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WHAT'S INSIDE

Closed Caption Deadline Nears

NAB survey cites potential costs

by James O'Neal

WASHINGTON

The clock is ticking on yet another federal broadcasting mandate. This one does not involve digital television per se, but rather all television in the U.S., both analog as well as digital. Under provisions in the Telecommunications Act of 1996, Jan. 1, 2006 is the "drop dead" date for virtually all television programming to be transmitted with closed captions.

Anthony DeMarco, sales and marketing account executive at the National Captioning Institute, estimates that approximately 75 percent of the nation's stations are in compliance with the FCC regulation, with the other 25 percent hurrying to beat the deadline.

"We're getting calls every day from affiliates all across the country, asking about the regulation and equipment necessary to implement captioning," he said. "We tell everyone 'better safe than sorry.' This definitely will happen."

Closed captioning has been part of the U.S. television broadcasting scene since 1980 and the NCI has been a driving force in

CLOSED, PAGE 6

2005 IN REVIEW

DTV Growth Accelerates

Transition on track; content leaps into new venues

by John Merli

WASHINGTON

Finally, after several years of consumer hesitancy on making the leap to HDTV, and the ensuing flat sales of flat-screens and other DTV products, 2005 is shaping up to be perhaps a seminal year for the digital transition.

The Consumer Electronics Association projects that 4.3 million "units" (SD, ED and HD-integrated displays) will be sold by the end of 2005, compared to 2.7 million in 2004. CEA says the average selling price of a plasma set fell about $800, to $2,700, since 2004. "2005 may soon be known as the year that 'DTV' started becoming known simply as 'TV' to American consumers," said CEA President/CEO Gary Shapiro.

Household penetration of HD sets climbed to nearly 10 percent in the past 12 months as sales of LCD and plasma flat-screens showed impressive growth amid steadily falling prices. ED and SD flat screens also became more than a couple of one-of-these-days fantasies for consumers. Clearly, the mass media finally caught the HD bug, too (albeit a few years later than originally envisioned by the trade press).

"2005 allowed broadcasters to start leveraging more of the capabilities of the ATSC's suite

DTV, PAGE 20

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CONTRIBUTING WRITERS

Doug Lung

RF Technology

I've discussed DTx (distributed tranmission systems) in this column before, starting with a two-part introduction in February 2003. (You can read past RF Technology columns on the TV Technology Web site—*www.tvtechnology.com*—in the "Doug... p.. 22

Karl Paulsen

Media Server Technology

High speed, high bandwidth and high availability—all are on the "must-have" list for advance media storage technologies. Since the early 1990s, disk drive performance, size and applications have continued to develop at a record pace. From early parallel... p. 24

Randy Hoffner

Technology Corner

You may be hearing about the demise of the venerable CRT, which has been the display device used in most TV sets we have watched since television became a commercial reality. Big, heavy glass CRTs are disappearing from the shelves of neighborhood... p. 28

FROM THE EDITOR

Images of 2005

As we approach the end of another year, I'm reminded that although our industry is fairly small, the enormous effect and responsibility that broadcasters have on people's lives shouldn't be taken lightly.

To so many of us, 2005 represented the year before 2006, which, until recently, was still being touted in the general press as the last year of analog television. Fortunately 2005 will now be remembered as the year that Congress and broadcasters finally agreed on a final date in 2009, the details of which are still being hammered out in conference on Capitol Hill.

A year ago, some pundits predicted that 2005 would be the year of HDTV, which really isn't going out on a limb. The uptick in HDTV sales this year isn't all that surprising; market forces are finally kicking in, bringing lower prices, more content and more choices.

The next big move in high-def is expected to be HD news. Only a handful of stations across the country are doing it, but the whispers about certain cable news channels going HD in the near future are growing louder. Once that happens, it could be the spark that prompts local news channels to follow.

The images from the tsunami in 2005 remind us of the power of television.

For those of us who have made broadcasting our lives, it's easy to forget what really matters: the power of video. So perhaps the most important images I'll remember from 2005 were not from the tradeshow floor or the press room, but on the TV screen. For several weeks in January, we were reminded of the power of Mother Nature when news teams brought us the incredible devastation wreaked by the tsunami in Indian Ocean basin. Likewise at the end of the summer, the footage of the aftermath of Hurricane Katrina was a wake up call to all of us that the governmental response to the tragedy was terribly inadequate.

So in the end, it doesn't matter how you get your media, but rather what it conveys and whether it makes you react, that is what is most important.

Tom Butts
Editor
tbutts@imaspub.com

ERRATUM

In the article "P2 Brings Change to Media General" in the Oct. 19 issue of TV Technology, the photographer on p. 26 was identified as "Nate Sykes" of WFLA. Sykes is a news photographer for WFTV in Orlando.

LETTERS

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

EAS Everywhere

Dear Editor:

As a long-time TV broadcast engineer who's had to "cue-carrier" during the EBS days, jump into the announce booth to make voice announcements reading the paper AP copy and introduce broadcasters to the digital "frog beeps and burps" of the first tier of the conversion to digital communications, I really appreciated Charlie Rhodes' article in the Oct. 19 issue, ("Developing a 24/7 Digital EAS System").

Let me presume to follow his thread with some additional observations.

I've been working on a project for a company that is preparing news programming that is delivered to cell phone subscribers (low frame rate that will be expanding with growing bandwidth) and other targeted audiences, TBA. After reading Charlie's article, it occurred to me that these are the mobile consumers of the future communications world that would directly benefit from EAS messages.

The cell phone news content provider I'm familiar with is not licensed or regulated by the FCC. Their subscribing service providers (Sprint/Verizon/whomever) are licensed by the FCC.

If U.S. consumers are going to follow other countrys' trends towards cell phones with video displays and other communications features, I would suggest that the inclusion of emergency information such as EAS into these information streams would be very valuable to U.S. consumers in the future, as technology and systems are developed.

Tom Weems, CPBE
Mission Hills, Calif.

Read This First

Dear Karl Paulsen:

I am a field service engineer for Thomson/Grass Valley, working mostly on servers and switchers. I was at a station recently that had two Profile XPs that they wanted to reconfigure and upgrade the software. As far as the work on the Profiles, it all went quite smoothly. But, after the Profiles were once again up and running, many of the functions in the facility were not working properly. It took several hours before everything was hashed out and once again working as they "expected." Turns out there were three different flavors of automation controlling various channels of the Profiles.

The engineers that I was dealing with were either new employees who had no idea of how things worked, or long time employees whose memories of how things worked ended up to be "sketchy" at best.

I returned to the facility the next morning, just to see how things were going. Everyone was happy. I saw a copy of TV Technology sitting on a desk, and took a look inside. I saw your article ("Tools and Practices for Managing Media Storage, Oct. 5), and read it. After I read the section about "Navigating an Upgrade," I went over to the members of the engineering staff, pointed to that paragraph, and said "Here, this is what you should have read before I got here."

Hopefully, a number of my future customers will read your article and take it to heart.

Saul Erlich
Atlanta

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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: Lauren Evoy Davis ext. 149

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

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QVC Comms Go Wireless

Shopping channel finishes initial phase of eight-year capital upgrade

by Mary C. Gruszka

WEST CHESTER, PA.

QVC, the longest running shop-at-home network, has embarked on its eight-year capital plan with a major upgrade to its wireless microphone, intercom, and IFB systems as the first phase.

QVC has been in its current facility in West Chester, Pa. for eight years, according to Ron Schiller, director of broadcast engineering & technology for QVC. "Our current technology is moving toward the end of its life cycle, and there are synergies to be gained in workflow in digitizing the facility," Schiller said.

WIRELESS FIRST

The plan to move QVC to the "next platform" as Schiller called it, will include such "initiatives of change" as digital infrastructure, wideband distribution, tapeless environment, multiformat product, and collaborative workflow.

"Wireless was the first of the projects," Schiller said. "When I first started at QVC, I held roundtable discussions to see what we needed to focus on. What we found was that talent complained of dropouts and interference. Talent needed to hear director cues clearly and hear the customers when they called in. It was also disconcerting to the talent and presenters to change IFB and mics when they changed sets."

To implements its strategies, Schiller said that QVC "built relationships, more of strategic partnerships with key vendors and suppliers." For the wireless part, it was Masque Sound and the companies it owns, like Professional Wireless Systems (PWS).

James Stoffo, a wireless specialist with Professional Wireless Systems in Orlando, Fla. began the project by analyzing the existing system.

"They were using radio repeaters for their IFB system and it was not broadcast quality," Stoffo said. "It was older technology and besides, you don't want to cook 5 W radios. In addition, the frequencies used for the wireless mics were in the band that the FCC wants to auction off or give to public service."

For the new system "we did a frequency change and moved to a band that was safer," Stoffo said. But since that band falls into the DTV zone, Stoffo needed to provide frequency coordination not only for those channels used within the facility, but with TV stations in a 50- to 60-mile radius from West Chester.

"We figured out what was already lit," that is, what DTV stations in that area were already on the air, "and checked the FCC Web site for the rest of the schedule of DTV stations that are planning to light," Stoffo said.

As an aside, Stoffo noted that 75 percent of frequencies that had been used for wireless spectrum is being taken away from broadcasters, making frequency coordination all that more challenging.

"Between 512 MHz and 746 MHz are the only frequencies left that we have any control over," he said.

QVC hostess Patti Reilly, center, and a guest tape a show for QVC in West Chester, Pa.

WIDE AREA COVERAGE

About 75 percent of QVC's 350,000-square-feet facility is comprised of studio space. The main studio is large enough to hold a 747 airplane, Schiller said. That studio is divided into different areas—a home set, beauty, fashion and jewelry. QVC also houses six post studios, a large expo warehouse, product staging areas, and craft areas, all of which can be used to demonstrate products. Even the outside of the building is used as an outdoor set for demonstrating such products as barbecue equipment.

To cover this wide area, the new QVC wireless system is divided into two discrete systems controlled by one overall operating system.

"One system combines and distributes all base station transmitters—wireless intercoms and IFBs," Stoffo said. "The second component combines all of the various antenna zones then splits the RF to all of the base receiver units such as the Sennheiser 1046 receivers and wireless intercom receivers. These two systems have to co-exist as one."

The intercom and IFB base station transmitters operate below 600 MHz while the wireless mic and intercom beltpack transmitters operate above 630 MHz. In all, about 100 separate frequencies are employed, including 58 for the new system plus others required by older Vega and Telex systems still in use. All these frequencies are available simultaneously.

"All base station transmitters are in a block far away from all of the receiver frequencies to make it possible to combine, then RF band pass filter, the transmit signals to reduce spurious harmonics and increase the overall signal-to-noise ratio for quieter receive operation," Stoffo said. "RF band filtering is employed on the receive side before any of the active devices used to make up for the up to 600 feet RF coaxial cable line loss."

The system incorporates 32 custom-built antennas—16 helicals of varying polarization and four tuned ground plane antennas on the receive side of the system, and six helicals and six ground planes for distribution of all base station transmitter signals to the required areas.

"Antenna directivity footprints and polarization techniques were used to minimize out of zone signals from phase-canceling in-zone systems from themselves," Stoffo said. "We employed this technique in adjacent studios in particular." That meant that some of the helical antennas were "right-handed" polarized, while others were "left-handed."

Twelve PWS proprietary GX-4 transmitter combiners were used to ensure the maximum legal RF output was distributed to all of the coverage areas,

Helicals were installed both inside and outside the QVC headquarters to receive signals.

Stoffo said. "Using four transmitter antenna locations, each of the twelve RF intercom and RF IFB transmitters were split to feed one input of four zoned GX-4 combiners."

The passive combiners were a key component to the unique diversity system employed. Antennas were spaced so they "leapfrogged" to either the A or B side of the receive-side diversity system, with eight antennas on A side, and the other eight on the B side.

PWS needed to modify the HME intercom beltpacks to split out the two separate transmit frequencies to two RF connectors. The standard HME beltpack used one antenna (and therefore one connector) for the two transmitters, but this signal could not be used to feed the needed RF amplifiers.

"Each output of each transmitter was split to four zones so you could walk from zone to zone and never have phase cancellation or a drop out," Stoffo said. "But each time you split a signal you lose half the power. So we needed to amplify the signal a lot. However you can't put in more than one RF signal into each amp or you'd end up with 25 signals [harmonics and intermodulation] coming out. That's why we went inside the HMEs and split off the two signals."

Because QVC is a 24/7 operational live broadcast studio, monitoring of all receiver RF line amplifiers is critical.

"This was accomplished by implementing visual indicators at the combiner/splitter base unit, which signal open, short, or normal amplifier operation," Stoffo said. "In addition, each RF line amplifier at the remote studio location has a visual signal indicating normal operation and RF amplifier current draw."

And since QVC is live 24/7, the crew had to work around studio schedules to accomplish the installation.

"We had to do all the installation in whichever studio was dark at the moment while there was shooting in the adjacent studio," Stoffo said. "We had only one chance to get it right. We completed the installation in three days and had two days of testing."

To ensure that the system would work as designed when installed, PWS pre-built the system in its Orlando facility to fully test it and let it "cook" for a week after the test.

"A system of this type hadn't been done before," Stoffo said. "The concept was sound, but to prove that it worked, we did pretty deep testing in-house before sending it up to QVC."

All the effort in designing, building and testing the system paid off.

"We had 10 channels of wireless mics before, and now we have 16 channels," Schiller said. "Wireless IFB went from an eight to 20 channel system. It's pretty robust, as is the wireless intercom. Everyone is totally wireless. While most of cameras are robotic, we do have camera people on a jib or handheld."

And the talent? They love it, Schiller reported. The new wireless system now provides seamless coverage for all of these areas so the talent and production staff could walk from one place to another without interruption in communications, and without having to change beltpacks. Talent and guests can be pre-wired and checked while they are still in the green room. And they can clearly hear what they need to hear—the director, line producer or customers selected from the fulfillment center. ■

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Serving Up IP

Broadcast play-out servers leverage IP networking, file sharing

by Claudia Kienzle

HAMILTON, N.J.

The broadcast industry has been migrating from proprietary video systems to an open-standard, IT-centric infrastructure. To adapt to this hybrid world, broadcast play-out servers must perform video processing tasks, such as encoding and playing out commercials and TV shows to air, as well as support IP networking and file-sharing protocols.

MANY WAYS TO CONNECT

"The broadcast play-out server has become the bridge between the IT and TV worlds," said Paul Turner, vice president of product marketing for Omneon Video Networks, in Sunnyvale, Calif. "With our Omneon Spectrum Media Server, we've created a play-out server that understands all the implications of media play-out to air while understanding the new IT approach to transferring files into and out of storage. To accomplish this, we offer a slew of options for connecting the server in today's file-based workflows."

For networking, the server offers up to eight Gigabit Ethernet ports, each of which is individually IP addressable. For automation control, the server supports VDCP (Video Disk Control Protocol) using RS-422; an API using Gigabit Ethernet; and the legacy Sony BVW VTR control protocol. The server also supports CIFS (Common Internet File System) protocol, which allows its contents to be viewed from Windows, Linux, and UNIX, and Apple File Protocol to support Macintosh. It also supports encoding to MPEG and DV, among other compression formats, as well as using MXF (Media Exchange Format).

"This server can be controlled with RS-422 while IP systems are moving files in and out of it using Gigabit Ethernet," Turner said. "And, it can also be controlled over Gigabit Ethernet while IP-based systems are transferring files to and from it over Gigabit Ethernet. So it's perfectly flexible in that regard and works in whatever manner broadcasters need to connect it."

The Omneon Spectrum Media Spectrum is used by KLCS-DT, a PBS affiliate in Los Angeles, Calif., to deliver multiple channels of SD and HD programming to air as well as datacasting programming to edge servers accessed by the public school system for display on PCs and monitors in the classrooms.

A BETTER MOUSETRAP

Grass Valley has adopted a server and media client architecture for its new K2 system, a ground-up redesign of the Profile server. In a departure from traditional video servers, the K2 has separated the RAID storage and video processing functions into separate server and media client components respectively.

"Everything is built on Gigabit Ethernet which runs at 1 Gbps now. In the near future, it will advance to 4 Gbps and then 10 Gbps in the future, so there's a very good roadmap for speed for data transfers," said Roger Crooks, product marketing manager for servers for Grass Valley in Beaverton, Ore. "While the server uses industry standard IT technology, the media client handles all the video and audio-specific processing. The K2 architecture resulted in a significant savings over the cost of the previous generation of video servers."

Content stored on the server in MPEG or DV formats can be wrapped or unwrapped into MXF, Quicktime, or GXF (SMPTE 360M). The K2 system also features on-board support of FTP (File Transfer Protocol) and CIFS, which enables the system to handle file-based content from automation, archiving, billing, editing, traffic, among other applications. Launched at IBC2005, K2 began shipping in mid-November and Crooks said that the initial production run was sold out.

SEPARATE BUT EQUAL

With its new IT-based SeaChange MediaClient Architecture design, SeaChange International has separated its MediaCluster RAID2 storage and the I/O components of its broadcast play-out server. The MediaClient 4000/5000 I/O components provide real-time encoding and decoding of SD-SDI or HD-SDI signals into a variety of compression formats, including MPEG-2, IMX, DV25/DV50, and soon HDV and XDCAM HD. The Broadcast Media Library (BMLe) component offers compression and format-agnostic, scalable central storage with two levels of RAID-5 redundancy. The MediaClients connect to the BMLe via standard Gigabit Ethernet IP connections; and to broadcast automation systems using control protocols such as Louth (Harris) and Sony BVW-75 via RS-422.

"Third-party application clients, like nonlinear editing or archive systems, also interface to the BMLe through Gigabit Ethernet IP connections. All client systems communicate with the BMLe using industry standard CIFS or FTP protocols," said John L. Pittas, vice president of broadcast products engineering for SeaChange International in Maynard, Mass. "Our MediaClients are based on generic x86 server CPUs that are continually improving in price/performance every six months due to the intense competition between Intel and AMD."

SeaChange MediaClient architecture customers include The Weather Channel in Atlanta, WJCT-TV (PBS) in Jacksonville, Fla., and KCET-TV (PBS) in Los Angeles.

The Avid MediaStream 8000

DEMANDING ENVIRONMENT

On its NEXIO server product line, Leitch has integrated network connectivity directly into the server using TCP/IP. NEXIO servers also use FTP and CIFS protocols to move files on and off the server. It also supports Fibre Channel networking.

"TCP/IP and CIFS enable broadcast automation or media asset management systems to see or move files to and from our system automatically. Besides these IT protocols, our server also supports the MXF, DV, or MPEG formats used for video content," said Tim Slate, vice president of product marketing for Leitch, a division of Harris, in Burbank, Calif.

The NEXIO server is used extensively by CNN at its downtown and Techwood Drive campuses in Atlanta and its New York, N.Y. facility. "CNN uses our servers to play-out news and programming to air as well as to share media files between their facilities via a broadband wide area network," said Slate. With hundreds of channels, the NEXIO server can mirror the incoming data using a software/hardware product called the Leitch Mirror Server and manage FTP transfers using Leitch Content Manager software.

The SeaChange Broadcast Media Library (BMLe)

ADVANTAGES OF 'IT'

The Avid MediaStream server plays out commercials and long-form programming to air, but also relies upon many open standard protocols to interface it within today's increasingly IT-driven infrastructure. To move media to MediaStream, operators can either record content directly onto the server, or transfer files over to it using FTP protocol via Gigabit Ethernet.

According to David Schleifer, vice president of broadcast and workgroups for Avid Technology in Tewksbury, Mass, "Broadcasters could use 100 Base-T Ethernet," at 100 Mbps.

"But as networking technology gets faster and cheaper, it's increasingly common for them to build their workflows around Gigabit Ethernet for greater speed and reliability," Schleifer says. "Also, to interface with broadcast automation systems, MediaStream uses RS-422, which allows the automation system to query the server and to pass along commands such as play or stop." MediaStream is used by ESPN, Daystar Television Network, and WDIV-TV in Detroit, among others.

By leveraging open-standards-based networking technology, these vendors say that the cost of broadcast play-out servers has fallen and their scalability has increased. ■

"The broadcast play-out server has become the bridge between the IT and TV worlds."

—Paul Turner, Omneon Video Networks

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Katrina Makes Case for Hydrogen Fuel Cells

Jadoo, UltraCell provide alternative power supplies

by Craig Johnston

SEATTLE

The first reaction by many, (including this writer), who saw hydrogen fuel cell technology introduced at NAB a few years ago may have been "that's interesting, but I don't see it replacing my rechargeable lithium-ion camera batteries any time soon."

Hydrogen fuel cells convert hydrogen gas into electricity, and were introduced at the Las Vegas gathering in a brick-like form factor, ready to be snapped on the back of camcorders. The ones shown in 2004 by Jadoo Power Systems are quickly recharged with additional hydrogen instead of having to be docked to a charger plugged into the wall.

It seemed a novel approach at the time, and Jadoo has had some significant sales in the television industry. But Hurricane Katrina, as it did in so many areas, got more than just TV stations thinking about how they could operate when the electrical power grid went down.

"Police departments in New Orleans, whose radios were integral to their response, found them dead after 24 hours with no way to recharge them," said Jack Peterson, vice president, sales and marketing for Jadoo, based in Folsom, Calif.

One of the appeals of the hydrogen fuel cells is their virtually infinite shelf life.

"Once they're charged, they don't sit there and degrade like a battery," Peterson said. "So if they had had this in their emergency preparedness kit, in situations like this, you pull it out and plug it in and get to work."

He pointed to another industry looking seriously at hydrogen fuel cell technology—gas stations.

Jadoo debuted the next-generation NABII fuel cell at NAB2005.

Jadoo is now talking with oil companies about building fuel cells into the pumps themselves. When the power grid goes down, the pumps would switch to the fuel cells to operate.

TRANSPO EXEMPTION

Even with all this newfound interest, Jadoo is not leaving the television industry behind.

Jadoo has received an exemption from the U.S. Dept. of Transportation to transport its fuel cells via air cargo, and they're in the middle of discussions about transporting their fuel cells in the cabin. In the meantime, the company is exploring other ways of getting hydrogen to broadcasters working outside their own markets.

Peterson says Jadoo will be coming out with a set of adapters which expand the line into usages such as lights, editing equipment and microwave transmitters.

He pointed out that even though ENG trucks carry their own generators, their noise and fumes can be eliminated by powering up with hydrogen fuel cells.

The fuel cells are also turning out to be a big hit with television engineers on more than just their Monday through Friday job.

"A lot of broadcasters are ham radio operators," Peterson said, "and on the weekend, they're using them to power their ham radios off-grid."

At NAB2005, Jadoo introduced the next generation of its NABII fuel cell, which it touts as 20 percent lighter than its previous system. The company also debuted a new refill station that allows users to charge the system to 75 percent full (100 Wh of runtime) in 20 minutes, along with its new hot swappable N-Stor 8 energy storage cartridge that offers 275 Wh of runtime.

Sinclair Broadcast Group is an investor in the company. Among Jadoo's broadcast customers are KOVR-TV, the CBS affiliate in Sacramento, Calif.

ULTRACELL

Another fuel cell company is getting ready to target broadcasters, but they're already well-known by the Dept. of Defense.

"We have been chosen by the Communications-Electronics Research, Development, and Engineering Center to provide EDT units for land warrior for March of 2006," said William Hill, vice president of marketing for UltraCell Corp, based in Livermore, Calif.

The high-tech gear the modern soldier carries needs to be powered, needing in the neighborhood of 20

UltraCell will launch the commercial version of its UltraCell 25 cell in 2006.

watts for full function. Peterson said this is where the company's fuel cells offer a significant advantage.

"They use a standard 72-hour mission as kind of a guideline, and today for a standard 72-hour mission, the average member of that squad would need between 20 and 35 pounds of batteries."

UltraCell's approach differs from Jadoo's by using reformed methanol fuel cells, where recharging is done by swapping out methanol canisters. With a reformed methanol fuel cell, "you end up with dramatically less weight," Hill said. "In fact, it's about one-third the weight of the lithium ion batteries that are being used today."

He cites the ready availability of methanol as an advantage of UltraCell's technology.

"It's one of the most hydrogen-rich liquid fuels that's out there, it's fairly ubiquitous," he said.

UltraCell also faced the challenge of getting its fuel cells and fuel approved to be carried in the airline cabin. The International Civil Aviation Organization just approved methanol fuel to be carried on passenger aircraft as luggage, beginning in January 2007, according to Peterson. The new rules would allow transportation of the reformer fuel cell and three 200 cc cartridges of methanol in the cabin.

He said UltraCell will roll out products for broadcasters and other commercial users in 2006. ■

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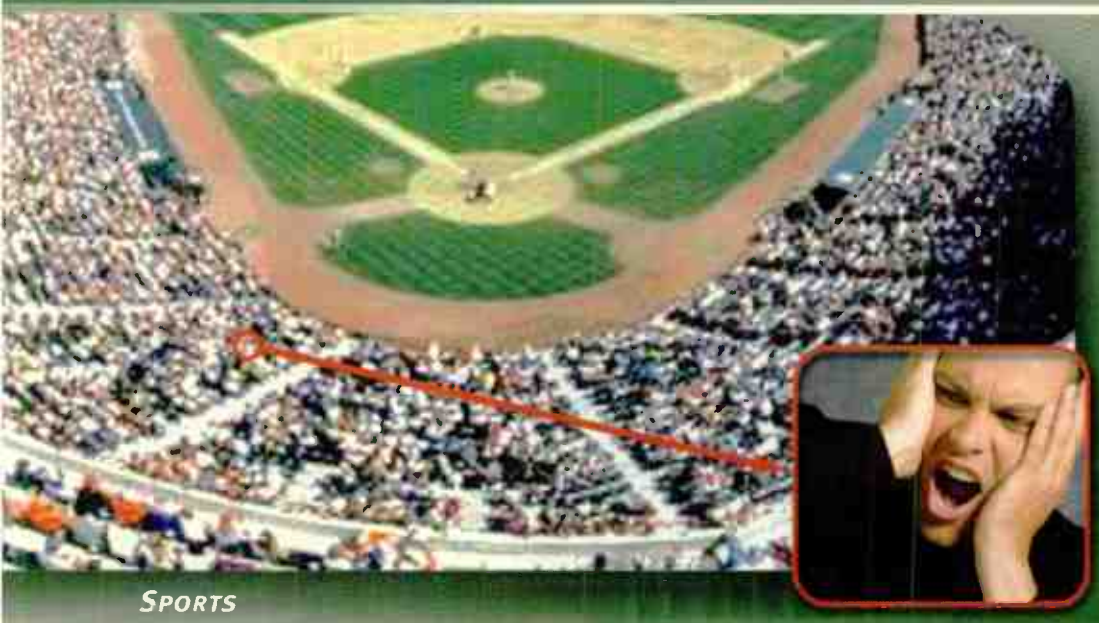

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HD News Highlights SMPTE

Mid-November event draws more than 2,000

by James E. O'Neal

NEW YORK

Newsgathering in high definition and new camera technology were two of many topics covered at this year's 147th Society of Motion Picture and Television Engineers Technical Conference and Exhibition in New York. The mid-November event drew more than 2,000 attendees.

Absent from this year's conference was a stated theme. However, it was readily apparent to participants that the maturity level of digital technology in both television and motion picture industries was an unstated theme. After more than a decade of conversion, digital technology has finally settled in to the extent that analog is no longer spoken. Several years ago, the industry focus started shifting away from going digital and began to home in on the best uses and techniques for the new technology. SMPTE conferences have been responsive to this logical next step for some time, and the current event was no different.

After a full day devoted to digital cinema, the conference shifted to other areas, including media infrastructure, digital sound advances, storage technologies and high-definition newsgathering.

With the sales of high definition receivers on the rise and a hard shutoff date for analog more of a certainty, HD programming is becoming a more interesting proposition for many broadcasters. Conference attendees heard papers describing methodologies for acquiring, transmitting, storing and editing HD news content, as well as HD graphics issues.

EXPERIENCES IN HD

KUSA-TV, the Gannett-owned NBC affiliate in Denver, launched its hi-def news programming in 2004. Don Perez, director of engineering at KUSA, chaired the HD newsgathering session and also shared his station's experiences.

Perez explained that in any broadcast operation, the impact of transitioning to high definition is universal.

"Producing news in high definition is not an exercise just for an engineering or news department—it will affect everyone in the station—traffic, sales, everyone."

Perez noted said that some on-air personalities feared that HD would make them appear older.

"We had to set up a demo to show them that this is not so," he said. "They now agree that HD really makes them look better, even in an analog conversion from HD."

He said that for some the decision to make the move to HD should not be difficult if a station's equipment is nearing the end of its useful life. The price of HD broadcast gear continues to drop and it's a logical move to replace older equipment with high-definition counterparts.

One of the biggest changes in a high definition makeover is coping with the switch from 4:3 to 16:9.

"The reality of the situation is that the 4:3 audience is paying the bills. HD viewers are in the minority. Don't disenfranchise 4:3 viewers, but you also want your 16:9 viewers to feel that you haven't forgotten them," he said.

Perez said that dealing with two different aspect ratios presented challenges in monitoring, set design and graphics production areas. If a station is streaming to the Web, 16:9 has to be considered there too.

Award honorees at the 147th SMPTE in New York include, (front row, L to R): Edgar A. Schuller, Susan D. Hill, S. Merrill Weiss, Frederick M. Remley, James F. MacKay, Ben Brunkhardt, Peter Ludé and Kwok-Luen Lam. Back row (L to R): Alan J. Masson, Michael A. Dolan, Glenn Kennel, Thomas Maier and Richard C. Sehlin

At the present time, Perez said, most of KUSA's news capture was being done in SD and in 16:9. He observed that at the present state of digital and HD development, most of the viewing audience will automatically assume that anything presented in 16:9 aspect ratio will be high definition.

"That will change," he added.

He told broadcasters to be prepared to spend most of their HD budgets for studio equipment and facilities.

"We spent more money on conversion equipment than on HD cameras and we have 10 cameras. The key is that you don't have to have all HD equipment to start HD news."

Studio set design is another part of the learning curve for HD adopters.

"HD loves color saturation and layers of detailed imagery. These are considerations for set design," he said.

Perez reminded the audience that there is a very significant increase in depth-of-field with HD. This in turn mandates a large studio so that visual elements can have space between them. KUSA-TV uses a 5,000 square foot studio for HD origination.

"If you want some layers to be out of focus, you have to create them out of focus."

Perez acknowledged that camera lenses are a very significant part of the high-definition transition.

"The lens can cost as much or more than the camera," he said.

He advised being realistic in the choice of lenses and not to go overboard. Lenses with focal lengths and apertures suitable for outdoor sports aren't really needed for use in a reasonably sized studio with adequate lighting.

EXHIBITS AND AWARDS

One of the highlights of every SMPTE conference is the presentation of awards and recognition of special achievements. This year, 11 members were elevated to the grade of Fellow of the Society and a total of 12 awards were shared by 21 honorees. New Fellows include Roger Bunch, Kenneth C. Fuller, Brad Gilmer, Dany Harrison, Graham A. Jones, Kwok-Luen Lam, Peter Ludé, John A. Luff, David Mazza, David L. Schnuelle and Peter Glen Smart.

Industry gold medals were presented to James F. MacKay, Frederick M. Remley, Richard C. Sehlin and Ken Burns. The Samuel L. Warner Medal Award went to Robert C. Lovick. The SMPTE Journal Award was shared by Matthew Cowan, Glenn Kennel, Thomas Maier and Brad Walker. The Society Citation was presented jointly to Edgar A. Schuller and Michael A. Dolan. Outstanding Service to the Society citations were presented to Alan J. Masson, Tony Tin-Ming, Nagai and William J. Weber. Contributions by Jean-Pierre Vitton, Steven M. Gerlach, Marian Herz, Susan D. Hill and Alan J. Masson were recognized with the awarding of SMPTE Journal Certificates of Merit. Student member Ben Brunkhardt was recipient of both the SMPTE Student Paper Award and the Lou Wolf Memorial Scholarship.

S. Merrill Weiss was awarded the SMPTE Progress Medal Award, recognizing his work in advancement of digital technology over the past two and a half decades.

In addition to technical presentations, the conference also featured 58 registered equipment exhibitors.

Next year's conference is scheduled for Oct. 18-21, in Los Angeles. ■

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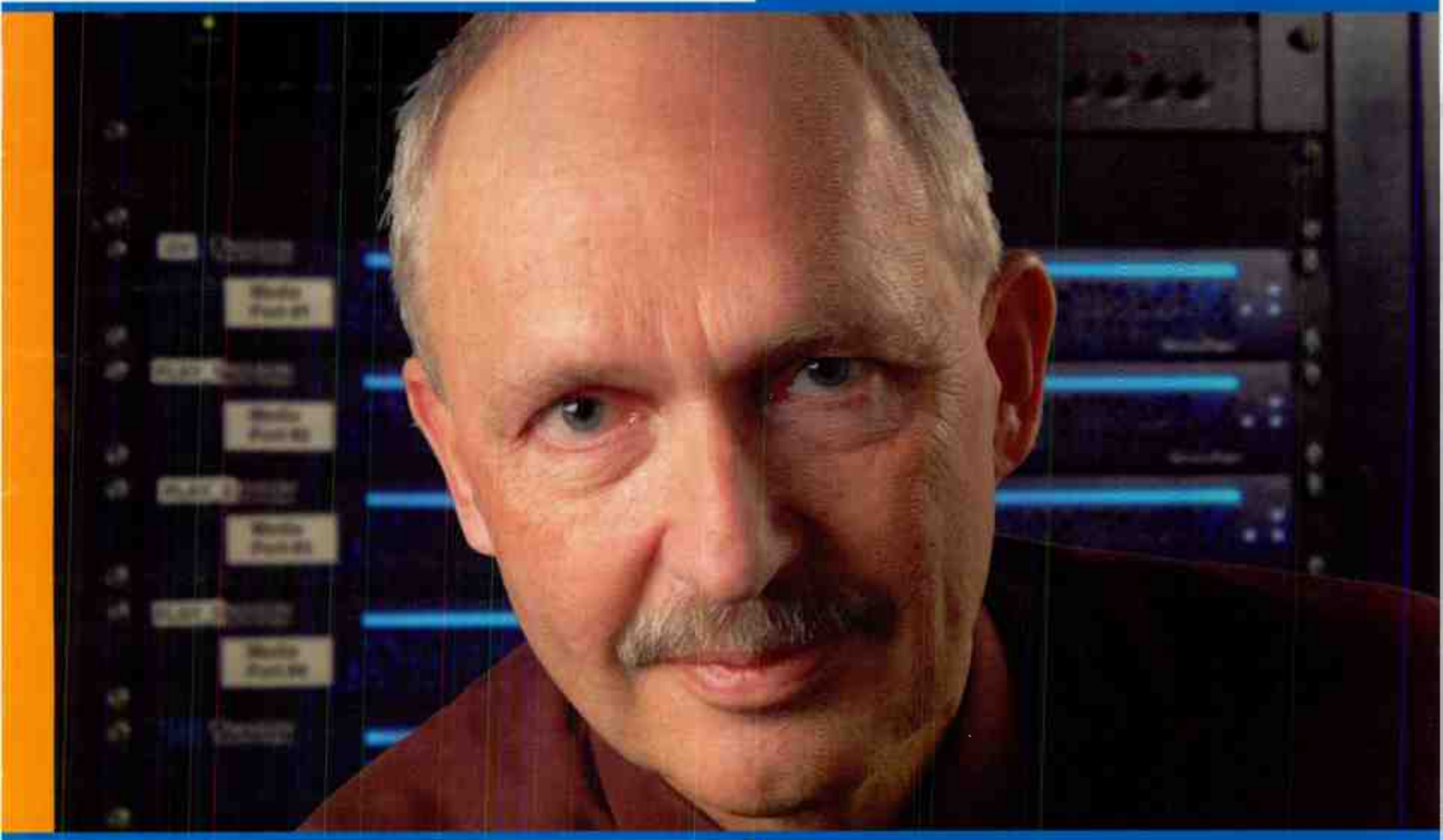

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CES2006: Beyond the Digital Living Room

Pro gear gets consumer-friendly, handheld video expected to dominate

by Lauren Evoy Davis

LAS VEGAS

Since consumer electronics manufacturers last gathered for CES, the number of portable consumer devices that promise video anywhere, anytime has exploded. When the 2006 International Consumer Electronics Show gets underway in Las Vegas, in early January, expect to see even more such devices, both big and small.

Last year, approximately 145,000 people attended the event at the Las Vegas Convention Center and at least that many are expected again this year.

Gary Shapiro, president of the Consumer Electronics Association, which sponsors the annual event, calls the 2006 show, Jan. 5-8, a must-attend convergence event for anyone working in consumer electronics, both in front of and behind the camera. In fact, he's seen the number of broadcast engineers attending the show jump in recent years.

Even though the annual event is billed as a consumer electronics experience, Shapiro said the gear that professionals use are being fashioned into less expensive models for the consumer market.

"We're focusing on desktop video production," he said, with new products designed for the home video aficionado. Sanyo will show full motion HD consumer-based gear, for example.

HDTV will continue to be hot, with the number of North American TV households with at least one HDTV-capable display device growing from nearly 10 million by late 2004 to more than 55 million by the end of 2009, according to Gerry Kaufhold, principal analyst for converging markets and technologies with In-Stat.

Kaufhold expects that LCD flat-panel displays will likely be the hot item at CEA followed by digital light processor displays and wide-screen CRTs that will be introduced in 28- and 32-inch sizes.

CES keynoters will include Microsoft CEO Bill Gates, who will kick off CES2006 with a pre-show talk, Sony CEO Sir Howard Stringer who will deliver the opening keynote address and Google cofounder Gary Page.

SUPER SESSIONS

While CES2005 last January focused on the digital living room, the proliferation of new mobile consumer devices on the market since then means that multimedia can go just about anywhere you can carry a handheld device, according to technology analyst Tim Bajarin, president of Creative Strategies, who has served as consultant for consumer electronics giants including IBM, Apple, Microsoft and Toshiba, among others.

Sony CEO Howard Stringer and Microsoft CEO Bill Gates will keynote CES2006 in Las Vegas, Jan. 5-8.

"When you look at digital technology, it allows for more personalization of content, and not just in the digital living room," he said.

With mobile wireless devices like smartphones, many of which enable users to send and receive text messages and watch videos, "the whole concept of connectivity changes. The battle has kind of shifted for greater interest to the connected consumer."

Bajarin will discuss this and more when he moderates "The Battle For Control of the Connected Consumer" super session. The panel, which includes Rudy Provoost, CEO, Consumer Electronics, Philips and Sky Dayton, CEO, HELIO, Inc. (formerly SK-Earthlink) will explore the role that PC, TV, cell phone and handheld devices will have on consumers, content providers and hardware and software manufacturers as cable, satellite and telecom vendors compete for consumer dollars.

With the flood of new technologies on the market, one of the biggest consumer complaints is the lack of user-friendliness, but Bajarin said that so far, Apple has lead the effort to make it easier for consumers.

"They have created an iPod that is very great as a music player and now supports video and supports video downloads from the iTunes stores," he said. "Apple has simplified that process of downloading and consuming music, and now video."

The "Entertainment Technology: View from Hollywood" super session is sure to draw filmmakers and other content creators embracing new multimedia technologies.

Michael Arrieta, senior vice president, Strategic Alliances, Sony Pictures Digital Networks will serve as a panelist at the session.

He describes phones as truly converged devices—from being technology people use to send and receive text messages, listen to music and stream movies, play games and of course, make phone calls.

"Mobile phones represent a huge market opportunity," Arrieta said, pointing out that with bigger screens from products like the Blackberry-sized Sony Ericsson P910, that features a 262,144 color touch-screen people will be more likely to watch feature-length movies as opposed to movie trailers or clips.

"As a digital ecosystem, we're still evolving," he said.

TECH ZONES

With more cool products being unveiled, the convention has expanded beyond the Las Vegas Convention Center to accommodate the anticipated overflow.

Attendees can visit 14 "Tech Zones" in the LVCC and the Sands Expo and Convention Center to view the latest in ultrawideband, IPTV and robotics. The IPTV zone, for example will cater to cable providers, telcos and TV and mobile content developers, while anyone who has been following the Blu-ray versus HD-DVD debate will want to check out the Blu-ray zone.

SPECIAL DISPLAYS

ESPN and CES have teamed up this year to demonstrate technologies and discuss major advancements in consumer electronics on the Grand Lobby Stage. Highlights will include Mobile ESPN, ESPN video games and ESPN HD and ESPN 2 HD.

So, while a lot of the CES event may focus on the handhelds and the digital world at large, at the end of the day, people still need to come back home.

For those interested in the practical application of home automation and whole house broadband, check out the NextGen06 Demonstration Home, sponsored by CEA's TechHome Division in the South Hall of the Las Vegas Convention Center and Jan. 4 from 9:00 a.m. to 5:00 p.m.

For more information on registering for CES2006, visit *www.cesweb.org*. ■

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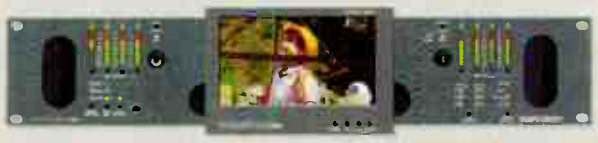

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Network Takes New Path to Stay Current

New cable channel uses unique technology mix, new voices for programming

by Susan Ashworth

SAN FRANCISCO

A new cable and satellite network is meeting the needs of today's television generation in a brand new way, by debuting news programming that offers short bursts of programming that is often created and designed by viewers themselves.

Launched Aug. 1 by former Vice President Al Gore and entrepreneur Joel Hyatt—the San Francisco-based network called Current TV debuted earlier this fall with a unique premise—letting viewers decide what's truly newsworthy.

Everyone agrees that television has a power unparalleled in terms of reach and influence. So why not let the individual become viewer and producer at the same time? The network has answered that by letting amateur videographers take a shot at harnessing the news.

The result is short bursts of video—which Current calls "pods"—that range from international reports and political profiles to new technology and entertainment news.

NOT YOUR FATHER'S NEWS

"This is not a traditional TV network," the founders said. "Watching Current, you'll see more, on more topics, from more points of view."

The network has even coined a moniker for its efforts—calling it "viewer-created content"—that's created in a fairly old-school newsgathering fashion: amateur videographers use one- or three-chip cameras to shoot video, compress the video and send it in to the Current Web site. On other areas within the Web site, viewers can preview clips sent in by other viewers, and with enough thumbs-ups, a completed video clip makes it on to the airwaves.

Current is trying to reach young, disaffected viewers who are not served by today's traditional television outlets. Originally, the network expected viewer-submitted clips to account for 5 percent of the channel's programming, but amateur clips now account for 35 percent of the programming based on the volume and quality of the submissions, according to Smith Forte, vice president of the Online Studio at Current TV.

"The Internet is a formidable new medium of communication, but it is important to note that it still doesn't hold a candle to television," said Current TV Chairman Gore, at the network's debut. "These stories [are] in a voice that young people recognize and from a point of view they identify as their own."

The Current facility includes a Ross Synergy switcher and signal processing gear from Miranda.

Programming also comes from another powerful phenomenon—the Internet search engine. Eschewing the traditional news format where an editor decides what is newsworthy, Current airs segments each half-hour by "Google Current," which covers topics that people are currently searching for on the Google search engine.

APPLE AT ITS CORE

The company's main broadcast facility, based in San Francisco, was designed and integrated by Ascent Media Systems & Technology Services. What is most unique about the facility, said Mark Sackett, project manager with Ascent, is that it's built around a Mac-based infrastructure, including Apple G5 Power Macs serving as broadcast play-out servers and 60 TB of Apple Xsan storage. Automation is provided by solutions from BUG.TV.

The facilities are based around a DV format infrastructure, meaning they can easily be upgraded to HD play-out, according to Sackett.

Acquired programming goes straight to disk, forgoing the traditional videotape route.

"Everything is unique as far as workflow goes," said Brett Kotheimer, manager of broadcast operations. "We built this place with the idea that we weren't going to be dependent on tape or MPEG-2," he said. "[This route] is cheaper, faster and can be done with off-the-shelf hardware. It also makes collaboration much easier."

The broadcast center houses master control, ingest, production and audio control rooms, post-production suites, and an insert stage. The three video finishing rooms use Final Cut Pro, and an audio finishing room uses Digidesign Pro Tools. The entire facility is server-based, only using VTRs for media that is acquired on tape. A three-camera studio insert stage includes Sony HDC-X300 cameras on Telemetrics pan and tilt control heads. The network has a separate studio in Los Angeles.

Other equipment includes a Ross Synergy switcher, signal processing gear from Miranda and an Adam intercom system from RTS/Telex. The facility also looked beyond the traditional monitor wall and installed a Clarity 50-inch video display whose images are provided by a Miranda Kaleido multi-image display processor.

To handle the varied and wildly disparate video files that are uploaded to the Current Web site, the network employs the use of an Anystream transcoding engine. Once a viewer-submitted video clip has been approved for broadcast, it goes through audio sweetening and is finished with high-end broadcast graphics, Forte said.

The Ascent Media Systems & Technology Services division began working with Current's engineering and operations team last March to implement the engineering portions of project. The Ascent division is also providing transmission services for the new channel from its earth station facility in Stamford, Conn. Ascent provides uplink services, satellite space and terrestrial interconnect services, which are routed from Current's origination facility in San Francisco to Connecticut. Ascent is still in the midst of installing Current's satellite downlink antenna farm outside of San Francisco.

The San Francisco facility is digitally interconnected to the Current stage in Los Angeles that produces daily programming for the network.

The advantage of designing a new network from scratch is that one can "abandon the old conventions of how to run a TV network and innovate in every way, including the technical infrastructure," said Mark Goldman, COO of Current.

Current TV was formed after Gore and Hyatt acquired Newsworld International from Vivendi Universal last May. Newsworld was a 24-hour channel focused on global news and produced by the Canadian Broadcasting Corp. Current launched into an initial 20 million U.S. homes on DirecTV, Time Warner Cable and Comcast. ■

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2005

CONTINUED FROM PAGE 1

of DTV standards," said Mark Richer, president of the Advanced Television Systems Committee. He cites this year's expansion of HD beyond prime time on the Big Four with shows like ABC's "Good Morning America," and CBS's "Late Show with David Letterman."

A handful of local stations, too, began to provide news in HD, including CBS affiliate WUSA-TV in Washington, D.C.—the only market in the U.S. that can count at least some members of Congress and FCC commissioners and staff as regular local viewers.

DISTRIBUTION METHODS SUDDENLY ABOUND

Broadcast content—pipelined exclusively to wired TV sets via local affiliates for its entire history—suddenly in 2005 was being re-purposed through various forms of VOD to the online portals of MSN, Google, Comcast, Cox, Verizon, Yahoo!, the reborn AOL, tiny wireless video displays like iPod, and cell phones.

TV upstart Verizon broke new ground in more ways than one with its fiber optic TV service, begun this fall in several suburbs/exurbs in Texas, the Washington, D.C. market, and suburban New York. While Verizon was the first telco out of the box with its FiOS TV to compete with cable and DBS, fellow telco SBC began ramping up its own IPTV-based infrastructure, with some rollouts ex-pected in 2006.

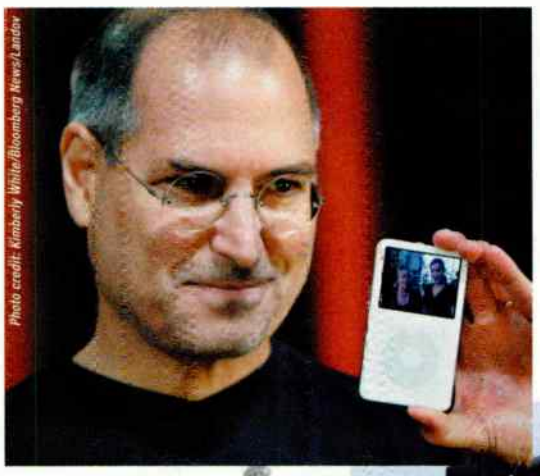

Photo credit: Kimberly White/Bloomberg News/Landov

Clockwise from top: Digital video was everywhere you looked in 2005, from video-enabled iPODs to the explosion of HDV cameras on the market to ABC's HD coverage of the presidential inauguration.

dark without a heavily funded subsidy for set-top conversion boxes, which likely will be at least $1 billion.

NEW LEADERSHIP IN DC

The FCC weathered a transition of its own in 2005 when Commissioner Kevin Martin, a former deputy general counsel for the Bush campaign, was tapped to succeed Michael Powell. The Martin appointment was generally welcomed by most industry players, including the NAB and CEA.

President Bush also re-nominated Commissioner Michael Copps, a Democrat, and nominated Tennessee utilities regulator Deborah Tate, a Republican. That political balance likely will restrict Chairman Martin's influence, much like it did his predecessor's.

This fall the commission began seeking feedback on how to ensure state and local authorities do not erect unnecessary barriers to new competitors seeking to provide video services; in other words, that telcos be afforded a level field to play ball with the bigger, firmly entrenched cable guys. The commission was allegedly lax this year in dealing with a surge of public complaints of indecency and violence content, according to a Washington Post survey.

After considering about 80 candidates, NAB tapped National Beer Wholesalers Association President David Rehr as its new president/CEO. Rehr, 46, was signed to an unspecified multi-year contract and officially took over his post on Dec. 5. He is widely considered to be a politically well-connected Republican lobbyist.

THE KATRINA EFFECT

Weather and its particularly destructive nature played an unusually significant role in telecommunications this year, as hurricanes Katrina, Rita and Wilma obliterated wide swathes of the Gulf Coast region. Amid the government's nationally televised, widely agreed-upon incompetent response to Katrina came the renewed call for a faster cutoff of spectrum for first-responder use. But Congress again overcame Sen. John McCain's (R-Nev.) attempts to reclaim spectrum by 2007.

"Whatever the communications problems after Hurricane Katrina, they had nothing to do with the analog-to-digital transition." said engineer, publisher and consultant Mark Schubin. "If a radio repeater isn't working, it doesn't matter what frequency it's on."

Schubin said Katrina was a vivid example of why every broadcaster should have an emergency plan. "Hurricane Katrina challenged the bases of those plans. Do you have enough fuel to run a generator for two days? How do you get refueled after that period? Does your fuel supplier have power for the pump that gets the fuel out of the ground?"

CONGRESS SETS A DATE

At press time, a Congress distracted by Katrina and a host of legal/political issues was working to reset the official analog cutoff to early 2009. Despite a transition that began in late 1998 and was, until this year, officially scheduled to end in 2006, Democratic members of Congress sounded urgent warnings about plunging low-income, analog-only households into the

A YEAR TO FORGET FOR PBS/NPR

2005 proved to be one of the most tumultuous years for public broadcasters since National Public Radio and the Public Broadcasting Service were created 35 years ago. A series of controversies came from a most unlikely of sources: the typically low-key, apolitical Corporation for Public Broadcasting.

A handful of key presidential appointments of former GOP campaign operatives led to a takeover of CPB leadership following the abrupt departure of its president, Kathleen Cox, last April.

APTS spokeswoman Kristin Wilson said "in this [political] environment, the challenge for local stations to maintain federal support will be greater than ever, and it will certainly test our limits and capabilities." ■

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Doug Lung

FCC Proposes Rules For DTx

I've discussed DTx (distributed transmission systems) in this column before, starting with a two-part introduction in February 2003. (You can read past RF Technology columns on the **TV Technology** Web site—*www.tvtechnology.com*—in the "Doug Lung on RF" section.)

This month, I'll examine the FCC's rulemaking on DTx released Nov. 4; two papers presented at the IEEE Broadcast Technology symposium in October; and results of tests on Samsung's new Gemini VSB chipset at CRC Canada.

FCC PROPOSED DTx RULES

In the Clarification Order and Notice of Proposed Rulemaking in Media Bureau Docket 05-312 released Nov. 4, the FCC clarified interim rules for DTx and outlined proposed rules for future DTx operations. (See my RF Report for Nov. 8, 2005 at *http://www.tvtechnology.com/dlrf/one.php?id=1059*, for information on the clarification part of the FCC release.) I'll focus on the proposed rules here.

One of problems regulators face in dealing with DTx is how to define the allowed service area for DTx facilities. In the NPRM, the FCC proposes limiting a station's DTx coverage to an area comparable to what the station would be authorized to serve with a single transmitter. To simplify determination of allowable DTV service area, the FCC proposed a table (see Table 1) showing the allowable coverage area as a radius from the reference point based on the station's Form 381 certification. The radius varies depending on DTV channel and the zone in which the reference point is located.

Channel	Zone (see 47 C.F.R. § 73.609)	F(50,90) field strength	ERP at HAAT	Distance
2-6	1	28 dBμ	10 kW at 305 m.	108 km. (67 mi.)
2-6	2 and 3	28 dBμ	10 kW at 610 m.	128 km. (80 mi.)
7-13	1	36 dBμ	30 kW at 305 m.	101 km. (63 mi.)
7-13	2 and 3	36 dBμ	30 kW at 610 m.	123 km. (77 mi.)
14-69	1, 2 and 3	41 dBμ	1,000 kW at 365 m.	103 km (64 mi.)

Table 1- Maximum Allowable DTx Service Area (from FCC 05-192)

The FCC realized that in some areas with irregular terrain, the station's authorized coverage area may not be circular—less in one direction and extending beyond the Table's radius in other directions. In such cases, the FCC proposes allowing stations to use DTx within their authorized coverage area.

In the NPRM, the FCC cautions, "No station is automatically entitled to use the areas described by the parameters set forth in this chart to provide DTx. Rather, DTx stations, like single-transmitter stations, can apply to use these areas to request authorization to maximize after the freeze is lifted."

The commission also asked for comments on the usefulness of the Table and the validity of the underlying assumptions, and sought comment on alternative ways to determine service areas for stations using DTx.

The FCC proposed DTx transmitters be subject to the same power, antenna height and emission mask limits as single full-power DTV transmitters. The FCC asked for comments on whether it should calculate interference based on each DTx transmitter individually, as proposed by the Merrill Weiss Group, or on the combined signals of all the DTx transmitters. Although there is an ATSC standard for DTx—Standard A/110A, "Synchronization Standard for Distributed Transmission"—the FCC proposes not to mandate compliance with this or any other synchronization standard. By not mandating a synchronization standard, adjustments to the existing standard can be made without requiring modification of the FCC rules.

Comments on this NPRM may be filed up to 60 days after publication of the NPRM in the Federal Register. The

deadline for reply comments is 90 days after publication.

One session at the 2005 IEEE Broadcast Technology Symposium was devoted to DTx. It would take several RF Technology columns to cover all the topics discussed at the symposium. This month I'll summarize two papers.

Adjacent-channel DTV stations are a factor in many markets. Due to the susceptibility of DTV tuners to interference from strong adjacent channels, this can pose a problem for stations wanting to use DTx where a station on an adjacent channel is using a single transmitter. Merrill Weiss offered some possible solutions to this problem. One is to place a uniform field strength over the coverage area by controlling the elevation pattern of the distributed transmitter.

Receiver interference rejection capability will certainly be tested in the crowded TV spectrum when channels 52-69 go away.

Interference to a single-stick station is most obvious near the edge of its contour. However, the FCC desired-to-undesired ratios for adjacent channel stations allow the undesired adjacent channel DTV station to be 26 to 28 dB stronger than the desired DTV station. A UHF DTx facility delivering a uniform field strength that never exceeds the noise-limited threshold signal level by more than 26 to 28 dB (depending on whether the undesired signal is lower or upper adjacent), will never interfere with the adjacent channel under the FCC's interference criteria. Merrill Weiss pointed out that even after allowing a 3 dB margin, each distributed transmitter can provide a field strength as high as 64 to 66 dBµV/m, assuming a 41 dBµV/m noise-limited threshold.

Dr. Oded Bendov, in his paper "Areas of Co-channel Interference and Multipath Created by 8-VSB Modulated Distributed Transmitters in Flat Terrain" (available in the symposium proceedings) analyzed the co-channel interference between a high-power, high-height transmission site and a low-power, low-height site near the edge of the service contour of the high-power station. By using contours rather than a terrain-sensitive model such as Longley-Rice, he was able to easily define the maximum coverage area.

He first defined the area where the contours predicted the difference in the amplitude of the two signals would be 21 dB or more, and where co-channel interference would not occur under any timing difference between the two stations. Next, examining the area where the signal from a high-power, high-height site was within 21 dB of the low-power, low-height site, he looked at the equalizer window to determine the area where the receiver's equalizer could correct for the second signal. A fifth-generation 8-VSB receiver has an equalizer range of approximately +/-50 µs. Since the speed of light is 0.3 km per µs, the equalizer window at its narrowest point will be 15 km, as Dr. Bendovs explained in his paper. By adjusting the timing on the distributed transmitter, this window can be adjusted to put the area of interference where there are the fewest receivers.

Dr. Bendov concluded that in one case he studied, he was able to obtain a 41 dBµV/m coverage area extending up to eight miles from a secondary distributed transmitter with an ERP less than or equal to 50 watts and a height of less than or equal to 100 feet. After this analysis, his client decided to use a

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MEDIA SERVER TECHNOLOGY

Karl Paulsen

Storage: Sending Out an SAS

High speed, high bandwidth and high availability—all are on the "must-have" list for advanced media storage technologies.

Since the early 1990s, disk drive performance, size and applications have continued to develop at a record pace. From early parallel SCSI (Small Computer Systems Interface) to Fibre Channel and beyond, more choices are becoming available to storage architects, including a recent and rather aggressive transition from those root concepts to much faster, larger, less costly and more flexible hard drives.

Fibre Channel, first developed in the late 1990s to meet requirements for high-speed connectivity, has rapidly became *the* enabling technology for SANs (storage area networks), providing improvements in consolidation, utilization, and manipulation of block storage. Less than a couple decades before, parallel SCSI was *the* enabling technology. Today, that parallel technology is being replaced by SAS (serial attached SCSI) and its cousin SATA (serial ATA).

Fibre Channel drives now have throughput of 2 Gbps, with 4 Gbps data rates being introduced. Fibre Channel proponents still contend that the technologies will remain more reliable than Ethernet-based solutions, leveraging higher availability and built-in redundancy. For media server applications, Fibre Channel remains the predominant solution for those mission-critical, online/on-demand applications. However, cost remains a negative factor in large Fibre Channel architectures—for drives, enclosures, qualifications and external peripherals such as switches and controllers.

In 2002, SATA provided an alternative, lower cost path for high-volume desktop-class storage applications. Since that time, SATA has continued to make headway into the nearline media storage arena; providing suitable reliability with a primary focus intended for applications that were not mission-critical.

The recent introduction of SAS is the outcome of three more years of advanced study and innovation. SAS is touted as a high-performance solution with greater flexibility at a lower price, and reliability on par with Fibre Channel serial technology. SAS is targeted at enterprise storage applications and sits economically between the higher-end Fibre Channel and the lower-end SATA continuum.

SAS is touted as a high-performance solution with greater flexibility at a lower price, and reliability on par with Fibre Channel serial technology.

SERIAL VERSUS SCSI

In general, employing serial technology (versus older parallel SCSI approaches) improves data transfer because skew and timing errors no longer inhibit performance. Just as in serial digital video transports (i.e., SMPTE 259M or 292M), bits arrive serially—in order—and at a faster rate. SAS provides a reliable point-to-point connection with a physical link rate of either 1.5 Gbps or 3 Gbps. A roadmap to 12 Gbps is already in place.

The SAS physical link can operate in dual-simplex (full-duplex) mode, with total bandwidth up to 600 MBps (300 MBps in each direction). Serial technology's point-to-point architecture employs a dedicated connection that delivers full bandwidth to each device. It should be noted that the connection rate is always less than or equal to the physical link rate—thus, if a connection is slower than the physical link, rate

matching is used. On a per-port basis, the SAS standard allows up to 16,256 addressable devices per port.

SAS employs compact connectors and thinner cabling, which enables higher drive density packing and improved cooling metrics. A maximum connection length of 8 meters per discrete connection is achieved through LVDS (low voltage differential signaling). LVDS further reduces vulnerability to RF interference and achieves speeds unobtainable when using higher voltage signaling. SAS will support SATA drive technologies, providing an avenue to storage in a single common enclosure. The drive upgrade path lets a user start out with the lower cost SATA drives and move up to SAS should performance requirements or other needs change; and allows a step toward Fibre Channel performance without necessarily changing the enclosure.

Predictions indicate that by the end of 2005, the full transition from parallel SCSI and Fibre Channel will place serial attached SCSI as the fastest growing storage technology for the industry.

SAS failover protection is through a direct dual-port connection to the drive. NCQ (native command queuing) supports logic unit numbers greater than 2 TB. In principle, NCQ lets a drive set up a DMA (direct memory access) operation for a non-host intervention data transfer; letting the drive control the DMA engine, which minimizes latencies and optimizes command ordering. Essentially, the drive now controls the order in which reads and writes are executed.

Furthermore, for NCQ to function in some chipsets, it must be enabled at the motherboard level through the advanced host controller interface in the BIOS, requiring the appropriate accelerator software. Note that these technologies are also used in SATA drives.

Additional benefits mean that users no longer need to set drive identification assignments, as there is a worldwide unique ID set at the time of manufacture. SAS drives are also hot pluggable and incorporate self-termination by default.

Predictions indicate that by the end of 2005, the full transition from parallel SCSI and Fibre Channel will place serial attached SCSI as the fastest growing storage technology for the industry.

The Technical Committee of the InterNational Committee on Information Technology Standards (INCITS, pronounced "insights") that works through SCSI standards is referred to as T10. It is operated by and accredited through the American National Standards Institute. For more in depth information about SAS, SATA and SCSI drive technologies and standards, working drafts can be found at *http://www.t10.org*.

Information gathered for this installment was provided in part by HP, the SCSI Trade Association, Seagate, Adaptec and INCITS.

Karl Paulsen is vice president and chief technology officer for AZCAR. He is a Fellow in the SMPTE and a SBE Life Certified Professional Broadcast Engineer. Contact him at karl.paulsen@azcar.com.

INSIDE PRODUCTION Walter Schoenknecht

The Cost of Doing Business

It was said that our client Pete, during a stint at a major New York ad agency, would often gaze down at the busy street corner below, watching the hot dog vendor. After seven or eight minutes of thoughtful observation, he'd turn to an associate and say, "Not bad. That guy is clearing $1,000 a week."

Pete, who'd never even sampled the guy's wares, mentally ran the numbers and nailed the analysis. How come I can't figure out how and where our own production business is making money?

PORTION CONTROL

Pete had benchmarked the lunchtime traffic, extrapolated daily and hourly customer counts, and estimated the costs of wieners, buns and kraut. He factored in seasonal variations, pushcart costs and even the health department permit; thus armed, he was able to calculate the vendor's break-even point. Amazing.

Some people's minds just naturally work that way. Moreover, some kinds of business transactions easily lend themselves to such analysis. I found myself staring at the giant jug of discount wholesale club cashews the other night, wondering how much money you could make if you bought some jars and labels and divided the nuts into smaller portions. But our business isn't about commodities and portions; the expenses are broad and diffuse, and the items for sale range from the mighty to the miniscule.

In the prehistoric past, the rates we charged had a lot to do with "what the traffic will bear" and "the going rate." But increased competition and cheaper technology have conspired to create a whole new pricing landscape, one which pits a 24-year-old with a PowerBook against a building full of SDI decks and routing equipment.

At the same time, production projects are increasingly diverse in their deliverables and in their budgets, and sometimes the hardest job bills the least amount of money.

And so a more dire question emerges: Is it even possible to get compensated fairly for the work we do?

Across town, there's a small Greek luncheonette I'll occasionally visit for an egg sandwich. The proprietors, George and George (no relation), work hard for a living; still, in terms of their business model, they've got it made. They know what the eggs cost, what the rolls cost, how much Carlos the fry cook gets per hour, and what the gas bill is. And when the time is right, they hike their prices, and we all fall into line to pay what they ask.

So let's try that same breakdown at a small production firm. We know what the staff editor gets paid per hour. Well, actually, after that extra $1,000 a month for health insurance, the hourly rate goes up; better add that in, and the company's 401K contribution, too.

But how many hours should we factor in? Forty? Most weeks, he doesn't do 40 hours of chargeable editing. Who pays for those other hours, if the client's not actually getting charged?

Then there's equipment. George and George haven't bought a new stove in 17 years; we, on the other hand, can assume that the computers that run the editing applications will be too old or slow to run the latest versions in less than five years. (And don't forget the cost of those upgraded software versions.) So we take the monthly equipment lease payment and divide by... well, what do we divide by? Four 40-hour weeks? It's rare to book 40 hours on a given system—shouldn't we use the actual number, or at least an average? But if we do that, who's paying for the system the rest of the time?

MBAs TO THE RESCUE

And so it goes... how to distribute the costs of heating and air conditioning; whether to derive a per-square-foot edit room rent from the monthly mortgage payment; who pays for the sticky notes and grease pencils. I've been thinking that this would be a perfect opportunity for a team of young MBA candidates to tackle a real-world problem.

Unlike a cost analysis of mass-manufactured whatnots, this problem includes variations in production activity, falling competitive prices and increased competition; and technologies that need to be replaced soon after they are installed.

Go to it, kids. Tell us how to price our projects and, more importantly, how to make a little money. But remember that it's not acceptable to tell us that we're nuts and to get into a different line of work.

Although I hear that hot dog vendors make a good buck.

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

DTx

CONTINUED FROM PAGE 23

translator on a different channel to provide a stronger signal to a community at the end of its contour. The major problem is the inability of even the fifth-generation 8-VSB receivers to handle echoes more than 50 µs apart. One possible solution is to include a broadband frequency domain equalizer in the receiver in addition to the more limited time domain equalizer. The time domain equalizer would handle near echoes while the frequency domain equalizer would handle the impulse response for more distant echoes.

Check Dr. Bendov's Web site, *www.tvantenna.tv*. His paper from the symposium may be available there by the time you read this. I'll have more on the IEEE Broadcast Technology symposium in future columns.

GEMENI CHIPSET TESTED

Results from a laboratory evaluation of a prototype receiver using Samsung's new Gemini chip and consumer grade tuners (ALPS or Thomson) are outlined in an Aug. 30, 2005 report by the CRC (Communications Research Centre) in Canada.

The CRC report states, "This Samsung ATSC 8-VSB receiver, based on Samsung Gemini chip and using an ALPS tuner, is the best DTV receiver that CRC ever tested up to now. It has very impressive multipath and C/N performances."

I was encouraged to see that the receiver easily met the ATSC A/74 specification for co-channel and adjacent channel interference. Receiver interference rejection capability will certainly be tested in the crowded TV spectrum when channels 52-69 go away, The Samsung receiver worked with minimum signal levels down to -84.7 dBm, beating the A/74 recommendation of -83.0 dBm and maximum signal levels more than +1.5 dBm, well above the A/74 recommendation of -8.0 dBm. As +1.5 dBm was the highest level available from the test bed, the receiver may work with even higher levels! The interference rejection results were interesting. For moderate signal strengths, the Samsung receiver worked with D/U co-channel interference ratios as low as 14.7 dB, which is surprising because if the interference were pure Gaussian noise, a ratio higher than 14.9 dB would have been required.

Adjacent channel interference rejection was impressive, with -37.1 dB lower adjacent and -35.7 dB upper adjacent D/U ratios required, beating the A/74 recommendation of -33 dB. Note that with a -37.1 dB D/U ratio, the undesired adjacent channel could be 5,000 times stronger that the desired channel! If this performance is duplicated in consumer receivers, it will bode well for LPTV DTV stations and DTx facilities that have to contend with interference from high-power adjacent channel stations.

You can download the CRC report from: *http://www.crc.ca/en/html/crc/home/research/broadcast.rtnt.*

Questions and comments are always welcome and appreciated. E-mail me at dlung@transmitter.com.

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TECHNOLOGY CORNER — Randy Hoffner

Maybe the CRT Isn't Quite Dead Yet

You may be hearing about the demise of the venerable CRT, which has been the display device used in most of the TV sets we have watched since television became a commercial reality. Big, heavy glass CRTs are disappearing from the shelves of neighborhood consumer electronics stores in favor of the smaller, lighter, and most importantly thinner LCDs, plasma panels and microdisplay projector sets. This phenomenon is well underway in places like the United States, Europe and Japan.

One recent report has it that one of the Korean leaders in flat-panel display development and manufacturing has limited CRT sales in Europe to stock on hand, ultimately aiming to stop selling CRTs there altogether.

But wait! This is not the entire story. Korean display manufacturers, which account for much of today's display innovation, have found a new lease on life for CRTs in some parts of the world. They have done this by developing and selling so called "slim CRTs," which have significantly shallower depths than do conventional CRTs.

One 32-inch slim CRT, for example has a depth of about 350 millimeters or about 13.8 inches, as compared to a conventional 32-inch tube's depth of 500 millimeters, or 19.8 inches. This is a reduction of six inches, or about 30 percent, and it puts it into a size category that is competitive with a microdisplay rear-projection set of similar screen size, at a significantly lower price.

So CRTs aren't quite dead yet, and in fact, some new technological innovations are occurring in the CRT display field.

CRTs aren't quite dead yet, and in fact, some new technological innovations are occurring in the CRT display field.

The reduction in CRT depth requires a commensurate increase in deflection angle, which in turn requires higher deflection currents to swing the electron beam over the wider angle.

Higher currents cause greater heat buildup in deflection coils and their driving electronics. Traditional CRT deflection amplifiers are analog class AB amplifiers, but another innovation is the use of Class D amplification, which employs pulse width modulation rather than traditional analog amplification.

CLASS D AMPLIFICATION

Class D amplification significantly increases efficiency and reduces heat buildup in the amplifier circuitry.

The forces at work in the marketplace have caused several things to happen. In the United States, Europe, Japan, and other places, the profit margins on traditional CRT TV sets have become so low that marketing is totally about price—there is no substantive premium market for them anymore.

However, in areas that have many first-time TV set buyers, such as China and India, there have been recent significant increases in the sales of low-end CRT sets. Smaller-screen slim CRTs can find a place in those markets at higher margins than traditional sets. Slim CRT sets were recently introduced into the Middle East as well.

It is not a complete surprise to learn that many of the plants that make slim CRTs are located in Eastern Europe; the former Soviet republics are home to many of today's vacuum tube manufacturing facilities—just ask any tube amplifier high-fidelity aficionado.

The market for slim CRTs has been enhanced on the lower end by the recent addition of the 21-inch category to the 32- and 29-inch size categories. The thinner depth has permitted a price premium of about 30 percent on slim CRT sets over those with standard CRTs, which still makes them cheaper than flat-panel sets. On the down side, it must be said that recent further drops in flat-panel display prices have slightly eroded slim CRT sales.

There are some significant disadvantages to CRT displays with which we are well familiar. Traditional CRT sets have had significant depth dimensions, and the weight of a cathode ray tube increases geometrically with its screen dimension, as more and thicker glass is required. There is little technology on the horizon that might help to break the current CRT screen size barrier, which is about 36 inches, as a CRT set of this size weighs several hundred pounds.

LG.Philip's SuperSlim CRT flat panel sets are 25 percent thinner than regular cathode ray tube sets.

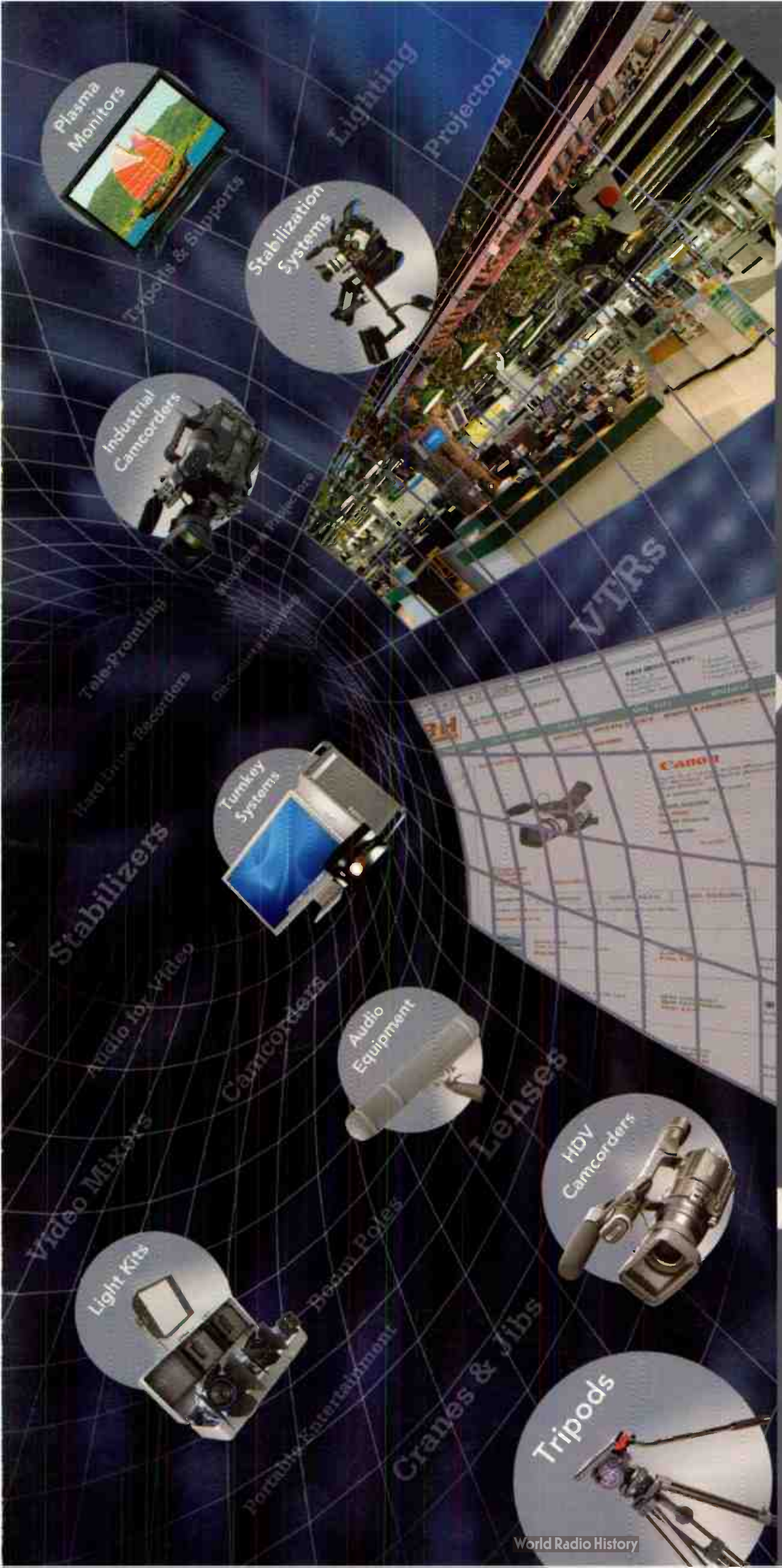
However, as we see, there is technology that makes a slim CRT set in the 32-inch range competitive in depth (but not in weight) with a flat-panel display, at a lower price. A CRT display has a less even output than a fixed-pixel display, with a light output falloff occurring as the edges of the screen are approached.

And there is no argument that microdisplay projectors are considerably better performers than CRT projectors. But within the range of direct-view screen sizes, CRTs are capable of making very good pictures.

Slim CRTs are a very good fit in the developing television marketplaces, in that although they are more expensive than traditional CRT sets, they are available at attractively low prices, and their size parameters work well with smaller living quarters

It is not likely that slim CRT sales will soar in the United States or Europe. But in many developing television markets, they should do well.

Randy Hoffner is manager of technology and strategic planning for ABC. Write to him c/o TV Technology.



INTO THE SOURCE

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USER REPORT

Rochester Stations Run DTG XE

by Brendan Ford
Production Manager
KTTC-TV/DT & KXLT-TV/DT

ROCHESTER, MINN.

KTTC-TV has been automated since 1996, using Odetics Spotbank/Airo software. In early 2005, the Digital Transaction Group contacted us to see if we were interested in beta-testing their newest version of XE software in our busy master control room environment. We run both an NBC and Fox affiliate from our facility and, on average, record 40 programs a day, add about 140 new spots a week and prepare topical news and programming promos.

KTTC agreed to the test and DTG arrived at our facility in late July to install the two servers and four workstations. The installation was completed in just four days, and we began feeding programming to both KTTC (NBC) and KXLT (FOX), plus providing CNN Headline News inserts to our cable company.

SMOOTH UPGRADE

The upgrade to XE went very smoothly. A big change in this version of software is that the content database now works from a SQL server instead of being maintained in a dBase format, which had to create a copy of the database on each computer in the network. The other significant change was the upgrade to the XDS device server. We had been doing device control with the Odetics/DTG software and tributary cards. The most difficult part was converting all of our existing data into the correct fields in the new SQL database.

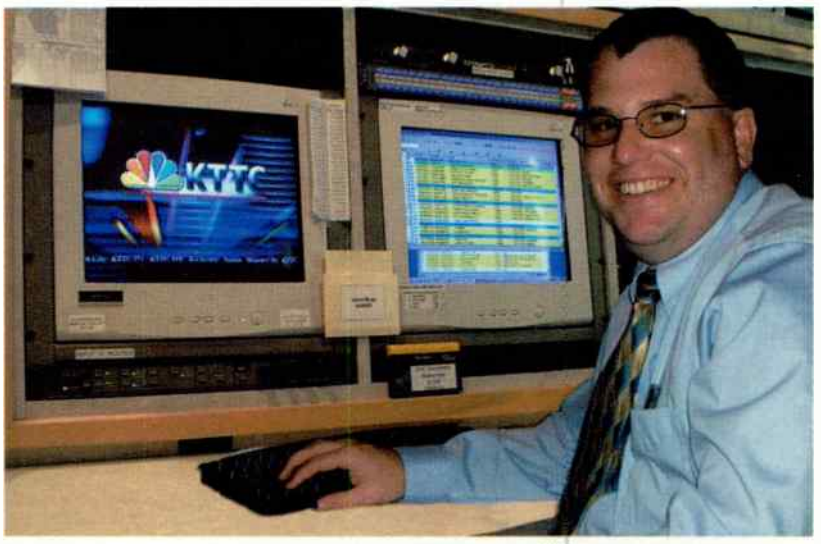
We noticed very quickly that the new DTG software was more efficient than the previous two versions. This can be attributed to the fact that all the devices are now controlled by a server and not tributary cards, so they respond faster.

The new system controls our house router, which automatically directs material being ingested to the appropriate router crosspoint. We no longer have to worry about operators incorrectly setting up input crosspoints when recording clips into the system. We no longer have to use the computer mouse with the Content Manager, as DTG implemented shuttle control functionality.

EASY LEARNING CURVE

The learning curve for the operators was very minimal, as they had worked with two earlier versions of the software. Many of the terms and processes were similar. With the stronger, more robust database that DTG provides, information recall and search functions have been made easier.

The entire production department agreed that being a beta-test site was a great opportunity. Certainly, there were some bugs that needed to be worked out, but more importantly, this provided an opportunity to suggest and help implement new features and procedures for getting things done.



Brenden Ford is production manager at KTTC-TV and KXLT-TV in Rochester, Minn.

DTG was very quick to find and fix the bugs we were experiencing and also quick to think through and implement many of the suggestions the operators had on software improvement. Occasionally, we received multiple updated versions of either Delivery Manager or Content Manager all within the same day.

I have experience with a few automation systems and am impressed with the way DTG automation works. It is very logical in its layout and terminology. If you want to run simple single station automation or complex multiple station automation, I am confident DTG can make it work.

Brendan Ford is the production manager for KTTC-TV/DT & KXLT-TV/DT. He has worked for Qunicy Newspapers Inc., owner of KTTC and KXLT, for the last 11 years, and has spent the last five years with KTTC. The opinions expressed are solely those of the author. He may be contacted at bford@kttc.com.

For more information, contact the Digital Transaction Group at 800-243-2001 or visit www.dgtv.com.

USER REPORT

Leightronix Automates Public Access TV

by Jason Benjamin
Executive Director
Norton Community Television

NORTON, MASS.

Folk singer Bob Dylan quoted in one of his songs that "When you ain't got nothing, you ain't got nothing to lose." I can relate to that in my position as executive director for a small community television operation. Public access television often suffers for lack of adequate personnel and equipment. But weaknesses in this area can prove to be a strength when it comes to innovation. In public, education and government access, aka PEG, we have an advantage over commercial broadcasters in that we are not committed to old technology.

Commercial broadcasters spend hundreds of thousands of dollars for nonlinear editors, automation systems and other broadcasting infrastructure to get their signal out at the quality and consistency their advertisers and audiences expect.

When a new workflow method-

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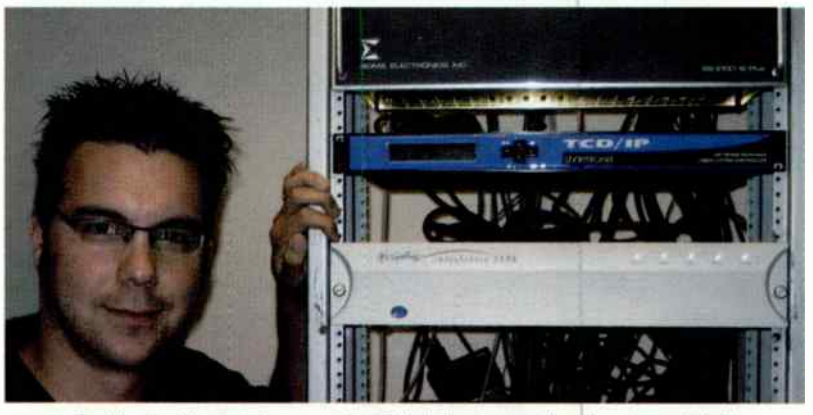

Jason Benjamin, Norton Community Television executive director, with the Leightronix automation controller

Leightronix

CONTINUED FROM PAGE 30

ology presents itself, broadcasters have to make purchasing decisions based on the perceived future stability of proprietary formats and hardware.

In our much smaller environment, we can make our decisions without fear, knowing that things can only get better. We try to emulate what the big guys are doing—but on a shoestring. Sometimes we miss the mark and sometimes we are able to move and innovate in ways that beat the big guys to the punch. I am happy to report one such example.

DIGITAL MIGRATION

I had been looking for an inexpensive way to migrate from an analog, tape-based environment to a fully digital plant with acquisition and play-out technology. I managed to accomplish both of these objectives on a very limited budget.

Content acquisition was the first step in this process. For this I chose the Firestore FS-4 Pro from Focus Enhancements. This is a portable hard drive recorder that acquires a DV25 signal and translates it into any one of several native NLE codecs for ingest. The file is encoded on-the-fly and is instantly available to drop into an edit timeline.

I equipped my stringer cameramen with FS-4 units. I then purchased a 360 Systems Image Server 2000 for play-out. The 2000 can capture composite and SDI video, but it also has the ability to ingest raw DV streams via FTP.

My stringers capture athletic events, municipal meetings, concerts and other events on the FS-4s and then stream the files over a LAN directly into the 2000. The end result is a new acronym I like to call DTB or "direct-to-broadcast."

I have not implemented network-attached storage, but still make use of the full 25 Mbps DV stream. With this workflow, we can to export all of the edited content from Final Cut Pro as a DV stream and FTP it directly from the Mac.

Archiving content is another important consideration that is addressed by this model. When my server drives begin to fill up, I move programming back over Gigabit Ethernet into a Lacie Firewire 800 drive and burn the files onto a dual-layer DVD.

AUTOMATION RECIPE

Automation control is the final ingredient in this recipe, and the solution came from another dear friend of public access—Leightronix. I cut my teeth on their Mini-T Event Controller, and graduated with the TCD/IPTM network managed video system controller.

Leightronix recently developed a Plus-BusTM module that speaks the VDCP control protocol language that the Image Server 2000 understands. I was thrilled with the advanced playlisting abilities that were included in the software. Inserting public service announcements and short bumps into a broadcast presentation is very easy and seamless.

This was my roadmap to tapeless broadcasting. The future is now. You don't have to wait for expensive removable media. The admission price is low.

Whether you are just getting started or upgrading an existing system, the challenges are the same. With Leightronix, you can assemble a communications system that is cost effective, easy-to-operate and that produces a professional on-air presence with a high-quality signal.

Jason S. Benjamin has been the executive director at Norton Community Television for two years. Previously, Benjamin consulted with the station's board in the design of its new studio facility. He has also worked as an IT technician for Scudder Kemper Investments in Boston and Olympus America. The opinions expressed are the authors alone. He can be reached at director@nortontv.org.

For more information contact Leightronix Inc. at 800-243-5589 or visit www.leightronix.com.

USER REPORT

MicroFirst Wins Praise at KPTS-TV

by Richard Ochoa
Broadcast Maintenance Engineer
KPTS-TV

WICHITA, KAN.

KPTS-TV Channel 8, is a PBS member station and has been providing service to the Hutchinson-Wichita, Kan. area for over 35 years. Like a lot of stations that have been around for a while, our operational requirements and equipment complement have evolved over the years. This reached the point where we were operating with six different machine control systems and had no redundancy protection of any sort.

With the move towards digital technology and the addition of extra channels, it became clear that we needed to seriously upgrade our infrastructure and consolidate all of our master control operations under one automation system. After looking at quite a few systems and comparing features and price tags, we selected MicroFirst.

The MicroFirst digital automation system provided our station for the first time with a complete solution, allowing full control of our Utah Scientific plant router, master control switching, satellite IRDs, videotape machines and Omneon video file server. In addition, MicroFirst provided us with a fully redundant system for much less than any of the competing automation system providers who were bidding on the project.

A COMPLETE SOLUTION

Given the nature of our operation and its multiple legacy control systems, we were somewhat apprehensive about making the switchover to a totally new system. However, everything went very smoothly, and the MicroFirst DAS automation system was installed and running here in less than a week. Thanks to the intuitive software interface provided by MicroFirst, we were able to get by with minimal operator training.

We are now in that rather enviable position where our master control operators can just stand back and let the DAS do all the air switching and machine control. The stress level within our facility has been greatly reduced by the addition of the MicroFirst system, with our operators now being able to devote themselves full time to traffic details and program monitoring duties. As an engineer, I was very impressed with the simplicity of such a capable system.

The system has been operating at our facility for more than eight months now and we have had no maintenance issues with it. MicroFirst addressed our unique operational needs with a tailored system that has provided us with the software and control functionality we needed to handle our growing operational requirements. The company fully understood our needs, designed a system to address those needs and, in the process, treated us with both a high level of professionalism.

Richard Ochoa, a broadcast maintenance engineer with KPTS-TV in Wichita, Kan., inspects the MicroFirst Digital Automation System.

Richard Ochoa is a maintenance engineer at KPTS-TV in Wichita, Kan. He has been with the station for 12 years. The opinions expressed are the author's alone. He may be contacted at rochoa@ktps.org.

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

USER REPORT

Magica Lanterna Marks Reality

by Yves Bériault
Y.B. Productions

MONTREAL

As technical director and producer of Y.B. Productions, I love working with the latest technologies, and my primary focus is integrating new technology in video applications and leveraging it to deal with such challenges as video transport, production, post production, and storage.

Recently, I have been serving as technical director for two popular television shows in Canada—"Star Academie," a talent search show, and the romance contest "Occupation Double." Both are reality shows, which involve unscripted action and a large phalanx of cameras to capture all of the important events.

The challenge that arises from this multitude of cameras is the sheer quantity of footage collected during shooting. In scripted shows, there may only be one camera in use, and the "keeper" footage is easy to locate. But with reality shows, the gems have to be unearthed through monotonous, time-consuming searches. The solution I

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Magica

CONTINUED FROM PAGE 32

found that helped me efficiently sift through all the raw footage is Reality, a new video encoding and logging system from Lanterna Magica.

I used this system on "Star Academie," in which contestants perform musical numbers on stage in front of a live audience and must receive enough votes from viewers. When I joined the "Star Academie" team, the producers had already decided to use Reality to manage the footage from the show's 24 cameras. After working with it for the season, I was hooked. We ended up using Reality to index two video streams, each approximately 80 hours per week, for more than 10 weeks.

SIMPLIFIES PRODUCTION

Reality greatly simplifies the production process and makes the director look good because he is able to find the best shots fast. In "Star Academie," production time is very tight, with the show airing only 24 hours after shooting.

Yves Beriault found that Lanterna Magica's Reality greatly speeded up production in a 24-camera shoot.

With Reality, the video and audio of a virtually unlimited number of camera feeds are ingested and encoded along with timecodes. Production staff can access footage at any time—even while during shooting—and from any location via the Internet.

The staff first enters video content descriptions of the video. Then I can search the logged video by participant name, date, time, interest rating, location, and keyword for specific actions and emotions.

ADAPTABLE SYSTEM

Searches can be played out immediately, and if the clip is to be included in the show, the staff marks in and out points and generates a rough edit decision list. We can then refine the EDL with a nonlinear editing system, like Avid or Final Cut Pro.

Reality is not only for large productions with lots of cameras, but can be adapted for many types of shows, such as talk shows, documentaries and live events.

I've usually just rented the product for as long as I needed it. As reality shows are often transitory, a rental solution is more cost effective than purchasing the product for only a few month's work. The Lanterna Magica staff installs the hardware component of Reality in a production set and provides training and support. The rest is software-based, accessed via the Internet.

Reality is a terrific tool for reality TV producers and many other content producers, helping them to sift through and summarize hundreds of hours of footage into shows that are coherent, compelling and dynamic. I'd really hesitate to work on another reality show without it.

Yves Beriault has worked as a consultant in the live-event and television entertainment industry for nearly 30 years. He served for four years as technical director for Celine Dion and also as a consultant for Cirque du Soleil. The opinions expressed are those of the author alone He may be reached at info@yves-beriaultcom.

For more information, contact Lanterna Magica at 514-807-5296 or visit www.lanternamagica.com.

USER REPORT

Burk Controls KJRH-TV Transmitters

by Michael Mudd
Transmitter Engineer
KJRH-TV

TULSA, OKLA.

It was time to replace the aging Moseley remote control system that we used with our RCA TT-30G television transmitter. We began shopping around and decided that the Burk Technology (formerly Gentner) GSC3000 remote facilities management system was the best fit for our facility.

The system is extremely versatile. The I/O units come in eight- or 16-channel configurations and can be linked to provide up to 16 I/0 units for hundreds of control channels at a site. Multiple sites can be controlled with the system from multiple locations. Each I/O unit has 16 status inputs, 16 analog inputs, and 16 control outputs. Status inputs can be wired to accept either voltage/no voltage or open circuit/short circuit for the high/low indication. The meter channels accept zero to 10 volts or –5 to +5 volt levels. The command channels drive a command relay unit that provides a dry contacts output.

VERSATILE SOFTWARE

The Burk Technology software allows you to define the input ranges for metering, open/closed parameters or voltages for status, and whether you have latching or momentary conditions on the command relays. You can also define the duration of a momentary relay closure. The system even does the math, with multiple channels for power and voltage standing wave ratio readings.

The software allows the system to respond to status of meter channels with commands. If you want the system to shut off the transmitter or to adjust it if a particular channel changes, it can be done automatically. You can even write commands to delay application of plate voltages until the filaments have warmed up and to adjust power to a predetermined level.

With the installed system, we are able to monitor and control our remote dual transmitter, the antenna system and backup generator. We can monitor tower lights, the building security system, building temperature, input and output air temperatures and also control a 10X switcher.

We have a separate tower site used for ENG. We use a Burk Technology system I/O unit there for controlling and monitoring tower lights.

Michael Mudd, is a transmitter engineer at Tulsa's KJRH-TV.

A big plus with the Lynx software is the ability to create customized views. You can define meter shape, size, range, resolution, color and labels, along with status lights and control buttons. I've built up custom views for the various functions at our sites. The master control main screen has all the metering operators normally need to take readings and to keep track of the transmitter. We use touchscreen controls, and I put buttons on the screen for the various functions required. We have separate screens for tower lights, building functions, RF system functions and the A and B sides of the transmitter. This allows us to keep the clutter down when we are addressing a particular function.

The Burk Technology GSC3000 gives us great control of our remote sites, with lots of easily accessed data and control. As with many new systems, you can control and define almost everything, but you have to know how. Burk tech support was there on the phone or online when I had questions.

Michael Mudd is a transmitter engineer at KJRH-TV. He has been with the station for the past 25 years, working in virtually all technical capacities. The opinions expressed are solely those of the author. He may be reached at mudd@kjrh.com.

For more information, contact Burk Technology at 800-255-8090 or visit www.burk.com.

USER REPORT

KSTP-TV Chooses Proximity artbox

by Julia Costin
Engineering Manager
KSTP-TV

ST. PAUL, MINN.

KSTP-TV is an ABC affiliate serving the Minneapolis and St. Paul area and is owned and operated by Hubbard Broadcasting. I have worked here as an engineer for almost 20 years. A few years ago, I moved into project planning and documentation. This included developing an interface with the Hubbard corporate IT department. A strong working relationship has become increasingly important, since traditional broadcast and IT areas are moving closer together.

ARTBOX AIDS SEARCHES

We first became interested in the Proximity artbox when planning to implement the Pinnacle DekoMOS system with our newsroom ENPS. Several producers with prior experience pointed out how the Proximity artbox streamlined the DekoMOS workflow and made their increased responsibilities manageable. They cited artbox's

PROXIMITY, PAGE 38

Shane Pechacek and Julia Costin worked together in the deployment of Proximity's artbox at KSTP-TV.

COMPANY PROFILE

Florical's Fresh Ideas

FLORICAL SYSTEMS
4581 NW 6th Street
Gainesville, Fla. 32609

Tel: 352-372-8326
Fax: 352-375-0859

www.florical.com

by James E. O'Neal

GAINESVILLE, FLA.

Florical has its roots in Gainesville, Fla. and has been around since 1986, making it one of the older players in the world of television automation. Its founder, Jim Moneyhun, had a vision of providing a viable toolset for streamlining master control workflow. During the past 19 years, that vision has continued to mature, making Florical one of the industry leaders in automated control of broadcast systems and facilities.

The company's focus from the very beginning has been on providing automation solutions to boost operational productivity and economy. Moneyhun executed this concept so successfully in the beginning that a component of the company's first automation product, AirBoss, is still part of every Florical automation system delivered today.

While it would be easy to rest on laurels and prior achievements, this is not the Florical way. The company continues to work with its customers to provide the features and functionalities needed in broadcasting's ever-evolving business models. Mike Powell, the company's CEO, echoed this very basic Florical philosophy.

Mike Powell, CEO of Florical

"Clients are the people driving our development. A good vendor must listen to what the clients want. Florical is a mix of people in and around the industry for many, many years—a mixture of both software and hardware people with a priority of coming up with fresh ideas and solutions," he said.

Powell observed that this is a very dynamic time to be involved in broadcasting.

"Consolidation has changed everyone's life, both in radio and television," he said. "These changes have included the many forms and directions of advertising. This is a much more complex environment than ever before. It's all much more complicated than it used to be."

When asked about the company's plans for the future, Powell said, "We will continue to focus on our one core competency, but there are many other directions we're looking at. One of the things in the industry that is developing right now is increased use of product placement in movies and television shows. This has become increasingly sophisticated. There has to be an accounting for these, as well as a means for proper insertion," he said.

CENTRALIZATION

Florical has been a pioneer in providing automation tools for centralized operation of multiple stations and the company excels in the use of centralized databasing.

"No other broadcaster is utilizing centralized data to the extent that NBC does," said Florical spokesman Tom Zarecki. "All of its 14 owned-and-operated stations are operated from just three control points and as such, are extremely dependent upon data management. Crucial to such operations is reliable automation software and for this application, NBC put Florical above all others."

Such acceptance of an automation product would not be possible without extremely high levels of performance and reliability. This is best summed up by the company's vice president of sales and marketing, Neal Perchuk, as "lights-out" automation.

The concept of lights-out automation has made feasible the totally unattended operation of television plants for days at a time without any human intervention.

Given the maturity level of Florical automation, there is very little to go wrong. Conditions at a typical customer site were described by Perchuk. "It's really quiet and boring at a Florical

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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.

NEWSROOM AUTOMATION

MANUFACTURER	MODEL	CAPACITY	PLATFORM	TYPE OF NETWORK	MACHINE CONTROL	SPECIAL FEATURES	PRICE
Associated Press 202-736-1100 *www.enps.com*	ENPS	Depends on computer	Win	LAN/WAN dialup	Third-party and cusom	Supports 64 high-speed newswire feeds, multiple language support	Call for pricing
Autocue 704-377-1496 *www.autocue.com*	QSeries	Scalable	Win	Fibre Channel Gigabit Ethernet, LAN/WAN, dialup	Fully integrated automation software	All Unicode compliant languages supported, modular, scalable, custom layouts for each client	Call for pricing
Avid Technology 978-640-3372 *www.avid.com*	Avid Unity Family	4TB small workgroup to 64TB network	Win, Mac	Fibre Channel, Ethernet	Supports OmniBus automation	Supports all Avid editing products, repurposed video for Web streaming	Call for pricing
Compprompter 608-785-7766 *www.comprompter.com*	NewsKing Electronic Newsroom	Fully scalable server	Win	Fibre Channel, Ethernet, LAN/WAN, IP, dialup	Fully integrated automation software	Supports multiple devices and vendors	Call for pricing
Dalet 212-825-3322 *www.dalet.com*	DaletPlus News Suite	Depends on video server	Win	LAN/WAN; Ethernet, Gigabit Ethernet	Omneon, VDSCP, RS-422, AMP	Bidirectional communication between Dalet Newswire, fully integrated asset management	Call for pricing
OmniBus 303-237-4868 *www.omnibus.tv*	Headline News Suite	Depends on video server	Win	LAN/WAN, Ethernet, Gigabit Ethernet, Internet	Fully integrated news, ingest transmission SW	End-to-end solution, fully configurable user interface, completely automated ingest, scheduled recording	Call for pricing
Quantel 203-972-3199 *www.quantel.com*	sQ, Newsbox, Picturebox sQ	Scalable	Win	Gigabit, Ethernet and Fibre Channel	CORBA, RS-422 and MOS control	Fast ingest/edit/playout, no copying or consolidation required	Less than $199k for News to Go
Video Technics 404-327-8300 *www.newsflow.tv*	Newsflow NAS/SAN	Scalable	Win, Mac	Fibre Channel, Ethernet	VDCP, Avid Device Mgr. Apella VPI	Open architecture supports multiple NLE systems with Open DML, QuickTime	Less than $50k

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USER REPORT

Ross Overdrive: A Key Ingredient at RIS

by Richard Baril
Director of Operations and Engineering
RIS, RDS, CFCF-CTV

MONTREAL

RIS is a 24-hour headline sports news channel, broadcasting to the French Canadian market. It was launched in October, 2004, and is one of the newest digital channels in a competitive marketplace. RIS is part of the Bell Globemedia company and sister station to RDS—the world's first French-language sports channel—which carries the rights to major sporting events. All channels operate out of our downtown Montreal, Quebec facility.

Our goal was to launch the headline sports news channel on a tight budget and with limited staff, but without sacrificing content or quality. At the start, we realized the need to invest in technologies that would allow one technical person to manage production play-out. We knew we had to create significant efficiencies to launch the digital channel. New technology was the only way to achieve this.

I first heard of OverDrive from Peter Chartrand at Ross. Our discussions led to RIS becoming a beta site for OverDrive. During the beta period, Ross listened to our requests carefully and prioritized features to answer our needs and meet our timeline. This commitment still continues. The company has provided excellent customer service.

ROSS, PAGE 50

Richard Baril is director of operations and engineering at RIS in Montreal.

Proximity

CONTINUED FROM PAGE 34

extensive search capabilities and ordering and tracking systems, all accessible within ENPS. Producers could select existing graphics using artbox's searchable thumbnail display and attach the graphics to a DekoMOS template or create electronic work orders for new graphics, then track and verify them when completed. The tight integration of artbox with the Pinnacle MOS application was impressive.

From that starting point, we rapidly discovered that artbox would allow us to overhaul our graphics workflow. We use the Quantel Paintbox and Picturebox systems as well as Apple G4s and G5s. Our artists had been struggling with the limitations of discrete storage and transcoding. Adding NAS storage helped somewhat, but we still had a very labor-intensive process.

By utilizing the artbox automated transcoding and transfer capabilities, we were able to have Quantel elements easily available for the Mac artists as Photoshop files and could transfer stills from Web sites and other locations into the Quantels for redesign. This Mac/Quantel bridge has made a huge improvement and allows us to plan for future equipment migration.

METADATA ELEMENT

artbox has several ways to generate and edit metadata, which is helping us build a very accessible library of completed stills and elements. Different user groups have access to various portions of the entire library.

Another added benefit to artbox is that it is highly configurable for both the Web interface and the Java client. You can create customized order templates for the users and also can create custom navigation of the Java clients, which can run on either a Mac or Windows based system.

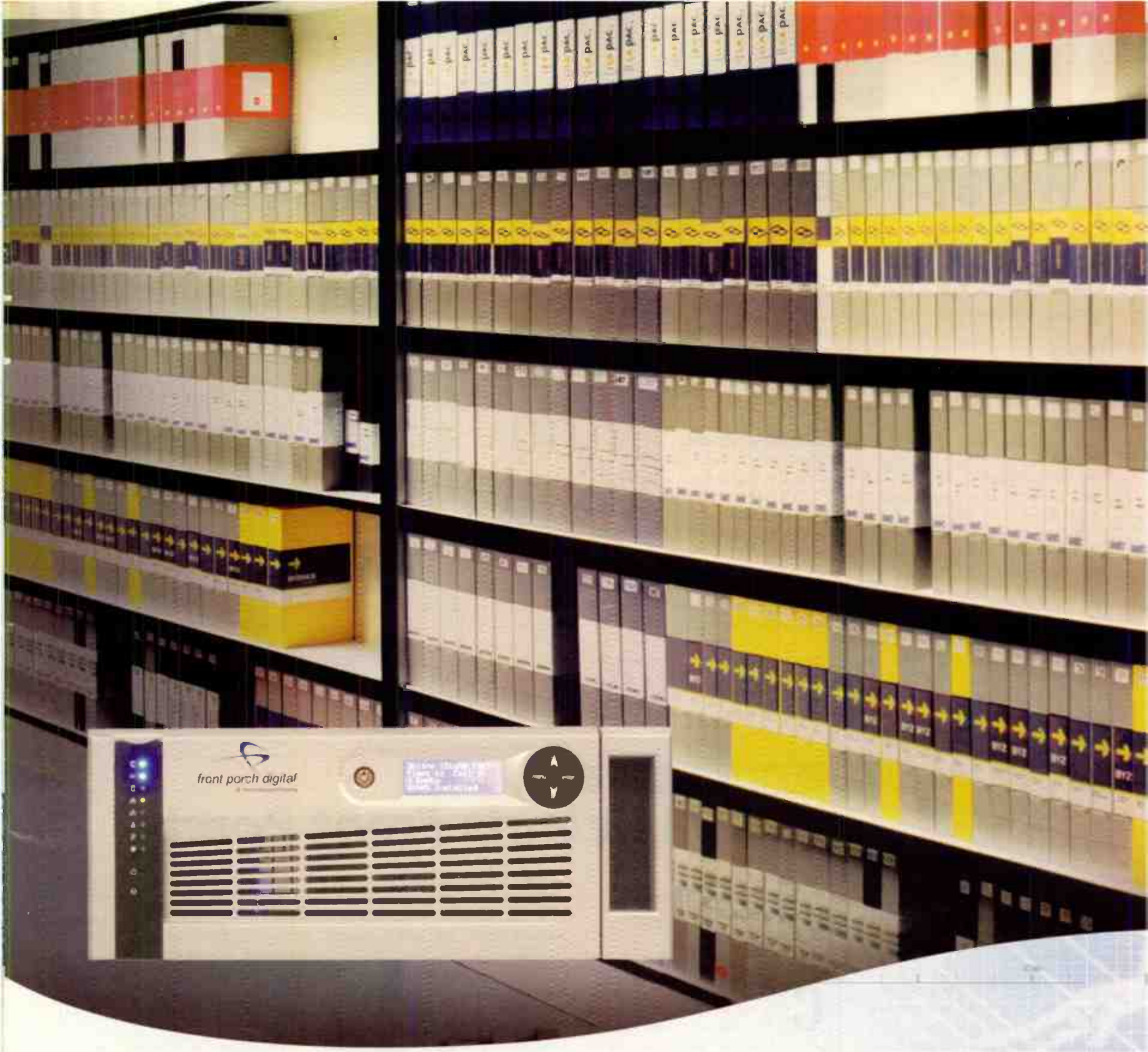
Proximity's installation and training went very well. A Proximity representative was on site for an entire week, as we transitioned to the new DekoMOS/Proximity workflow. This is something that I highly recommend during such changeovers! Their tech support has been very responsive and the system remarkably stable.

That said, it is very important to have an engineer to work extensively with the trainer during installation and to become familiar with all the tools available for problem analysis. Errors, primarily manmade, happen during graphic ordering and creation, and the results can show up rapidly in the newsroom, the graphics department and the control room. artbox has good tools and good flexibility, but it is a complex system and should be treated with respect. It's also a well-designed system, allowing us to increase the efficiency and accuracy of our newscasts, as well as our graphics department workflow.

I would like to add my special thanks to Shane Pechacek, who has done most of the Proximity artbox maintenance and on-site development.

Julia Costin is engineering manager for information systems and administration systems for KSTP-TV engineering. The opinions expressed are her own. She may be contacted at 651-642-4106 or at jcostin@kstp.com.

For additional information, contact Proximity at 646-452-5820 or visit www.proximitygroup.com.



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BREECE HILL

USER REPORT

WWBT-TV Archives With Crispin's NewsCat

by W. Henry Boze
Vice President of TV Engineering
Jefferson Pilot Communications

RICHMOND, VA.

As our facility moved to a tapeless workflow with nonlinear editors and video servers, it was important to have an archive system in place to store news stories without the time-consuming process of dubbing to videotape. We began researching news archive solutions earlier this year, looking for a scalable product that met our workflow requirements and our budget.

In October, we became a beta-test site for the Crispin NewsCat, an affordable, integrated news cataloguing and archive solution.

We had several reasons for choosing the Crispin news archive solution. We wanted to complete the tapeless workflow and eliminate the need for VTRs in our edit rooms, especially with our conversion to Panasonic P2 looming. We were also running out of real estate for our tape library. All of our hallways are lined with shelves containing 35 years worth of news tapes. NewsCat gave us a return on investment almost immediately; we were able to save money by eliminating tapes from the equation.

The entire NewsCat archive system only occupies 9 RU. This includes database/Web server, low-resolution encoder, and RAID storage.

The Crispin NewsCat makes an archive copy of each clip on the Profile server after airing, based on the rundown. Most importantly, NewsCat provides a method to easily locate material at a later date. Archived video clips are linked to a database containing all script information from our QNews newsroom computer system. The database functionality includes an extensive search function, so producers and editors can search for a story using traditional parameters such as date, slug, script information, CG text, or keywords. Low-resolution proxies are created for each archived clip, enabling journalists to preview material on their desktops.

EASY SEARCHES

Searching for archived video with NewsCat is also simple—by date, slug, script information, CG info or keywords. We can also create a library of generic file videos by annotating news footage with keywords and descriptions. Best of all, it's a browser-enabled system.

Any of our producers can simultaneously access archived video clips using a standard Web browser from anywhere on the network. This browser-based system eliminates the need for dedicated archive terminals or software. This not only enhances the workflow, it makes it easier to maintain the system.

We designed our system to enable us to retrieve up to 24 months of video almost instantly using nearline storage. Older material is permanently stored in digital file format on removable Sony PDD disks that are tracked by the NewsCat database. These disks can hold up to 23.3 GB, which is more than three days worth of news stories. This allows us to significantly reduce the amount of shelf space dedicated to tape. Storage space required for these disks will be approximately 70 percent less compared to archiving on DVCPRO tapes.

W. Henry Boze puts Crispin's NewsCat though its paces at WWBT-TV

The Crispin NewsCat system has made it easier for us to enhance quality by keeping everything in digital file format, as well as making it easier for the news department to manage and locate archived stories. The cost savings over tape archives was just a side benefit.

W. Henry Boze is vice president of engineering at Jefferson-Pilot's WWBT-TV in Richmond, Va. He may be contacted at hboze@jpc.com.

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

USER REPORT

CHUM Selects Front Porch

by Bruce Cowan
Director of Broadcast Technology
CHUM Television

TORONTO

CHUM has always been a broadcast pioneer in television and radio, and we've often been a step ahead in developing new approaches and adopting the latest technologies. Our pioneering ways have met with great success, as CHUM Ltd. has expanded from a single Toronto radio station to ownership of 33 radio stations, 12 local television stations and 21 specialty television channels today.

This success has also resulted in challenges that many other broadcast facilities don't have to face. CHUM's television division is not affiliated with any network, so we produce a lot of our own original programming.

The result of decades of self-produced content is a massive volume of videotape in several libraries. While videotape is still a useful form of storage, it has its limitations. With tens of thousands of tapes on the shelf, the medium becomes cumbersome to manage and store. When a tape is checked out and returned to the correct place, it often gets lost. There are the inevitable and numerous "missing tape" e-mails.

Several years ago, we began the search for a better archive management solution. After evaluating several systems

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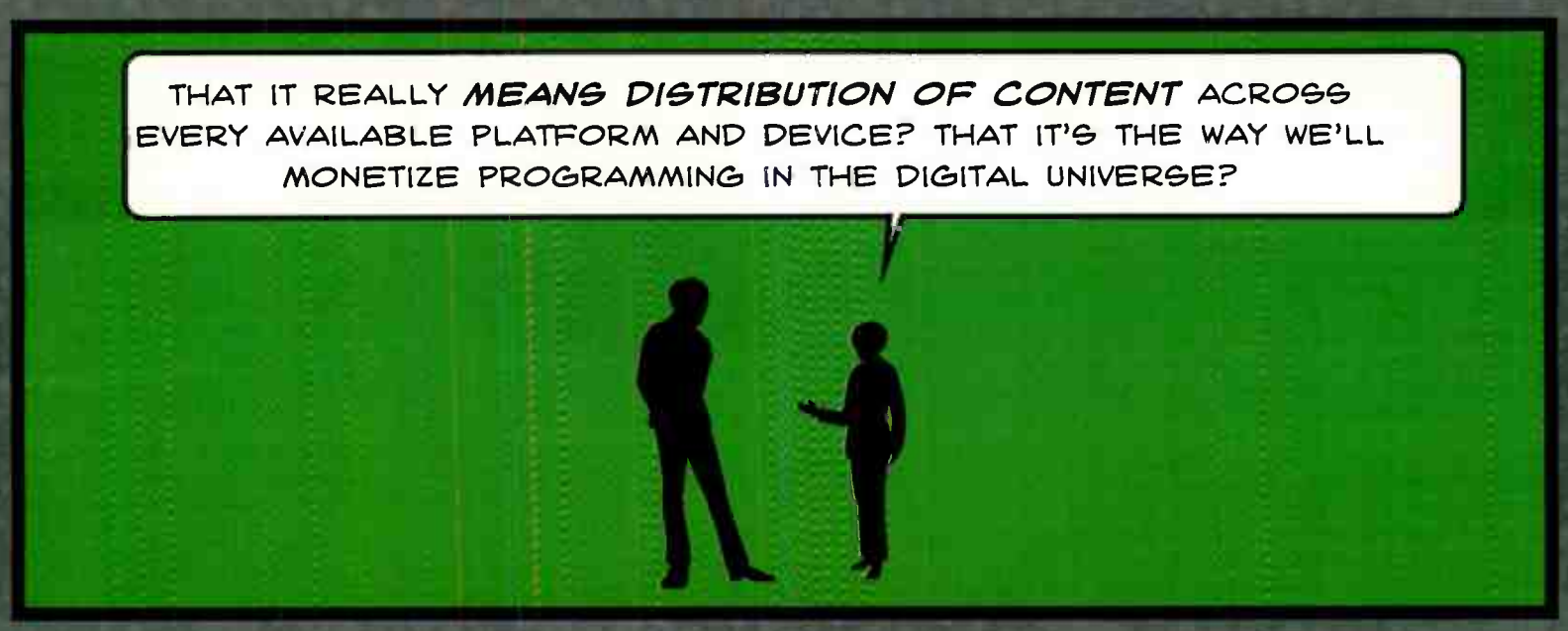

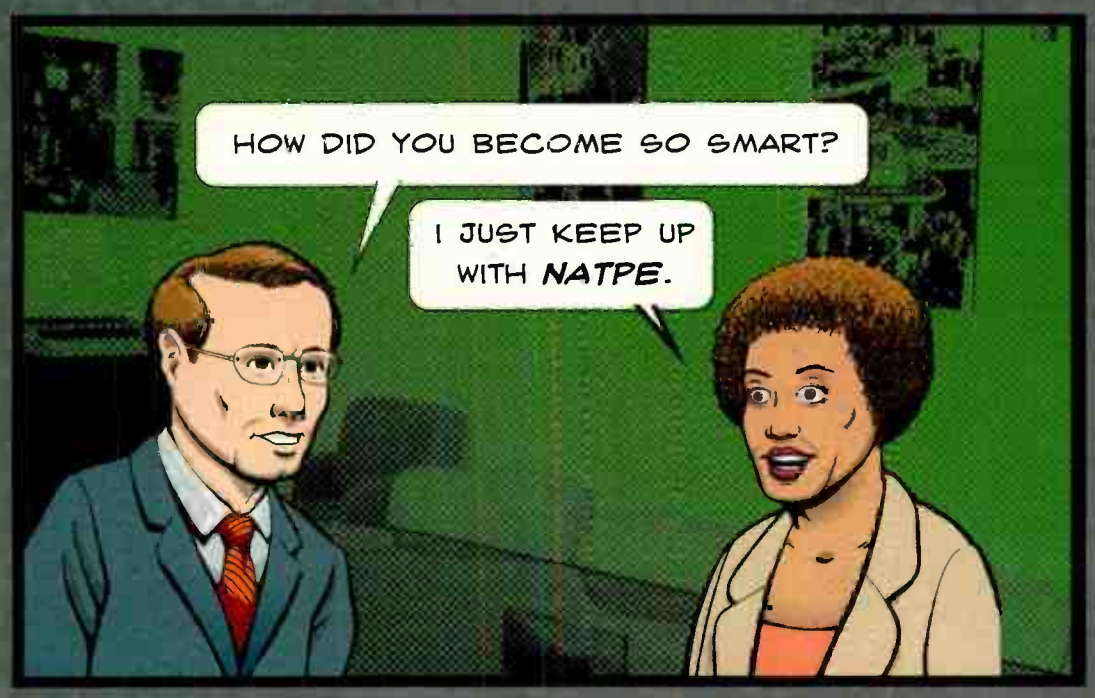

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USER REPORT

BitCentral's Précis Revamps Workflow

by Craig Porter
Chief Engineer
KRON-TV

SAN FRANCISCO

KRON 4 in San Francisco is one of the largest news stations in the nation, broadcasting newscasts nine hours daily and five hours on Saturday and Sunday.

At KRON, our vision has not been to simply digitize our existing workflow, but to actually reinvent workflow, to develop a more creative and efficient system from capture through archives. Despite advances in technology, desktop news video production has been an unfilled vision until recently. KRON wanted to provide true desktop editing to all of our users' standard Dell computers.

This editing should be based on computer industry standard file formats over industry standard TC/IP network hardware and protocols. In this environment, our editors and producers would be free to integrate media from a wide variety of sources as easily as they have historically worked on text-based documents.

GOODBYE TO TAPE

Videotape requires a lot of manpower, time and associated expense. We knew that the station lost valuable time and spent money unnecessarily as a result of a tape-based infrastructure. Potentially cheaper digitally based solutions held more promise.

We saw the Précis News Production System from BitCentral as the realization of our collective vision in streamlining workflow and the production process of our news operations. Précis is an integrated solution, ingesting multiple NTSC or SDI sources into the digital workflow and allowing our news team to gather, edit, and file stories remotely. Station editors and producers can ingest local news stories along with national news into a single user interface. The Précis all-file-based work flow greatly im-proves speed-to-air, retains video quality and provides tremendous flexibility.

BitCentral's Précis in use at KRON-TV in San Francisco

Précis came equipped with Canopus Edius as the nonlinear video editing platform. It has features similar to those in Final Cut Pro and Avid, but we found the learning curve much shorter and that the platform works seamlessly with mixed video formats.

Précis is fully integrated with Edius, so our editors simply save to their stories within their show. Our entire news staff continues to do all their textural work in iNews, which drives the Précis system, so users don't have to retype any information into the new system.

Now our staff can see the video status and are able to preview their video from within iNEWS.

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CHUM

CONTINUED FROM PAGE 40

and consulting with another broadcaster using the same Harris Invenio asset management interface that we do, we selected DIVArchive from Front Porch Digital. DIVArchive acts as middleware between our Invenio user interface and our collection of storage devices.

The physical archive revolves around our ASACA DVD-RAM robotic jukebox, which stores our short-form material, and our Sony PetaSite datatape library, which stores long-form material. We also have a combination of video servers that provide cached storage for play-to-air.

DIVArchive manages all of these content stores seamlessly, as if they were all one. From a user standpoint, it doesn't matter which library a particular clip goes into. It also takes care of library management, performing internal backups and repacking partially filled tapes.

Bruce Cowan, director of technology at CHUM Television in Toronto

Our DIVArchive installation includes BitScream, a Front Porch Digital tool that creates a readily accessible low-res proxy copy of all ingested content. It really helps us to find material quickly. When we enter a content query at an Invenio terminal, we can click on a search result and view the proxy copy to determine the content. If it's correct, we simply indicate so and DIVArchive retrieves the high-resolution version.

We were also attracted to DIVArchive's "partial restore" feature, which allows us to pull sections of stored content into our edit suite instead of the whole piece.

The DIVArchive solution has performed very well for us, and we have continued to scale our archive capacity as we continue adding content. Our three-year contract with Front Porch Digital represents the first time we have signed a multi-year technology agreement with anyone, which speaks to our high regard for DIVArchive.

We started the contract with a license covering 18 TB of storage, and now, with the PetaSite, are at about 200 TB. We expect to ultimately store about 600 TB. There is no other archive management provider that has proven so conclusively the ability to scale to this level. It will take a while to get to that point, and we are confident that DIVArchive will continue to manage all that content for us far into the future.

Bruce Cowan is director of broadcast technology at Toronto's CHUM Television. He may be reached at 416-591-5757.

For more information about DIVArchive, contact Front Porch Digital at 888-935-4383 or visit www.fpdigital.com

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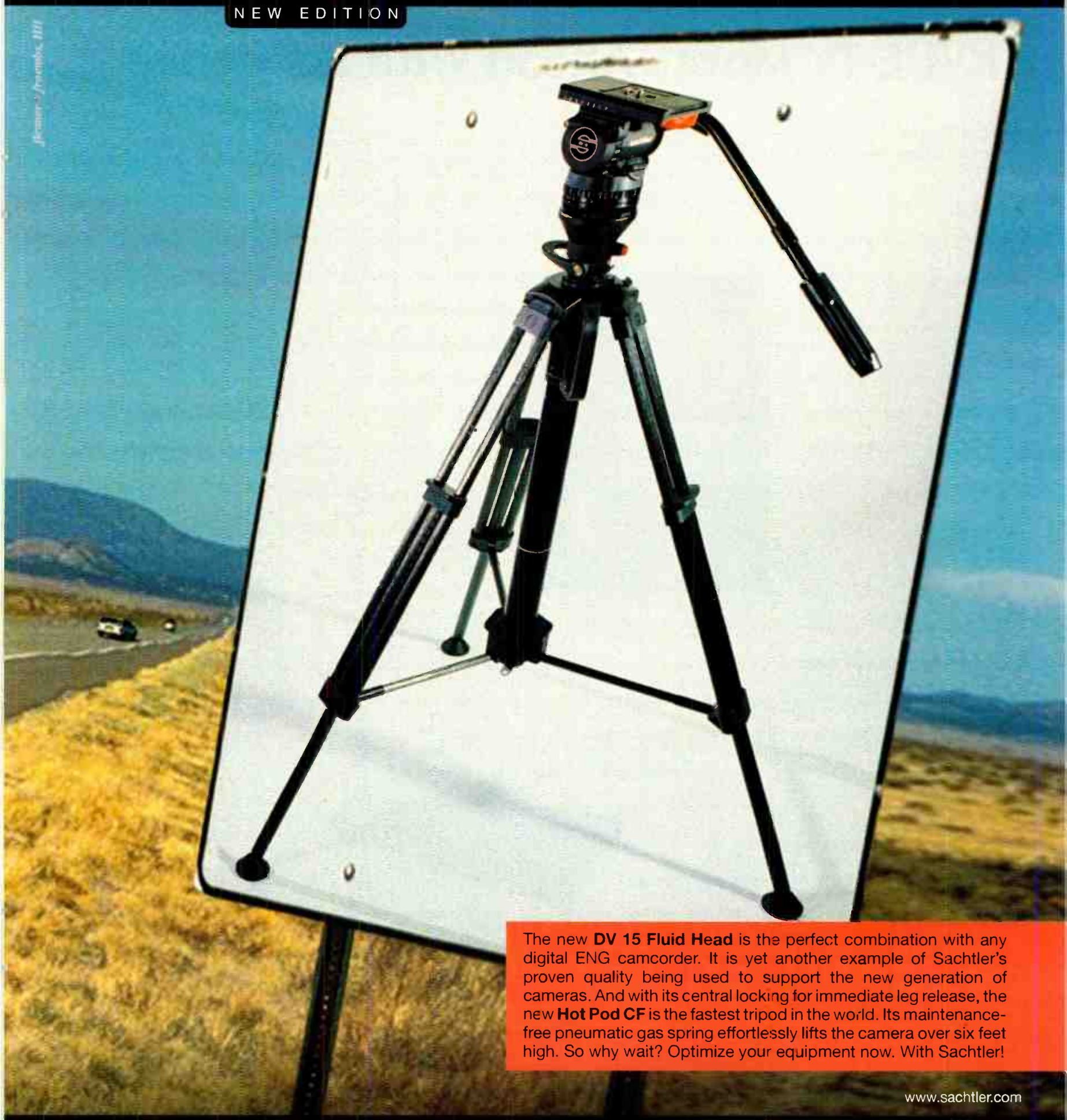

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USER REPORT

KVUE-TV Moves Ahead With Sundance

by Mike Wenglar
Director of Technology, Broadcast Media
KVUE-TV

AUSTIN, TEXAS

KVUE-TV, an ABC affiliate, is part of Belo Corp., one of the nation's largest media companies with 19 television stations and approximately 7,900 employees. Belo operates news and information franchises in some of America's major markets and regions, including Texas, the Northwest, the Southwest, Rhode Island and the Mid-Atlantic region. I've been with Belo's KVUE-TV in Austin, Texas since it went on the air in 1971.

When it came time to replace an aging and obsolete automation system, I welcomed Belo's decision to install the scalable Sundance Digital Titan. Sundance has given us a state-of-the-art, reliable solution capable of running with minimal operator intervention. Currently, all five Belo stations in Texas are up and running under Titan control, moving the group closer to the goal of retrofitting all Belo television stations with Sundance Digital automation.

MULTIPLE INSTALLATIONS

KVUE-TVs Titan package was installed in October 2004, about the same time installations were being done at our sister stations KENS-TV and KBEJ-TV in San Antonio, KHOU-TV in Houston, and WFAA-TV, the ABC affiliate for Dallas/Fort Worth. We all have nearly identical systems designed for an easy transition to central-casting in the event Belo decides to move in that direction. KVUE-TV's two-channel Titan currently runs one standard definition channel and broadcasts ABC's prime-time lineup in high definition.

Mike Wenglar put Sundance Digital automation online overnight at Austin's KVUE-TV.

Our SQL-based Sundance package includes TitanSync for redundancy, a feature that has significantly reduced the possibility of an on-air failure. Other modules provided were the company's Intelli-Sat Broadcast Manager for scheduling and recording our incoming satellite feeds and the Sundance DDMS (Digital Delivery Management System) module to facilitate hands-free integration of Pathfire-delivered content and metadata.

The actual automation installation was performed rather quickly, as it had been planned for months. Beck Associates, an Austin, Texas firm, did the integration.

SPEEDIER TRANSITION

Our automation transition was accelerated when our old spot player crashed and we found ourselves having to roll over to the new system in the early morning hours. Due to the fast conversion, training had to come later. There is something to be said about jumping into new technology with both feet. You sure learn more and you do it a lot faster! Operators quickly became familiar with the system, as Sundance trainers are experts in their field. In our case, this really paid off, as the old server was totally trashed and we had no choice. We were on the air with the Titan and all was well.

With Titan, our entire operation has been streamlined and we now have the system redundancy that we previously did not have. We eliminated several tape machines, as well as having a tighter on-air look and a protected database and server.

There never has been an issue with support from Sundance. They are busy, but never too busy to answer questions, no matter how trivial. They will have an answer for you 24/7. If there is a hardware failure, the replacement is on your front porch the next morning!

Mike Wenglar has been involved in Texas broadcasting since the 1960s. He was one of the first hires at KVUE-TV and became chief engineer in 1972. He now serves as director of technology, broadcast media. He may be reached at mwenglar@kvue.com.

For additional information, contact Sundance Digital at 972-444-8442 or visit www.sundancedigital.com.

BitCentral

CONTINUED FROM PAGE 42

Précis delivers other advantages too. Our producers and editors can now make cuts directly, instead of creating cut sheets that have to go to separate editors. Editors, producers, writers and photographers now use the same software for nonlinear editing.

Tape duplication is eliminated, since a video file can be simultaneously edited by anyone on the production staff. Video content can also be submitted remotely over a broadband wired or wireless connection, eliminating the manual process of preparing and feeding tapes into video decks.

For archiving, everything that goes to air is automatically archived by Précis and can be instantly retrieved. We can now store video on hard disks that are far cheaper than tape stock. Finally, maintenance costs have been reduced as the entire process is managed by one rack of nonproprietary industry standard servers. Maintenance and support of these servers is substantially less than for the videotape decks they replaced.

The move to a file-based workflow was a critical first step for a number of other projects that we want to implement in the future, but BitCentral and Précis have made this transition fast, easy, and complete.

Craig Porter has worked in San Francisco television since 1983 and has been chief engineer at KRON-TV for the past 10 years. He may be contacted at porter@kron.com.

For more information, contact BitCentral at 800-214-2828 or visit www.bitcentral.com.

USER REPORT

CPTV Launches New Facility With OmniBus

by Haig Papasian
Vice President of Operations and Engineering
CPTV

HARTFORD, CONN.

Connecticut Public Television reaches households across Connecticut through stations in Hartford, Fairfield County, Norwich and New Haven, as well as cable channel CPTV2. We recently completed a move from our old facility on the campus of Trinity College in Hartford to a renovated broadcast facility that houses both CPTV and Connecticut Public Radio. As part of this move, we worked with Ascent Media Systems & Technology Services to design and build a new infrastructure that would support our migration to digital broadcasting and HDTV.

It was clear that we would need to upgrade many of our broadcast systems to create this new technical infrastructure. In evaluating options for integrating up-to-date equipment, I found that I had two choices. I could either spend money replacing outdated systems with more recent releases from our known established vendors, or I could take a fresh look at the options afforded by the best-of-breed solutions on the market. For the most part, and somewhat to my surprise, I found that new technologies promised a much better return on my investment.

READY FOR PBS ACE

Although we started our new facility build-out prior to the launch of the PBS ACE system, we did base operations on the ACE model to ensure future compatibility. One of the items selected for our digital installation was the OmniBus automation system. It can control up to eight channels of play-out. We provide cable programming at all hours and deliver four terrestrial transmissions from 6:30 a.m. to midnight.

The transition to digital operations was largely about moving away from tape and, as a result, bringing greater efficiency to broadcast operations, along with a definite improvement in picture quality. The OmniBus Colossus automation system provided us with many of the tools to make this shift. The modular control components of Colossus interface with nearly every element of the media ingest, monitoring, play-out and management processes. System operators use a customized desktop interface to access and control media and data.

Haig Papasian implemented CPTV's OmniBus automation.

Colossus manages the ingest of material from tape into our Omneon server system. Eventually, it will interface with the PBS Next Generation Interconnect System for file-based transfer of program material.

A ProTrack traffic system interfaces with OmniBus automation to load schedule data, and to enable operation of the Miranda Presmaster and Imagestore master control and channel branding systems for logo and DVE insertion. Colossus also automates Omneon server play-out to air.

The flexibility we've realized with the digital transition is extreme. Sometimes flexibility can be a double-edged sword, as it presents many new opportunities and also introduces a host of variables in establishing new workflows. The OmniBus automation system has simplified our day-to-day operations and has provided a foundation for continued advances in managing media throughout our facility.

We're always fine-tuning our operations to achieve greater efficiency, and we expect it will support further streamlining in the transport of material from acquisition to broadcast.

Haig Papasian has been with CPTV for 12 years. He oversaw CPTV's relocation to a new digital facility. The opinions expressed are his own. He may be reached at hpapasian@cptv.org.

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

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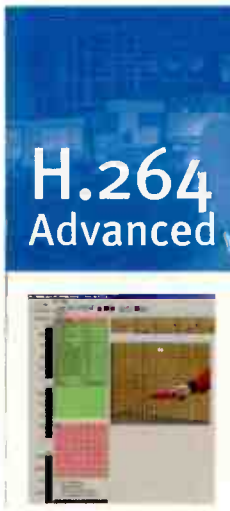

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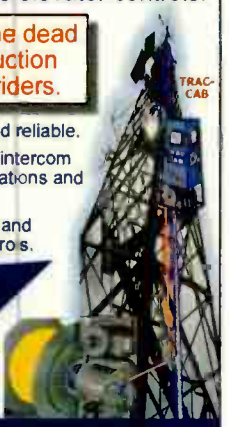

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NRB TECH LAB

No one brings together equipment manufacturers for side-by-side demonstrations like you will see in the NRB TECH LAB! The new NRB Technology Committee in partnership with noted systems integrator TV Magic brings you another year of Tech Lab with some great new features. Participate in three days of hands-on product demonstrations, industry specific labs, Q&A panel discussions with respected ministry leaders, plus get connected with other staff from some of the largest media ministries in the country.

See side-by-side comparisons of cameras, video editing suites, and other system components that will enhance your own facility and bring you up to par with today's demanding production requirements. From production to editing to new distribution models, discover what is new and how advances may enhance what you are offering and improve your position in ministry.

Reach 2006

Innovative Media Conference

An exciting new event that will co-locate with the annual NRB Convention. It's all about ENCOUNTER—bringing you face to face with the plans, projects, and people who are shaping the media world for the next generation. During an intense three days, we'll explore issues like culture change, innovation, production, international broadcasting, strategic thinking, perception, and developing media leaders for a post-modern culture.

A separate Reach 2006 registration is required. You can register at www.reachconference.org or add this to your Full NRB Conventio registration at a discount.

INNOVATION EXCHANGE

A problem solving dialogue

This is a hotbed of lively discussion and innovative thinking! The peer-led session features dozens of small groups meeting around a spectrum of topics relative to some of the most pressing issues facing communicators and ministry leaders. It's brainstorming with a capital B, and you don't want to miss it. Come with a situation, leave with a solution!

Schedule of Events

Thursday, February 16

7:00pm	**Reach 2006 Conference**

Friday, February 17

9:00am - 5:00pm	Reach 2006 Educational Sessions
9:00am - 9:30 pm	Women in Christian Media Conference

Saturday, February 18

9:00am - 2:30pm	**Boot Camps**
12:00pm	**Women's Luncheon**
3:00pm	iNRB Group Meeting / Mixer
4:00pm	iNRB Al Sanders Paper Presentation
4:00pm - 5:00pm	First-Timers Orientation
5:00pm - 6:30pm	Industry Awards Reception
7:00pm	**Opening General Session**
9:00pm	Receptions: Radio, TV, Church Media, International & HNRB

Sunday, February 19

9:30am	**Worship Service**
12:00pm - 6:00pm	**Exhibits Open**
12:00pm - 6:00pm	**NRB Tech Lab**
1:00pm	TV Program Showcase
3:00pm - 5:00pm	Job Fair
8:00pm - 10:00pm	**Aspire 2006**

Monday, February 20

9:00am - 6:00pm	Exhibits Open
9:00am - 6:00pm	**NRB Tech Lab**
9:00am - 10:15am	Educational Sessions
10:30am - 11:45am	Educational Sessions
12:00pm	**Innovation Exchange**
2:30pm - 3:45pm	Educational Sessions
4:00pm - 5:15pm	**Super Session**
6:00pm	Numerous Affiliate Events
7:00pm - 9:00pm	iNRB Student Awards Banquet

Tuesday, February 21

9:00am - 4:00pm	Exhibits Open
9:00am - 4:00pm	**NRB Tech Lab**
9:00am - 10:15am	Educational Sessions
10:30am - 11:45am	Educational Sessions
12:00pm	**Global Media Alliance Luncheon**
2:30pm - 3:45pm	Educational Sessions
4:00pm - 5:15pm	**Super Session**
7:00pm	**Banquet**

NRB Exposition

The Convention is only half of the attraction. NRB's award-winning Exposition is a vibrant marketplace of nearly 300 vendors. Browse 140,000 square feet of exhibit space and find the vital tools and services you need to expand your ministry.

BOOT CAMPS

Full Day Intensive Boot Camps

Have you ever attended a lecture and been frustrated because one hour is just not enough time to really understand a subject? Then NRB 2006 is the right place for you! Each year NRB hosts full day "Boot Camps" that dig deeply into the details of a subject that you need to know more about. Topics this year include

TV/Film: ***Beyond Hollywood: Independent Filmmaking from a Faith Perspective***

Church Media: ***Documentaries - Storytelling - Faith Testimonies***

Radio/CMB: ***Shaping Your Station's Image***

Internet: ***Extreme Makeover: Tips and Tools To Enhance Your Web Ministry***

Educational Sessions

All day Monday and Tuesday you will have over 40 educational sessions covering a wide spectrum of topics to sharpen your skills and knowledge in communications. Here is just a brief sampling of what we have in store for you:

- **Ten Things Before You Launch A Media Ministry**
- **The Power Of Pitching: Making Your Dream Their Dream**
- **Christian Radio – The True Alternative**
- **Before You Roll Tape – The Brains Behind the Camera**
- **PR Makeover: Using Creative Techniques to Increase Your Visibility**
- **Branding Your Identity For Broadcast**
- **Management Buckets: The 20 Key "Buckets" That Guarantee Organizational Success**
- **Radio: Spreading the Word Without Busting Your Budget**
- **THIS IS NOT A TEST! When Disaster Strikes Your Market**

For further details or to register, visit **www.nrb.org/conv** or call **703-330-7000**

Florical

CONTINUED FROM PAGE 35

installation," he said.

If there were a metric for gauging the relative success and acceptance of an automation provider, it would have to be the throughput in dollars of its combined user base. In the case of Florical, this amount totaled more than $2 billion in 2004.

The list of Florical customers includes CNN, NBC, Telemundo, Univision, EWTN, Total Living Network, NBN Australia, Media General and many of the Fox and ABC affiliated stations.

UNIQUE FEATURES

Unique to Florical automation is "JIP," an intelligent join-in-progress module, which provides not only a smooth transition from scheduled programming to an unscheduled news or other live event, but also provides a means for picking up commercials which would otherwise be lost when the unscheduled event concludes. Also exclusive to Florical's functionalities is a feature in its Media Timer module known as Traffic Assist. This allows automatic insertion of logos and bugs from traffic log entries.

Florical was acquired in June 2004 by RCS, a leader in the radio scheduling software industry. While Florical has long had clients outside of the United States, one of RCS's goals is to broaden its international television product international expansion. Tom Zarecki noted that currently, RCS has 23 offices in 19 countries on all continents, "with the exception of Antartica!"

While desiring to see Florical grow internationally, Powell said that the focus will continue to remain where it always has been—television broadcasting. "We are mindful that radio and television are very different industries."

Florical maintains development and customer service operations in Gainesville. Its sales and marketing headquarters are located in White Plains, N.Y. The company employs 25 people.

BUYERS BRIEF

H-Class Broadcast Presentation Manager and H-Class Media Ingest from **Harris Corp.** support evolving multi-service and multichannel broadcast delivery methodologies. The new modules supplement the company's H-Class Play-out Automation and H-Class Ingest systems. Created on an open platform to address rich-media enterprise broadcast workflow requirements, the combination will allow users to automatically process content for multiple format delivery.

The H-Class Solution provides close interfacing with traffic and scheduling systems and also allows users a great deal of flexibility in configuring individual systems. The new tools are tailored to work with the Harris H-Class Device Controller, and to provide scalability for network-based device control and management within the broadcast plant. The Media Ingest module provides flexibility for the user, as it can be configured to allow automatic ingest of some programming content, while holding up other content for an evaluation of appropriateness before ingest. The module also allows traffic systems to ensure that content is available for play-to-air.

For more information on H-Class, contact Harris Corp. at 408-990-8252 or visit www.harris.com.

USER REPORT

Comcast Chooses Compass by Newpoint

by Corey Warren
Engineering Manager
Comcast

LITTLETON, COLO.

In 2003, Comcast Media Center needed to replace aging SCO UNIX-based monitoring and control systems used to support two earth station facilities. These facilities have a variety of purposes and an extensive scope of operations.

The first faciliity, known as "Titan," serves as a full-time uplink facility for approximately 350 services. It has 25 uplink antennas for full-time traffic and another 15 downlink antennas. There are about 800 devices that must be monitored. The second facility is known as "Dry Creek." It typically has five to six uplink antennas in use and another 20 antennas involved in downlinking. There are approximately 400 devices to be monitored at this site. Both locations have control centers for monitoring all services.

The Newpoint Technologies Compass system was chosen as the next-generation network management system.

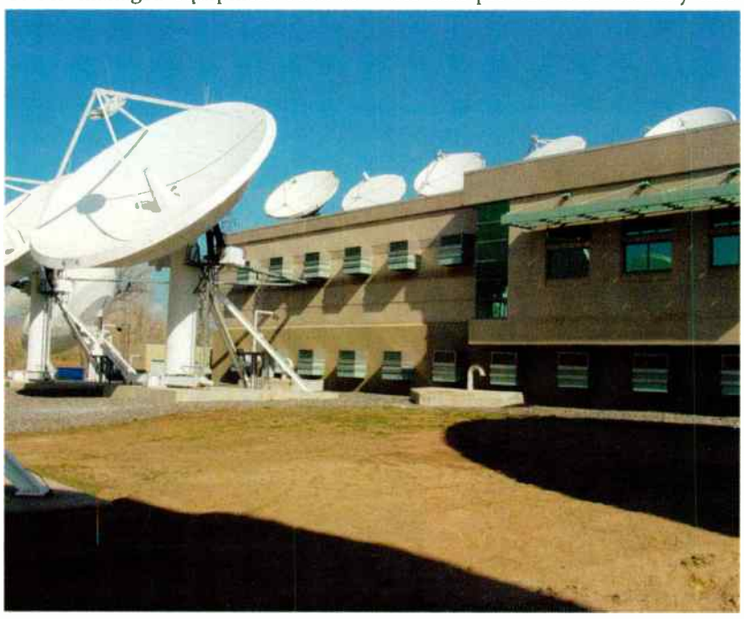
SOFTWARE PLATFORM

The Compass system provided our operation with a single software platform. It was the obvious choice for Comcast because of its ability to manage all types of hybrid networks while maintaining a distinct specialization for satellite uplink and downlink applications. Due to the size of our satellite and communications infrastructure, scalability was a tremendous concern. Newpoint has had a lot of success in deploying its system in large-scale mission-critical environments at places like the Federal Aviation Administration, and all of the major commercial satellite service providers.

Comcast needed to ensure that the new system could manage not only legacy contact closure and serial equipment, such as upconverters and downconverters, but also the SNMP-managed equipment such as data modems, encoders, and IP networking equipment. Our particular environment also required a more open architecture that would allow us to adapt and expand as our business evolves. These were the key factors that gave us the confidence that all of their system requirements could be addressed with the Newpoint Compass solution. All of our equipment has been seamlessly integrated into one system.

The Compass client user interface gives the operations staff access to the instant real-time alarm information needed to identify and correct system faults and restore outages as quickly as possible. Compass also provides enhanced logging capabilities that provide total visibility into what has been done in the operations environment within the last 30 seconds or the last 24 hours.

This provides insight into overall system performance and reliability. All of the real-time data is stored in a standard ODBC database and later leveraged for report and trending data. Having that data provides Comcast with custom reporting, which was severely lacking in the previous system.



Comcast replaced older monitoring and control systems at its Colorado facilities with Compass.

RACKSPACE GAINED

Another advantage of Compass is the elimination of hardware. Rackspace is at a premium here, and when all of the large front-end processor servers were replaced with the 2 RU Newpoint Mercury Element Managers, much needed rackspace was freed for other mission-critical equipment.

The Compass system has allowed Comcast to expand and maintain its system using in-house resources. We are able to add more nodes, services, and new equipment without outside involvement because of the intuitive administration and development tools in Compass.

Compass has become a critical software platform for our operation. It has given us the ability to perform critical analysis of alarm/event data and it has provided us the tools for proactive management of resources and data when service outages occur. As a result, Comcast has enjoyed an increase in mean time between failures and a decrease mean time to recovery. This ultimately helps Comcast ensure its revenue stream.

Corey Warren has been with Comcast for 15 years. For the past five years he has served as engineering manager for monitoring and control of uplink. He can be reached at corey_warren@cable.comcast.com.

For more information, contact Newpoint Technologies, Inc. at 603-898-1110, ext. 208 or visit www.

Ross

CONTINUED FROM PAGE 38

Their honesty and being upfront about feature feasibility was really appreciated. They never gave us any vaporware. Ross would not sell technologies that were not available or could not be further developed. We are a longtime Ross customer and had a high expectation that they would develop OverDrive as a solid product. We were not disappointed.

RIS broadcasts two headline 30 minute news loops in three blocks and runs live 10 hours a day. Currently, an A and B block rundown is prepared offline and then a technical operator alternates between each block in OverDrive.

The technician operating OverDrive is now the online producer of the show. While the A block is being run, another producer is creating the B rundown for the next block. The blocks are continually revised with up-to-date sports news. We try to update all content every 15 minutes and sometimes have only one minute to do so before going on-air.

The system gives us the option to operate manually, or with either partial or full automation at any time, which is very important to us.

At our facility, people were initially a bit skeptical about production control systems. However, after seeing the OverDrive system in operation, this skepticism was put to rest.

Training, commissioning and upgrade experiences with Ross have been excellent. Our window for software upgrades is tight. Ross respects this and works within our schedule.

We have been very satisfied with Ross products from our first experience many years ago and we are looking forward to the many new features planned for OverDrive.

With OverDrive, we found the rundown playlist more intuitive than other systems, as it follows the same workflow and integrates well with our newsroom control system. For non-newsroom applications, rundowns are easy to prepare offline and then append to an existing rundown. Another big OverDrive advantage is that it's easy to step in and out of automation at any time.

In summary, we needed efficient tools to launch our niche product. The business case to launch RIS in a traditional broadcast environment was not possible. For us, the clear choice was OverDrive. It is an extremely flexible and efficient production control system that has made an immense difference in our production abilities. It allowed us to launch RIS on time and on budget.

Richard Baril is director of operations and engineering at RIS, RDS and CFCF-TV. He may be contacted at rbaril@rds.ca.

For more information, contact Ross Video at 613 652-4886 or visit www.rossvideo.com.

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BUYERS BRIEFS

The **IBIS** Archive is a PC-based application that allows automatic or manual transfer of video clips from a server to an archival storage system. Archive uses the IBIS ServerBase Media Asset Management database to track content transferred to archiving. When transfers are performed, the associated metadata, including the tape number and the location of material on the tape, are logged into the Archive database, allowing easy search and retrieval. Archive provides for interfacing to both VTRs and XDCAM for cost-effective transfer of program material to physical storage media. Options are available to allow Archive to control such hardware devices as the Sony XDCart or Petasite. Other Archive options are available for managing and browsing archived material. Archive is compatible with a number of popular video file servers and videotape devices.

For more information, contact IBIS at 877-541-4247 or visit www.ibistv.com.

Enterprise V7.5 is a new software release from **Xytech Systems Corp.** for media asset management. It provides applications for managing transmission orders, job costing, scheduling, bidding and billing. Transmission facilities and network operations groups can provide price quotes and convert those to service orders with Enterprise. It also allows for selecting and scheduling resources necessary for requested services.

The software provides a real-time alert for anomalies that could interfere with delivery. Enterprise V7.5 also provides functionality for logging of metadata and for staff management.

The Enterprise Web Time Card tracks expenses and actual time worked. It also can create work orders for billing, and will track holidays and vacations.

For more information, contact Xytech Systems Corp. at 818-767-7400 or visit www.xytechsystems.com.

The **ON-AIR Systems** Windows-based automation product line includes playKast, Kapture, transKoder, infoKast and reKorder. The playKast package is a complete master control system for television and corporate broadcast. Kapture is an ingest system with remote IP control for scheduled recording of live feeds.

Automated media file format conversion and monitoring is provided by transKoder. The company's infoKast application delivers time sensitive data as graphic overlays for live or recorded video. Web streaming and video-on-demand functions can be performed with reKorder, which is a Windows media encoding system. Applications can range from a simple single-channel play-out system to a full-featured multichannel origination facility.

For additional information, contact ON-AIR Systems at 800-379-0809 or visit www.on-air-systems.com.

ScheduALL provides software solutions for complete resource scheduling and workflow management applications encountered in broadcasting, production and post production. It handles scheduling for assets, facilities and library management, personnel, rentals, shipping, billing, payments, and reporting. Provisions for inputting staff and freelancer expenses, equipment costs and other expenditures allow for a complete accounting of production costs.

Scheduling of activities is addressed with the program's multiple calendar views, which provide information on resource availability, bookings, shifts, vacation days for personnel, facility out-of-service days, and scheduled maintenance activities. Conflicts and double-bookings are flagged for all work areas. The program also can communicate with accounting, human resources and other operations departments.

For additional information, contact ScheduALL at 800-334-5083 or visit www.scheduall.com.

The STARS II+ traffic system from **Video Communications Inc.** enables broadcasters to more quickly assemble and edit operations logs and manage commercial inventories. The Windows-based software features a convenient graphical user interface and ODBC database support. STARS II+ provides up-to-the-minute sales inventory and sales projection reporting. It also offers online access to logs and invoices as well as providing the ability to perform "what-if" scenarios.

STARS II+ allows users to inspect and evaluate the current status of all clients. The program saves users the expense of pre-printed invoice forms, as it creates invoices on standard paper. Invoices can be customized to include station logos and custom payment information. Other features include program revenue reports, ASCAP/BMI information, historical data, sales commissions and more.

For additional information, contact Video Communications Inc. at 413-272-7200 or visit www.vcisolutions.com.

DaletPlus News Library from **Dalet Digital Media Systems** is a media asset management and archiving system designed for broadcast news. It integrates with existing newsroom computers and MOS-compliant news production systems to provide quick access to both low-resolution and broadcast quality library news footage.

DaletPlus News Library makes distribution of legacy content easier and can provide new revenue streams for broadcasters. It offers stations a better on-air look, as journalists and editors don't have to settle for the first clip they find. Users can perform searches from keywords, view material and make shot selections from any desktop computer or edit workstation within a facility. The system also can convert scripts into relevant metadata.

For additional information, contact Dalet Digital Media Systems at 212-825-3322 or visit www.dalet.com.

IBMS (Integrated Broadcast Management System) is an Oracle-based multichannel sales, traffic and program management tool from **Pilat Media**. It provides utilities for managing broadcasting business processes, including selling airtime and scheduling programs. The system can assist with sales campaign planning, proposals, bookings, traffic operations and billing.

System modules can be configured in groups to address individual business requirements and functionalities. IBMS allows users to access revenue and rating effects caused by schedule changes, and perform commercial inventory management. IBMS can also assist broadcasters with determination of rate structures by dynamically analyzing availabilities and sell-out situations.

For additional information, contact Pilat Media at 877-873-4267 or visit www.pilatmedia.com.

The MA-210 by Matco is a network-based automation system for scheduling and controlling a large number of ancillary devices such as video servers, VTRs, DVD devices, routers, character generators and GPI equipment. The system can be configured to control up to 20 playback channels simultaneously. It features an easy-to-read and modify "Event List Page." Changes are made via standard cut-and-paste techniques.

Existing traffic systems can provide event lists for the MA-210. A warning system for flagging possible scheduling conflicts is part of the product, as are network and serial communication fault indicators. The system provides tally outputs along with a number of GPIs for use in triggering of breaks.

For more information, contact Matco at 800-348-1843 or visit www.matcovideo.com.

EQUIPMENT EXCHANGE

Cameras • Camera Accessories • Receivers • Transmitters • Tapes • Carts • Reels • VCRs • VTRs • Tubes • Video Production Equipment • Help Wanted

TV Technology's Equipment Exchange provides a FREE listing service for all broadcast and pro-video end users. Brokers, dealers, manufacturers and other organizations who sell used equipment on an occasional basis can participate in the Equipment Exchange on a PAID basis. All free listings run at the discretion of the publisher. Call 1-703-998-7600 for details. Submit your free listings on your letterhead and state the make, model number, a brief description, sale price and complete contact information and mail it to: TV Technology, PO Box 1214, Falls Church VA 22041

ANTENNAS

Want to Sell

AUDIO PRODUCTION

Want to Sell

Bittree & ADC Audio and Video Patch Panels from $300; Stantron 45RU racks from $450; Mackie 1604 VLZ Pro, new, too low to quote; Mackie 1604 VLZ, used, $625; Mackie CR1604, used, $350; Tascam M-2600 MK II 16-Channel Mixer, $1,750; Sony MXP-390 Mixer, $1,000; Digidesign 888, $650; Sony PCM7040 DAT, $3,990; Crown D75 and D150 amps, low $$; DPS Stereo Audio Sync, $1,000; Panasonic SV-3700 DAT, $200; Panasonic SV-3800 DAT, $300; Alesis M1 Active Speakers, $295/pair; HHB Circle 5A Studio Monitors, pair, $950; Wohler Amp 1-A, $425; Wohler AMP-1A-VTR, $550; Wohler AMP-1AP, $325; Wohler Amp-1APF, $325; Wohler AMP-1APS, $325; Wohler MSH-8AL Audio Level Meter, $700; Wohler VMQ-4, $500; Audio Monitor Neumann U87 Ai Studio Microphone, $1495; AKG C 414 B ULS Microphone, $950. 818-788-4700 or 212-564-9933 or www.tvprogear.com.

CAMERAS

Want to Sell

Sony BetaCam SP-UVWB, 3 batts, chrgr, hard case & AC adapter, $2500. Glen, 208-735-1970 or 208-420-9779.

Sony DXC-D30 w/PVV-3 docking camcorder, $9500; Panasonic AJ-D700 DVCPRO Camcorder, $2495; (4) Panasonic AW-E750 2/3" 3-CCD convertible camera w/lens, $5950/ea; Sony DXC930 color video camera, $2995. 818-788-4700 or 212-564-9933 or www.tvprogear.com.

CAMERA ACCESSORIES

Want to Sell

Cartoni Beta Head & Single Stage Sticks, $1750; Sachtler Vario-Ped 2-75, $12500. 818-788-4700 or 212-564-9933 or www.tvprogear.com.

Broadcast Audio/Video Equipment Auction

Digibeta, Betacam SP, Cameras, Scopes, Monitors, TBC's, & DA's

Joseph Finn Co. Inc. will conduct an auction of over 2,000 pieces of broadcast equipment Wednesday, December 7, 2005 in New York City. All items will be sold by catalog from the Holiday Inn at 440 West 57th Street (between 9th & 10th). An inspection and equipment preview will be held at 540 West 36th Street, 7th floor, Monday, December 5 & Tuesday, December 6.

Visit www.josephfinn.com for more detailed information and an auction brochure. On-line auction held at www.bidspotter.com

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CAMERA ACCESSORIES Cont.

CERTIFICATION

EDITING EQUIPMENT

Want to Sell

Avid Adrenaline, new, $21500; Avid Symphony Version 3.5 on IBM Intellistation, $15500; Avid Adrenaline on Mac G5, BO. 818-788-4700 or 212-564-9933 or www.tvprogear.com.

LENS REPAIRS

LIGHTING

Want to Sell

Kobold HMI400 w/electronic ballasts, Chimera rings & hard cases, mint w/lamps, pair, $5000 + shpg. I Raider, 610-793-3000.

MICROWAVE/STL

Want to Sell

M/A-COM 7 GHz, 13 GHz and 23 GHz, broadcast-quality radios in-stock. Excellent for STLs. Refurbished, repaired, retuned, tested and warranted. Save thousands of dollars over new radios. Antennas and waveguide also available. 100% Customer satisfaction. Massachusetts Microwave (978) 635-1556. www.massmicrowave.com.

MONITORS

Want to Sell

Sony BVM 1910, $750/BO; Sony BVM 20E1U-DOM monitor w/20D & BKM 10R, $3500/BO. M Glaser, 631-236-7121.

Sony PVM1954Q, $1250; Sony PVM-20M4U, $1750; Sony PVM-20M2U, $1600; Sony PVM-1944, $1000; Sony PVM-1354Q, $600; Sony PVM-1351, $450; Sony PVM-14M4U, $1095; Sony PVM14L2, $1295; Sony PVM9L3, $900; Sony PVM8042Q, $400; Sony PVM8044Q, $500; Sony PVM8045Q, $700; Sony PVM5041Q, $450. 818-788-4700 or 212-564-9933 or www.tvprogear.com.

SIGNAL PROCESSING

Want to Sell

Grass Valley 8500 Chassie w/8520 Pulse DA & (3) 8511 widebank DA, 8500 pwr sply, $350/BO. M Glaser, 631-236-7121.

SIGNAL PROCESSING Cont.

Leitch FR-684 Dual PS 2RU Frame, $295; Leitch FR-884 Dual PS 2RU Frame, $295: Leitch Mix-7001 Multi-function digital frame, $400; Leitch 6804 Mounting Frame w/Pwr sply, $250; Leitch SPG-2602N Pulse Gen, $1,250; Grass Valley Series 8900 Frames w/redundant pwr sply, $600; GVG 8501 Video DA's, $125; GVG 8551 Audio DA's, $100; Sony BVX-D10/BVR-11, $3,990; Leitch DPS-290 Component TBC, $1,200; Leitch DPS-465 TBC/Digital Component Sync, $2,250; Leitch DPS-470 Digital Component AV Sync, $2,990; Leitch DPS-575 Digital Processing Sync, $4,750. 818-788-4700 or 212-564-9933 or www.tvprogear.com.

SWITCHERS

Want to Sell

Videotek Prodigy Component Switcher, $2995; Videotek RS-12DVA SDI Routing Switcher, $600; Miranda Digipath 16x16 SDI Router (w/remote panel), $3,500; Leitch 4x4 MB Routers, $175; GVG Ten X, $600; Kramer 5X4 A/V Switchers, new, $475. 818-788-4700 or 212-564-9933 or www.tvprogear.com.

TELEPROMPTERS

TEST EQUIPMENT

Want to Sell

Leader LV-5100D Component Digital Waveform, $3990; Videotek TVM-821D SDI Waveform/Vector, $3,295; Tektronix WFM601M SDI Waveform, $5,500; Tektronix WFM601i SDI Waveform, $5000; Tektronix WFM601 SDI Waveform, $3,990: Tektronix 1750 wfm/vec, $2250; Tektronix 1765 NTSC/PAL Wfm/vec, $3450; Tektronix 1730D SDI vector, $2000; Tektronix 764 Digital Audio Monitor, $1500; Tektronix 760a Audio Monitor, $1000; Videotek VTM-100 On Screen Monitor, $1,850. 818-788-4700 or 212-564-9933or www.tvprogear.com.

Tektronix TG2000 signal generation platform, BG1 (slot 2) burst generator module, AGL1 (slot 3) analog genlock module, HDVG1 (slot 4) digital HDTV generator, AWVG1 (slot 2) analog wideband video generator, DVG1 (slot 8) digital video generator, AVG1 (slot 9) analog video generator, GP1 (slot 10) GPIB interface, $30000/BO; Leitch FR-6801 4 module digital DA frame, DEC 6801 composite decoder, VCM 6801 serial comp dist amp, ADC 6801 analog to digital converter, VSM 6804 serial monitoring dist amp, $2100/BO. M Glaser, 631-236-7121.

TRANSMITTERS/ EXCITERS

Want to Sell

TRANSMITTERS-Used transmitters from Harris, Acrodyne, RCA, Emcee, TTC. Antennas, microwave, feedline, etc. See transmitterwarehouse.com or call 954-792-7207.

VTRs/VCRs/ RECORDING MEDIA

Want to Sell

Sony UVW-1800 BetacamSP, $4950; Sony PVW-2800 BetacamSP, $5000; Sony BVW-70 from $5000; DSR-1500A, new, $5150; Sony DSR-45, new, $3895; Sony VO 9850 w/timecode, $1200; Sony VO 9800 w/timecode, $1000. 818-788-4700 or 212-564-9933 or www.tvprogear.com.

EMPLOYMENT

HELP WANTED

Chief Engineer * Tired of long cold winters? Want to avoid another winter in the Northeast? * WTKR-TV, a member of the NYT Broadcast Group is looking for a sharp Chief Engineer. Responsibilities include supervision of our engineering maintenance staff and maintenance of electronic broadcast equipment. Requires a minimum of ten years experience in the television broadcast field managing a professional staff. Must be knowledgeable in video, audio, computers and servers. Oversee and maintain both Analog and Digital RF transmitter systems. SBC Cert. A plus. Additionally we are actively recruiting a Maintenance Engineer. Send resumes to: Human Resources, WTKR-TV, 720 Boush Street, Norfolk, Virginia 23510 or email: HR@wtkr.com EOE.

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20	Burk Technology	www.burk.com
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Cisco Snaps Up Scientific-Atlanta

SAN JOSE, CALIF. & LAWRENCEVILLE, GA.

The IT world took one step closer to converging with broadcast with last month's announcement that networking equipment giant Cisco Systems is acquiring Scientific-Atlanta for $6.9 billion.

Cisco will pay $43 per share in cash in exchange for each share of S-A, and assume outstanding options. S-A, along with Motorola, are the two largest suppliers of set-top-boxes to the cable market.

Both companies agreed that the acquisition marks the beginning of a business plan to deliver integrated solutions so that customers have fewer vendors and easier implementation of new technologies.

"Video entertainment is becoming increasingly digital and on demand, with rapid global adoption of high-definition television and digital video recording driving the migration to IP-centric platforms," said John Chambers, president and CEO of Cisco Systems.

"The markets we serve have been changing rapidly and we believe the rate of change will accelerate," said S-A CEO Jim McDonald. "Technology advances will make new products available, our customers' markets will consolidate and the bundling of many services including video will become increasingly important to our customers."

When the deal closes, S-A will become a division of Cisco's Routing and Server Technology group lead by Mike Volpi, Cisco senior vice president.

S-A, founded in 1951, has 7,500 employees. For FY2005, which ended July 1, 2005, the company reported revenues of $1.91 billion.

S-A's customer list includes Time Warner Inc.'s cable unit, Cablevision Systems Inc., Comcast Corp and SBC.

Tektronix Buys Vqual

BEAVERTON, ORE. & BRISTOL, ENGLAND

Tektronix has acquired Vqual, a U.K.-based provider of gear for analysis, test and optimization of compressed digital content.

The $7 million deal will combine the compressed video analysis technology of Vqual with Tektronix' transport stream and baseband technology. Vqual, a three-year-old company, recently unveiled its automated content analysis system for file-based, MPEG compressed video for clients through the broadcast chain.

"For more than a year, Vqual and Tektronix have had a successful relationship providing technology and expertise to thoroughly test compressed video quality," said Todd Biddle, vice president, Tektronix video product line.

Under the terms of the deal, Tektronix will absorb the 14 employees currently working for Vqual.

Network Electronics to Sell T-VIPS Products

SANDEFJORD & OSLO, NORWAY

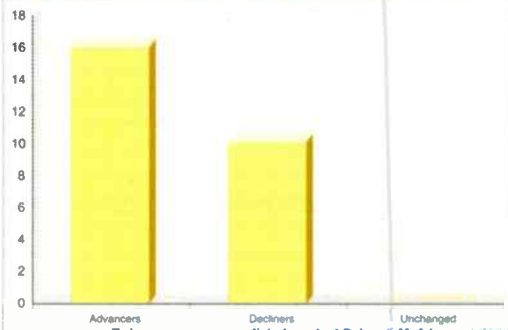
Network Electronics and T-VIPS have signed a deal to allow Network to sell T-VIPS products under its Network label.

T-VIPS, based in Oslo, Norway, provides products for contribution and distribution of professional VoIP.

Network Electronics manufactures a variety of television infrastructure products, including routing switchers, distribution amplifiers, fiber optic systems and signal processing equipment.

Network Electronics will sell modified versions of the T-VIPS products, with its label and software worldwide through its offices and distributors, including those in the U.S.

WIN-LOSE RATIO



TOP ADVANCERS BROADCAST STOCKS
(Nov. 4 - Nov. 18)

SeaChange	+ 29.23%
Ciprico	+ 12.83%

TOP DECLINERS BROADCAST STOCKS
(Nov. 4 - Nov. 18)

LSI Logic	- 5.23%

TOP ADVANCERS TV STOCKS
(Nov. 4 - Nov. 18)

Paxson	+ 126.83%
Nexstar	+ 5.06%

TOP DECLINERS TV STOCKS
(Nov. 4 - Nov. 18)

Young	- 8.73%
Fisher	- 7.72%

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

TV Tech STOCKS as of November 18

Company Name	52-Week Range	November 4	November 18	% Change
Avid	35.78 - 68.35	51.04	51.24	0.39%
Belden	17.65 - 24.59	20.3	22.1	8.87%
Ciprico	3.70 - 5.00	4.2	4.72	12.38%
Harmonic	4.08 - 12.40	4.6	5.12	11.30%
Harris	26.94 - 45.68	42	43.75	4.17%
LSI Logic	4.92 - 10.75	8.41	7.97	-5.23%
Sci. Atlanta	26.73 - 41.90	38.13	42.15	10.54%
SeaChange	5.07 - 18.68	5.85	7.56	29.23%
Tektronix	20.97 - 33.43	23.84	25.44	6.71%

Broadcast STOCKS as of November 18

Company Name	52-Week Range	November 4	November 18	% Change
Acme	3.30 - 7.45	4	4.17	4.25%
Belo	20.74 - 26.45	23.01	22.09	-4.00%
Emmis	15.29 - 24.49	19.85	19.67	-0.91%
Entravision	7.14 - 9.50	7.94	7.65	-3.65%
Fisher	42.56 - 52.60	49.23	45.43	-7.72%
Gray	8.83 - 15.74	9.59	8.9	-7.19%
Hearst Argyle	23.15 - 26.48	24.12	23.74	-1.58%
Nexstar	4.09 - 9.56	4.15	4.36	5.06%
Lin TV	11.96 - 19.70	13.16	12.88	-2.13%
Paxson	0.37 - 2.15	0.41	0.93	126.83%
Sinclair	6.60 - 9.75	8.98	9	0.22%
Liberty	34.32 - 48.05	46.52	46.6	0.17%
Univision	23.52 - 30.97	28.42	28.72	1.06%
Young	2.33 - 11.32	2.52	2.3	-8.73%
Tribune	30.64 - 43.95	32.52	32.64	0.37%
Meredith	44.51 - 54.57	50.81	50.17	-1.26%
EW Scripps	44.73 - 52.91	46.43	46.7	0.58%

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A world of possibilities is well within reach. From content creation to viewer consumption, surround yourself with Harris' full spectrum of enterprise-wide solutions. Now deliver the right content to the right person on the right device at the right time. Our latest breakthroughs include the new H-Class™ content delivery platform, 5.1 surround sound and transmission systems for mobile video. No matter where you turn, Harris' mission-critical solutions and unparalleled customer support have you covered from every angle.

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