions.

A total of six 3D HD camera stations, each containing the optics of two Sony HD cameras, were used to cover the games live. While the camera operators controlled the focus, zoom, and shot composition, special "convergence" operators adjusted left-eye and right-eye images for an effective 3D HD stereoscopic illusion.

"This was the first time that a 3D HD telecast was switched live like a regular broadcast would be," said Jim Richardson, director of sales for Bexel and Audio Specialties, a division of Vitec Broadcast Services.

Bexel provided much of the production gear that was put onto the 40-by25-foot production trailer that was dedicated to this 3D HD video show. The trailer housed a flypack, including a Sony MVS-8000A HD production switcher, PESA Cheetah HD video router, Calrec Alpha digital mixing console, and Chyron Hyper X HD graphics generator.

Richardson said that the monitor wall in the trailer needed to display the left-eye and right-eye versions of the program and preview views from each 3D HD camera. "We also installed an HD rear projection system that would allow the director and technical director to see how the finished 3D HD program looked," he said. Everyone in the control room wore 3D glasses.

Bexel also provided two HD EVS 6-channel XT[2] servers. "This groundbreaking event showed the power and flexibility of the EVS ST[2] server, which was recording two feeds corresponding to the left and right eye," said Nicole Verbois, marketing manager for EVS in Fairfield, N.J. "The ability of the system to keep these recordings in perfect sync allowed the same production capability of replays and highlight packages for this 3D event." ■

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NTIA

CONTINUED FROM PAGE 1

Communications and Information, when the subsidy program rules were released in March.

The NTIA was put in charge of the program when the president signed legislation early last year to end analog broadcast TV on Feb. 18, 2009. That law allocated up to $1.5 billion for the subsidies, to be distributed in the form of $40 coupons. The funds will be divvied up in two phases—$990 million for the first, and another $510 million later if there is continued demand for coupons.

The RCA DTA800 digital-to-analog converter

Kneuer and his colleagues at NTIA were working under parameters set by the last Congress, which was controlled by Republicans, many of whom considered a subsidy program unnecessary.

Joe Barton, (R-Texas), chairman of the House Commerce Committee at the time, suggested that people start saving 30 cents a week to cover the cost themselves. The current chairman, John Dingell (D-Mich.), favored covering all TV households, and he let the Republicans have it by way of the NTIA for possibly underfunding the program.

WHO'S SORRY NOW?

"NTIA's decision to limit eligible households may impede a smooth transition, which could delay both getting spectrum to public safety users and the benefits of advanced wireless technologies to consumers," Dingell said in a statement. "After the administration opposed Democratic efforts to secure sufficient funding in favor of more tax cuts, the administration now shows newfound concern that not all households will be covered."

Minus administrative costs, the first round of funds will yield about 22.5 million coupons. The second, another 11.5 million—the low estimate of the number of American homes that rely exclusively on over-the-air TV reception.

In fact, since January 2006, when the bill became law, 9.9 million analog TVs have been shipped to dealers; more than 1.1 million of them during the first two weeks of this year, according to figures from the Consumer Electronics Association. By comparison, 24 million digital sets shipped in the same period; 2.6 million since the first of the year. When 2005 TV sales are factored in, the figures are 27 million analog versus 28 million digital.

"We shifted the focus of this second group of money so no one loses TV service."

—John Kneuer, NTIA

The total number of TVs not hooked to cable or satellite is around 70 million, according to the NAB. If that number is correct, roughly 36 million TVs will not be subsidized.

It was these left-out TVs that chagrined Dingell and his colleague, Ed Markey (D-Mass.) when the subsidy bill was debated. Both noted that people were stilling buying analog TVs and would continue to do so, even as Congress crafted a law that would render those TVs nonfunctional.

As of March 1, any TV reception device that left a factory had to have a digital tuner, but analog sets remain on shelves, especially smaller sizes.

NO MORE THAN TWO

According to the subsidy legislation, no more than two $40 coupons, expiring in three months, will be

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NTIA

CONTINUED FROM PAGE 54

provided by mail to households requesting them between Jan. 1, 2008 and March 31, 2009. The NTIA rules cover household eligibility, retailer participation and technical specifications for the digital-to-analog converter boxes themselves.

With regard to households, they will only have to "self-certify" exclusive over-the-air reliance to qualify for coupons in the second round, Kneuer said. As for retailers, they will have to be able to electronically redeem and track every coupon to participate in the program.

The NTIA also determined that subsidized converter boxes meet certain performance criteria, and even though the rulemaking came out nearly three months later than expected, Kneuer said manufacturers would have no problem shipping boxes by Jan. 1, 2008.

Normally, electronics manufacturers need about 18 months to turn around a new product, but Kneuer said the technical specs hadn't changed dramatically from when the NTIA rulemaking was proposed last September. Sure enough, right after the NTIA rules were released, RCA introduced its box, the DTA800. RCA didn't commit to a retail price, but a representative from LG later said that company's box would go for around $60.

The NTIA specs build on A/74, the Receiver Performance Guidelines issued by the Advanced Television Systems Committee in June 2004. During the NTIA rulemaking comment period, there was concern among broadcast engineers that A/74 alone would be inadequate; particularly since these boxes would be employed around the time unlicensed devices will begin populating TV taboo channels.

The technical specifications direct that the boxes must:

- decode all video formats in ATSC A/53E Table A3, although original frame rate and spatial resolution need not be preserved.
- support a 4:3 center cut-out of 16:9 images; letterboxed 16:9 and "full or partially zoomed output of unknown transmitted image."
- process PSIP.
- receive Channels 2-69.
- include a 75-ohm F-type antenna input connection.
- include a 75-ohm F-type, selectable Channel 3 or 4 NTSC output.
- include RCA connections to output stereo sound and composite video.
- receive all multicast channels.
- comply with FCC rules on closed-captioning, emergency alerts and V-chip functions.
- power down to a 2 watt "sleep" state after four hours of inactivity.
- have a signal quality indicator, a remote control and the RF cable necessary to hook it up to a TV.

Other specs include a dynamic tuner range of -83 to -5 dBm, as opposed to -83 to -8 dBm set forth in A/74. Values for co-, adjacent- and taboo-channel rejection thresholds and static echo-delay tolerance are also given.

Electronic program guide and smart antenna features are optional.

The subsidy will not be provided for boxes that include recording or picture-in-picture functions or specialized outputs such as USB, Ethernet, VGA, HDMI, component video, DVI or WiFi. The NTIA can have the converter submitted for the subsidy program verified by the FCC upon request.

Upon releasing its rulemaking, the NTIA also issued a Request for Proposals to hire a coupon distributor, preferably a company with some experience at doing a massive coupon/rebate program. Those proposals are due April 30, leaving only eight months for a contractor to be hired and get the program in place. ■

Ikegami's HD-Tapeless Editcam:

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Ikegami, the leader in broadcast camera technology, introduces the HDN-X10 Editcam HD (1000TV lines). This breakthrough tapeless camera features nonlinear random access in shooting, viewing, and editing, along with CMOS imaging technology for smaller size, decreased power consumption and multi-native format (1080/60i & 50i, 1080/24p, 720/60p & 50p) capabilities. Images are recorded in full resolution (no pre-filtering) on FieldPak2 removable media using the Avid DNxHD codec in MXF file format.

The high 145Mbps data rate yields negligable compression artifacts and accurate editing, yet offers an impressive 90 minutes recording time on a single 120G FieldPak. Popular Editcam features such as RetroLoop, Time-Lapse, and Intelligent Recording (you can start recording anytime without fast-forwarding to where your current recording ends), and future migration to solid state recording, make the Editcam HD a camera beyond compare, an ideal HD production camcorder system.

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NAB 2007 UPDATE

Keeping Up With Technology

Systems integrators plan to scour NAB for latest innovations

by Claudia Kienzle

LAS VEGAS

The annual NAB show is a prime opportunity for systems integrators to become familiar with all the key broadcast production gear, whether such products are at the splashiest booth or tucked away in the back corner of the hall. They all agree there isn't enough time to see everything they need and want to see.

Systems integrators want to guide their broadcast clients through the complexities of today's increasingly file-based IT workflows, and show them ways to feed content to multiple broadcast outlets cost-effectively.

GREAT VIGILANCE

TV Magic a San Diego-based systems integrator will send a delegation of approximately 35 people, including executive management, sales, design, and installation engineers.

"One of the biggest challenges today is the speed at which technologies are changing," said Pat Thompson, vice president of operations for TV Magic. "This requires great vigilance from systems integrators to stay up on all of the new technologies and their respective applications for customers. It is also important to provide feedback to manufacturers about their products with recommendations based on customer needs. With the convergence of IT and A/V, every job requires integration."

TV Magic will promote its engineering design, consulting, systems integration and installation services. They also have a new division dedicated to giving broadcasters one-call access to 24/7 maintenance and engineering services.

TV Magic will also promote its new i/o product line, a scalable workflow system that includes i/oIngest, i/oEdit, and i/oCast. Using the Mac OS X and an RSS feed, i/oCast enables users to distribute digital content for podcasting, VOD, and RSS feeds via Internet and Web-accessible cell phones.

TV Magic has completed a station automation project for 32 affiliates of the Trinity Broadcasting Network, a religious broadcast network based in Tustin, Calif. In addition to installing a system that allowed unattended multicasting of five TBN channels, the automation system also enabled the stations to receive network feeds and insert local programming, advertising, and interstitials into the broadcast output.

"At NAB, the key trends and technologies to watch for include file-based products, acquisition, ingest, and new media distribution," Thompson said. "Many of the new media distribution technologies may offer additional paths for increased incremental revenue streams."

DEFINED OBJECTIVES

Ascent Media Systems & Technology Services will have a formidable presence at NAB, with approximately 50 delegates, including executive management, senior technologists, design and applications engineers, and project managers.

"There are three key priority areas for our company, including identifying and evaluating new technologies that will bring our clients efficiencies and /or allow them to address the dramatic changes affecting the media business," said Rich Bisignano, senior vice president and general manager of Systems Integration for Ascent Media systems & Technology Services in Northvale, N.J.

Rick Bisignano, Ascent Media Systems & Technology Services

The other two priorities are to gain exposure to new products and technologies for consideration in upcoming projects; and to develop new business, strengthen existing relationships, and promote the company's varied services.

"We want to make sure our customers fully understand their current workflows, to ensure that all decisions that follow have the highest possible success rate," Bisignano said. "Among the trends to watch for are standards-based software that integrates disparate departmental islands in broadcast operations; IP-based portable 'anytime/anywhere' video; and the leveraging of IP networks for targeted advertising."

Media-aware storage, infrastructures, and products that facilitate the repurposing of content for the mobile and broadband TV markets will also be prominent.

Stavros Hilaris, Ascent Media's senior vice president of technology and Bob Timpone, director of technology will present a paper on "Media Storage and Associated Workflows," on Wednesday, April 18, as part of the Broadcast Engineering Conference's Workflow and Interoperability for Television session.

Ascent Media has seen some significant changes since the last NAB. And while the company did do some restructuring in 2006, the changes "did not affect the systems integration unit of the company," said Tom Canavan, executive vice president for Ascent Media's Global Systems and Technology Services Group. "It was a corporate-level restructuring that basically was a consolidation of divisions."

Canavan said the company has launched a systems integration group in London, to serve Europe, Africa, and the Middle East, which strengthens its position as "one of the largest systems integration companies in the world."

GREATER AGILITY

As part of NAB's technical sessions, John Footen, director of software systems engineering for National TeleConsultants, will present a paper on Service-Oriented Architectures, Business Process management, and Web services in professional media systems. Footen will give examples of how systems of

TECHNOLOGY, PAGE 70

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* T-shirts are available while supplies last.

Sure Bets for a Good Time

Things to do after you've done doing the things you gotta do

by Jackie Broo

LAS VEGAS

At NAB, Las Vegas can seem like a blur: cab ride from the airport, shuttle bus to and from the hotel, hours of standing or sitting taking care of business, maybe a quick bite.

But it's Vegas, baby, and there's lots of stuff to do after you've shaken all those hands. Here are some ideas including recent additions to the Vegas entertainment canon.

BODY BASIC

OK, we can't all look like Brad Pitt or Angelina Jolie. But in the case of "Bodies-The Exhibition," someone must be on to something with the old sayings about inner beauty.

An exhibition at the Tropicana features 21 preserved bodies that have had their exteriors stripped away, resulting in a display that showcases the beauty and complexity of the human interior. There are also 260 organs that allow visitors to dig deeper into anatomical systems like the circulatory or respiratory systems.

The exhibition, which has appeared in other cities, has generated controversy about the use of real, skinned human corpses. One headline asked: "Education or Freak Show?"

The peek into the body was achieved via polymer preservation, which replaces tissue and water with silicone rubber. The preservation approach has allowed exhibitors to "freeze" bodies into poses, for example of a basketball player and baseball pitcher in stages of action.

If you show your NAB badge at the ticket office, the show's promoters will give you the group rate, which works out to about 20 percent off.

"Bodies-The Exhibition," Tropicana Resort and Casino, 800-829-9034, Open daily 10 a.m.–11 p.m., $26

THE OLD BALL GAME

After spending the day holed up in the convention center, a trip to a Major League Baseball minor league game might be just the ticket to fresh air, a dog, a brew and baseball.

The Las Vegas 51s, a AAA affiliate of the Los Angeles Dodgers, play their Pacific Coast League home games at Cashman Field, 850 Las Vegas Blvd., a short cab ride from the strip. Thirteen dollars gets you a field-level seat.

The 51s play their first home stand of the season Friday, April 13 through Friday, April 20 against Salt Lake and Colorado Springs. Games start at 7:05 p.m. except Sunday, a 12:05 p.m. start.

Las Vegas 51s, Cashman Field, 702-798-7825, *www.lv51.com*. Tickets $8–$13.

"The Producers" is open.

'SHE LOVES YOU, YEAH!'

Opening to boffo reviews and playing to SRO crowds, the $150 million production of "The Beatles' Love" by Cirque du Soleil at the Mirage is said to combine inventively remixed and digitally remastered music of the group (with the blessing of its surviving members) by long-time producer Sir George Martin and son Giles. Soleil's elegant movements and acrobatics meld into the events that defined the 20th century's biggest rock band.

Jeremy Handel, public relations specialist for the Las Vegas Visitors and Convention Bureau, said, "It really has been a tremendous show. It's been pretty much sold out since it opened."

Handel suggests you reserve tickets before coming to Las Vegas. If you can get 'em, you'll have to go early in your visit; the show is dark April 17 to 23.

"Love," The Mirage, 800- 963-9634, prices $69–$150. Dark Tuesdays and Wednesdays.

NEON GULCH

Hoping to cash in on the long-running success of Broadway import "Mamma Mia," two award-winning Broadway musicals, "The Producers" and "Monty Python's Spamalot" are now in Las Vegas.

Mel Brooks' musical comedy "The Producers" features the trials and tribulations of Broadway impresario Max Bialystock and his neophyte partner, Leo Bloom (with David Hasselhoff playing Roger DeBris.) "Springtime for Hitler" is still politically incorrect and hilarious. The show was recipient of the most Tony Awards in Broadway history including Best Musical.

The wild and wacky world of Monty Python, the popular British comedy troupe, comes to Las Vegas in the form of "Monty Python's Spamalot," written by Eric Idle and directed by Mike Nichols.

It's a Broadway takeoff of the cult movie favorite "Monty Python and the Holy Grail." Sirs Robin, Galahad and Lancelot are joined by the Killer Bunny, Black Knight and the French Taunter. The musical comedy won three Tony Awards including Best Musical for 2004–05.

"The Producers," Paris Las Vegas, 888-727-4758, prices $75.50–$143.50. Dark Wednesdays.

"Monty Python's Spamalot," Wynn Las Vegas, 888-320-7110, prices $49–$99. Dark Thursdays.

FOODIE ALERT

According to Jeremy Handel of the Las Vegas Visitors and Convention Bureau, the hottest food tickets in town are restaurants opened by two of the biggest names in French cooking, Joël Robuchon and Guy Savoy.

Robuchon is a Michelin Three-Star chef and "Chef of the Century." (He actually has two restaurants at the MGM Grand, Joël Robuchon and L'Atelier de Joël Robuchon.) Guy Savoy, another Michelin Three-Star heavyweight, has located his place, Restaurant Guy Savoy, in Caesars Place.

All serve exquisite French food. Prices aren't for the faint of heart (average check for a six-course tasting menu at Robuchon is $225 per person) but the food and atmosphere will definitely impress clients. Reservations are required or strongly urged at both.

Joël Robuchon at The Mansion, MGM Grand, 702-891-7925. Open daily, dinner only.

Restaurant Guy Savoy, Caesars Palace, 877- 346-4642, Open for dinner Wednesday-Sunday. ■

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SBE/Ennes Focus on Audio at NAB2007

Educational opportunities abound at annual four-day broadcast engineering gathering

by Fred Baumgartner, CPBE, and John L. Poray, CAE, Executive Director, SBE

LAS VEGAS

There are many good continuing education opportunities for broadcast engineers throughout North America; the Iowa Public TV, Madison, Wisconsin, and Boston's "Bos-Con" programs come to mind. From the beginning, the Society of Broadcast Engineers has sponsored, encouraged and supported efforts to provide continuing education.

If you are of a certain age in this business, you have a few of Harold Ennes' books on your shelves. He wrote the first set of engineering manuals for broadcast engineers, and upon his passing, the Indianapolis chapter of the SBE created a nonprofit trust for furthering SBE's educational goals.

This year, the Ennes Educational Foundation Trust will sponsor one-day programs in Sacramento, Atlanta, New York, Boston and Tampa. Many of SBE's Sustaining Members provide presentations for these programs and underwrite the costs.

The centerpiece Ennes program is the Saturday before the NAB2007 floor opens. It's unlike anything else that happens at NAB. There is no call for papers, but rather the Ennes team and the PBS team get together and ask themselves what is it that broadcast engineers can most benefit from. The topic is chosen, and speakers are specifically recruited and invited.

This year we go after audio. Interestingly, this will be the first year that National Public Radio will join the SBE/Ennes and PBS gathering. No other event, anywhere, finds so many broadcast engineers in one place.

Attending the program requires a full NAB conference registration; however, as an SBE member or with a PBS, or NPR affiliation, there is a substantial discount for pre-registration. Visit *www.sbe.org/ennes_workshops.php* for NAB2007 registration and information on other Ennes programs.

THE AGENDA

Starting at 8 a.m. (Las Vegas Convention Center Time) on Saturday April 14, the pre-program begins with a beginner's tutorial, Audio 101, as it were. The tutorial has become a tradition and is accompanied by a number of short presentations on the state of the art, its history, or whatever the programmers think is interesting.

SBE's NAB booth is located on the second floor concourse of the South Hall, near the entrance to the exhibit floor and the NAB Broadcast Engineering Conference rooms.

At 9 a.m., the program begins with Steve Lampen from Belden who covers the 100 things you should know about audio wiring. He is constantly asked to speak at the Ennes road shows. This is a new presentation, focusing on audio, both digital and analog, and microphone to speaker. Of all broadcast engineering skill sets, the ability to design, construct and maintain the audio infrastructure is critical to the success of any radio, TV or new media engineer.

It's difficult to have any program on audio without recognizing the role Dolby and compression in general plays. Rocky Graham, the director of broadcast products, and Mike Babbitt, director of customer support, will each provide a tutorial on digital technologies for audio and using metadata respectfully.

Steve Church is well known in the industry for his interest and innovations in audio over his career. We asked Steve to provide a tutorial on the recent trend to build audio facilities not on shielded pairs, but on Internet Protocol connections, switches and commonly available IP infrastructure.

Tim Carroll, the founder of Linear Acoustic is equally well known in the industry for his work on multichannel sound for high definition systems, telephone interfaces and processing. Making the transition from stereo or mono to surround sound can be more complicated than making the digital transition. His session deals with our struggles to deal with the level and image shifts.

It's hard to get Birney Dayton, who founded Nvision to talk, unless he has something important to say. Along with Jay Kuca (their director of product management) the pair will take on the trials and tribulations of bringing multichannel sound to your DTV facility.

Radio folks, do pay attention. While TV is arguably "nothing more than radio with a light," there are any number of movements afoot to bring multichannel sound to radio. Frank Foti has presented on this topic at any number of Ennes road show sessions. Others have their opinions. The Ennes NAB2007 program is designed for broadcast engineers who may be working in radio or TV today, and streaming mobile or other new media tomorrow.

The program finishes the day with Roger Charlesworth who has worked with Conan O'Brien and David Letterman, and brings a futuristic view of audio for broadcast.

It has been some time since the SBE/PBS Ennes program has addressed audio topics. Some years ago, we had Sirius and XM CTOs on the dais. For radio, TV, mobile and all of the new media, this will be an interesting year for broadcast engineers, and so much of that is about maturing audio. This is a good year to join 500 of your peers and spend a day immersed in the opportunities that a career in broadcast engineering brings.

AFTER THE WORKSHOP

SBE members will also be hard to miss during the remainder of the week as NAB2007 gets underway. In addition to the Ennes Workshop, SBE will present a number of meetings.

At 5 p.m. on Tuesday, April 17, the annual spring membership meeting will highlight the week for SBE. Held in room S226/227 of the Las Vegas Convention Center, this year's membership meeting is being sponsored once again by SBE Sustaining Member, Microwave Radio Communications.

Members can also connect with the SBE staff, board of directors and certification committee members at the SBE exhibit booth.

This year, the booth will again be located on the second floor concourse of the South Hall, near the entrance to the exhibit floor and the NAB Broadcast Engineering Conference rooms. It will feature the "CertPreview" exam preparation software programs that now include the AM Directional and 8-VSB SBE Specialist exam sections. SBE publications including the SBE Television Operators Handbook, Handbook for Radio Operators and the SBE Chief Operators Handbook will also be available. The booth will also have a selection of broadcast engineering-related technical books at SBE member-discount prices and many SBE logo items including pins, shirts and hats.

Booth Hours are 2-4 p.m., Sunday; 9 a.m.-6 p.m., Monday-Wednesday; and 9 a.m.-4 p.m., Thursday.

Members of SBE can register for NAB2007 at a special partner rate, a savings of $200 off the NAB non-member rate. To get the discount, SBE members should register using the regular online registration form found at the NAB2007 registration homepage: *www.nabshow.com/registration.asp*. When you reach the "Profile" section, check the "Partner" box and select SBE from the drop-down box. The discount is only available using the online registration method.

If your plans include a trip to Las Vegas this year to attend NAB2007, we hope to see you there! ■

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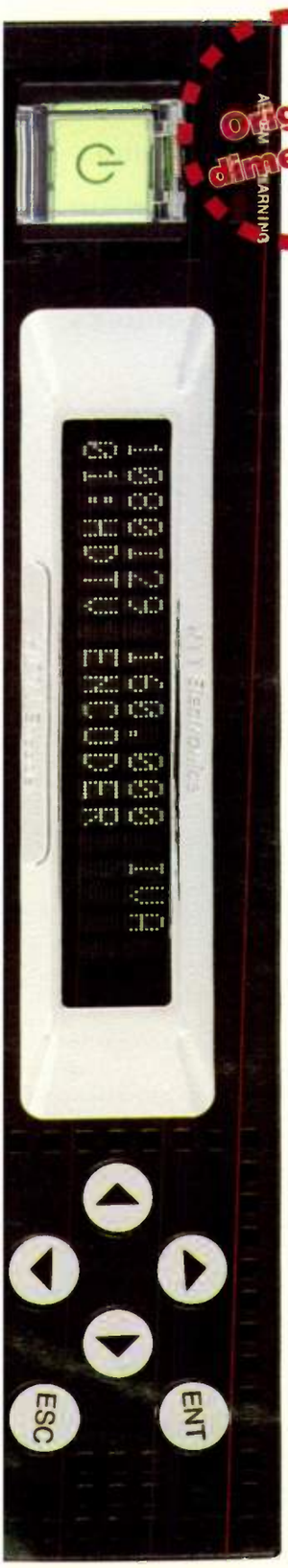

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Conference Showcases IPTV, Broadband

Telecom@NAB2007 illustrates evolution of telco industry

by Sanjay Talwani

LAS VEGAS

With broadcasters and cable operators bracing for the rise of telecoms into the video marketplace, Telecom@NAB2007, a new conference at NAB, will showcase the many issues involved with this potentially explosive sector.

The telecom giants have invested billions to bring high-end multichannel video, broadband, and more services to homes. They've aggressively lobbied to bypass or reduce local government franchising requirements, and won a small victory on the issue March 5 from the FCC when the commission eased regulations for entry into the multichannel marketplace.

For professionals who need to nail down the difference between Verizon's FiOS and AT&T's U-verse, or for those ready for advanced side-by-side shoot-outs between rival pieces of equipment, the conference will offer the latest, and some looks at what's ahead.

"Telecom@NAB2007 has been developed specifically for telecom carriers by experts in the telecom industry," said John Marino, vice president of science and technology for NAB. "We view the telecom industry as a very important component in the race to distribute content to consumers—when they want it on any device."

Along the lines of NAB's established conferences on mobile TV and IPTV, Telecom@NAB2007 will feature workshops on subjects such as podcasting, video production and digital cinema, and comprehensive broadcasting engineering and management programs, plus a series of "Super Sessions" featuring some of the biggest names and companies in technology.

Topics will include cost-efficient camera choices, lighting, audio, graphics, editing, animation, rendering, video compression, encoding, format selection, and more, to wring professional-looking results from beginning producers. The "Telecom Video Production Crash Course" takes place Wednesday, April 18, from 9 a.m. to 5 p.m.

"Telecom@NAB2007 is about digital video technology, learning, networking with other telecom professionals and developing joint business ventures leveraging the content of local broadcasters everywhere."

—John D. Abel, Lightbulb

"By way of Telecom@NAB2007, we can leverage the expertise of NAB in the content development area in order to offer telecom professionals quality education and information they need to enhance their services and explore partnerships with content developers," Marino said.

Telecom@NAB2007 will have five distinct components, four of which require separate payment and registration in addition to the main NAB2007 registration and fees.

First, the Broadband Video Conference runs Monday, April 16, from 1 to 5 p.m., and Tuesday, April 17, from 9 a.m. to 5 p.m. It will concentrate on acquisition and manipulation of content and highlight the value of telecom service providers working with local broadcasters to acquire local content. It will also offer case studies of successful telecom video deployments and presentations by content and application providers.

Other highlights include technology shoot-outs, a session on proposed network neutrality legislation, a lunch presentation by Ericsson and a report by Accenture assessing the future of IPTV.

Second, leading industry experts will present 20-minute technology papers on broadband HDTV, billing, customer care, Wi-Fi and WiMAX and more. The Telecom Technology Papers run Tuesday, April 17, from 1 to 5 p.m. and Wednesday, April 18, from 9 a.m. to noon.

Third, Telecom@NAB2007 will include an introductory crash course on basic video production.

The purpose, according to NAB, is to teach participants how to manage digital video and content in small operations, and to discuss suggested business models for distribution. The workshop is specially tailored to telecom network operators.

Fourth, IP and broadband tools and supplies will have their own "highly focused and intimate" exhibit area, according to NAB. It's open to all NAB2007 attendees and "is perfect for carriers to network with suppliers," said NAB. The Telecom Supplier Exhibits will be open Tuesday and Wednesday.

Fifth, for those who need some assistance finding the right tools on the vast convention floor space, registrants of Telecom@NAB2007 can get guided floor tours. Each tour will focus on a different segment of telecom, from video production to distribution. Advance registration is required and participants must be registrants of Telecom@NAB2007.

SUPER SPEAKERS

"Telecom@NAB2007 is about digital video technology, learning, networking with other telecom professionals and developing joint business ventures leveraging the content of local broadcasters everywhere," said John D. Abel, president and CEO of Lightbulb, a Vienna, Va.-based communications firm organizing the event. "It is also the place where telecom service providers can find out what their competitors in the video marketplace are doing."

Several Super Sessions will connect

CONFERENCE, PAGE 68

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Forget Something?

Where to go for business services in Vegas

by Jackie Broo

LAS VEGAS

It seems to be a travel truism that no matter how many checklists that are made for a trip or show, we almost always seem to forget something. That seems particularly true when you are not only packing personal items for yourself, but often preparing booth equipment for set up or business material for distribution.

With the increased security requirements and limits on the weight and number of luggage that you can bring, savvy trade show denizens are increasingly patronizing local businesses for products that will used at the show, but not necessarily have to make the trip back to the home office. And best of all, most of the stores and places of business that you rely on at home for vital supplies like Sam's Club or Office Max are alive and well with branches in the Las Vegas area.

COMPUTER OUTLETS

Computer meltdowns occur at the most inopportune times, and when that happens there are a number of familiar computer sellers in Las Vegas for repairs or replacements like:

- Best Buy, 3820 S. Maryland Pkwy.; 702-732-8283
- Circuit City, 5055 W. Sahara Ave., 702-367-9700
- The Apple Store on the Strip in the Fashion Place Mall, 3200 Las Vegas Blvd., 702-650-9550
- Office Depot, 3636 W. Sahara Ave., 702-222-1890
- Office Max 2640 S Decatur Blvd., 702-221-0471
- Staples, 6280 S. Valley View Blvd., 702-263-4736
- CompUSA, 3535 W. Sahara Ave., 702-252-0149

Luckily, the granddaddy of batteries, power supplies, phone, TV, A/V and computer cables and miscellaneous electronic parts, Radio Shack-Sahara, is nearby at 2595 S. Maryland Pkwy., 702-733-7447, or 3596 S. Maryland Pkwy., 702-369-5933.

BUSINESS SUPPLIES

Speaking of Office Depot, Office Max, and Staples, these stores are also business supply outlets chock full of more traditional forms of communication tools including pens, pencils writing pads or markers. They also provide printing, copying and faxing services. And if you are looking for computer cables (USB, Ethernet), blank CDs or DVDs or phone cables and connections, these stores have them in stock as everyday items.

A PACKAGE FROM HOME

Most of the major Las Vegas hotels have business centers that offer a handy place to send or receive packages from the home office. The centers also have computers and computer printers, copiers and Internet access. The Business Center at the Las Vegas Hilton is a short walk from the Convention Center.

The Las Vegas Convention Center also features a Business Center that offers black and white copying, some office supplies, packaging materials, shipping/mailing/faxing services and short-term storage of personal items. Small package deliveries (under 150 pounds) are accepted from FedEx, UPS, DHL and Airborne Express, as well as outbound small package shipping services from FedEx, UPS and DHL.

EMERGENCY PRINTING

When it comes to documents and packages, FedEx Kinko's is truly a one-stop shop for all for your printing and shipping needs. The nine locations in the Greater Las Vegas area offer a wide range of printing services, as well as packing and shipping supplies for FedEx. Many stores even have wireless Internet service and videoconferencing, and all locations have computer stations and CD reproduction services.

To print a project, simply get on the Web (*www.fedex.com/us*), to find a Kinko's location and send the document for printing/copying, collation and pickup. Ordering over the Internet can save you 10 percent on your order. FedEx Kinko's can also print signs in a number of sizes from your computer files such as a pdf. A 24-hour FedEx Kinko's is just minutes away from the convention center at 375 Hughes Center Drive, 702-731-3252, with a Starbucks attached for a caffeine refuel.

Speaking of shipping, The UPS Store at 1350 E Flamingo Road, 702-732-0024 or 3565 S. Las Vegas Blvd., 702-457-2777, are extremely handy for handling any materials or packages that need to go out during or after the show.

The UPS Store locations offer a full range of shipping and packaging options (including crating) through UPS and other carriers including UPS Next Day Air and UPS Ground and International. UPS also offers document services including coping and digital printing, as well as paper and office supplies.

MISCELLANEOUS STUFF

A trade show coordinator for one of the largest exhibitors is on a first-name basis with the staff of the local Las Vegas Home Depot, 4750 S Decatur Blvd., 702-871-5035; and Lowe's, 4625 W. Charleston Blvd., 702-258-4136. During the pre-NAB setup, the coordinator makes many trips to the stores for building supplies during booth set-up.

And if you are planning to conduct business in a hotel suite, you can probably save some cash by making a trip to Sam's Club, 7175 Spring Mountain Rd., 702-253-0072 or local food stores, Albertson's, Vons and Trader Joe's, for snacks, beer, wine or food platters.

Finally, if you are looking for special services such as models, catering or equipment rental, the LVCC has a special section of the center's Web site that has extensive list of trade show vendors. It can be found under Vendor Search at: *www.lvcva.com/meetings/services-support/toolkit-vendor-services.jsp*. ■

MyNAB: Your Online Assistant

Web site helps attendees navigate the show

by Paul Kaminski

LAS VEGAS

If there's one thing people can almost unilaterally agree upon, it's that life is busy and there never seems to be enough time to check everything off those "to do" lists.

While attendees may be on their own with those home improvement lists, NAB can certainly help you manage your show "to do" list, especially this year. NAB2007 organizers have found a way to save attendees time and make their show experience more productive.

"MyNAB Show" is a free tool that allows those who are attending the conferences and exhibits the ability to do more than just find locations of exhibits and conferences that they are interested in. It literally builds the show around an attendee's personal specifications. Visit *www.nabshow.com/mynab* to get started.

"With over 105,000 attendees and 1,500-plus companies exhibiting, there's a lot to see," said Matthew Borkowski, marketing director for NAB. "We wanted to provide a tool that could help someone who could only attend for two days to pack four days worth of value in those two days."

MyNAB Show sets up an event plan that matches interests entered when attendees register.

MyNAB Show sets up an event plan that matches interests entered when attendees register. That plan can be as simple as devising a map of exhibits, or a search of the entire event community to find people, knowledge and products that most closely match the attendee's objectives.

The tool provides suggestions each week for your Event Plan. It allows users to connect online, before the show, with the correct people to answer an attendee's specific questions.

The system will also work after the show, so follow-ups with contacts are made more easily.

There will be stations throughout the Las Vegas Convention Center where users can print their agenda or add to their MyNAB Show profile. For those who may need some coaching to take full advantage of the system's capabilities, there will be a MyNAB Show lounge next to the main registration area.

"The staff there will walk you through the system's searching, event planning and follow-up capability," Borkowski said.

Powered by BDMetrics, MyNAB Show uses a powerful demographics search engine to locate and suggest matches for your event plan. ■

"We wanted to provide a tool that could help someone who could only attend for two days to pack four days worth of value in those two days."

—Matthew Borkowski, NAB

'If It's Sunday'... It's Tim Russert

'Meet the Press' to Join NAB Broadcasting Hall of Fame

"Meet the Press," the longest-running network TV program in the United States and possibly the world, will be inducted into the NAB Broadcasting Hall of Fame at the TV Management Luncheon at NAB2007 on April 16. Accepting the honor on behalf of the program will be its moderator, Tim Russert, the Washington bureau chief for NBC News. He recently spoke about the Sunday morning news staple, now in its 60th year, with TV Technology news correspondent John Merli.

Tim Russert, host of NBC's "Meet the Press"

WASHINGTON

TV TECHNOLOGY: What needs do you think MTP fulfills for viewers to keep it on the air for six decades?

RUSSERT: I think what accounts for its success is that it's true to its mission. When I first became host and sat down 15 years ago with Lawrence Spivak, who founded the program, he said the mission is simple: Learn as much as you can about your guest and his or her position on the issues—and then take the other side [laughter].

He said be persistent but be civil, allow people to finish their thoughts, then ask the appropriate follow-up questions, and the audience will know whether they're answering or ducking. It's been excellent advice.

TV TECHNOLOGY: The show has made some significant format changes over the years. How did you evolve into the current, more informal format?

RUSSERT: I have either watched or read every transcript of every single program going back nearly 60 years because I was very curious about formats. It started out as a half-hour program, television was very new, and politicians were not surrounded by handlers and media advisors like now.

They were more candid initially in their responses. Now, because of the explosion of the information spectrum, along with 24/7 cable and other Sunday programs, you have to be unique. What we try to do is peel away the boilerplate, get beyond the spin, and really try to have a discussion and let viewers gain some real insight into the thinking of a political figure.

TV TECHNOLOGY: And it's apparent you like to keep the format flexible.

RUSSERT: Very much so. We often have only one guest in the whole hour, which is very unusual today in network television—one guest in a full hour. Sometimes we present panel discussions among journalists, sometimes special in-depth interviews with presidential candidates, and Senate candidate debates, and other formats.

TV TECHNOLOGY: Technically speaking, you seem to offer extremes. Along with repurposing MTP on so-called "new media" venues like podcasts and broadband streaming, you also have your infamous clipboard with that handy Magic Marker to keep track of election numbers by hand, and often forego the use of video clips in favor of plain text on-screen to cite a guest's previous quotes.

RUSSERT: I think the simplicity of all that is appealing to people. It is counter-programming, in a way, and cuts through the clutter. You don't find it on most other programs.

When I started out hosting 15 years ago, I wanted to eliminate [denials] by guests when they said they never said something, by showing them in plain text that they *had* said it. Years ago I had people high up at NBC tell me, "you know, Russert, that's very 1950s TV." And I told them, "I happen to have some very fond memories of '50s television because a lot of it was quite memorable!"

I'm on the phone much of the day talking with sources, to our correspondents, trying to stay on top of everything. I read six or seven papers a day. We have to stay on top of many events [simultaneously] because we often don't know who our guests are going to be until Thursday or Friday of that week.

SUNDAY, PAGE 71

Conference

CONTINUED FROM PAGE 64

Telecom@NAB2007 registrants with the experts. Shane Robison, executive vice president and chief strategy and technology officer of Hewlett-Packard, will kick off Telecom@NAB2007's first Super Session, "Digital Content: The Race is On," Monday at 10:30 a.m.

James Goodmon, president and CEO of the pioneering Capitol Broadcasting Co. in Raleigh, N.C., will join the Super Session "IPTV-Market Outlook 2010", along with Alan Guggenheim of OpenTV and Omar Javaid of Qualcomm MediaFLO Technologies, Tuesday at 9 a.m.

"The Revolutionizing Impact of Broadband Video" will feature leaders from three revolutionizing companies: David Eun, vice president for Content Partnership for Google, Chief Marketing Officer Shawn Gold of MySpace, and Senior Vice President and General Manager Daniel Scheinman of Cisco Media Solutions Group, Tuesday at 10:30 a.m.

Social networking, the growing phenomenon that's changing the way people meet and interact, gets attention at "Social Networking in the 21st Century." Shen Tong, president and founder of VFinity, will keynote. Peggy Miles of Intervox will moderate again and panelists will include officers from Juice Wireless, Reality Digital, Limelight Networks, and AFI Digital Content Lab, Tuesday at 2 p.m.

Super Sessions are open to anyone with any conference registration, or as an add-on to the regular NAB2007 registration. ■

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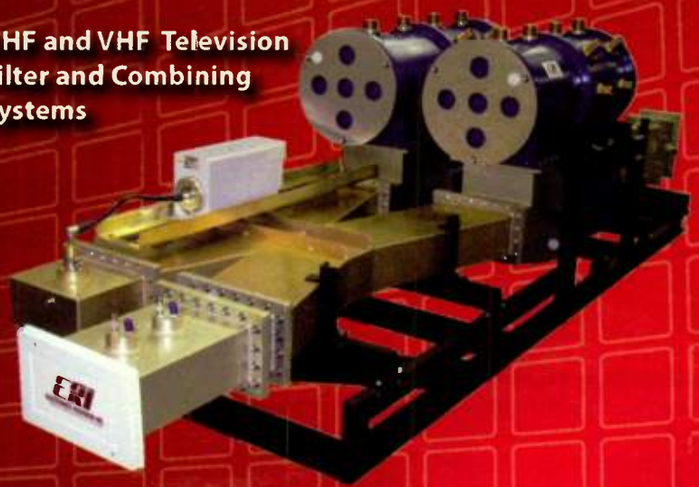

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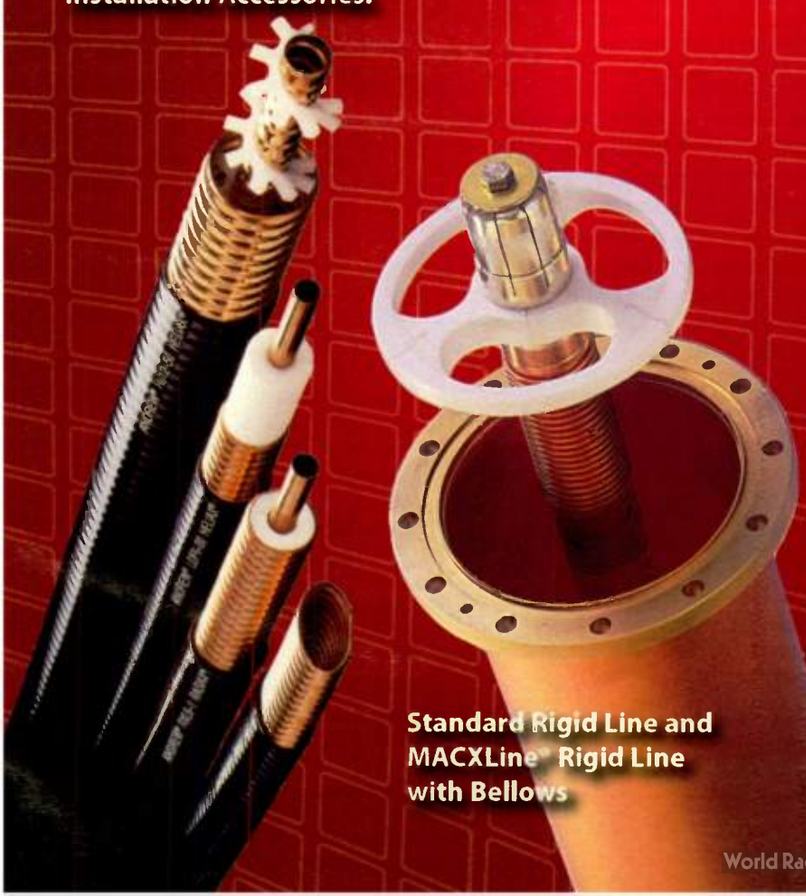

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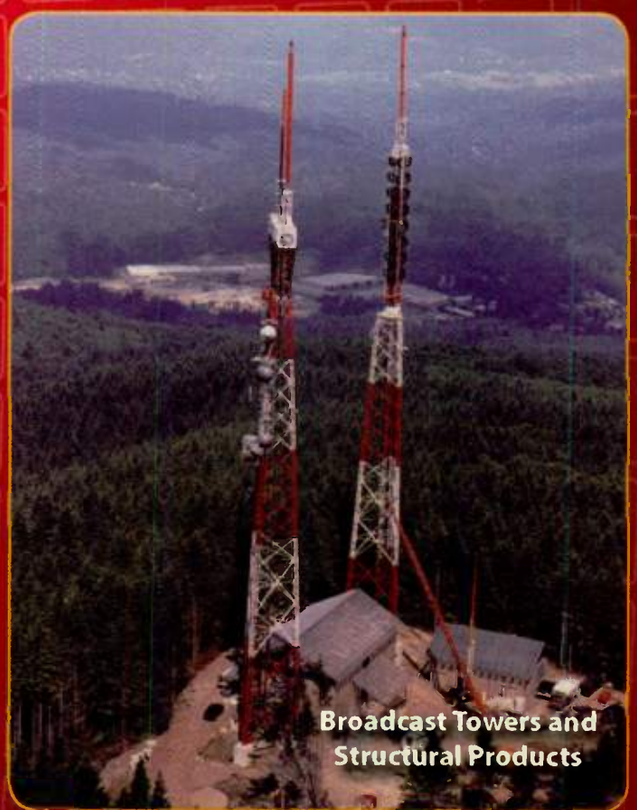

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Technology

CONTINUED FROM PAGE 58

this nature reduce risk and increase agility, efficiency, and accountability.

NTC will also discuss these topics at its suite in the Las Vegas Hilton. NTC's services include design, consulting, and media integration for every facet of the broadcast and media industries.

NTC will send more than 30 of its staff to the show, including design engineers, systems engineers, software engineers, senior consultants, project directors, and procurement specialists, according to Edward P. Hobson, vice president of NTC in Glendale, Calif., and New York..

Edward P. Hobson, NTC

"NTC's goal at NAB is to continue its close collaboration with its clients and the overall industry in order to fully understand industry needs, as well as to investigate promising new technologies that address these needs," Hobson said.

Hobson added that understanding trends—such as HD production, storage, networking, file-based production, digital asset management, collaborative workflow and integrated media technology enterprises—are critical for "survival."

"The broadcast industry must understand, integrate, and successfully leverage these new technology advantages in order to remain viable in the new media world of digital content creation and delivery across an ever-broadening array of media-consumption devices," Hobson said.

NTC recently completed extensive work for KQED, in San Francisco, including a fully upgraded master control operation. KQED's upgraded infrastructure also benefits its two sister stations, KTEH in San Jose, and KCAH Watsonville/Monterey because KQED's new master control room now feeds six 24-hour DTV channels from HDTV servers to both stations—improving cost efficiencies for all three PBS stations.

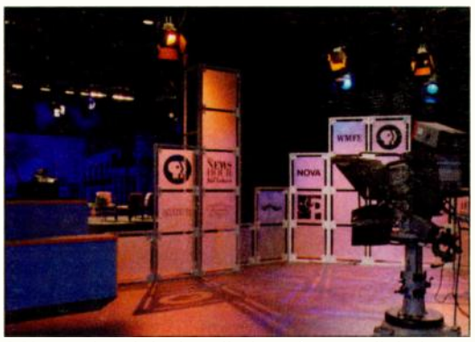
INDUSTRY LIAISONS

Azcar, a Canonsburg, Pa.-based systems integrator, will send more than 25 people to NAB2007 and the PBS Technology Conference preceding it, including executives from the systems design, integration, and account management departments. Besides its U.S.-based personnel, the Azcar delegation will also include representatives from its U.K. subsidiary, Megahertz Broadcast Systems, and its Toronto office.

Azcar is also presenting a paper, "Designing and Integrating for HD," during the "Workflow Super Session" at the 2007 PBS Technology Conference.

"Beyond seeing the latest technology, toys, and widgets, NAB is the only place that a systems integrator is afforded the opportunity to gauge where the industry is headed with respect to a wide range of media," said Karl Paulsen, chief technology officer for Azcar. "We just need the doors to be open 24 hours a day for two weeks to get through it all!"

For WBNX-TV, in Cleveland/ Akron, Azcar provided consultation, design, and integration of an all-file-based multistream technical operations center using Omneon Spectrum servers with multiseat Final Cut Pro edit in place, Miranda master control, and Sundance automation with nearline cache.



PCS completed the installation of a new digital facility for WMFE, the PBS station in Orlando, Fla.

Azcar also provided NFL Network, in Mt. Laurel, N.J. with the design, upgrade, and expansion of its facilities in Culver City, Calif. Other clients include WABC-TV in New York, Cox Television Stations; WNYO/WUHF-TV in Buffalo, N.Y., as well as Fox Network Center in Houston.

Paulsen said that one of the biggest challenges systems integrators face today is, "harmonizing the options available with the new technologies in order to provide a solid, functional solution that meets clients' needs, expectations, and budget."

TRACKING TRENDS

Tampa, Fla.-based Professional Communications Systems will host a hospitality suite for meetings with their clients and manufacturing partners. PCS anticipates sending 13 people to the show, including R.A. "Tony" Stephens, president; Bill Blush, vice president of sales; and Larry Stephen, broadcast systems account manager.

Stephen says they will be looking for trends and technologies in automated newsroom production systems; news acquisition and production equipment; IT-related infrastructure, asset management, and alternative distribution technologies.

"All of these technologies are designed to reduce costs and/or improve productivity in order to increase profitability," Stephens said. "It's also important to understand the bridge between IT and traditional broadcast systems, and to help stations determine what they need to stay competitive and up-to-date."

PCS completed the installation of a new digital broadcasting facility for WMFE, the leading PBS television station in Orlando, Fla. As a result, the Orlando area station can now broadcast one HD and two SD channels at night, and six SD channels during the day, by employing cost-effective automation solutions designed and integrated by PCS. PCS also helped WINK-TV in Fort Myers, Fla., with extensive building and operations expansion. Despite the construction, and the many hurricanes that hit the area, the station remained on the air without interruption.

HD ENDGAME

Venue Services Group, Inc. in East Rutherford, N.J., will send eight people to NAB, including Dave Shaw, president; Craig Taylor, vice president of sales and marketing; and Bob Mohan, chief engineer.

"Systems integrators need to connect with the latest technology, work with customers and manufacturers alike, and develop improved engineered systems for clients," Shaw said.

Recent VSG projects included building out mobile truck provider NMT's HD12 and HD6 HDTV mobile units; as well as NMT's HD11 (debuted at NAB2006), a three-truck mega HD mobile system for CBS Sports. VSG also worked on master control and radio simulcast facilities for Mid-Atlantic Sports Network.

For the last three years, VSG has been developing Value System, a pre-engineered nonlinear editing solution with Apple Final Cut Pro as its core, and will be promoting this new product at the show. It also includes all of the latest broadcast software from Apple, an interface to an Omneon broadcast server, and it's fully maintained by VSG.

Shaw says a key trend at NAB will be getting HD to the masses with a lot less cost.

"HD has penetrated all markets, and providing this high-quality signal with reasonable pricing has been the end-game we have been striving to achieve for years." ■

Sunday

CONTINUED FROM PAGE 68

TV TECHNOLOGY: As a network Washington bureau chief, any observations about the digital transition now underway, and any plans for MTP in HD?
RUSSERT: Actually, I think 'Meet the Press' was the first program to be aired in HDTV on the [NBC] network. But one time only.

TV TECHNOLOGY: Why only one time?
RUSSERT: As I recall, mostly because of the costs back then [a few years ago]. I love high-definition on a big screen. At home, by the way, I have a 63-inch plasma television. I've had it for about three years.

"I love high-definition on a big screen. At home, by the way, I have a 63-inch plasma television. I've had it for about three years."
—Tim Russert, "Meet the Press"

TV TECHNOLOGY: What brand?
RUSSERT: It's a Fujitsu. It's great. I have both cable and a satellite dish at home. I love to surf, especially for big news events.

TV TECHNOLOGY: In the past couple of years, NBC News content has been repurposed for a variety of different devices. Are you fearful such wider 24/7 accessibility may hurt your Sunday broadcast ratings, and have your ever seen MTP on an iPod?
RUSSERT: My son, who's a junior at Boston College, was the first to encourage me to go on [MP3 players]. Also Betsy Fischer, the executive producer for MTP, is very technically savvy. She mastered computers long before I did. She was a real driving force into streaming and such. In fact at one point early on, I think MTP was the fifth-highest download from iTunes. Of course, I was curious as to what were the first four—and was told it was 'music' and 'porn'!

Yeah, I have seen the show on an iPod. MPT is now [repeated] on cable MSNBC twice on Sunday, and we're on radio [NBC affiliates and C-SPAN Radio], and on iTunes, as well as on our MSNBC Web site for [streaming and podcasts]. We figure we get an extra million viewers on our cable repeats alone, and between that and being available online, we think it's actually enhanced the audience for our regular broadcast of the show. It certainly hasn't hurt our audience. It's been a wonderful experience because it's taught me a lot about the new frontiers of technology and how people want to get their information.

TV TECHNOLOGY: What are your own plans for the next few years regarding MTP?
RUSSERT: My contract runs through 2012. This is my 16th year as moderator and host. There's nothing else I'd rather to do in television. I consider "Meet the Press" a national treasure and I feel like a custodian. I plan to work very hard to make sure that whenever I do have to depart, the next person will find it in very good shape. ■

Sony Promotes 'HD for All'

Company expands XDCAM HD, CineAlta and Luma lines

by James E. O'Neal

PARK RIDGE, N.J.

As usual, it's going to be difficult to miss the Sony Electronics folks at NAB. They're the ones with the super-sized second floor booth at the front of South Hall.

And once again they're there with some very innovative products they're showing the world for the very first time.

The big push for Sony at NAB2007 is high-definition gear, according to Alec Shapiro, senior vice president of sales and marketing.

"This year our theme is 'HD for All: Real Systems, Right Now,' and we'll back that up with real end-to-end complete systems," Shapiro said. "These will include the SONAPS advanced news production system and HDXchange, a low-cost, networked content-sharing solution for program producers. Also, our XDCAM HD system will be expanded with new products, and we'll also talk about our plans for evolving the tapeless workflow."

Shapiro confirmed that Sony's booth is indeed the largest at the show, occupying 24,000 square feet.

"It's safe to say that we believe having a large presence at NAB is very important," Shapiro said.

According to Shapiro, Sony will feature an enhanced "Hot Products" section near the booth entrance. This area will use digital signage to provide visitors with a quick preview of what new products await them further on into the booth space.

Central to Sony's NAB presence is the concept of products that share a common element—MPEG compression.

Sony will present complete systems that can make complete use of MPEG-2 Long GOP streams at low data rates and deliver high-quality video without the risk of signal format compromise.

"The MPEG algorithm is technologically mature enough to efficiently satisfy the most demanding picture requirements for broadcast and production applications," said Hugo Gaggioni, Sony's chief technology officer in the Broadcast and Production Systems Division.

Gaggioni says that MPEG not only can facilitate workflow, but that it also provides full interoperability with a range of NLEs.

The Sony F23 CineAlta camera

"The MPEG algorithm is technologically mature enough to efficiently satisfy the most demanding picture requirements for broadcast and production applications."

—Hugo Gaggioni, Sony

Sony will have several MPEG-based products at their booth, including entry-level HDV camcorders and mid-priced XDCAM optical production equipment.

MORE LUMA DISPLAYS

Sony has been busy adding to the

company's Luma line of professional LCD technology display devices. New for the show is a 42-incher, the model LMD-4250W which displays at 1920x1080. There's also a new 24-inch model, the LMD-2450W, as well as a couple of 20-inch units, the models LMD-2050W and LMD-2030W. They both boast 1680x1050 resolution.

All of the new models provide video waveform monitoring, as well as picture displays; they have closed-captioning capability; provide audio level meter displays; and all use 10-bit processing. The new Luma line products do Sony's previous models one better by providing users with a multidisplay function, providing two side-by-side images.

NEW CINEALTA RELEASE

For moviemakers, there's a new CineAlta product that should draw a big crowd. This is the F23, which joins Sony's previous entry—the HDC-F950—in the high end HD film-look line.

"With this new system, content creators and program producers will have one more extremely versatile high-end production tool in their arsenal," said Rob Willox, Sony's director of marketing for professional content creation products. "Developed for cinematographers, this system will offer the technical and mechanical flexibility they need, as well as a compact and rugged design to withstand the challenging conditions often encountered on location."

The new model shoots in 1920x1080 4:4:4 RGB imaging and supports a variety of frame rates. There's a new 4:4:4 recorder, the SRW-1, which docks directly to the top or tail of the camera, eliminating the need for interconnecting cables.

Sony is also showing off a new entry in its HDV camcorder product line, the HVR-V1U, which can produce 24p images and was designed with the needs of cinematographers, videographers and documentary producers in mind.

LIVE CAMERAS TOO

"Direct-to-air" video isn't being neglected either. Sony is taking the wraps off of a new high-definition studio camera, the HDC-1400. It's designed for dual-format operation and is equally at home in 1080/59.94i or 720/59.94p environments. The HDC-1400 also features a multimatrix color control, a skin detail control and high-quality downconversion to SD video.

Wilcox noted that the camera would provide a lower cost entry into high-definition broadcasting at stations that didn't need the full multiformat flexibility available in other Sony cameras.

Sony will also take the wraps off the HD-only version of its Anycast Station live production system.

Rounding out Sony's booth are many other camera/camcorder systems, multiformat switchers, tape decks, Vegas software and products from third-party companies including Avid, Apple and Canopus.

WHERE IT'S ALL HEADING

Time marches on and broadcasting technology constantly changes. Shapiro says that his company is striving to be right in step with what the customer's needs.

"It's imperative that we continually expand our vision of what our products can do and how they can help our customers move forward for the future," Shapiro said. "So, rather than selling 'a camera' or 'a deck,' we need to find new ways to take our core products and integrate them into a complete system, ultimately providing more value to the customer.

Shapiro noted that this concept didn't just apply strictly to the broadcast side of things.

"We're also sharpening our focus on market segments like houses of worship, government and education, as well as hospitality, retail and professional and collegiate sports." ■

Grass Valley Bullish on HD News

New imaging chip, control software debut

by Tom Butts

NEVADA CITY, CALIF.

Grass Valley is heading to NAB with high expectations that 2007 will be a banner year for hi-def news.

"We think it's going to be a watershed year for HD news," said Jeff Rosica, vice president, marketing and technology for Grass Valley. "From what we can tell on the number of project proposals that we have and the number of orders that we have, I believe the numbers are going to move very very fast."

By its own estimates, Grass Valley holds an 80 percent market share worldwide in professional gear for hi-def news, and product highlights at the Grass Valley booth at NAB2007 will reflect the company's commitment to this expanding market.

INIFINITY ARRIVES

One of the key motivators for stations moving to HD news is the increased implementation of file-based workflows and the adoption of tapeless formats, according to Rosica.

"Last year we reached a milestone," Rosica said. "For the first time, it was cheaper to store material in a non-tape format."

A key component in the company's IT philosophy is the Infinity tapeless product line. Rosica said the cameras will be ready for delivery to customers by the end of Q2.

Promoted as an "IT-immersive" system, the Grass Valley Infinity product line includes a camera and field recorder. Users can record and store on Iomega's REV PRO media, CompactFlash cards or USB media.

Infinity's market introduction has been delayed several times, frustrating Rosica. But he insisted that "these kinds of projects take time and we're going to take the time to get it right. We're not going to bring the product out before it's ready."

Currently more than 100 cameras are being beta tested with what Rosica described as "major news organizations," and the company—which has built a special factory for the Infinity line—should have a better idea of the specific delivery date by NAB.

XENSIUM CMOS CHIP

When customers finally get their hands on the new Infinity cameras, among the enhancements they'll notice is a new CMOS imager, the first CMOS technology that the company has developed for its cameras.

The 2/3-inch "Xensium" CMOS chip features a new native high-definition sensor with an array of 2.4 million pixels. Xensium offers wider dynamic range, lower power consumption and reduced signal to noise ratio when compared to other CCD or CMOS imagers on the market today, according to Rosica. It supports all HD formats natively—both progressive and interlaced—and raw 4:4:4 image capture.

Also on the docket for launching at NAB is the LCP400 local control panel, a software application that allows users to wirelessly control Grass Valley Infinity cameras. Installed on a PDA or smart phone running Windows Mobile 5, the software communicates with the Infinity camera via Bluetooth using a USB dongle in the camera, as well as over WiFi networks. It replicates the side control panel on the camcorder, giving access to all the menus and settings and allowing changes even during shooting.

Grass Valley also is partnering with Fast Forward Video, an Irvine, Calif.-based developer of video recording technology, to market a new dockable recording system for existing analog cameras that incorporates the REV PRO digital media drive used on the Infinity. Specifically, FFV will market an A/D converter using a built-in REV PRO drive that mounts onto the back of an existing analog camera and converts the signal from analog to digital, so that it can be recorded on REV PRO media, turning an analog camera into a file-based digital recorder.

IGNITE HD

Visitors to Grass Valley's new location as one of the anchors in the expanded North Hall will also be able to see demonstrations of the Grass Valley Ignite HD system, the newest version of its automated news system, completely overhauled from its Parkervision legacy.

Once a staple of small market stations, Ignite is getting some traction in mid- and upper-market broadcast facilities as well, according to Alex Holtz, manager of integrated product solutions for Grass Valley. And many of those stations are implementing the Ignite system to launch new channels.

"We've already started to sell Ignite systems into facilities doing multicasting," Holz said. "That's key to the success of Ignite."

Other new Grass Valley products to be launched at NAB2007 include a new lightweight, compact, single format version of the LDK 4000 camera for customers working in fixed 1080i or 720p formats, and Spirit HD, a new lower-cost version of the Spirit Telecine product line, targeting the growing demand for HD film transfers.

NEW LEADERSHIP

Jacques Dunogué, senior executive vice president, Thomson, is the new head of Grass Valley.

In addition to new products, Grass Valley is heading to NAB with new leadership as well. Jacques Dunogué, who currently serves as senior executive vice president in charge of Thomson's Systems division, has been appointed to lead Grass Valley, replacing Marc Valentin. Dunogué, a former Alcatel executive, will lead a company that has now been divided into three business units—Broadcast & Professional Solutions, Integration and Transmission Solutions and Video Network Solutions. Each division will have its own focus and leadership team.

Rosica will lead the Broadcast & Professional business unit, reporting directly to Dunogué. Rosica will continue to lead the North American sales activities for the company. Patrick Montliaud will continue to head up the Integration and Transmission Solutions business unit, in addition to his position as the leader of the European/Rest of World activities. This unit will be responsible for Grass Valley application software, turnkey systems and transmission products.

Christophe Delahousse will continue to lead the Video Network Solutions business unit, which will be responsible for Grass Valley compression, digital mobility, IPTV, networking and signal-management products. Hiro Yamada, founder of Canopus, will work with Grass Valley management to help drive overall architecture and technology strategies. Yamada will continue to oversee the editing, server and storage product lines within the Broadcast and Professional Solutions business unit as well as oversee commercial activities in Japan. ■

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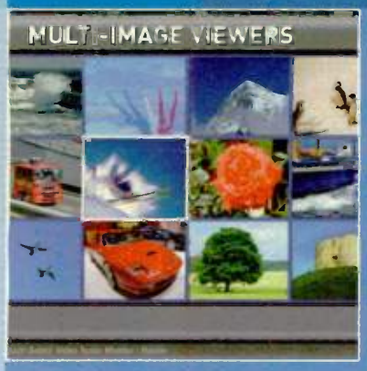

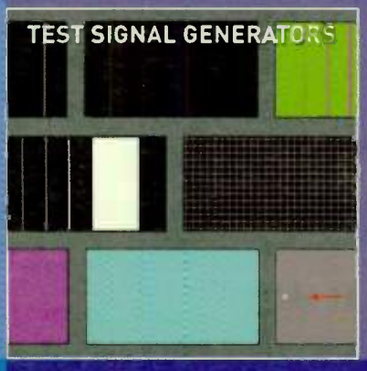

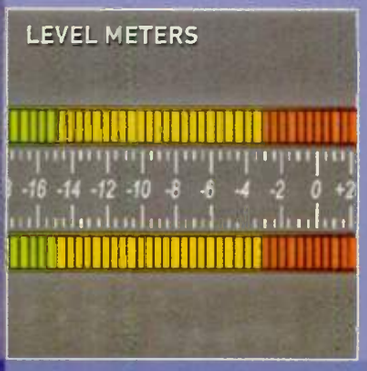

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Panasonic's P2 Goes Long

Solid-state format gets recording boost, new gear

Tom Butts

NEW YORK

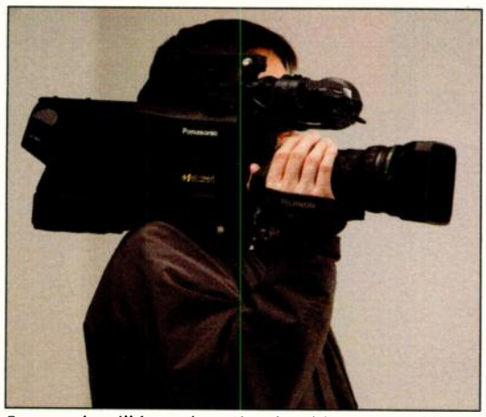
Panasonic will be pushing the P2 envelope at NAB2007 with several new camcorders and field gear; as well as a new 16 GB card and the promise of a 32 GB card by the end of the year.

Since hitting the market three years ago, the company's tapeless, solid-state, IT-based professional production format has been adopted by more than 150 U.S. broadcasters. Within the past six months, a number of stations have adopted P2 HD, including such recent customers as Fox's 35 owned-and-operated stations; the 15 stations in the Cox Television station group; KGTV, the ABC affiliate in San Diego; as well as cable news operations NY 1 News and Cablevision New Jersey.

In announcing the new P2 cards, the company emphasizes what it has been predicting ever since it introduced the P2 product line: that recording capacities will continue to increase as the cost of storage declines.

"A P2 HD camcorder such as our new AJ-HPX2000 with five P2 slots will be able to record up to 80 minutes of full frame rate high-definition content using five 16 GB cards," said Robert Harris, vice president of marketing for Panasonic Broadcast. "When the 32 GB P2 card arrives by year's end, recording capacity will double once again."

With the new 16 GB cards now available, customers will be less motivated to remove the higher capacity cards from P2 cameras, allowing them to "close the door" on the camera slots. This will make the cameras essentially "media-less," according to Joe Facchini, director of product marketing for Panasonic Broadcast.



Panasonic will introduce the shoulder-mount AK-HC3500, a 2/3-inch 2.2 megapixel 3-CCD camera designed for studio and EFP use.

"[Customers'] concern has always been the recording time and capacity of the cards," Facchini said. "That will essentially be eclipsed in 2007."

SNOWBOUND

Those cards and the related P2 gear recently got a highly publicized stress test when camera crews used the products to provide the first ever high-definition coverage of the Iditarod trail sled race, which started in Anchorage, Alaska on March 4, with the first musher crossing the finish line in Nome on March 13.

Six video crews covered the race using 10 Panasonic P2 HD cameras, including the AJ-HPX2000 2/3-inch shoulder mount and AG-HVX200 handheld to record the 87 sled dog teams. The expected 140 hours of footage is being distributed to television stations and networks worldwide and will also be used for three one-hour documentaries for the Versus (formerly Outdoor Life Network) channel, as well for daily updates on the Iditarod's official Web site, *www.iditarod.com*.

OTHER P2 GEAR

Back in sunny Las Vegas, Panasonic is marking NAB2007 with a new field unit for its P2 line. Dubbed the "P2 Gear," the HPG10 is a rugged portable unit that offers back-up recording of HD and SD content for applications ranging from broadcast production to independent filmmaking. The two-pound solid-state memory card unit features a two-slot P2 card reader and is equipped with a flip-up 3.5-inch 4:3 LCD monitor and speakers for video and thumbnail clip viewing. Using the IEEE 1394 port, the battery-operated unit can be used as a backup recorder when connected to a P2 HD/SD or tape-based camera or the Focus Enhancements Firestore FS100 hard drive recorder. The unit also features an HD-SDI output, USB 2.0 component and composite (BNC) outputs.

Panasonic will also debut a new camera, the AK-HC3500, a 2/3-inch 2.2 megapixel 3-CCD camera designed for studio and EFP use. The 9.9-pound native 1080i camera features an advanced single channel transfer system and spatial offset processing for reduced aliasing and higher HD resolution. For studio use, the camera can be mounted onto an optional build-up unit with a "one touch" cable-free setup and can be removed for shoulder mount use. An SD memory card slot is included for easy storage retrieval of user and scene files.

Also new is the BT-LH80W production quality SD/HD LCD monitor for studio and field applications. The compact monitor, which doubles as an electronic viewfinder for Panasonic HD cameras, sports a 7.9-inch 16:9 screen and features the industry's lowest delay, according to the company. This is accomplished by using an image processing circuit to convert interlaced into progressive signals within one field. It also features a built-in waveform monitor that graphically displays luminance levels from –5 to 108 IRE, as well as Diagonal Line compensation that reduces the occurrence of jagged noise in the diagonal direction for improved response.

For the film and digital cinema crowd, Panasonic is rolling out the AJ-HDP2000 2K processor, which allows professionals to record and process pristine quality 2K and HD images to D-5 VTRs for editing, interchange and distribution.

NAB attendees will find Panasonic in its familiar locale, atop the stairs overlooking the Central Hall of the Las Vegas Convention Center. The 270-by-50-foot "booth" will house a large theater (which will showcase HD content on the company's 103-inch plasma screens), a studio area and a new area called the "application zone." Building on the successful response to its hands-on demos from video professionals in its booth at NAB2006, this year, Panasonic is expanding the concept to feature four rooms, each based on a theme: broadcast, independent film, post production and a general Q&A area. ■

Harris: ONE Destination

Company promotes product integration, distribution

by Tom Butts

NEW YORK

At NAB2007, Harris Broadcast Communications Division will be promoting its ONE initiative, touting its broad array of products and services to broadcasters and the production community.

"This business is really a compilation of a whole bunch of acquisitions over the last six or seven years," said Tim Thorsteinson, president of the division. "We're spending a lot of time and effort on integrating those technologies we've acquired—the cultures, people, some of the locations—into a more unified whole to provide value to customers... as a company, we're really well-positioned."

Tim Thorsteinson, president, Harris Broadcast Communications Division

As recently as three years ago, Harris was known primarily to broadcasters for its transmission and automation product lines, but a number of acquisitions—including the purchase of Encoda, Invenio, Arkemedia, Leitch, Videotek, Inscriber, Aastra and OSi—have greatly broadened the company's technology offerings to the point that it can provide almost everything in the production chain (except cameras and related products).

But the company's transmission business has taken a hit as television broadcasters have completed their build-outs and turned their attention to other parts of the production facility. The slump in transmitter sales has forced the company to eliminate about 150 positions from its facilities in Quincy, Ill., and Mason, Ohio.

Thorsteinson said the division has too much manufacturing capacity, adding that although the Harris business overall is strong, TV transmitter sales have been "very, very, very, very, very, very, very soft. People have been delaying their purchases. I've seen a lot of things but I've never seen a business drop off like this."

The evolving broadcast industry has prompted Harris to re-evaluate even the name of the division. By NAB2007, the name "broadcast" may no longer be part of the Harris moniker, according to Thorsteinson.

"We'll be positioning the business a little bit beyond the traditional broadcast name," he said. "The business has moved significantly beyond transmitters."

Thorsteinson emphasizes, however, that Harris' broadcast business is healthy. Revenue from continuing operations increased from $1.84 billion in 2002 to $3.47 billion in 2006 and broadcast sales, he said, are about $625 million per year and he'd like to grow the business 8 to 10 percent per year.

Overall, he said, business is "the best it's ever been in my 12 years in the industry—forgetting the TV transmitter hiccup."

Positioning its business beyond traditional broadcast though, doesn't mean that the company isn't moving ahead with new ideas to help broadcasters transition to the mobile TV era. Harris has been very active in this burgeoning market and NAB2007 will mark its boldest move yet.

At the show, the company will reveal plans about a new mobile TV standard it is proposing that uses broadcasters' DTV signals to transmit audio video content to mobile devices. It may even conduct a technology demonstration of the standard—dubbed "ATSC Mobile" during the show.

In announcing the initiative—code named "Project Eagle"—the company places itself in direct competition with A-VSB, which is also based on the ATSC standard and is being developed by Samsung and Rohde & Schwarz. Samsung demonstrated the standard at CES in Las Vegas earlier this year. The ATSC, which is the standards body for U.S. digital television is currently considering standardizing A-VSB.

> "We'll be positioning the business a little bit beyond the traditional broadcast name."
>
> —Tim Thorsteinson, Harris

ATSC Mobile is "in-band and optimized for mobile pedestrian and handheld-type services," said Jay Adrick, vice president of strategic development for Harris Broadcast Communications Division. "The platform has performance specifications that exceed A-VSB. In fact, we have about a 7 dB greater signal threshold in performance than A-VSB."

Harris has been conducting low power testing "in a major city" using a 1 watt transmitter, according to Adrick.

"We are about to move that testing to a major market with a high power VHF station in a Top 30 market and conduct some field trials during the month of March," Adrick said.

Harris will continue to support development of other mobile TV standards, Adrick added. "We're not a single flavor house when it comes to mobile TV," he said.

INTEGRATED PRODUCTS

The company's focus on integrating its product line to provide comprehensive solutions to its customers is illustrated by the debut of "NewsForce" at NAB.

NewsForce integrates editors from the former DPS (which was acquired by Leitch in 2000), graphics from Inscriber (another Leitch acquisition from 2005) and Nexio servers from Leitch (which Harris acquired in 2005) to create a complete, file-based newsroom system based on the Nexio XS

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JVC Makes HD Easy on the Budget

New HD camcorders, monitors on tap

by Craig Johnston

WAYNE, N.J.

It was at NAB four years ago that JVC trumpeted its "Affordable HD" initiative. Dave Walton, JVC assistant vice president of marketing remembered: "It was here, we were proving that you could do it, but the market was not quite ready."

What a difference four years can make. Walton noted sales of JVC field cameras over the past year to network O&O's in Chicago, Los Angeles and San Francisco. "This is kind of a step-up for us to be on the air with HD in all these markets," he said. "What are we doing that even our competitors aren't or can't do?"

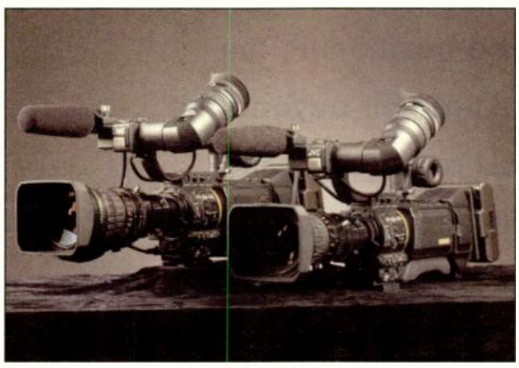
A COMPETITIVE NECESSITY

The answer lies in the GY-HD200 Series of JVC camcorders, being formally introduced at this year's NAB. In addition to the 200 Series camcorders being able to image and record in both SD and 720p HD, the camcorders have an encoded HD output that can be transmitted back to the station via conventional microwave equipment. This saves $30,000-$60,000 an external encoder would cost to do the same job .

Walton emphasized that this JVC solution is not only easy on the wallet, "it's also easy on the engineering people." As a testament, he pointed to several cases when the JVC camcorders were received and implemented just prior to a ratings sweeps period.

"It's really all about the viewers," said Walton. "With the rapid consumer migration to HD flat-panel TVs, HD in news will become a competitive necessity." Stations have told him their first priority is HD studio cameras and infrastructure, then HD ENG live shot capability, and finally field news shooting and editing in HD.

At its booth, JVC will show the GY-HD200U and GY-HD250U cameras in studio, POV, remote broadcast and ENG configurations, touting the camera's ability to do HD at SD prices. Both of the 200 Series models can record to DV/HDV tape and to hard disk drives, and can use interchangeable lenses. The 250 can be integrated as a studio camera with an optional multicore adapter.



JVC will demo the GY-HD200 (L) and the GY-HD250 at its booth at NAB2007.

Walton suggested a station purchasing a 200 Series camera for its HD microwave capabilities is actually future-proofing itself.

"A lot of stations that bought our cameras are using them in the SD mode for the regular ENG shooting and editing applications. But they can flip a switch and go into the HD mode at any time."

"With the rapid consumer migration to HD flat-panel TVs, HD in news will become a competitive necessity."

—Dave Walton, JVC

For the 200 Series cameras as well as JVC's GY-HD110 HD camcorder, the company will show two new drive sizes for its DR-HD100 hard drive modules. The 60 GB model will record approximately six hours of HDV material and the 100 GB model will hold about 10 hours. When removed from the camera, they are designed to plug directly into a nonlinear editor.

JVC will also introduce two new broadcast-grade flat paneled monitors at NAB, the 20-inch DT-V20L1 and the 24-inch DT-V24L1. Both come with HD-SDI and non-SDI versions. The native 1920x1080 displays give pixel-for-pixel monitoring of 1080i HD images, with 1:1 scaling to afford pixel-for-pixel monitoring for 720p HD images as well.

The 16:9 monitors feature a wide viewing angle, high-speed LCD and precise color reproduction and are engineered for broadcast and post-production facilities where image accuracy is vital.

JVC will also show an upgraded version of its cost-effective DM-JV600U high-definition MPEG-2 encoder, designed as a primary on-air HDTV encoder. It features 4:2:2 processing, Dolby D passthrough and a video data rate of 45 Mbps. It an also be used for mastering D-VHS recordings.

New features on the DM-JVC600U include 4:2:2/4:2:0 switchable processing, Closed Captioning via HD-SDI, SMPTE334 standard, and the ability to set video and PCR PID to the same hex value.

The encoder has also been put to use in high-definition ENG microwave applications, and will be integrated into a microwave demonstration in JVC's booth. ■

Snell & Wilcox Mobilizes

Company sees big future in small screen

by James E. O'Neal

BURBANK, CALIF.

Snell & Wilcox has its sights set on the burgeoning mobile TV market this year and is promising "Better Pics for Fewer Bits."

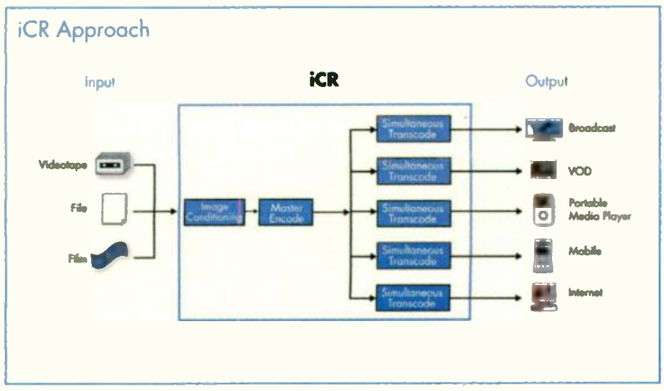
Snell is rolling out a new Protus Ph.C video image processor designed to maximize picture quality in mobile TV and Internet video, while at the same time drastically reducing bandwidth requirements.

Joe Zaller, vice president of strategic marketing for Snell & Wilcox, said television is doing more than changing from analog to digital; it's now evolving into a multiplatform world. And this change further complicates the lives of television broadcasters.

SMALL SCREEN HELP

"When you're dealing with multiplatform distribution, you have to first remember that virtually all of a broadcaster's content is still interlaced," Zaller said. "And virtually all of the small-screen display devices are progressive. We saw a big need for high-quality deinterlacing and did something about it. This is the Protus Ph.C."

Zaller explained that the Snell had been mindful for some time of the need to squeeze more high-quality content into fewer bits. This lead to the creation of the company's Emmy award-winning HD Prefix pre-processor four years ago for dealing with things such as electronic noise and film grain. The Protus Ph.C takes this to the next level—noise reduction *and* deinterlacing.



This diagram shows the workflow for Snell & Wilcox's iCR content repurposing system

"The device works with anyone else's system in performing image conditioning prior to compression," Zaller said. "It provides 10 to 20 percent greater efficiency in terms of bit reduction.

"The Protus provides better pictures in less bandwidth," Zaller said. "Video quality is a very subjective thing, but people universally do understand things like jerkiness and judder.

"Snell & Wilcox is not known as an encoder vendor; however, we can make anyone else's encoder better with Protus."

Zaller said that not only does the processing device allow broadcasters to put more channels in the same bandwidth, it also offers better audio by freeing up bandwidth for this part of the service.

"You're going to see smoother motion in streaming content, and the audio is going to sound a lot better too," Zaller said.

Another Snell & Wilcox content repurposing technology will make its U.S. debut at NAB2007—the iCR automated content repurposing workstation.

"The cost of repurposing content doesn't really change between primetime material and older reruns," Zaller said. "By creating automated tools for repurposing, we can bring that cost down."

With the iCR, Snell has created a single workstation environment with all the tools needed for achieving top-of-the-line repurposing. It provides imaging conditioning tools, content mastering and QC functionalities to both deliver high quality images and a lower operational cost.

A NEW ALCHEMIST

Snell has also been busy in other areas too. One of these includes enhancements to a product line that over the years has become synonymous with the company itself, television standards conversion.

"We first launched our Alchemist standards converter product in 1994," Zaller said. "There has been a pent-up demand for international exchange of high-definition content by networks, cable people, content providers and others.

"This demand has been growing for some time and has now become enormous. One of the really driving factors is that many sporting events of global interest are coming from 50 Hz countries We've responded with the Alchemist Ph.C-HD."

The new Alchemist isn't limited to 50/60 Hz conversion. It's equally at home doing SD conversion, or up/downconversion.

"Based on the reputation of earlier Alchemists, we've sold a lot of the Alchemist Ph.C-HD converters without the customer seeing it first," Zaller said.

As the future of television moves increasingly to a file-based content environment, Snell hasn't neglected this area either.

"At the same time the world is going to the file-based domain—the product being captured or played out is real time," Zaller said. "Quality conversion is very important when you're working with video in a file-based environment. We've addressed this with a software-based conversion product—the Alchemist Ph.C-IP—and it runs on our iCR platform. It's very transparent and is designed to give our customers a less expensive way to deal with conversion of video, audio and metadata between 50 and 60 Hz television systems."

Visitors to the Snell booth will also note the company's Kahuna SD/HD multiformat switcher line has taken on a slightly different look and functionality.

The Kahuna is now available in a 6 RU form factor, enough to fit single and double M/E applications. Snell is also providing a number of new choices in operator control panels for the Kahuna, allowing users to tailor the switcher to their requirements rather than the other way around.

Also new in the Kahuna series is a 3D DVE option which provides a number of tools for creating striking new production looks, as well as easier implementation of these looks. ■

Nvision Packs More Into Less

Telairity partnership results in new high-performance MPEG-4 encoder

by James E. O'Neal

NEVADA CITY, CALIF.

Nvision is all ready for NAB2007, having further grown and fine tuned the line of products broadcasters have come to know so well.

One of the new items at the show will be Nvision's HD H.264 encoder. It was three years in the making and is designed to make a broadcaster's 6 MHz television channel "all that it can be." The new device is the result of a partnership Nvision has with Telairity, a Santa Clara, Calif.-based developer of AVC technology.

These combined efforts have yielded a device that offers artifact-free high-definition video at bit- rates between 6 and 12 Mbps, has very low latency and provides multiple format outputs simultaneously, thus allowing more programming to be transmitted by terrestrial broadcasters or satellite and cable providers.

Nvision has enhanced its master control switcher line too.

"Nvision now has five different MC processors and four different control surfaces," said Jay Kuca, Nvision's director of marketing. "We'll be showing two out of these nine for the first time at this year's NAB."

The company's master control switcher family is available for dedicated SD or dedicated HD applications, or units can be supplied to accommodate both signals. Users can now decide just how much or how little master control real estate their air switcher occupies, with Nvision offering full size, compact or a minimalist 3 RU control panel. If none of those are a fit, the company also provides the same functionality with a touch-screen graphical user interface.

"This ultra-compact panel can be user-configured to perform simple switching only, or to control more complex master control functions," he said.

The NV9640 router control panel, one of two new offerings from Nvision featuring relegendable LCD control buttons.

EASY HD CONVERSION

As interest in high-definition broadcasting continues to grow, Nvision's expanded master control switcher lineup of products has made it an easy matter for the company's SD customers to make the switch.

"As more and more stations come on the air with HD, they're going to need a way to economically switch signals and do channel branding," Kuca said. "Nvision anticipated this growing demand and one of this year's NAB offerings is our new low-cost HD processor card that fits into existing Nvision MC switcher frames."

Kuca was also eager to talk about the new 3 RU MC switcher panel being shown at NAB.

The company will also unveil a new control panel with a number of advanced operational features. According to Kuca, the new control surface is the first in a line of new master control products that will provide expanded audio and video processing capabilities.

"This includes 16-channel audio processing and full video preview, including effects," Kuca said. "These new products will be fully interoperable with our existing ones."

ROUTING AT 3 GBPS

Even the smallest station needs signal routing capability and Nvision is ready for that too, adding more versatility and features to its line of routing switchers.

The new models are designed to handle digital signals with bit rates running as high as 3 Gbps. This functionality includes not only the company's big NV8256-Plus, but also the NV8288 digital "truck" router and the CR series of compact routers.

The NV8256-Plus can start life with a 256x256 frame. If more capability is needed, it's a simple matter of adding another frame and card set to take things to 512x512—no trays of external distribution amplifiers needed.

The NV8288 router has been termed "the smallest big router in the world," as it's built from newly available components that allow it to

NVISION, PAGE 81

Harris

CONTINUED FROM PAGE 77

shared storage server architecture. After acquiring Leitch, Harris decided to refocus its Velocity editing platform to broadcasters, optimizing the editors for the fast cutting, voicing and airing of news.

On the test and measurement front, the Harris Videotek division will introduce the latest version of its QuiC media analysis server. Launched in its Phase One release last year, QuiC provides broadcasters with an efficient, consistent method of analyzing file-based, compressed digital content faster than real time. The new version more than doubles the number of available parameters that, based on user specifications, will be identified as faults during the analysis.

Broadcasters expanding their facilities to HD are looking at new 3 Gbps-based products and Harris is expanding its support for this standard across its product line. The company will demonstrate 3 Gbps capability thoughout the core processing workflow, including in the company's X75 HD multiple-path converter/synchronizer, an all-in-one 1 RU solution for adaptable ingest and emission applications; distribution amplifiers in the 6800+ modular core processing platform; the Panacea routing switcher for small routing applications; and the Platinum and Platinum MX routing switchers.

Harris is also focusing its attention to alternative distribution methods beyond broadcast, such as IPTV and mobile TV by demonstrating H.264 (MPEG-4, Part 10) compression products in its NetVX video networking platform and the DTP digital turnaround processor in its booth. ■

Omneon Expands Spectrum

New tools launched to make HD more affordable

by Susan Ashworth

SUNNYVALE, CALIF.

Omneon Video Networks comes to NAB2007 with a twofold goal: to put its modular video server architecture in the hands of smaller-market stations, as well as debut new HD tools that create the first integrated end-to-end Omneon HD ingest and play-out solution.

"The trend toward adopting HD has long been underway, and we're continuing to capitalize on that trend," said Geoff Stedman, vice president of worldwide marketing for Omneon.

To do so, the company will debut several new solutions, including an integrated HD ingest encoder for the Omneon Spectrum HD media server. This new family of media interface components, known as the MediaPort 5000 series, gives the Spectrum new integrated HD encoding capabilities.

Geoff Stedman, vice president, worldwide marketing, Omneon

The new interface components simplify the encoding process, extend the capability of the Omneon platform and offer additional value to existing owners of Omneon Spectrum technology, Stedman said. These new MediaPort interface components offer for the first time an Omneon end-to-end SD or HD ingest and play-out solution.

The MediaPort 5000 modules will be initially available as MPEG-2 HD encoders, and will be offered in single- or dual-channel configurations able to deliver one or two channels of HD encoding with up to 16 channels of audio. The modules can also be connected to any existing Omneon Spectrum media server to add new HD ingest functionality, although the Spectrum will still be compatible with third-party encoders, Stedman said.

A 'GOOD FIT'

Omneon will also launch the MediaDeck, a compact, integrated media server system based on the company's flagship Spectrum media server technology. Designed to reach a new strata of customers—primarily smaller-market stations and facilities with smaller channel counts—the MediaDeck integrates media storage, system management, Gigabit Ethernet connectivity, and SD or HD video I/O modules in a 2 RU package.

"This solution gives customers [who haven't owned a Spectrum before] access to an Omneon technology," Stedman said. "It offers all the functions of a Spectrum," but at a lower price point, he said.

The Spectrum technology has been most effective in medium to large facilities, "but this new solution is a good fit for smaller facilities with lower budgets and fewer personnel," he said.

The impetus for moving in this new direction came from customers and Omneon channel partners, Stedman said.

Storage within the MediaDeck consists of eight 500 GB SATA disk drives, offering 3 TB of storage. The system also features modular I/O components, as well as HD ingest modules and SD modules for both ingest and play-out. The company said future modules will offer additional ingest and play-out channels and formats.

The MediaDeck solution can also serve as an ingest station for the MediaGrid active storage system. Omneon's MediaGrid technology was designed to allow applications in the production and distribution chain to have simultaneous access to content.

"The underlying technology is based on a fully distributed file system and file replication scheme that maintains multiple active copies of all content at all times to ensure fast access," Stedman said. "Processing within MediaGrid also simplifies the workflow by eliminating extra transfer steps and the complexity of having to move content from one system to another."

As Omneon heads into NAB2007, the company is facing some big corporate news as well. In late December the firm announced to the Security and Exchange Commission that they were planning a $115 million initial public offering of common stock. Omneon was not able to disclose further details, such as the number of shares or their expected price range, although the proceeds may be used for working capital and future possible acquisitions of complementary businesses, technologies or other assets. ■

Nvision

CONTINUED FROM PAGE 80

occupy half the space, run at half the power consumption and weigh half as much as a comparably sized routing switcher constructed from conventional parts. These reductions make this 3 Gbps switcher a natural for mobile production van applications.

Nvision is also showing two new control panels for its family of routers. The 2 RU NV9640 has 30 relegendable LCB control buttons and the NV9641 is a very compact single RU panel with 16 relegendable LCD buttons.

Nvision's Synapse modular line hasn't been left out in terms of changes and updates. There are now more than 120 card offerings and two frames in the Synapse catalog for virtually any video or audio task. These run the gamut from frame synchronization to signal conversion to distribution.

"We're really proud of Synapse," said Peter Shut, Synapse project manager. "To date, we've shipped more than 4,500 frames and over 50,000 modules. We're using an object-based topology—our system controller handles all cards, both now and in the future.

"We have both 4 RU and 1 RU trays and so many different applications products in this line," Shut said, "There's nothing else needed and there's really not much that you can't do with Synapse in terms of conversion or anything else around a television facility." ■

TUNING IN | Gary Arlen

Herding Dinosaurs Toward Convergence

No one in the television business refers to TV sets and other home reception and viewing devices as "CPE." But in the telephone companies' first assaults into the TV industry during the 1990s, we often heard that term—short of "consumer premises equipment"—as the veteran telco managers tried to grasp a role in video distribution to the home.

CPE was a legacy of the long-dead telephone monopoly, when engineers and economists had full control over the entire technical operation, from the central office through the phone devices (usually black and definitely corded) on bedroom nightstands and kitchen walls. CPE may be an accurate description of the TV sets and set-top boxes, but it was not a familiar phrase to TV manufacturers, retailers or anyone else in the video value chain. No one at Best Buy or Circuit City was selling TV sets as CPE.

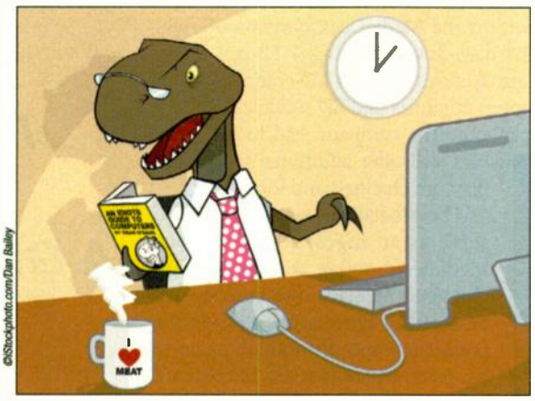
I'll be listening for that archaic reference during Telecom@NAB2007, one of the most culturally significant conference tracks at the NAB2007.

Whether or not "CPE" pops up, the overall conversation may help assess whether telephone companies can succeed in their currents attempts to build their own version of the triple play (voice, video and data). One objective for this conference is to bring the telcoTV people into contact with broadcasters—seeking to create a process that helps both industries find new competitive approaches into the emerging market.

WHERE ARE THE BREAKS?

To some observers, this mating effort is a collision of dinosaurs—the creaky wireline telephone industry trying to mate with the hoary one-channel broadcast industry.

Telephone and television—behemoths of the previous century—face similar problems in the Internet era: Adapting their skills and resources to a fragmented and distracted marketplace. But, despite the vast financial and customer-facing histories of both sectors, how can they survive, let alone dominate, in the megachannel worlds of Internet and mobile media?



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Telephone and television—behemoths of the previous century—face similar problems in the Internet era: Adapting their skills and resources to a fragmented and distracted marketplace.

Significantly, both industries share one critical ingredient. They are both local. Another beloved telco acronym is LEC (for "local exchange carrier"), and TV licensees gloat about their community service. Localism may be the common fodder that brings telco and TV together. And it can take many forms, from citizen journalism to program packaging.

Those are some of elements that John Abel, who is something of an expert in herding these kinds of dinosaurs, expects to exploit at the Telecom@NAB2007 event that he is running. Until last year, Abel headed the convention program (among other tasks) at the U.S. Telecom Associations (formerly the U.S. Telephone Association), the lobbying group for the nation's telephone companies. Prior to that, he spent more than a decade in a similar role at NAB.

Hence Abel, through his new independent conference-producing venture Lightbulb Communications, has spent nearly two decades keeping legacy providers up to date about new opportunities. (*Disclosure*: I am working with Lightbulb Communications on the agenda for this conference and will be a panelist at the Las Vegas event.)

"We're trying to help the telcom industry understand the unique needs of video," Abel said. "Our goal is to teach telco people about the video business, to help them understand post production" and other details about local broadcasting.

A DIFFERENT BALLGAME

"If telcos are really going to understand what's happening in the video marketplace and be competitive, they've got to immerse themselves in video," he said. "It's not just a simple matter of hooking up. It is understanding the unique requirements of video and what the consumer expectations are for video delivery."

He points out that telephone companies bring significant resources to the emerging on-demand world.

"Their experience is highly structured with billing systems," Abel said, emphasizing that "video is a totally new ballgame for them." He says that the video consumer it taking the video experience to a higher level," citing the acceptance of HDTV and big-screen applications that are familiar to broadcasters but may be new territory for telcos.

Like others, Abel noted that telephone companies are pushing into video as their traditional voice and data services are facing greater competition from wireless and cable TV providers. For marketplace incentive, he pointed to the explosion of phone customers at cable TV companies—jumping from 1 million to nearly 8 million customers in the past couple years.

Abel said he believes that telephone companies can benefit from the local presence and video expertise of broadcasters.

For the broadcasters, Abel sees the potential alliance as a way to leverage their local news operations and exploit the value of their video archives.

"From the broadcasters' side, there is hardly anything to lose," he said, as network compensation evaporates and

other economic hurdles materialize.

The nation's biggest telcos, Verizon (with its FiOS TV project) and AT&T (with it's beleaguered U-verse venture), are already immersed in local video delivery in selected markets; many smaller telcos have launched IPTV or other video services, too. The telcos are also developing mobile video services, often in league with broadcast networks—posing more competition for local broadcasters.

The telephone company culture, like that of broadcasting, is ripe for a multimedia overhaul. And Abel is in a position to help them do it. This is not his first "line extension" in Las Vegas. Twelve years ago, when Abel ran the NAB convention, he opened a new wing of very high-tech exhibits at the dawn of the Web era.

In 1995, at the first such alternative tradeshow during the NAB convention, he recruited an array of Silicon Valley-centric exhibits from Sun Microsystems, Silicon Graphics, Intel, Apple, Microsoft and dozens of other digital/interactive vendors, plus appropriate conference tracks, based at the Sands Exposition Center.

TWO MILES AND 50 YEARS

At the time, I characterized the über-event as two shows that were "two miles and 50 years apart."

Traditional broadcasting equipment (i.e. products for one-way, one-channel broadcast production and transmission) was predominantly exhibited in the Las Vegas Convention Center. The new tech displays, with their emphasis on megachannel, interactive media, were at the Sands.

In the first years, another way to distinguish the mainstays at the two venues was "suits-and-ties" versus "black turtlenecks-and-ponytails." My favorite overheard comment during that first year in the Sands was from a young computer geek who had noticed that "there's another tradeshow over at the convention center where they have cameras and microphones."

He seemed stunned and surprised that such devices would appear at a NAB event, since he had myopically come there to display interactive video products and services.

Now, Abel is rounding up the suits-and-ties from telco and TV (although I'm guessing that most of them will wear turtlenecks or polo shirts; and there probably won't be many ponytails) for his latest paleontological foray into digital and cross-cultural convergence.

In doing so, the Telecom@NAB2007 seeks to contribute to a solution for a problem that Microsoft Chairman Bill Gates recently described during the World Economic Forum in Davos, Switzerland.

"I'm stunned how people aren't seeing that with TV, five years from now, people will laugh at what we've had," Gates said. Focusing on the flexibility of online video, Gates extolled an on-demand world without fixed program slots and advertisements that interrupt shows. He even noted that broadcast mainstays such as "elections or the Olympics really point out how TV is terrible."

"You have to wait for the guy to talk about the thing you care about or you miss the event and want to go back and see it," Gates said. "Internet presentation of these things is vastly superior."

Whether or not Gates' vision of TV's near future is accurate, the dinosaurs of telco and TV have ways to reinvent and reinvigorate their worlds. Some efforts require losing their language differences (terms like "CPE"), but more of it involves finding common ground (aka "converging goals") where their huge carcasses can move ahead competitively.

If they succeed, the dinosaur stampede could outrun anything seen in Jurassic Park.

Gary Arlen has tracked the changes at the NAB convention for more than 25 years. He can be reached at GArlen@columnist.com.

COUNT ON IT | Mark Turner

Getting IT in Sync at NAB2007

You've probably noticed that there is a new name on the byline for the Count on IT column.

This is my first appearance as a columnist for **TV Technology**, and while my predecessor left some big shoes to fill, I'll do my best to pique your interest and hopefully share some useful ideas regarding information technology as it applies to the broadcasting industry in the months to come.

Having a little knowledge about my background may help you understand my perspectives and thinking. My professional training is in electrical engineering, and I worked as an integrated circuit designer in the aerospace industry for about four years when I got out of college.

NATURAL PROGRESSION

Like many people with a technical bent, I get a lot of satisfaction from solving problems with technology, especially computers and electronic systems. Somewhere along the line, that passion for solving problems crossed paths with television broadcasting and I've been hooked on TV ever since.

My first job in broadcasting involved doing production and graphics work for a local TV station while I was still in school. From there, I moved on to managing IT for a small group of three TV stations that has since expanded to more than 20. I've now worked in the broadcast industry for about 25 years, with about 20 of those years focused on IT. My day job at Media General is managing IT for the broadcast television group with stations ranging from 100-plus through the top 20 markets.

A big part of that day job is spent trying to solve business problems with technology. As you might imagine, it's usually helpful to understand a problem before you actually try to solve it. Getting a good understanding of broadcast business problems is probably a great topic for a future column (or two), but for now I'd like to focus on the second part of my job, applying technology.

You can't very well apply technology if you don't know it exists so I do my best to follow trade publications and take advantage of other opportunities to stay in synch. One such opportunity is the upcoming NAB convention. While I often feel like a kid in a candy store when I attend "the show," I usually try to narrow my focus to key technology areas that can either improve our existing business models or equip us for what's coming. While your particular business needs may vary a bit from mine, here are some things that are affecting us and may be worth a closer look from other broadcast CIOs or IT professionals.

While I often feel like a kid in a candy store when I attend "the show," I usually try to narrow my focus to key technology areas that can either improve our existing business models or equip us for what's coming.

OK, video editing systems aren't exactly new, but the capabilities of PC or Mac based systems continue to rise as the cost continues to fall.

File-based acquisition and playback systems greatly reduce the need for high quality video interfaces and create pure IT driven approaches to video production. This may make editing systems from traditional vendors seem less attractive, but can the less expensive systems fit into fast-paced production workflows?

GLITZY EFFECTS

Glitzy effects and infinite video layers are cool but can a producer monitor the status of projects and get them on the air or on the Web quickly? There have been some changes in the landscape in this area and I'm anxious to see what's new.

Bandwidth is expensive so good quality compression is critical. MPEG-4/AVC/H.264 has been the buzz for year, but many of the tools needed for end-to-end processing weren't yet available. That has changed and this compression technology is becoming much more practical for broadcast use. I really want to see how H.264 is being integrated into various acquisition, editing, and delivery systems.

Content, content, content. Between primary broadcast channels, additional DTV channels, the Web, and IPTV, there's a pretty strong trend towards creating and managing more content. That generally translates into more complex archives and asset management systems. These aren't new but many of the systems I've seen were built with cable networks in mind and have price tags to match. The tricky part is finding systems that are cost effective for 100-plus markets as well as the top 10.

AT FIRST GLANCE

At first glance, you might equate storage to asset management but they are different. Like many broadcasters, we've done a pretty good job of eliminating "islands of connectivity."

IP-enabled broadcast systems used to sit on separate LANs and information sharing was done via sneaker net. Those systems are now interconnected and information flows much more easily between them. Unfortunately, we're now having a similar problem with storage.

Graphics systems, editing systems, archive systems and the like each have their own island of storage. These islands are just plain expensive and difficult to manage. The IT industry has addressed this problem with NAS and SAN systems for many years, but I need solutions that scale in size and

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Photo: Steve Jordan

THE BIG PICTURE

Frank Beacham

What Do We Get For Our Spectrum?

With the demise of analog television fast approaching, over-the-air broadcasters have made a lot of noise lately in favor of educating America's television viewers about the digital transition.

This is welcome news, since many people—including myself—have a lot of questions about the future of terrestrial digital broadcasting.

Perhaps, as broadcasters gather for their annual meeting in Las Vegas, they might find time to put their heads together and provide a few answers to our burning questions.

My questions go beyond DTV tuners, reception, hook-ups, and how to get those retail store salesmen to tell customers the truth. In a nutshell, I want to know what you plan to give me in exchange for the use of my spectrum.

When I say "my spectrum," I mean the tiny sliver of the airwaves that I theoretically own with the rest of the citizens of the United States. In case broadcasters forgot, we loaned that digital spectrum to you in exchange for some kind of public benefit.

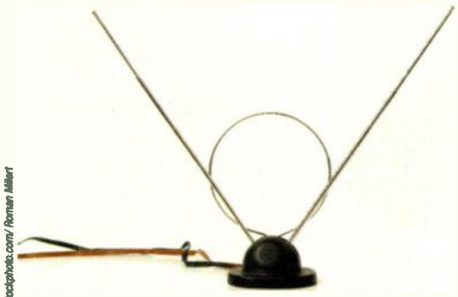
Forgive me if I seem impertinent, but I'd really like to know—once and for all—what I'm receiving in this national "quid pro quo."

Before you answer, let's cut the whining I've heard lately. Don't tell me it is costing you dearly to convert to digital technology. You think this, we—the public—should go easy on you and not be too demanding? Oh please!

Some of us still remember the history as it occurred (not the version circulated by broadcast lobbyists in later years). You asked for digital television. Yep, you lobbied for it. Big time.

You warned it was essential for your survival. Then, when Congress believed your pleas, you took over two decades to implement today's highly compromised system.

So please, spare us the whining. Live with it. You got what you lobbied for. Any threats to your long term survival came from your own reluctance to take risks by investing in emerging technologies.



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Not only should we be told how to reliably receive a digital off-air signal, but why we would even want to.

YEA, VERILY

Technology has always giveth and taketh away. But then you know that.

Back to the issue of what we get for our spectrum. Your warm and fuzzy concept of "public service" is too vague. It's time for some straight answers about why you deserve the public's resources.

Most of you shouldn't, at least with a straight face, say your news pro-

SPECTRUM, PAGE 91

INSIDE BROADBAND | Will Workman

Deep Thoughts on Why DRM May Die

No entity controlling an industry likes to see its business model change. So why is Steve Jobs so keen on overturning the music industry's Apple cart?

After all, his company dominates both the online vending and playing of digitized music through its iTunes music store and its ubiquitous iPods with their white earbuds.

Those two factors have been decisive in moving the music industry to an online model at a time when compact disc sales have fallen 23 percent from 2000 to 2006, and last year overall recording industry revenues were down 4 percent, according to figures discussed at Digital Music Forum East, a recent industry conference.

Jobs roiled these already turbulent waters last month with a simple, open letter posted online. In "Thoughts on Music," he laid out the three paths open to Apple and, implicitly, the entire music industry:

Continue down a digital rights management path fraught with risk of attack from hackers and continued consumer piracy;

License Apple's FairPlay rights management software to other vendors; or... ditch DRM.

To advocate the third path, he invoked the power of a utopian dream.

"Imagine a world where every online store sells DRM-free music encoded in open licensable formats," he wrote. "In such a world, any player can play music purchased from any store, and any store can sell music which is playable on all players. This is certainly the best alternative for consumers, and Apple would embrace it in a heartbeat."

Ultimately, he warned, DRM hasn't worked and "may never work to halt music piracy."

What is Jobs up to?

Apple has certainly been under attack from European regulators and consumer groups. Government watchdogs in Norway have decided the iTunes store is illegal, French lawmakers are putting the heat on Apple to open up FairPlay to competitors, and an Open Rights Group in the United Kingdom has been pressuring for an independent government investigation into DRM.

So Jobs is certainly redirecting the heat to the four companies that together control more than 70 percent of the music business: Universal, Sony BMG, Warner and EMI. That, folks, is the definition of oligopoly, a point to return to later.

The major record labels are themselves implicit culprits in the DRM mess, according to Jobs. After all, under their agreement with Apple, if a hacker compromises the DRM security, the company has only a few weeks to find a solution or the record company can pull all its songs off iTunes.

Since this stricture also applies to other online stores to which Apple licenses FairPlay, "it can no longer guarantee" protection if it goes down that path, Jobs wrote.

The Recording Industry Association of America, in a vapid PR gesture, hailed Jobs's offer to license FairPlay while ignoring his concern over guaranteed protection.

The record labels have lately been showing some signs of coming around to a DRM-free environment. EMI, for one, has experimented with DRM-free sales of music by Norah Jones and other artists.

Ever since Napster in 1999 kicked off the recording industry's decline, the RIAA has been the bogeyman of every illegal downloader. It took the marketing and technology genius invested in iPod and, subsequently, iTunes, to get the major labels into a pay-as-you-go online model, even though they only did so while kicking and screaming over Apple's simple $1 per song fee.

The record labels have lately been showing some signs of coming around to a DRM-free environment. EMI, for one, has experimented with DRM-free sales of music by Norah Jones and other artists.

But this whole imbroglio exposes a much deeper flaw in the oligopoly's business model.

The economics of a business in

which marketing costs account for the vast bulk of the price a consumer pays per song online or per packaged CD, and in which each record label is part of an even larger media conglomerate, have long dictated a blockbuster mentality. In order to recoup their significant marketing investments, spread across all divisions of the conglomerate, major labels will almost never back a new artist lacking mass appeal, and instead put their cross-promotional muscle into proven acts.

OOPS, THEY DID IT AGAIN

So music fans get endless arrays of Britney Spears and 50 Cent, or bands of yesteryear resurrected from some cold slab for one last reunion concert, which explains the rising success of indie music and alternative distribution/promotion venues such as MySpace.

A DRM-free environment might allow for far more distribution flexibility and marketing creativity to allow the major labels take full advantage of their extensive catalogs, leveraging these in ways to more effectively monetize musical content.

Check out a site like Pandora Internet Radio for a glimpse into one such concept. Put together by musicians and music-loving technologists with the Music Genome Project, Pandora breaks down music from more than 10,000 artists into such facets as rhythm, harmonies, instrumentation, arrangement and lyrics.

As such, Pandora provides the most powerful navigational tool for exploring the music you like, allowing for discovery—note to labels: and *purchase*—of new tunes. But because of rights wrangling, no surprise, it can't access every musical artist in history.

So the real challenge of a DRM-free environment across all media is to drive usage and purchase of legal digital content.

And that means rethinking the business model before someone else's behavior does it for you.

Will Workman is a former editor of telco industry publications. He can be reached care of ***TV Technology.***

Synch

CONTINUED FROM PAGE 84

cost to meet the needs of small and large stations. This is a rapidly changing technology with a plethora of clever solutions.

While this is a broadcasting convention (that's the "B" in NAB), the Web, mobile video, and IPTV are everywhere. The trick is to put systems in place that maintain the core broadcasting products but also allow new distribution paths to be used too. Tools that facilitate production and distribution on these platforms are sure to get my attention.

Serendipity is the act of accidentally discovering something useful while you're looking for something else (kind of like Columbus bumping into North America while he was hunting for India).

Some of my best discoveries occur while I'm looking for something else or simply wandering around. I always try to reserve one day for simply walking around the show floor to see what's new. IT or not, it never hurts to be aware of technologies that impact broadcasting. I especially like talking to exhibitors who can't afford a mega-booth yet.

You might just find a brilliant solution that's simply waiting for the perfect problem to come along. Count on IT!

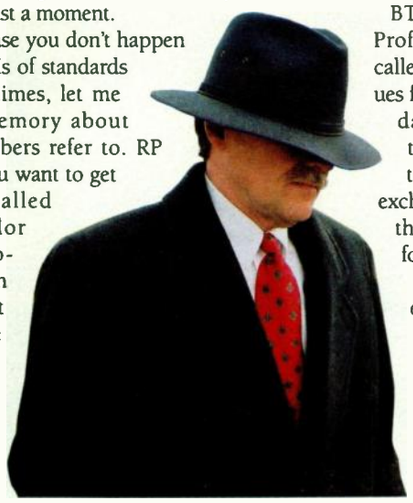
Mark Turner is IT director for Media General Broadcast Group in Richmond, Va. He can be reached via ***TV Technology.***

THE MASKED ENGINEER | Mario Orazio

There Are Big Deals, and Then There are Standards

You might not have noticed that the color primaries of SMPTE RP 145 and ITU-R BT.709 are different. I'll get into just how significant that lack of noticing is in just a moment.

First, just in case you don't happen to keep CD-ROMs of standards with you at all times, let me refresh your memory about what those numbers refer to. RP 145 (-2004, if you want to get picky) is called "SMPTE C Color Monitor Colorimetry." In other words, it tells you the color primaries for the monitors we've been using for what's now called standard-def video since the days of Conrac (whence the "C"). If you ain't got any recollection of Conrac, that just gives you an idea of how long ago that was.



BT.709 (-5, for Professor Nitpick) is called "Parameter values for the HDTV standards for production and international programme exchange." It includes the color primaries for HDTV.

Now, then, as everyone knows, HDTV offers a greater range of colors than standard-def. The primaries prove it. The red from RP 145 is at 0.63x and 0.34y on a chromaticity diagram; the red from BT.709 is at 0.64x and 0.33y, farther out on the chart. The green from RP 145 tops out at just 0.595y; the one from BT.709 goes all the way to 0.6y. Likewise, the blue from RP 145 is at 0.155x and 0.07y; BT.709 blue is 0.15x and 0.06y. In every case, the HD primaries exceed the range of the SD.

So, what everyone knows is true. HD does offer a greater color range than SD. But you'd be kind of hard pressed to prove it.

The difference between 0.155x and 0.15x or 0.595y and 0.6y is something like saying, "No, you ain't six feet tall, you're just 5-foot 11-and-a-half."

Actually, that's the difference in physical position on the chromaticity chart. The difference in perceived color difference is even less. Anyone who can prove to the editors of this fish wrap that he or she can see the difference between an RP 145-primaries picture and a BT.709-primaries picture gets a free lifetime subscription, no questions asked.

FOR THE LOVE OF...

Nope. Any color-range difference between SD and HD primaries is, for all practical purposes, nonexistent.

"But, Mario, then why are they different?"

Well, to paraphrase an old saying, we must love standards. Why else would there be so many of them?

So there ain't any real difference in color range between SD and HD (the European primaries are awfully close, too). But there sure can be differences in the colors.

That's on account of the luma equations being pretty different. For HD, it's still BT.709, and the luma is 0.2126 parts red, 0.7152 parts green, and 0.0722 parts blue. For SD, this time we turn our standard hymnals to BT.601 (-6, for the 2007 version), where luma is made from good old NTSC's 0.299 parts red, 0.587 parts green, and 0.114 parts blue.

This time I ain't talking about differences you need a spectrophotometer to discern. This time, if you encode one way and decode the other, even your Aunt Matilda can tell that the orange intensity varies pretty significantly between the right way and the wrong way.

If the previous paragraph is news to you, I strongly suggest a visit to this Web site: *www.sigmadesigns.com/public/Support/chromaticity.html*. Scroll down to near the bottom of the page, and you can click through quite a range of pictures the way they were meant to be seen, encoded 601 and decoded 709, and encoded 709 and decoded 601. The results might be a little scary, especially if you can't remember what standard your reference monitor is set to. But, wait! There's more!

NTSC supposedly assumes a display gamma of 2.2; 625-line SD systems supposedly assume one of 2.8; and BT.709 has been called anything from 2.22 down to 1.92 or so (at least one source says 1.8). BT.709 defines things differently from previous standards, so it's a little tough to compare them. Let's just say that the wrong gamma can make pictures either washed out or too contrasty.

Now, then, I don't want to give you the wrong idea about this stuff. You can safely ignore the differences in the primaries, and you can probably ignore the gamma differences, but you ought to get the luma equations right. That means knowing what your reference monitor is set to show and doing the necessary conversions as you go between SD and HD.

But I keep remembering a demo that a guy from Kodak did at a SMPTE convention some years back.

He projected a slide (a piece of film with a picture on it) of a woman dressed for sports with a yellow towel around her neck. Then he projected a copy of the same slide, this time with a little piece of blue filter roughly covering up the towel part of the picture. As you might expect from the combination of yellow and blue, the towel turned green.

Next came a magic trick. He took a third copy of the same slide and a piece of the same blue filter. But this time the filter covered the whole slide. And the color of the towel was... yellow.

That's on account of our visual system pretty much ignoring overall hue shifts. It's a good thing, or most folks would run screaming from their color TVs. Blue phosphors age faster than red or green, so pictures get yellower as TV sets get older. But most of us don't really notice.

Want to know what we notice? We notice MPEG blocking artifacts, and we notice distorted sound. The standard bars-and-tone test signal probably ain't going to identify either for you.

Colorbars, originally intended for setting up camera encoders, are static and ain't got much detail, and tone is usually set at a reference level 20 dB below supposed digital peaks. Want to know what would work better? Try a little snippet of audio and video programming.

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

DIGITAL TV | Charles W. Rhodes

Seeking More Signal Strength for DTV?

While few broadcasters in past years may have had more signal strength on their wish list, many may be thinking about it as we approach Feb. 17, 2009, when NTSC signals will sign off for the last time. By then, the present freeze on facilities changes will end and the FCC will have provided a way to increase field strength of DTV signals within present coverage areas, but not outside. Broadcasters may be able to increase their DTV effective radiated power up to 1 MW by employing beam-tilt. This is described in the FCC ruling adopted Nov. 24, 1998.

Some broadcasters may want to deploy their NTSC transmitter, feedline and antenna for DTV after their present usage ends. One MW is the maximum *average* ERP allowed for DTV signals in the UHF band, while the maximum peak visual power for NTSC was 5 MW. The transient peak power of our ATSC signal is about 6 dB above its average power, so we can compare the transient peak power of our DTV signal, 4 MW, with the peak visual power for NTSC: 5 MW. That oversimplifies the matter because the radiated DTV signal must not exceed the sideband splatter limits set by the FCC with its 1988 DTV RF mask.

A 1 dB power back-off should reduce the sideband splatter by 3 dB. Other problems we need to think about are the VSWR (voltage standing wave ratio) of the NTSC antenna across the entire DTV channel. This may be the NTSC channel, but even so, for NTSC, VSWR was minimized near the visual and color subcarrier frequencies where it was critical. Not so for DTV. All frequencies in DTV signals are equally critical of high VSWR.

The problem lies with the use of what I call "extreme beam-tilt" to reduce the DTV field strength at the edge of a present coverage area when field strength within that area is being increased.

To understand this problem, we need to understand the vertical directionality of TV broadcast antennas, which produce the gain shown in Fig. 1. Typical elevation patterns of TV antennas gain relative to a dipole in linear terms, from 14 to 28.5.

This plot is more easily understood if you turn it so that the beam axis

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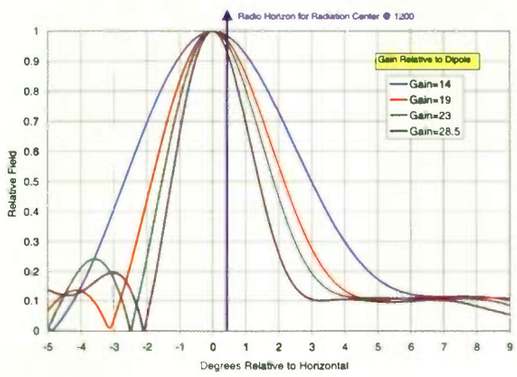


Fig1: Typical Elevation Patterns of TV Antennas

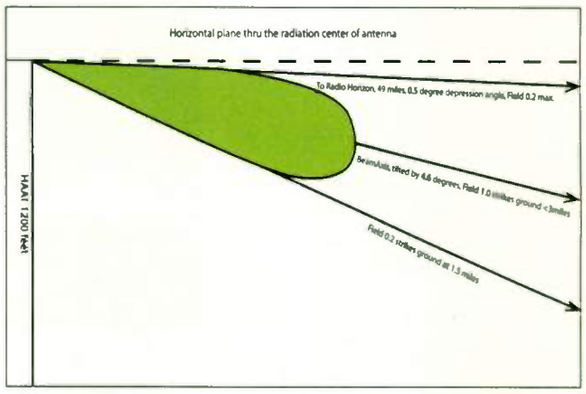


Fig 2: Vertical beam profile for G=23 antenna with beam-tilt to reduce field to 0.2 at radio horizon.

PRODUCTION MANAGER Craig Johnston

Of Perspectives and Elephants at NAB2007

We've all heard the familiar story about the blind men describing an elephant. Each of them only knows about the part of the elephant they can touch from where they're standing, none of them having the overall picture.

When shopping for broadcast and production equipment at NAB, three people from the same station, even with excellent vision, can still find themselves describing the same piece of equipment quite differently. That makes sense because their interests are different.

For the sake of this discussion, let's say they're looking at a production elephant. That's not so outlandish, in my twisted mind anyway. An elephant can carry a lot, can traverse rugged terrain (just ask Hannibal), would serve as a tall camera platform, and in times of a fuel shortage, would keep on running with just hay and water.

Here we are at NAB2007, probably in the outdoor exhibits. Three members of the station staff walk up to the elephant vendor. We start with the guy who's going to use the elephant every day.

"Wow, how much can this thing really carry? Can the van conversion people mount a microwave mast on it? Is it tall enough to let me see over a crowd or a traffic snarl of vehicles? Is it too tall to make it through the underpass that's the only route back to the station?"

And then there are the esthetics. "We're the first station in town to get an elephant, so it's got to be pretty good looking, elephantwise. Is it comfortable to ride? Does it walk smoothly enough so that we could use it as a moving camera platform, or are we going to need some sort of vibrationless mount?"

©iStockphoto.com/Kerry Stop

The user is all about the here and now of equipment. "What can it do for me the first day?"

The general manager or station owner now steps up to the elephant. The first thing he looks at are the tusks. "Man, is this thing going to have residual value on the ivory black-market when it finally dies."

But then he looks at the tusks again.

"Hmm, somebody could get hurt with these. Wonder what this thing's going to cost to insure?"

He writes himself a note to get on the Internet and find out how much one of these pachyderms eat. Sure it's only hay, but how much hay? He's also not sure they have to buy the Cadillac version of the elephant. Who's going to know, anyway?

Another note to himself: Is marketing going to be able to make a big deal out of this, like they did the helicopter, or is this going to make the station the laughingstock of the market instead?

For the GM and ownership, everything seems to end up being about money, or at least it seems like that to the user.

Finally the head of maintenance steps forward. He's already done some research on elephants. This thing is one, big single point of failure. One heart. One brain.

"At least it's got a pair of lungs, but how much performance do you lose when it's operating on just one?

"The GM's not going to like the set of tools I'm going to have to buy. The lowest price I've seen on eBay for elephant nail clippers still seems like a fortune. And then there's the training. We don't have anybody in maintenance that knows anything about elephants. I wonder if we can get the vendor to throw in a week at their school, or send somebody out to our plant?

"One good thing is that we aren't going to have to stock a lot of parts, because an elephant sort of comes with what it comes with, and that's it. But you know, they'll still want us to fix it somehow.

Is marketing going to be able to make a big deal out of this, like they did the helicopter, or is this going to make the station the laughingstock of the market instead?

ABOUT CLEAN UP...

"And, heaven forbid it has an accident in the building? We all know whose people are going to have to clean that up, don't we?"

The head of maintenance sees problems. When you're going to be called on to fix things, you generally are thinking about all the things you're going to be asked to fix.

We're probably not going to see many (or any) stations shopping for an elephant in Las Vegas this year, but you can bet this same scenario will be playing out with ENG vans, new camcorders, newsroom computers and the rest of the equipment on display at NAB.

In the end, you have to settle on the equipment that satisfies all three—the user, the ownership and the guys who have to fix everything. Unfortunately for the other two, that last guy who has to sign the purchase order is the one who's ultimately looking at the money.

Craig Johnston is a Seattle-based Internet and multimedia producer with an extensive background in broadcast. He can be reached at craig@craigjohnston.com.

Spectrum

CONTINUED FROM PAGE 85

gramming counts as public service. That might have been the case in the ancient past, but what have you done for me lately?

Remember, the FCC is currently investigating 77 televisions stations for airing fake news stories. And even after that investigation itself became news, 46 stations were again caught doing the same thing.

It's clear that too many of you still don't understand the difference between original, genuine news reporting and corporate or government-funded propaganda videos that pretend to be news.

We've also learned that bigger doesn't make better. Your consolidation of ownership certainly hasn't improved news. Research last year by the Center for Media and Democracy found that more than 80 percent of the stations found to be doing fake news are owned by large media conglomerates.

These include stations owned by News Corp., Tribune, Gannett, Disney, the Washington Post Co., Sinclair Broadcasting, Media General and Univision.

Though the FCC's big shoe hasn't yet dropped yet on fake news, the once most trusted newsman in America—former CBS anchorman Walter Cronkite—sees a worsening climate for news. It's a place where honest journalists face round after round of job cuts while under constant pressure to do more with less.

"TV news could raise the floor of knowledge—and the viewers' understanding of the world," Cronkite said last month in a speech at Columbia University in New York City. But not with the budgets or time allotments of today's television.

"Business people need to understand that ownership of a news company involves special, civic responsibilities," Cronkite said. "Consolidation and cost-cutting may be good for the bottom line in the short term, but it isn't necessarily good for the country or the health of the news business in the long-term.

"To my mind, what best would serve the country and the free press, is to encourage ownership by entities that are dedicated to public service," Cronkite continued. "Companies that invest for the long haul and will serve their communities rather than just ever-greater profits."

Gosh, that's exactly what broadcasters are supposed to do in exchange for their licenses. In the early days, many did just that. Their community service constituted the trade for free access to our commonly owned airwaves.

So why isn't news and information, arguably a local broadcast's most important product, no longer *the* highest priority? Beats me, especially since we are seeing premium programming of all types gradually shift to pay services.

Yet, in the name of cost cutting, many local broadcasters continue to downsize their news operations and, with it, any remaining pretense of journalistic quality. Television's vast wasteland grows more vast.

Any campaign to educate the public about digital television should also explain how terrestrial broadcasters fit in the era of multichannel media. Not only should we be told how to reliably receive a digital off-air signal, but why we would even want to.

Within the ranks of broadcasters, it's long past time for some serious soul searching and a restatement of business values. Not a recitation of the public service values of your grandfather's station, but ones that fit a modern era when information is everywhere and distribution of network signals is no longer a station's primary business.

Many of us are anxious to hear your plans for the future. We not only want to know why local off-air television stations still matter, but what's in it for us.

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

FOCUS ON EDITING

Jay Ankeney

State of the Edit Report: Now and Later

With NAB2007 about to break over us with waves of announcements, it's an ideal time to step back and get some perspective on the current state of post production in general.

This first annual State of the Edit Report solicited input from top representatives of the two largest NLE manufacturers, Apple and Avid, about where nonlinear editing stands today and where it will be going tomorrow.

When asked what the greatest challenges were facing editors and NLEs today, Richard Townhill, director of product management for pro video at Apple replied, "Just like anyone in post production these days, it is the quantity of formats swimming around the marketplace... With things like P2, XDCAM-HD, HDV, and uncompressed 4:4:4 in the pipeline, editors have to be able to handle whatever comes their way. And, they need to be able to supplement this material with archived stock footage that could be in even more formats."

> **"With things like P2, XDCAM-HD, HDV and uncompressed 4:4:4 in the pipeline, editors have to be able to handle whatever comes their way."**
>
> **— Richard Townhill, Apple**

So how is Apple dealing with this? "We have very close relationships with all the major camera manufacturers," Townhill said, "and make sure that our product portfolio, especially Final Cut Pro editing software, can deal with all of their formats natively.

"That means that the bits recorded onto either tape, flash memory or discs in the acquisition devices is exactly the same as the material editors bring onto their hard drives for editing. This includes the 720p version of HDV at 24 fps. In addition, we know that cameras shooting AVC HD based on the MPEG-4 AVC H.264 video codec will be coming down the pike soon, and even though it is actually quite computationally complex, we are going to have to deal with that too."

This reveals that the requirements of camera vendors and NLE manufacturers are considerably different.

"If you are acquiring content with a shoulder-mount camera, your priority is to store as much of that content as possible in a high-quality video format while still recording it at as low a data rate as you can to minimize storage requirements.

"But when you bring this into an editing environment, the capacity and data rate considerations are no longer a major issue. After all, the Mac Pro that is shipping right now with four drive bays can accommodate 4 TB of storage. One drive can be the system drive and you can RAID the other three together to create a 1 3/4 TV RAID 0 stripe for program material. That means you can produce multiple streams of uncompressed HD in real time from a single computer."

So as camera vendors raise the codec complexity, the sophistication of today's edit systems have freed editors from concern over physical size limitation.

"That has produced a curious dichotomy between the needs of camera vendors and the needs of NLEs," Townhill said. "Edit systems can optimize their performance with less computationally complex codecs which makes the data rate requirements pretty much irrelevant."

And for the foreseeable future?

"Editors are being called on to accomplish more in post production than ever before. If the audio isn't right, they are asked to fix it. Colors can be tweaked, graphics added, and effects created all within a single suite of relatively low-cost post production software. Technology has democratized the editing process, and all of post production has become less focused on specialists."

PART OF A WORKFLOW

Speaking from the perspective of Avid Technologies, Michael Phillips, principle product designer at Avid, said the emergence of file-based workflows replacing tape formats is the greatest challenge facing today's NLEs.

Michael Phillips, principle product designer for Avid

"We see this in the consumer space with camcorders recording directly to DVDs and in the professional arena with much higher resolutions like even the RED camera," Phillips said, "so editors need to be able to deal with multiple formats of files."

Phillips also emphasized that editors are no longer an island unto themselves.

"The ability to be part of a collaborative environment is becoming increasingly important to let people work together more efficiently," he said. "Systems like our Avid Interplay nonlinear workflow engine will allow post production to extend beyond the edit room into pre-production as well as helping to determine the final archiving. This kind of overall project management has become especially critical as people need to repurpose content for new distribution channels."

Now that we are dealing with file-based editing, Phillips sees the challenge of economical archiving becoming much more relevant than before.

"If you have recorded 150 hours of footage on a P2 camcorder, you need to transfer it to something for a more cost-efficient shelf life," he said. "You can either keep it on your hard drives forever or back it up to a lower cost solution.... Some solutions are still a bit painful, such as transferring to Blu-ray discs, which take about four hours each to burn, or storing it on DLT tape. This has created a new learning process, especially for independent editors."

But it's not just the content that is evolving in today's post production, it's also the wrapper.

"Supporting the metadata associated with each file as it travels through the editing process has become a necessity," Phillips said. "We have implemented file-based metadata tracking that carries with it a growing number of values describing each shot. That way, anyone downstream can pull up synchronized information all through the process, including now even the nine parameters specified by the American Society of Cinematographer's color decision list data. This lets you call up the information baked into the look of each shot and peel it back downstream to maintain what the DP originally wanted."

Phillips feels that metadata tracking is a major step beyond the traditional EDL.

"Our systems have dedicated columns for all of this metadata as described in our Avid Log Exchange format specification," he said. "With our systems, anyone can merge this information into any existing media even before it hits editorial. This kind of increased access to enhanced shot data has greatly augmented the creative power available to today's editors."

And the future?

"With all the new distribution options such as YouTube on the Internet or video screens on MP3 players, we will be seeing a groundswell of new outlets. That way, anybody can become their own distributor, and this makes the potential possibilities for post production almost unlimited."

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

Seeking

CONTINUED FROM PAGE 89

(zero degrees) is horizontal and to the right. Above the beam axis, the field is useless because it's lost in space. The field right of the beam axis illuminates your community. You will note that the beam shapes are asymmetrical because of null fill that improves reception near the tower. Without null fill, the beam shape would be like that shown for the upper or left lobe. The useful portion of the beam has a relative field of 0.1 to 1. The useless portion of the beam, to the left of the beam axis has no null fill, and has nulls and minor lobes.

Fig. 1 also has a blue line at 0.5 degrees towards the radio horizon which for a 1,200-foot height above average terrain is the edge of coverage—49 miles distant. At such points, beam-tilt must reduce the field strength compared to what it now is if you seek to increase power above 200 kW. So you should ask yourself how much would it be worth to increase ERP above 200 kW. What will this cost? Will the present antenna work?

To go above 200 kW, your antenna must have the beam-tilt, which you can determine from Fig. 1. Say your present antenna has a gain of 23 (the green trace). Going from 50 to 1,000 kW, (13 dB increase) you must reduce the field by 14 dB to a relative field of 0.2 in Fig. 1. The green trace crosses the 0.2 line in three places. As your field cannot exceed 0.2 outside of your present coverage, the beam-tilt must be 4.6 degrees, which shifts the leftmost green trace crossing of the 0.2 line to 0.5 degrees, or to the line to the radio horizon.

I am indebted to my friend, Dr. Oded Bendov for Fig.1 and much of what I know of this subject. He notes that one cannot employ mechanical beam-tilt (a steel wedge under the antenna), for such large tilt angles.

ANTENNA TYPE

If yours is a traveling wave antenna, you cannot change its beam-tilt, and would need a new antenna to get more than 200 kW ERP. If yours is a panel antenna, it may be possible to modify the phasing of the power to the various panels to obtain the required beam-tilt. Need I mention that your present DTV antenna and/or its feed-line may not be able to handle a significant increase in RF power?

Now back to the beam-tilt problem. If your G=23 antenna has beam-tilt of 4.6 degrees, simple trigonometry will show that the axis of your beam is tilted downwards by 4.6 degrees and strikes the earth as shown in Fig. 2 at 2.8 miles. This means that the upper half of the beam is illuminating most of your coverage area, while the lower half is strongly illuminating the immediate area around the tower.

Given that the field strength at one mile for an ERP of 1 kW (0 dBK) is 102.8 dB above 1 µV/m; then at 1,000 kW ERP (30 dBK) the field strength at one mile is 132.8 dB above µV/m. The signal travels less that three miles to strike ground, and in so doing decreases by less than 20 log3 = 9 dB to be more than 123 dB µV/m and what I'll call "ground zero."

These numbers are for a line-of-sight ray path, which is entirely appropriate for such short distances. Longley-Rice gives almost the same result for such distances.

If you look into lower gain antennas, you will find that the required beam-tilt increases and there are other problems. Say you choose a G=9 antenna; 0.2 relative field is 5 degrees from the beam axis. For this, you need 111 kW of RF power delivered to the antenna for the maximum ERP allowed. If your transmission line is 75 percent efficient, your transmitter power output would have to be 148 kW. Need we say anything about the electric bill?

By now, you have probably guessed that by overloading the area near your tower where more field is less than desirable, your field strength further out where more would be better is pretty sad as indicated in Fig. 2.

BALANCE THE FACTORS

My recommendation is to seek as much of a power increase as possible up to 200 kW, as limited by both co-channel and adjacent-channel interference considerations, and avoid excess beam-tilt. I would weigh the possibilities for increased ERP of both of your present channels, if both are in the core UHF or are high VHF channels. If either is a low VHF, the other is the best bet. A few broadcasters have chosen to go to the low-VHF band where manmade noise will only continue to increase over the years. The threats of additional interference from broadband-over-powerline and unlicensed transmitters may eventually doom the low-VHF band for TV. While they will have lower electric bills in the short run, most will find they need to increase their ERP substantially to overcome the manmade noise problem.

In short, the amount of beam-tilt required to reduce field strength at the edge of your present coverage may seriously deteriorate your actual DTV coverage.

Charlie Rhodes is a consultant in the field of television broadcast technologies and planning. He can be reached via e-mail at cwr@bootit.com.

AUDIO BY DESIGN | Mary C. Gruszka

Searching for a Surround Sound Audio Console?

With NAB2007 fast approaching, here are some tips to help in your search for a surround sound mixing system.

Even with the crowds, NAB can provide a good opportunity to check out the various systems that are available and compare and contrast. Often on Wednesday and even moreso on Thursday, the crowds around the consoles usually thin out enough to make it easier to take a test drive.

But it's still best to schedule an appointment to make sure that there is someone there with the time to give you a detailed demonstration of the console and to answer your questions.

BE PREPARED

Before heading out to the Las Vegas Convention Center, take stock of what equipment has to be connected to the new console, and how many audio inputs and outputs each piece of gear has. What format are those I/Os? Analog (balanced or unbalanced) or digital (AES-3, AES-3id, S/PDIF, MADI, SD-SDI and HD-SDI embedded, Dolby E)?

List everything—sources and destinations. Don't forget such things as redundant mics, phone interfaces, mix-minus feeds (and the types of mix-minus you need), graphics devices, program feeds to intercom, various recording gear (audio only and audio/video), workstations, etc.

Estimate your future equipment plans, like HD video servers that can provide more audio channels than two or four per video channel. Will you need remotely controlled stage boxes for microphones and line-level feeds (send and receive)?

Poll the audio operators about what they would like to see. What works well in the console or consoles you now have? What could be improved? What are the operators' concerns about moving from analog to digital? These are good topics to bring up with the console vendors that you visit. How they address these concerns can help you winnow down your choices.

How much physical space do you have for the console control surface? And how good is the access to the audio control room? Will elevator, corridor or door sizes limit the size of the control surface rather than the room size?

Familiarize yourselves with the various console vendors by looking at their Web sites and requesting and reading their literature.

Then choose the ones you wish to visit at NAB. When you make your NAB appointments, also ask for a full customer list of current users. Call some of these references before NAB to find out how well things have worked out with their installations. What would they have done differently? How easy was it for their operators to come up to speed on the new board? How good were manufacturer's training, service, and general responsiveness? Are there any outstanding issues with the performance of the console or the manufacturer?

Internet user groups can also provide enlightening insights about how a system really performs. The more informed you are going into your meetings or demos the better.

BE INQUISITIVE

Then it's showtime in Las Vegas—time for hands-on demonstrations with your choice of manufacturers.

Discuss your particular show requirements for a typical production like evening news and a more complex one like election night coverage. How well can the console perform the tasks you need it to do?

It's important to get in front of the console to see how it feels ergonomically. Is it easy and comfortable to operate? Can you see and reach all the controls easily, especially if you are in a hurry to make a quick adjustment? Can you clearly see the meters and screens from both a sitting and a standing position? Is there a preferred chair height for operating the console? Does the layout minimize visual fatigue? Keep in mind that someone may have to sit in front of the console for a long time on some shows.

At NAB, you won't be able to control the ambient lighting of the booths, but keep in mind the ambient lighting of your control rooms. Will the displays be readable in low light?

Go through all the workings of the console from inputs to outputs.

How does the system handle multiple sources per input device? For example, can one fader be used to control a 5.1 source or do you need three stereo or six mono faders, or groups to handle this? How do you make an input channel mono, stereo, or 5.1 (or other), if the console has this capability? If layering is used on the mixing system, how easy is it to find the sources you're looking for and to make adjustments to them?

Find out how to set such parameters as mic and line gain, dynamics, EQ, delay and panning, and how that might differ between stereo and 5.1, for example. Learn how to set up output routing, mix-minus feeds, talkback, and pre-fade or after-fade listens.

What are the maximum limits to the various settings? (For example, what is the maximum amount of delay per channel?)

Consider the advantages and disadvantages of different system architecture such as layering or not, and in-line controls for all parameters on each channel strip or a centralized control panel with maybe some assignable controls for the most used parameters.

How many group, auxiliary, and main outputs are available? How are sources routed to these various outputs?

How are mix-minus feeds derived?

For example can both additive and subtractive mix-minus feeds be created? How does this meet with your production requirements? How quickly can the sources to the mix-minus feeds be changed once the show is on-air?

How does the system handle insert sends and returns to external processing devices? How extensive is the monitoring section? Are there provisions to monitor the various downmixes and surround encoders?

Will you need to produce simultaneous outputs in multiple formats, like stereo and 5.1, full program and international feeds? How does the console support this? What kind of metering is offered as standard and as options? Is this adequate for your needs?

Digital mixing systems rely on DSP or digital signal processing to perform its functions. Is there enough DSP for all channels simultaneously or is DSP shared among channels? If the latter, at what point does the DSP max out?

What settings can be saved and recalled and how do you do that? Can you develop show presets and save snapshots? Do you need machine control for such equipment as recording devices or special effects units? Does the console provide any?

ASK FOR A DEMO

Ask for a demo on how to configure the mixing system. Is the configuration process easy and versatile? How are repetitive tasks handled (like setting up multiple channels the same way)? Is there an alphanumeric display for labeling sources and destinations? How many characters? Will this be enough for your labeling scheme?

Can busses be easily re-assigned in case of a problem while on-air?

Look at the physical characteristics, system architecture, and networking.

Will the system handle the number and format of inputs and outputs you need, now and in the future? Is the system AES48-2005 compliant?

It's been two years since the ratification of this AES standard for grounding and EMC practices regarding connector shields, so I think it's a fair question to ask any manufacturer of products containing audio inputs and/or outputs.

How easy will it be to expand in the future? What is the future-proofing philosophy of the manufacturer? Make sure the board you buy has a development future that can cope with your growth and changing needs.

How much space does the central electronics frame(s), and power supplies occupy? Don't forget the power supply for the control surface. Are there any special HVAC requirements? Are rack-mounted cooling fans needed? What is the maximum length for control and power supply cables from the electronics frame to the control surface?

What sizes of control surfaces are available, in terms of physical dimensions and number of faders?

It's a good idea to have some idea of how many faders you think you'll need, but wait and see how the console deals with multiple audio feeds from a single source before you finalize that requirement. You may find that due to console architecture you can work with less faders than you originally thought.

Does the audio mixing system need to interface with your plant router? How well can it do it? Can it call up sources directly, including mnemonics?

Will the digital audio mixing system need to serve more than one studio and audio control room? Can the system be designed to share common resources? Ask for specifics.

Networking can save on installation costs, and potentially allow for easier future expansion. Many audio mixing systems offer an audio routing switcher or some other kind of distributed routing scheme to share resources among control surfaces. This could be sufficient for the audio section of a larger plant routing system in some facilities. Will this work at your place?

How well can the audio router communicate with your plant router control system? For example, if when a source is selected, can it display the proper information on the control surface?

For a mixing system for live productions, redundancy is important. What redundancies are provided (or can be provided as an option) in the system, for example power supplies, DSP cards, or system controllers? Ask for a demo to see what happens if a power supply or DSP card goes down or is pulled out. Is the backup automatically switched in? Is there any interruption in operation?

Can channel strips on the control surface or cards in the electronics chassis be hot-swapped? Try it.

If the system should totally go down, how long does it take to reboot? Ask the manufacturer to demonstrate.

Some general comments. Don't be impressed with the first mixing system you see. Reserve judgment until you've seen a few. Make notes after each demo, and compare features, pros and cons.

As you narrow your selection, you will probably have further questions, so make sure you get the contact information of the person doing the demo and your local rep. As the time for final decision nears, ask for a post-NAB demo at your facility or somewhere nearby.

Good luck.

(Thanks to the following for providing some of the tips used here: Kevin Emmott, Calrec; Andrew Wild, Euphonix; Phil Owens, Wheatstone; Frank Grundstein, Logitek; Clayton Blick, Studer USA/Harman Pro North America; Claude Hill, Harrison Consoles; and Niall Feldman, Solid State Logic.)

Mary C. Gruszka is a systems design engineer, project manager, consultant and writer based in the New York metro area. She can be reached via TV Technology.

USER REPORT

Canon Lenses Enhance WTAMU Education

by Randy Ray
Assistant Director of Broadcasting and Engineer/Instructor
Department of Art, Communication and Theatre
West Texas A&M University

CANYON, TEXAS

The new Sybil B. Harrington Fine Arts Complex at West Texas A&M University (WTAMU) includes a cutting-edge television production facility that enables students to get hands-on experience in the ever-changing broadcast business.

A large and comprehensive facility, the Complex surrounds its 16:9 TV production set with a master control room, four audio production suites, five edit suites and a radio station. The environment is tapeless, HD-ready and reflects the increasing trend of production facilities employing portable cameras in a studio situation.

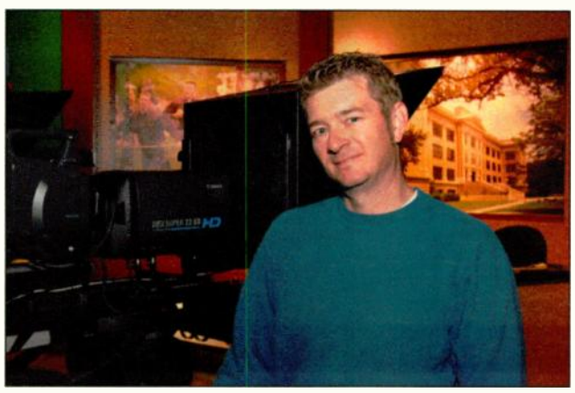
When we were in the process of selecting lenses for the Complex, Lubbock Audio Visual, Inc., our project's equipment provider and design/build contractor, recommended Canon's Digi Super 22xs Compact Studio HD lenses. Director of Broadcasting Dr. Leigh Browning and I specified purchase of three of these lenses, which are a whole new class of lens from Canon.

They are designed to provide superior box-lens optical performance in a compact size scaled appropriately for use with the portable Sony HD cameras we have configured for studio use. The combination of these Sony HD cameras and the Canon compact studio HD lenses are providing us with a cost-effective, yet high-performance solution here at WTAMU.

SMALLER BUT BEAUTIFUL

HD technology is getting smaller, but we get beautiful pictures from this configuration. And there's also a savings in both space and money.

Our selection of Canon lenses was a wise choice as they provide our students with a quality tool for their work. I believe that Canon is a company that is looking forward. They have provided an education-friendly experience and an invaluable addition for our campus. We spent extra time at NAB when we were preparing to build this facility, and I noticed that Canon's people spent a lot of time with me.



Randy Ray with one of the WTAMU Sony HD cameras fitted with a Canon Digi Super 22xs lens

If they didn't know the answers to my questions, they were sure to get them for me quickly, and they gave us the same treatment as a true broadcast facility. As an educator, that level of commitment is really important.

As a center for the training of tomorrow's broadcasters, WTAMU provides its students with a clear picture of how HD technology makes a difference. We've been really thrilled with the imagery we're getting from our Sony HD cameras and Canon compact studio HD lenses. We're getting a lot of bang for the buck, and in fact, the local TV stations have all visited us to see how we're getting the picture that we do. It all comes down to the lenses, and I'm getting all I need from Canon.

Randy Ray is the assistant director of broadcasting, and an engineer/instructor in the Department of Art, Communication, and Theatre at West Texas A&M University. He may be contacted at rray@mail.wtamu.edu.

For additional information, contact Canon at 800-321-4388 or visit www.canonbroadcast.com.

USER REPORT

Prompting You Can Count On

by Don Engelhardt
Director of Engineering
KSBW Television

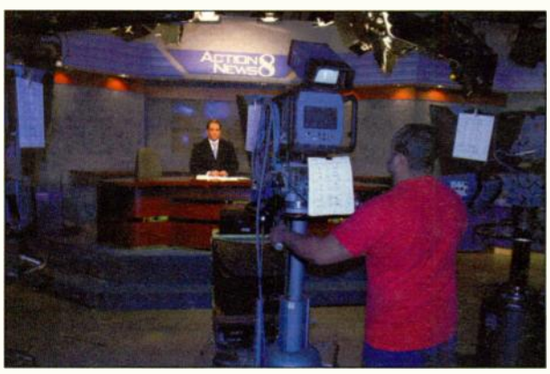
SALINAS, CALIF.

These user reports usually take the form of someone like me waxing lyrical about a particular piece of technology, and rightly so. But I'm not going to do that; the primary reason being that I've just today received the equipment that I'm writing about. Instead, I want to talk about what is to me, as director of engineering, equally as important as the technology I'm responsible for. In fact, it's absolutely crucial.

PROMPTER SHOPPING

Our station is owned by Hearst-Argyle Television and is the NBC affiliate for the Monterey-Salinas-Santa Cruz, Calif. market, with studios in Salinas. Our promise is "Coverage you can count on," and I think that extends to the technology we use to provide that coverage.

At NAB2006, I was very interested in acquiring new teleprompting technology for KSBW. I was among the throngs who plied the aisles seeking out not just the best and brightest technology, but also someone who actually had the inclination to talk to me.



Autoscript prompting is an important part of KSBW news operations. Dan Green, KSBW Action News anchor is seen on the set.

It's surprising that the sparkling new wares on display at trade shows are sometimes accompanied by hackneyed, disinterested or perhaps just plain dead-on-their-feet representatives who are more interested in dinner plans than making a sale.

What I found, however, on the Autoscript stand was a team of people whom, despite having a full house of potential customers, made a concerted effort to talk with me. Actually, "talk" isn't the right word. We had an in-depth conversation, with them listening to me and a description of my requirements, rather than just repeating scripted sales patter about what I should have.

What I also found intriguing is that they were totally honest with me about what would work, and what

AUTOSCRIPT, PAGE 109

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USER REPORT

KQED Puts Fujinon Lenses to the Test

by Lee Young
Director of Engineering Facilities
KQED Public Broadcasting

SAN FRANCISCO

KQED-DT/TV, a PBS member station serving Northern California for more than five decades, has put several new Fujinon HDTV lenses into service. We chose seven Fujinon HD lenses to replace our existing SD lenses, which were also manufactured by Fujinon.

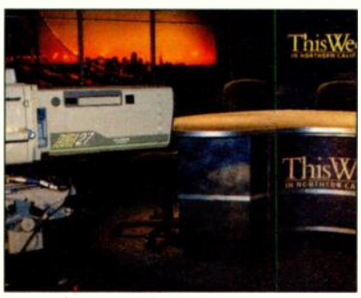
The steady advancement of lens design and manufacturing today offers a whole host of excellent and competitive products so we knew we had to research our decision well. Before we made the purchase, our engineers participated in a shoot-out of all the top HD lenses on the market, with camera operators participating in hands-on demonstrations in our studio.

AMAZING PICTURE QUALITY

Having been a Fujinon customer for some time, we were not surprised to observe that the Fujinon lenses produced amazing picture quality, especially the big studio lenses. Our relationship with them and the outstanding customer service we've received were also deciding factors in purchasing our new HD lenses from Fujinon.

The Fujinon HD optics we purchased include four HA27x6.5ESM studio lenses which are used on our Sony HDC-1000 multiformat studio cameras and an HA22x7.8BERM ENG-style HD lens which is used on a jib or in handheld studio applications with an HDC-1000.

We also have an HA16x6.3BERM wide-angle ENG style lens and an HA13x4.5BERM super wide-angle



One of the KQED studio cameras, equipped with a Fujinon HA27x6.5ESM lens

ENG/EFP style lens that are used with several Sony HDC-1500 multipurpose HD portable camera, both in the studio in handheld applications or in the field as needed.

We're one of the first customers for the HA27x6.5ESM, and our units have serial numbers beginning with "five." The HA27x6.5ESM's are wider, shorter and lighter in weight than comparable lenses. Another attractive feature is the Advanced Back Focus. We use that often when implementing special effects. On a wide shot, you can quickly and easily defocus the wide shot on-air and bring in a key over it. We've found it works wonderfully when we want to bring on text with four or five bullet points and you want the shot behind it to go softly out of focus to draw viewer attention to the graphic.

DIGI POWER A PLUS

Another appealing feature is the DigiPower digital servo control system. It provides precise, repeatable moves and zooms. The servo focus was not a feature we originally intended to order, but we were so impressed after we saw it in a demo that we requested that the feature be added to our order.

Overall, our experience with Fujinon has been exemplary. Fujinon always bends over backwards to provide us with good technical and customer support. Since our operation is 24/7, we need swift and dependable response. Fujinon has demonstrated that they are truly partners with us.

We now produce a number of programs in high definition for viewers in Northern California, including San Francisco, San Jose and Monterrey and Fujinon has helped to make this possible.

Lee Young is director of engineering facilities at KQED Public Broadcasting in San Francisco. He may be contacted at lyoung@kqed.org.

For additional information contact Fujinon Inc. at 973-633-5600 or visit www.fujinonbroadcast.com.

USER REPORT

WYCC Preps for HD With Sony

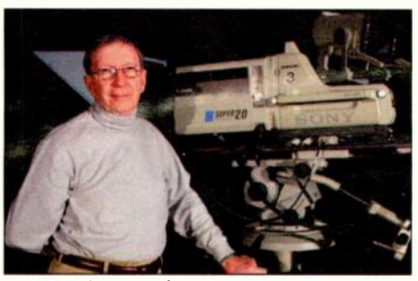
by Larry Eskridge
Director of Engineering
WYCC Television

CHICAGO

WYCC will be soon introducing a new generation of producers to high definition with Sony HDC-1000 and HDC-1500 multiformat cameras, XDCAM HD camcorders and decks, as well as with MVS-8000 and MFS-2000 video switching. Also, as part of its affiliation with the City Colleges of Chicago, we are going to be putting a fleet of 17 Sony HVR-Z1U HDV camcorders in use at the school's new Media Communications and Journalism programs.

We've been users of Sony gear for quite some time, having acquired our present studio cameras in 2000. They're Sony BVP-900s and

SONY, PAGE 110



WYCC Director of Engineering Larry Eskridge and one of the station's Sony BVP-900 cameras

BUYERS BRIEFS

The Studio Ped 2-75 from **Sachtler** is lightweight, yet highly stable camera pedestal designed for both studio and OB applications.

The pedestal is capable of supporting up to 165 pound camera/prompter loads and has a maximum height of 56.3 inches. It provides 30.3 inches of elevation.

The Studio Ped 2-75 provides crab-and-steer maneuvering and operators can apply the three individual wheel brakes from any position.

Options include a small steeering wheel and a carrying case for the column.

For more information on Sachler products, contact the Vitec Group plc. at 845-268-0100 or visit www.vinten.com.

The Probe II Plus from **InnoVision** is a special lens system designed to allow users to shoot from an ultra-low perspective.

The Probe II Plus is available with interchangeable straight, 45- and 90-degree periscope attachments and is completely waterproof.

It features high resolution glass elements and relay optics for sharp images, flat field, excellent edge-to-edge sharpness and a high depth of field.

The Probe II Plus is available in a variety of focal lengths, ranging from 9 to 32 mm in standard resolution configurations and from 12 m to 55 mm in high-resolution versions.

For more information, contact InnoVision at 310-453-4866 or visit www.innovisionoptics .com.

Schneider Optics offers a full range of add-on lens adapters for television lenses, changing the focal range of the camera lens and providing additional utility and flexibility in shooting.

These add-on adapters are available in both telephoto and wide angle configurations. Models available range from a 2x extender, all the waydown to full "fisheye" extended wide angle horizontal coverage of 116 degrees.

Schneider Optics makes this family of lens adapters available in a range of mounts to fit many television lenses, including those from Fujinon and Canon, and for both 1/2-inch and 2/3-inch camera sensors.

For more information, contact Schneider Optics at 800-228-1254 or visit www.schneideroptics.com.

Sine Patterns is a manufacturer of specialized test charts for television camera setup, evaluation and measurements, as well as for testing and evaluation of lenses. The company can provide specialized charts for testing digital camera resolution, lens distortion, contrast ratios and other parameters, as well as conventional charts used for camera setup applications.

Test charts are available for both conventional and higher aspect ratios.

One of the items available from Sine Patterns is the IEEE resolution chart, which replaces the EIA resolution chart used for testing camera frequency response. The IEEE chart conforms to standard STD 208-1995.

For more information contact Sine Patterns through Applied Image Inc. at 585-482-0300 or visit www.sinepatterns.com.

PRODUCTS & SERVICES SHOWCASE

PRODUCTS & SERVICES SHOWCASE

USER REPORT

Sky News Relies on Vinten Indoors & Out

by George Davies
Head of Cameras
Sky News Program
BSkyB

LONDON

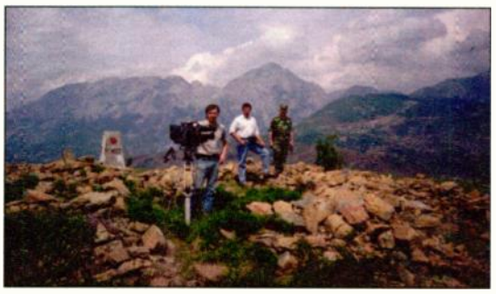
As BSkyB is a global 24-hour news broadcaster, we need to be able to send our camera crews into *any* situation—*any* where in the world and in *any* sort of conditions. This can range from 50 degree Celsius heat in a desert war zone to subzero feature shoots in the Antarctic. Because of this, we require camera equipment and support systems that are reliable, trustworthy and perhaps above all, tough enough to withstand any of those conditions.

To help us do this, we have been using Vinten equipment at Sky News since 2001. (I've personally been using the equipment myself since 1989, starting with the Vinten Vision 10 head.) The latest addition to our camera support equipment is the Vinten Fibertec two-stage leg tripod with the Vision 100 head.

We helped with the development of Fibertec, providing Vinten with feedback from the earliest prototypes being tested in the field to the first production models. From that experience, I can say that Fibertec is a great concept—tripods have been the same for many years but this really is a major step forward in the technology.

FIBERTEC ADVANTAGES

We've found that the Vinten Fibertec tripod offers a number of advantages over equivalent products. For a start, it's much more stable on any sort of terrain, due to the improved torsion control from the Fibertec leg design. This, along with the perfect balance system in the Vinten Vision 100 head gives us the ability to have far more control of camera moves. The combination delivers really precise and smooth camera control, and this is particularly notable when we are using long lenses for outside broadcast work.



George Davies (at camera) relied on Vinten equipment during his coverage of the Bosnian conflict. Here he's seen near the Montenegro border with a Vinten 10 two-stage aluminium tripod.

The Vinten Fibertec tripods and Vision 100 heads are now the mainstay of our camera support system fleet, though we're still using some Vision 250s as well. We're so impressed with the performance capabilities of the Fibertec tripods and Vision 100 heads that we have made a significant investment in them. We now have 24 Fibertec tripods, all with Vision 100 heads. We also have 20 Vinten Pozi-Loc Carbon Fibre two-stage leg tripods with Vision 100 heads and finally two Vision 250

VINTEN, PAGE 103

USER REPORT

Tristar Products Studios All Set With Panasonic HD Cameras

By John Rybacki
Director of Photography
Tristar Products

FAIRFIELD, N.J.

At Tristar Products, the industry leader in infomercial production, we recently completed construction of a state of the art, 66,000-square-foot production studio equipped with four Panasonic AJ-HDX900 multiformat DVCPRO HD camcorders.

Tristar studios include 12 prebuilt, pre-lit sets simulating kitchens, bathrooms, fitness rooms, bedrooms and children's playroom. In addition, there's a complete green screen set-up. The facility has become a popular choice for rental use by other production companies, including shoots for big brands such as Fisher Price.

We use the cameras to shoot 30-minute infomercials and two-minute spots promoting our current line of fitness, cooking, sports and general interest products. We are also using the HDX900s in the field to shoot testimonials and B-roll material as needed.

Before the AJ-HDX900s, we used Panasonic's AJ-SDX900 DVCPRO50 camera. While we were very happy shooting with the SDX900, we had been waiting for the right HD camera at the right price. As an advanced HD version of the SDX900, the HDX900 incorporates the well-established DVCPRO HD codec and offers multiformat recording for 100 Mbps HD images in any of 11 video formats, encompassing both 50 and 60 Hz production.

Depending on our needs, we can shoot either 1080i or 720p with the HDX900s, and offer both options to our clients. The cameras also allow us to output SDI, which addresses our current editing capabilities.

NO LEARNING CURVE

The HDX900 is menu-intensive, but in this regard is almost identical to the SDX900, so it has been easy for our engineers, freelance photographers and me to pick up—there was no learning curve. We're now mostly

PANASONIC, PAGE 113

USER REPORT

WSKG Makes HD Leap With Grass Valley

by Brian Frey
Executive Producer/Digital Project Manager
WSKG-TV

BINGHAMPTON, N.Y.

Television stations have been making the natural migration from analog to digital and are now moving into high-definition. Here at WSKG-TV, we've made a giant leap from 20-year-old analog cameras (that we had bought used 12 years ago) to three new Grass Valley LDK 4000 HD cameras.

I'm a producer by trade, and since I know how to do production, I was put in charge of executing this exciting transition, which took about eight months. Now, every time we look at the pristine 1080i HD output from our new studio, it feels like Christmas morning.

Everyone who has seen the cameras in the studio has been blown away by the clarity and the wider 16:9 aspect ratio. After looking at an analog output for so long, and playing with the lighting to try and compensate for the aging cameras, I guess this was to be expected.

We're a PBS member station and serve 21 counties in upstate New York and Pennsylvania, and we have a loyal following on both our cable and off-air signals.

NEW KAYAK SWITCHER,

The upgrade of our studio facilities was made possible by new state and federal funding, which allowed us to completely move into the digital HD world.

The Grass Valley LDK 4000 high definition camera

We now have a new control room, including a new Grass Valley Kayak HD switcher and a new set to accommodate widescreen production.

There's another reason why we purchased the Grass Valley cameras. We use a lot of interns and volunteer help to operate the cameras during our fundraisers, so the cameras had to be easy to use. So far, everyone has been able to quickly identify the key functions and use the cameras as if they had done so for years.

When you choose a camera, it's the images that matter most and I can't say enough good things about how great the new cameras look. Some crew members have been seen sitting mesmerized in front of the monitors. The video looks that good.

HD PRODUCTION PLANS

Along with the new cameras, we received a PBS grant to produce a series of local music shows and original dramas. Our station is located inside an old elementary school and behind there's an area that was formerly a baseball field. We plan to take the cameras outside to produce some concerts in this natural amphitheater.

We're also going to do a series called "Southern Tier Playhouse" consisting of live dramas in HD, similar to the old "Twilight Zone" series (host Rod Serling was originally from Binghamton).

We will produce all of our programs in the 1080i HD format, so the LDK 4000's fixed format worked out perfectly for us. We didn't need to spend extra money on a switchable camera, as we would never use the 720p mode.

In the end, the new cameras are going to allow us to do much more local production and we'll be doing that production at a very high level of quality. PBS stations are like a family, and it feels good for us to know that we'll be making great contributions to the pool of shared programs. With the new Grass Valley HD cameras, the other stations will now be eager to get shows from us.

Brian Frey is executive producer and the digital project manager at WSKG-TV. Several of his documentaries have aired nationally on PBS. He's been with the station for nearly 18 years. He may be contacted at Brian_Frey@wskg .pbs.org .

For additional information, contact Grass Valley at 800-547-8949 or visit www.thomsongrassvaley.com.

Vinten

CONTINUED FROM PAGE 102

heads with Pozi-Loc Carbon Fibre two-stage leg tripods.

BETTER FLEXIBILITY

Overall, we chose to go with the Vinten tripods because they gave better flexibility and better operational workflows than any other comparable manufacturer. At Sky News, our news delivery systems and requirements are constantly evolving to keep up with the rapidly changing demands of 24/7 global broadcasting. This means that our equipment demands are rapidly changing too and we have confidence that Vinten will be there with us.

George Davies joined Sky News in 1989 as a cameraman. He has covered major news events including wars and disasters, as well as those involving film stars. He has been head of cameras at Sky News since 1995. He may be contacted at george.davies@bskyb.com.

For additional information about Vinten products contact the Vitec Group plc. at 845-268-0100 or visit www.vinten.com.

USER REPORT

Ikegami HD Cameras 'Winners' at Church

by Bryan Bailey
Director of Media
The Church at Pinnacle Hills

ROGERS, ARK.

The Church at Pinnacle Hills is a satellite church of the First Baptist Church of Springdale (Ark.). We have a newly finished, 2,400-seat, fully high-definition facility where we shoot a weekly worship service called "Winners" with Pastor Ronnie Floyd. The program is broadcast on the Daystar Television Network—the second largest Christian television network in the world—reaching more than 60 million homes.

When reaching out to such a large audience with such an important message, we felt that it was vital for us to have the best possible presentation for the program. This led us to upgrade to high definition cameras.

We looked into several different HD cameras from various manufacturers. However, it was Ikegami that provided us with the best quality at the most affordable price. Our purchase of five Ikegami HDK-75EXBF HD cameras and two HDL-40 box-style HD cameras has put "Winners" on the cutting edge of worship service broadcasting. We began shooting in high definition in mid-January.

Four of our HDK-75EXBF cameras are used on the floor level, on the stage and in the audience to capture the service. The fifth is configured for jib use. Our HDL-40 box cameras are mounted on the edge of the balcony—one on each side—to shoot the baptisteries, which are elevated. These cameras also allow us to get wide shots of the congregation and the choir.

EASE OF USE

One of the main things that we love about the Ikegami cameras is their ease of use. My assistant and I are the only full time tech staff at the church; the rest of the production staff is comprised of volunteers from the congregation. Since the cameras are being operated by novices, it was extremely important that the cameras be intuitive and user friendly. The volunteers absolutely love the Ikegami cameras—they are simple enough so that our volunteers can come in and easily operate them, but they are sufficiently advanced to let us go as far as technology allows.

BACKLIGHT NO PROBLEM

A unique issue facing our broadcast facility is that the back wall of the stage is a 6,000-square-foot window. As you might imagine, this, can cause some lighting and shading issues. The window is tinted, and we are working towards installing "smart glass," where the amount of tint of the glass can be electronically controlled.

Even with the tinting, however, there is still a noticeable difference on stage between a sunny day and a cloudy one. The versatility of the Ikegami cameras has rendered the difference moot, and has allowed us to capture what we want to show to our viewers. The technical support we received from Ikegami during the installation was tremendous. The custom nature of this project led to unique issues popping up, and we were able to call or e-mail someone 24 hours a day and get whatever support we needed. Between the capabilities, the ease of use, the flexibility and the support, our Ikegami cameras have been a godsend.

Bryan Bailey with one of the seven Ikegami HD cameras used at the Church at Pinnacle Hills.

Bryan Bailey is the director of media for The Church at Pinnacle Hills. He can be reached at bryanb@churchph.com.

For additional information, contact Ikegami at 201-368-9171 or visit www.ikegami.com.

USER REPORT

LPB Chooses Angenieux Lenses

by Randy Ward
Assistant Director of Engineering
Louisiana Public Broadcasting

BATON ROUGE, LA.

Louisiana Public Broadcasting is a statewide public television network with broadcast stations in Baton Rouge, Shreveport, Lake Charles, Lafayette, Alexandria, Monroe and New Orleans. LPB operates three studios and a remote production truck.

The organization supports eight field kits (two DV Cams, four Beta SP and two HDCAMs), and all are equipped with Thales Angenieux lenses. LPB specializes in documentary production, entertainment programs and news and public affairs. The majority of our programs are produced for national release, so image quality is extremely important.

FIRST PURCHASE IN 1991

When buying a lens for broadcast production, there are a very limited number of quality brands from which to choose. We purchased our first Angenieux lenses back in 1991. At that time, they were rather expensive, but the superior image quality was worth the extra cost. Angenieux is now more competitively priced, while maintaining superior quality. From the quality of the glass to the precision optics, it's all about the look.

Two words come to mind when I think about Angenieux lenses: rugged and reliable. The first Angenieux lens we purchased 16 years ago is still in service. How rugged are these lenses? Just the other day one of our photographers brought his camera into the shop and told them he'd dropped the camera to the ground, lens first. When asked if it still worked he replied, "Oh yes, no problem—actually I dropped it three weeks ago."

He was hoping he wouldn't have to report the incident. The problem came when he wanted to change the lens and it wouldn't come off. Incredibly, there was no problem with the picture at all.

Randy Ward with Thales Angenieux-equipped cameras

Quality service is also a major plus for Angenieux. Any time a question or problem arises, the LPB shop just makes a call to Angenieux's service department and always received a prompt reply along with an overnight shipment of parts to fix the problem.

At Louisiana Public Broadcasting, we have two documentaries currently airing on the PBS HD channel—"Washing Away" and "American Creole." We've also completed two new cooking series that were shot in high definition for airing on PBS, and feature John Folse and Paul Prudhomme. In addition, our truck was recently used to record a new BB King DVD release, as well as concerts by Bruce Springsteen, Bob Dylan and Keith Urban at the New Orleans Jazz & Heritage Festival.

NO SOLUTIONS NEEDED

A colleague recently asked me if we had resolved any issues by purchasing Thales Angenieux products. However, to be honest, we've never really had any catastrophic problems to solve. We've always used Angenieux lenses and our camera operators love them. If there is a problem, it's over who gets the long lenses and who gets the wide angles.

The camera operators love the wide angle lenses for panoramic HD shots and also for interviews, as they are often forced to shoot in small offices or tight quarters. The Angenieux 10X5.3 HD is a perfect fit for those situations.

However, you can't beat the zoom capability of the Angenieux 26X7.8 HR for shooting wildlife or close-ups in the field. The color reproduction of Angenieux lenses, the pristine blacks and low light capabilities are unsurpassed. When image quality and ease of use are your main priorities, Angenieux should be your clear choice for purchase.

Randy Ward has been in broadcasting for 26 years, and has been with Louisiana Public Broadcasting for most of his career. He may be contacted at rward@lpb.org.

For additional information contact Thales Angenieux at 973-812-3858 or visit www.angenieux.com.

USER REPORT

WPPS Achieves HD Status With JVC

by Gary Brown
Video Engineer
WPPS

PORTSMOUTH, VA.

WPPS is a cable origination service from the Portsmouth Public Schools that provides programming on two output streams and feeds Cox Cable here. One of these, channel 47, carries programming of the District and Career & Technology Education TV Production student video work. The second, channel 46, features a bulletin board informational service for upcoming events and school board meeting dates.

In setting up these channels, the school district wanted to both develop the capability to produce nationally marketable educational programming, and also ensure that students in the television production classes would be using actual broadcast equipment to develop job skills.

For some time students entering the program have been talking about high definition. We started looking for fiscally effective ways to upgrade to HD and eventually purchased JVC's GY-HD250s. The dream of being able shoot in HD became a reality with these affordable cameras.

Gary Brown with one of the WPPS JVC cameras.

We have three JVC cameras that are used in our teaching theater. It's a tiered environment that also serves for playback.

In the first semester, students work in the studio, using these cameras to generate material (life stories of the students) that they will be editing in the second semester. We currently have the cameras set up as stand-alone tripod-mounted units with Teleprompters. This arrangement allows multiple students to work simultaneously and helps to familiarize everyone with the cameras. In the second semester, narration for the pieces is done as stand-up news using the GY-HD250s as standalone cameras.

A SECOND STUDIO

However, the cameras were initially purchased to develop a second studio as a backup production area for days when the main studio was busy. In this second studio, we're building a three-camera, switched chroma key environment for the students to use as we explore virtual scenery. When researching cameras, I found that the GY-HD250s were available with a studio configurable option, including CCU and rear lens controls. The fact that they are switchable from DV to HDV made it an obvious choice for us as no other product really offered such a cost-effective a solution.

Soon, we'll be able to operate with green screen functionality in our second studio. This studio will also allow us to do a teleconference or to screen programming from our editing server via an HD projector, making it a complete multipurpose suite. After its competition this summer, we'll have two studios, with one featuring the GY-HD250s.

As a result of the image quality and affordable price point of the GY-HD250, I anticipate that we'll eventually upgrade our main studio using the GY-HD250s as replacement cameras for our older DXC30s. This upgrade will enable us to become one of the few public, educational, government channels that can match the output in aspect ratio and pixel count of the other cable program streams on the Cox lineup of the future

Gary Brown has been employed as video engineer with the Portsmith Public schools for 10 years and had been involved in television production for 26 years. He may be contacted at gary.brown@pps.k12.va.us.

For additional information, contact JVC at 800-582-5825 or visit www.jvc.com/pro.

BUYERS BRIEFS

The DigiZoom6-24 mm lens from **Carl Zeiss** is designed to work with all cine-style video cameras and excellent low light performance.

The lens has the ability to focus on objects as close as 11 inches and can focus tightly objects as small as 66x117 mm. It provides high contrast by minimizing flare, veiling glare and internal reflections and offers high resolution from edge to edge.

The DigiZoom 6-24 mm can be fitted with cine mattebox and bridgeplate, as well as focus, zoom and iris adjustment motors. The lens also offers excellent color matching characteristics with other lens in the DigiZoom family.

For more information, contact the Bandpro Film & Digital at 818-841-9655 or visit www.bandpro.com.

Cam Align front lit test charts from **DSC Labs** are designed to optimize performance from today's television cameras. The feature a 3D cavity black area to provide a true black level reference and are available in several sizes for both standard and HD applications.

The charts are mounted on a 1/16-inch backing and are protected from dust, fingerprints and water droplets by a smooth clear laminate covering. The Cam-Align charts are environmentally friendly, as they include components which can be recycled.

DSC provides a trade-in service for updating of test charts on a periodic basis.

For more information, contact DSC Labs at 866-372-5227 or visit www.dsclabs.com.

PRODUCTS & SERVICES SHOWCASE

PRODUCTS & SERVICES SHOWCASE

USER REPORT

Hitachi Cameras Are Tops at NESCom

by Gary Kasparek
Video Production Coordinator
New England School of Communications

BANGOR, MAINE

The New England School of Communications (NESCom) is a small private college granting bachelor & and associate degrees in a hands-on environment. NESCom specializes in communications with concentrations in video production, audio engineering, digital media, journalism, marketing and radio.

A majority of NESCom's television studio equipment is acquired through short-term leases; this which gives students access to the latest technology available, and provides employers access to trained graduates ready to fill technical positions in a variety of broadcast and post post-production environments.

When our technical team began the redesign of our television broadcast facility in the fall of 2005, we spent countless hours researching options pertaining to high definition, 16:9 and standard definition studio workflow. Our long-range plans revolve around providing cutting edge technology while operating within a reasonable budget.

Rodney Verrill (L) is executive director of television at the New England School of Communications; Gary Kasparek (R) is the video production coordinator

We spoke with several camera manufacturers, but only one met our specifications, timelines and budget—Hitachi. They not only had a superior product, but backed it with outstanding customer service. Our choice of studio camera was the Z4000W. These cameras utilize three 4:3/16:9-switchable 2/3-inch interline transfer CCD sensors and are equipped with RU-Z35 SDI CCUs.

Before making a decision, we did rigorous testing, putting this camera side-by-side with its competitors under similar conditions. The Hitachi Z4000W outperformed anything else in its class. The image quality of the 520,000 pixels that this unit produces is superior, hands down. Our environment requires that our studio cameras have a wide degree of flexibility for the operators. The CCUs are simple to operate for the novice, and accommodate advanced students who are able to manipulate complex set-up operations quickly and easily. Multiple SDI and composite outputs are another advantage with the RU-Z35 CCUs, as this reduces the need for costly conversion for monitoring and distribution.

ENHANCED QUALITY

The quality of training for our students is foremost on our minds and the upgrading our studio with the Hitachi cameras has significantly increased the quality of our productions.

We are in the process of building a 30-foot remote production facility that will be equipped with seven dedicated cameras. Our intention is to outfit the unit with Hitachi cameras. This is based on the strong relationship with the folks at Hitachi that has developed over the past year and the positive feedback we've received on the quality of our product from local television stations and cable providers.

In this industry where corporations are minimizing direct contact with their users, Hitachi has been available to work with our team after the sale to enhance our students' learning experience. Strategic partners like Hitachi are the answer to our continued success as leaders in the educational community.

Gary Kasparek is the video production coordinator for the New England School of Communications where he has worked for 15 years. He has 30 years of experience in commercial and public television. He may be contacted at gary@nescom.edu.

For additional information contact Hitachi at 516-921-7200 or visit www.hitachi.com.

Autoscript

CONTINUED FROM PAGE 96

wouldn't, for my needs. Even more astonishing—and those of you reading this who've been to NAB previously may know what I'm talking about—they were completely honest about when a certain piece of software or technology would be ready, an increasingly rare commodity at trade shows.

A LOT OF CHOICES

Don't get me wrong. There were other teleprompting technology companies at NAB2006, and I visited every one of them. But the only one that genuinely made time for me and really listed to what I had to say was Autoscript. This is why my most recent prompting purchase order for fitting out a new series of cameras in our studios went to Autoscript.

HIGH CONFIDENCE LEVEL

Even though I just received the 17-inch TFT High Brightness unit and PCI software, I'm confident that it will do precisely what I need it to do. And if it doesn't, I'm equally confident that I know precisely who to call, and that it will be sorted out with the same kind of knowledge, enthusiasm and professional service and support that I, and others like me, have experienced from the start with Autoscript.

Their claim is, "we listen while you do the talking." And after all, isn't that—coupled with reliable technology and support—what a user should be able to count on?

Don Engelhardt is director of engineering at KSBW Television in Salinas, California. He may be contacted at dengelhardt@hearst. com.

For additional information, contact Autoscript at 203-338-8356 or visit www.autoscript.tv.

BUYERS BRIEFS

The HDTV/FX filters from **Tiffen** address both contrast and sharpness issues in high-definition television.

High definition images are typically high in contrast. The HDTV/FX filter reduces "tack sharpness" and smoothes out unwanted detail without evidence of filtration, ensuring that people look their best in high definition.

Use of the HDTV/FX filter helps to create a "film look" in high-definition television applications.

The filter is constructed of high quality optical glass and is available in density ratings of one through six, and in addition to screw-in mountings for direct camera lens applications, can also be supplied in 4x4, 4x5.65, 6x6.6 and 138 mm sizes, as well as 4.5 inches.

For more information, contact Tiffen at 800-645-2522 or visit www.tiffen .com.

The EP-PT-S2-2 Televator II system from **Telemetrics Inc.** is a motorized remotely controlled telescoping camera support system. It allows remote robotic control of a television camera's height above the studio floor and is designed to operate with Telemetrics pan and tilt robotic remote control systems.

The EP-PT-S2-2 provides 26.94 inches of elevator travel and has a speed of 0.59 inches per second.

The EP-PT-S2-2 Televator II is powered from a 24 V DC supply and draws 100 W. It can support robotic head/camera/ prompter loads of up to 90 pounds and weighs 66 pounds. The Televator II features smooth operation and variable control of elevator speed. It can be mounted to the studio floor in a fixed position, or used with an optional dolly for mobility.

For more information, contact the Telemetrics Inc. at 201-848-9818 or visit www.telemetrics.com.

MARKETPLACE

Highlighting the latest products available to professionals in the video industry

SECURITY FRIENDLY BATTERIES

The ZL series of Travel Pack batteries from PAG contain no lithium and may be carried aboard aircraft in hand luggage. The batteries are available in 50 Watt-hour and 150 Watt-hour capacities and offer extended run time and higher current-draw capacity. They are compatible with V-Mount, PAGlok or NP1 formats.

The ZL-150 is PAG's highest capacity battery and is packaged in the company's SuperPack format. The ZL-50 is lighter and more compact and also provides users with a built-in electronic charge state indicator.

The batteries are exempt form IATA regulations governing batteries with lithium content and are compatible with PAG's AR series and V-Series battery charging systems.

For more information, contact at 818-760-8265 or visit www.paguk.com.

MULTIFORMAT CONVERTER

The Proteus from Brick House Video Ltd. is a multiformat, multipurpose audio/video converter that provides video and audio proc amps, format conversion, time base correction, frame synchronism and bi-directional standards conversion.

The unit accepts both analog, AES digital and embedded audio and provides swapping of audio channels. It can address lip sync errors of up to 10 seconds with an optional delay feature. It has full broadcast specifications and features 10-bit video processing.

The Proteus employs an advanced motion adaptive standards conversion algorithm, and accepts and outputs SDI, composite, component and Y/C signals. It can be either rack mounted, used in desktop configurations, or used as a portable device.

For more information, contact Brick House Video Ltd at 44-1962-777733 or visit www.brickhousevideo.com.

BLU-RAY DUPLICATORS

The ReflexBlu2 and ReflexBlu4 Blu-ray tower duplicators create, edit and duplicate customized Blu-ray format discs (BD-Rs, DVD-Rs and CD-Rs).

The ReflexBlu2 can process two full BD-Rs per hour, four full DVD-Rs per hour or seven full CD-Rs per hour. The ReflexBlu4 has a throughput which is double that of the ReflexBlu2.

Each unit includes disc creation software, a 250 GB hard drive capable of storing up to nine full BD images, as well as USB connectivity allowing access to one drive for mastering and playback.

For more information, contact Disc Makers at 866-707-0012 or visit www.discmakers.com/duplicators.

Sony

CONTINUED FROM PAGE 98

have been our mainstay ever since we took them out of the box and put them on the air for the first time. We've also have Sony DSR-570s for field production work, and found that they're really great performers too.

Our track record with these Sony SD products has been excellent, and this was one of the factors in selecting Sony as part of our move to high definition broadcasting.

We produce a great deal of documentaries, as well as other specialty programming that make us part of the fabric of this community. Our mandate is to enrich, enlighten, entertain and engage the diverse and multicultural Chicago area communities. Capturing the lives and experiences of the people here helps create a lasting community memory that will be appreciated both today and in the years ahead.

Also driving the need for advancing our production capabilities is WYCC's affiliation with the City Colleges of Chicago and for-credit college telecourses, PBS programs and local productions. The move to high definition is a necessary step to keep up with changes in our audience and to serve the producers reaching out to it.

Implementing the changeover to HD includes a massive rewiring of the station's infrastructure connecting to the seven City Colleges of Chicago campuses by fiber optic cable. We are also building a brand new production facility to house the new Sony HD equipment, and this should be completed in June.

As good as the BVP-900 cameras have been, I'm sure that the five HDC-1000s along with HDC-1500 multi-format cameras will provide a significant advance in the way we look on the air.

These cameras, coupled with the Sony MVS-8000 and the two Sony MFS-2000 digital switchers, will allow us to bring together current and future HD content along with the existing base of SD gear and content. The three XDCAM HD camcorders we've purchased will provide our staff videographers with a new set of HD tools to reach out into the community to capture profiles of notable residents.

This is more than an upgrade. It is something that allows us to achieve a new technical level of excellence for production that will serve our constituent communities for many, many years to come.

The Sony HD production equipment will help us to better serve our fast-growing audience as high definition and widescreen content become the norm.

Larry Eskridge is director of engineering at Chicago's WYCC Television and has been in broadcast8ing for more than 40 years. He may be contacted at leskridge@ccc.edu.

For additional information contact Sony Electronics. Inc. at 800-688-7669 or visit www.sony.com/professional.

REFERENCE GUIDE

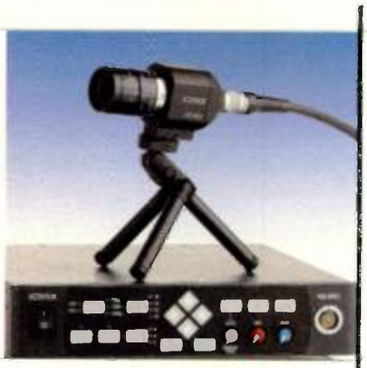
The Reference Guide is a selected sampling of current products. Specifications and prices are supplied by the manufacturer and are subject to change without notice.

PROMPTERS

MANUFACTURER	DISPLAYS AVAILABLE	MODES/STANDARD	OPERATING SYSTEM	FEATURES	WEIGHT	PRICE
Audio Video Design 800-749-7266 *www.1prompter.com*	1Prompter8 1Prompter15 1Prompter17	SVGA 800x600 XGA 1024x768 SXGA 1280x1024	Win 2K//XP/Vista Mac OS 10.2	Milled aluminum bracketry, premium glass mirror, includes Win or Mac SW	6 lbs.; 13 lbs.; 15 lbs.	$895; $1,295; $1,495
Autoscript 203-338-8356 *www.autoscript.tv*	8" to 20" TFT 17" widescreen TFT and clock unit	VGA, composite, NTSC/PAL autosensing SECAM, optional HD-SDI	All Windows OS, integrates with iNews, ENPS, MOS, etc.; Now with voice activated	Autoscript prompting systems deliver flexibility, smart design and full support	6-31 lbs.	$1,895-$6,995
Comprompter 608-785-7766 *www.comprompter.com*	NewsKing TotaPrompter	NTSC/PAL/XGA B/W or color, direct or reverse mirrored	Windows OS; network	Writing/editing scripts, organizing a presentation, printing and prompting, supports all Microsoft languages	N/A	$1,500-$5,000 for multi-users
Computer Prompt. & Capt. 800-977-6678 *www.cpcweb.com*	CPC-1000	VGA and composite	All Windows	Scrolls text with any TrueType font in any language; variable text sizes	N/A	$1,495
Listec Video Corp. 561-683-3002 *www.listec.com*	VGA composite plus composite or VGA only	Mirror reversal or Direct-Vu for LiteRing	Panels/software, Universal/all Windows	Easy-mount sliding hardware with interchangeable standard, wide-angle or fold-down hood assemblies	5-35 lbs.	Starting at $2,250
Magic Teleprompting 415-626-5283 *www.magicscroll.com*	MagicScroll	Multisize, multifont output	MagicScroll for Mac OS X	Smooth scrolling, bookmarks, script queuing, ordering-linking, timer, loops and color text	1 lbs.	$995
Mirror Image 920-232-0220 *www.teleprompters.com*	LC-110; LC-160-HB; SF-220-LCD	NTSC/PAL/SVGA; NTSC/PAL/SECAM	Windows, Mac OS X	LC-110 (400 nits) & LC-160-HB (400-1600 nits) are portable	13 lbs.; 20 lbs.; 30 lbs.	Call for pricing
QTV 203-406-1400 *www.qtv.com*	Master series; Professional series	NTSC/VGA and PAL composite video	Windows 98, NT 2000, XP	Full color, high resolution, non-glare	6-51 lbs.	Call for pricing
Stewart Instruments 800-722-8937 *LowCostTeleprompters.com*	Model 850/ 1250/1550/ 1750/2000	Composite/VGA	Windows, Mac, DOS	Low-cost teleprompters, hardware and software	13-32 lbs.	Starting at $695
Telescript 888-767-6713 *www.telescript.com*	In-Studio 12-20" Fold and Go 8-20" ReFlex 8", 12" OnStage 15-20"	Composite/S-Video/XVGA, Standard or high brightness	Win2000/XP/Vista	Professional grade and value monitors, DV cam shoulder mount, unique cases, scroll control options, MOS compliant	4-30 lbs.	Up from $2,795; software starts at $495
Tekskil Industries 877-835-7545 *www.tekskil.com*	Various LCD models: 10" to 20" in 4:3 and 16:9 HD	NTSC/PAL, XGA, mirror, filp and inverse	Windows, Mac	Highbright LCDs; only stabilized and dampened prompter system for HD cameras. Studio, robotic, ENG and jib systems	6-78 lbs.	Call for pricing

MARKETPLACE

Highlighting the latest products available to professionals in the video industry



HD Camera

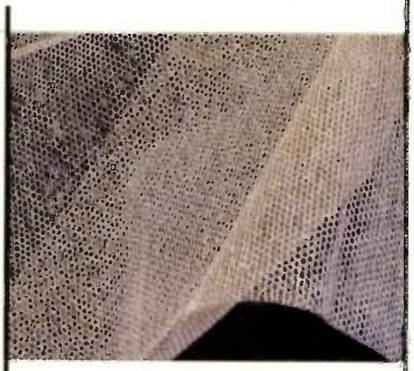
The HD-RH1 from Iconix Video is a high definition 3-CCD remote head camera. The camera head measures 1.32x1.50x1.92-inches and weighs 2.5 ounces. The accompanying control unit weighs in at less than four pounds.

The camera is constructed around a 1/3-inch progressive scan sensing technology and uses a 1/3-inch prism. The sensor format is 16x9. The HD-RH1 accommodates standard C-mount lenses and can be tripod mounted. The A/D conversion is done with 14-bit accuracy and the power requirement for the entire system is 30 W at 12 VDC.

The small camera can capture and output images at 720p, 1080i and 1080 p formats, and supports frame rates of 24, 25, 30, 50 and 60 fps. Outputs include a SDI, two single-link 4:2:2 or a dual link 4:4:4 RGB/YCbCr, DVI-I and analog. Remote control is handled by either an RS-422 or 9-pin DSUB connector.

For more information, contact Iconix Video at 800-783-1080 or visit www.iconixvideo.com.

Color-Shifting Fabrics



Matthews Studio Equipment has introduced a new group of fabrics called "Colornett." Colornetts create shifts in the color temperature as light passes through the fabric.

Available in gold and silver, Colornett will shift the color temperature of the light source or diffuse that source. A single gold Colornett lowers the Kelvin temperature of the source by 400 degrees and a double lowers the Kelvin by 600 degrees. A single silver Colornett raises the Kelvin temperature of the source by 200 degrees and a double raises the Kelvin by 350 degrees.

When used as an overhead, Colornett will "warm up" (gold) or "cool down" (silver) the area covered. When used as scrims, Colornett fabrics allow fixtures to be isolated and color temperature manipulated in those particular instruments. Light loss is minimal when using Colornett—a single layer amounts to 0.4 of an *f*-stop and a double layer provides a 0.8 *f*-stop reduction.

Colornett is available in all standard overhead sizes as well as custom sizes.

For more information, contact Matthews Studio Equipment at 818-843-6715 or visit www.mseg-rip.com.

Audio Embedder/De-embedder

The AV-SD-XMUX audio embedder/de-embedder from Network Electronics adds audio processing functionality to Network's Flashlink line of products. It is capable of embedding/de-embedding four AES signals at the same time.

The device features a built-in 18x16 AES router with four separate audio delay lines, audio processing within each AES group and interoperability with all other Flashlink devices.

Stereo channel swapping, along with summing, or taking stereo signals to mono is easily accomplished with the AV-SD-XMUX. It also has on-board audio and video signal generators.

Optional optical interfaces are available to allow direct embedding/de-embedding from and to optical signal paths. The card is self-configuring when used with the Network Electronics GYDA-SC controller.

For more information, contact Network Electronics US at 800-420-5909 or visit www.network-electronics.com.

Multichannel Encoder

The Grass Valley Argos from Thomson is a low bit rate multichannel MPEG-4 encoder that is targeted for mobile television service applications.

The unit features signal pre-processing and multiple inputs and multiple outputs. Additional codecs, including H.264 and H.263, can be implemented within the Argos to enable simultaneous 3G/DVB-H network stream delivery or for other hybrid service requirements.

Content scrambling with multiple conditional access systems is implemented within the Argos to allow multiple service providers to share common delivery channels. The Argos technology provides statistical multiplexing to increase both picture quality and the number of channels that can be accommodated within a DVB-H stream.

For more information, contact Grass Valley at 503-526-8150 or visit www.thomsongrassvalley.com.

Downconverters

LYNX Technik is now offering three new downconverters in its Series 3000 Mini-Modules. These are all palm-sized and ideal for field applications.

The D VD 3601 provides HD digital downconversion, along with an SD/HD distribution amplifier and test generator; the C DX 3610 includes a D/A converter and test generator, along with HD downconversion; and the C DX 3624 features HD conversion and audio de-embedding.

All of the LYNX Series 3000 MiniModules are palm-sized and the company provides multiple power supply options for use with them. These include AC adaptors, rechargeable battery packs and Anton Bauer battery adapters.

LYNX also makes a 19-inch rear rack mount for creating a permanent system with redundant power supply.

For more information, contact LYNX Technik at 49-6150-18170 or visit www.lynx-technik.com.

Media Exchange Software

The MXF Toolkit from OpenCube is a software suite, including C++ SDK, Graphic Applications and Viewer, which provides interoperability in media exchange and effective metadata management.

The MXF Toolkit simplifies video/IT technology integration at any stage of the workflow—content creation, post-production, broadcasting and archiving. It includes features that provide rapid handling of the MXF format as defined by SMPTE standards. The Toolkit also supports MXF D-Cinema formats based on MXF DCP creation and guarantees interoperability with most camcorders, non-linear editors and video file servers.

For more information, contact OpenCube Technologies at 33-561-285-606 or visit www.opencubetech.com.

Send new product press releases along with color photographs to:
Marketplace Editor, P.O. Box 1214,
Falls Church, VA 22041, USA

Panasonic

CONTINUED FROM PAGE 102

operating in 1080i in 16:9.

The camera has excellent low-light capability. We had a lot of 2K fixtures, but the HDX900 is so sensitive that we have lamped them down to 1K. The camera handles bright whites and shadows very nicely compared to SD. The color saturation is gorgeous—it is remarkable just how beautiful the picture is.

Cameraman Brian Spatz follows chef Bob Warden's actions with a Panasonic AJ-HDX900 camera at the Tristar Products studio.

Each camera is equipped with a Fujinon lens and a Panasonic BT-LH900A 8.4-inch multiformat HD production monitor. Three of the HDX900s are placed on Sachtler pedestals in the studio, and the fourth is hung on a jib.

Typically, each 30-minute infomercial involves about 50 hours of shooting. Each shoot is switched live and recorded onto AJ-HD1400 DVCPRO HD decks and then down-converted and digitized into the Avid editing system.

PLANS FOR HD EDITING

When we upgrade the Avids later this year, we'll be editing in HD. I've already edited several spots in HD, utilizing Final Cut Pro on my desktop Mac. I input footage via FireWire from either the HDX900 or HD1400, and it is a streamlined and intuitive editing process.

The HDX900 combines affordability with top image quality, and it is already proving a key factor in our flourishing rental business. It is completely versatile in terms of recording formats and "looks." Our business is all about the audience seeing a product clearly and in its best light, and the consensus among our executive staff is that the HDX900 produces the best picture we have ever seen.

John Rybacki has more than 16 years experience as an editor and director of photography. He may be contacted at johnr@tristarproductsinc. com.

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

BUYERS BRIEFS

The TelescripPRO from **Telescript Inc.** is a Windows-based television prompting system providing support for all international character sets.

TelescriptPRO provides users with point and click editing functionality; text zooming; variable font style, color and size; as well as cut, copy and paste features and customizable screen layout.

The system requires no special or proprietary computer cards and provides extensive file and run list features. It is fully Unicode-compliant and interfaces with the Telescript 10-button serial hand scrolling controller unit.

It supports multiple monitor feeds and has a timer function for keeping track of run time or for synchronizing with network server timing.

For more information contact Telescript Inc. at 888-767-6713 or visit www.telescript.com.

MARKETPLACE

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Wireless Mic Receiver

The EK 3241 is a true-diversity wireless mic receiver from Sennheiser is specifically designed for location sound and to operate in concert with either the Sennheiser SKM 5200 or SK 5212 transmitters.

The receiver can be tuned in 5 KHz increments to any of 7,200 frequencies and is shipped with 32 custom programmed frequencies. Users can set an additional 20 frequencies in a user memory bank. The EK 3241 can be powered from a camcorder, or can operate from its own recharageable battery for nine to 18 hours of continuous operation.

Sennheiser can provide an option for the EK 3241 that adds a second audio channel. Users may switch between the two channels or mix them.

For more information, contact Sennheiser at 860-434-9190 or visit www.sennheiserusa.com.

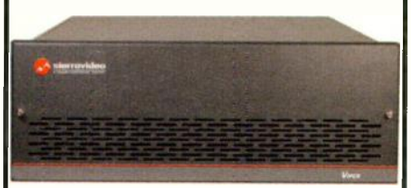
Routing Switchers

Viper routers from Sierra Video Systems are designed for ultra-wideband video RGBHV signals and have a 500 MHz bandwidth. They feature hot-swappable video boards, control processors and power supplies.

The Vipers are available in configurations up to 64x64 in eight input and/or eight output increments, and are housed in a compact frame.

Sierra can provide redundant power supplies and redundant control options. The switchers have a passive backplane with no external components, further enhancing reliability.

The routers are also available combined with Sierra's Yosemite line of analog and digital routing switchers. The Vipers are compatible with Sierra's line of advanced, programmable SCP control panels. IP/Ethernet control is also available via a Mac or PC, using a standard TCP/IP socket connection.



For more information, contact Sierra Video Systems at 530-478-1000 or visit www.sierravideo.com.

PC-based EAS System

The DASDEC from Digital Alert Systems LLC is a new PC-based EAS system for broadcasters.

The encoder/decoder and display controller system is designed for remote access, EAS alert origination and software-upgrades via the Internet. The DASDEC is built around an embedded PC contained in a custom 19-inch rackmount case. The unit houses three browser-defined radios for EAS monitoring of AM, FM or NOAA frequencies, a character generator, USB and network connections and balanced analog audio EAS override switching.

The system provides LAN-based communications, as well as legacy EAS compatibility. The DASDEC also provides tools for broadcasters including network-controlled GPI functionality, user-programmable front-panel audio announcements, programmable filters for blocking manual forwarding, as well as an optional AES audio output channel and third-party AES audio passthrough/override.

The unit also interfaces with a wide range of EAS peripheral devices.

For more information, contact Digital Alert Systems, LLC at 520-896-0303 or visit www.digitalalertsystems.com.

Fiber Connector

The HX-1084 connector from Stratos Optical Technologies is designed for use in harsh environments to provide connections for 4-core single-mode fiber cable.

It can be used in general-purpose signal transport for video, audio, data and networking in a broadcast production or other data/networking environments—such as between trucks or studios. The four channels allow point-to-point single or full duplex communication with, or without, redundancy, as required. Single mode fiber accommodates large bandwidth and data rates—ample for high-definition video formats.

The connector uses expanded beam technology to provide reliable and repeatable non-contact optical connections, for high-speed and long-range data requirements. It's also designed to be terminated on-site.

For more information, contact Stratos Optical Technologies at 631-270-4735 or visit www.stratoslightwave.com.

IP Security Camera

The VN-C215VP4U is a new high resolution Internet Protocol camera from JVC and is designed for security applications.

The camera features Power Over Ethernet (POE) capability and has a 1/4-inch interline transfer CCD. The unit provides a resolution of 640x480 pixels and can operate at full frame rates of 30 fps. The unit is designed for outdoor applications and features a die-cast aluminum chassis. JVC can provide an optional heater unit to allow the camera to operate down to minus 22 degrees F.

The camera has a built-in 2.8 to 10 mm lens and features a day/night function to provide higher sensitivity in low light levels.

For more information, contact JVC at 800-582-5825 or visit www.jvc.com/pro.

Software-Driven Microphone

The SPS200 from Soundfield is a new software driven A-format microphone for stereo and 5.1 surround pickup, and does not require an outboard control unit. It's constructed around four low-noise condenser capsules and provides four line level balanced outputs.

The SPS200 weighs less than 8 ounces and is set up for 48 V phantom power. Control software is compatible with Digidesign Pro Tools|HD and all PC and Mac DAW platforms.

The software provides six modes of surround sound operations, including three 5.1 presets, as well as 6.1, 7.1 and 6-channel functions. It provides variable control of front and rear pickup patterns. In the stereo mode, the software allows users to select polar patterns, stereo width and also includes a high-pass filter function.

For more information, contact Trans-Audio Group, the U.S. distributor for Soundfield, at 702-365-5155 or visit www.transaudiogroup.com.

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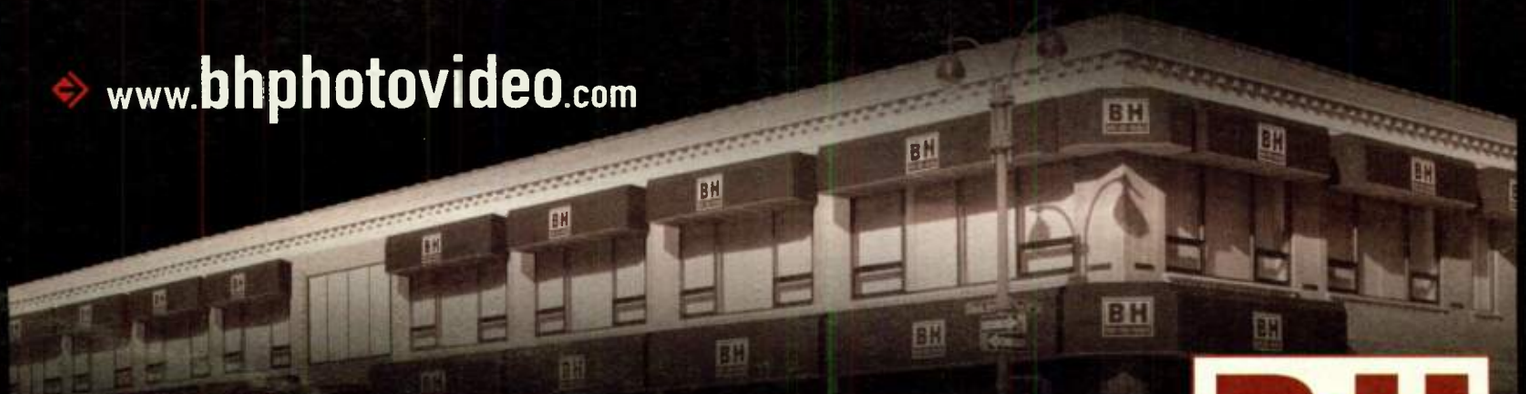

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AUDIO PRODUCTION

Want to Sell

MDC 2001, $99; Clear-Com AP-22, $2000; Sony DTC-75ES DAT audio rcdr/plyr, $399; 360 Systems DIGICART II digital audio rcdr & plyr, $799; Clear-Com ICS-2003 intercom, $1250; Sony WRR810A /WRT822B/ECM77 wireless mic, $1200; Graham-Patten D/ESAM 200 audio mixer, $2600; GV AMX-100S audio mixer, $499; Mackie 328 8-bus Series audio mixer, $1899; Mackie SR408 audio mixer, $2499; Eventide BD600 outboard, $2995; Graham-Patten ADC20 outboard, $299; Alesis Monitor One speakers, $279; Sony tape decks, $2499. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

Wohler AMP 1A, $375; Sony PCM 7040, $3995; Sony PCM 7030, 2995; Sony PCM 7010, $750. LA 818.788.4700; NY 212.564.9933 www.tvprogear.com

Graham Patten D/ESAM 820 digital audio mixer, BO; ADC DAL3-14MKIINS digital audio patchbay, $350; GVG 8550 tray w/8-8551 audio DAs, $800; Sony MXP-744, 36-input, BO; NVision NV1000 tray w/11-NV1035 20-bit AES3 A to D, BO; SSL Aysis Air Digital Mixer w/hub router, 40 faders, call for price. 908-879-9590 or www.mccominc.com.

CAMERA ACCESSORIES

Want to Sell

Ike HD-340 w/lens, $2550; Sony BVP550 SDI camera studio system, $2550; Sony DXC-D30 w/CA-537 adaptor, etc, $6599; Canon J20AX8B4IRS, $6500; Canon J20AX8BIRS, $8200; Canon J9aX5.2B4KLL-SC T2.0, $6900; Canon YJ 17x9.5B4 KRS SX12, $2375; Daiwa DW-11M1 tripod, $3199. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

Sachtler 30 head & sticks, $4995; Sony Cine Alta XDCAM HD PDW-F330 new demo unit, full warranty, Only $9,900; Sony BVP-50 Camera Head, $2750; BTS LDK93 w/Studio VF, Fujinon BEVM 15X lens, CCU & Paint Panel, (steal this camera), BO; Sony LDK 90 w/Studio VF, Fujinon BEVM 15X lens, CCR & Paint Panel, BO; Hitachi C2 Camera w/Canon J15 lens, BO; Sony AC550 Power Supply, Make an Offer; Sony VA500 Color Playback Adaptor, $1000. LA 818.788.4700; NY 212.564.9933 www.tvprogear.com

Canon J20x7.5B studio lens, $12800; (2) Sony DVF-77 7" studio VF, $4000; Sony MSU-700, BO; Fuji A18x8.5FEVM B3 VGrip, 2X, $850; Sony CA-905K studio build up kit/sled, $1200/ea. 908-879-9590 or www.mccominc.com.

EDITING EQUIPMENT

Want to Sell

Sony DVW-A500 digital Betacam editor, $31995; Thomson TTV-3452N OEM of Sony DVW-A500 digital Betacam editor, $29995; CMX OMNI 1000E edit cntrlr, $3900; Avid 18GM drive, $350; Accom StrataSphere Spherephous, BO; Avid MCXPRESS-NT V 4.1, BO; Avid SYMPHONY V2.1 system, $6995; Discreet Inferno HD, BO; Discreet Smoke HD, BO; Sony RM-450 cntrlr, $850. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

BATTERIES

Want to Sell

CAMERAS

Want to Sell

(3) Hitachi Z One C studio config cameras, $15000; Ikegami HL-57 w/Sony BVV-5, Canon 14x8.5 IF lens, $4500; Sony DSR-300A w/Canon 14X, $3400; Panasonic SDX-900 PAL, BO. 908-879-9590 or www.mccominc.com.

Sony HDC-F950 CCD digital 3 camera, BO; Sony BVW-300A Betacam camcorders, $5900; Sony BVW-400A w/lens, $4995; Sony DSR-130 DVCAM camcorders, $7995; Sony HDWF900PAC1B HDCAM camcorders, $82900; JVC GY-HD100AU HDV camcorder, $5495. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

CSI Daiwa TD 50 heavy duty tripod dolly DL15, $375; CSI Daiwa TD25 & ENG 20, weighs less than 10 lbs, adjustable counterbalance & drag adjustments, made of die cast alloys, composites, Titanium, bronze, $1695. M Hemphill, 508-359-6671.

DIGITAL EFFECTS

Want to Sell

Abekas A-57 combiner, $8600; Accom DIS-422, $1750. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

Chyron Duet, $6,000; Chyron Infinite SDI, last used on Regis and Kelly show, BO. LA 818.788.4700; NY 212.564.9933 www.tvprogear.com

LENS REPAIRS

Focus Optics. Service and repair of broadcast video lens. Fujinon, Canon, Nikon, Angenieux, etc. **We have the fastest turnaround in the country.** We also repair lens that have bad inpact damage. **Call Stuart at 800-234-lens or www.focusoptics.com. See Us at NAB Booth # SU6907.**

TV TECHNOLOGY

MONITORS

Want to Sell

Aspen VS100 color monitor, $290; Marshall V-R151P-4 color monitor, $1500; Marshall V-R44P color monitor, $1231; Sony BKM-101C color monitor, $750; Sony PHM-20M8U color monitor, $1799; Sony PVM14N5U color monitor, $400; Sony PVM8042Q color monitor, $575; Ikan V7000 LCD monitor, $319; Ikan V9000 LCD monitor, $399; Marshall V-R72P-2SD LCD monitor, $2699; Barco 8100-DATA video projector, $3000. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

Sony PVM20M4U 20" Color Monitor, $1750; Sony PVM14M2U 14-inch Color Monitor, $1050; Sony BVM 20 F1U Monitor, BO; Sony BVM14F1U 13" Color Monitor, $1750; Ikegami TM9-1 9" Hi-rez color monitor, BO; Tektronix 1720 Vectorscope w/1730 Waveform monitor & dual case, $900; Tektronix 1725 Vectorscope w/1735 Waveform monitor & dual case (PAL & NTSC), BO; Tektronix WFM 300, $750; Tektronix 601 M Serial component monitor, $5500; Tektronix 601 A monitor, $4500; Tektronix 601 serial component monitor, $3500; Tektronix 1755a Waveform/ Vectorscope dual standard (PAL & NTSC) composite & component, $2995; Tektronix VM700a, $9,000. LA 818.788.4700; NY 212.564.9933 www.tvprogear.com

TV Pro Gear opens new factory to produce $80,000 multi-camera high definition flypaks

TV Pro Gearís multi-camera HD-SDI flypakô * is ideal for shooting concerts, sports, church services and corporate events. Other applications include training programs, surveillance and legal evidence. The system is capable of supporting up to eight cameras.

Works with any cameras that output HD-SDI and are genlockable. The cameras are attached to TV Pro Gearís Camboxô (patent applied). A signal cable goes from the Camboxô to the Flypakô access panel.

The cable carries HD-SDI video, audio and intercom back to the flypakô while at the same time sending genlock, time code, tally lights and power to the camera.

The For-A HVS-500HS Video Switcher supports all HD and SD formats and frame rates. This 8-input digital switcher includes:
DSK with Chroma Key Function.
Two Still Stores and Picture-in-Picture.

Powerful Swither Supports HD and SH

NAM, FAM, and 100 different preset wipe patterns. Color correction and color matching A vertical, horizontal or diagonal gradation matte can be used for assigning to backgrounds, wipe borders, and keyer mattes.

Record on DVCPro-100, HD-Cam or uncompressed on a DDR. The standard configuration includes a Panasonic AJ-HD1400 and Sony DVD recorder.

Panasonic DVCPro1400HD VCR

Panasonic HVX-900

JVC GY-HD250U

The Miranda screen splitter feeds ten images into a 42" Panasonic screen display while simultaneously displaying tally, time-code, time of day and up and down timers. A Leader 7700HD rasterizer sends video levels and test signals to the monitor.

Signal distribution and patching. The inputs and outputs of every device in the flypakô are looped through patch panels. Under normal conditions no patching is necessary. However, the patch panels enable additional devices to be attached without having to change any internal wiring.

Ten Input Audio Mixer, Stage Box and other unique features. Audio is handled by a 10-input Sennheiser mixer. A stage box couples to a 150 foot audio snake with bayonet connectors on each end allow quick deployment. The stage box allows the signal from eight microphones to be sent to the flypakô while receiving program audio and two channels of intercom.

TVPG Audio Stage Box

The flypak access panel has outputs for program audio and intercom. The access panel also has connectors for HD and SD component video to feed a floor monitor or projection system.

6-Camera flypakô Access Panel

A Clearcom MS-232 master station supplies two channels of intercom. Also included are a Clearcom RM-232 remote station, five beltpacks and seven headsets.

Clearcom MS-232 2-Channel Intercom

Highly portable. Designed to survive adverse conditions. The 42" Plasma screen electrically retracts into the case for shipment. The entire system is mounted in a jig welded, shock mounted aerospace quality frame capable of sustaining a 3g impact. An extreme-heat and dust resistant version of the flypakô is available that includes temperature controlled fans.

The entire Flypak runs off of a (UPS) uninterruptible power supply. TV Pro Gearís flypakô is completely immune to low voltage conditions or power spikes. If you lose power, the system will keep operating for over an hour. The flypakô draws less than six amps so even ancient household circuits are not a problem. 220 Volt versions are also available.

Warranty, Training and Documentation. The system comes with a ninety-day warranty. An optional one-year warranty is available. On site training is included.

The system comes with a full set of CAD drawings and operations manuals. Every wire in the flypak is labeled at both ends designating where it goes to and where it comes from.

Call us for a quote on a system customized to fulfill your requirements.

MONITORS Cont.

Panasonic BT-LH2600W 26" multi-format LCD, new, call for price; Sony Sony PVM-15L5 w/BKM-120D, $2300; Ikegami TM20-20R w/SDI option, BO; (4) Sony PVM-14M4U, $975/ea; Sony BVM-14F1U, BO; Sony BVM-14E5, BO; (2) Sony BVM-20F1U, $2100/ea; (2) Sony BVM-20E1U, $2300/ea; (15) Sony PVM-96 9" BW monitor w/16:9, BO. 908-879-9590 or www.mccominc.com.

RENTALS

SIGNAL PROCESSING

Want to Sell

Convergence ECH-HD large HD playout turnkey system, $31000; Darim Vision FDSR2000 playout turnkey system, $11995. Convergence ECS-550LT Media Lite D.Co 1 chnl TV automation turnkey system, $7395. Convergence ECS-650P Digitizer Pro Media D. Co TV automation turnkey system, $39885; Chyron INFINIT! CG, $7999; Chyron MAX CG, $3690; D.Co MediaPlay CG. $2395; DaVinci 2K 3 Power tiers color corrector, BO; Blackmagic Multibridge HD-SD encoder/decoder, $1795; Darim Vision MV401exp, $6995; Darim Vision MV410EXP, $6495; Leitch FR-6802 w/10 VSM-6801 serial DA, $3000; Tekniche Genesis 6001, $1600; Tektronix 2715, $8500; Sony HKDV501A, BO; Digital Vision DVNR1000 4x4 NR, BO; GVG M9131 SDI DA, $150; GVG 9560 PAL sync gen, $1150. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

(6) For-A CCS-4360 color correctors, $1000/ea; Chyron Maxine w/Xform II, $1500; Pinnacle DVExtreme 3-chnl SDI DVE, call for price; Pinnacle Lightning 2-chnl SDI stillstore, $3500; Axon ARC-2000 aspect ratio converter, $1800; Abekas DVEous, call for price; Sony DME-7000 dual chnl, $7500; GVG-8500 w/8-8501 video DAs, BO; GVG 9520A sync gen w/TSG, BO; Sony PFV-L10 tray w/10-BKPF-L603 SDI DA 1x8, BO. 908-879-9590 or www.mccominc.com.

SOFTWARE

Want to Sell

Apple G4 933mhz with Kona SDI I/O card, BO; Avid Symphony Nitrus, newest hardware & software, BO; Avid LVD MediaDock, $2295. LA 818.788.4700; NY 212.564.9933 www.tvprogear.com

SERVERS

Want to Sell

Tektronix PDR-100 analog server, $3800; Tektronix PRS200A 20x9GIG server, $4800. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

SWITCHERS

Want to Sell

Thomson 9200 8-input SDI switcher, BO; BTS DD10 16-input SDI switcher, BO; Echolab DV7 Switcher, BO. LA 818.788.4700; NY 212.564.9933 www.tvprogear.com

GVG 3000-2 w/12 SDI & 20 analog ins. $9800; GVG 200-2 loaded, $5500; Sony DVS-6464M 128x128 SDI router, BO; GVG 1200 w/10 SDI Ins & chroma key, BO; Pesa 24x16 Lynx VAA router, BO; Leitch VSM-4044MB 4x4 video router, $200; GVG 200, 3000, 100CV 110 Master 21 boards & ps, call for price; Sony HDS-X3600 32x32 HD/SDI multi-bit rate routing, call for price. 908-879-9590 or www.mccominc.com.

Sony 2000A portable switcher, 8-composite inputs, fader bars, buttons for transitions & wipes, great for multi-camera shoots, gd cond, $750/BO. M Schulze, 619-644-3000.

Snell & Wilcox Kahuna 4 M/E HD/SD switcher, BO; GVG M-2100 master cntrl switcher, $19600; GVG 100N prod switcher, $2499; GVG IPS-110 prod switcher, $6999; Sony DVS-8000C 2 1/2ME standard def prod switcher. BO; GVG 20-TEN w/20-Ten0SA stereo audio routing switcher, $5500; GVG 7000 very large matrix w/SDI video routing switcher, $85400. GVG Series 6000 32x32 VAA w/5 panels routing switcher, $8600; Leitch 128x64 V6 Integrator w/10 panels, $31500; Leitch 16x1 routing switcher, $1100; Lighthouse K Series 32x32 SDI vdieo, AES audio routing switcher, $11000. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

TAX DEDUCTIBLE EQUIPMENT

Needed, 700' of 3" antenna transmission hard line, also xmtr for TV chnl 31 & if you are changing to HDTV studio equip, we could use analog bdct equip for our not-for-profit 501-c3 org, we give tax deductible receipt for your donations. Please contact us at 317-920-1000 or email srsue@catholic-television.tv.

TELECINE

Want to Sell

Thomson Shadow complete telecine suite, $725000; GVG Spirit, BO. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

TELEPROMPTERS

TEST EQUIPMENT

Want to Sell

Leader 5850c, $750; Leader LV 5100D, $3495; Leader LV-7700 HD/SD rasterizor, (new) $6,500; Tektronix TSG170D Digital Composite Generator, $1500; 171 PAL sync generator, BO; TPG625 PAL pattern generator, BO; SPG 271 PAL sync pulse generator, $2250; TSG 371 PAL test signal generator, $1200; (2) TSG422 w/ECO changeover unit, $2500. LA 818.788.4700; NY 212.564.9933 www.tvprogear.com

PROFESSIONAL SERVICES

TEST EQUIPMENT Cont.

Tektronix 1750 combo wfm/vec, $1000; Tektronix 1740 combo wfm/vec, $900; Tektronix 1735 NTSC/PAL wfm, $950; Tektronix 1730D wfm, $950; Tektronix 1730/1720 wfm/vec, $850; Tektronix WFM-610M SDI wfm/vec, $5000; Tektronix 1750A combo wfm/vec, $2500; Leader LV-5700A HD/SDI wfm/vec, BO. 908-879-9590 or www.mccominc.com.

Tektronix 1720 vectorscope, $900; Tektronix 1730 waveform monitor, $900; Tektronix WFM-601E waveform, $5200; Tektronix WFM601i waveform, $3750; Tektronix 1740A waveform/vector, $2950; Tektronix 1750A waveform/vector, $3800; Tektronix VM700A, BO. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

TRANSMITTERS-Used transmitters from Harris, Acrodyne, RCA, Emcee, TTC. Antennas, microwave, feedline, etc. See transmitterwarehouse.com or call 954-792-7207.

TRANSMITTERS/EXCITERS

Want to Sell

VIDEO PRODUCTION EQUIPMENT

Want to Sell

Darim Vision VS2010-STD Virtual Studio Video system, $22800; Darim Vision VS2020-STD Virtual Studio Video system, $34995. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

VTRs/VCRs/ RECORDING MEDIA

Want to Sell

Panasonic AJ-HD2700P w/down converter board D5 VCR & EQ, $22900; Sony BKFC-200 Playback systems parts, $4500; Sony BVU-950 3/4 U-Matic VTR/editor, $1799; Sony DNW-A220 Betacam edit system, $10650; Sony BVW-75 Betacam editor, $7250; JVC BR-D750U D9 digital-S editor, $3750; JVC BR-D350U D9 Digital-S plyr, $2250; Sony SRW5500 HDTV rcdr & plyrs, BO; Sony DIR1000H, new, BO. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

Sony UVW1800 Betacam SP Recorder, $3995; Sony BVW 75 Betacam Recorder, $4950; Sony DSR-80 DV Cam VCR, $3500; Sony SVRM-100A remote for UVW series VCRs, $200; Sony VO 9850 ?" U-matic recorder, $1500; Sony SVO5800 S-VHS Editing VCR, $1250; Panasonic 7350 S-VHS Editing VCR, BO. LA 818.788.4700; NY 212.564.9933 www.tvprogear.com

Panasonic AJ-HD3700B, new, call for price; Sony UVW-1800, $3500; Sony BVW-70, $4500; Sony DVW-A500, call; Sony PVW-2800, $4500; Sony UVW-1400A PAL, BO; Panasonic AJ-D580, BO; Panasonic AJ-D351, BO; Sony BKDW-515, $2000. 908-879-9590 or www.mccominc.com.

Sony BVW 35 portable Betacam SP rcdr/plyr, great cond w/PortaBrace case, also 3 service manuals, etc, $2500/BO; Sony 3/4" VCR VP5000, $50. M Schulze, 619-644-3000.

EMPLOYMENT

HELP WANTED

Maintenance/RF Engineer. WCBS-TV is seeking qualified candidates. More details on WCBSTV.COM

ASSISTANT CHIEF ENGINEER: We are looking for a hands-on Assistant Chief Engineer responsible for the day to day functions of all station facilities and engineering/operations personal. Candidate is responsible for the development, mentoring and motivation of staff in a manner that encourages enthusiasm, passion and productivity. He/she leads the staff in their duties, providing necessary guidance as needed. He/she is directed by and reports to the Chief Engineer. Must have experience as a supervisor, with live events and production, UHF TV transmitters and microwave, strong Avid Newsroom and Apple computer skills with hardware and software, able to multitask under pressure, demonstrates strong interpersonal skills and the ability to interface with all departments, understands FCC rules and regulations, is willing to work days, nights or weekends, as circumstances require, possesses an Associates degree in Electronics Technology, FCC license or SBE certification or equivalent. Bilingual (English/ Spanish) preferred (but not required). Please send resumes to 5999 Center Drive, Los Angeles, CA 90045 or via fax (310) 348-3414 attention: Human Resources. EOE.

DIRECTOR OF ENGINEERING: Successful candidate must be well versed with news operations and support of all broadcasting engineering practices. Hands-on experience with studio operations & UHF transmitters required. Knowledge of compuer systems and digital technologies desired. MCSE or equivalent experience a plus. Should be a "quick thinker" who can get work done on time and on budget. NBC25 is a small market NBC affiliate. We offer a comprehensive benefit package. Send resume to personnel, NBC25, DEPT. 13, 13 East Washington Street, Hagerstown, MD 21740. EOE.

Maintenance Engineer: WCIA-TV in Champaign, IL has an immediate opening for a Studio Broadcast Engineer. The successful candidate will possess skills in the following areas: camera repair, VTR repair, audio/video, RF, and IT. College education and SBE certification preferred. Resumes only sent to employment@wcia.com, no phone calls please. WCIA is an EOE M/F/V/H.

SOLUTIONS ARCHITECT; BROADCAST SYSTEMS: Quantel, Inc., a North American subsidiary of the UK based Company Quantel, Limited is a global, leading edge provider of television news and sports, post production, and film technology solutions. Quantel, Inc. is currently recruiting a Broadcast Solutions Architect (BSA) to join our Sales team in the USA. Reporting to the Chief Executive Officer this person will be required to work as part of a team to effectively evaluate, propose, negotiate and close major broadcast systems business within North America. The qualified candidate will analyze the prospect's application, requirements and workflows. The Solutions Architect, working in tandem with the Regional Sales Managers will provide a strategy to approach all levels of the account. The Solutions Architect must understand, influence and respond to the prospect's needs, counter objections, negotiate and assist the Sales Managers in the completion of the sale. The Solutions Architect will be the technical expert on the Quantel team. He or she will add value to the prospect by consulting on the full end-to-end requirement, inclusive of interacting with legacy systems already on-site where applicable. As the technical authority related to all aspects of the Quantel solution the BSA will define the scope of work, which will determine the overall cost and bill of materials required to satisfy the application. The Solutions Architect will ensure that the design, commercial, and technical assessments are documented and that any risks to the Company in pursuing systems business are identified, managed and mitigated. Apart from having excellent core skills the ideal candidate will require solid organizational, communication and interpersonal skills, and deliver within timescales. Extensive travel is an essential part of this role. All interested parties please contact Ms. Aga McDonie, Office Manager at 703.448.6780 or aga.mcdonie@quantel.com.

Bloomberg BROADCAST ENGINEER: DESCRIPTION: Bloomberg TV has a challenging opportunity within the Broadcast Engineering Group. You will be responsible for performing and coordinating maintenance of equipment as needed to support live broadcast operations. We will look to this Engineer to be proactive, and troubleshoot production and on-air issues. Will also be responsible for updating trans-mitter/shift logs, conducting tests, diagnostics evaluations and execute checklists to discover equipment and/or system anomalies. You will also have the opportunity to coordinate and install new components and systems, as well as create and update engineering documents and diagrams. REQUIREMENTS: Qualified candidates will have strong knowledge of technical TV and radio broadcasting equipment (including cameras, robotics, VTRs, routing equipment and production switchers). Knowledge of broadcast automation systems and thorough understanding of PC hardware and software operations. Ideal candidate should posses strong trouble-shooting skills and have the ability to work independently and quickly in high-pressure situations. Must be flexible - May include evenings, nights and weekends. PLEASE APPLY ONLINE: http://quote.bloomberg.com/apps/career?action=1&jobid=19727&T=career/detail.wm

TV Maintenance Engineer is responsible for assisting, on projects assigned, with the maintenance of the broadcast and production systems of WPBA-TV, WABE-FM and Cable Channel 22 in Atlanta, GA. Candidate must maintain a high standard of engineering performance. Engineer works in close coordination with other departments to provide the broadcast and production engineering services needed to maintain the broadcast operations of WPBA-TV, WABE-FM, and Cable Channel 22. Responsible for the inspection and maintenance of all radio and television broadcast equipment for WPBA-TV, WABE-FM and Cable Channel 22. Assists in the training of the technical operating staff as required. Performs other duties as assigned by the Director of Engineering. Knowledge and Skills: Associates degree and two (2) years experience in broadcast engineering main-tenance and operations required. Thorough knowledge of FCC rules, regulations, and operating standards required. Must have a working knowledge of audio and video server systems. Experience in RF transmission systems maintenance desired. FCC General license and/or SBE Certification desired. Available for 24-hour on-call. Experience in design, repair, assembly, and analysis of electronic systems that include analog, digital and/or high voltage. Send Resumes to: Human Resources, Public Broadcasting Atlanta, 740 Bismark Rd. NE, Atlanta, GA 30324. hr@pba.org Fax: 678-553-3026.

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62	StreamBox	www.streambox.com
84	Studio Technologies	www.studio-tech.com
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7	Tandberg Television	www.tandbergtv.com
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86	Teranex/Silicon Optix	www.teranex.com
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28	Triveni Digital	www.trivenidigital.com
65	Troll Systems Inc.	www.trollsystems.com
85	Utah Scientific	www.utahscientific.com
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14	Videoframe, Inc.	www.videoframesystems.com
100	Videoframe, Inc.	www.videoframesystems.com
103	Ward-Beck Systems	www.ward-beck.com
68	WireCAD	www.wirecad.com
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Movie Gallery Acquires Movie Beam

DOTHAN, ALA

Movie Gallery, the nation's second largest video rental business, has purchased the assets, technology, network operations and customers of MovieBeam Inc. Terms of the transaction were not disclosed.

Launched in 2003, MovieBeam—which uses a portion of the analog signal of PBS' national datacast network—has had a checkered past. Originally backed by Disney, the service was halted in 2005 due to lackluster interest. It was relaunched as a hi-def movie download service in 2006, with additional backing from Cisco, Intel and several venture capital firms. The service is currently available in 31 markets. Customers pay $199 for the MovieBeam box, which can store up to 100 movies per month, starting at $1.99 per view.

Movie Gallery says that it plans to use MovieBeam's "existing infrastructure" to expand digital delivery capabilities beyond what is already offered, including streaming movies over the Internet, IP-based content delivery and "other developing channels."

"We believe the MovieBeam service provides the best video-on-demand service available in the marketplace today and is a strong compelling complement to the consumer retail video store experience," said Joe Malugen, chairman and CEO of Movie Gallery Inc. "Our acquisition of MovieBeam is the first phase of our long-term strategic plan to provide digital content to consumers. We will begin merchandising the MovieBeam service in our Hollywood Video and Movie Gallery stores and on our Web sites in the near future and we have exciting plans to build upon the existing content digitization and broadcast platforms."

Movie Gallery expects that the total incremental expense related to MovieBeam, including the initial acquisition cost and any ongoing development expenses, will be less than $10 million in 2007.

Mayville Purchases EMI Security Products

MAYVILLE, WIS.

Mayville Products is acquiring the EMI Security Products business from APW Ltd.

The transaction has been concluded and Mayville is making EMI Security Products and supporting the brand name. EMI Security Products makes camera housings for the security marketplace. Mayville makes 19-inch racks, cabinets and command consoles sold under the APWMayville and Stantron brands.

Challinger New Pixel Power CEO

CAMBRIDGE, ENGLAND

Pixel Power, a U.K.-based provider of professional broadcast graphics systems, has appointed Pete Challinger as its CEO. The company said the appointment is part of a goal to strengthen its international operation. Challinger is responsible for building the company's U.S. operation.

Challinger's career in the video industry spans more than 20 years with an emphasis on new product and market development. His experience includes working for Grass Valley and Abekas Video Systems, as well as Spruce Technologies, a startup where he was the founding vice president of marketing.

In 1999, he returned to his own consulting and distribution business, launching Quartz Electronics in the U.S. market. Most recently he has been working with MPEG-4 compression company, Modulus Video.

Pixel Power Founder James Gilbert said, "Pete's broadly based executive management and industry experience will help Pixel Power take full advantage of the exciting growth opportunities the U.S. broadcast graphics market offers."

Power Pixel has offices in Pompano Beach, Fla. and Cambridge, England.

Scopus Appoints Eitan Koter President

TEL AVIV, ISRAEL

Scopus Video Networks, a provider of digital video networking solutions, has appointed Eitan Koter to the position of president. The company also has appointed Ovadia Cohen vice president of business development and marketing communications.

Koter, promoted from his position as vice president of sales, will be responsible for enhancing Scopus' business operations and improving the synergy of sales and marketing. Cohen was promoted from vice president of marketing and will be in charge of expanding Scopus' partnerships and defining Scopus' next-generation strategy. Both report to Scopus' CEO, Dr. Yaron Simler.

"These management changes are designed to further the company's strategic focus on system solutions, reinforce its growing status in the OEM market, and strengthen Scopus' ability to further capitalize on the emerging opportunities stemming from market convergence," Simler said in a statement. "Eitan's proven organizational skills and drive will enable Scopus to better execute its strategic direction, while Ovadia's invaluable knowledge, as an industry veteran, will serve to further drive Scopus' growth strategy, expand strategic partnerships and develop next generation platforms."

The company is headquartered in Tel Aviv, Israel and has offices in Princeton, N.J.

TBS Promotes Clyde Smith

ATLANTA

Clyde D. Smith

Turner Broadcasting System Inc., a Time Warner company, has named Clyde D. Smith senior vice president of global broadcast technology and standards. In his new role, Smith will guide technology and broadcast engineering decisions for Turner's global technology organization.

Smith's responsibilities will include the development of high-level engineering strategy and direction for broadcast technology decisions, practices, opportunities and resources. He will provide guidance on digital strategy and media asset management issues, as well as technology leadership for the company's current and future global facilities. Smith is based in Atlanta and reports to Dan Darling, chief information officer for TBS Inc.

"Clyde's portfolio of professional strengths—his in-depth engineering expertise, proven leadership skills and keen insight into emerging technologies—will serve him well in this key thought-leadership position," said Darling. "His appointment provides continuity and focus to ensure that Turner's broadcast technology remains on the cutting edge."

Previously, Smith was senior vice president of broadcast engineering, research and development, quality assurance and metrics for Turner. He joined Turner Broadcasting as director of advanced technology for Network Operations, where he launched the first all-digital video server-based, all-automated network, Cartoon Brazil. Earlier in his career, he held executive positions at Speer Worldwide Digital and at Lockheed Space Operations.

Smith is a fellow of the Society of Motion Picture and Television Engineers, as well as a four-time governor and former standards chairman and secretary/treasurer of the organization. He has been program chair for four SMPTE advance-imaging conferences and was awarded the SMPTE outstanding service award in 2001.

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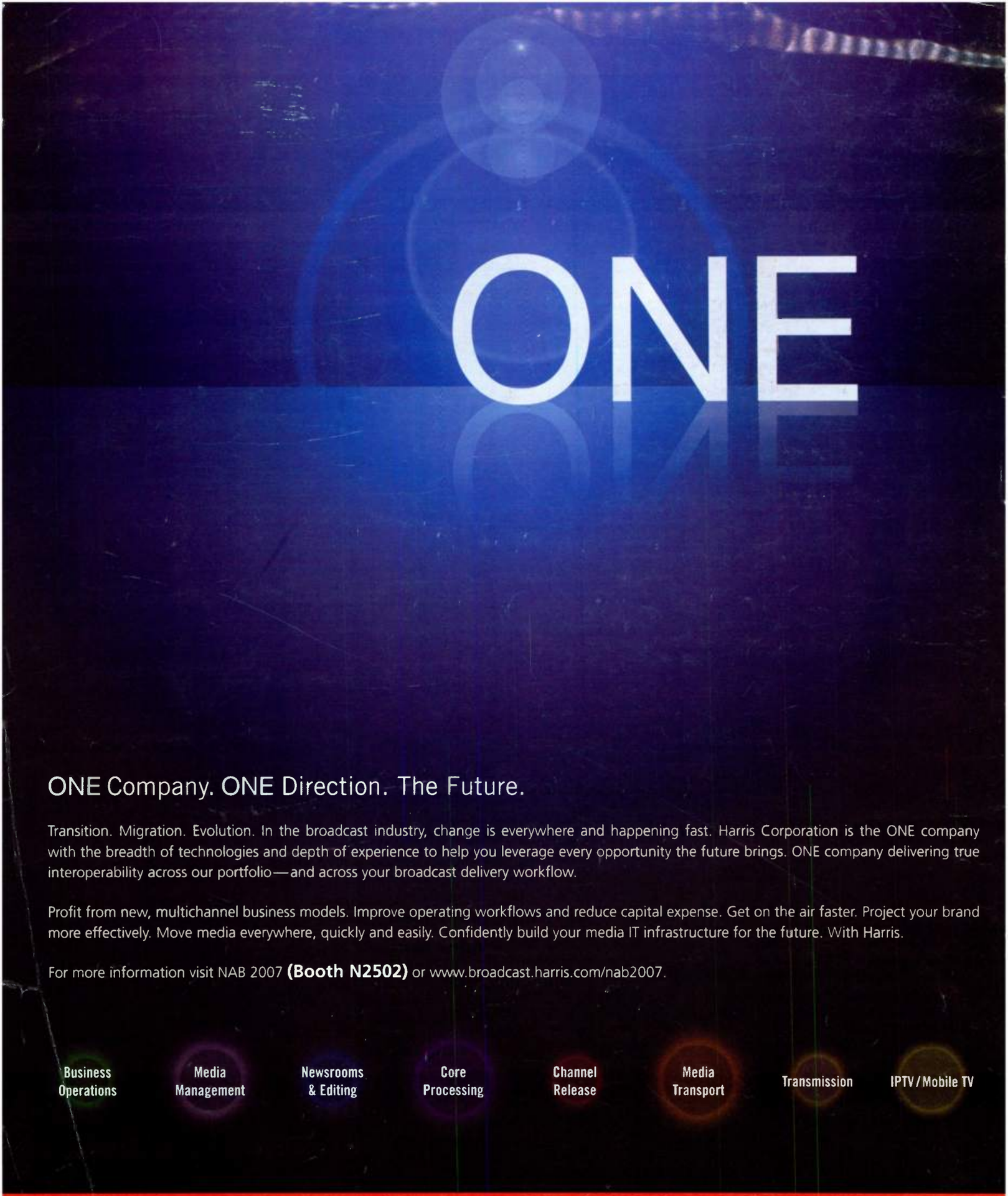

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